

Marine Products Catalogue



World-leading maritime solutions provider

As a world-leading maritime solutions provider, Wilhelmsen Ships Service provides marine products, essential consumables, and services for all vessel types. We offer our customers an extensive range of marine products under trusted brand names, including Unitor™, Nalfleet™, Timm™, Unicool™ and Navadan™.

By constantly developing new solutions for our customers, we are shaping maritime for the future. We are actively working to use our maritime expertise to create greater value and deliver unparalleled customer experience.



More than 1 000
marine professionals



Over 200 000
deliveries per year



More than 50%
of global merchant
fleet as customers



Available in more than 2 200
ports



For more information, you can browse the pages in this product catalogue or navigate our online catalogue at wilhelmsen.com/product-catalogue/

Learn more about our comprehensive range of marine product solutions.



Cleaning

Specialized formulations designed to tackle the toughest challenges from various surfaces to deliver optimal performance and operational safety.

Gas & Cylinders

Safe and quality gas supply supported by a global network for the distribution, re-filling, maintenance and exchange of Unitor™ gas cylinders.



Refrigeration

A comprehensive portfolio of refrigeration solutions, ranging from high-quality refrigerants to maintenance equipment and spares, aimed at keeping your systems working.

Welding & Repair

Elevating maritime safety with superior welding and repair solutions.



Tank & Hold Cleaning

An expanded range of tank and hold cleaning solutions launched under the new brand Navadan™ by Wilhelmsen to keep your vessel and crew moving faster than ever.

Mooring

Comprehensive and compliant mooring solution, including certified SBA ropes, digital tools and expert support, to ensure safety and reliability at sea.



Energy

Quality fuel oil test and treat solutions that enhance engine efficiency, improve fuel quality and reduce sludge and emissions.

Water

Comprehensive water testing and treatment solutions for effective water management that helps to protect and extend the life of assets onboard your vessel.



Speciality Marine Lubricants

High-performance speciality marine lubricants and technical experts to prolong the lifespan of components and equipment onboard.

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CLEANING CHEMICALS



Our comprehensive cleaning solutions are strategically formulated to meet the diverse demands of vessels, spanning galley, accommodation, and maintenance areas. Beyond the ordinary cleanliness, our cleaning solutions embody a commitment to compliance and safety standards that contribute to the overall efficiency of maritime operations. Chemically engineered with advance formulations, each product is created to deliver optimal results that last longer on surfaces and in systems to meet meticulous maintenance routines and consciousness to sustained impact on the environment. Backed by years of maritime expertise, the cleaning solutions are formulated with a deep understanding of vessel dynamics and the unique challenges of the maritime industry.



Aligned with rigorous maritime industry standards



Longer lasting chemical reactions



Cost efficient

Browse this section to discover the benefits of our Cleaning Chemicals range.

Scan or click on the QR code for more information.



GAMAZYME TDS

Unitor™ Gamazyme™ Toilet Descaler is used for descaling toilet bowls, toilet systems, drains and pipes.

One 5 kg carton contains 100 sachets of 50 grams.



Product Information

Unitor™ Gamazyme™ Toilet Descaler is based on weak acids, bacterial strains and enzymes formulated to dissolve organic materials, uric acid and scale. It is packed in 50 gram water soluble sachets. Acts immediately due to its chemical composition. Secondary action due to its micro-organisms capable of digesting fat, grease and oil found in toilets, drains and pipes. No need for dismantling of drains and pipes when used either on a preventative or on a regular service basis.

Features

- Biological powder descaler
- Formulation based on weak acids, bacterial strains and enzymes

Benefits

- Removes uric acid and deposits
- Descales both inorganic and organic material
- Immediate action due to its chemical composition
- Digests fat, grease, and oil in toilets, drains and pipes
- Descales toilet bowls, toilet systems, drain and pipes
- Leaves a fresh smell

Product Number	Product Name
743146	Gamazyme TDS 5 kg Blue Sach w/ Mint

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light blue
Density [g/ml]	1.0 - 1.1
Form	Powder in solupacs
pH	1.4 in 1% solution

Part of a Pack

779194	Biomax pack
In the pack	
Gamazyme 700 FN	12 kg
Gamazyme DPC	8 kg
Gamazyme BTC	24 Ltr
Gamazyme TDS	20 kg

Directions for Use

Descaling of Toilet Bowl:

1. Add 50 grams (one sachet) to each toilet once a week as a minimum.
2. Let sachet stand for 1 min. for complete dissolution.
3. Brush the bowl and flush water into the toilet.
4. Repeat the treatment if necessary.

Descaling of Drain, Pipes, Toilet Circuits

1. To remove scale in drain, pipes and toilet circuits add 50 grams (one sachet) to each toilet twice a week as a minimum.

Store in a dry, well-ventilated area protected from frost and heat. Keep opened boxes sealed from ambient air and use up first.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAMAZYME BTC

Unitor™ Gamazyme™ BTC is a unique biological active liquid formulation containing specialised bacterial strains, biodegradable low foaming chemical cleaners and anti-foam agents.



Product Information

Unitor™ Gamazyme™ Biological Toilet Cleaner is specifically formulated to replace aggressive, toxic toilet cleaners that can disable the sewage treatment plant by killing the naturally occurring bacteria which are essential to its operation. Conventional toilet cleaners may also cause foaming in the vacuum inductor which destroys the vacuum in the sanitary flushing system.

Unitor™ Gamazyme™ BTC effectively cleans the toilets, dosing millions of selected safe bacteria into the sanitary system. These powerful specialised bacteria colonise the organic waste lining the pipe system and remove the organic deposit. On draining to the sewage treatment plant, the bacteria will enhance the biological activity, reducing solids and odours.

Grease, fats, starch and other organic compounds are digested by Unitor™ Gamazyme™ BTC. The degradation of paper, protein, waste product residuals and other odorous materials is also enhanced.

Unitor™ Gamazyme™ BTC cleans more thoroughly and deeply compared to conventional cleaning products. The use of cleaning products containing hazardous chemicals such as acids, caustics, bleaches, disinfectants, etc., can be reduced.

Features

- Biodegradable
- Suitable for use in all marine sanitary and sewage treatment systems
- Safe, no special handling requirements
- Replaces conventional cleaners potentially harmful to the biological sewage system

Benefits

- Cleans toilets, sinks, showers, etc.
- Digests faeces, grease, fat, starch and other solid waste materials
- Removes obnoxious odours from the sanitary system
- Easy to use

Product Number	Product Name
589945	Gamazyme BTC 12 x 1 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Density [g/ml]	1.0
Form	Liquid
pH	9

Part of a Pack

779194	Biomax pack
In the pack	
Gamazyme 700 FN	12 kg
Gamazyme DPC	8 kg
Gamazyme BTC	24 Ltr
Gamazyme TDS	20 kg

Directions for Use

Use Gamazyme BTC daily as a normal toilet cleaner. Lift up seat, open the bottle and direct nozzle downwards. Squeeze and direct the jet to adequately cover the surface of the toilet bowl. After some minutes scrub vigorously with a toilet brush and flush with water.

For removal of water scale, uric acid and rust stains, use Gamazyme Toilet Descaler. See product data sheet.

For heavy soil pipes dose Gamazyme DPC to initiate the cleaning process and continue with Gamazyme BTC. See also product data sheet for Gamazyme DPC.

The use of toilet cleaners containing toxic ingredients as acids, disinfectants, bleaches, etc., will have a detrimental effect on the biological activity and should not be used with Gamazyme BTC.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAMAZYME DPC

Unitor™ Gamazyme™ DPC is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes. It is packed as water soluble sachets (Solupac).



Product Information

Unitor™ Gamazyme™ DPC is formulated to degrade excess residual organic waste products causing blockage, or slow draining in sinks, showers, scuppers, drains, etc. The specialised bacterial strains and enzymes in Unitor™ Gamazyme™ DPC will digest grease, fats, starch and other organic compounds.

The bacteria in Unitor™ Gamazyme™ DPC will colonise the waste soil, which lines the pipe work system, and degrade the waste all the way down to carbon dioxide and water, until the system is clean. On draining to the holding tank or sewage treatment plant, Unitor™ Gamazyme™ DPC will greatly enhance the biological activity breaking down solids and removing obnoxious odours which can vent back through the systems.

Features

- Powder biological formulation for easy use
- Biodegradable
- Overcomes potential safety problems associated with the use of toxic cleaning chemicals

Benefits

- Clears pipes and systems blocked by organic waste residuals
- Eliminates obnoxious odours from soiled pipe lines
- Cleans fouled pipes and systems, particularly long horizontal runs
- Keeps holding tank organic waste liquid pumpable and odour free
- Cost effective, saves the time, money and manpower of plumbing operations to clear blocked pipe work

Product Number	Product Name
587055	Gamazyme DPC 4.0 kg

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Tan
Form	Saw dust like powder in sealed solupacs (18 x 230 grams sachets in 4 kg drum)

Part of a Pack

779194	Biomax pack
In the pack	
Gamazyme 700 FN	12 kg
Gamazyme DPC	8 kg
Gamazyme BTC	24 Ltr
Gamazyme TDS	20 kg

Directions for Use

Pipe Cleaning

prepared by adding one solupac to 10 litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) for the bacteria to activate. Initial doses of 0.5 litres of this solution should be applied into sinks, scuppers, drains, waste food disposal units, etc. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Before plumbing work for pipe modification or retrofits, pipes can be cleaned by isolating the system and filling pipes with the solution for up to 48 hours before draining. If necessary, further applications should be made until drains run clean.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Holding Tanks

Organic wastes can be kept liquid and pumpable. Tanks can be cleaned without manual entry and without the use of harsh toxic cleaning chemicals.

Prepare a solution of one solupac to ten litres of hand hot (35°C) fresh water and left for 15 minutes (stirring periodically) before dosing into the holding tank once or twice a week. The dose rates should be approximately one solupac per 1000 litre waste in the tank. Tank cleaning should be carried out using Unitor™ Gamazyme 700FN.

NOTE: Severely scaled systems should be acid cleaned.

GAMAZYME FC

Unitor™ Gamazyme™ FC a technologically advanced floor care product that provides deep & effective cleaning through microbial activity.



Product Information

Unitor™ Gamazyme™ FC is based on patented fatty acid degrading bacteria strains & biodegradable surfactants. Regular use of Unitor™ Gamazyme™ FC improves safety and hygiene in galley areas.

Unitor™ Gamazyme™ FC is a unique floor care product that degrades and eliminates accumulated grease and other organic materials. Patented fatty acid degrading bacteria strains produce enzymes specific for the breakdown of the harder to degrade fatty acid components of oils and fats used in galley area. Excellent cleaning properties eliminate grease from floor surfaces resulting in reduced slippage and improved safety. Ingredients in Unitor™ Gamazyme™ FC enable it to penetrate and clean embedded residual organics left in pores, cracks, corners, crevices and microscopic pores in floor surfaces. Regularly use of Unitor™ Gamazyme™ FC will eliminate odors that attract insects; the residual organics that they feed on will be eliminated.

Features

- Excellent in-depth cleaning properties
- Contains specialized patented bacterial strains forming enzymes that break down fatty acid components of grease
- Safe to use on all surfaces
- Environmentally friendly

Benefits

- Reduced slippage and improved safety conditions in galley area
- Penetrates porous floor surfaces to degrade accumulated grease and other organic materials
- Eliminates odours that attract insects; the residual organics that feed them are eliminated
- Friendly bacterial strains replace pathogenic bacteria for improved hygiene
- Results in a fresher smelling galley area

Product Number	Product Name
659391	Gamazyme FC 4x5Ltr.

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Brown
Density [g/ml]	1.0
Form	Liquid
pH	8 - 9.5

Directions for Use

Mix 50 - 100 ml Unitor™ Gamazyme FC to 5ltr of warm fresh water, depending on the surface and amount of deposits to clean.

Use a mop or sponge to clean the surface and let it stand. Rinsing is not required.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAMAZYME 700FN

Unitor™ Gamazyme™ 700FN is a concentrated biologically active powder formulation containing a blend of patented bacterial strains, specifically developed to deal with sewage wastes.

Product Information

Unitor™ Gamazyme™ 700FN is formulated to degrade excess residual waste products in shipboard sanitation pipe work systems, holding tanks and marine sewage treatment plants. The specialised strains in Unitor™ Gamazyme™ 700FN will digest grease, fats, sewage, starch and other organic compounds. The degradation of paper, protein and waste product residuals is greatly increased, and the odours that these produce, are reduced.



The bacteria in Unitor™ Gamazyme™ 700FN will colonise the waste organic material which lines the pipework/tank system and degrade the waste until the system is clean. The biological activity in the marine sewage treatment plant is greatly increased, so the plant can thus handle more waste. The obnoxious smells in toilet areas and scuppers, normally associated with overloaded or blocked systems, are reduced.

Features

- Powder formulation for easy use
- Biodegradable
- Reactivates biological activity in systems which have been rendered inactive by overloading, washout or use of aggressive cleaning products
- Eliminates the need for hazardous chemicals
- Cost-effective, saves time, money and manpower

Benefits

- Eliminates the odours associated with sanitary systems which are overloaded or blocked
- Cleans sewage holding tanks without the need for manual entry
- Clears pipes and systems blocked by organic waste matter
- Clears organic materials in slow draining pipes and scuppers
- Restarts septic sewage treatment plant
- Keeps complete sanitary systems in optimum operational condition

Product Number

571711

Product Name

Gamazyme 700FN 12 kg

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Tan brown
Form	Saw dust like powder

Part of a Pack

779194	Biomax pack
In the pack	
Gamazyme 700 FN	12 kg
Gamazyme DPC	8 kg
Gamazyme BTC	24 Ltr
Gamazyme TDS	20 kg

Directions for Use

Dosing method

Sewage Treatment Plant

Direct dosing to the sewage treatment plant or via the nearest toilet will greatly enhance the biological activity and keep the plant at peak operating efficiency.

Dosing method

Sewage Treatment Plant

Direct dosing to the sewage treatment plant or via the nearest toilet will greatly enhance the biological activity and keep the plant at peak operating efficiency.

A) On ships except passenger vessels

Ineffective or septic sewage treatment can be reactivated and maintained in peak operating efficiency by dosing Unitor™ Gamazyme™ 700FN direct in the tank or via the nearest toilet. To reactivate the plant, 1kg Unitor™ Gamazyme™ 700FN should be mixed with 10-15 litres of hand hot (35°C) fresh water, left for 10-15 minutes (stirring periodically) for the bacteria to activate before dosing into the tank daily until the system is operating efficiently. Maintenance dosing of 0.1-0.25kg weekly will keep the system operating effectively. Replacing the toilet cleaner in use by Unitor™ Gamazyme™ BTC (biological toilet cleaner) will dose millions of specialised bacteria into the system. These powerful bacteria will digest organic material lining the pipes and boost the bacterial activity in the sewage treatment plant, keeping it operating at peak efficiency.

B) On Passenger Vessels

The applications is the same as mentioned above, but the dose rates are different.

The dose rate depends on the number of people on board the vessel. As a rule of thumb use 50 gram per m³ of the volume of the sewage tank. Then a weekly dosage of 10 gram per m³ of the volume of the sewage tank.

An example of a cruise vessel with a sewage tank on 100 m³ and 2500 people and on a two weeks cruise. What is the consumption of Unitor™ Gamazyme™ 700FN?

Initial dosage: (50 g/m³ x 100 m³):1000 = 5kg Weekly dosage: (10 g/m³ x 100 m³):1000 x 2 weeks = 2kg On this cruise, will be used. 7kg of Unitor™ Gamazyme™ 700FN

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

C) Tank Cleaning

Holding tanks can be cleaned periodically or prior to entry without the use of dangerous toxic chemicals.

Grey and black water holding tanks, sewage tanks, sewage treatment plant should be flooded and pumped empty to clear excess soil before cleaning. Holding tanks must be fitted with an air manifold connected to a low pressure air line of sufficient volume to gently turn the mass of water within the tank. In sewage treatment tanks the normal air supply will suffice. The tank should be filled to 75% capacity with fresh or sea water and the air supply turned on. Approximately 0.5kg of Unitor™ Gamazyme™ 700FN in 5 to 10 litres of fresh hand hot (35°C) water should be mixed and left for 10-15 minutes before dosing into the tank. Dosing can be either direct or via the nearest toilet. The tank should then be filled and left with the air on for at least 48 hours. The dose rate should be approximately 0.5kg per 500 litres tank capacity with a minimum dose of 5kg. Although Unitor™ Gamazyme™ 700FN is formulated for use in cold (15°C minimum) sea water, performance will improve with lukewarm (35°C) fresh water or sea water.

D) Pipe Cleaning

Maintenance dosing will keep galley and sewage pipes clean and clear of organic residual wastes.

A liquid solution should be prepared by mixing of 0.5kg of Unitor™ Gamazyme™ 700FN in 15 to 20 litres of hand hot (35°C) fresh water. Stir it and, if possible, leave for 15 minutes to reactivate the bacteria. Whilst constantly agitating this solution, 1 litre should be dosed into sinks, scuppers, showers, drains, waste disposal units, etc. each evening until the blockage is cleared. A maintenance dose once or twice a week can then be applied to keep the pipes in clean condition. Harsh toxic cleaners (acids, caustics, disinfectants) should not be used as these will kill off the bacterial action in the pipes. Alternatively, the pipes should be isolated and filled with the solution and left for up to 48 hours before draining. If necessary, further applications should be made until drains run clear.

NOTE: Severly scaled systems should be acid cleaned.

GAMAZYME MSC

Unitor™ Gamazyme™ MSC is a unique biologically active liquid formulation containing specialised bacterial strains and biodegradable chemical cleaners.

Product Information

On soft surfaces such as carpet, Unitor™ Gamazyme™ MSC is formulated to spot clean and deodorise the surface by digesting organic substances over time.

Three way action:

Chemical cleaning action by removing solids from surfaces.

Immediate odour control by fragrance masking.

Deep cleaning from biological action for removal of residual organic.



Unitor™ Gamazyme™ MSC is effective in cleaning or removing organic residues from hard and soft surfaces, such as urine, dog faeces, food, milk, chocolate syrup, tomato sauce, etc.

Features

- Unique liquid biological formulation for easy use
- Biodegradable
- A unique technology to remove odours on surfaces and especially on carpets
- Safe, no special handling requirements

Benefits

- Replaces harsh cleaners which often require haz-chem labelling and may be hazardous to the user and the environment
- Spot cleaning of carpets
- Cleans sinks, showers, decks, tiles and bathrooms
- Removes obnoxious odours from drains and scuppers

Product Number

587618

Product Name

Gamazyme MSC 12X1 Ltr

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Density [g/ml]

1.0

Form

Liquid

pH

9

Directions for Use

Carpets:

To remove stains of food and other organic wastes: After taking away the solids, spray the carpet with Unitor™ Gamazyme™ MSC neat, use a wet sponge to brush, scrub and humidify the surface. Let it stand overnight, if possible, then vacuum. The bacterial action will digest deep down soil and stains and remove unpleasant odours. Repeat the operation if necessary.

deposition, for cleaning decks, showers, floors, sinks, tiled areas, etc.

b) For carpet machine: To deodorise a large surface use the product as a normal carpet cleaner in carpet shampoo equipment diluted 1:10 with water. For odour control on these surfaces spray diluted 1:2 with hand hot water. Wait as long as possible and rinse.

c) Pipe cleaning and deodorising: A nightly squirt into galley and bathroom sinks will keep drain pipes clean and clear of organic residual wastes and overcome unpleasant drain odours.

Hard surfaces:

a) Accommodation and general cleaning: Use from 50 ml up to 500 ml to half a bucket of hand hot water, depending on the surface to clean and the

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAMAZYME DIGESTOR

UnitorTM GamazymeTM Digestor is a patented formulation containing a synergistic blend of highly specialised bacteria. The mix of micro-organisms in this product increases organic degradation performance.



Product Information

Utilising active enzymes to eat through biological and organic waste products, UnitorTM GamazymeTM Digestor is a safe and non-corrosive product used to restore flow in drains where grease accumulation is a problem. UnitorTM GamazymeTM Digestor's biochemical formulation is designed to provide exceptional performance in clogged drain lines, grease traps and floor drains. It restores slow running drains and reduces odours due to organic build-up.

Features

- Water based biological drain cleaner for slow running drains
- Patented, environmentally friendly bioenzymatic formulation designed to restore flow in drain systems containing greasy deposits
- Results in increased bacterial activity in a variety of organic wastes
- Environmentally adapted

Benefits

- Free of harsh chemical compounds normally associated with acid and caustic drain openers
- Provides penetration, breakdown and degradation of organic drain line deposits and blockages
- Ideal for applications subject to aerobic and anaerobic environments

Product Number	Product Name
628026	Gamazyme Digestor 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Density [g/ml]	1.0
Form	Liquid
Smell	Herbal/Lemon

Directions for Use

1. Drain Cleaner

Use 500ml of UnitorTM GamazymeTM Digestor per 5cm drain diameter to restore flow in drains and to keep them free flowing. Repeat the operation if necessary. Use regularly, once a day or several times a week to maintain drains free of grease.

2. Cleaning of Pulpers

Flush the whole system at the end of the day including pulpers, pipes, etc. with warm water (maximum 60°C) and UnitorTM GamazymeTM Digestor.

Dose the product neat in the economiser tank by using a dosing pump. Use a dosage rate of approximately 2 litre per m³ water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAMAZYME FRESH

Unitor™ Gamazyme™ Fresh is the latest new improved approach in odour control technology. It provides deep and effective cleaning through probiotic activity. After odour elimination, the odour-causing compounds are biodegraded by the bacteria strains. Gamazyme Fresh promotes a pleasant citrus smell.



Product Information

Unitor™ Gamazyme™ Fresh provides a powerful combination of a fast-acting neutraliser for immediate odour relief, and adapted bacteria for degradation of organic compounds.

Unitor™ Gamazyme™ Fresh eradicates odours by attacking and degrading the organic source of the odour, leaving behind a citrus scent.

4 way action:

1. Citrus Fragrance for rapid action
2. Binding for capturing odour
3. Cleaning action by organic breakdown
4. Accelerated microbial degradation

Unitor™ Gamazyme™ Fresh is a specialised bacterial formulation designed to eliminate bad odour found in garbage and waste collection areas, rest rooms, galleys, etc.

Features

- Water based fresh citrus/lemon odour control
- Fast-acting environmentally friendly odour controller with the effectiveness of deep cleaning microbes
- Available in easy to use and convenient 1 Ltr bottles

Benefits

- Rapidly neutralises and eliminates odours without relying on the use of odour masking or hazardous chemical oxidisers
- Enhances the activity of the natural bacteria, resulting in higher rates of degradation
- Removes odours from garbage and waste collection areas, rest rooms, galleys, etc.
- Rapid and long lasting term effect
- NEW improved formulation with citrus fragrance

Product Number	Product Name
743189	Gamazyme Fresh 12 x 1 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Hazy
Density [g/ml]	1.00 - 1.015
Form	Liquid
Smell	Citrus/Lemon

Directions for Use

Dosing method

Apply Unitor™ Gamazyme™ Fresh neat for the applications. Spray a few times more to get better surface coverage.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN WINDOW & MIRROR

The Unitor™ EASYCLEAN™ WINDOW & MIRROR is a versatile, extra strength product for cleaning windows, mirrors and other glossy surfaces of the galley and accommodation areas.



Product Information

Unitor™ EASYCLEAN™ WINDOW & MIRROR is equipped with a component that leaves a good shine and protection when used regularly. Dirt, grease, oil, fingerprints and other stubborn deposits are easily cleaned off without leaving any streaks or hazy residue.

Unitor™ EASYCLEAN™ WINDOW & MIRROR is completely safe on aluminium and other light metals.

Features

- Highly concentrated product
- Leaves a thin film that gives good shine and protection when used regularly
- Can be used as windscreen washing fluid when temperature is above freezing
- Ammonia and phosphate free

Benefits

- The concentrated product reduces the need for storage space
- With regular use it is easy to maintain a shiny surface due to the protective film
- When used on the outside windows, the protective film will ease the removal of the salt deposits from seawater

Product Number	Product Name
778847	Easyclean Window & Mirror 10 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Density [g/ml]	1.05 - 1.06
Form	Liquid
Odour	Sweet-smelling
Packaging	10 Ltr pail

Part of a Pack

770032	Easyclean Accommodation Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Window & Mirror	10 Ltr
Easyclean Basin & Toilet Bowl	10 Ltr
Easyclean Soft Surface & Spot	6 X 0.6 Ltr in box
Easyclean Liquid Hand Soap	12 X 0.25 Ltr in box

Accessories

778885	Easyclean Re-Usable Bottle W & M (6 pcs per box)
770036	Easyclean Equipment Pack
710450	Unitor Mixing Station 4-4
710451	Unitor Mixing Station 4-14

Directions for Use

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR™ MIXING STATION 4 - 14 or 1 : 200 (0.5%) through the UNITOR™ MIXING STATION 4 - 4
2. Use 1 % solution strength outdoors or if surfaces are very dirty, for the rest use 0.5% solution
3. Apply cleaning solution with spray or cloth or rag
4. Rub on surface with a cloth or rag to remove stubborn stains
5. Remove cleaning solution / wipe dry with a squeegee and / or dry rag or cloth

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN CLEANING AND DISINFECTANT

Unitor™ EASYCLEAN™ CLEANING & DISINFECTANT is a highly efficient combined cleaning and disinfectant product with outstanding bactericidal performance.

Product Information

Unitor™ EASYCLEAN™ CLEANING & DISINFECTANT is recommended for use in the galley and accommodation areas including refrigeration rooms to eliminate and avoid transmission of bacteria, fungi and viruses.



For US, Unitor™ EASYCLEAN™ CLEANING & DISINFECTANT is REPLACED BY Sanite 128 F. Please see the Safety Data Sheet and Product sheet under 'Documents'.

IMPORTANT!

SARS-CoV-2 has been categorized as an enveloped virus, and since "Unitor Easyclean Cleaning and Disinfectant" formulation have demonstrated viricidal activity against enveloped viruses, Unitor Easyclean Cleaning and Disinfectant (when applied correctly) can be efficacious against SARS-COV-2 Coronavirus

Unitor™ EASYCLEAN CLEANING & DISINFECTANT is biodegradable when diluted in water, this means that a fresh solution must be made before every cleaning and disinfection process.

The fact that the Unitor™ EASYCLEAN CLEANING & DISINFECTANT is biodegradable means that it will not give a long term negative effect on the desired microbiological effect produced by the Gamazyme cleaning and treatment products in the drain pipes, tanks or effluent treatment system.

**** Note:** Not suitable for cleaning pots, pans and kitchen gadgets

Features

- Easy to use cleaning and disinfectant product
- Can be used on most hard surfaces
- Phosphate free

Benefits

- Bactericidal, Yeasticidal, Virucidal against Vaccinia, Tuberculocidal, Influenza and BVDV viruses
- VAH, tested according to VAH requirements (German Society for Hygiene and Microbiology, now VAH)
- DVG, Tested according to DVG requirements (8th list, food sector)

Product Number	Product Name
778845	Easyclean Cleaning and Disinfectant 10 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Density [g/ml]	1.022
Form	Liquid
Odour	Amine odour
Packaging	10 Ltr pail
pH	10

Part of a Pack

7788721	Easyclean Galley Pack
In the pack	
Easyclean Floor & Hard surface	10 Ltr
Easyclean Dishwash Liquid Manual	12 X 1 Ltr in box
Easyclean Liquid Hand Soap D	6 X 2 Ltr in box
Easyclean Hand Sanitizer	6 X 2 Ltr in box
Easyclean Oven & Grill	6 pcs per box
(Not in US) Easyclean Cleaning & Disinfectant	10 Ltr
(Only used in US) Sanite 128 F (Cleaning & Disinfectant)	-

Accessories

778889	Easyclean Re-Usable Bottle C & D (6 pcs Per Box)
770036	Easyclean Equipment Pack
778822	Unitor Cleaning Station 2
710450	Unitor Mixing Station 4-4
710451	Unitor Mixing Station 4-14

Directions for Use

1. Clean heavy soiled areas with EASYCLEAN™ FLOOR & HARD SURFACE prior to disinfection
2. Dilute the concentrate of EASYCLEAN™ CLEANING & DISINFECTANT to the correct concentration prior to use through the UNITOR MIXING STATION 4 - 14 OR UNITOR MIXING STATION 4 - 4; 1 : 100 (1.0 %) for galley and other areas and 1.5 : 100 (1.5 %) for hospital
3. The product is biodegradable and will have reduced effect over time
4. Apply the cleaning solution with cloth, mop, sponger, spray or by soaking. Allow to work for 15 min for galley and 30 min for hospital, rinse off or allow to air dry
5. Areas that can come in contact with food must be rinsed off with fresh water
6. Floors that are being waxed or polished must be rinsed off with fresh water

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN FLOOR & HARD SURFACE

The Unitor™ EASYCLEAN™ FLOOR & HARD SURFACE is a liquid alkaline cleaner suitable for all hard surfaces in the Galley and Accommodation areas.



Product Information

Unitor™ EASYCLEAN™ FLOOR & HARD SURFACE is recommended for use in public areas such as floors, tiles, paint work, furnishes, plastics, vinyl as well as sanitary fixtures.

To ensure the concentrated product is made up in the correct concentration it is recommended to use the Unitor™ MIXING STATION 4 - 4 or Unitor™ MIXING STATION 4 - 14. This will ensure the correct dosage for optimum cost efficiency and help save the environment - do not use higher concentration than necessary. Do not mix with other cleaning products, and drain the cleaning solution to the bilge if the wash water after use is considered as environmentally hazardous.

Features

- Phosphate free
- Concentrated to improve cost efficiency

Benefits

- Since the product is delivered as a concentrate the need for available storage space will be limited
- Concentration of cleaning solution can be altered based on degree of contamination

Product Number	Product Name
778843	Easyclean Floor & Hard Surface 10 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light blue
Density [g/ml]	1.03 at 20°C
Form	Liquid
Odour	Perceptible odour
Packaging	10 Ltr pail
pH	11 - 12

Part of a Pack

7788721	Easyclean Galley Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Dishwash Liquid Manual	12 X 1 Ltr in box
Easyclean Liquid Hand Soap D	6 X 2 Ltr in box
Easyclean Hand Sanitizer	6 X 2 Ltr in box
Easyclean Oven & Grill	6 pcs per box
(Not In US) Easyclean Cleaning & Disinfectant	10 Ltr
(Only used in US) Sanite 128 F (Cleaning & Disinfectant)	-
770032	Easyclean Accommodation Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Window & Mirror	10 Ltr
Easyclean Basin & Toilet Bowl	10 Ltr can
Easyclean Soft Surface & Spot	6 X 0.6 Ltr in box
Easyclean Liquid Hand Soap	12 X 0.25 Ltr in box

Accessories

778891	Easyclean Re-Usable Bottle F & HS (6 pcs Per Box)
770036	Easyclean Equipment Pack
778822	Unitor Cleaning Station 2
710450	Unitor Mixing Station 4-4
710451	Unitor Mixing Station 4-14

Directions for Use

For use with bucket and mop:

1. Dilute the concentrate 1 : 100 (1%) through the UNITOR™ MIXING STATION 4 - 14
2. Clean floors using a mop, rag or cloth , use plenty of cleaning solution
3. On stubborn spots, rub harder or leave the cleaning solution to work for some time
4. To obtain best cleaning effect, collect the water using a Squeegee
5. Mop up the water using a clean mop, rag or sponge. If not, leave to air dry

For use with spray bottle and rag:

1. Dilute the concentrate 1 : 200 (0.5%) through the UNITOR™ MIXING STATION 4 - 4
2. Spray the solution on the hard surfaces that is being cleaned
3. Use a rag or cloth to wipe over the hard surface, rubbing extra on stubborn stains
4. Remove excess water
5. Leave to air dry

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN LAUNDRY CONDITIONER

The Unitor™ EASYCLEAN™ LAUNDRY CONDITIONER works by coating the surface of the cloth fibers with a thin layer that prevents build up of static electricity and makes the fibers smoother and softer.



Product Information

Unitor™ EASYCLEAN™ LAUNDRY CONDITIONER should be dosed manually or added to the washing machines dispenser for fabric softeners and dosed automatically in the final rinse.

Features

- Concentrated product
- Prevents static cling and build up of static electricity
- Reduce wrinkling

Benefits

- Leaves the laundry with a clean, fresh scent
- Clothes feel smoother and more comfortable to use
- Makes ironing easier

Product Number	Product Name
778873	Easyclean Laundry Conditioner (4 X 5 Ltr In Box)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light green
Density [g/ml]	1.0
Form	Viscous liquid
Odour	Sweet smelling
Packaging	4 x 5 Ltr pail
pH	3

Part of a Pack

770038	Easyclean Laundry Power Pack
In the pack	
Easyclean Laundry Powder	10 kg bag
Easyclean Laundry Conditioner	4 X 5 Ltr in box

Directions for Use

1. Unitor™ EASYCLEAN™ LAUNDRY CONDITIONER should be dosed manually into the dosing chamber of the washing machine or automatically to the final rinse of the program
2. Dose 10 ml of Unitor™ EASYCLEAN™ LAUNDRY CONDITIONER per wash
3. If clothes feels stiff or if it builds up static electricity, then add up to 10 mls extra

NOTE: SHELF LIFE - 24 MONTHS FROM PRODUCTION

**Store in a dry, well-ventilated area protected from frost and heat. Recommended storage temperature between +5°C to +25°C, shake well before use. **

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN LAUNDRY POWDER BAG

The Unitor™ EASYCLEAN™ LAUNDRY POWDER is a concentrated washing detergent. The powder is designed for clothes at wash programs from 30°C up to 90°C.



Product Information

Unitor™ EASYCLEAN™LAUNDRY POWDER is used for laundry machines. 50ml -70 ml (35 g-50 g) is commonly used for wash loads of 3 to 5 kg.

If the Unitor™ EASYCLEAN™LAUNDRY POWDER is used for manual hand cleaning, dissolve 35 ml of the powder in 10 ltr of warm water.

It is not recommended to use more powder than needed, as it might be difficult to rinse out all the detergent. This can again lead to rash or skin irritations.

Features

- Effective from 30°C
- White powder with perfume added

Benefits

- Leaves the clothes with a nice smell
- Can be used for both machine and hand wash

Product Number	Product Name
778871	Easyclean Laundry Powder (10 kg Bag)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	White water soluble
Density [g/ml]	0,71
Form	Powder
Odour	Characteristic odour
Packaging	10 kg bag
pH	11

Part of a Pack

770038	Easyclean Laundry Power Pack
In the pack	
Easyclean Laundry Powder	10 kg bag
Easyclean Laundry Conditioner	4 X 5 Ltr in box

Directions for Use

1. Add 50 ml of EasyClean™ Laundry Powder per 3 - 5 kgs of clothes into the dosing chamber of the washing machine. If clothes are very dirty or if the water is bunkered and has a high hardness, add up to 30 ml extra
2. Run normal program according to the machine settings
3. After each clean, if possible, leave the machine door open

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN LIQUID HAND SOAP

The Unitor™ EASYCLEAN™ LIQUID HAND SOAP is a mild and effective hand cleaner containing ingredients originating from vegetable raw materials.

Product Information

Unitor™ EASYCLEAN™ LIQUID HAND SOAP is mild to the skin and effective for cleaning after oils, fats and general dirt and grime, and contains components that prevent the skin from drying out after repeated hand washing.

The Unitor™ EASYCLEAN™ LIQUID HAND SOAP is approved according to Nordic Swan Ecolabel.



Features

- Effective for cleaning after oils, fats and general dirt and grime
- Biodegradable
- Phosphate free

Benefits

- Mild to the skin
- Prevents hands from drying-up

Product Number	Product Name
778853	Easyclean Liquid Hand Soap (12 X 0.25 Ltr In Box)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Cream, white
Density [g/ml]	1.0
Form	Liquid
Odour	Sweet-smelling
Packaging	12 x 0.25 Ltr bottle with pump
pH	5 - 6

Part of a Pack

770032	Easyclean Accommodation Pack
In the pack	
EasyClean Floor & Hard Surface	10 Ltr
EasyClean Window & Mirror	10 Ltr
EasyClean Basin & Toilet Bowl	10 Ltr can
EasyClean Soft Surface & Spot	6 X 0.6 Ltr in box
EasyClean Liquid Hand Soap	12 X 0.25 Ltr in box

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the

sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

1. Wet hands
2. Apply 1-3 ml EASYCLEAN LIQUID HAND SOAP
3. Rub the soap all over the hands, remember nails, wrists and forearm
4. Rinse thoroughly
5. Dry hands with a clean towel, paper towel or blower

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN BASIN AND TOILET BOWL

The Unitor™ EASYCLEAN™ BASIN & TOILET BOWL cleaner is a liquid cleaner that safely cleans and removes rust, hard water stains and other deposits from basins and toilet bowls.



Product Information

When Unitor™ EASYCLEAN™ BASIN & TOILET BOWL is used regularly it will leave a shiny protective layer on the cleaned surfaces. This layer will reduce new dirt and stains from sticking to the surfaces.

IMPORTANT! Do not mix with cleaning products containing bleach / Sodium hypochlorite.

Features

- Based on biodegradable ingredients
- Phosphate free
- Highly concentrated product

Benefits

- The concentrated product reduces the need for available storage space
- Cost effective
- If used in accordance with the instructions the product will not influence the microbiological activity that is desired in the drains and sewage system

Product Number	Product Name
778851	Easyclean Basin And Toilet Bowl 10 Ltr Can

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Off-white
Density [g/ml]	1.08 - 1.085
Form	Liquid
Odour	Sweet-smelling
Packaging	10 Ltr pail
pH	1 - 2

Part of a Pack

770032	Easyclean Accommodation Pack
In the pack	
EasyClean Floor & Hard Surface	10 Ltr
EasyClean Window & Mirror	10 Ltr
EasyClean Basin & Toilet Bowl	10 Ltr can
EasyClean Soft Surface & Spot	6 X 0.6 Ltr in box
EasyClean Liquid Hand Soap	12 X 0.25 Ltr in box

Accessories

778886	Easyclean Re-Usable Bottle B & T (6 Pcs Per Box)
770036	Easyclean Equipment Pack
710450	Unitor Mixing Station 4-4
710451	Unitor Mixing Station 4-14

Directions for Use

A) Basin Cleaning

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR MIXING STATION 4 - 4
2. Spray the solution on the surfaces that is to be cleaned
3. Rub on surface with a cloth or rag to remove suborn stains
4. Wipe the surface dry with a cloth to improve shine

B) Toilet cleaning

1. Dilute the concentrate 1 : 100 (1 %) through the UNITOR MIXING STATION 4 - 4
2. Raise toilet seat and spray onto the walls and under the rim of the bowl
3. Brush bowl when flushing
4. Clean any spills immediately

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN SOFT SURFACE AND SPOT

The Unitor™ EASYCLEAN™ SOFT SURFACE & SPOT is a phosphate free cleaner for cleaning and deodorizing soft surfaces like carpets, furniture, upholstery etc.



Product Information

Unitor™ EASYCLEAN™ SOFT SURFACE & SPOT is based on specialized bacterial strains and biodegradable surfactants enabled to eliminate organic residue like blood, coffee, vine, beer, food, waste, vomit etc. and odour by three way action:

Chemical cleaning action by removing solids from surfaces.

Immediate odour control by fragrance masking.

Deep cleaning from biological action for removal of residual organic matter.

These properties make it ideal for removal of residual organic matter specially on carpets, sofas, chairs and upholstery.

Features

- Biological active ingredients
- Phosphate free
- Ready to use
- Long term effect

Benefits

- Through the biological active components in the product, organic components are broken down over time to water and carbon dioxide
- Since the organic components are broken down and removed, the long term effect will be reduced smell. Initial effect is that the product deodorize and masks the smell

Product Number	Product Name
778849	Easyclean Soft Surface and Spot (6 x 0.6 Ltr in box)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	White, yellow
Density [g/ml]	1.00
Form	Liquid
Odour	Pine needle
Packaging	6 x 0.6 Ltr spray bottle
pH	8 - 9

Part of a Pack

770032	Easyclean Accommodation Pack
In the pack	
Easyclean Floor & Hard surface	10 Ltr
Easyclean Window & Mirror	10 Ltr
Easyclean Basin & Toilet Bowl	10 Ltr
Easyclean Soft Surface & Spot	6 X 0.6 Ltr in box
Easyclean Liquid Hand Soap	12 X 0.25 Ltr in box

Directions for Use

1. Spray EASYCLEAN SOFT SURFACE & SPOT on the surface that needs cleaning and brush in with a cloth
2. Humidify the area with some additional water and leave over night
3. Vacuum up the residue when dry
4. Repeat the operation if spot is not fully removed

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN OVEN AND GRILL

Unitor™ EASYCLEAN™ OVEN & GRILL is a strong heavy duty alkaline cleaner for oven and grill cleaning in the galley area. The product is designed to penetrate and break down tough burnt-on carbon deposits.



Product Information

The heavy duty cleaning power of Unitor™ EASYCLEAN™ OVEN & GRILL secures fast and easy cleaning by loosening the bond between the deposits and the surface. The surfactant system used will further break down the deposits to be dispersed into the wash water for easy removal.

Regular use of Unitor™ EASYCLEAN™ OVEN & GRILL will remove the deposits that can lead to potential kitchen fires. If the deposits are not removed, they will also lead to excessive smoke and unwanted taste to the food.

Features

- Highly concentrated ready-to-use solution
- Highly effective on burnt-on carbon deposits
- Phosphate free

Benefits

- Easy to use, just spray on and leave to work
- The concentrated product improves efficiency and saves time on the cleaning process
- Regular carbon-deposit removal reduces the risk for excessive smoke generation, unwanted taste on food as well as reduces the risk for fires

Product Number	Product Name
778860	Easyclean Oven And Grill (6 Pcs Per Box)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Off-white
Density [g/ml]	1.20
Form	Liquid
Odour	Odourless
Packaging	6 x 0.6 Ltr spray bottle
pH	13 - 14

Part of a Pack

7788721	Easyclean Galley Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Dishwash Liquid Manual	12 X 1 Ltr in box
Easyclean Liquid Hand Soap D	6 X 2 Ltr in box
Easyclean Hand Sanitizer	6 X 2 Ltr in box
Easyclean Oven & Grill (Not in US) Easyclean Cleaning & Disinfectant (Only used in US) Sanite 128 F (Cleaning & Disinfectant)	6 pcs per box 10 Ltr -

Directions for Use

1. Scrape off large quantities of deposits and remove loose particles
2. Spray on the EASYCLEAN OVEN & GRILL neat on the COLD surfaces
3. Leave the product working for 15 to 60 minutes depending on amount of residue
4. Rinse off with plenty of water or remove with a wet rag or sponge

Always use suitable personal protective equipment (PPE), like goggles and chemical resistant gloves, when handling EASYCLEAN OVEN & GRILL.
Avoid contact with paint, enamels and light metals like Aluminium, Tin and their alloys.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN DISHWASH LIQUID MANUAL

The Unitor™ EASYCLEAN™ DISHWASH LIQUID MANUAL is a mild detergent cleaner intended for manual dish washing.



Product Information

The product contains ingredients originating from vegetable raw materials, is pH neutral and mild to the skin.

Unitor™ EASYCLEAN™ DISHWASH LIQUID MANUAL cannot be used in automatic dishwashers as it will produce too much foam.

Features

- pH neutral
- Contains powerful grease cutting agents
- Based on biodegradable ingredients
- Phosphate free product

Benefits

- The concentrated product reduces the need for available storage space and plastic consumption.
- Controls chemical consumption
- The neutral pH makes the product mild to the skin
- Effectively removing stubborn substances
- Cost effective to use
- Able to dilute in Mixing Station 4-4 and 4-14

Product Number	Product Name
778864	Easyclean Dishwash Liquid Manual (12 x 1 Ltr in box)
778857	Easyclean Dishwash Liquid Manual 10 Ltr

Specification

Product Name	Easyclean Dishwash Liquid Manual (12 X 1 Ltr In Box)	Easyclean Dishwash Liquid Manual 10 Ltr
Invert Hazard Material (IMO/EU) classification	C-49	C-50
Appearance	Clear, green	Clear green
Density [g/ml]	1.025 - 1.035	1.025 - 1.035
Form	Liquid	Liquid
Odour	Slight smell of lemon	Slight lemon smell
Packaging	12 x 1 Ltr bottle	10 Ltr pail
pH	7 - 8	7 - 8

Part of a Pack

7788721	Easyclean Galley Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Dishwash Liquid Manual	12 X 1 Ltr in box
Easyclean Liquid Hand Soap D	6 X 2 Ltr in box
Easyclean Hand Sanitizer	6 X 2 Ltr in box
Easyclean Oven & Grill	6 pcs per box
(Not in US) Easyclean Cleaning & Disinfectant	10 Ltr
(Only used in US) Sanite 128 F (Cleaning & Disinfectant)	-

Accessories

710450	Unitor Mixing Station 4-4
710451	Unitor Mixing Station 4-14

Directions for Use

Ensure that there is a foam layer on top of the water phase, this assists in keeping the grease and fat off the dish washing when removing it from the water.

When foam layer or if water looks dirty, replace the cleaning water with a new solution.

Rinse off the dish washing and let air dry or wipe dry with a clean and dry dish towel.

Dosing method

1 litre: Dose about 7 ml (2 teaspoon) of EASYCLEAN™ DISHWASH LIQUID MANUAL per 10 litre of water to the sink and add warm water.

10 litre: Dilute the concentrate 1 : 38 (Aqua tip) through the UNITOR MIXING STATION 4 - 4 OR dilute the concentrate 1:45 (green tip) through UNITOR MIXING STATION 4-14 and fill into bucket.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN HAND SANITIZER

The Unitor™ EASYCLEAN™ HAND SANITIZER is a ready to use Chlorhexidine lotion based alcohol-free hand sanitizer and moisturiser.



Product Information

The Unitor™ EASYCLEAN™ HAND SANITIZER is a Chlorhexidine based lotion that creates a barrier on the skin with the added advantage of instant sanitizing and moisturizing. Chlorhexidine is a key ingredient in many pharmaceutical and surgical clinical products and offers excellent wound protection and disinfection. With the added ingredients (waxes, etc) in Unitor™ EASYCLEAN™ HAND SANITIZER, the Chlorhexidine will stay on the skin for an extended period enabling the Chlorhexidine to work for up to 2 hours. Chlorhexidine has what is known as "long lasting broad spectrum activity" with a broader kill potential than alcohol and if you combine this with waxes and moisturizers you have a much more powerful solution to hand sanitizing and protection.

Features

- A Chlorhexidine based lotion
- Residual bug killing properties
- BS-EN Conformities

Benefits

- Chlorhexidine based for broad and safe bug killing properties
- Moistens skin unlike alcohol based sanitizers
- Easily absorbed into the skin - non-greasy
- Can be used in food preparation and healthcare applications
- Keeps killing bugs up to 2 hours after application

Product Number	Product Name
778856	Easyclean Hand Sanitizer (6 X 2 Ltr In Box)
Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	White
Density [g/ml]	0.9 - 1
Form	Viscous cream
Odour	Odourless
Packaging	6 x 2 Ltr pouch
Part of a Pack	
7788721	Easyclean Galley Pack
In the pack	
EasyClean Floor & Hard Surface	10 Ltr
EasyClean Dishwash Liquid Manual	12 X 1 Ltr In Box
EasyClean Liquid Hand Soap D	6 X 2 Ltr In Box
EasyClean Hand Sanitizer	6 X 2 Ltr In Box
EasyClean Oven & Grill	6 pcs Per Box
(Not in US) Easyclean Cleaning & Disinfectant	10 Ltr
(Only used in US) Sanite 128 F (Cleaning & Disinfectant)	-
Accessories	
778841	Unitor Hand Care Dispenser 2

Directions for Use

1. Clean and Dry hands prior to sanitizing
2. Apply 2 - 3 ml EasyClean™ Hand Sanitizer
3. Rub the sanitizer all over the hands, remember under the nails, wrists and between fingers
4. Rub hands together until dry
5. After work wash hands in the normal way

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EASYCLEAN LIQUID HAND SOAP D

The Unitor™ EASYCLEAN LIQUID HAND SOAP D is a general purpose, solvent-free and fragrance-free clear golden gel hand and skin cleanser.



Product Information

Unitor™ EASYCLEAN™ LIQUID HAND SOAP D is a hand soap slightly more heavy duty compared to a natural hand soap, and is therefore ideal for use in galleys where food, fat, grease and oils are handled. Even with the great performance in removing the grease and fat, the hand soap is mild to the skin.

The Unitor™ EASYCLEAN™ LIQUID HAND SOAP is approved according to Nordic Swan Ecolabel.

Features

- Clear golden gel hand and skin cleanser
- Does not contain petroleum or natural solvents
- Designed for general purpose / washroom use

Benefits

- Excellent removal of medium to heavy soiling
- Excellent cleaning performance yet gentle on the skin
- Easy to pump / dispense
- Leaves hands feeling soft, fresh and clean

Product Number	Product Name
778858	Easyclean Liquid Hand Soap D (6 X 2 Ltr In Box)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Form	Gel
Odour	Negligible
Packaging	6 x 2 Ltr pouch
pH	8.5 - 9.5

Part of a Pack

7788721	Easyclean Galley Pack
In the pack	
Easyclean Floor & Hard Surface	10 Ltr
Easyclean Dishwash Liquid Manual	12 X 1 Ltr In Box
Easyclean Liquid Hand Soap D	6 X 2 Ltr In Box
Easyclean Hand Sanitizer	6 X 2 Ltr In Box
Easyclean Oven & Grill	6 pcs Per Box
(Not In US) Easyclean Cleaning & Disinfectant (Only used in US) Sanite 128 F (Cleaning & Disinfectant)	10 Ltr -

Accessories

778841	UNITOR HAND CARE DISPENSER 2
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Directions for Use

1. Wet hands
2. Apply 1-3 ml EASYCLEAN LIQUID HAND SOAP
3. Rub the soap all over the hands, remember nails, wrists and forearm
4. Rinse thoroughly
5. Dry hands with a clean towel, paper towel or blower

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UV400 TORCH

Mini bright UV400 Torch is a compact UV inspection torch that operates at 400nm wavelength. This torch is used for verifying surfaces that have been coated with the Anti-microbial active coating (763131), to prove on-going coating activity.



Product Information

This UV400 mini torch operates at the 400nm wavelength which is ideal for fluorescent detection.

Features

- Wavelength range: 397- 407 nm
- UV light output: Max 400mW @700 mA
- Visible light: <8 Lux
- Beam characteristic: 60mm diameter spot at 38 cm (15") distance
- Each torch is supplied with 3 x AAA alkaline batteries and 1 x Extra-Glo UV-Stop safety glasses
- Battery running time: Approx. 3 hours

Note:

- Wear the safety glasses supplied together with torch when using UV torch
- Never look directly into UV torch
- Keep light turned on only as long as is necessary

Benefits

- UV output of up to 25,000 $\mu\text{W}/\text{cm}^2$ at a distance of 38 cm
- Full power is reached immediately at switch on
- Convenient size that fits into a pocket, comes with wrist loop
- On-off switch located at the base of the handle
- Single chip high powered LED

Product Number	Product Name
763040	UV400 Torch

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	35
Length [cm]	11.2
Weight Including battery	120

Part of a Pack

770096	Anti Microbial Active Coating With Sprayers & UV Torch Pack
In the pack	
Spray Dispenser Bottles	4x500 ml
UV400 Torch	-
Anti Microbial Active Coating	5 Ltr Bottle

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ANTI MICROBIAL ACTIVE COATING

The anti-microbial active coating is a long lasting anti-microbial coating technology suitable for application on multiple surface types (metal, wood, plastics, fabrics, rubber, leather, and tiles) – both hard and soft furnishing.

Product Information

The anti microbial active coating is a preservative surface protector that can be used to create long term protection by creating a durable safe to touch layer that actively eliminates bacteria and virus on high contact surfaces like doors, knobs, chairs, tables, and other surfaces where the spread of germs is a concern in today's context of COVID-19. Just pre-clean the surface and then apply the anti-microbial surface protector coating to get protection from all bacteria, viruses, fungus, and other microbes.



It has been lab tested and proven to remain effective after over 1000 touches and multiple cleaning cycles. The anti-microbial active coating is proven effective against other claimed microbes with a worldwide accepted tests executed by a Certified lab.

Supplied in 5 Ltr packaging.

Features

- 1 litre of anti microbial active surface coating covers at least 60 m² of surface
- Tested and proven to kill microbes and viruses instantly on contact with the dried coating
- Durable long lasting
- Good resistance to friction, abrasion, and water.
- Hardens at temperature from 10°C and dries in 2-6 hours after application.
- No use of nano particles, silver salts or heavy metals.
- Non-toxic to aquatic life and odorless

Benefits

- Active ingredient in the active coating (Quaternary ammonium) has already been proven effective against most viruses, bacteria, fungi across multiple studies and is used in medical procedures
- No need for daily or multiple application: saves on disinfecting time & cost.
- Patented binding platform technology
- UV verifiable to prove on going activity - UV reactive particles are bounded to the coating, making it visible under UV light and thus surfaces can be checked easily with a UV torch (Product No. 763040)
- Ready to use and easy to apply
- Can be used on air filters and air conditioning ducts

Product Number	Product Name
763131	Anti Microbial Active Coating 5 Ltr Bottle

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	Transparent after application
Density [kg/m3]	961.4
Flash Point [°C]	>93
Form	Liquid
Odour	Slight
Packaging	5 Ltr pail

Part of a Pack

770096	Anti Microbial Active Coating With Sprayers & UV Torch Pack
In the pack	
Spray Dispenser Bottles	4 X 500 ml
UV400 Torch	-
Anti Microbial Active Coating	5 Ltr Bottle

General recommendations when applying product

Wear proper PPE to protect eyes and hands and cover mouth and nose when spraying the active coating. Do not overspray the surface, make sure to only spray 1 time on each section to treat. If over applied, the active coating will leave drip marks on a surface. Do not directly spray on electrical panels or parts. Spray product on a microfiber cloth and then wipe on the surface gently and evenly. For application on touch screens panels, touch screens must be **OFF** before applying the coating. Make sure to smear/wipe coating **very gently** onto surface.

Directions for Use

Requirements

For even application process, it is recommended to use Wilhelmsen Spray Dispenser bottles (4 x 500 ml) (Product no. 763035) and a microfiber dry cloth or a sponge.

Application Procedure

1. Ensure surfaces are clean and dry.
2. Shake the bottle well before use
3. Hold spray bottle 15-20 cm from surface and spray an even layer onto the surface area you want to treat.
4. **Smear** the coating onto the surface **very gently** with a clean cloth or sponge. Wiping too hard can remove the product from the surface.
5. Make sure the product is applied evenly.
6. After applying, allow the wet surface to dry without touching it, to assure that the antimicrobial layer cures completely and stays active for a long period of time. For hydrophobic surfaces it dries in 6-12 hours and cures in 12-24 hours. On porous surfaces it is dry in 3-6 hours and cured in 6-12 hours (avoid using any cleaning agent for the first 24 hours to let the coating settle in).

Accessories

763035	Spray Dispenser Bottles 4x500ml
763040	UV400 Torch

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Wiping too hard can remove the product from the surface.

Avoid ingestion, inhalation, skin, and eye contact. Handle in accordance with good hygiene practice and any legal requirements.

Wash hand thoroughly after using.

Recommended Surface Conditions:

Apply the active surface coating on inert surfaces that are clean, dry, and free of impurities. Do not apply on mirrors or glass.

How to check the presence of coating

1. Shine the UV torch (Product no. 763040).
2. If the coating reflects UV light, the coating ingredients are active.
3. Surfaces can be touched up where and when needed

Durability of coating

The durability of the coating depends on the friction. Therefore for surfaces which are untouched or infrequently used, the coating can last for a long time. For other surfaces, which are exposed to friction such as in case of regular cleaning cycles, the coating will wear down faster. The wear down rate will vary (wear down after 1 cleaning cycle to coating still being effective after 10 cleaning cycles) on a number of factors and therefore it is imperative that for such surfaces there is a regular check of the coating effectiveness.

EASYCLEAN LAUNDRY TABLETS FOR COLOR & WHITE FABRICS

Easyclean laundry tablets for color & white fabrics are unique on the market: an effective and easy to dose laundry tablets in 20 grams only. The tablets are designed for both colored and white clothes at all wash programs, and have an effective action, and dissolution even at low temperature wash of 10°C up to 100°C.



Product Information

Easyclean laundry tablets for color & white fabrics have a new optimized formula that effectively eliminates all types of stains (fats, protein, starch, gray, etc.), thanks to the combined action of enzymes, active oxygen and surfactants. Each individual tablet is wrapped in a Polyvinyl Alcohol (PVA) film, that is a water-soluble biodegradable polymer film. The film will dissolve quickly in water and **should not** be removed before use. The purpose of the film is to prevent the tablets from absorbing humidity, handling and to avoid the tablets to stick together in the box. The tablets are packed in brown carton box which contains **300 tablets**.

1 tab of 20g can be used for up to wash load of 5 kg clothing.

2 tabs of 20g to be used for wash load of > 6 kg clothing or very dirty clothes or if water is bunkered & has high hardness.

Features

- Effective and easy to dose
- Concentrated in only 20 g
- Biodegradable
- Phosphate free

Benefits

- Effective on all types of stains (fats, protein, starch, etc.)
- Ideal for both white and colored fabrics
- Fast and effective dissolution of the tablet
- Efficient at low temperature wash of 10°C
- Leaves no traces of powder or residues of the water soluble film
- Efficient even for 30 mins wash cycle (short cycle)

Product Number	Product Name
778850	Easyclean Laundry Tablets For Color & White Fabrics (300 Tablets)

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	White octagonal shaped
Form	Tablet
Odour	Fresh Leaf Scent
Packaging	300 tablets in a box

Directions for Use

1. Sort laundry and respect the temperatures indicated on the label.
2. Add 1 tablet per 5 kgs clothes load directly into the dosing chamber/drum of the washing machine, before adding clothes. If clothes are very dirty, or more than 5 KG clothes load, or if the water is bunkered and has a high hardness, add 1 extra tablet.
3. Run normal program according to the machine settings.
4. After each clean, if possible, leave the machine door open.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NATURAL HANDCLEANER

Unitor™ Natural Hand Cleaner™ is gel skin cleaner containing natural ingredients. It removes the most severe industrial grime, oil and grease on your hands.

Product Information

Unitor™ Natural Hand Cleaner™ is effective, mild to the skin and contains no petroleum solvent derivatives. The new and improved formula contains only naturally occurring mineral products as scrub agent.

Unitor™ Natural Hand Cleaner™ falls under cosmetic regulations and does not need to have a Safety Data Sheet.



Features

- Contains natural occurring mineral products
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Mild antiseptic properties
- Effective and suitable for the most severe soiling. Due to its mildness it can be used safely day after day
- Easier to rinse off than many other gel cleaners
- Supplied with a hand pump

Benefits

- Exfoliating scrub effect
- Leaves hands clean
- Do not dry out your skin
- Easier to rinse off than many other gel cleaners
- Optimal and economic dosing by hand pump

Product Number	Product Name
571752	Natural Handcleaner 4x5 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Density [g/ml]	1.0
Form	Gel

Directions for Use

Unitor™ Natural Hand Cleaner™ should be massaged onto the soiled skin without the use of water. The

skin should then be rinsed with clean fresh water and dried thoroughly with a towel or tissue.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ACC PLUS

Unitor™ ACC Plus is a powerful micro emulsion based cleaning agent for cleaning of diesel engine air coolers, scavenging air systems and the compressor side of turbochargers.



Product Information

Unitor™ ACC Plus™ is a microemulsion type cleaner, where a synergistic blend of biodegradable surfactants and low toxicity solvents replace the use of the harmful solvents traditionally used in air cooler cleaners without reducing the cleaning performance. It is formulated to meet the latest environmental standards, and is non toxic both to the environment and to persons handling it. Unitor™ ACC Plus™ contains no chlorinated or aromatic hydrocarbon solvents, nonylphenol ethoxylates or other substances harmful to the environment.

Features

- Meets the latest environmental standards
- Equal cleaning performance to traditional cleaners based on harmful chlorinated solvents
- Formulated to remove oil, grease and carbon deposits from air coolers and scavenging systems
- Maintains, stabilises and maximises air cooler efficiency
- Can be used for handspray cleaning while diesel engine is stationary
- Ideal for use in soak bath or cleaning tanks, such as the Chemical Cleaning Unit and the Ultrasonic Bath

Benefits

- Efficient and economical to use
- Low toxicity, low evaporation and pleasant smell
- Leaves no residue and has no harmful effect on engine

Product Number	Product Name
698704	ACC Plus 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	Pale yellow
Density [g/ml]	0.92 - 0.93
Flash Point [°C]	Above 61
Form	Liquid
pH	9.0 - 10.5

Directions for Use

Recirculation method in-situ

For this cleaning procedure the engine needs to be stopped and secured. Permanently installed spray nozzles in combination with a cleaning solution tank and pump, such as the Unitor™ Chemical Cleaning Unit should be used. It is advised to blind off the cooler outlet. Properly mix water and 10-30% Unitor™ ACC Plus™, depending on the severity of the contamination, in the tank. Connect the pump's outlet to the nozzle assembly and the air cooler drain to the tank. Start the pump and spray the solution through the nozzles over the entire surface of the cooler and drain back to the tank. Circulate the solution for a period of 1 to 6 hours. After cleaning, rinse with fresh water. Remove the outlet blind and disconnect the pump and tank loop.

Soaking method in-situ

For this cleaning procedure the engine needs to be stopped and secured. Blind off the cooler outlet and flood the cooler with a solution of 10-30% Unitor™ ACC Plus™ in water depending on the severity of the contamination. Soak for a period of 1 to 6 hours and drain to slop tank. Agitation by means of steam or compressed air will improve the cleaning effect. After cleaning, rinse with fresh water. Remove outlet blind and close drain.

Out of Service Cleaning:

Soak bath method

Remove the cooler from the engine and place in a soak bath filled with a solution of 10-30% UnitorTM ACC PlusTM in water for a period of 1-6 hours.

Agitation by means of steam or compressed air will improve the cleaning effect. After cleaning rinse with fresh water and reinstall the cooler. This method is also suitable for machine parts with stubborn carbon deposits.

Hand spray method

For this cleaning procedure the engine needs to be stopped and secured. Open the inspection cover on top of the cooler and the drain valve. Spray undiluted

UnitorTM ACC PlusTM into the tube nest, with e.g. a Unitor Jet Spray Unit, and allow to penetrate into the deposits for a minimum of 1 hour. Rinse thoroughly with a high pressure jet such as a Unitor High Pressure Machine. Close inspection cover and drain.

In-service cleaning

The general principle is to inject a solution of ACC PlusTM into the air trunking upstream of the charge air cooler followed by a clean water rinse. For efficient cleaning of air coolers, it is necessary to use correctly installed dosing and injection equipment. To calculate the amount of solution required to clean an air cooler, calculate or find the cross-sectional area of the cooler and use 3 litres of cleaning solution per square metre or as table below:

Engine HP

6,000 to 12,000

12,000 to 24,000

24,000 or more

Solution mix. with 25% ACC Plus

3 Ltr mix

4.5 Ltr mix

6 Ltr mix

For in-service cleaning of air coolers and the air-side of turbochargers, a solution of 25% UnitorTM ACC PlusTM in freshwater is recommended. The appropriate dosage of cleaner is then placed in the dosing pot and injected up stream of the air cooler for a period of 10 minutes. After a further 10 minutes, a similar quantity of fresh water is injected to rinse off the emulsified deposits. Rate and frequency of application depends mainly on the condition of the

air coolers. However when starting with the use of UnitorTM ACC PlusTM, recommended injection is every 24 hours. After the initial cleaning period, the cleaning effect should last for 48 hours of operational time. Although frequency of cleaning may vary, the calculated cleaning dose should remain the same. This cleaning method is only recommended if approved by the engine manufacturer!

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AIR COOLER CLEANER

Unitor™ Air Cooler Cleaner™ is a powerful solvent emulsion cleaner for the cleaning of diesel engine air coolers, scavenging air systems and compressor sides of turbochargers.



Product Information

Unitor™ Air Cooler Cleaner™ is a powerful solvent emulsion cleaner for the cleaning of diesel engine air coolers, scavenging air systems and compressor sides of turbochargers. It leaves no residue nor harm the engines, and can be used for in-service cleaning.

Features

- Formulated to remove oil, grease and carbon deposits from air coolers and scavenging systems
- May be used for in-service cleaning
- Product in water solution is non-flammable, non-explosive and has no flash point
- Can be used for light carbon removal from machinery parts

Benefits

- Efficient and economical
- Renders surfaces oil-repellent
- Maintains and stabilises air cooler efficiency at maximum
- Saves time, maintenance costs and avoids risks of damage when dismantling
- Leaves no residue and has no harmful effect on engine

Product Number	Product Name
764452	Air Cooler Cleaner 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light yellow
Density [g/ml]	0.8
Flash Point [°C]	Above 61
Form	Liquid

Directions for Use

Dosing ratios:

In-service cleaning - the general principle is to inject a solution of Unitor™ Air Cooler Cleaner™ into the air trunking upstream of the charge air cooler, followed by a clean water rinse. For efficient cleaning of air

coolers, it is necessary to use correctly installed dosing and injection equipment. To calculate the amount of solution required to clean an air cooler, calculate or find the cross-sectional area of the cooler and use 3 litres of cleaning solution per square metre or as table below:

Engine HP	Solution mix. with 25% ACC Plus
6,000 to 12,000	3 Ltr mix
12,000 to 24,000	4.5 Ltr mix
24,000 or more	6 Ltr mix

For in-service cleaning of the air cooler and air-side of turbochargers, a solution of 25% Unitor™ Air Cooler Cleaner™ in freshwater is recommended.

The appropriate dose of cleaner is then put in the dosing pot and injected up-stream of the air cooler in 10 minutes. After a further 10 minutes, a similar quantity of fresh water is injected to rinse off the emulsified deposits.

Rate and frequency of application depends mainly on the condition of the air coolers. However, when starting with the use of Unitor™ Air Cooler Cleaner™, we recommend injection every 24 hours. After initial cleaning period, the cleaning effect should last for 48 hours of operational time. Although frequency of cleaning may vary, the calculated cleaning dose should remain the same.

This cleaning method is only recommended if approved by engine manufacturers.

Out of service cleaning

Handspray Cleaning - in this situation the engine must be stopped.

Open an appropriate air trunking inspection cover.

Open air cooler drain valves.

Using a pressure handspray, apply undiluted UnitorTM Air Cooler CleanerTM all over the cooler coils. Allow the UnitorTM Air Cooler CleanerTM to penetrate the deposits for a minimum of 1 hour, then use a high pressure lance or water jet to wash off the loosened deposits.

After satisfactory cleaning, and flushing through with fresh water, close air cooler drains.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Soak Method - this method may be used for machine parts with stubborn carbon deposits. Put parts to be cleaned into a bath of undiluted UnitorTM Air Cooler CleanerTM and allow deposits to be broken down and loosened before removal, then rinse.

The engine manufacturer should be consulted before installing injectors.

Large engines will normally require two injectors per cooler, but one injector is usually sufficient for medium and small engines.

AQUABREAK PX

Unitor™ Aquabreak PX™ is a multipurpose cleaning and degreasing agent. It is lowtoxic, non-caustic, free of hydrocarbon solvents and biodegradable. It has excellent dispersant property.



Product Information

Unitor™ Aquabreak PX™ removes effectively dirt and oily matters without the use of solvents and caustic based cleaners. The surfactant formulation with complex binders has an excellent cleaning efficiency. Unitor™ Aquabreak PX™ is NSF approved so it can be used to clean food serving areas and food stations.

Optimal for use in the following applications:

Good for use in galleys and on decks

Engine room cleaner

Suitable for cargo tank cleaning

Suitable for cleaning of soiled textiles as rugs, covers, mats, overalls etc.

Effectively cleans fiberglass boats.

Features

- Multi purpose water based degreaser
- Highly concentrated
- Biodegradable, low toxic and non-caustic
- Safe on all materials

Benefits

- Has multi-functional applications so you can minimise the number of cleaners used onboard
- Safe to use and your safety is always our priority
- Minimise the risk of damaging surfaces

Product Number	Product Name
575613	Aquabreak PX 25 Ltr

Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Pale yellow
Density [g/ml]	1.020 - 1.035
Form	Liquid
pH	12

Accessories	
614537	Foam - Agent 2x5 Ltr
710451	Unitor Mixing Station 4-14

Approvals

Approved by NSF.

Nordic Swan eco-labelled.

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the

sea when used to clean cargo holds and external surfaces on ships.

IMO approved and listed in Annex 10 of the MEPC.2/Circular.

Approved by Marinfloc AB for use in engine rooms.

Directions for Use

General Cleaning

UnitorTM Aquabreak PXTM can be used for all types of cleaning and degreasing, and it can be applied by brush, hand spray or used in ultrasonic bath.

It is recommended to test different concentrations on a small area to find the optimal effect on the contaminated surface. Depending on the amount and type soil to be removed, common dosage for light contamination is about 1-5%, for heavy contamination up to 20%.

For safe handling and optimal dilution we recommend the use of the UNITORTM MIXING STATION 4-14.

UnitorTM Aquabreak PXTM can be applied on vertical surfaces by adding UnitorTM Foam AgentTM for increasing the resident time.

Tank Cleaning

Direct injection method with tank washing machines:
Use a dose rate of 0.5-5 litres per ton wash water (0.05-0.5%).

Recirculation method

Use a dose rate of 0.5-7 litres per ton wash water (0.05-0.7%).

Spot cleaning

Hand sprayed neat or diluted up to 1-5 parts with water. Leave solution for about 20-30 minutes before washing off, but make sure the surface remains wet.

For problem deposits, please consult the UnitorTM Tank Cleaning Manual.

UnitorTM Aquabreak PXTM can be used on the majority of tank coating materials, painted or lacquered surfaces, light metals, plastics and textiles.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AQUATUFF

Unitor™ Aquatuff™ is a heavy-duty water based alkaline cleaner. It has numerous cleaning applications including removal of greases, waxes, vegetable and animal oils, sludge, soot, carbon deposits, dirt and grime.

Product Information

Unitor™ Aquatuff™ is a highly concentrated alkaline cleaner that is free from hydrocarbon solvents and biodegradable.



Features

- Highly concentrated
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Biodegradable
- Free from hydrocarbon solvents
- Aquatuff is most suitable for removal of wax deposits
- It has numerous cleaning applications including removal of grease, vegetable & animal oil, soot & general dirt & grime

Benefits

- Removal of soot deposits from inert gas systems
- Very effective and economical in use
- Completely safe on epoxy coatings

Product Number	Product Name
607826	Aquatuff 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Orange
Density [g/ml]	1.045 - 1.055
Form	Liquid
pH	13-14

Approvals

Nordic Swan eco-labelled.

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external

surfaces on ships.

IMO approved and listed in Annex 10 of the MEPC.2/Circular.

Approved by Marinfloc AB for use in engine rooms.

Directions for Use

General Cleaning - Deck and Engine Room

Unitor™ Aquatuff™ can be used for different types of cleaning, and it can be applied by brush, hand spray, high- and low pressure washing machines etc. It can be applied on vertical surfaces by adding Unitor™ Foam-Agent™ (Product no. 614537) for increased resident time. Dependent on degree of contamination typical dosage is about 1-5%.

Removal of soot from Inert Gas Systems (IGS)

1. Apply Unitor™ Aquatuff™ with a Unitor™ High Pressure Cleaning Machine and use 1:4 with water. However, if used with a hand sprayer, apply the product neat on the surfaces, allowing 1 litre per 12m².
2. Leave for about 30-45 minutes. The surface remains wet.
3. Wash down with hot water (80°C) and check the results.
4. Repeat the procedure if necessary.

Cargo hold cleaning

Unitor™ Aquatuff™ can be used for cargo hold cleaning after soot, coal, pet coke and other bulk materials.

Dosing method

1. For best foaming abilities use Unitor™ Foam Agent in conjunction with Aquatuff
2. Apply Unitor™ Aquatuff™ mixed 20% in water, using the Unitor™ Cargo hold Cleaning kits and its foam nozzle.
3. Leave for 10-15 minutes. The surface remains wet.
4. Wash down with Tornado 3 water jet. For best results, direct the water jet at the lowest parts of the hold first and work upwards.
5. Repeat the procedure if necessary.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BILGEWATER FLOCCULANT

Unitor™ Bilge Water Flocculant™ is a very effective liquid treatment based on Poly Aluminium Chloride (PAC) to separate oil residues from bilge water.

Product Information

Unitor™ Bilge Water Flocculant™ is iron-free, and is completely safe to the environment.



Applications

International environmental regulations set strict rules as to the oil content in effluent water from ships. To meet these regulations, a combination of mechanical and chemical cleaning is necessary. Unitor™ Bilge Water Flocculant is used in combination with multistage bilge water cleaning systems that include mechanical separation of free oil, emulsion breaking, flocculation and filtration. After dosing, Unitor™ Bilge Water Flocculant™ breaks the oil-in-water emulsion created by contaminants in lubricating and fuel oils, emulsifying cleaning agents etc. It then destabilizes the remaining small oil droplets and agglomerates them into larger particles (flocs) that are easily collected by filtering.

Features

- Cost-effective bilge water treatment based on specially selected Poly Aluminium Chloride
- Iron-free. Completely safe to the environment
- Acts by both breaking the oil-in-water emulsion and by building flocs
- Remaining oil sludge can be burned onboard or pumped ashore-contains very little water
- Approved by manufacturers of bilge water cleaning systems

Benefits

- Helps to meet environmental regulations on oil content. Discharged water contains normally less than 3ppm oil
- Low dosage, economical use
- Effective over an extended pH-range. Eliminates the use of pH-stabilising chemicals

Product Number	Product Name
690669	Bilgewater Flocculant 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear
Density [g/ml]	1.30 - 1.36
Form	Liquid
pH	1.0

Approvals

Approved by manufacturers of bilge water cleaning systems.

Directions for Use

Dosing method

Typical dose rate: 100 - 500ppm (0.1 - 0.5 l/m³ of water) In a multistage bilge water cleaning system, Unitor™ Bilge Water Flocculant™ is fed undiluted through a dosage pump connected to the pressure side of the oil descaler. The floc tank is fed according

to the flow of the bilge water pumped into it. The feed is adjusted in connection with the installation and normally needs no alteration. If required, dosing can also be controlled by measuring the level in the container.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CARBON REMOVER

Unitor™ Carbon Remover™ is a heavy duty solvent based cleaner ideal for removal of stubborn carbon deposits.



Product Information

Unitor™ Carbon Remover™ is a powerful non-corrosive solvent for quick break down carbon deposits and very economical in use.

Features

- Quickly dissolves deposits containing carbon, resins or varnishes
- Non flammable
- Removes carbon type deposits from burner tips, fuel injectors and all components fouled by carbon, resin or varnishes
- Cleans oil side of fuel heaters, oil coolers, etc.
- Removes carbon based deposits from fuel and lube oil filters
- Can be used for cleaning of: - Pistons - Piston rings - Valve cages

Benefits

- Simple and economical to use
- Eliminates the need for hard scraping

Product Number	Product Name
571604	Carbon Remover 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear brown
Density [g/ml]	0.99 - 1.00
Flash Point [°C]	Above 61
Form	Liquid
pH	10 - 11 in 5% solution

Directions for Use

Soak Method

This method is an effective way of cleaning deposits from components and machine parts. In order to reduce the evaporation of Unitor™ Carbon Remover™ both on the pure product as well as on its emulsions, a skin is formed when exposed to air.

The items for cleaning are submerged into the active solvent. A wire basket can be used for small components. Immersion time will depend upon the nature of the deposits to be removed. Light deposits will be removed in 1 hour, whereas heavily oxidised deposits might need longer time.

The components should be rinsed thoroughly before handling.

Cleaning the Oil Side of Heat Exchangers

The Unitor™ Chemical Cleaning Unit - Product no. 664 737189 - is recommended to be used.

1. Isolate the oil supply, disconnect the heat exchanger oil inlet and outlet, drain off any remaining oil.
2. Connect the discharge side of Unitor™ Chemical Cleaning Unit (CCU) to the lower heat exchanger connection and fit the return to the CCU.
3. Add Unitor™ Carbon Remover™ to the drum, product can be diluted with diesel oil down to 25 % and heat, maintaining the temperature (max 50°C) throughout the cleaning operation. If heating is not available, the cleaning time will need to be extended and a higher product concentration is beneficial.
4. Circulate for 12 hours. When the cleaning is complete, disconnect the lower heat exchanger connection and drain.
5. Connect a high pressure fresh water supply to the upper heat exchanger connection. Rinse until water runs clear.
6. Disconnect, drain and dry.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CARBONCLEAN LT

Unitor™ Carbonclean LT™ is a non-corrosive, powerful micro emulsion based cleaner for removal of carbonaceous deposits.

Product Information

Unitor™ Carbonclean LT™ contains no chlorinated solvents or phenolic compounds and has low toxicity to the environment and to persons handling it.

It is developed and ideal for removing carbon type deposits from heat exchange, burner tips, fuel injectors, and other engine parts being contaminated by carbon residues.



Features

- Reformulated with improved cleaning properties
- Can be used for cleaning engine parts including, but not limited to: Pistons, Piston rings, Valves, Valve cages
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Simple and economical to use by soaking or circulation method
- Cleans oil side of fuel and lube-oil heaters, oil coolers, etc
- Removes carbon based deposits from fuel and lube oil filters

Benefits

- Non-corrosive, safe on all light metals, including aluminium
- Quickly dissolves deposits containing carbon, resins or varnishes
- Eliminates need for hard scraping
- Effectively removes carbon type deposits from burner tips, fuel injectors and all components fouled by carbon, resin or varnishes
- Low toxicity and low evaporation rate
- Contains no phenolic or chlorinated compounds

Product Number

575696

Product Name

Carbonclean LT 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless
Density [g/ml]	0.95 - 0.96
Flash Point [°C]	Above 61
Form	Liquid

Directions for Use

Soaked method

This method is an effective way of cleaning deposits from machine parts. The items to be cleaned are dipped into the cleaning solution. A wire basket can be used for small components. For removal of light deposits or oil, a dilution of up to 1:2 in fresh water can be used. Light deposits will be removed in 1 hour, whereas heavily oxidised deposits may need overnight soaking. After the components have been removed from the soaking bath, remaining cleaning solution is easily flushed off with water.

Due to a very low evaporation rate, no precautions are necessary to prevent loss of liquid, but adequate ventilation is recommended.

Cleaning the Oil Side of Heat Exchangers

Where in-site cleaning is required, Unitor™ Carbonclean LT™ can be used neat and circulated through the unit in question. Time required for this process will again depend on extent of fouling and may take up to 24 hours.

The Unitor™ Chemical Cleaning Unit - Product no. 737189 - is recommended to be used.

1. Disconnect the heat exchanger's oil inlet and outlet, drain off any remaining oil.
2. Connect the discharge side of the Chemical Cleaning Unit (CCU) to the lower heat exchanger connection and fit the return to the CCU.
3. Add Unitor™ Carbonclean LT™ to the drum, Unitor™ Carbocean LT™ can be diluted to

- 25% with fresh water, and heat, maintaining the temperature (max 60°C), throughout the cleaning operation. If heat is not available the cleaning time will need to be extended and a higher product concentration is beneficial.
4. Circulate for 12 hours. When the cleaning is complete, disconnect the lower heat exchange

5. connection and drain out the cleaning solution.
6. Connect a fresh water supply to the upper heat exchanger connection. Rinse until water runs clear.
6. Disconnect the water supply, drain and dry the heat exchanger.

The UnitorTM Chemical Cleaning Unit can also be used for cleaning by soaking or circulation. Results can be achieved with maximum efficiency and with the minimum use of UnitorTM Carbonclean LTTM.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CLEANBREAK

UnitorTM CleanbreakTM is highly effective, economical and self-splitting solvent based cleaner for engine room, machinery spaces and bilges.



Product Information

UNITORTM CleanbreakTM is solvent based degreaser containing self-splitting emulsifiers. It allows the slop water to break into separate oil and water phases.

The main applications are for cleaning in the engine room for machinery spaces, bulkheads, tank tops, bilges and on deck.

Features

- Highly effective, economical solvent cleaner
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Reduces disposal costs and associated problems
- Low toxicity, non corrosive
- Used for general cleaning of machinery spaces, bulkheads, decks, tank tops and any oil/grease soiled areas
- Should be used where slops are required to pass through oily water separators to meet current IMO regulations

Benefits

- Rapid penetration
- Slop emulsions break into two distinct phases
- Allows oil residues to be reclaimed

Product Number	Product Name
571497	Cleanbreak 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear brown
Density [g/ml]	0.78 - 0.81
Flash Point [°C]	Above 61
Form	Liquid

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Approved by Blohm+Voss AG for OWS type TCS/HD
Approved by Marinfloc AB for use in engine rooms

Directions for Use

The main applications are for cleaning in the engine room for machinery spaces, bulkheads, tank tops and on deck.

UnitorTM CleanbreakTM is recommended for local cleaning and degreasing of engine rooms, bilges and tank tops. It can be applied by brush, spray, immersion, soaking, or any other conventional means. UnitorTM Cleanbreak is used neat. Allow a residence time of at least 30-60 minutes where possible to ensure good penetration.

Wash down all surfaces using hot water if possible and high pressure water jet. The emulsion residue after cleaning must be allowed to separate in a holding tank over sufficient time before passing through an oily water separator.

To achieve the best results from the splitting action of UnitorTM CleanbreakTM. It is important that no other type of solvent/emulsifying cleaner is used in the engine room.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

COLDWASH HD

UNITORTM Coldwash HD™ is a heavy duty degreaser based on petroleum solvents, emulsifying agents and surfactants. This product is excellent for use on soiled surfaces, bilges and machinery parts.



Product Information

UNITORTM Coldwash HD™ splits after cleaning, releasing the oil phase for reclamation. Powerful degreaser with quick penetration and good emulsifying properties. The emulsifying agents in this product are biological degradable. Does not contain nonyl phenol ethoxylates or other estrogenic compounds. Effective on mineral oils and petroleum based residues. Safe to use on most metal surfaces and painted surfaces. Removes oil contamination from machinery, engine parts and bilges. Soak cleaning of machinery parts. Rapid rinsing, leaves clean and oil-free surfaces.

Features

- Emulsifying agents are biologically degradable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Effective on mineral oils and petroleum based residues
- Safe to use on most metal surfaces and painted surfaces
- Removes oil contamination from machinery, engine parts and bilges
- Allows soak cleaning of machinery parts

Benefits

- Easy to recover as it splits after cleaning, releasing the oil phase
- Powerful degreaser with quick penetration and good emulsifying properties
- Rapid rinsing, leaves clean and oil-free surfaces

Product Number	Product Name
571430	Coldwash HD 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear brown
Density [g/ml]	0.90
Flash Point [°C]	Above 61
Form	Liquid

Directions for Use

This product is excellent for use on soiled surfaces, bilges and machinery parts.

This degreaser must be applied neat with a brush, by hand spray, immersion, soaking etc. The contact, or soaking, time should be between 15 minutes to 2 hours before washing off with hot or cold water. Hot water will improve the result of the cleaning.

Spot Cleaning

Spray neat UNITORTM Coldwash HD™ onto surfaces to be cleaned. The contact time should be at least 30 minutes or up to 2 hours if time allows. Bulkheads/walls can be washed down by use of high pressure cleaning machines. The best result is achieved with hot water between 60-80°C.

Spray Method

Spray UNITORTM Coldwash HD™ neat onto soiled surfaces. The contact time should be between 15-30 minutes, and then wash off with water. To clean stubborn deposits, mechanical agitation such as scrubbing will improve the cleaning.

Soak Method

Immerse the parts to be cleaned into a bath of neat UNITORTM Coldwash HD™ for 30 minutes, and then wash off with water.

Circulation Method

Cleaning of equipment such as lube oil heat exchangers, fuel oil preheaters and filters can be accomplished by circulating neat UNITORTM Coldwash HD™.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

COMMISSIONING CLEANER

Unitor™ Commissioning Cleaner™ is an innovative multifunctional water based cleaner that removes scale, rust, oil and grease all in just one step.



Product Information

Unitor™ Commissioning Cleaner™ is the new generation in one step cleaner products. It is designed for cleaning of boiler or cooling systems especially on board new buildings.

The product is recirculated through the systems, using an external circulation pump. Unitor™ Commissioning Cleaner™ is low foaming and will remove scale, rust, oil and grease at the same time.

Features

- Water based multifunctional cleaner
- Biodegradable
- Low foaming
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Cleaning of new systems for mill scale, rust, oil etc.

Benefits

- Cleans water systems with light scale and a thin oil film
- Provides a temporary protection against corrosion by passivation
- Safe on aluminium, zinc, tin and their alloys
- Quick separation of oil after cleaning
- No need of neutralization chemicals afterwards

Product Number	Product Name
624932	Commissioning Cleaner 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Off white to pale yellow
Density [g/ml]	1.10 - 1.12
Form	Liquid
pH	8.5 - 9.0 in 20% solution

Directions for Use

Unitor™ Commissioning Cleaner™ is for cleaning of new boilers and cooling systems on board new buildings. It will remove scale, rust, oil and grease at the same time from the systems. The product is recirculated through the system, using an external circulation pump. Use the dosage 5-10% solution depending on the grade of contamination.

4. Add a solution 5-10% strength of Unitor™ Commissioning Cleaner™.
5. Circulate through the system for 5 to 8 hours at the maximum temperature allowed by the system.
6. Drain system complete and flush thoroughly the entire system and all compounds with fresh water until effluent is clear.
7. Reinspect to determine results of the cleaning process.
8. If unsatisfactory, repeat steps 3 through 7.
9. Refill system with distillate or good quality fresh water and dose the required amount of cooling or boiler water treatment.
10. Test system on a regular basis to insure chemical residuals are maintained with specific limits.

Degreasing and descaling of boiler and cooling water systems

The Unitor™ Chemical Cleaning Unit - Product no. 664 737189 - is recommended to be used.

1. Drain system to be cleaned if necessary.
2. Inspect as completely as possible to determine the extent of contamination and general condition of system.
3. Fill with fresh water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DECK CLEAN NP

Unitor™ Deck Clean NP™ is a liquid cleaning formulation containing acids, emulsifiers and passivators used for removal of rust and water born stains on superstructure and decks.



Product Information

Unitor™ Deck Clean NP™ is free of phosphoric acid and is readily biodegradable.

Features

- Waterborne
- Removes light rust and rust stains from painted and wooden surfaces, metals and glass.
- Does not contain nonylphenol ethoxylates or other estrogenic compounds.
- Phosphoric acid free
- Readily biodegradable
- Non-flammable

Benefits

- Highly concentrated
- Removes waterborne stains from windows
- Removes light rust and rust stains from painted and wooden surfaces, metals and glass.
- Easy to rinse off

Product Number	Product Name
765990	Deck Clean NP 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light yellow
Density [g/ml]	1.1
Form	Liquid
pH	2 in 1% solution

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the

sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

Dosage and control

Unitor™ Deck Clean NP™ should always be added to water, never the reverse. Remove dirt, rust flakes and oil/grease prior to using Unitor™ Deck Clean NP™. Required dosage may vary slightly depending on degree of stain.

For the removal of rust stains on painted surfaces & wood, Unitor™ Deck Clean NP™ should be applied at full strength for heavy stains or diluted to 10-30% strength for light stains.

Allow to soak for 20-30 minutes and rinse off surface with water. A second application may be necessary to remove the stubborn stains.

Unitor™ Deck Clean NP™ can be used for brightening of teak, mahogany and oak decking and to remove rust and water stains on Wood and Varnished wood.

Make up to a 10% solution of Unitor™ Deck Clean NP™ and allow to soak for about 20 minutes and rinse off surface with water. Do not let Unitor™ Deck Clean NP™ dry on surface.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DEFOAMER CONCENTRATE

Unitor™ Defoamer Concentrate™ is a non-silicone based water dispersible, liquid defoamer. It controls foaming in sewage and waste water systems, and it is stable in alkaline conditions.



Product Information

Unitor™ Defoamer Concentrate™ can be used to remove foam in water based systems and collecting tanks in vacuum toilet systems.

Features

- Non-silicone defoamer
- Stable in alkaline conditions
- Outstanding for all atmospheric, pressurised and continuous waste equipment
- Approved by ZENON Environmental Inc. for use in membrane bio reactor systems

Benefits

- Can be used in sewage and waste water systems
- Excellent to control foaming and remove foam when necessary

Product Number	Product Name
661843	Defoamer Concentrate 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Yellow brown
Density [g/ml]	0.86 - 0.90
Flash Point [°C]	85
Form	Liquid

Approvals

Approved by ZENON Environmental Inc. for use in membrane bio reactor systems

Directions for Use

Effective dosage will vary depending on foam origin, stability and the area of defoamer application. Trials are always the best way to determine defoaming capabilities and efficiency.

The recommended dosing method for sewage systems is to premix 1 part of Unitor™ Defoamer Concentrate™ with 5 parts of fresh water and pump this into the EVAC ejector tank. The dosing is done about 1/2 hour before top load.

Dosing method

Typical dosage is 10 to 30ml/tonne, but proper dosage rate to be found out on site testing.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DESCALEX

Unitor™ Descalex™ is a powerful dry acid cleaner formulated to remove rust and scale deposits. It contains a colour indicator to show the strength of the cleaning solution and anti-foaming agent.



Product Information

Descaling of Boilers, Descaling of Diesel Engine Cooling Water Systems, Condensers, Evaporators, Calorifiers, Heat Exchangers:

Unitor™ has developed a 210 litres capacity cleaning unit designed among other for use with chemical acid solutions for cleaning boilers, calorifiers, heat exchangers and other types of equipment where rust and scale form.

Unitor™ Chemical Cleaning Unit: Product no. 737189

Features

- Dry acid concentrated cleaner contains inhibitors to protect metals
- Contains colour indicator to show the strength of the solution and anti-foam agent
- Safe and easy handling and storage
- Removes scale from boilers and diesel engine cooling water systems
- Removes scale and rust from condensers, evaporators, heat exchangers etc.

Benefits

- Efficient, economical, and safe to use
- Fast and effective scale remover

Product Number	Product Name
571646	Descalex 25 kg

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Orange
Density [g/ml]	1.2
Form	Powder
pH	1.1 in 10% solution

Notes regarding safety in descaling operations:

Notes regarding safety in descaling operations:
Unitor™ Descalex™ contains strong acids. Handle with care and pay special attention to the Safety Data Sheet and / or Product Label. Use personal protection equipment as recommended.

Reaction products from acid components in descaling products may include gasses like carbon dioxide and hydrogen. Formation of hydrogen gas can be monitored with gas detection equipment on the vents. To avoid suffocation and potentially

explosive atmosphere, gasses should be removed safely by purging system with water after draining the cleaning solution. Vent of system during descaling operations must be provided for same reason.

Always use gas detection equipment to check that the atmosphere is safe before entering confined spaces for inspection after descaling operations. When circulating the descaling solution, always circulate with inlet at the bottom to avoid air pockets and potential entrapment of gaseous reaction products.

Approvals

Approved by the Norwegian National Institute of Public Health for cleaning of evaporators.

Directions for use

The most effective descaling is accomplished by circulation. In the case of small components, the soak

method in an immersion bath can be used.
If the equipment to be cleaned is contaminated by oil,

grease and sludge, then pre-cleaning with Unitor™ Seaclean Plus or Unitor™ Enviroclean is necessary.

Depending on the extent of scaling, use a solution of 2.5--10% Unitor™ Descalex™. The solution will have a red colour which disappear when the solution is neutralised. Whenever possible, the solution should be heated to 60°C.

Neutralised solutions can be reactivated by adding more Unitor™ Descalex™ until the red colour reappears. This should not be done more than twice.

Unitor™ Descalex™ should not be used on aluminium, zinc, tin or galvanised surfaces.

After use of Unitor™ Descalex™ a 0.5% solution of Naifleet™ Alkalinity Control in fresh water should be used for neutralisation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DESCALING LIQUID

Unitor™ Descaling Liquid™ is a powerful hydrochloric acid based product containing effective descaling accelerators, corrosion-inhibitors and wetting agents in a highly efficient solution.



Product Information

Unitor™ Descaling Liquid™ is an acid based liquid product that contains corrosion inhibitors and that is highly effective to remove scale and rust. It should not be used on aluminium, zinc, tin, stainless steel, titanium or any other galvanized surfaces for which a special grade cleaner is recommended by the manufacturer.

Unitor™ has developed Cargo Hold Cleaning Kits and appropriately tested for use with Descaling liquid solution for efficient removal of cargo sediments such as cements, lime wash and similar products from hold bulkheads.

Unitor™ Panamax Cargo Hold Cleaning Kit, product no. 778855

Unitor™ Cargo Hold Compact Kit, product no. 778955

To avoid unnecessary corrosion of the cleaning kits, it is highly recommended to flush the equipment with fresh water regularly during cleaning, between each cargo hold and before storage.

Furthermore, Unitor™ has also developed a 210 litres capacity cleaning unit (Unitor™ Chemical Cleaning Unit: product no. 737189), designed for use with chemical acid solutions for cleaning boilers, calorifiers, heat exchangers and other types of similar equipment where rust and scale removal is necessary.

Features

- Hydrochloric Acid based product containing inhibitors against attack on ferrous metals
- Highly concentrated and suitable for multiple purposes
- Removes cargo sediments such as cement and lime wash, loose scale and rust from cargo hold bulkheads and coated metal surfaces
- Removes scale and rust from engine room condensers, evaporators, heat exchangers and similar equipment
- Removes water scale from boilers

Benefits

- Reduces corrosion risk
- Easy to rinse off
- Fast and effective scale and rust remover

Product Number	Product Name
571653	Descaling Liquid 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Pale yellow
Density [g/ml]	1.16 - 1.20
Form	Liquid
pH	<1.5

Notes regarding safety in descaling operations:

Descaling liquid contains strong acids. Handle with care and pay special attention to the Safety Data Sheet and / or Product Label. Use personal protection equipment as recommended.

Reactants from acid components in descaling products may include gasses like carbon dioxide and hydrogen. Formation of hydrogen gas can be monitored with gas detection equipment on the vents. To avoid suffocation and potentially explosive atmosphere, gasses should be removed safely.

by purging system with water after draining the cleaning solution.

Vent of system during descaling operations must be provided for same reason. Always use gas detection equipment to check that the atmosphere is safe

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for use

The most effective descaling is accomplished by circulation for large systems or components. In the case of small components, the soak method in an immersion bath can be used.

If the equipment to be cleaned is contaminated by oil, grease, sludge or carbonised oil, then pre-cleaning with Unitor™ Seaclean Plus™ or Unitor™ Enviroclean™ is necessary.

Unitor™ Descaling Liquid™ should always be used in plastic containers. Acid should always be added to water, and never the reverse.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

before entering confined spaces for inspection after descaling operations. When circulating the descaling solution, always circulate with inlet at the bottom to avoid air pockets and potential entrapment of gaseous reaction products.

Approved by the Norwegian National Institute of Public Health for cleaning of evaporators.

Unitor™ Descaling Liquid should be mixed with fresh water to form a solution of 10-30%, depending on the extent of scaling. After using Unitor™ Descaling Liquid it is essential to thoroughly rinse all metal surfaces at least once with a 0.5% solution of Naifleet™ Alkalinity Control™ in fresh water. This solution should be circulated for 2-4 hours or until an acceptable pH value is obtained. This will neutralize any remaining acidity and passivate steel surfaces.

DISCLEAN

Unitor™ Disclean™ is a water based blend of inhibited acids, surfactants and emulsifying agents for cleaning of separator discs.



Product Information

Unitor™ Disclean™ removes the heavy tenacious deposits which collect in fuel and lube oil centrifugal separators, and it is extremely effective in removing these deposits without the necessity of separating the discs from the stack.

It is recommended that this product is not used on zinc, tin, galvanised surfaces or anodised aluminium.

The Unitor™ Chemical Cleaning Unit (Product no. 737189) can be used for soak cleaning of disc stacks.

Features

- Acid based product containing surfactants
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-flammable
- Removes heavy tenacious deposits
- Cleans down to metal surfaces
- Approved by Marinfloc AB for use in engine rooms

Benefits

- Leaves no film or residue
- Reduces system down time
- Allows cleaning of disc without dismantling of disc stacks
- Cleans all types of separator discs

Product Number	Product Name
571687	Disclean 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Light yellow
Density [g/ml]	1.25 - 1.30
Form	Liquid
pH	2 in 1% solution

Directions for use

Unitor™ Disclean™ may be used neat or diluted down to 20% by volume with fresh water, depending on the severity of contamination, availability of heat and time to complete cleaning operation. The higher the concentration the more efficient the cleaning action.

The time for a cleaning operation will vary from 30 minutes to maximum 2 hours depending on the above factors. Faster and more efficient cleaning can be accomplished by heating to a maximum temperature of 60 °C.

After the unit or parts have been satisfactorily

cleaned, they shall be rinsed thoroughly with fresh water to remove all traces of contamination and Unitor™ Disclean™.

Method of cleaning

- Separators can be cleaned by:
1. Removing the separator disc stack and soaking in a solution of Unitor™ Disclean. Circulating the solution and heating will enhance the cleaning.
 2. Removing the separator discs and dismantling stack, then soaking discs in Unitor™ Disclean. Circulating and heating the solution will enhance the cleaning. Discs can be sprayed if soaking tank is not available.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ELECTROSOLV - E

Unitor™ Electrosolv-E™ is a non-chlorinated solvent with a controlled evaporation rate for cleaning and degreasing electrical equipments and parts.



Product Information

Unitor™ Electrosolv-E™ is a powerful non-chlorinated solvent with a controlled evaporation rate for cleaning and degreasing of electrical equipments and parts rapidly.

Features

- Contains no chlorinated solvents
- Powerful solvent with controlled evaporation
- Harmless to electrical insulation- tested for breakthrough voltage after DIN- 57370 to 209 kV/cm

Benefits

- Rapid penetration and action
- Efficient cleaning with no grease film or moisture residue
- Non-corrosive - can be used on all normal components with no risk of corrosive damage
- Cleans and degreases electrical parts and equipment without the need for rinsing

Product Number

604389

Product Name

Electrosolv - E 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear and colourless
Density [g/ml]	0.76
Flash Point [°C]	Above 61
Form	Liquid

Performance data

Caution. Never use Electrosolv-E on a running generator or motor. Electrosolv-E can be used to clean virtually all electrical equipment and components although it may affect some types of rubber and plastic. Either remove rubber and plastic parts from component or test on small area

for any reaction before cleaning.

After cleaning motors or generators insulation resistance to ground should be tested to check that it is within its specified limits. Sprayers: a range of spray equipment is available for use with Electrosolv-E and other solvents.

Directions for Use

Unitor™ Electrosolv-E™ must only be used in sufficient ventilated areas. Unitor™ Electrosolv-E™ should always be used undiluted. It can be applied by brush, swab or as a fine spray using suitable hand held spray equipment.

NOTE! Never open flame when using fine spray.

Small components be cleaned by brief immersion in a bath of Unitor™ Electrosolv-E™. The most suitable

way of applying Unitor™ Electrosolv-E™ is by using hand spray or siphon spray gun. Once the deposits of dirt and grease have been flushed away with Unitor™ Electrosolv-E™ the remaining solvent may be evaporated by using clean compressed air at low pressure and high volume.

Dilution:

Concentrated use only

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ENVIROCLEAN

Unitor™ Enviroclean™ is a heavy duty all purpose micro emulsion water based cleaner and degreaser for general engine room and deck cleaning tasks. It is the most used cleaner in today's marine world.

Product Information

Unitor™ Enviroclean™ is highly concentrated, low toxic, biodegradable and safe to use. It is based on powerful fatty acid derivates linked with an advanced surfactant formulation.



The main applications are for cleaning and degreasing in the engine room, deck cleaning and for general removal of grease, oil, sludge, polymer compounds, carbon deposits, dirt and grime.

Features

- Highly concentrated water based degreaser
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Low-toxic
- Unitor™ Enviroclean™ has numerous general marine cleaning applications including the removal of greases, oil, sludge, polymer compounds, carbon deposits, dirt and grime
- As an engine room cleaner it is exceptional as not only can it be used for degreasing, cleaning paint work and carbon removal, but also for use in soak tanks, ultrasonic tanks and high pressure cleaning equipment

Benefits

- Promotes a pleasant and healthy working environment
- Splits after cleaning, releasing the oil phase for reclamation
- Compatible with Oily Water Separators

Product Number	Product Name
765018	Enviroclean 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Pale yellow to orange liquid
Density [g/ml]	1.01 - 1.02
Form	Liquid
pH	10.0 - 11.0

Accessories

710451	Unitor Mixing Station 4-14
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Approvals

Nordic Swan eco-labelled.
This composition meets the criteria for not being harmful to the marine environment according to

MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

1. General cleaning

Unitor™ Enviroclean can be used for all types of cleaning and degreasing and can be applied by brush, hand spray or used in ultrasonic cleaning tanks.

Dependent on the amount and type of soil to be removed typical dosage is about 1-5%

After use as an engine room cleaner, bilge slops must be given sufficient time to separate before passing through an oily water separator.

For safe handling and optimal dilution we recommend the use of the UNITOR™ MIXING STATION 4-14.

2. Spot cleaning

Unitor™ Enviroclean can be diluted with water and hand sprayed. Recommended dosage up to 25%, depending on the amount and type of soil to be removed. Left for about 20-30 minutes before washing off with water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FILTERCARE

Unitor™ Filtercare™ is a heavy duty cleaner and degreaser based on powerful petroleum solvents and self-splitting emulsifiers specially designed for cleaning fuel filters.

Product Information

Unitor™ Filtercare™ provides quick penetration and solvency and is ideal for cleaning of fuel filters, pre-heaters, burner tips and other machinery parts.

It allows the slop water to break into separate oil and water phases after use. It contains no chlorinated solvents.



Features

- Does not contain any chlorinated solvents.
- Provides quick penetration and solvency and is ideal for cleaning of fuel filters, pre-heaters, burner tips and other machinery parts.
- A heavy duty cleaner and degreaser based on powerful petroleum solvents and self-splitting emulsifiers.

Benefits

- Allows the slop water to break into separate oil and water phases after use.
- Allows oil residues to be reclaimed and incinerated onboard.
- Reduces disposal cost and associated problems.
- Does not contain any chlorinated solvents.

Product Number	Product Name
769915	Filtercare 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light yellow
Density [g/ml]	0.81
Flash Point [°C]	Above 61
Form	Liquid

Directions for Use

Normal cleaning

Dosing when performing manual filter cleaning:
Please use undiluted and at temperatures no higher than 60°C, due to its flashpoint temperature do not use Unitor™ Filtercare™ in ultrasonic cleaner.

Please refer to the Unitor Ultrasonic unit in the product catalogue for alternative products and the user manual for further instructions for use of ultrasonic units.

Circulation method

Circulate for at least 2 hours and rinse with water.
For best rinsing effect use hot water up to 60°C.
The Unitor™ Cleaning Unit (Product No. 737189) is recommended for cleaning by soaking or circulation.

Accessories

737189	Chem. Clean. Unit W/Heating, Coated
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FOAM - AGENT

Unitor™ Foam-Agent™ is a water based non-flammable foam additive.

Product Information

Unitor™ Foam-Agent™ enhances the cleaning efficiency of the cleaning chemicals being used by prolonging the contact time on the soiled surface. In addition it will also be a more economical use of the cleaning chemicals.



Features

- Biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Non-flammable
- Suitable for use with our water based alkaline cleaning chemicals

Benefits

- Prevents the chemicals from running off vertical surfaces, and increases the resident time
- Create a dense foam
- Enhance chemical soaking

Product Number	Product Name
614537	Foam-Agent 3x5 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Light yellow
Density [g/ml]	0.76
Form	Liquid
pH	8 - 8.5

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea

when used to clean cargo holds and external surfaces on ships.

Directions for Use

Dosing method

Unitor™ Foam-Agent™ can be used together with the below mentioned water based cleaning chemicals. This makes it possible to apply the chemicals as foam, and prevent that the cleaning chemicals run off from vertical surfaces.

Add 50 ml Unitor™ Foam-Agent™ per 10 Ltr washing solution, mix and apply with foam-equipment onto soiled surfaces.

Unitor™ Aquatuff™, Unitor™ Aquabreak PX™,
Unitor™ Alkleen Liquid™, Unitor™ Alkleen Safety
Liquid™, Unitor™ Fore & Aft™ and Unitor™
H.P. Wash™.

Advice to follow the directions for use for the actual cleaning product.

After the cleaning process:

Unitor™ Defoamer Concentrate™ (Product No: 661843) can be used to remove undesirable foam.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FORE AND AFT

Unitor™ Fore & Aft™ is a multipurpose water based biodegradable cleaner containing surfactants and alkaline materials.



Product Information

Unitor™ Fore & Aft™ is non-caustic, very economical in use and is ideal for general cleaning on deck and superstructures.

Features

- Biodegradable cleaner
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-caustic
- Non-flammable
- Suitable for cleaning of sanitary fixtures i.e. showers, toilets etc
- Phosphate free

Benefits

- Very economical to use
- Non harmful to marine environment
- Can be used on windows and port holes
- Acceptable for use in the food storage areas

Product Number	Product Name
571554	Fore and Aft 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Blue
Density [g/ml]	1.03 - 1.05
Form	Liquid
pH	11 - 12

Directions for Use

Dosing method

Depending on the applications, Unitor™ Fore & Aft™ can be diluted with water in concentrations from 0.15 to 1.25%.

between 0.15 to 1.25% and applied by mops, spray or sponge and rinsed off with water after the cleaning.

For cleaning in public areas, such as floors, tiles, walls, paint work etc., it can be used in concentrations

For objects such as furnitures, plastics, vinyls etc., a concentration between 0.15 to 0.75% is recommended. Rinse off with water after the cleaning.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HP WASH

Unitor™ HP Wash™ is an alkaline water based cleaner with detergents and surfactants which quickly dissolve grease and dirt deposits on board. It is designed for use with high pressure cleaning machines.



Product Information

Unitor™ H.P. Wash™ is a phosphate free cleaner, designed for use with high pressure cleaning machines such as Unitor™ High Pressure Cleaners. It is also suitable for hot or cold high pressure spray equipments.

Unitor™ H.P. Wash™ is also suitable for most painted surfaces and dries leaving a good shine.

Features

- Reformulated with improved cleaning properties and highly concentrated
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Biodegradable & non flammable cleaner
- Can be used for general cleaning in the engine room, outside paint work and on the deck
- Can be used on Ro/Ro vessel car decks, for removal of traffic film
- Can be used for cleaning of fish holds and process machinery onboard factory vessels

Benefits

- Leaves a good shine on hard surfaces after cleaning
- Low dose rates of 0.5-5%
- Rapid dispersal of a large range of oils and greases

Product Number	Product Name
571729	HP Wash 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless to pale yellow
Density [g/ml]	1.1
Form	Liquid
pH	12 - 13

Approvals

Nordic Swan eco-labelled.
This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea

when used to clean cargo holds and external surfaces on ships.
Approved by Marinfloc AB for use in engine rooms.

Directions for Use

Dosing method

For high pressure cleaning, apply the cleaning agent in an even layer using low pressure. Allow solution to penetrate soil for about 3-5 minutes before washing off thoroughly with high pressure water.

Unitor™ H.P. Wash™ can be used by conventional cleaning using brush, rag or spray at a dose rate of 5-20% in water depending on the soiling. Allow 5 minutes for penetration, then rinse off with water.

The recommended dose rates for the application using low pressure side of the cleaning machine, is between 0.5-5% depending on amount and type of soil.

Sampling and testing

Unitor™ H.P. Wash™ is suitable for most painted surfaces and dries leaving a good shine.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

METAL BRITE

Unitor™ Metal Brite™ is a liquid detergent compound containing rust dissolving acids, emulsifiers and passivators.



Product Information

Unitor™ Metal Brite™ is a non-flammable rust stain remover and surface brightener.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Non-flammable
- Surface brightening

Benefits

- Prevents flash rusting
- Surfaces rendered suitable for painting

Product Number	Product Name
571661	Metal Brite 25 Ltr
571679	Metal Brite HD 25 Ltr

Specification

Product Name	Metal Brite 25 Ltr	Metal Brite HD 25 Ltr
Invent Hazard Material (IMO/EU) classification	C-11	C-11
Appearance	Light yellow	Light yellow
Density	1.2	1.3
Form	Liquid	Liquid
pH	2 in 1% solution	2 in 1% solution

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the

sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

Unitor™ Metal Brite™ should always be used in a plastic bucket. The acid should always be added to water, never the reverse.

For removal of rust stains and oxide stains on aluminium, brass, copper and stainless steel, apply Unitor™ Metal Brite (after removal of oil and grease) neat with a brush, rag, etc. Wash off after 15 minutes. Repeat if necessary. Do not let Unitor™ Metal Brite™ dry on surfaces as it may leave a hard white deposit.

For steel surfaces remove oil, grease and old paint. Wet down the entire surface with neat Unitor™

Metal Brite™ and allow to dry. Second wash may be necessary. Surface should have a grey/white appearance when the Unitor™ Metal Brite™ is dry. Steel surfaces will have a resistance to rust and will render a good base for paint.

For removal of rust stains on painted surfaces and wood, Unitor™ Metal Brite™ should be applied at full strength for heavy stains, or diluted to 30-50% for light stains. Allow to soak for 20 to 30 minutes and wash off with water. A second application may be necessary to remove the stubborn stains.

Metal Brite HD:

Dosing Method

UnitorTM Metal Brite H.D. should always be used in a plastic bucket. Acid should always be added to water, never the reverse. Remove dirt, rust flakes, oil and grease prior to using UnitorTM Metal Brite H.D.

Apply UnitorTM Metal Brite H.D. to surfaces to be cleaned or pickled as follows:

For severely corroded surfaces and pickling of welding repairs, use 50% solution to neat.

For less severely corroded or soiled surfaces and tarnish on copper and brass, use a solution of 20-50%, and rinse off surface after 15-40 minutes with water.

On aluminium, use a solution of 10-30%, but rinse off surface maximum 5 minutes after application.

For removal of rust stains on painted surfaces, a solution of 10-30% should be sufficient. Rinse off with water 15-20 minutes after application.

For removal of rust stains on ceramic tiles, enamels, porcelain, glass etc., use a solution of 20-50%, depending on stains and soiling. Rinse off with water after 20-40 minutes.

For removal of light cement stains and lime, apply a 50% solution, and high pressure wash after 30-40 minutes, and for solidified cement use UnitorTM Descaling Liquid.

For removal of light rust and scale in pipelines and tanks, recirculate a solution of 5-10% UnitorTM Metal Brite H.D. For discolouration of stainless steel and epoxy coated tanks use the same method.

For removal of white residues from epoxy-coatings that sometimes remains after carriage of Stearin, Olein, Palm fatty acid etc., recirculate a solution of 5-10% UnitorTM Metal Brite H.D. When injected, use a 5% solution. Recirculate or inject until residue is removed.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MUD & SILT REMOVER

UnitorTM Mud & Silt RemoverTM is a liquid organic polyelectrolyte that is formulated to break up the adhering force of mud and silt, it prevents heavy sediment accumulation from ballast tanks.

Product Information

The loading of ballast water over time results in the deposition of mud, silt and sediment in the ballast tanks. If this is not dealt with on a regular basis, a "permanent ballast" may accumulate, causing problems when emptying the tank and contamination of the ballast water. UnitorTM Mud & Silt RemoverTM removes silt and mud from ballast tanks by attracting particles together and making them more flowing and prevents build-up of hard packed layers in tanks. A loose deposit is formed, which can be more easily removed during deep water ballast exchange.



The buildup of sediments in ballast water tanks will also create breeding grounds for micro and macro organisms and shield them from transfer through installed Ballast Water Treatment Systems (BWTS). Sudden dislodgement of such sediments can reduce the performance of Chlorination and UV treatment and risk exceedance of D2 quality standards.

Regulators of Ballast Water Management Convention (BWM 2004) strongly recommend that removing sediment from ballast water tanks and routine cleaning is one of the key strategies for reducing the risk of the spread of Alien Invasive Species (AIS) through ballast water transfer. Routine cleaning of ballast water tanks and removal of sediment in mid-ocean or at specific facilities provided in port will reduce the number of organisms that are transported and discharged and help ballast water treatment systems to meet IMO D2 performance standards.

Features

- No acids, alkali or solvent
- Biodegradable
- Non-toxic
- Non-pollutant
- Effective at low concentration
- Bind and loosen mud and silt sedimentation to form free flowing flocs for easy removal of sedimentation in Ballast Tanks

Benefits

- Highly economical in use
- Prevents retention and build-up of invasive species
- Maximises cargo capacity
- Safes time and labour cost
- Helps to comply with BWM 2004 standards
- Improve the effect on your BWTS

Product Number

635326

Product Name

Mud & Silt Remover 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Appearance

White

Density [g/ml]

1.0

Form

Viscous liquid

pH

7 - 8

Directions for Use

Unitor™ Mud & Silt Remover should be injected in small quantities into the ballast water during the ballasting operation to help mix the product with the ballast water. Heavy deposits may require several treatments.

Dosing methods

Heavy Accumulations

To clean heavy accumulations of silt and sediment add 10 lit Unitor™ Mud & Silt Remover per 100 tons of ballast water. Add Mud & Silt Remover gradually whilst filling the ballast tank to ensure thorough mixing with the ballast water and utilize the rolling movements of the vessel for agitation. Allow a 24hr contact time to enable the product to loosen and lift sediments into suspension. Then exchange ballast with fresh sea water to flush out suspended mud and silt. The ballast exchange should be carried out according to IMO and local regulations or specific port sediment collection facilities.

Note: Heavy deposits may require several treatments or a combination of chemical and physical cleaning such as scraping and high pressure washing if access can be gained to the ballast tanks. We recommend the use of Unitor™ cleaning equipment, see accessories.

Maintenance treatment

Apply Unitor™ Mud and Silt Remover each time tanks are ballasted at a maintenance dosage of 2.5 lit/100 tons of ballast water. This will maintain sediments free flowing and easier to filter and remove.

Safety Precautions

Please ensure that all confined space entry procedures are implemented when entering ballast tanks and that correct PPE is worn by ships staff. Spillages of Unitor™ Mud & Silt Remover should be avoided, as floors, decks, etc. will become very slippery. Clean as soon as possible.

NOTE: SHELF LIFE - 24 MONTHS FROM PRODUCTION

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MULTI CLEAN

Unitor™ Multi Clean™ is a concentrated alkaline cleaner that is ideal to use for general cleaning of deck areas, floor plates and engine room cleaning with a pleasant citrus odour.

Product Information

Unitor™ Multi Clean™ is a mixture of water, natural citrus solvent and a synergistic blend of synthetic surfactants. All ingredients of Unitor™ Multi Clean™ are fully biodegradable.

Unitor™ Multi Clean™ is formulated to meet the latest MARPOL regulations and does not contain any chlorinated solvents and less than 10% aromatics. Also, with respect to European PARCOM regulations the product does not contain any Alkyl Phenol Ethoxylates.



Features

- Versatile: can be used for general cleaning
- Non-flammable
- Non-toxic
- Ingredients are all biodegradable

Benefits

- Highly effective concentrated cleaner
- Environmentally adapted

Product Number	Product Name
777708	Multi Clean 25 Ltr

Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Pale yellow
Density [g/ml]	1.01 - 1.02
Form	Liquid
Odour	Citrus
pH	11.5

Accessories	
710451	Unitor Mixing Station 4-14

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Approved for use with MARINFLOC bilge water cleaning systems.

Directions for Use

Applications Unitor™ Multiclean™ may be used in all types of cleaning and degreasing operations and is effective against oil, grease and may other difficult soils. Unitor™ Multiclean™ can be used neat or diluted with water or paraffin and may be applied by brush swab or spray. It may also be used in immersion tanks. The product should be allowed to stay in contact with the soil to be removed for 15-30 minutes to allow penetration before flushing with water.

Dilution:

It is recommended to test different concentrations on a small area to find the optimal effect on the contaminated surface.

Typical dosage for light contamination is about 1-5%, for heavy contamination up to 30%.

For safe handling and optimal dilution we recommend the use of the UNITORTM MIXING STATION 4-14.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SEACARE OSD-2

Unitor™ Seacare OSD-2™ is a biodegradable hydrocarbon based Type I oil spill dispersant with high dispersing efficiency and low toxicity.

Product Information

Unitor™ Seacare OSD-2™ is a biodegradable hydrocarbon based product with high dispersing efficiency and low toxicity. It is approved as a Type I dispersant according to LR448 specifications by the Department for Environment, Food & Rural Affairs (DEFRA) formerly UK Ministry of Agriculture, Fisheries and Food (MAFF).



Definition

Type I: Conventional hydrocarbon-base - for use primarily undiluted on beaches, but may also be used undiluted from WSL spray sets using breaker boards or other suitable means of application and agitation.

Department for Environment, Food & Rural Affairs (DEFRA)

APPROVAL OF THE USE OF SUBSTANCES PRODUCED FOR THE PURPOSE OF TREATING OIL ON THE SURFACE OF THE SEA.

Features

- Approved Type I dispersant according to the latest LR448 specifications of AEA Technology Plc. covering both efficiency and toxicity for use in dispersing oil on sea, beaches and rocks
- Disperses mineral oils, crude oils, residual fuel oils, diesel fuel oil, kerosene, white spirit and lubricant oils
- For use on oil spills that may occur during loading or discharging of cargo or bunkers where allowed
- For cleaning of spills on deck, ships side, piers, wharfs, etc. where allowed

Benefits

- Raised standards for operator safety in handling and use, being biodegradable and having low toxicity and a high flash point
- Rapid efficient dispersal of a wide range of oil residues. Converts hydrocarbons into very fine emulsions
- Ready to use product

Product Number	Product Name
764420	Seacare OSD-2 25 Ltr
Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Amber
Density [g/ml]	0.8
Flash Point [°C]	Above 61
Form	Liquid

Approvals

- This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships
- Approved as a type I dispersants according to LR448 specifications by MMO (Marine Management Organisation) for oil spill treatment applications in the United Kingdom

Directions for Use

Oil Spills at Sea

Unitor™ Seacare OSD-2™ is used undiluted by direct spraying to clean up oil spills at sea. Allow some time for the oil to absorb the Unitor™ Seacare OSD-2™ and then disperse mixture by vigorous agitation using fire hoses, the ship's propeller, breaker boards towed behind work boats, etc. Unitor™ Seacare OSD-2™ should not be used in an area of sea of a depth less than 20 metres or within one mile of such areas except in accordance with the advice of the local District Inspector of Fisheries of Ministry or Scottish Office Agriculture, Environmental and Fisheries Department (SOAEFD).

Oil on Beaches and Shore Line Unitor™ Seacare OSD-

2™ should be applied neat by spraying over oiled areas. Allow time for the oil to absorb the Unitor™ Seacare OSD-2™ then follow by washing down the beach or rocks, etc. The treatment rate depends on the type and thickness of the oil spill, also on the age and condition. Under conditions where it is a thin slick of oil, 1 litre of Unitor™ Seacare OSD-2™ is enough to treat approximately 10 square metres of oil. In many cases, several applications may be necessary.

Oil Spill on Deck Remove as much of the oil as possible, then spray Unitor™ Seacare OSD-2™ over area covered by the oil and allow some time for it to be absorbed. Disperse the mixture with water by means of a fire hose. Depending on type of oil it may be necessary to use several applications.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TEAK RENEWER

Unitor™ Teak Renewer™ is a dry acid product formulated for brightening wooden decks.



Product Information

Unitor™ Teak Renewer™ is a wooden deck brightener for removal of oil and fat and for daily cleaning on deck use Unitor™ Aquabreak PX™ or Unitor™ Fore & Aft.

Features

- Dry acid deck cleaner
- Surface brightening of wood
- Removes stains and discolouration
- Water soluble for ease of use

Benefits

- Quick, efficient cleaning power
- Safe to handle
- Not being harmful to the marine environment

Product Number

Product Number	Product Name
758623	Teak Renewer 20 kg

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Appearance

White

Density [g/ml]

1.6

Form

Crystalline powder

pH

1 in 10% solution

Approvals

This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the

sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

Dosing method

1. Dissolve 5 to 10% Unitor™ Teak Renewer in fresh water
2. Apply the solution on the surface with a chemical spray unit
3. Leave for 30 to 45 minutes
4. Wash off with fresh clean water

Sampling and testing

Teak Renewer is used to remove wood discolouration commonly found on untreated teak, mahogany or oak decking.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR USC

Unitor™ USC is a water-based alkaline low-toxic product with an exceptional solvency power on soil and oily matter. It is specially developed for ultrasonic cleaning applications.



Product Information

Unitor™ USC is free from hydrocarbon solvents, biodegradable, and safe to handle.

Features

- Water-based cleaner
- Low-toxic and Biodegradable
- Non-flammable
- Free of hydrocarbon solvents
- Specially developed for use with ultrasonic cleaning baths
- Self splitting

Benefits

- Removes grease, oil, carbon deposits, soil and grime
- Keeps loosened deposits in suspension preventing re-deposition
- Effective and economical in use

Product Number	Product Name
607819	Unitor USC 12 X 1 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Density [g/ml]	1.0
Form	Liquid
pH	12

Directions for Use

Dosing method

Unitor™ USC is specially formulated for use in the Unitor™ Ultrasonic Cleaners.

Fill the ultrasonic unit with approx. 30 litres of clean fresh water.

Prior to use, the ultrasonic bath must be de-gassed. Allow the bath to run for 1-2 minutes without any objects or cleaning agent until the evolution of gas bubbles ceases. This is to enhance the cleaning effect.

Mix in 1 litre Unitor™ USC. For stubborn deposits, a second litre may be added.

Best results are obtained at temperatures of 60-80°C.

Time necessary for cleaning depends on the nature and thickness of the deposits. 20-30 min. will suffice for most applications. Hardened, carbonised or aged deposits may require up to 4 hours.

If the cleaning solution is not heavily contaminated, it may be re-used at a later stage.

Sampling and testing

Suitable for cleaning engine components like fuel and lube oil filters, pump components, inlet and exhaust valves etc.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VACUUM PIPE CLEANER

Unitor™ Vacuum Pipe Cleaner™ is an effective liquid treatment used to remove build up of inorganic scale in vacuum toilet piping systems.



Product Information

Unitor™ Vacuum Pipe Cleaner™ is formulated of organic acids and corrosion inhibitors to keep clean from scales. Inorganic scale consisting of uric stone, phosphates and hardness salts will restrict flow and may finally clog the pipes completely if not treated.

Unitor™ Vacuum Pipe Cleaner™ is non-corrosive and does not harm any materials in the system, though it should not be used in galvanized systems. It will not contribute to foaming in the sewage treatment plant.

Features

- Liquid scale remover for automatic dosing
- Suitable for use in all marine sanitary and sewage treatment systems

Benefits

- Non-corrosive
- Cleans and keeps vacuum toilet systems free of inorganic scales
- Suitable to use with Unitor™ Vacuum Dosing System (779197)

Product Number

740498	Product Name
	Vacuum Pipe Cleaner 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear
Density [g/ml]	1.2
Form	Liquid
pH	1.1 in 20% solution

Accessories

779197	Unitor Vacuum Dosing System
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Directions for Use

To remove existing scale, feed Unitor™ Vacuum Pipe Cleaner™ daily at a rate of 1.2-1.4 litres per day per dosing station. When the scale has been removed, change from daily to weekly dosage with the same dosage rate to maintain the system clean.

Dosage is calculated for abt. 8-10 toilets, the dosage should preferably be injected at the beginning of every branch/line, so that the whole vacuum pipe is treated.

We recommend the use of Unitor™ Gamazyme™ TDS in addition where Vacuum Pipe Cleaner does not reach.

How it works

Unitor™ Vacuum Pipe Cleaner™ is acidic, and may therefore harm the biological activity in sewage treatment plants if overdosed. It should therefore be fed to the system only by the use of automatically controlled dosing stations. If such are not installed, Unitor™ Gamazyme™ TDS dosed into each toilet should be applied. Other situations where Unitor™ Gamazyme™ TDS is to be preferred is where build up of scale in the pipes between the toilets and the dosing points for the automatic dosing stations is observed, or in cases of accumulation of organic (black) scale in the pipes.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SEACLEAN PLUS

Unitor™ Seaclean Plus™ is a modern low-toxic, biodegradable solvent based product. This product is excellent as a tank cleaner and degreaser.



Product Information

Unitor™ Seaclean Plus™ meets IMO's requirements regarding safety and pollution hazards of chemicals. It is an IMO approved tank cleaner as per annual MEPC 2 Circulars and ideal for cleaning after CPP and DPP cargo.

Features

- The emulsifying agents in this product are biodegradable
- Does not contain nonylphenol ethoxylates or other estrogenic compounds
- Versatile, can be used for a wide range of applications
- Can be used for cleaning and gas-freeing of double bottom, deep, and fuel oil tanks at sea
- Can also be used for cleaning and gas-freeing of crude and refined mineral oil cargo tanks
- Can be used for degreasing and cleaning of bilge spaces and engine rooms

Benefits

- Highly concentrated tank cleaner with quick penetration and powerful emulsifying properties
- Easy rinse off, leaving clean and oil-free surfaces
- Economical, very low dosage rates
- Easy to use by any conventional means
- Safe to use on most metal surfaces, painted surfaces and tank coatings

Product Number	Product Name
654715	Seaclean Plus 25 Ltr
654723	Seaclean Plus 210 Ltr

Specification

Product Name	Seaclean Plus 25 Ltr	Seaclean Plus 210 Ltr
Invent Hazard Material (IMO/EU) classification	C-49	C-49
Appearance	Pale yellow	Pale yellow
Density [g/ml]	0.8	0.81 - 0.83
Flash Point [°C]	Above 61	Above 61
Form	Liquid	Liquid

Approvals

Unitor™ Seaclean Plus™ has been evaluated by the BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) and found to meet the requirements of paragraph 13.5.2 of the MARPOL Annex II and is consolidated into annex 10

of the MEPC.2/Circular. * This composition meets the criteria for not being harmful to the marine environment according to MARPOL Annex V and may be discharged into the sea when used to clean cargo holds and external surfaces on ships.

Directions for Use

Direct Injection Method - For Tank Cleaning Machines

The dose rate should be between 0.1-0.2% i.e. 1-2 litres per ton wash water.

contamination, the temperature of the cleaning solution, and number of tanks to be cleaned with the solution. Best results are obtained when water is heated to a temperature between 65-80°C.

Recirculation Method - For Tank Cleaning Machines

It is advised to use a solution of 0.1-0.2% i.e. 1-2 litres per ton wash water mixed in the tank to be cleaned.

Dose rates and results will vary depending on

Spot Cleaning

UNITOR™ Seaclean Plus™ can be sprayed neat onto tank surfaces to be cleaned. The contact time should be at least 30 minutes. Bulkheads/walls can be washed down by use of tank washing machines

or high pressure cleaning machines. The best result is achieved with hot water between 60-80°C. Slops should be constantly stripped from the tank and transferred to a holding tank or pumped ashore to slop tanks.

Rock and Roll method

1. Cleaning of double bottom tanks during voyages.
2. Heat the remaining fuel in the tank, trimming the vessel as required to assist in stripping tank.
3. Flush tank with sea water, stripping constantly.
4. After flushing, ensure all suction and discharge valves in the engine room are closed.
5. Dose tank with UNITOR™ Seaclean Plus™ through the sounding pipe or manhole between 0.075-0.08% of the capacity of the tank
6. After adding Seaclean Plus fill the tank to 25% capacity with sea water, raise the temperature up to 60°C and maintain this for 24 hours.
7. Now top up the tank to 75-80% capacity with sea water and continue to heat for 48-72 hours.
8. Discharge and strip tank.
9. Refill the tank to 50-60% capacity with sea water and allow 2 hours rinsing time.
10. Discharge tank and strip, flushing tank with sea water for 2 hours, stripping continuously. When

completed, inspect tank to ascertain if second cleaning is required. (*)

11. If a second cleaning is required start the above steps over again.

Example:

Cleaning of a double bottom tank with a capacity of 100 M3

Dose 75 to 80 litre of Seaclean Plus into the tank ($0.075\% \times 100 \text{ M3} = 0.075 \text{ M3 or } 75 \text{ L}$)

Fill the tank with 25m³ of seawater, keep temperature at 60°C for one day.

Top up tank with 50-55m³ of seawater, keep temperature at 60°C for 2-3 days.

Strip the tank and refill with 50-60m³ of seawater, allow 2hrs rinsing time.

Discharge the tank and continue to flush it for the next 2hrs before inspection. (*)

(*) Before entering the tank it is important to follow 'entering confined spaces' procedure as per ISM system. Proper ventilation and tank atmosphere are same as crucial as safety precautions and use of personal protective equipment prior accessing the tank.

Rock and Roll Cleaning Dosage Chart

Fuel Oil Viscosity Centistokes at 50 degrees celsius	SEACLEAN PLUS per ton of water 1st Stage	SEACLEAN PLUS per ton of water 2nd Stage
180 to 320	1 Ltr	0.75 Ltr
30 to 180	0.75 Ltr	-
Over 320	1 Ltr	1 Ltr
Up to 30	0.5 Ltr	-

Degreasing Marine Diesel Engine Cooling Water Systems

(This method can only be used when engine is out of service)

1. Drain the cooling system and flush with water.
2. Refill engine with water adding 20 litres Seaclean Plus per 1000 litres cooling water.
3. Circulate the solution through the system and heat until a temperature of about 60°C.
4. Continue circulation of the solution through the system for a minimum of 5 hours.
5. Drain engine and check the cleaning result.
Repeat cleaning procedure if necessary.
6. When cleaning is completed, drain the system, and thoroughly flush with clean water. Refill while adding an anticorrosion treatment such as NALFLEET™ Rocor NB Liquid™

Unitor™ Seaclean Plus™ can also be used for local cleaning and degreasing in engine rooms and on deck. It can be applied by brush, hand spray, immersion soaking or any other conventional means. Apply undiluted onto soiled surfaces and allow a contact time of 15-30 minutes before rinsing off with water.

Soak Method

Immerse heavily soiled parts into bath of undiluted Unitor™ Seaclean Plus™, medium to light soiled parts may be cleaned in a 10-30% solution in water. Parts should be soaked for at least 30 minutes before washing off with water.

Spray Method

Spray Unitor™ Seaclean Plus™ undiluted onto soiled areas. Allow between 15-30 minutes of penetration time before rinsing off with water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ULTRACLEAN GO

Unitor™ Ultraclean GO is a water-based high alkaline cleaner that is extremely powerful, developed for cleaning grease, fuel oil, lube oil, soot and combustion residues of filters, filter parts, machinery parts, pump components, inlet- and exhaust valves, etc. It is specially formulated for use in ultrasonic cleaning baths and other applications.



Product Information

Unitor™ Ultraclean GO is free from hydrocarbon solvents and phosphate, low-toxic, and readily biodegradable. It is specially formulated for use in ultrasonic cleaning baths and other applications.

Features

- Water-based alkaline
- Readily biodegradable
- Low toxic
- Non-flammable
- Free of hydrocarbon solvent
- Ideal for ultrasonic cleaning applications

Benefits

- Removes grease, oil, carbon deposits, soil, and grime
- Keeps loosened deposits in suspension preventing re-deposition
- Highly effective and economical in use
- Easy to handle and apply
- Can be safely be used on Aluminium materials

Product Number	Product Name
571321	Ultraclean GO 25 Ltr

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear Colorless
Density [g/ml]	1.02 - 1.03
Form	Liquid
pH	12.6 - 13.0

Directions for Use

Ultrasonic cleaning: Ultraclean GO can be used in Unitor™ Ultrasonic Cleaners, and the recommended dosage is between 2-4 vol % in fresh water, while the temperature can vary between 30-80°C depending on type and the amount of deposits and contamination.

Dilution ratio may be adjusted upon cleaning results. The contact time does fluctuate depending on the severity of the hardened, carbonized or aged deposits and can vary from 15min to 6hours. It is recommended to inspect the cleaning results on a regular basis.

Soaking bath: Ultraclean GO can be used in immersion/soaking bath and the recommended dosage is between 5-10 vol/vol % dilution in fresh water.

The surfaces need to be rinse thoroughly and dry after cleaning.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 803 - ALKATUFF PHS

Navaclean 803 is a heavy duty water based alkaline cleaner and degreaser, specially formulated for cleaning cargo holds after coal, pet coke, Navadan hold coat, and versatile products, suitable for multiple residues type.



Product Information

Navaclean 803 is a highly concentrated water based alkaline cleaner and degreaser for cleaning cargo holds after coal, pet coke, Navadan hold coat, and odour. It can also be used for cleaning of inert gas soot (IGS) in cargo tanks.

Features

- Degreasers multiple surfaces very efficiently, as it is formulated with high concentration of surface active ingredients.
- It has numerous cleaning applications including removal of grease, and general dirt & grime
- Free from hydrocarbon solvents

Benefits

- Efficiency enhanced by high quality surface-active agents
- Very effective and economical in use
- Highly concentrated cleaning agent that can be diluted with water for multiple cleaning purposes
- Can be discharged according to IMO MEPC.1/Circ. 590. and Marpol Annex V
- Biodegradable

Product Number	Product Name
4000017	Navaclean 803 - Alkatuff PHS 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear colorless to amber liquid
Density [g/ml]	1.05 - 1.10
Materials compatibility	Avoid contact with aluminum, tin, zinc or their alloys
Odour	None
pH	13 - 14

Directions for Use

Pre-wash

Before cleaning with Navaclean 803 thorough pre-washing with sea water supplemented by manual scrubbing/ rubbing with brushes/squeegees is recommended. Pay special attention to that the upper reaches of the holds are washed thoroughly in order to dislodge any residues.

If cleaning from coal or Pet coke, it is not recommended to wash down prior application of chemicals, as this will potentially (very likely) cause there maining stains to adhere (embed) further into the cargo hold surface and thereby reduce the efficiency of Navaclean 803.

General Cleaning recommendation:

Apply Navaclean - 803 PHS mixed 10 to 25% (ratio 1:9 to 1:3) in water, using spray equipment. If combined with NAVACLEAN 904 - Foam Agent, the chemicals will adhere longer to the surface and thereby gain a longer working period and thereby optimizing the cleaning effect. Leave for 30 – 45 minutes. Ensure that the surface remains wet. Wash down with a Hold Cleaning Gun. For best results, direct the jet at the lowest parts of the hold first and work upwards. If required, manual scrubbing with brushes or squeegees to be performed simultaneously.
Repeat the procedure if necessary.

Tank Cleaning recommendation:

NAVACLEAN 803 – ALKATUFF PHS can be applied by brush, spray, direct injection method or recirculation method. The recommended cleaning temperature ranges from ambient – 80°C and depends upon the type of cargo residues.

Direct injection method with tank washing machines:
Dosage rate 10-50 litres per 1000 litres wash water.
(1–5%)

Recirculation method: Use dosage rate of 20-50 litre per 1000 litre wash water

Spot cleaning: Hand spray 30-100% solution. Leave for approx. 30 minutes before rinsing with water.

We recommend using only fresh water, but if not feasible seawater can be used.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 809

A general purpose water based cleaner that contains good foaming qualities and wetting agents that allow rapid penetration to remove light oil or dirt from any surfaces.

Product Information

A general purpose water based cleaner that contains good foaming qualities and wetting agents that allow rapid penetration to remove light oil or dirt from any surfaces.



Features

- Suitable for most surfaces
- Fast and effective in cleaning
- Safe on most common metals, synthetic materials, rubber, hardened paints and lacquers

Benefits

- High detergent power
- Biodegradable
- Contains no organic solvents

Product Number	Product Name
4000022	Navaclean 809 200 LTR

Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear colorless liquid
Density [g/ml]	1.01 - 1.05
pH	7.5 - 8.5

Directions for Use

NAVACLEAN 809 should be diluted to a 2-10% solution in water. It can be used for spraying, recirculation and direct injection. The solution is

most effective if used at a temperature between 60 to 80°C.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 818 - COLD WASH

Navaclean 818 Coldwash is a general purpose solvent based tank cleaner and degreaser, suitable for all tank coatings and linings.



Product Information

Navaclean 818 Coldwash is a general purpose solvent based cleaner and degreaser, specially formulated with a blend of solvents and emulsifiers to provide a broad spectrum cleaner with maximum solvent penetration and efficient emulsification. It can also be used for spot cleaning of petroleum oil residues, petroleum based chemicals and some natural oils. Navaclean 818 can also be used for the washing of chemical tankers carrying Lube Oil under recirculation.

Features

- Specially formulated with a blend of solvents and emulsifiers to provide a broad spectrum cleaner with maximum solvent penetration and efficient emulsification
- Contains emulsifying agents that enable the residues to be easily removed by fresh or salt water
- Can be used for spot cleaning of petroleum oil residues, petroleum based chemicals and some natural oils

Benefits

- Controlled emulsion breakage, allowing cleaned oil to be easily reclaimed
- Approved according to IMO MEPC.1/Circ. 590 and Marpol Annex V
- Suitable for most tank linings
- Can be applied by hand sprayed

Product Number	Product Name
4000027	Navaclean 818 - Cold Wash 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear colorless to amber liquid
Density [g/ml]	0.80 - 0.90
Flash Point [°C]	>62
Materials compatibility	Might cause slight swelling on rubber
Odour	Mild
pH	NA

Directions for Use

Undiluted Navaclean 818 is recommended for local cleaning and degreasing and may be applied by brush, hand-spray, immersion soaking or any other conventional means. Depending on the type and the amount of residue to be removed it may be necessary to allow up to 6 hours for the cleaner to react before

rinsing with either fresh or salt water. Navaclean 818 may also be used by injection or recirculation at strengths up to 5%, at a temperature of 60-80 °C. For specific cleaning instructions, please contact your local specialist or expert.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 823 - BUFFER CLEANER 55

Navaclean 823 Buffer cleaner 55 is a concentrated acid based cleaner, specially for cleaning of zinc and epoxy based tank coatings.



Product Information

Navaclean 823 Buffer cleaner 55 is a concentrated acid based tank cleaner, specially for zinc and epoxy coated tankers, to clean cargo tanks after cargoes such as leaded gasoline, gasoline blends containing MTBE, carbon tetrachloride, methylene chloride as well as virgin naphtha. It will remove lead, hydrocarbons, chlorides, sulphides etc. from the pores of zinc silicate and epoxy coatings. It can be used as the final cleaning procedure when the cargo tanks have to be completely cleaned for lead, chlorides, sulphides, or MTBE prior to loading of special high purity cargoes.

Features

- Concentrated acid based tank cleaner specially for zinc and epoxy coated tankers
- Free from hydrocarbon solvents

Benefits

- Safe to use on epoxy and zinc silicate coatings
- Biodegradable
- Approved according to IMO MEPC.1/Circ. 590 and Marpol Annex V
- Effective and economical

Product Number	Product Name
4000032	Navaclean 823 - Buffer cleaner 55 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless to pale yellow liquid
Density [g/ml]	1.01 - 1.05
pH	5.0 - 6.0

Directions for Use

Never dilute Navaclean 823 with seawater or river water. For solutions, always use freshwater only.

Hand Spraying

Apply 1 liter undiluted Navaclean 823 55 per 3-5 m². Let the cleaner penetrate for 30-45 minutes. Wash down with freshwater and check results preferably with a wall wash test kit.

Recirculation

Make a 10% solution in freshwater in a slop (solution) tank.

Heat the solution to a maximum of 60°C. Wash tanks by recirculation for 60 minutes. Rinse with freshwater and check the results. For chloride-free cleaning and passing chloride test, use chloride-free Deionized Water for the final rinse.

Consult your local specialist/expert for more on wall wash test kit and reagents.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 825 - STENCH REMOVER

Navaclean 825 stench remover is a neutral water based deodorizer / smell killer, utilizing natural oils and wetting agents, for removing obnoxious smells/stench in cargo tanks and holds.

Product Information

Navaclean 825 is a water based neutral deodorizer utilizing natural oils and wetting agents, to remove obnoxious smells/stench in cargo tanks and holds. If the tank is heavily contaminated, the tank should be cleaned again prior application of Navaclean 825.



Features

- Neutral water based deodorizer utilizing natural oils and wetting agents

Benefits

- Safe to use on all types of coatings and most metals
- Can be discharged according to Marpol V and IMO MEPC.1/Circ. 590
- Low hazard for handling personal
- Free from hydrocarbon solvents
- Biodegradable

Product Number	Product Name
4000037	Navaclean 825 - Stench remover 200 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless to pale yellow liquid
Density [g/ml]	0.9 - 1.0
Flash Point [°C]	>80
pH	7.0 - 7.5

Directions for Use

Navaclean 825 should be dosed/injected into the cleaning water in a concentration of 0.1 – 1%.

After tank washing, the tanks should be ventilated thoroughly prior to entering the tanks.

It is also possible to apply the product by hand spraying Navaclean 825 in a ratio 1:10 with freshwater.

Allow the applied product to react for a reasonable period.

Rinse thoroughly with freshwater.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 842 - ALKASAFE

Navaclean 842 Alkasafe is a water based non caustic alkaline tank cleaner, specially formulated to remove a very wide range of natural oil and fat residues, alcohols, petrochemicals, and light hydrocarbons. An ideal cleaner between cargo changeovers.



Product Information

Navaclean 842 is a water based non caustic alkaline tank cleaner, specially formulated for effectively remove a very wide range of natural oil and fat residues, alcohols, petrochemicals, and light hydrocarbons. It is an ideal cleaner between cargo changeovers.

Features

- Blended with emulsifiers and detergent wetting agents
- Excellent deodorizing and sanitizing capacity

Benefits

- Highly concentrated making it ideal for direct injection or recirculation methods
- Non-corrosive
- Safe on almost all tank coatings
- Can be discharged according to Marpol Annex V and IMO MEPC.1/Circ. 590

Product Number

4000042

Product Name

Navaclean 842 - Alkasafe 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Appearance

Colorless to pale yellow

Density [g/ml]

1.0 - 1.10

pH

8.0 - 9.0

Directions for Use

Navaclean 842 may be hand-sprayed at solution strengths between 30% and 100% for local cleaning and the removal of particularly stubborn deposits. Normally Navaclean 842 is used diluted with either fresh or sea water. The solution strength depends

on the amount and types of residues to be removed and the cleaning method. If cleaning is carried out by recirculation alone, solution strengths from 0.5% to 5% should be used. Fresh water is recommended if possible.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 848 - NEUTRAL CLEANING CONCENTRATE



Navaclean 848 Neutral cleaning concentrate is a water based hydrocarbon free tank cleaner, for cleaning of lube oils, gas oil, hydrocarbon products and chemicals. It can clean vegetable oils, animal oils, fish oils and mineral oils as well as fats where cleaning with NAVACLEAN 801 – ALKATUFF or NAVACLEAN 803 – ALKATUFF PHS is not possible.

Product Information

Navaclean 848 neutral cleaning concentrate is a water based hydrocarbon free tank cleaner, specially for cleaning of lube oils, gas oil, hydrocarbon products and chemical. It can clean vegetable oils, animal oils, fish oils and mineral oils as well as fats where cleaning with NAVACLEAN 801 – ALKATUFF or NAVACLEAN 803 – ALKATUFF PHS is not possible. Can also be used for cleaning of phthalates, paraffin as well as obnoxious smell; and as hydrocarbon remover.

Features

- Based on highly efficient dissolving and low foaming non-ionic surface active agents
- Suitable for cleaning tanks coated with Zinc-Silicate coated tanks and all common metals
- May be mixed with Sodium- or Potassium Hydroxide to make a more efficient alkaline cleaner
- May be mixed with Citric-, Phosphoric- or Nitric Acid to make a more efficient acid based cleaner
- Completely miscible with sea water and fresh water

Benefits

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Contains no solvents, acids, alkalies and phosphates
- Suitable for use with seawater
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular

Product Number	Product Name
4000047	Navaclean 848 - Neutral cleaning concentrate 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless liquid
Density [g/ml]	1.01 - 1.05
Flash Point [°C]	>65
pH	6.0 - 7.0

Directions for Use

Pre-cleaning of Tanks

Before cleaning with NAVACLEAN 848 – NEUTRAL CLEANING CONCENTRATE it is recommended, for non-drying oils, to pre-wash the tanks with hot water at 50°C.

For drying oils and semi-drying oils the pre-cleaning should be made with ambient water and it should be carried out immediately after completion of discharge of the cargo in order to retard the oxidation and hardening of oil residues.

Recirculation Method

NAVACLEAN 848 – NEUTRAL CLEANING CONCENTRATE should be recirculated as a 0.5% solution for a period of 2-6 hours. The water temperature should be approx. 35-60°C. After chemical cleaning the tanks should be rinsed thoroughly with sea water, fresh water or di-water depending on availability and requirement.

** The maximum concentration is 10% and a maximum temperature of 60°C

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 855 - HYDROCARBON REMOVER

Navaclean 855 is a water based hydrocarbon remover for removing of vegetable oils, animal oils, fats and light mineral oils in aluminium and/or zinc-silicate coated tanks.



Product Information

NAVACLEAN 855 - HYDROCARBON REMOVER can be used for removing vegetable oils, animal oils, fats and light mineral oils in aluminium and/or zinc-silicate coated tanks. It can be used as an after treatment in hydrocarbon free cleaning operation where cleaning was made with NAVACLEAN 888 – SEACLEAN or NAVACLEAN 818 – COLDWASH.

Features

- Will remove most mineral oils and fats
- Limited application on epoxy coatings, max. concentration 10% and max. temp. 60°C

Benefits

- Specially formulated based on highly efficient dissolving and low foaming nonionic surface active agents
- Suitable for cleaning tanks coated with Zinc-Silicate coated tanks and all common metals
- IMO approved and listed in Annex 10 of the MEPC.2/Circular 590

Product Number	Product Name
4000057	Navaclean 855 - Hydrocarbon remover 200 LTR

Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless liquid
Density [g/ml]	1.01 - 1.05
Flash Point [°C]	>65
pH	NA

Directions for Use

Pre-cleaning of Tank Cleaning:

Before cleaning with NAVACLEAN 855 – HYDROCARBON REMOVER it is recommended, for non-drying oils, to pre-wash the tanks with hot water at 50°C. For drying oils and semi-drying oils the pre-cleaning should be made with cold water and it should be carried out immediately after completion of discharge of the cargo in order to retard the oxidation and hardening of oil residues.

Direct Injection Method:

Inject 0.1 – 0.2 litres of NAVACLEAN 855 – HYDROCARBON REMOVER per 100 litres of washing water into the automatic washing system. This is equal to 0.1% – 0.2%. Use ambient temperature seawater and maintain the water temperature between 20°C and 60°C. Cleaning time 2 – 6 hours, followed by thorough rinsing with hot freshwater.

Recirculation Method:

NAVACLEAN 855 - HYDROCARBON REMOVER should be recirculated as a 5% solution for a period of 2-6 hours. The water temperature should be approx. 35-60°C. After chemical cleaning the tanks should be rinsed thoroughly with sea water, fresh water or di-water depending on availability and requirements

Hand Spraying Method:

Spray the surfaces with undiluted NAVACLEAN 855 - HYDROCARBON REMOVER. NAVACLEAN 855 - HYDROCARBON REMOVER can be applied by brush, or by NAVADAN Pump and Spray Equipment. Apply the chemicals until the tank surfaces are well soaked and let the product act for at least 30 minutes. Then rinse all tank surfaces with water at max. 60°C for 45 - 60 minutes.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 856 - ECOCLEAN

Navaclean 856 Ecoclean is a highly concentrated multipurpose water based cleaner for cargo tanks, which removes oil or dirt from any surfaces.



Product Information

Navaclean 856 Ecoclean is a well balanced combination of natural citrus oil solvents, and advanced wetting agents, giving the product its power as a superior high quality water based cleaner and degreaser based on aliphatic/aromatic hydrocarbons, non-ionic and anionic surface active agents. It can effectively remove any oil and dirt from any surfaces.

Features

- Approved according to IMO MEPC.1/Circ. 590 and Marpol Annex V
- Promotes pleasant and healthy environment
- Safe for use to operating crew

Benefits

- Numerous marine cleaning & degreasing applications in engine room, galley, deck general cleaning
- Self splitting after cleaning
- Non flammable, low toxic
- Biodegradable
- Safe for use on zinc silicate coatings and most common metal surfaces

Product Number

4000062

Product Name

Navaclean 856 - Ecoclean 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless to pale yellow liquid
Density [g/ml]	1.0 - 1.1
Materials compatibility	May soften rubber. Limited application on epoxy coatings.
pH	7 - 8

Directions for Use

Tank Cleaning:

Cargo tank cleaning after mineral, animal, fish and vegetable oils. Hydrocarbon freeing after cleaning with hydrocarbon solvent based cleaners like NAVACLEAN 888 – SEACLEAN, NAVACLEAN 818 – COLDWASH, etc.

Direct Injection Method:

This will require a solution strength between 0.5 and 1%.

Recirculation Method:

Use a solution strength between 0.5 and 2% The solution can be re-used until it is no longer effective.

Spot Cleaning:

Depending upon the contamination NAVACLEAN 856 – ECOCLEAN should be sprayed undiluted or diluted down to 10% in water and allowed to soak on the area for 20 – 30 minutes. It must then be washed down with plenty water. The efficiency is increased by using warm water up to 60°C both for cleaning and when rinsing the surfaces.

** The maximum concentration is 10% and a maximum temperature of 60°C.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 865 - CC BOOSTER

Navaclean 865 CC booster is specially designed to boost Navaclean Alkaline, acid and solvent cleaners. Specially designed to work with following IMO approved Navadan Chemicals:



Product Information

Navaclean 865 CC booster is formulated based on highly efficient dissolving and low foaming ionic & non-ionic surfactants, and an effective cleaner for stubborn hydrocarbon products and chemical cargo residues. It can clean vegetable oils, animal oils, fish oils and mineral oils as well as fats; and also used for cleaning of phthalates, paraffin as well as obnoxious smell. Navaclean 865 can be mixed with Sodium- or Potassium Hydroxide to make a more efficient alkaline cleaner. And it also can be mixed with Citric-, Phosphoric- or Nitric Acid to make a more efficient acid based cleaner.

Features

- Can be used directly or as a boosting agent
- Based on highly efficient dissolving and low foaming ionic and non-ionic surfactants
- Direct use: can be used for cleaning after vegetable oils, animal oils, fats, wax, and light mineral oils on pH sensitive coatings

Benefits

- Very versatile and economical to use
- Highly concentrated, low dosage required
- Suitable for use with seawater and fresh water
- Approved according to IMO MEPC.1/Circ. 590 and complies to Marpol Annex V
- Suitable for cleaning tanks coated with Zinc-Silicate coated tanks and all common metals

Product Number	Product Name
4000067	Navaclean 865 - CC booster 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Pale yellow liquid
Density [g/ml]	1.01 - 1.05
Materials compatibility	May soften rubber
pH	5 - 6

Directions for Use

1. BOOSTING: Mix NAVACLEAN 865 - CC BOOSTER with the chemical wash solution at a dosage of 0.1 – 0.5 %. Recirculate the chemical wash solution in tanks to be cleaned, according to directions for use for the primary tank cleaning chemical.

2. DIRECT USE Pre-Cleaning of tanks: Before commencing with recirculation of NAVACLEAN 865 - CC BOOSTER it is recommended, for non-drying oils, to pre-wash the tanks with hot water at 50°C. For drying oils and semi-drying oils the pre-cleaning should be made with ambient water and it should be carried out immediately after completion of discharge of the cargo in order to retard the oxidation and hardening of oil residues.

Recirculation Method: A chemical solution should be prepared and recirculated via vessel's tank washing system. Depending on the degree of contamination NAVACLEAN 865 - CC BOOSTER should be recirculated as a 0.3 - 0.7% solution for a period of 2-6 hours. The water temperature should be approx. 35-65°C. After completion of the recirculation period the tanks must be rinsed thoroughly with either sea or fresh water.

** The maximum concentration is 10% and a maximum temperature of 60°C.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 873 - RUST & STAIN REMOVER

Navaclean 873 is an acid based rust remover and metal brightener for removal of white residues/stains/salt deposits on tank coatings.



Product Information

NAVACLEAN 873 - RUST & STAIN REMOVER is designed to remove the white stains or residues that can appear in cargo tanks after cargoes such as: Stearin, olein, palm oil, and PFAD. On some coatings, washing with hot sea water after discharge of caustic or different lye cargoes, may result in white stains or stripes on tank surfaces, Navaclean 873 can be used for such cases.

Features

- Highly concentrated and suitable for multiple purposes
- Non-flammable
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds

Benefits

- Polishing of stainless steel tanks
- Prevents flash rust & inhibit corrosion
- Approved according to IMO MEPC.1/Circ. 590, and complies to Marpol Annex V
- Economical in use
- Easy to rinse off

Product Number

4000072

Product Name

Navaclean 873 - Rust & Stain Remover 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear colorless liquid
Density [g/ml]	1.1 - 1.2
pH	1.0 - 2.0

Directions for Use

Inject 0.5 litre of NAVACLEAN 873 - RUST & STAIN REMOVER for every 100 ltrs of washing water, directly into tank washing system (Butterworth system). Wash each tank for approx. 20-30 minutes (1 washing cycle). Recommended temperature of washing water is 75 - 80°C. Finally rinse each tank with fresh water.

Caution: Always add NAVACLEAN 873 - RUST & STAIN REMOVER to water. Acid should always be added to water, and never the reverse.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 888 - SEACLEAN

Navaclean 888 is a heavy duty solvent based tank cleaner, based on aliphatic/aromatic hydrocarbons, nonionic and anionic surface active agents, for cleaning heavy fuels and other DPP cargo residues.



Product Information

Navaclean 888 is an emulsifying cleaning agent for the removal of heavy mineral oils and waxes by direct injection, spraying and/or recirculation. It is an IMO approved tank cleaner, and ideal for cleaning after CPP and DPP cargo.

Features

- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Versatile, can be used for a wide range of applications
- Degreasers bilge spaces and engine room
- Cleaning after crude and refined mineral oil
- Can be used for general cleaning of oil and grease

Benefits

- Safe to use on epoxy and zinc silicate coatings as well as common metals
- Economical to use
- Approved according to IMO MEPC.1/Circ. 590 and complies with Marpol Annex V

Product Number	Product Name
4000077	Navaclean 888 - Seaclean 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless liquid
Density [g/ml]	0.8 - 0.90
Flash Point [°C]	>62
pH	NA

Directions for Use

Direct Injection Method for Cargo Tanks:

Undiluted Navaclean 888 should be injected at a predetermined rate into the pressure side of the automatic tank cleaning system line on deck by means of Navadan pump and spray. Usually, an injection rate of 0.1 to 0.2 liter Navaclean 888 per 100 liters of tank wash water is sufficient. We recommend that wash water has temperature of 60-80°C. Cleaning time 2-8 hours.

Hand Spraying Method:

Spray neat/undiluted Navaclean 888 on to bulkheads, frames, stringers, longitudinal etc. using Navadan pump and spray. After a reaction time of minimum one hour, tanks should be rinsed with water using the automatic tank washing machines. For spot cleaning only, use handheld hose for rinsing, for instance a fire hose with nozzle. Hand Spraying Method has a practical time limitation depending on tank sizes, i.e., total tank surface to be sprayed.

Recirculation Method:

Prepare a chemical solution, circulate via the automatic tank washing system pump and heater to the tank to be cleaned. Capacities of solution tank, pipelines and pumps etc. should be calculated carefully to ensure sufficient volumetric quantity for a continuous recirculation. Depending on size and condition of tanks to be cleaned and quantity of chemical solution, a drawback in this method is that usually only 3 (three) tanks can be cleaned with one solution after which a fresh solution should be made and heated before cleaning can continue. The required solution strength is 2-5% Navaclean 888, at a temperature of 60-80°C at the tank cleaning machine nozzle. After chemical cleaning, the tanks should be rinsed thoroughly with sea water or fresh water depending on availability and requirements.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVACLEAN 897 - IGS CLEANER

Navaclean 897 is a heavy duty water based alkaline cleaner and degreaser, specially designed for removal of inert gas soot (IGS).



Product Information

Navaclean 897 is a heavy duty water based alkaline cleaner based on potassium hydroxide and other surface active ingredients, specially formulated for removal of inert gas soot (IGS) in cargo tanks, cleaning tanks after inert gas soot, vegetable oils, animal oils, fatty acids, fish oils, greases, waxes, oil, sludge, soot carbon deposits, and general dirt and grim. It can be applied by different methods: recirculation, direct injection and hand spraying using Navadan pump and spray kit.

Features

- Especially formulated to remove Inert Gas Soot (IGS)
- Removes odors
- Does not contain nonyl phenol ethoxylates or other estrogenic compounds
- Safe to use on epoxy coatings

Benefits

- Degreasers multiple surfaces very efficiently, as high concentration of active ingredients
- Highly concentrated and can be diluted with water for multiple cleaning purposes
- Numerous cleaning applications including removal of greases, waxes, vegetable and animal oils, fish oils, carbon deposits, dirt and grime
- Efficiency enhanced by high quality surface-active agents
- Biodegradable
- Approved according to IMO MEPC.1/Circ. 590

Product Number	Product Name
4000082	Navaclean 897 - IGS cleaner 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	clear pale yellow liquid
Density [g/ml]	1.05 - 1.10
pH	>12

Directions for Use

General cleaning

Navaclean 897 can be used for a variety of cleaning tasks. It can be applied by brush, hand spray by use of Navadan pump and spray kit (2009028) as well as high and low pressure tank washing machines.

Cleaning of IGS (Inert Gas Soot) in Cargo Tanks:

Recirculation method with tank washing machines is recommended using a 6-7% solution in freshwater at 70°C
Spot cleaning: Hand spray 33% to 100% solution. Leave for approx. 30 minutes before rinsing with freshwater. Keep surface wet.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN CLEANHOLD

Navadan CleanHold is a heavy duty alkaline cleaner with specially developed cleaning agents for cleaning cargo holds on bulk carriers. It can be diluted with water for multiple cleaning purpose. A biodegradable, high foam product that contains no hydrocarbon solvents, Navadan CleanHold is suitable for oily and greasy cargoes such as coal, petcoke, nickel, bauxite et al. It can be discharged according to Marpol Annex V

Product Information

Navadan CleanHold is a unique combination of strong alkaline ingredients with selected additives enabling best and reliable cleaning results repeatedly. The high foaming property enables the cleaning solution to stay on the vertical surfaces which in turn increases the cleaning efficiency. Navadan CleanHold has proven to effectively remove most dry cargoes, sludge, soot, carbon deposits etc and is commonly used for cargo hold cleaning when going from black to white cargo. The water based product is environmentally safe, containing only biodegradable ingredients. Its composition meets the criteria for not being harmful to the marine environment according to Marpol Annex V and may be discharged into the sea when used to clean cargo holds. Navadan CleanHold should not be used on zinc coatings.

Features

- Heavy duty alkaline water based cleaner
- Biodegradable
- Hydrocarbon free
- Ideal for cargo hold cleaning after coal, pet coke and other difficult cargoes
- Not harmful to the marine environment

Benefits

- Non-corrosive to metals
- Suitable for use on majority tank coatings
- Suitable for deodourization
- Suitable for use of gas and hydrocarbon freeing of tanks

Product Number

Product Name

4000155	Navadan CleanHold 20 LTR
4000156	Navadan CleanHold 25 LTR
4000157	Navadan CleanHold 200 LTR
4000158	Navadan CleanHold 208 LTR
4000159	Navadan CleanHold 209 LTR

Specification

Appearance	Colorless liquid with characteristic odor
Specific gravity	1.1
pH	>13
Flash point	>100 °C

Accessories

2009025	Navadan Panamax Kit
2009026	Navadan Essential Kit
2009029	Navadan Ultimate Kit
2009027	Navadan Applicator Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009034	Navadan Protection Kit

Approvals

Complies to Marpol Annex V

Directions for Use

Dry Cleaning / Sweeping / Blowing of Upper Sections of the Hold

As soon as each cargo hold becomes empty at discharge port, the crew should commerce air blowing/ scratching cargo residues down from frames, entry ladders, brackets, supports, under decks, etc.

Pre-wash

Before cleaning with Navadan CleanHold throughout prewashing with sea water supplemented by manual scrubbing/rubbing with brushes/squeegees is recommended. Pay special attention to the upper reaches of the holds are washed thoroughly to dislodge any residues.

If cleaning from coal or Pet coke, it is not recommended to wash down prior to application of chemicals, as this will potentially (very likely) cause the remaining stains to adhere (embed) further into the cargo hold surface and thereby reduce the efficiency of Navadan CleanHold.

Product is supplied in concentrated form, dilution ratios between water and Navadan CleanHold depend on the type of cargo, the amount of residues to be removed, and the condition of the cargo hold.

For more information on chemical dosage, please check with our specialists.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN FRESHHOLD

Navadan FreshHold is a liquid acid containing active descaling agents, corrosion inhibitors and wetting agents. Its formulation makes it ideal for removal of limewash, cement, clinker, concrete, rust and scales. It can be discharged according to Marpol Annex V

Product Information

Navadan FreshHold is a safer, more efficient and better alternative to muriatic acid. Its additives are carefully selected to provide good wetting profile, corrosion inhibition, descaling property. It is designed to remove stubborn cargo deposits originated from cement, clinkers and limewash. A hydrochloric based product that provides descaling function yet prevent aggressive corrosion on ferrous metals.

Product is not suitable for used on Zinc, Aluminium, galvanized and stainless steel.

Features

- Highly effective concentrated product
- Hydrochloric acid based product that contains corrosion inhibition property on ferrous metals
- Removes cargo sediments such as cement and limewash, loose scale and rust from cargo hold bulkheads and coated metal surfaces
- Marpol Annex V - Not harmful to Marine Environment

Benefits

- Reduce corrosion risk
- Easy to rinse off
- Fast and effective
- Water soluble and non-flammable

Product Number

Product Number	Product Name
4000170	Navadan FreshHold 20 LTR
4000171	Navadan FreshHold 25 LTR
4000172	Navadan FreshHold 200 LTR
4000173	Navadan FreshHold 208 LTR
4000174	Navadan FreshHold 209 LTR

Specification

Appearance	Colorless to pale light yellow liquid
Specific gravity	1,16
pH	1 at 20°C
Flash point	None
Odor	Pungent

Accessories

2009025	Navadan Panamax Kit
2009026	Navadan Essential Kit
2009029	Navadan Ultimate Kit
2009027	Navadan Applicator Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009034	Navadan Protection Kit

Approvals

Complies to Marpol Annex V

Directions for Use

Apply Navadan FreshHold with brush or chemical applicator to surfaces to be cleaned.

On heavy deposits Navadan FreshHold should be used undiluted.

In cases of light deposits, on large surface areas, a solution between 10-50% may be used.

Rinse thoroughly with water 10 to 15 minutes after application.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN SHINECARGO

Navadan ShineCargo is a acid based cleaning solution that performs effective removal of white stains or residues on cargo tanks after cargoes such as palm fatty acid distillate, stearin, palm oil and POME. Product can also be used for cargo hold.

Product Information

Navadan ShineCargo is a acid based cleaning solution that performs effective removal of white stains or residues on cargo tanks after cargoes such as palm fatty acid distillate, stearin, palm oil and POME. It is commonly used as a rust and stain remover. It also has polishing effect on stainless steel tanks. Approved according to IMO MEPC.2/Circular and Marpol Annex V

Features

- Acid based cleaner
- Water based, non-flammable
- Surface brightening
- IMO approved and listed in Annex 10 of the MEPC.2/ Circular
- Marpol Annex V

Benefits

- Has polishing effect on stainless steel tanks
- Effective removal of white stains/ residues/ salt deposits on tank coating

Product Number

Product Name

4000165	Navadan ShineCargo 20 LTR
4000166	Navadan ShineCargo 25 LTR
4000167	Navadan ShineCargo 200 LTR
4000168	Navadan ShineCargo 208 LTR
4000169	Navadan ShineCargo 209 LTR

Specification

Appearance	Clear green liquid
Specific gravity	1.15 - 1.18
pH	1.5 - 2.5 at 1% solution
Flash point	None
Corrosion	Navadan ShineCargo should not be used on zinc coatings and galvanized metal

Accessories

2009028	Navadan Pump & Spray
2009025	Navadan Panamax Kit
2009026	Navadan Essential Kit
2009029	Navadan Ultimate Kit
2009027	Navadan Applicator Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009034	Navadan Protection Kit

Approvals

Approved according to IMO MEPC.2/Circular
Complies to Marpol Annex V

Directions for Use

Recirculation

Navadan ShineCargo should be recirculated as a 0.5%-5% solution for a period of 2-6 hours. The recommended temperature is up to 75-80°C.

After chemical cleaning the tanks should be rinsed thoroughly with sea water, fresh water or DI water depending on cargo requirements.

Direct Injection Method

Inject 0.5 liter of Navadan ShineCargo for every 100 ltrs of washing water, directly into tank washing line. Wash each tank for approx. 20-30 minutes (1 washing cycle). Recommended temperature of washing water is 75-80°C.

After chemical cleaning the tanks should be rinsed thoroughly with sea water, fresh water or DI water depending on cargo requirements.

For more information on chemical dosage, please check with our specialists.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN BARRIERHOLD

Navadan BarrierHold provides a barrier between the cargo and cargo hold surfaces making cleaning operations after offloading quicker and easier. The waterborne protective barrier is based on carefully selected polymers and additives. It can be discharged according to Marpol Annex V

Product Information

Navadan BarrierHold is designed to fill the fine pores of existing coatings so that it prevents corrosion and stains from dirty and corrosive cargoes. It creates a thin film of wax, preventing cross contamination between the cargo and the hold coat.

Features

- Water resistant cargo hold barrier
- Safe on all coatings
- Saves cleaning time
- Easy to apply and to remove
- Complies with Marpol Annex V

Benefits

- Saves cleaning time and cleaning chemicals
- Excellent adhesion to all surfaces
- Prevents difficult cargo from adhering to the coating
- Ideally applied before loading coal and pettcoke or humid and corrosive cargoes

Product Number	Product Name
4000185	Navadan BarrierHold 20 LTR
4000186	Navadan BarrierHold 25 LTR
4000187	Navadan BarrierHold 200 LTR
4000188	Navadan BarrierHold 208 LTR
4000189	Navadan BarrierHold 209 LTR

Specification

Appearance	Milky white viscous liquid
Specific gravity	1.0
pH	9.0
Flash point	NA

Accessories

2009025	Navadan Panamax Kit
2009027	Navadan Applicator Kit

Approvals

Complies to Marpol Annex V

Directions for Use

How it Works

After drying, Navadan BarrierHold creates a thin, non-sticky film on the cargo hold surfaces. The film substantially facilitates the cleaning before next cargo in two ways:

1. The film fills the minute pores in the surface, and prevents small particles from being trapped in the pores.
2. Small, solid particles can be very difficult to remove especially from organic coatings, even with the use of effective cleaning agents and high-pressure water jets.

The reason is the buildup of electromagnetic forces, and sometimes the only way to remove the particles is by scrubbing. Navadan BarrierHold provides a barrier between the particles and the surface that minimizes this problem.

3. To remove and avoid re-deposition of contaminants a solution of Navadan CleanHold, should be used, but at lower dosage rates than what is normally required.

Navadan BarrierHold may also be sprayed on deck, superstructure and other areas exposed to dust during loading and unloading operations.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Direction for Use and Dose Rates

The cargo hold surfaces should be as clean and dry as possible before application. Navadan BarrierHold is supplied in a ready to use concentration and may be applied directly from the drum. Spray the liquid on the cargo hold surfaces by the use of suitable low-pressure spraying equipment.

As soon as the surface appears water wet, a proper film is created; do not apply more than necessary.

1 liter Navadan BarrierHold will cover around 10 m². Allow the film to dry completely before loading the cargo. Depending on air temperature and humidity this will take approx 1 - 2 hours to dry. After discharging, apply a 2-5% solution of Navadan CleanHold in water to avoid re-deposition of contaminants, and finally flush with clean water. We recommend that Navadan BarrierHold is only applied when outside temperature is above 5°C.

For more information on chemical dosage, please check with our specialists.

UNITOR CLEANRIG CHP

Unitor™ Cleanrig CHP™ is a water-based rig cleaner specially designed to provide efficient cleaning and optimum environmental and handling properties.



Product Information

Unitor™ Cleanrig CHP™ contains unique environmentally adapted surfactants, pH regulating additives and corrosion inhibitors allowing removal of oil spills, sludge, oil- and water based mud, dirt and grime from all surfaces included painted.

Features

- Water based cleaner
- Rig cleaner for use on deck, tanks, engine rooms, drilling equipment
- Biodegradable
- Non-toxic and Non-flammable
- No hydrocarbon solvents
- Contains no nonyl phenol ethoxylates or other estrogenic compounds

Benefits

- High efficient cleaning
- Can be used in confined rooms
- Removes oil spills, sludge, mud, dirt and grime
- Leaves a good shine on hard surfaces after cleaning

Product Number

Product Name

726040	Unitor Cleanrig CHP 200 Ltr
726015	Unitor Cleanrig CHP 1000 Ltr

Specification

Product Name	Unitor Cleanrig CHP 200 Ltr	Unitor Cleanrig CHP 1000 Ltr
Invent Hazard Material (IMO/EU) classification	NA	NA
Appearance	Pale yellow	Pale yellow
Density [g/ml]	1.08 - 1.09	1.08 - 1.09
Form	Liquid	Liquid
pH	12 - 13	12 - 13

Unitor™ Cleanrig CHP™ is HO CNF and CEFAS approved. According to Norwegian environmental authorities Unitor™ Cleanrig CHP™ is classified

as "Yellow" product containing biodegradable surfactants and pH-regulating compounds.

Directions for use

Unitor™ Cleanrig CHP™ is an alkaline cleaner designed to remove oil and grease by penetration of surfactants creating an emulsion, which is washed away with water. PH regulating additives provide increased action and dissolution of hydrocarbons and dirt particles.

Dosage: 1:1 - 1:50

Dosing is depending on the amount and type of

soil to be removed, but often low concentrations are sufficient. Unitor™ Cleanrig CHP™ is applied by spraying or by other means on to surfaces that requires cleaning. Allow the cleaning solution to penetrate soil for 10-30 minutes depending on amount and type of soil as well as the temperature. During this time the cleaning solution should not be allowed to dry on the surface to be cleaned. Wash down with water hose preferably with hot water or by use of high pressure cleaning equipment.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR CLEANRIG CHP 50%

Unitor™ Cleanrig CHP™ 50% is a water-based rig cleaner specially designed to provide efficient cleaning and optimum environmental and handling properties.

Product Information

Unitor™ Cleanrig CHP™ 50% contains unique environmentally adapted surfactants, pH regulating additives and corrosion inhibitors allowing removal of oil spills, sludge, oil- and water based mud, dirt and grime from all surfaces included painted.

Features

- Water based cleaner
- Rig cleaner for use on deck, tanks, engine rooms, drilling equipment
- Biodegradable
- Non-toxic and Non-flammable
- No hydrocarbon solvents
- Contains no nonyl phenol ethoxylates or other estrogenic compounds

Benefits

- Highly efficient cleaning
- Can be used in confined rooms
- Removes oil spills, sludge, mud, dirt and grime
- Leaves a good shine on hard surfaces after cleaning

Product Number	Product Name
726025	Unitor Cleanrig CHP 50% 1000 Ltr
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Appearance	Pale yellow
Density [g/ml]	1.04 - 1.05
Form	Liquid
pH	12 - 13

Approvals

Unitor™ Cleanrig CHP™ 50% is HO CNF and CEFAS approved. According to Norwegian environmental authorities Unitor™ Cleanrig CHP™

50% is classified as "Yellow" product containing biodegradable surfactants and pH-regulating compounds.

Directions for use

Unitor™ Cleanrig CHP 50% is an alkaline cleaner designed to remove oil and grease by penetration of surfactants creating an emulsion, which is washed away with water. PH regulating additives provide increased action and dissolution of hydrocarbons and dirt particles.

Dosage: 1:1 - 1:25

Dosing is depending on the amount and type of soil to be removed, but often low concentrations are sufficient. Cleanrig CHP 50% is applied by spraying or by other means on to surfaces that requires cleaning. Allow the cleaning solution to penetrate soil for 10-30 minutes depending on amount and type of soil as well as the temperature. During this time the cleaning solution should not be allowed to dry on the surface to be cleaned. Wash down with water hose preferably with hot water or by use of high pressure cleaning equipment.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR SCALECLEAN EX

Unitor™ Scaleclean EX™ is an environmental adapted and highly effective rust and carbonate remover designed for use in production equipment, boiler, evaporators, etc.



Product Information

Unitor™ Scaleclean EX™ is an environmental adapted and highly effective rust and carbonate remover designed for use in production equipment, boiler, evaporators, etc.

Features

- Environmental adapted de-scaler
- Multi purpose application areas
- Removes rust and scale quickly
- Highly concentrated

Benefits

- Easy to rinse off
- Economical in use

Product Number	Product Name
719070	Unitor Scaleclean EX 25 kg

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	White powder
pH	2.3 in 10% solution

Approvals

Unitor™ Scaleclean EX™ is HOCNF approved

Directions for use

Scale removing depends on contact with the scaled surface and contact time. If possible, circulate the Unitor Scaleclean EX solution over the areas containing scale. Alternatively, the area to be treated is completely covered by Unitor Scaleclean EX solution and let it soak for as long as necessary. Components can also be immersed in Unitor Scaleclean EX and left for soaking.

If the equipment to be cleaned is contaminated by oil, grease or sludge then a pre-clean with Unitor Cleanphase CB is necessary.

Dosage: 1:4 - 1:15 Depending on the amount of scale.

After treatment it is essential to thoroughly rinse with water until the pH is neutral. For measuring the pH we recommend Nalfleet pH paper.

Note: Unitor Scaleclean EX should not be used on aluminium, zinc, tin or any galvanized for which a special grade de-scaler should be used.

Unitor™ has developed a 210 litres capacity cleaning unit (Unitor™ Chemical Cleaning Unit: Product no. 664 737189) designed among other for use with chemical acid solutions for cleaning boilers, heat exchangers and other types of equipment where rust and scale form.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR CLEANPHASE CB

UnitorTM Cleanphase CBTM is a low toxic, highly effective degreaser for removing oil, wax, sludge and mud.



Product Information

UnitorTM Cleanphase CBTM is based on a low toxic solvent and emulsifier that easily split after settling. The product is ideal for cleaning especially tough contamination from drilling, well operations and other activities leaving hydrocarbon-based residues.

Features

- Highly effective heavy duty cleaner
- Low toxic
- Biodegradable
- Contains no nonyl phenol ethoxylates or other estrogenic compounds

Benefits

- Rapid penetration
- Removes heavy contaminates of oil, sludge, mud, wax, grease, etc.
- Splitting of residue allows safe disposal

Product Number	Product Name
726050	UNITOR CLEANPHASE CB 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Clear colorless
Density [g/cm3]	0.8 at 15°C
Flash Point [°C]	>70

Approvals

UnitorTM Cleanphase CBTM is HOCNF approved.

Directions for use

UnitorTM Cleanphase CBTM is designed with a solvent system to dissolve hydrocarbons and surfactants to emulsify grease while removing with water. The surfactant will hold the hydrocarbons emulsified in water till the mixture settles. During settling, the emulsion will break allowing oil and grease to be re-injected or transferred to the oil processing system. Other contaminants will be removed mechanically when washed with the hydrocarbons and can be removed after settling.

UnitorTM Cleanphase CBTM can be used on contaminated deck, walls, tanks, equipment, etc.

Dosage: No dilution needed. Use neat.

UnitorTM Cleanphase CBTM is applied directly on the contaminated surface that is to be cleaned.

Use brush, spray or immersion to cover the contaminated area. Leave UnitorTM Cleanphase CBTM on the contaminated area to ensure good penetration. The time for this reaction will vary depending on several factors, such as the material itself and its consistency, thickness, temperature and mechanical action provided.

Typical residence time can be 30 - 60 minutes. Mechanical actions like brushing will help decreasing the residence time. If possible remove residues with hot water and UnitorTM high pressure cleaner.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WATER TREATMENT CHEMICALS



Proper water treatment and routine testing are essential to reduce the possibility of unwanted critical equipment failures. Regular monitoring and maintenance can help the ship crew detect the problem areas and issues early before they cause structural damage to the system.



Standardization



Convenience



Marine environment protection



Reduce TCO (Total Cost of Operation)

Smart Water Management

Our Smart Water Management approach rests on the four foundational pillars: quality products, a digital platform, great service, and reliable automation. Combining these pillars will provide an optimal preventative maintenance program to ensure the water treatment systems run smoothly. Our integrated products and service are designed to bring peace of mind so vessel crews and shore managers can focus on other important tasks and priorities.

Waterproof by Wilhelmsen

A smart solution that covers your water management needs in one application. Our Waterproof digital platform is easy and fast to install, supporting vessel crews by giving actionable decision support to ensure correct water testing and treatment, while providing onshore managers with the insight necessary to prioritize vessel follow-up.

Browse this section to discover the benefits of our Water Treatment Chemicals range.

Scan or click on the QR code for more information.



RO SURFACTANT CLEANER

NALFLEETTM RO Surfactant CleanerTM has been developed for the cleaning of reverse osmosis (RO), nano-filtration (NF) and ultra-filtration (UF) membranes. NALFLEETTM RO Surfactant CleanerTM is a formulation based on an anionic surfactant and is highly effective in removing colloidal and other organic matter.



Features

- Effective surfactant formulation
- Compatible with wide range of RO membranes
- Liquid formulation

Benefits

- Helps to maintain RO performance
- Effective dosage
- Certified by NSF in accordance with Standard 60 drinking water standards

Product Number

777201

Product Name

RO SURFACTANT CLEANER 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Colorless to pale yellow
Density (g/ml)	1.04
Form	Liquid

pH

7.0 to 9.0

All membrane elements based on Polyamide chemistries including Thin Film Composite (TFC) membranes when used as prescribed. 304 Stainless Steel Viton O-rings, Buna-N O-rings, Polyethylene piping, Polypropylene piping, HDPE, ULDPE, Epoxy phenolic.

Materials compatibility

Accessories

737189

CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for Use

During normal operation, RO membranes can become fouled, which greatly reduces the efficiency of the system. Deposits build up on the membrane until they cause a reduction in permeate flow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled down time and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250% by maintaining low pump output pressures and extending the membrane's life.

Elements should be cleaned whenever the normalized permeate flow rate or salt rejection decreases by 10-15% or the differential pressure increases by 10-15%

from the original baseline data.

NALFLEETTM RO Surfactant Cleaner conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

Dosing and Control

NALFLEETTM RO Surfactant Cleaner should be fed via a closed feed system. A closed feed system is defined as a system in which fluid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices. NALFLEETTM RO Surfactant Cleaner cleaning solutions are made at 1.0 - 2.0% (by weight) with chlorine-free product water and sodium hydroxide addition to give a pH of 10.5 - 11.0.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

RO ALKALINE CLEANER

NALFLEET™ RO Alkaline Cleaner™ is an effective alkaline based membrane cleaner developed to support the cleaning of acid in soluble sulfates of calcium, barium and strontium as well as calcium fluoride.



Features

- Mild alkaline formulation
- Compatible with wide range of RO membranes
- Liquid formulation for ease of application

Benefits

- Helps to maintain RO performance
- Extends lifespan of membranes
- Aids in the production of high quality feedwater and portable water on board vessels

Product Number

777718

Product Name

RO ALKALINE CLEANER 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Appearance

Colorless to light yellow

Density (g/ml)

1.01 to 1.04

Form

Liquid

Freezing Point [°C]

12

pH

11 - 12.5

Accessories

737189

CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for Use

NALFLEET™ RO Alkaline Cleaner should be fed via a closed feed system. A closed feed system is defined as a system in which fluid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices.

Cleaning solutions should be made up with chlorine-free water to give a 2.0 - 2.5 % solution of NALFLEET™ Alkaline Cleaner. It is sometimes possible to monitor the progress of membrane cleaning by the "pick-up" of hardness salts in the cleaning solution.

** Storage Instructions: RO alkaline Cleaner should be stored at temperature above 15 °C. Below 15 °C the product can form precipitation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

RO.BISULPHITE LIQUID 38-40%

NALFLEET™ RO Bisulphite™ is a solution of sodium hydrogen sulphite (sodium bisulphite) used in the preservation of RO membranes and as a de-chlorinating agent.



Features

- Liquid product
- Suitable for RO membrane preservation and dechlorination

Benefits

- Helps to maintain RO performance
- Concentrated product
- Easy to handle

Product Number

777852

Product Name

RO.BISULPHITE 25 LTR LIQUID 38-40%

Specification

Invent Hazard Material (IMO/EU) classification

C-49

Density (g/ml)

1.30 to 1.34

Form

Light yellow liquid

Odour

Strong sulphur

pH

3.7-4.5

Accessories

737189

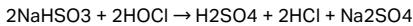
CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for Use

Procedures

A. De-Chlorination

If the feed water to the RO system contains free chlorine it must be removed otherwise it can breakdown the RO membrane. NALFLEET™ RO Bisulphite is a 40% solution of Sodium Bisulphite (NaHSO₃) It undergoes the reaction below with free chlorine:



A dose rate of 3.66ml/m³ of NALFLEET™ RO Bisulphite should be applied for each 1ppm of free chlorine in the feed water. Use a suitable free chlorine test kit to monitor reduction in free chlorine levels. For continuous applications a suitable storage tank and chemical dosing pump should be used.

The solution should be dosed as close to the RO system as possible (to keep as much of the pre-treatment as possible in contact with chlorine e.g. after the cartridge filters). However, if the free chlorine level is high, the solution should be dosed prior to the antiscalant injection point (or antiscalant dosage adjusted to compensate for chlorine attack, as some antiscalants are attacked by free chlorine).

The antiscalant and NALFLEET™ RO Bisulphite dosing point should be far enough apart to prevent neat product mixing.

B. Lay up and preservation of Reverse Osmosis and Nano-Filtration membranes and systems. (Polyamide, TFC, CPA membranes)

It is necessary to preserve membranes when the RO or NF system is taken out of production for more than 24 hours. Failure to do so may allow biofilms to form on the surface of the membranes which will cause operational problems upon restarting the system. Prior to shutdown, the RO needs to be cleaned in-line with operational guidelines and MUST be flushed with RO permeate. After flushing with permeate, the preservation solution can be pumped into the RO system. Note: It has to be verified that the plastic materials (including pressure vessels) used in the membrane plant are resistant to sodium bisulphite. Otherwise cracks might occur in the plastic materials.

1. Prepare a solution of 2.5 % NALFLEET™ RO Bisulphite
2. Fill the entire system to be preserved with the solution
3. It is recommended to measure the pH regularly. A fresh solution is needed when the pH < 3 A fresh solution is also needed when the liquid becomes turbid or changes colour. Regular inspections (weekly) are recommended.

NALFLEET™ RO Bisulphite conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

RO SCALE CONTROL

NALFLEET™ RO Scale Control™ is a broad spectrum scale inhibitor for Reverse Osmosis systems and membranes.



Features

- Effective on a broad range of scale forming compounds
- Cost effective dose rate
- Compatible with wide range of RO membranes
- Liquid formulation

Benefits

- Maintains RO performance
- Keeps membranes free of scales
- Certified by NSF in accordance with Standard 60

Product Number	Product Name
777716	RO SCALE CONTROL 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Colour	Pale yellow
Density (g/ml)	1.36 - 1.40
Form	Liquid
Materials compatibility	Polyamide membrane elements including TFC membranes, Stainless Steel 304, CPVC Piping, Polyethylene, Polypropylene, Plasite 4300, Plasite 7122
Odour	Slight ammoniacal
pH	10 - 11 (1% Solution)

Directions for Use

NALFLEET™ RO Scale Control shows excellent performance against the following scale forming compounds: - calcium carbonate- calcium sulphate - barium sulphate - strontium sulphate - calcium fluoride - silica and iron.

NALFLEET™ RO Scale Control is used when the silica level in the brine is less than 185 mg/l at a brine pH of 7.5 and temperature 25 °C (77 °F). NALFLEET™ RO Scale Control conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

Dosing and Control

Typical dose rate is 5 to 15 mls/m3 flow rate. NALFLEET™ RO Scale Control should be fed continuously to minimize precipitation of scale and fouling of RO and nano-filtration membranes. It is recommended to operate the dosing pump with the highest possible frequency and to adjust the dosage by adjusting the pump stroke to ensure membrane protection. The feed point location should be as close to the RO membrane as practical but one that ensures good mixing with the feedwater prior to entering the RO system. Typically, this is before the cartridge filters. It is preferred to feed NALFLEET™ RO Scale Control neat via a closed feed system to prevent contamination from foreign material (a closed feed system being defined as a system in which fluid is moved from a closed storage vessel into a treated media without exposure to the atmosphere, except through normal venting or pressure relief devices).

NALFLEET™ RO Scale Control can be diluted using RO permeate (only) following these guidelines:

1. Use RO permeate for dilution.
2. Prepare a fresh antiscalant solution every 3-5 days.
3. Inspect the antiscalant day tank before adding the new solution. If needed, the antiscalant tank should be cleaned prior to filling.
4. Dilution rates up to a factor 10 are typically applied. Dilution factors higher than 10 will require more attention with respect to the condition of the antiscalant tank (cleaning) and preparation of a new solution (every 1-3 days).
5. NaOH can be added to the dilution to increase the pH to 10-11. This is especially recommended for warm environments to prevent bio-growth NALFLEET™ RO Scale Control dosage is dependent on feedwater chemistry, membrane type, and system operating parameters (e.g. recovery, temperature and pressure).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

RO MILD ACID CLEANER

NALFLEET™ RO Mild Acid Cleaner is a membrane cleaner specifically designed to remove fouling by iron and light calcium carbonate scaling. The efficacy of RO Mild Acid Cleaner can be enhanced by the addition of RO Alkaline Cleaner to the cleaning solution although some minor pH correction may be necessary.



Features

- Mild acid formulation
- Compatible with wide range of RO membranes
- Liquid formulation
- Certified by NSF in accordance with Standard 60

Benefits

- Helps to maintain RO performance
- Promotes the extension of membrane lifespan

Product Number	Product Name
777715	RO MILD ACID CLEANER 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear light yellow
Density (g/ml)	1.14-1.22
Form	Liquid
pH	2.8 - 4.6
Accessories	
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Directions for Use

NALFLEET™ RO Mild Acid Cleaner is a membrane cleaner specifically designed to remove iron fouling. It also is effective against light calcium carbonate scaling. The efficacy of NALFLEET™ RO Mild Acid Cleaner can be enhanced by the addition of NALFLEET™ RO Alkaline Cleaner to the cleaning solution although some minor pH correction may be necessary.

NALFLEET™ RO Mild Acid Cleaner should always be used as recommended by the membrane manufacturer or equipment supplier, in respect to cleaning pH and temperature.

During normal operation, RO membranes can become fouled, which greatly reduces the efficiency of the system. Deposits build up on the membrane until they cause a reduction in permeate flow and loss in salt rejection. The effects of fouling can lead to poor water quality, loss in production, unscheduled downtime and membrane replacement. A regular maintenance and cleaning program can provide return on investment (ROI) results ranging from 100 to 250 % by maintaining low pump output pressures and extending the membrane's life. Elements should

be cleaned whenever the normalized permeate flow rate or salt rejection decreases by 10-15 % or the differential pressure increases by 10-15 % from the original baseline data.

NALFLEET™ RO Mild Acid Cleaner conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

Sampling and Testing

There is no direct test for NALFLEET™ RO Mild Acid Cleaner concentration available.

Dosing and Control

NALFLEET™ RO Mild Acid Cleaner should be fed via a closed feed system. A closed feed system is defined as a system in which fluid is moved from a closed storage vessel into a treated media without exposure to the atmosphere except through normal venting or pressure relief devices.

Cleaning solutions should be prepared with chlorine-free product water to give a 4 % (by weight) solution, or 1 kg of NALFLEET™ RO Mild Acid Cleaner to every 25 kg of water. As NALFLEET™ RO MILD Acid Cleaner is buffered, the cleaning solution will stabilize at pH 3.6.

The cleaning time depends on the amount of fouling present but is usually completed within two to three hours. If the cleaning solution becomes red/brown in color, it must be changed as it has become exhausted. The NALFLEET™ RO Mild Acid Cleaner cleaning solution should always be neutralized with alkali and discarded after use.

Before returning the system to service, the operator must ensure that any residual cleaning product is removed from the membrane surfaces by thorough flushing. This may be done by monitoring the pH of the concentration until it returns to the same pH as the influent water.

Success Factors

Membrane fouling via deposit results in decreased production, unscheduled shutdowns, poor product water quality, and premature equipment failure. Cleaning an RO system when required by the membrane manufacturer's operating guidelines, will make it easier to restore membrane performance and maximize its life. Allowing a membrane system to excessively foul or scale often results in the premature replacement of the membrane elements. Heavy foulant layers or scale formations can block flow channels within the elements, making it nearly impossible to get a cleaning solution to penetrate the bulk of the foulant/scale. This can result in a dramatic increase in the amount of time required for a successful cleaning, assuming it is even possible

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VAPTREAT

NALFLEET™ Vaptreat™ is a concentrated liquid blend of polymer and antifoam agents for controlling scale and foam in evaporators or fresh water generator.



Features

- Ensures that the evaporator works at maximum efficiency by keeping heat transfer surfaces free of scale
- The antifoaming properties ensure that distillate quality is high as carry over is eliminated
- Will gradually remove existing scale when dosed at twice the normal rate
- Concentrated, safe liquid, easy and economical dosing

Benefits

- Reduces downtime and maintenance

Product Number	Product Name
571364	VAPTREAT 25LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Pale yellow
Density [g/ml]	1.03 - 1.05
Form	Liquid
Compatibility	HD and LD polyethylene, PVC, Polypropylene, Teflon, Buna-N, Neoprene, EPDM, Viton, Tygon
pH	8.0 - 10.0

Accessories	
656207	EVAPORATOR DOSING UNIT ON GRAVITY

Directions for Use

The specially selected polymers in NALFLEET™ Vaptreat combined with the potential scale forming salts in the brine to prevent them from adhering to heat transfer surfaces. These solids are held in suspension and removed with the evaporator brine.

The operating efficiency of the plant is maintained for maximum water production. The intervals between cleaning are greatly increased.

The product to use for acid cleaning is Descalex, which will remove old scale prior to treatment with NALFLEET™ Vaptreat.

Evaporators have a tendency to produce foam while operating - the defoaming properties of NALFLEET™ Vaptreat will stop this foaming and carry-over will be eliminated. Distilled water quality is maintained.

Dosing method

The standard dosage, applicable to the majority of systems, is 15-30 ml of NALFLEET™ Vaptreat per ton of distillate produced. This is based on the rated production capacity of the evaporator.

Example: In a 25 ton/day evaporator. Treatment used = $25 \times 30 \text{ ml} = 750 \text{ ml}$ of NALFLEET™ Vaptreat per day.

Setting the Flow Rate

The treatment is added to the dosage tank and mixed with water. Example: With the 0.75 litres of NALFLEET™ Vaptreat add sufficient water to make up 50 litres of liquid.

Flow rate calculation:

Flowrate = 50 Litres/24 x 60= 35 ml/min setting This will last 24 hours.

A metering pump can also be supplied for use with NALFLEET™ Vaptreat if required.

N.B. The brine density should not exceed 1.038 g/cm³. The scaling potential increases rapidly over this level. An increase in the amount of NALFLEET™ Vaptreat used will assist in retaining potential scale forming salts in suspension.

For example: If the density rises to 1.050 g/cm³ the dosage should be 60 ml/ton of rated capacity.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MULTIVAP

NALFLEET™ MultiVap™ is a concentrated liquid blend of antiscalant and antifoam agents for controlling scale and foam in seawater evaporators. NALFLEET™ MultiVap™ has been formulated for optimum efficiency when used in large evaporators with high distillate production.



Features

- Highly concentrated, economical and space saving for large evaporator units
- Ensures optimum efficiency by keeping heat transfer surfaces clean and free of scale
- Contains antifoam to give high distillate quality and prevent carry over
- Certified by NSF in accordance with Standard 60

Benefits

- Reduces downtime and maintenance

Product Number	Product Name
759340	MULTIVAP 25LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Amber
Density (g/ml)	1.1
Form	Liquid
pH	8 in 1% Solution

Accessories	
656207	EVAPORATOR DOSING UNIT ON GRAVITY

Directions for Use

The specially selected polymers in NALFLEET™ MultiVap prevent scale formation by salts in the brine and will efficiently prevent build up of deposit on heat transfer surfaces. The solids are held in suspension and removed with the brine outlet.

NALFLEET™ MultiVap will maintain optimum operating efficiency of the plant and hence maximize water production at minimum energy consumption. The intervals between cleaning are significantly increased.

Use Unitor Descalex for acid cleaning to remove old scale prior to treatment with NALFLEET™ MultiVap.

Seawater evaporators have variable tendency to produce foam during operation. Foam formation may vary with operating conditions, i.e. seawater temperature. NALFLEET™ MultiVap is formulated with antifoam to prevent foaming problems and eliminate carry-over. If foaming should still occur, NALFLEET™ Evaporator Defoamer can be added in a premix with water and NALFLEET™ Multivap for additional foam prevention.

Dosing method

NALFLEET™ Multivap should always be dosed on continuous basis. This can be done with a dosing pump or by gravity based dosing unit controlling dosage with a flow meter. NALFLEET™ MultiVap may be diluted in water for easier controlling dosing and flow rate.

Dosage and control

Required dosage may vary slightly depending on type of evaporator in use; however 10-15ml of NALFLEET™ MultiVap per ton of distillate produced is recommended as initial dosage. The dosage recommendation is based on the rated production capacity of the evaporator.

Example: In a 500 ton/day evaporator.

Treatment used = $500 \times 15\text{ml} = 7,5 \text{ l}$ of NALFLEET™ MultiVap per day.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MAXI-VAP PLUS

NALFLEET™ Maxi-Vap Plus is a concentrated solution of an organic poly-electrolytes specifically developed for the control of scale deposition in sea water evaporators. It is miscible with water in all proportions.



Features

- Maintains design output and efficiency of evaporators for extended periods
- Improves distillate quality by controlling foaming and carry over

Benefits

- Reduces downtime and maintenance costs
- Economical in use

Product Number	Product Name
777707	MAXI-VAP PLUS 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Amber
Density [g/ml]	1.026 - 1.066
Form	Liquid
Materials compatibility	Polypropylene, Polyethylene, PVC, Butyl Rubber, Nitrile Rubber, EPDM, Viton, Stainless Steel, Nickel, Mild Steel
pH	9.0 - 10.0

Accessories	
656207	EVAPORATOR DOSING UNIT ON GRAVITY

Directions for Use

Although best results will be obtained by starting the treatment with a clean evaporator, NALFLEET™ Maxi-Vap Plus Liquid will improve performance of an evaporator which has not been de-scaled.

Dosing Method

The daily requirement of NALFLEET™ Maxi-Vap Plus should be mixed with evaporated water or condensate and diluted to the normal working level of the mixing tank. The solution can then be applied continuously via a flow meter to the evaporator shell or into the salt water feed line to the evaporator.

Dosing and Control

The flow rate should be adjusted to empty the tank over a 24 hour period. WSS can supply a suitable dosing tank and pump for this purpose. The Marine Safety Agency of the Department of Trade and Industry has agreed that NALFLEET™ Maxi-Vap Plus Liquid can be used as a scale inhibitor in the feed water evaporators producing fresh water for drinking and culinary purposes. Typical dose rate is 10mls per ton of evaporator output.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EVAPORATOR DEFOAMER

NALFLEET™ Evaporator Defoamer™ is a concentrated antifoam for prevention of foaming problems in seawater evaporators.



Features

- Concentrated antifoam, safe liquid, easy and economical dosing
- Certified by NSF in accordance with Standard 60
- Silicone free formulation

Benefits

- Antifoam properties that ensure distillate quality is high and carry over is eliminated

Product Number	Product Name
638676	EVAPORATOR DEFOMER 4X5 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Appearance	Yellow
Density [g/ml]	1.05
Form	Liquid
Materials compatibility	No known effect on metals or rubber.
pH	5.5 to 7.5 in 10% Solution

Directions for Use

NALFLEET™ Evaporator Defoamer is used in conjunction with NALFLEET™ Vaptreat antiscalant when foaming problems occur in the evaporator. Foaming problems can occur with certain design of evaporators and under certain conditions like elevated sea water temperature. NALFLEET™ Evaporator Defoamer is used to combat such problems and prevent foaming and carry-over. NALFLEET™ Vaptreat is formulated with a defoamer in the product, however under certain conditions additional defoamer is required to maintain maximum operating efficiency of the plant.

Dosing Instructions

The standard dosage is 1% of the desalant dose. for example, if the daily consumption of NALFLEET™ Vaptreat is 10 L, the recommended dose of NALFLEET™ Evaporator Defoamer is 0.1L. The maximum dosage of defoamer should not exceed 1 PPM based on rated output of the evaporator.

Dosing Method

NALFLEET™ Evaporator Defoamer has limited solubility in water. The best dosing method is to mix the product with the antiscalant and water in a dosing tank. The amount of defoamer in the mixture should not exceed 1% of the water added.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POTABLE WATER STABILISER LIQ.

NALFLEET™ Potable Water Stabiliser Liquid™ is a combination of polyphosphates, having stabilising properties. The product effectively and economically provides scale and corrosion control in potable water and other shipboard once-through water systems.



Features

- Prevents "Red Water" in the ship's potable water systems
- Controls corrosion and scaling in pipelines and other equipment handling softened or evaporated water
- Supplied in convenient to use liquid form

Benefits

- Increases system life and reduces maintenance costs

Product Number	Product Name
777714	POTABLE WATER STABILISER LIQ.25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Density [g/ml]	1.22 to 1.28
Form	Liquid
Freezing Point [°C]	<1
pH	5.0 - 10.0

Directions for Use

Dosing and Control

NALFLEET™ Potable Water Stabiliser Liquid is non corrosive to ordinary metals used in feeding equipment and may be fed with a simple by-pass feeder or suitable chemical dosing pump. Typical dosage rate is 15 to 25mls/m³ water. Storage temperature should not exceed 40 C.

NALFLEET™ Potable Water Stabiliser Liquid meets the requirements of the UK Department of Trade and Industry for use in potable water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POTABLE WATER STAB

NALFLEET™ Potable Water Stabiliser™ is a concentrated, highly soluble polyphosphate in powder form.



Features

- Prevents "Red Water" in potable water systems
- Provides scale and corrosion control in hot water heaters, coolers and water tanks
- Controls corrosion in pipelines and other equipment handling softened or evaporated water
- Effective at temperatures up to 60°C (140°F)
- No restrictions on use of the treated water as feed water to boilers or engine cooling systems

Benefits

- Increases system life and reduces maintenance costs

Product Number	Product Name
624916	POTABLE WATER STAB 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	White
Form	Powder
pH	7 in 10% solution

Directions for Use

NALFLEET™ Potable Water Stabiliser effectively and economically provides scale and corrosion control in potable water systems and other shipboard once-through water systems.

Dosage varies between 4 -- 8mg/ltr for ordinary water treatment. For drinking water, dosage should always be kept at or below 9mg/ltr (9g/m³).

The powder product should not be dosed directly to water system. A water solution should be made prior to dosing.

Dosing method

NALFLEET™ Potable Water Stabiliser should be dosed to a suitable point in the system. If the expansion tank is used, adequate circulation must be assured.

Dosage and control

Make up a 5% solution (50g/lit) in fresh water by adding the powder slowly to the water while stirring. The solution should preferably be portioned to maintain desired dosage, either by means of a simple bypass feeder, or with Dosage System for Water Treatment.

The product can be injected into the discharge line of the fresh water generator or directly into the fresh water pumps' suction manifold. If a high percentage of shore water is used the solution must be "slug" dosed into the tanks prior to taking water.

Inject the 5% solution at a rate of 0.12 litres per m³ of water to obtain a 6 mg/ltr concentration of Potable Water Stabiliser.

Examples:

For 20 m³ per day: Dose 0.12 ltr/hour = 2.4 ltr/day of the solution.

For 100 m³ per day: Dose 0.6 ltr/hour = 12 ltr/day of the solution.

For larger systems, stronger solutions up to 20% can be made. The dosage rate may then be reduced proportionally, which will extend the time period between each filling of the dosing tank. However, production of stronger solutions may require improved stirring equipment.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SODIUM HYPOCHLORITE POTABLE GRADE

This is the specification for Potable Water Grade Sodium Hypochlorite that can be used to chlorinate and control bacterial growth in potable water, swimming pools and spas, for grey and black water sterilisation.

Features

- Liquid formulation
- Easy test method (free chlorine)
- Controls bacteria growth in drinking water, grey water, black water and pools and spas.

Benefits

- Reduces risk of illness and infections

Product Number	Product Name
909001	SODIUM HYPOCHLORITE POTABLE GRADE 25LTR DRUMS

Specification

Invent Hazard Material (IMO/EU) classification	C-50
CAS No.	7681-52-9
Appearance	Green/yellow liquid
Available Chlorine	10 to 15%
Density [g/ml]	1.16 to 1.17
Freezing Point [°C]	-15 to -18 C
Odour	Chlorine

Accessories

778419	POTABLE WATER TEST KIT
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Directions for Use

Sodium Hypochlorite solution typically contains 10 - 15% available chlorine.

Sodium Hypochlorite may be applied directly to the water system at any point where there is sufficient time and turbulence to facilitate dissolution. The product should be applied and controlled to achieve the target free chlorine residual which is system dependent. Each system has a chlorine demand which has to be satisfied before free chlorine residual is obtained. The chlorine demand is dependent upon system design and water cleanliness.

Dosage of Sodium Hypochlorite:

Potable water typically requires 15mls per m³
Pools and Spas typically require 30 to 50mls/m³
Grey water typically requires 40 to 100mls/m³

These are nominal dose rates and should be adjusted depending on measured free chlorine results. Test kits can be selected from the Potable Water Test Kit range.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BIOGUARD PLUS

NALFLEET™ Bioguard Plus™ is an effective anti-foulant and corrosion inhibitor for use in sea water systems.



Features

- Liquid treatment which is easy to use
- Extremely effective in the control of sea water fouling organisms
- Maintains heat transfer in systems and extends the periods between cleaning
- Biodegradable
- Suitable for all types of systems using sea water, both static and flowing

Benefits

- Multi-system use
- Many applications covered by one product
- Reduces maintenance and down time
- Economic in use

Product Number	Product Name
778918	BIOGUARD PLUS 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Pale Yellow
Density [g/ml]	0.97
Form	Liquid
pH	above 7

Directions for Use

NALFLEET™ Bioguard Plus has been specially developed to prevent sea water (cooling) system from being fouled by lower aquatic life forms like mussels, barnacles and algae. The dispersant in the product inhibits the colonisation of such organisms on metal surfaces. The filming characteristics will also provide anti corrosion properties. NALFLEET™ Bioguard Plus can be used in both static and flowing systems. Some application examples are: sea water systems, including seawater intakes; filter boxes and piping; static ballast tanks; stability trimming tanks and oil rig sea legs.

Dosing Method

The diagram attached shows a typical dosage layout. This can be modified to suit a particular situation. A chemical dosing pump, with or without alarm to be used. Although the product will gradually clean fouled systems, treatment should preferably be started with a clean system. The product can be dosed neat or if necessary diluted into fresh water to accommodate the dosing equipment. When changing over from any other product to NALFLEET™ Bioguard Plus, flush the entire dosing system thoroughly with fresh water.

Dosage and control

For Sea Water Cooling Systems Dose 0.6 litre of NALFLEET™ Bioguard Plus for every 100 tons of sea water flowing through the system per hour. The system throughput is either to be determined from the rating of the pump(s) or from the system specifications. Treatment is necessary in coastal waters and should commence three days before entering these waters and continue for three days after leaving coastal waters. The calculated dose should be dosed over a one hour period and repeated every 48 hours. **For Static Ballast Tanks** Dose 1 litre of NALFLEET™ Bioguard Plus per 10 tons of water prior to ballasting, followed by a monthly dose of 2 litres per 100 tons. **For Trim Tanks, Oil Rig Sea Legs** and similar systems Dose 25 litres of NALFLEET™ Bioguard Plus per 100 tons of water and add the same for make up water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MAR-71 BIOCIDE NOT IN USA & CAN

MAR-71™ is a very effective biocide, used to prevent and combat microbiological growth in closed cooling water systems as well as in lubricating oil systems.

For USA: Use 7330 (Product no: 907004)



Features

- Kills micro-organisms in closed cooling water systems and lubrication oil systems
- Prevents corrosion caused by microorganisms
- No cases have been reported where bacteria have become immune to MAR-71
- Biodegradable, does not accumulate in the environment
- HOCNF registered for use in the North Sea Offshore sector, yellow/gold classification

Benefits

- One product, two different applications

Product Number	Product Name
735977	MAR-71 BIOCIDE 3X5L NOT IN USA & CAN
Specification	
Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Colourless to yellow
Density [g/ml]	1.06
Form	Liquid
pH	10 in 0.15% solution
Accessories	
777336	AQUAGUARD CW DOSING SYSTEM

Directions for Use

Closed cooling water circuits

Especially when berthing for a longer period in harbours in warmer climates, the risk of infection of the cooling water systems with microorganisms is considerable. When this happens, acids are formed and at the same time, the nitrite based corrosion inhibitors present in the system will be eaten away by the bacteria resulting in underdeposit corrosion. Regular testing for the presence of bacteria in the cooling water by the use of "dip slides" is therefore strongly recommended. Between 0.5 and 1.5 litres/ton. MAR-71 should be added to contaminated systems. The system should be circulated for three days after which the complete contents of the cooling system is dumped. The system should also be thoroughly flushed with fresh water prior to refilling the system with (distilled) water and initial dosage of corrosion inhibitor to establish corrosion protection. The choice of inhibitor include, nitrite based inhibitors (Rocor NB Liquid, EWT 9-108, Nalfleet 2000), or organic based inhibitor (Cooltreat AL or Cooltreat ELC) can be used for initial fill and should follow the individual product application guideline. It is recommended to re-test for the presence of bacteria after the system has been in operation for 24 hours. The described procedure is to be repeated if necessary. For heavily contaminated

systems and systems contaminated with scale/oil, it is recommended to acid clean and/or degrease the system prior to disinfecting

Caution: During disinfecting, evaporators and other equipment which use cooling water and which are used in connection with the production of drinking water are not to be used.

Lubricating oils

The presence of water in lubricating oil, either caused by condensation or by leakage of cooling water, provides excellent growing conditions for micro-organisms in lube oil systems. The presence of bacteria will cause changes in lube oil characteristics, cause corrosion, water emulsion and clogging of filters. Regular control and necessary action to combat bacteriological contamination can avoid above mentioned problems. The recommended decontamination procedure is as follows:

1. Transfer 80-90% of the lubricating oil into a renovation tank and heat to 85-95°C while separating for 12 hours. Continue heating for another 12 hours without separating.
2. To the remaining oil in the sump-tank, between 0.5 and 1 litres/ton MAR-71 is added. Circulate the contents of the sump-tank for 12-24 hours. Note that during circulation, filters may get clogged by dead microorganisms. Special observation of filters, and if necessary, cleaning of same, is therefore required.
3. Empty and clean the sump-tank.
4. Transfer the circulating oil from the renovation tank back into the sump-tank and fill with fresh oil. As an alternative to the above procedure, increase of the bacteriological contamination can be stopped by adding 0.3 - 0.5 litres/ton MAR-71 to the lubrication oil. At a later stage, proper disinfecting must follow.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Note: Please check with the lubrication oil manufacturer regarding dosage rates for your brand of oil. In case bacteriological contamination occurs and has already caused corrosion, the lubrication oil must be fully exchanged. Consult lubrication oil manufacturer. Before refilling the system, it is highly recommended to rinse the system for 24 hours with flushing oil to which 0.5 - 1 litres/ton MAR-71 is added. This procedure and the addition of 0.1 - 0.5 litres/ton MAR-71 to the new oil will prevent re-infection of the lubricating oil.

ROCOR NB LIQUID

NALFLEET™ Rocor NB Liquid is a highly effective engine cooling water system treatment. Proprietary blend of active corrosion inhibitors offer optimum corrosion protection for the common ferrous and non-ferrous metals found in engine cooling water systems.



Features

- Liquid product, easy to use
- By forming an oxide film on the metal surfaces electrolytic corrosion is prevented
- Effective against cavitation and erosion
- Compatible with hoses, gaskets and seals
- Compatible with glycols for frost protection

Benefits

- Approved by major diesel engine manufacturers
- Simple control test

Product Number	Product Name
571356	ROCOR NB LIQUID 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Red liquid
Density [g/ml]	1.1
Form	Liquid
pH	9.5 - 10.5

Directions for Use

NALFLEET™ Rocor NB Liquid is a highly effective corrosion inhibitor for the common ferrous and non-ferrous metals in cooling water systems. The stable oxide film that is formed prevents corrosion caused by electrolytic action between dissimilar metals used in the system. NALFLEET™ Rocor NB Liquid has been field tested and found to have no detrimental effects on non metallic substances such as seals, glands, packing, hoses, gaskets etc., normally used in these systems. The compound is alkaline and so will suppress acid corrosion, which would otherwise result in corrosion damage such as pitting. However, the alkalinity control is such that even if the product is accidentally overdosed, the pH of the water will remain within limits. The metals which would be affected by extremes of alkalinity or acidity are protected. In cases where systems are contaminated with oil and/or scale they should be cleaned before starting to apply NALFLEET™ Rocor NB Liquid. There are suitable WSS products to carry out the cleaning. Degreasing should be carried out using UNITOR Seaclean Plus and descaling by using UNITORTM Descalex. Refer to Water Treatment handbook. Freeze protection can be required if the vessel is to be laid up in cold areas. NALFLEET™ Rocor NB Liquid can be used in conjunction with glycols to provide suitable freeze protection. If the system contains zinc galvanized parts, it is advisory to clean the system with Descalex prior to commencing the treatment.

NALFLEET™ Rocor NB is not suitable for use in cooling systems containing aluminium components.

For general guidance where aluminium is present:
No aluminium present - Use Rocor NB Liquid or Engine Water Treatment 9-108

With aluminium - Use NALFLEET 2000 or Cooltreat AL

Dosing method

NALFLEET™ Rocor NB Liquid should be dosed to a suitable point in the system. If the expansion tank is used then adequate circulation must be assured.

Sampling and testing

The Spectrapak Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosage and Control

Part A: Control Guideline and dosage

Nitrite Control limits for Rocor NB: 1,000-2,400 ppm nitrite (as NO₂), recommended routine maintenance nitrite residual = 1,440 ppm (as NO₂) The nitrite (as NO₂) control guideline and dosage for Rocor NB as below:

1. Minimum = 1,000 ppm and required dosage of Rocor NB = 9L/m³
2. Maximum = 2,400 ppm and required dosage of Rocor NB = 21L/m³

Recommended (routine maintenance) = 1,440 ppm, and required dosage of Rocor NB = 13L/m³ Note: · To increase nitrite residual by 100 ppm, required dosage of Rocor NB = 1L/m³ of distilled or technical water · Above mentioned product dosage is estimation only system required dosage may varies due to water quality, system demand, and other variations.

Part B: Working example of dosage estimation:

New cooling system (e.g. Nitrite residual = 0) : Recommended dosage is 13 L/m³ · Existing operating cooling water system (e.g. some nitrite residual presence but below recommended guideline): Assuming system measured nitrite residual at 1,000 ppm and to increase nitrite residual to 1,440 ppm, required nitrite = 440 ppm = 4.4L of Rocor NB is needed.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Part C: General Application Notes

1. Buffering agents blended in NALFLEET™ Rocor NB Liquid helps to maintain pH values within suitable limits when the product is dosed as recommended. Normal pH should be maintained between 8.3 and 10 by the treatment.
2. The engine manufacturer's recommendations for water quality should always be complied with.
3. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides.
4. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up

NALFLEET 2000TM

NALFLEET 2000TM cooling water treatment combines film forming corrosion inhibitors with a scale suppressant in liquid form for ease of application. NALFLEET 2000TM will protect ferrous metals, copper and copper alloys and all other metals including aluminium components. NALFLEET 2000TM is soluble in water in all proportions and does not contain chromates.



Features

- Protects all common metals in cooling systems from corrosive attack
- Protects against cavitation erosion
- Compatible with glycols for frost protection
- Simple to control
- Safe to apply and handle

Benefits

- Minimises sludge and scale deposits
- Approved by major diesel engine manufacturers

Product Number	Product Name
778640	NALFLEET 2000 TM 5 LTR
777710	NALFLEET 2000 TM 25 LTR
777711	NALFLEET 2000 TM 210 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Red
Density [g/ml]	1.095 - 1.125
Form	Liquid
Materials Compatibility	Stainless steel, PVC, Polypropylene, Polyethylene, Natural Rubber, Synthetic Rubber, Viton
pH	11.1-11.8

Accessories

597757	Test Kit for Nitrite, Chloride and P Alkalinity.
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Directions for Use

NALFLEETTM 2000 has been designed for use in all common types of engine cooling water systems. Nalfleet 2000 will protect ferrous metals, copper and copper alloys and all other metals including aluminium components. NALFLEETTM 2000 will not affect rubber gaskets or other non-metallic components within the cooling system.

For general guidance where aluminium is present:

No aluminium present - Use Rocor NB Liquid or Engine Water Treatment 9-108

With aluminium - Use NALFLEET 2000 or Cooltreat AL

Sampling and Testing

The WSS Motor Ship Test Kit (777066) provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosing and Control

Part A: Control Guideline and dosage

Nitrite Control limits for NalFleet 2000: 700 - 1,500 ppm nitrite (as NO₂), recommended routine maintenance nitrite residual = 840 ppm (as NO₂)
The nitrite (as NO₂) control guideline and dosage for NalFleet 2000 as below:

1. Minimum = 700 ppm and required dosage of NalFleet 2000 = 22 L/m³
2. Maximum = 1,500 ppm and required dosage of NalFleet 2000 = 48 L/m³
3. Recommended (routine maintenance) = 840 ppm, and required dosage of NalFleet 2000 = 27 L/m³

Note:

- To increase nitrite residual by 100 ppm, required dosage of NalFleet 2000 = 3L/m³ of distilled or technical water
- Above mentioned product dosage is an estimation only, system required dosage may varies due to water quality, system demand, and other variations.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Part B: Working examples of dosage estimation:

- New cooling system (e.g. Nitrite residual = 0): Recommended dosage is 27 L/m³, 840 ppm Nitrite.
- Existing operating cooling water system (e.g. some nitrite residual presence but below recommended guideline): Assuming system measured nitrite residual at 700 ppm and to increase nitrite residual to 840 ppm, required nitrite = 140 ppm = 4.2L of NalFleet 2000 is needed.

Part C: General Application Notes

1. The engine manufacturer's recommendations for water quality should always be complied with.
2. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides.
3. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up.

ENGINE WATER TREATMENT (9108)

NALFLEET™ Engine Water Treatment 9-108™ is a balanced mixture of corrosion inhibitors, formulated to give a high nitrite furnish which is becoming a more frequent requirement for the new generation of high efficiency diesel engines.



Features

- Contains dispersant for cleaner and more efficient cooling systems
- Does not affect gaskets or hoses
- Compatible with glycols for frost protection

Benefits

- Approved by major diesel engine manufacturers
- Simple control test

Product Number	Product Name
777703	ENGINE WATER TREATMENT25 LTR(9108)

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Colour	Straw
Density [g/ml]	1.3
Form	Liquid
pH	13.2 - 14.0

Directions for Use

NALFLEET™ Engine Water Treatment 9-108 is effective in hot and cold water and it is compatible with Glycol when used with anti-freeze. It contains an anti-scalant to minimise scale formation on heat transfer surfaces. It will protect all metals commonly found in engine cooling water systems including cast iron, mild steel, copper, copper alloys, lead and solder.

For general guidance where aluminium is present:

No aluminium present - Use Rocor NB Liquid or Engine Water Treatment 9-108
With aluminium - Use NALFLEET 2000 or Cooltreat AL

Note:

- To increase nitrite residual by 100 ppm, required dosage of EWT 9-108 = 0.2 L/m3 of distilled or technical water
- Above mentioned product dosage is an estimation only system required dosage may varies due to water quality, system demand, and other variations.

Part B: Working examples of dosage estimation:

New cooling system (e.g. Nitrite residual = 0): Recommended dosage is 2.0 L/m3, 840 ppm nitrite.

Existing operating cooling water system (e.g. some nitrite residual presence but below recommended guideline): Assuming system measured nitrite residual at 700 ppm and to increase nitrite residual to 840 ppm, required nitrite = 140 ppm = 0.34 L of EWT 9-108 is needed.

Dosing Method

Part A: Control Guideline and dosage

Nitrite Control limits for EWT 9-108: 700 - 1,000 ppm nitrite (as NO₂), recommended routine maintenance nitrite residual = 840 ppm (as NO₂) The nitrite (as NO₂) control guideline and dosage for EWT 9-108 as below

- Minimum = 700 ppm and required dosage of EWT 9-108 = 1.7 L/m3
- Maximum = 1,000 ppm and required dosage of EWT 9-108 = 2.4 L/m3
- Recommended (routine maintenance) = 840 ppm, and required dosage of EWT 9-108 = 2.0 L/m3

Part C: General Application Notes

1. The engine manufacturer's recommendations for water quality should always be complied with.
2. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides
3. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

COOLTREAT ELC (ANTI-FREEZE)

NALFLEET™ Cooltreat ELC™ is an organic liquid corrosion inhibitor and mono ethylene glycol blend that provides extended life corrosion and anti-freeze protection in closed cooling water systems.



Features

- Provides corrosion and anti-freeze protection
- Environmentally friendly, fully organic product, low toxicity
- Effective protection against cavitation and erosion.
- Compatible with hoses, gaskets and seals
- Long life product (up to 5 years in closed cooling systems)

Benefits

- The product can be used for corrosion inhibition in many types of closed re-circulation system (examples: Diesel engine/Compressor/Centralised Hot water heating systems/Auxiliary machinery cooling water systems

Product Number	Product Name
779030	COOLTREAT ELC (ANTI-FREEZE) 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Red
Density [g/ml]	1.11 typical
Form	Liquid
pH	8.7

Directions for Use

Cooltreat ELC provides long-life, anti-freeze and corrosion protection. To ensure good corrosion protection it is recommended to use at least 33 vol. % of Cooltreat ELC in the coolant solution. This provides anti-freeze protection to -20°C. Typical mixtures in Northern Europe are 50/50, offering anti-freeze protection down to -40°C. Mixtures with more than 70 vol. % Cooltreat ELC in water are not recommended.

The maximum anti-freeze protection (around -69°C) is obtained at 68 vol. % Cooltreat ELC.

For optimal performance and controlled quality, we recommend the use of deionised or distilled water to prepare your required dilutions.

Cooltreat ELC Vol. %	33	40	50	60	68
Technical Water Vol. %	67	60	50	40	32
Freeze Protection (°C)	-20	-27	-40	-55	-69

Cooltreat ELC is a highly effective corrosion inhibitor for all common metals in cooling water systems. Testing has shown no detrimental effects on non metallic substances such as seals, glands, packing, hoses, gaskets etc., normally used in these systems. Cooltreat ELC forms a thin and durable layer of protective molecules to the metal surfaces. This technology prevents the continuous build-up of insulating layers on heat transfer surfaces. For new builds, Wilhelmsen Ships Service recommends cleaning of the water system before commencing service. The system will always contain small amounts

of oil and iron oxides, and this can be removed in one operation with UNITOR™ Commissioning Cleaner. If the system is corroded or is more heavily contaminated, degreasing with UNITOR™ Seaclean Plus followed by acid cleaning, with UNITOR™ Descalex for removal of metal oxides or scale is recommended. For systems previously treated with other products, Wilhelmsen Ships Service recommend to drain and flush the system before refilling with the required mixture of distilled water and Cooltreat ELC. The system should be clean and free from scale and corrosion products when starting the treatment.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

COOLTREAT AL

NALFLEET™ Cooltreat AL™ is an organic liquid corrosion inhibitor with extended life for use in closed engine cooling water treatment. This product offers protection for all commonly used materials in engine cooling water systems, including aluminium.



Features

- Effective against cavitation and erosion. Superior heat transfer properties
- Compatible with hoses, gaskets and seals
- Compatible with glycols for frost protection
- Stable product-non depleting
- Environmentally friendly, fully organic product, low toxicity

Benefits

- The product can be used for corrosion inhibition in many types of closed re-circulation system (examples: Diesel engine/Compressor/Centralised Hot water heating systems/Auxiliary machinery cooling water systems)

Product Number	Product Name
680843	COOLTREAT AL 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Colourless
Density [g/ml]	1.06
Form	Liquid
pH	9.4

Directions for Use

NALFLEET™ Cooltreat AL™ is a highly effective corrosion inhibitor for all common metals in cooling water systems. Testing has shown no detrimental effects on non metallic substances such as seals, glands, packing, hoses, gaskets etc., normally used in these systems. Where most traditional inhibitors react with the metal surface and form oxides that prevent further corrosion, NALFLEET™ Cooltreat AL™ applies a thin and durable layer of protective molecules to the metal surfaces. This technology prevents the continuous build-up of insulating layers on heat transfer surfaces. For new builds, Wilhelmsen Ships Service recommends cleaning of the water system before commencing service. The system will always contain small amounts of oil and iron oxides, and this can be removed in one operation with UNITORTM Commissioning Cleaner. If the system is corroded or is more heavily contaminated, degreasing with i.e. UNITORTM Seaclean Plus followed by acid cleaning, with i.e. UNITORTM Descalex for removal of metal oxides or scale is recommended. For systems previously treated with other products, Wilhelmsen Ships Service recommend to drain and flush the system before refilling with distilled water and NALFLEET™ Cooltreat AL™. The system should be clean and free from scale and corrosion products when starting the treatment. The use of antifreeze is sometimes required if the vessel is to be laid up in cold areas, NALFLEET™ Cooltreat AL™ can be used in conjunction with glycols for frost protection. If

used in conjunction with glycols, It is recommended to increase the product concentration to 8%.

For general guidance where aluminium is present:
No aluminium present - Use Rocor NB Liquid or Engine Water Treatment 9-108

With aluminium - Use NALFLEET 2000 or Cooltreat AL

Dosing method

NALFLEET™ Cooltreat AL™ should be dosed to a suitable point in the system. If the expansion tank is used, adequate circulation must be assured.

Sampling and testing

The Spectrapak Test Kit provides the necessary equipment to carry out the control tests. Obtain a representative sample of the cooling water. Carry out the tests immediately after sampling (following the instructions given in the Test Kit) and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions. Use the dosage chart overleaf to adjust treatment to obtain the optimum level. It is important that testing is carried out at least once per week, to ensure levels of treatment are correct.

Dosage and Control

Initial dosage for an untreated system is 60 litres of NALFLEET™ Cooltreat AL/ton of untreated distilled water (6%). This will provide sufficient protection of the system for a period of two to five years under normal conditions.

Cooltreat AL (in %)	0	1	2	3	4	5	6
NALFLEET™ Cooltreat AL/1000 ltr	60	50	40	30	20	10	0

6% NALFLEET™ Cooltreat AL should also be dosed in all make up water added to the system to compensate for lost coolant. The engine manufacturer's recommendations for water quality should always be complied with. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up. pH should be controlled between 7.0 and 9.0.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BRINE CORROSION INHIBITOR

NALFLEET™ Brine Corrosion Inhibitor™ is a borate-organic corrosion inhibitor especially designed for use in chloride brine closed re-circulating cooling systems.

Features

- Formulated for brine cooling systems
- Multi metal corrosion protection

Benefits

- Can be used to replace chromate technology

Product Number	Product Name
777044	BRINE CORROSION INHIBITOR 25 LITRE

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	colourless to yellow
Density [g/ml]	1.16 to 1.19
Form	Colourless liquid
pH	11.5 - 14

Accessories

777336	AQUAGUARD CW DOSING SYSTEM
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Directions for Use

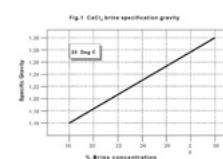
The recommended dosage for NALFLEET™ Brine Corrosion Inhibitor is 17.5 litres per tonne of brine in the system. NALFLEET™ Brine Corrosion Inhibitor may be added directly to the system either neat or in a water dilution. Dilutions should be made with evaporated water. If a chemical dosing pump is used then pump and lines should be mild steel, stainless steel, Teflon, polyethylene, PVC, polypropylene or rubber.

Conversion from chromate NALFLEET™ Brine corrosion inhibitor is compatible with chromate. Systems with chromate need not be flushed before adding the product. Let chromate deplete naturally and maintain boron level at a minimum of 70ppm. NALFLEET™ Brine Corrosion Inhibitor should be fed slowly. Start feeding 5 to 10% of the total dosage at a time and watch for foaming. Gradually increase the feed rate. NALFLEET™ Brine Corrosion Inhibitor does not induce foaming at normal dose rates, but if it is fed too much too soon, foaming may occur. Feed lines and pumps should be mild steel, stainless steel, Teflon, polyethylene, PVC polypropylene or rubber.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Fig 1 CaCl₂brine specification gravity at 20 deg C



Testing and Control Control NALFLEET™ Brine Corrosion Inhibitor as Boron at 70 - 100 ppm Note: Because the specific gravity of the brine varies with concentration, the resulting level of boron should be calculated as follows:

mg/L Boron/S.G. Brine* = ppm Boron ref. attached table

MONOETHYLENE GLYCOL REGULAR ANTIFREEZE

Mono ethylene glycol (MEG) is used as an anti-freeze additive for engine cooling systems to prevent freezing and as an anti-boil additive.

Product Number	Product Name
909018	MONOETHYLENE GLYCOL REGULAR ANTIFREEZE

Specification

Invent Hazard Material (IMO/EU) classification	C-8
CAS No.	107-21-1
Appearance	Clear colourless liquid
Density [g/ml]	1.11 to 1.12
Odour	Odourless

Directions for Use

Typical applications would utilise a mixture of MEG, technical water and a suitable WSS corrosion inhibitor to meet the required freeze protection requirement. Typical mixtures in Northern Europe are 50/50, offering frost protection down to -40°C. Mixtures with more than 70 vol. % MEG are not recommended. For optimal performance and controlled quality, we recommend the use of deionised or distilled water to prepare your required dilutions.

Mono ethylene glycol Vol. %	20	33	50	60
Technical Water Vol. %	80	67	50	40
Freeze Protection (oC)	-10	-20	-40	-55

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

7330 COOLING WATER BIOCIDE (USA/CAN) 19LTR/5 GAL PAIL

7330 is a broad spectrum, non oxidizing biocide approved for used in closed loop cooling systems

Features

- Broad spectrum non oxidizing biocide

Benefits

- Broad spectrum non oxidizing biocide for cloised loop cooling water.

Product Number	Product Name
907004	7330 COOLING WATER BIOCIDE (USA/CAN) 19LTR/5 GAL PAIL

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Appearance	Clear, Colorless to light green - yellow
Density [g/ml]	1.03
Form	Liquid
pH	2 - 5
Solubility in water	Totally soluble

Directions for Use

Closed cooling water circuits Especially when berthing for a longer period in harbours in warmer climates, the risk of microorganism growth of the closed loop cooling water systems is considerable. When this happens, acids are formed and at the same time, the nitrite based corrosion inhibitors present in the system will be eaten away by the bacteria resulting in underdeposit corrosion. Regular testing for the presence of bacteria in the cooling water by the use of "dip slides" is therefore strongly recommended. Initial dosage is 0.1 liter/ton is recommended. For heavily fouled system, dosage between 0.2 and 0.9 litres/ton is recommended. Nalco 7330 should be added to the contaminated systems as quickly as possible . The system should be circulated for three days after which the complete contents of the cooling system is dumped. The system should also be thoroughly flushed with fresh water prior to refilling the system with (distilled) water

and initial dosage of corrosion inhibitor to establish corrosion protection. The choice of inhibitor include, nitrite based inhibitors (Rocor NB Liquid, EWT 9-108, Nalfleet 2000), or organic based inhibitor (Cooltreat AL or Cooltreat ELC) can be used for initial fill and should follow the individual product application guideline. It is recommended to re-test for the presence of bacteria after the system has been in operation for 24 hours. The described procedure is to be repeated if necessary. For heavily contaminated systems and systems contaminated with scale/oil, it is recommended to acid clean and/or degrease the system prior to disinfecting

Caution: During disinfecting, evaporators and other equipment which use cooling water and which are used in connection with the production of drinking water are not to be used.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ALKALINITY CONTROL

NALFLEET™ Alkalinity Control™ is a concentrated liquid alkaline product for corrosion and scale control in boilers .



Features

- Convenient liquid treatment which provides the basic alkalinity for optimum corrosion and scale control.
- Assists in precipitation and blowdown of magnesium and calcium salts
- Will assist in keeping silica in suspension
- Simple testing to determine level of treatment
- Can be used in boilers of all pressures
- Can be used as a neutraliser after acid cleaning operations in different systems

Benefits

- Allows efficiency to be maintained, and reduces maintenance

Product Number	Product Name
571307	ALKALINITY CONTROL 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Colourless
Density [g/ml]	1,3
Form	Liquid
pH	13 to 14

Directions for Use

NALFLEET™ Alkalinity Control provides alkaline conditions in the boiler water for optimum control of corrosion and scale deposition and should be used as part of a multi-product treatment programme.

Dosing method

For optimum results dose NALFLEET™ Alkalinity Control direct to the boiler with an automatic dosing unit, or via the bypass pot-feeder installed in the boiler feed line.

Dosage and control

A proper level of treatment is maintained by testing for p-Alkalinity. The level is determined by the pressure and type of boiler. Refer to the dosage table below for correct dose rates. The normal method of raising the alkalinity level is by adding the required quantity of NALFLEET™ Alkalinity Control after testing for p-Alkalinity. 225 ml/ton will raise the p-Alkalinity by 100 ppm.

USING THE TABLE: Select the section corresponding to the pressure of the boiler to be treated and read across the table to obtain the level of treatment required.

Dosage of Alkalinity Control in ml/ton boiler volume

* P-Alkalinity Test Result PPM CaCO₃*

Pressure Range	0-50	50-100	100-150	150-300	>300	Range P-Alkalinity	Initial Dose ml/Tonne
<18 bar	340ml	225ml	110ml	Satisfactory	Reduce dose rate	150 to 300	450
18 to 31 bar	340ml	225ml	110ml	Satisfactory	Reduce dose rate	150 to 300	450
31 to 42 bar	225ml	110ml	Satisfactory	Reduce dose rate	Reduce dose rate	100 to 150	340
42 to 60 bar	110ml	Satisfactory	Reduce dose rate	Reduce dose rate	Reduce dose rate	50 to 100	170

Proper treatment should normally give a pH between 9.5 and 11. These are recommended values based on experience and are in no way intended to replace the boiler manufacturer's specifications or company regulations.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure levels of treatment are correct.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OXYTREAT

NALFLEET™ Oxytreat™ is a blend of selected tannins for corrosion protection in low to medium pressure steam boilers



Features

- Iron/tannate film protects metal surface
- Removes oxygen, protecting boiler and steam lines
- Low toxicity
- Protects feed tank and feed lines

Benefits

- Protects feed tank, feed lines and boiler metal
- Does not add to boiler TDS

Product Number	Product Name
777713	OXYTREAT 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Brown
Density [g/ml]	1.1
Form	Liquid
pH	5.2 to 6.0

Accessories

777100	BOILER PLUS TEST KIT MO380.
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Directions for Use

NALFLEET™ Oxytreat is formulated to provide corrosion protection for the feed and boiler system and when used in conjunction with Multi-plus provides a total treatment programme.

Dosing Method

NALFLEET™ Oxytreat is best applied by continuous injection to the boiler feed tank using a suitable chemical metering pump to maintain the target reserve in the boiler. NALFLEET™ Oxytreat is normally dosed at around 15mls per ton of steam to provide 120-160 ppm of tannin in the boiler water,

Sampling and Testing

NALFLEET™ Oxytreat is best applied neat or diluted with condensate or evaporated water to any convenient strength using a suitable chemical dosing pump. The product should be applied to the boiler feed tank or feed line to ensure adequate mixing.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HARDNESS TREATMENT 7208

NALFLEET™ Hardness Treatment 7208™ is an alkaline liquid phosphate formulation for the prevention of scale in both high and low pressure boilers.



Features

- Liquid product for easy application
- Simple test kit is available

Benefits

- Provides phosphate scale control in both high and low pressure boilers
- May be used as part of a coordinated phosphate programme
- Easy to apply liquid formulation

Product Number	Product Name
777706	HARDNESS TREATMENT 7208 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Off-White
Density [g/ml]	1.1
Form	Liquid
pH	13.0 to 14.0
Accessories	
739482	SPECTRAPAK 311

Directions for Use

NALFLEET™ Hardness Treatment 7208 should be fed continuously in order to properly protect the boiler. NALFLEET™ Hardness Treatment 7208 can be fed neat or in any convenient dilution made up in soft water or cooled condensate. NALFLEET™ Hardness Treatment 7208 must not be mixed with oxygen scavengers or condensate system corrosion inhibitors.

Sampling and Testing

NALFLEET™ Hardness Treatment 7208 is normally used in conjunction with NALFLEET™ Alkalinity Control treatment in a conventional alkaline phosphate treatment programme for HP boilers, where independent control of phosphate and alkalinity control is required.

Dosing and Control

The dosage of NALFLEET™ Hardness Treatment 7208 depends on a number of operational factors such as feed-water quality, boiler design and steam rate. Control of NALFLEET™ Hardness Treatment 7208 is by a simple test to give the required level of phosphate (as PO₄) in the boiler water. A simple Hardness Treatment test kit is available for this purpose. NOTE: Dependent on water quality, NALFLEET™ Hardness Treatment 7208 dosed at 0.25 liters/ton will increase the phosphate reserve by the order of 10mg/l.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CONDENSATE CONTROL

NALFLEET™ Condensate Control™ is blend of liquid neutralising amines boiler water treatment product designed for effective corrosion control and protection in steam and condensate systems.



Features

- Easy to use liquid treatment
- Neutralises the acids occurring in the condensate system
- Volatilizes and carries over with the steam and so it is recycled
- Simple test to determine level of treatment
- Used for protection of condensate and feed water systems in boiler systems of all pressures

Benefits

- Dosage is economical and efficient
- Less maintenance required
- Lower operating costs and increased reliability

Product Number	Product Name
774828	CONDENSATE CONTROL 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Colourless
Density [g/ml]	1.0
Form	Liquid
pH	12

Directions for Use

Dosage and Control

The condensate is tested for pH to determine the dosage level. The pH limits are 8.5-9.2. For an average system e.g. 10 m³, the dosage is approximately 0.65 ltr/day

Dosing Method

NALFLEET™ Condensate Control is best dosed continuously using an automatic dosing unit. The treatment can be dosed together with the oxygen scavenger.

Suitable dosage points are:

Boiler feed line after recirculation valve
Condensate pump discharge
NALFLEET™ Condensate Control can be fed using an automatic dosing system.
Consult your WSS representative for specific dosing instructions.

Sampling and Testing

A representative sample of condensate should be drawn for analysis daily. The sample should always be taken from the same point, cooled and tested immediately. Follow the test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

Condensate Control Dosing Parameters (all pressure groups)

Standard pH range is 8.5 to 9.2

Measured pH

If pH < 8.5: Increase Dosage by 25%. Retest after 24 hrs or shorter. If pH within 8.5 to 9.2: Within control. No adjustment needed, continue with routine monitoring. If pH > 9.2: Decrease dosage by 25%. Retest after 24 hrs or shorter.

These are recommended values based on experience and are in no way intended to replace the boiler manufacturer's specifications or company regulations.

It is important that regular testing is carried out to ensure levels of treatment are correct. Use dosage chart to maintain condensate pH between 8.5-9.2.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CONDENSATE TREATMENT 9-150

NALFLEET™ Condensate Treatment 9-150TM is a liquid blend of neutralising amines applied for the protection of steam and condensate pipework.



Features

- Provides effective protection of steam & condensate systems against corrosive attack by carbon dioxide & other acidic gases
- Reduces pickup of iron and copper in condensate as a result of corrosion suppression reliability

Benefits

- Extends the life of steam and condensate systems giving reducing maintenance costs and less down time
- Using it with an oxygen scavenger gives a balanced control programme for increased plant reliability

Product Number	Product Name
777702	CONDENSATE TREATMENT 9-150 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Liquid
Density [g/ml]	0.98
Form	Stainless Steel, Polyethylene, Polypropylene, Teflon.
pH	12.0

Directions for Use

NALFLEET™ Condensate Treatment 9-150 is a neutralising type corrosion inhibitor for the use in steam and steam condensate systems. NALFLEET™ Condensate Treatment can be used at boiler operating pressures up to 165 bar.

Dosing Method

NALFLEET™ Condensate Treatment 9-150 should be injected on a continuous basis. For continuous addition (advisable when used in conjunction with an oxygen scavenger), a suitable chemical proportioning pump is required.

Sampling and Testing

A representative sample of condensate should be drawn for analysis daily. The sample should always be taken from the same point, cooled and tested immediately. Follow the test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Dosing and Control

The dosage of NALFLEET™ Condensate Treatment 9-150 required for regular treatment will depend primarily upon the carbon dioxide content of the condensate. Typical dose rate is 10mls/tone steam. It should be injected on a continuous basis to maintain the pH of the condensate at the main condensate pump discharge of 8.5 -- 9.2 or to maintain a "p" alkalinity of 4-8ppm. NALFLEET™ Condensate treatment 9-150 may be dosed neat or diluted with cooled condensate or distilled water. It should never be fed to the surface of hot water in a boiler feed tank, but should be fed below the surface.

OXYGEN SCAVENGER PLUS

NALFLEET™ Oxygen Scavenger Plus™ is a catalysed, liquid Oxygen Scavenger boiler water treatment product based on Diethylhydroxylamine (DEHA). Its volatile properties ensure distribution throughout the boiler and condensate system, and hence protects against oxygen corrosion in all parts of the system.



Features

- Fast acting, volatile, liquid oxygen scavenger
- Neutralises acids occurring in condensate system
- Safe and easy to use, low toxicity
- Organic product, no dissolved solids added
- Simple test to determine treatment level

Benefits

- Economical in use
- Reduces corrosion of iron and copper, increasing system life and reliability
- Protects system metals throughout the boiler system

Product Number	Product Name
698712	OXYGEN SCAVENGER PLUS 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Light yellow
Density [g/ml]	1.0
Form	Liquid
pH	10.5

Accessories

739490	SPECTRAPAK 315
698720	AUTOTREAT - 25 LTR
698948	DEHA CHECKIT TEST KIT

Directions for Use

NALFLEET™ Oxygen Scavenger Plus can be used in any boiler system, and in conjunction with mechanical deaeration systems. Removal of dissolved oxygen is vital for prevention of corrosion and especially pitting corrosion in boilers. When dosed into a boiler system, Oxygen Scavenger Plus will react with dissolved oxygen and form non corrosive compounds. The product is volatile and will evaporate and assist protection of the steam and condensate system. No solid materials are produced when using Oxygen Scavenger Plus.

Dosing method

Wilhelmsen Ships Service recommends continuously dosing into the boiler feed line using an automatic dosing unit.

Dosage and control

Dosing should be controlled so that the DEHA residual in the condensate is between 0.08-0,30 ppm. The consumption will depend on feed water temperature and the amount of water fed into the boiler. For more information about initial dosage and dose rate please consult your nearest Customer Centre.

Test Result in Condensate (ppm DEHA)

0.00 - 0.08	0.08 - 0.30	+0.30
Increase dose by 25%	Maintain dose	Decrease dose by 25%

Sampling and testing

A representative sample of Condensate should be drawn for analysis daily. The sample should always be taken from the same sampling point, cooled and tested immediately. Follow the WSS test kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out, to ensure the correct level of treatment is maintained.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OXYGEN SCAVENGER

NALFLEET™ Oxygen scavenger 9-002TM is a liquid oxygen scavenger based on Carbohydrazide.



Features

- Safe form of hydrazine specifically formulated to reduce handling problems associated with hydrazine solutions
- Does not add dissolved solids to the treated water
- Does not require special feeding equipment for safe application
- Maintains a protective surface layer of magnetite

Benefits

- Economical in use
- Reduces corrosion of iron and copper, increasing system life and reliability
- Passivates metal in the boiler

Product Number	Product Name
777712	OXYGEN SCAVENGER 25 LTR(9002)
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Pale yellow
Density [g/ml]	1.015 to 1.030
Form	Liquid
Materials compatibility	Aluminium, Buna –N, EPDM, Hypalon, Neoprene, Polyethylene, Polypropylene, Polyurethane, Plasite 600q, Plasite 7122, PVC, Stainless Steel 304 (may discolour), Stainless Steel 316 (may discolour), Teflon, Vinyl Tubing, Viton
pH	8.0 to 9.0

Accessories	
555490	SPECTRAPAK 312
739490	SPECTRAPAK 315

Directions for Use

NALFLEET™ Oxygen Scavenger 9-002 is used in feedwater and condensate systems to scavenge oxygen and maintain passive metal surfaces. It reacts with the oxide film on steel surfaces in a boiler system to form a magnetite layer which gives metal protection. This "passivation" technique is useful for pretreatment of new boiler plant and for protection of boilers during idle and storage periods.

Dosing Method

NALFLEET™ Oxygen Scavenger 9-002 must be added continuously by means of a chemical pump at the earliest practicable point in the feed system e.g. the deaerator storage or condenser extraction pump discharge.

Sampling and Testing

NALFLEET™ Oxygen Scavenger 9-002 may be used in all types of boilers operating at pressures up to 2700 psig but is particularly suitable for use at high pressure where oxygen corrosion becomes rapid and where the deposition of metallic corrosion products can quickly lead to overheating and failure of generating tubes.

Dosing and Control

NALFLEET™ Oxygen Scavenger 9-002 can be fed neat or in any convenient dilution. Dilution should be carried out using condensate or de-aerated water. Polyethylene and stainless steel (type 304 & 316) are compatible materials for solution tanks and it is recommended that one or more layers of "Allplas" balls be used to minimise the reaction of NALFLEET™ Oxygen Scavenger 9-002 with air.

CARBOHYDRAZIDE (HYDRAZINE) TEST RESULT ppm

Boiler Pressure	Control Range	0-0.05ppm	0.05-0.20	0.20-0-50
<18 to 31 bar	0.05-0.2 ppm	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%
31 to 42 bar	0.05-0.2 ppm	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OXYGEN CONTROL

NALFLEET™ Oxygen Control™ is a catalysed liquid hydrazine oxygen scavenger for boiler corrosion protection and treatment. NALFLEET™ Oxygen Control™ provides the required conditions for the establishment of a passivating layer (magnetite) in the boiler.



Features

- NALFLEET™ Oxygen Control is a liquid product, easy to feed
- Does not contribute to conductivity
- Protects boiler, steam lines, condensate lines and feed water lines from corrosion
- Fast action due to catalyst
- Assists mechanical deaeration
- Simple test to determine level of treatment
- NALFLEET™ Oxygen control can be used to condition the water used for laying up the boiler in a wet condition

Benefits

- Economical in use
- Reduces corrosion of iron and copper, increasing system life and reliability
- Passivates metal in the boiler

Product Number	Product Name
571315	OXYGEN CONTROL 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Colourless
Density [g/ml]	1.0
Form	Liquid
pH	12

Accessories

555490	SPECTRAPAK 312
739490	SPECTRAPAK 315

Directions for Use

NALFLEET™ Oxygen Control can be used in all boiler systems, from low to high pressures and in conjunction with mechanical de-aeration systems. The treatment combines with dissolved oxygen to form water and inert nitrogen gas, thus effectively removing O₂ from the water. No solid materials are produced, so there is no contribution to the increase in total dissolved solids -a critical factor in high pressure boilers. The removal of dissolved oxygen is vital for preventing oxygen pitting and corrosion in boilers. NALFLEET™ Oxygen Control reacts with ferrous and non-ferrous oxides to prevent general corrosion. Ferric oxide (red rust, Fe₂O₃) is converted to magnetite (black iron oxide, Fe₃O₄), which is a tough corrosion resistant oxide which protects the metal surface. The term for this is 'passivating' the surfaces, so that they are protected from further corrosion.

Dosing method

For optimum protection, NALFLEET™ Oxygen Control should be fed continuously into the boiler feed line, after the feed pump recirculating valve, using an automatic dosing systems. For steam turbine systems, NALFLEET™ Oxygen Control can be dosed into the cross over between the H.P. and L.P. turbines or the storage section of the deaerator for full protection.

Dosage and control

The objective is to maintain a hydrazine residual between 0.05-1.0 ppm depending on operating pressure and boiler design. Actual consumption is determined under operating conditions.

HYDRAZINE TEST RESULT ppm

Boiler Pressure	Control Range	0-0.05ppm	0.05-0.10	0.10-0-0.50	0.50-1.00	1.00-1.50
<18 to 31 bar	0.1-1.0ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Satisfactory Maintain dose	Decrease dose 25%
31 to 42 bar	0.1-0.5ppm	Increase dose 25%	Increase dose 25%	Satisfactory Maintain dose	Decrease dose 25%	Decrease dose 25%

Recommended Control Limits in ppm. These are typical values. Follow boiler manufacturers guidelines where required.

Wet lay-up

When wet lay-up of the boiler is required then a minimum dosage of 1.25 litres/tonne of boiler water is required.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure levels of treatment are correct.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BWT LIQUID PLUS

NALFLEET™ BWT Liquid PlusTM is a blend of phosphate, alkalinity and polymer dispersants designed for the control of scaling and corrosion in the boiler. NALFLEET™ BWT Liquid PlusTM can be used as a phosphate treatment for low hardness feed waters in boilers operating at pressures up to 40 bar.



Features

- Minimises scale formulation, corrosion and sludge accumulation
- Simple to Control
- Effective iron dispersant

Benefits

- Maintains sludge in a non-adherent state for removal by blow down
- Simple test to determine level of treatment
- Can be used for boilers of all pressures

Product Number	Product Name
777701	BWT LIQUID PLUS 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Pale Yellow
Density [g/ml]	1.45 - 1.47
Form	Liquid
Materials compatibility	Polypropylene, PVC, Polyethylene, Nylon, Stainless Steel, Viton, Buna -N, Neoprene, Butyl Rubber, Nitrile Rubber, CAF, PTFE
pH	14

Accessories	
739482	SPECTRAPAK 311

Directions for Use

Dosing Method

NALFLEET™ BWT Liquid Plus is best applied neat or diluted with condensate or evaporated water to any convenient strength and applied on a continuous basis using a suitable chemical dosing pump.

Sampling and Testing

Control is by simple boiler water tests for alkalinity.

Dosing and Control

The dosage rate of NALFLEET™ BWT Liquid Plus sufficient to produce a P alkalinity in the boiler water of 100ppm is 0.4 liters/1,000 liters of water. NALFLEET™ BWT Liquid Plus is strongly alkaline. Tanks and feeding equipment should be constructed of suitably resistant material such as polypropylene, PVC, polyethylene, mild steel, cast iron or stainless steel. Avoid the use of brass or light alloys.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AUTOTREAT

NALFLEET™ AUTOTREAT™ is a multifunctional, liquid boiler water treatment product, formulated with alkaline compounds, scale inhibitor, dispersant, and volatile amines for the protection of the feed, boiler and condensate systems.



Features

- Liquid boiler water treatment chemical for simplified dosing and handling
- Suitable for all boilers, up to 30 bar pressure
- Contains volatile amines to neutralise acids occurring in condensate system
- Dispersant action suspends sludge and sediment particles for efficient removal by blowdown
- Keeps boiler tube surfaces clean, promoting the best heat transfer conditions
- Simple testing to determine treatment level

Benefits

- Multifunctional boiler water treatment
- Prevents scaling and corrosion, increasing system life and reliability

Product Number	Product Name
698720	AUTOTREAT - 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Light yellow
Density [g/ml]	1.1
Form	Liquid
pH	13-14

Accessories

739474	SPECTRAPAK 310
555490	SPECTRAPAK 312
739490	SPECTRAPAK 315
739482	SPECTRAPAK 311

Directions for Use

NALFLEET™ Autotreat is a boiler water conditioner designed for optimum protection of ships boiler systems when used in conjunction with an oxygen scavenger. The product combines well known phosphate treatment with new polymer technology. This ensures that precipitates are kept soft and nonadherent for easy removal by blowdown. The product should always be used in conjunction with an oxygen scavenger, preferably NALFLEET™ Oxygen Scavenger Plus. Note that this product is formulated for use in conjunction with good quality feed water.

Dosage and control

Initial fill dosage is 2.4 litres of NALFLEET™ Autotreat/ton of boiler capacity to reach a P-Alkalinity level of approx. 200 ppm. For an untreated system it is recommended to initially bring the treatment up to a suitable level of 200 ppm p-Alkalinity. The dosage chart given below is for convenience to determine the amount of product required to elevate P-Alkalinity. Note that the table is based on reaching 200 ppm.

Dosing method

The product should preferably be dosed continuously with an automatic dosing unit. Alternatively the product can be fed into the feed line by means of a by-pass pot feeder.

P-Alkalinity	0	50	100	150	200	250	300	350
Dose in l/ton	2.4	1.8	1.2	0.6	0	0	0	Blow Down

These are recommended values based on experience, and are in no way intended to replace the boiler manufacturers specifications, or company regulations. Typical control limits are: * P-Alkalinity: 150-300 ppm as CaCO₃. * Chlorides: 200 ppm Cl max. * Condensate pH 8.3-9.0. Excessive Chlorides are removed by blowdown.

Sampling and testing

A representative sample of boiler water should be drawn for analysis daily. The sample should always be taken from the same point after blowdown, cooled and tested immediately. Follow the WSS Test Kit instructions and log the results in Waterproof. The results should be sent to WSS as stated in the Waterproof instructions.

It is important that regular testing is carried out to ensure that treatment levels are correct.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BOILER COAGULANT

NALFLEET™ Boiler CoagulantTM is a liquid sludge conditioner designed to prevent sludge deposits on boiler internal surfaces.



Features

- Liquid product, easy to feed
- Prevents the formation of adherent deposits and sludges in boilers
- Used in conjunction with Wilhelmsen Ships Service Chemical Service's standard range of boiler water treatments
- Used to coagulate small amounts of oil which have contaminated the boiler water

Benefits

- Keeps boilers clean and extends boiler operational time between cleaning
- Keeps sludge dispersed for efficient removal by blowdown

Product Number	Product Name
571331	BOILER COAGULANT 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Pale yellow
Density [g/ml]	1.010 to 1.030
Form	Liquid
pH	8.5 to 11.0

Directions for Use

Dosage is 20 ml of treatment daily per ton of boiler capacity. Daily bottom blowdown is required when using Boiler Coagulant to remove suspended sludge particles.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POOLPOWER 90

Pool Power 90 is a tablet form of Trichloroisocyanuric Acid (TCCA) used to control the growth of bacteria & algae. This product can be apply swimming pools, spas and effluent water treatment plant for chlorination and control bio-growth.



Features

- Tablet form
- Slow dissolving

Benefits

- Controlled chlorine release
- Long shelf life

Product Number	Product Name
778902	POOLPOWER 90 25KG

Specification

Invent Hazard Material (IMO/EU) classification	C-51
Available Chlorine	90%
Density [g/cm3]	2.5
Odour	Faint Halogen
Packing Type	Plasticx Pail
pH	2.7 to 3.3
Physical state	SOLID
Diameter [mm]	74
Thickness [mm]	24
Weight [kg]	0.2 Tablet
Solubility in water	12g/lit 25C

Directions for Use

Each tablet weighs 200g and has 90% available chlorine release agent which in turn is 45% available chlorine = 80g.

Start by adding 1 tablet per 5m³ of system volume, wait a couple of hours then test for free chlorine. Repeat until the required free chlorine level is achieved. Typically 1 - 2mg/l Free Chlorine.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

pH INCREASER

NALFLEET™ pH Increaser™ is a convenient and safe Sodium Carbonate, granular product for raising the pH of pool water with minimal effect on overall alkalinity.



Features

- Convenient granular product
- Protects pool surfaces and equipment from corrosion due to low pH
- Reduces maintenance costs
- Quickly and easily raises pH

Benefits

- Safe for all types of pools
- Makes water more comfortable for bathers

Product Number	Product Name
766537	pH INCREASER 25KG

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	White
Density [g/cm3]	2.53
Form	Granular
pH	11.6
Solubility in water	Soluble

Accessories

656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Directions for Use

If your pool pH is low, add pH Increaser at 25g to 50g per m3. Distribute the powder over the whole of the pool surface, starting in the deep end. Make sure that the pump is circulating to distribute the water. Wait an hour or so before testing again. If the pH is still too low after an hour, you can add more pH Increaser. The powder may cloud the pool water at first, but this should fade out within a day or so.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPA DEFOAMER

Spa Defoamer™ eliminates unsightly foam from spa water, hot tubs and other water features by soaps, suntan lotion and detergents.



Features

- Silicone base antifoam to control and prevent foaming
- Quickly eliminates foam from spas, hot tubs and other water features
- Easy to use

Benefits

- Suitable for all pools and spas
- Improves bathing experience

Product Number	Product Name
766540	SPA DEFOAMER 12 X 1 LTR

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	White
Density [g/cm3]	1.0
Form	Emulsion
pH	6.8-8.0
Solubility in water	Emulsifiable

Accessories

656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Directions for Use

Add directly to spa at the rate of 100 ml of Spa Defoamer per 1000 litres freshly filled spas. Ensure pump is running to allow re-circulation.

To maintain a foam free spa -- once a week add to the spa 50 ml Spa Defoamer per 1000 litres water.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MELBROME BROMINE TABLETS

A compacted 20 gram bromine tablet suitable for use in a brominator. Slow dissolving and ideal for continuous dosage programmes.

Used to control microbiological activity on Pools, Spas and Effluent Waters.

NOT for use in potable waters.



Features

- Slow dissolving tablet
- Bromine based disinfectant
- Long shelf life

Benefits

- Totally soluble
- Effective over a wide pH range
- Easy to apply using a brominator

Product Number	Product Name
778920	MELBROME BROMINE TABLETS 2X5KG
Specification	
Invent Hazard Material (IMO/EU) classification	C-50
Appearance	White
Density [g/mL]	2.5
Odour	Halogen
Physical state	Slow Dissolving Tablet
Solubility	12g/lit at 25C
Size	30mm diameter. Weight 20g

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POOLPOWER 90

Pool Power 90 (4 x 5 KG) is a tablet form of Trichloroisocyanuric Acid (TCCA) used to control the growth of bacteria & algae. This product can be apply swimming pools, spas and effluent water treatment plant for chlorination and control bio-growth. (For Europe Region, pls. use 778902 Poolpower 90, 25 KG)

Features

- Tablet form
- Slow dissolving

Benefits

- Controlled chlorine release
- Long shelf life

Product Number	Product Name
778900	POOLPOWER 90 (4 X 5KG)

Specification

Invent Hazard Material (IMO/EU) classification	C-51
Available Chlorine	90%
Density [g/ml]	2.5
Odour	Faint Halogen
Packing Type	plastic pail x 4
pH	2.7 to 3.3
Physical state	Solid
Diameter [mm]	74
Thickness [mm]	24
Weight [kg]	0.2 Tablet
Solubility in water	12g/l @ 25 Deg C

Directions for Use

Each tablet weighs 200g and has 90% available chlorine release agent which in turn is 45% available chlorine = 80g.

Start by adding 1 tablet per 5m³ of system volume, wait a couple of hours then test for free chlorine.

Repeat until the required free chlorine level is achieved. Typically 1 - 2mg/l Free Chlorine.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HYDROCHLORIC ACID 33-35% POTABLE GR

Potable grade Hydrochloric Acid (Muriatic Acid) for pH reduction in Pool and Spa waters and Drinking water.

****CAUTION:****

Always add Hydrochloric Acid slowly to water.

When water is added to Hydrochloric Acid heat is produced that can cause a hazardous situation.

Application methods: Preferably by dosing pump.



Features

- Liquid solution
- Potable Water Grade

Benefits

- Fast pH reduction

Product Number	Product Name
773408	HYDROCHLORIC ACID 33-35% POTABLE GR 25 LTR PAIL

Specification

Invent Hazard Material (IMO/EU) classification	C-11
Appearance	Yellow
Density [g/ml]	1.16
Form	Liquid
pH	1.0

Accessories

656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POOL CLARIFIER

NALFLEET™ Pool Clarifier™ is a highly concentrated product based on specially formulated polymers that quickly clears cloudy water.



Features

- Concentrated formula
- Contains specially formulated polymers
- Easy to use - no premixing
- Does not affect pH

Benefits

- Clears cloudy water quickly
- Helps reduce chlorine usage
- Makes water sparkle

Product Number	Product Name
766539	POOL CLARIFIER 12 X 1 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Clear
Density [g/ml]	1.04
Form	Liquid
pH	3-5
Solubility in water	Miscible in water

Accessories

656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Directions for Use

Before applying this product ensure that the filter is operating efficiently. Apply NALFLEET™ Pool Clarifier weekly or whenever the pool water has lost sparkle. Apply NALFLEET™ Pool Clarifier at the rate of 15ml per 10m³ by pouring gently around the perimeter of the pool. Leave pump and filter running for 8 hours after application. If pool clarity has not been restored after 36 hours, repeat the treatment.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POOL AND SPA HARDNESS

NALFLEET™ Pool and Spa Hardness™ raises calcium hardness of pool and spa water to assist in the prevention of corrosion, etched plaster and other problems resulting from low calcium levels.



Features

- For Pool, spas and hot tubs
- Raises calcium hardness level
- Helps prevent etching and staining
- 100% active

Benefits

- Multi-use product

Product Number	Product Name
766538	POOL AND SPA HARDNESS 18KG
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Appearance	White
Density [g/cm3]	2.15
Form	Granules
pH	7 to 11 (10% solution)
Solubility in water	Soluble

Directions for Use

Ideal bathing conditions exist at a slightly alkaline pH level of 7.2--7.6, with alkalinity of 80/150 mg/l. This range will also allow the most effective use of other swimming pool chemicals. Determine the calcium hardness of your pool water using Poolcheck 6 in 1 Test Kit (Product no. 767020). Use Pool and Spa Hardness Increaser at the rate of 100 g per 10m³ to raise calcium hardness by 10 mg/l. Dissolve the required amount of Pool and Spa Hardness Increaser in a clean container with clean water and pour slowly around the perimeter of your pool and spa. Ensure both the pump and filter are running to circulate the product effectively. Re test and make any further additions as required.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CAL. HYPOCHLORITE GRANULATE

Calcium Hypochlorite Granulate (4 x 5kg) is a potable grade chlorine release agent that can be used to chlorinate and control bacterial growth in Potable Water, Swimming Pools and Spas and for Grey Water Sterilisation.



Features

- Contains a high level of available chlorine
- Convenient, fast dissolving granulate

Benefits

- Extended shelf life
- Easy to test (free chlorine)

Product Number	Product Name
766402	CAL. HYPOCHLORITE GRANULATE 4 X 5KG

Specification

Invent Hazard Material (IMO/EU) classification	C-50
CAS No.	7778-54-3
Appearance	White solid granules
Available Chlorine	min. 70%
Density [g/ml]	1.0g/cm3
Molecular Weight	143
pH	11.6 (1% aqueous solution)
Solubility	20g per 100g water at 20C
Water content	12.5%

Directions for Use

Grams of Calcium Hypochlorite (70% available chlorine)
required to achieve target free chlorine level.

System Volume m3	1m3	5m3	10m3	20m3
Free Chlorine mg/lit				
1mg/lit	1.4	7	14	28
5mg/lit	7	35	70	140
10mg/lit	14	70	140	280
50mg/lit	70	350	700	1400

Note:

Add proportionally as in the table, wait 20 mins then test free chlorine level before next addition. Repeat until desired free chlorine level is achieved. Waters with a high chlorine demand, such as effluent and bilge water, may require substantially more product to achieve the required free chlorine level.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLASTGUARD STS SOLID

BallastGuard STS Solid is typically used in Ballast Water Management system to neutralize the excess chlorine/oxidant residual for ballast water discharge compliance. It's a critical consumable for ballast water management system.

Features

- Sodium Thiosulphate Pentahydrate Solid Form
- Readily soluble in water
- Supply in 25 kg bag (USA 23 kg bag)

Benefits

- Neutralize excess chlorine/oxidant
- Applied with Ballast Water Management System for Discharge water compliance (IMO & USCG)

Product Number	Product Name
779212	BALLASTGUARD STS SOLID 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	Crystalline
Density [g/ml]	1.75
Form	Solid
pH	6.5 - 9.0 (as 1% solution)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLASTGUARD SMBS SOLID

BallastGuard SMBS Solid is typically used in Ballast Water Management system to neutralize the excess chlorine/oxidant residual for ballast water discharge compliance. It's a critical consumable for ballast water management system.

Features

- Sodium Metabisulphite Solid Form
- Readily soluble in water
- Supply in 25 kg bag (USA 23 kg bag)

Benefits

- Neutralize excess chlorine/oxidant
- Applied with Ballast Water Management System for Discharge water compliance (IMO & USCG)

Product Number	Product Name
779214	BALLASTGUARD SMBS SOLID 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	NA
Appearance	Powder Form
Density [kg/m3]	1.48
Purity	> 97%

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLASTGUARD STS 30

NALFLEET™ BALLASTGUARD STS 30 is a thiosulphate based liquid product designed to be used for ballast water treatment system to neutralize the Total Residual Oxidant, TRO or Total Chlorine. BallastGuard STS 30 is equivalent to Sodium Thiosulphate Pentahydrate 50 wt%.



Features

- Liquid product at 30% concentration
- Designed to neutralize Total Residual Oxidant (TRO) or Total Chlorine
- Supplied in 25L pail
- Designed Suitable to be used for Electrochlorination or Chlorination based Ballast Water Treatment System

Benefits

- Neutralization of Total Oxidant residual to meet targeted control guideline

Product Number	Product Name
779162	BALLASTGUARD STS 30 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-34
Appearance	Clear Liquid
Density [g/ml]	1.265 - 1.285
Form	Liquid
pH	6.9 to 9.5

Accessories	
656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Directions for Use

Transfer the product into the Ballast Water Dechlorination Chemical tank.

Note: Pls. refer and follow existing guideline from your ballast water treatment system on the operation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLASTGUARD SBS 40

NALFLEET™ BALLASTGUARD SBS 40 is a bisulphite based liquid product designed to be used for ballast water treatment system to neutralize the Total Residual Oxidant (TRO) or Total Chlorine.



Features

- Liquid product at 38 - 40% concentration
- Designed to neutralize Total Residual Oxidant (TRO) or Total Chlorine
- Supplied in 200L pail
- Designed to be used for Electrochlorinaton or Chlorination based Ballast Water Treatment System

Benefits

- Neutralization of Total Oxidant residual to meet targeted control guideline

Product Number

779166	BALLASTGUARD SBS 40 25 LTR
779136	BALLASTGUARD SBS 40 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-34
Appearance	Colourless
Density [g/ml]	1.300
Form	Liquid
pH	3.5 - 5.0

Accessories

656207	EVAPORATOR DOSING UNIT ON GRAVITY
777336	AQUAGUARD CW DOSING SYSTEM
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Directions for Use

Transfer the product into the Ballast Water Dechlorination Chemical tank.

Note: Pls. refer and follow existing guideline from your ballast water treatment system on the operation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLASTGUARD CIP CLEANER

NALFLEET™ BALLASTGUARD CIP CLEANER is an effective environmental friendly cleaning product based on specialised dispersant and citric acid. The product is designed to remove scale and iron rust. BallastGuard CIP Cleaner is designed to be used for Ballast Water System cleaning-in-place (CIP) cleaning Prefilter/filter cleaning and other related applications.



Features

- Environmental friendly cleaning product (biodegradable, low toxicity, low bio-accumulation, phosphate free, non-marine pollutant)
- High performance citric acid based scale remover with enhanced dispersing performance
- Low foaming formulation
- Suitable for use as CIP cleaner for Both Ballast Water UV and Electro-chlorination type system and as cleaner for filter/prefilter
- Can be used for manual cleaning
- Cost effective liquid based product supplied in 25L

Benefits

- Superior cleaning action for removal of scale and metal oxide
- Improved solubility and dispersing activity to reduce precipitation and redeposition
- Safer handling and less hazardous as compared to other strong acids such as sulfuric and hydrochloric based cleaners
- Easier to use as compared to solid products, eliminate solubility related issue

Product Number	Product Name
779210	BALLASTGUARD CIP CLEANER 25 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-34
Appearance	Clear/Light Yellow
Density [g/ml]	1.13
Form	Liquid
pH	1 to 2

Directions for Use

A. Filter Element/Prefilter

I. Preparation:

1. Prepare BallastGuard CIP Cleaner at 1:20 ratio (1L: 20L Demin/Distilled/RO grade water/potable water)
2. The pH value will be app. pH 2 ~ 3
3. Use pH paper or pH pen to measure on the solution prepared
4. Pre-rinse the filter to remove any contaminant (dirt, mud, sand, shells, etc) prior using the cleaning solution for more effective cleaning.
5. Clean the screen/filter with pressure washer from the outside surface.

II. Acid Cleaning:

1. Cleaning be done by spread, dip or spray for 1 ~ 4 hours depending on the degree of scaling appearance.
2. Rinse off/spray with running hot water (at least 60°c) until complete neutralization (pH=6.5-7.5) Check the wash water pH.
3. Blowdry the filter element/pre-filter with instrument air/compressed air.
4. Inspect the filter element externally for cleanliness.
5. If needed, repeat the cleaning step but reduce the cleaning spread, dip or spray to 30 mins
6. Note: Recommend to follow cleaning instruction from equipment OEM if available.

B. CIP Cleaning:

I. Preparation:

1. Prepare BallastGuard CIP Cleaner at 1:20 ratio
(1L: 20L Demin/Distilled/RO grade water/potable water)
2. The pH value will be app. pH 2 ~ 3
3. Use pH paper or pH pen to measure on the solution prepared

II. CIP Cleaning:

1. Fill the CIP cleaning tank with the prepared cleaning solution
2. Follow CIP Cleaning instruction based on CIP Equipment package

Note: Follow cleaning instruction from equipment OEM if available

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLAST TANK INHIBITOR 9-933

NALFLEETTM Ballast Tank Inhibitor 9-933TM is a liquid film-forming corrosion inhibitor. For use in ballast tanks, bilges, voids, cofferdams and barges.

NALFLEETTM Ballast Tank Inhibitor 9-933TM is a blend of organic and inorganic inhibitors. It contains no chromates and is completely soluble in sea water.



Features

- Effective for use in ballast tanks, cofferdams, barges and voids
- Forms tightly bonded protective film on all metal surfaces below water level
- Protective film is stable over a wide pH and temperature range

Benefits

- Formulated to give reduced pollution problems if accidentally discharged to sea
- Ideally suited for ballast and other tank protection during ship lay-up periods

Product Number	Product Name
777013	BALLAST TANK INHIBITOR 9-933 25 L
Specification	
Invent Hazard Material (IMO/EU) classification	C-7
Density [g/ml]	1.32 to 1.38
Form	Liquid
Freezing Point [°C]	<-45
Materials compatibility	N, Hypalon, Neoprene, Polyethylene, Polypropylene, Polyurethane, PVC, Teflon, Vinyl, Viton.
pH	<1.0

Directions for Use

NALFLEETTM Ballast Tank Inhibitor 9-933 is best fed neat from the drum continuously to the water used to fill the tank or system. Strict proportioning is not required, so long as the turbulence on filling is sufficient to provide effective distribution throughout the system.

Where the system to be treated is already full and draining and refilling is impractical, distribution of the Ballast Tank Inhibitor 9-933 treatment in an open vessel can be achieved by air-agitation or pump circulation. NALFLEETTM Ballast Tank Inhibitor 9-933 is recommended for systems in which dissolved oxygen is present and the use of air to encourage mixing will not impair corrosion protection.

Dosing and Control

The recommended initial dosage of NALFLEETTM Ballast Tank Inhibitor 9-933 is 100mls.ton of water. This will provide 2 to 4ppm zinc in the water system. For Ballast tanks or systems which are frequently emptied and refilled, the initial charge of 100ml per ton of water should be supplemented by a dosage of 50ml per ton each time the system is refilled.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUEL OIL CHEMICALS



Fuel oil keeps marine diesel engines and prime movers running smoothly, and therefore need to be in optimal condition. Staying fully compliant with environmental and operational regulations is just as important. Our range of fuel oil treatment chemicals is formulated to tackle problems related to bunker oils and minimize the operational issues onboard.



Reliable performance



Effective and targeted chemistry



Global availability



Effective cleaning with more concentrated products

Treat your fuel oil to keep operational problems at bay

Vessels in operation will encounter different operational challenges depending on their choice of bunker fuel. You would need effective and targeted fuel treatment solutions to resolve fuel issues associated with VLSFO (Very Low Sulphur Fuel Oil) and MGO (Marine Gas Oil). Adopt the Test & Treat approach to overcome to avoid operational issues and the high cost of debunkering, and to stay compliance with the existing regulations.

Browse this section to discover the benefits of our Fuel Oil Chemicals range.

Scan or click on the QR code for more information.



DIESELPower LUBRICITY

Unitor™ DieselPower Lubricity is the solution for poor lubricity with marine distillate fuels. The product is very effective in improving the lubricity of distillate fuels to protect the fuel pumps from excessive wear.



Product Information

Unitor™ DieselPower Lubricity has been found to be particularly effective in ultra-low sulphur diesel fuels and gas oils that are blended to meet governmental regulations on fuel sulphur content.

Unitor™ DieselPower Lubricity also provides excellent performance as a lubricity improver component in diesel detergent packages and does not affect the water emulsification tendency of a fuel as measured by ASTM D1094.

Features

- Improves the lubricity of low sulphur diesel fuels
- Can be used as a stand-alone product or component in diesel packages
- Effective at 50-150 ppm range in meeting the HFRR requirement for lubricity specifications
- Does not react with the fuel

Benefits

- Protects your fuel pump from wear to avoid unscheduled and expensive maintenance
- Quality is ensured so you can rest easy with good lubrication protection
- You can safely use the product in all types of fuels

Product Number	Product Name
779094	DIESELPower LUBRICITY 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Appearance	Yellow
Density [kg/dm ³]	0,895
Flash Point [°C]	180
Form	Liquid
Materials compatibility	Teflon, Viton , Plasite 10-7122, Plasite 10-9500, Mild Steel, Mild Aluminium, Brass, 304 SS, 316 SS and copper
Pour Point [°C]	6
Solubility	Insoluble in water, soluble with most organic solvents

Directions for Use

Dosing Method

Preferable application of DieselPower Lubricity is directly into the transfer pump suction to ensure proper mixing. Product may be added to storage or blending tanks with adequate mixing. Dosage of DieselPower Lubricity may vary depending on the fuel quality.

Best dosing and storage temperature: 20 °C (68 °F) - 40 °C (104 °F)

Sampling and Testing

DieselPower Lubricity also provides excellent performance as a lubricity improver component in diesel detergent packages and does not affect the water emulsification tendency of a fuel as measured by ASTM D1094.

Dosing and Control

The normal dosage of DieselPower Lubricity is between 100 and 200 ppm (100 to 200 ml per m³ fuel). Independent testing has shown that an application of around 125ppm can improve the HFRR wear scar performance of ULSD to below the specification level of 460um. DieselPower Lubricity may be blended with other components into diesel detergent packages for ultra-low sulphur diesel fuel and has no known adverse interaction with common components such as detergents, pour point improvers, cetane improvers or antifoams.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIESELPower BIOCONTROL

Unitor™ DieselPower Biocontrol is the solution when fuel contamination is found in marine diesel fuel. The product is effective against a variety of microorganisms contaminating fuel tanks and systems. If you find contamination in fuel tanks Unitor™ DieselPower™ Biocontrol is an effective biocide to remove any contamination.



Product Information

It's essential to have adequate storage for marine fuel. But microorganisms can corrode fuel storage tanks and systems, leading to clogged filters and nozzles, and degraded fuel. Unitor™ DieselPower Biocontrol is a specially designed liquid that protects fuel against microorganisms. More advice on how to detect and manage microbial contamination can be found in ASTM D6469-14 Standard guide for Microbial contamination in fuels and fuel systems.

Features

- Kills microorganisms in fuel oil
- Keeps filters and nozzles free from clogging
- Prevents corrosion in fuel systems and doesn't form any corrosive combustion products
- Safe for use on all materials, including metal and synthetic rubber

Benefits

- You can be sure that Unitor™ DieselPower Biocontrol will remove all microorganisms
- There have been no reported cases of microbes becoming immune to this product
- With filters and nozzles clean and free from bacteria remnants, you can run a trouble-free operation

Product Number

779082

Product Name

DIESELPower BIOCONTROL 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
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Appearance	Pale yellow
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Density [kg/dm ³]	0,9
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Flash Point [°C]	>61
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Form	Liquid
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Accessories

764493

UNITOR BACTERIA SINGLE TEST KIT

Directions for Use

Marine Diesel Oil and Gas Oil

DieselPower Biocontrol is self-dispersing and can therefore be added directly to the fuel tank.

The recommended dosage rates are:

Preventive treatment: 0.20 litres/ton continuously (meaning that all new oil charged to the fuel tank is treated with 0.20 litres/ton) or 0.6 litres/ton in periodic dosing to the tank every 2 months, independent of how much fuel that has passed through the tank.

Decontamination of contaminated oil: 0.8 litres/ton

Shock dosing: 3 litres/ton (biomass can be seen, filter blockage)

The tank or system layout to treat has an impact

on how fast the kill rate is, for Shock treatment we recommend at least 24 hrs treatment time.

The best ways to provide good distribution of the biocide in the fuel is:

By pumping the fuel with DieselPower Biocontrol from one tank to another (and back).

By adding DieselPower Biocontrol when the tank is one third full and then fill up the tank with fuel. This creates turbulence in the tank and provides good mixing of the biocide.

By pre-diluting DieselPower Biocontrol in fuel and then add it to the tank. (Not very practical when larger tanks have to be treated).

Also concerns with safety of workers when manually handling the fuel)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIESELPower ENHANCER

Unitor™ DieselPower Enhancer is a market leading multifunctional treatment for distillate fuel oil. The product can solve issues with fuel degradation through heat and oxidation. The product can also keep deposits under control through a strong detergency package.



Product Information

Unitor™ DieselPower Enhancer is used to improve lubricity, as well as help maintain colour and stability to control the formation of organic sludge and to inhibit corrosion.

Unitor™ DieselPower Enhancer also disperses accumulated deposits, and reduces filter clogging, injector sticking, and corrosion of bunkers and fuel lines.

Features

- Improves fuel lubricity
- Proven by independent tests -- HFRR and Bosch
- Protects against corrosion
- Protects against fuel injection fouling and fuel filter plugging

Benefits

- Reduces wear of fuel pumps and fuel injection equipment
- Maintains long term storage and thermal stability of marine distillate fuels

Product Number	Product Name
777190	DIESELPower ENHANCER 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Density [kg/dm³]	0,90
Flash Point [°C]	>61
Form	Liquid
Pour Point [°C]	>-51
Viscosity	max 25 cSt

Directions for Use

DieselPower Enhancer may be applied directly to bunkers or storage tanks but for best mixing should be applied to feed lines during filling.

DieselPower Enhancer has been tested for compatibility with materials of construction and may be used with copper, aluminium, brass, mild steel, 304 and 316 stainless steel, PTFE, Buna-N, polypropylene and polyurethane. DieselPower Enhancer should not be used with rubber, neoprene, PVC Hypalon, Viton, or ethylene/propylene rubbers.

Application Usage	1 Ton Fuel Bunkered	10 Ton Fuel Bunkered	50 Ton Fuel Bunkered	100 Ton Fuel Bunkered
As a lubricity improver	Dose 0,25 ltr	Dose 2,5 ltr	Dose 12,5 ltr	Dose 25 ltr
As a stability improver and to maintain color	Dose 50 ml	Dose 500 ml	Dose 2,5 ltr	Dose 5,0 ltr
Inhibit and disperse sludge	Dose 80 ml	Dose 0,8 ltr	Dose 4 ltr	Dose 8 ltr

Used as a lubricity improver and stabiliser

To get the full benefit of the lubricity protection a dosage of 1 litre of DieselPower Enhancer should be added to 4 tonnes of fuel.

Note: If the tank being filled already contains some fuel, ensure that this fuel is also dosed at the same ratio.

Used to stabilise and maintain distillate colour

To stabilise and maintain distillate colour, the dosage level will normally lie in the range of 5 to 35 mg/l and dosage may vary depending on the fuel used. The correct dosage can be determined by laboratory test.

Note: If microorganism contamination is suspected test the fuel using Unitor Bacteria Test Kit and if contamination is found DieselPower MAR 71 can be used to sanitise the fuel.

Used to inhibit sludge formation, disperse existing sludge, and control filter plugging

To inhibit sludging formation, disperse existing sludge and control filter plugging the dosage level will normally lie in the region 40 to 80 mg/l. If organic contamination is heavy, treatment at a rate of 1 to 2 litres per 5,000 litres fuel oil is recommended to all systems. Treat next bunkers at a reduced dosage of 1 to 2 litres per 10,000 litres of fuel oil. Thereafter, assuming tests show satisfactory conditions, maintenance dosage of the order of 0.4 to 0.8 litres per 10,000 litres of fuel oil should be applied.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIESELPower CFPP

Unitor™ DieselPower CFPP improve cold weather operability and cold flow properties of marine distillate fuels. Unitor™ DieselPower CFPP help to reduce the size of waxes formed and reduce the risk of wax sedimentation in fuel tanks.



Product Information

A distillate fuel contains paraffins. The paraffins are molecules that tend to come together and form larger structures as the temperature drops in the fuel. The paraffins can also be referred to as wax and a fuel with high wax content will tend to cause wax formation at higher temperatures. Once the wax particles have formed, they are difficult to dissolve back into the fuel.

Features

- Cold flow improver and pour point depressant
- Delays the onset of paraffin crystallization to improve cold flow properties

Benefits

- Enables you to handle the fuel at lower temperatures
- Adds safety in handling of the fuel by reducing the pour point and the Cold Filter Plugging Point of the fuel
- Keep the wax in suspension preventing wax sedimentation and accumulation

Product Number	Product Name
779112	DIESELPower CFPP 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Density [kg/dm ³]	0.9
Flash Point [°C]	>60
Form	Liquid
Pour Point [°C]	-6

Directions for Use

Unitor™ DieselPower CFPP should be dosed to the fuel tank prior to filling. Recommended dosage is one litre to one thousand litre of fuel (1:1000 or 1000 ppm). In case of poor response dosage can be increased to one litre to five hundred litre of fuel (1:500 or 2000 ppm)

Please note: The dosing temperature should always be at least 5°C above the measured cloud point of the fuel.

Dosage of product	1 Ton Fuel Bunker	10 Ton Fuel Bunker	50 Ton Fuel Bunker	100 Ton Fuel Bunker
1000 ppm	Dose 1 ltr	Dose 10 ltr	Dose 50 ltr	Dose 100 ltr
2000 ppm	Dose 2 ltr	Dose 20 ltr	Dose 100 ltr	Dose 200 ltr

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER CONDITIONER

Unitor™ FuelPower Conditioner is the market leading solution for asphaltic sludge control as well as keeping fuel tanks clean. The product works with HSFO and the new VLSFO introduced through IMO 2020. Sedimentation of residual fuels is a common problem and can be reduced with Unitor™ FuelPower Conditioner.



Product Information

Fuel stability and compatibility is an increasing problem with modern marine heavy fuels, especially with blending of low sulfur fuels.

The solution for handling these unstable and incompatible fuels is Unitor™ FuelPower Conditioner, it stabilizes and stops sludge formation in fuel tanks.

Unitor™ FuelPower Conditioner also improves separation reducing the amount of sludge wasted keeping the fuel homogeneous through the whole fuel system delivering a stable fuel ready for combustion.

Features

- Stabilizes fuel blends, reducing compatibility problems
- Disperses and prevents sludge formation
- Reduces the amount of sludge wasted in the centrifugal separator

Benefits

- The conditioning properties of Unitor™ FuelPower Conditioner ensures your fuel is stable and that a minimum of sludge is wasted in tanks and centrifugal separators
- With purifier working efficiently, filters clean and fuel system in good shape you can focus on the important things

Product Number	Product Name
778785	FUELPOWER CONDITIONER 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Appearance	Clear, light brown
Density [g/ml]	0.84
Flash Point [°C]	>61
Form	Liquid

Directions for Use**Dosage and Control**

Ideally, FuelPower Conditioner should be dosed directly into the bunker tank prior to bunkering. However, it can be introduced to the settling tank or during transfer from storage. Dosage rates are best determined from the results of fuel analysis, i.e. sediment content or compatibility test which is easily performed on board using the Compatibility Test Kit.

ASTM Spot	1	2	3	4	5
DOSE RATE	**1:25 000	1:15 000	1:10000	1:5000	1:2500
TSP level	Dosage (ppm)	Comment			
0,01–0,03	1:25 000 (40 ppm)	Due to the indication of poor reserve stability of some VLSFO, we advise a low protective dosage.			
0,03–0,06	1:20 000 (50 ppm)	When the TSP increases the reserve stability of the fuel will also be poorer, so we advise a low protective dosage.			
0,06–0,1	1:15 000 (67 ppm)	Once the TSP approaches the max specification sludging will most likely occur. Reserve Stability will also be poor, so a higher dosage is recommended.			
0,1–0,2	1:10 000 (100 ppm)	With a TSP out of specification it is important to have a good impact on the sludging with a higher dosage.			
0,2–0,5	1:5 000 (200 ppm)	A far-off spec TSP fuel is never a good idea to use but when it occurs it is important to be able to reduce sludging and operational impact as much as possible.			
0,5+	1:1 000 (1000 ppm)	We would not recommend using any of these fuels but if there is no choice a high dosage needs to be used to have a chance to reduce the sludging from these fuels			

* Avoid using this fuel if possible.

** Fully compatible blends, with a sediment percentage of less than 0.05, should not require treatment for incompatibility. Marginal number 1 spots may cause sludging if the fuel is not handled carefully, so some treatment may be necessary, especially if other problems such as water content or corrosion are apparent.

The average dosage for FuelPower Conditioner is 1:15 000 or 67 ppm. When starting a dosage into a fuel tank it is advisable to use a staged dosage to avoid high amounts of sludge from the fuel into purifiers and filters. This is especially important if the fuel tank has not been cleaned for an extended period of time. With a stage dosing smaller amounts of sludge will be picked up and over a longer period of time.

If test results are not available, an initial dose of 1:15 000 is recommended, and adjustments made as necessary.

Dosing	Dosage Level	Comment
1st Time	1:25 000	Initial dosage not to upset the tank Second and third dosages can be done a bit higher as most of the easily available sludge will be gone
2nd Time	1:20 000	
3rd time and forward	1:15 000	From the 3rd dosage and forward the recommended dosage of 1:15 000 can be used

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER PPD VLSFO

Unitor™ FuelPower PPD VLSFO is an excellent product for cold weather operability with marine residual fuel, both HSFO and VLSFO Unitor™ FuelPower PPD VLSFO help to reduce the size of waxes formed and reduce the risk of wax sedimentation in fuel tanks.



Product Information

In Marine fuels, it offers advantages in terms of reducing solid wax build up in Marine fuel storage, improving pumpability while reducing onboard losses during transfer and helping to minimize the impact on vessel heating capacity. The product help to improve the cold flow properties of a marine residual fuel and reduce the operational temperatures of Pour Point and Wax Appearance Temperature. The amount of wax deposit formation is different between fuels but choosing Unitor™ FuelPower PPD VLSFO will help with both reducing the pour point and wax deposition.

Features

- Pour Point depressant for Very Low Sulfur Fuel Oils
- Delays the onset of wax formation by improving wax appearance temperature
- Improve Pour Point properties of fuel

Benefits

- Unitor™ FuelPower PPD VLSFO helps reduce solid wax build up in VLSFO
- Reduces the Pour Point and Wax Appearance Temperature of the fuel
- Helps to minimize the heating requirement of your fuel
- Preventing blocking of storage tanks and filters

Product Number	Product Name
779118	FUELPOWER PPD VLSFO 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Density [kg/m³]	0.89
Flash Point [°C]	>60
Form	Liquid
Pour Point [°C]	0

Directions for Use

This product must be uniformly dispersed in the fuel oil or crude oil at a temperature at or above which crystallisation is unlikely to occur.

The recommended method of blending is direct, metered proportional injection into the product line. Injection upstream of the pump and/or the use of a static mixer will help homogeneity of the blend.

If the product has been stored below 0°C make sure the product has been stored above 10°C for at least 24 hrs before dosage. Typical treat rates are between 500 and 1000ppm (0.05 to 0.1% mass) depending on the Very Low Sulfur Fuel characteristics and performance targets to be achieved.

Min Dosage Temp: 10 °C (50 °F)
Max Dosage Temp: 60 °C (140 °F)

Minimum Storage Temperature: 10 °C (50 °F)
Maximum Storage Temperature: 60 °C (140 °F)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER TSP VLSFO

Unitor™ FuelPower TSP VLSFO is a dispersant designed to improve the asphaltene management of 0.5% sulphur Marine fuels. In Marine fuels, it prevents asphaltene agglomeration and build up. A fuel that is out of specification in relation to Total Sediment Potential can be brought back into specification with Unitor™ FuelPower TSP VLSFO.



Product Information

Unitor™ FuelPower TSP VLSFO further facilitates the blending of low Sulphur fuels, offering blending flexibility from a varied range of distillate (paraffinic) and residual (aromatic) fuel streams resulting in homogeneous fuels.

Fuel stability and compatibility is an increasing problem with the new Very Low Sulfur Fuel Oils (VLSFO). Today we see many of these fuels having problem to be within specification on stability and compatibility. The Total Sediment Potential (TSP) sets the benchmark in the ISO 8217 for stability of the new 0,5% Sulfur VLSFO. Unitor™ FuelPower TSP VLSFO is unique in its ability to take an off-specification fuel back into specification effectively rejuvenating the stability of the VLSFO.

Features

- Easy to dose into VLSFO
- Stabilises the asphaltenes ensuring a stable and compatible fuel
- Can bring a fuel back into specification in relation to TSP

Benefits

- Unitor™ FuelPower TSP VLSFO facilitates the blending of low sulfur fuels, especially VLSOF's, offering flexibility in bunkering and blending.
- Offers flexibility in the blending of paraffinic and aromatic blending components for VLSFO.
- Fuels that are off specification in relation to total sediment potential (TSP) in ISO 8217 can be brought back into specification using Unitor™ FuelPower TSP VLSFO

Product Number	Product Name
779114	FUELPOWER TSP VLSFO 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Appearance	Clear dark brown liquid
Density [kg/dm ³]	0,99
Flash Point [°C]	>60
Form	Liquid

Directions for Use

Ideally, Unitor™ FuelPower TSP VLSFO should be dosed directly into the bunker tank prior to bunkering. Dosage rates are best determined from the results of

fuel analysis, i.e. sediment content or compatibility test which is easily performed on board using the Compatibility Test Kit.

ASTM Spot	1	2	3	4	5
Dose Rate	N/A	1:5000 (200 ppm)	1:2000 (500 ppm)	1:1000 (1000 ppm)	1:500 (2000 ppm)

TSP Level	Dosage (ppm)	Comment
<0,1%	1:5000 (200 ppm)	With a TSP out of specification it is important to have a good impact on the sludging and to be able to bring the fuel back into specification.
0,1–0,2	1:2000 (500 ppm)	With a TSP out of specification it is important to have a good impact on the sludging and to be able to bring the fuel back into specification.
0,2–0,3	1:1000 (1000 ppm)	With a TSP out of specification it is important to have a good impact on the sludging and to be able to bring the fuel back into specification.
0,3–0,4	1:500 (2000 ppm)	A fuel with a TSP over 0,3 needs a higher dosage to impact the TSP. Even if the wanted specification cannot be reached the product will greatly improve the stability of the fuel.
0,4+*	1:333 (3000 ppm)	We do not recommend using these fuels as they can be difficult to bring back into specification. Even if the wanted specification cannot be reached the product will greatly improve the stability of the fuel.

* Avoid using this fuel if possible.

If test results are not available, an initial dose of 1:1000 is recommended, and adjustments made, as necessary.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER CATALYST

Unitor™ FuelPower Catalyst improves combustion and make sure the fuel is stable and homogeneous when injected into the engine. Reducing soot will keep the engine and exhaust gas boiler clean. Unitor™ FuelPower Catalyst works with conventional HSFO and VLSFO introduced through IMO 2020.



Product Information

The fuel ignition temperature is reduced, resulting in increased combustion efficiency with less carbon left to form soot. Engine and exhaust systems are kept cleaner with longer service life and less maintenance. The product inhibits sludge formation, while dispersants stabilise the fuel. This results in a cleaner fuel system and better fuel flow, giving improved fuel atomisation and greater combustion efficiency. Sulphuric acid corrosion caused by condensing exhaust gases may be seen in any of the cooler parts of the boiler or engine system. Typical problem areas are cylinder liners (clover-leaf corrosion), valve stems and funnel uptakes. Unitor FuelPower Catalyst catalytically inhibits the formation of acid gases. This reduces the amount of acid present, thereby reducing acid corrosion.

Features

- Improves combustion by reducing the burn out temperature for the soot
- Reduces carbon/ash deposits
- Limits soot formation and smoke emissions

Benefits

- You will see an overall improvement in fuel combustion and a reduction in the soot emissions
- Helps you to keep the fuel system in good shape and to make sure the fuel is stable and ready for combustion
- Keeps your engine cleaner reducing soot deposits and soot emissions

Product Number

779096

Product Name

FUELPOWER CATALYST 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Appearance	Clear and dark brown
Density [kg/dm ³]	0.96
Flash Point [°C]	>61
Form	Liquid

Accessories

767924

FUEL DOSING STATION

Directions for Use

Dosage and control

Unitor FuelPower Catalyst is completely oil-soluble and should be added via a metering pump into the suction side of the booster pump. Alternatively, it can be added into the settling tank. If so, the dose rate should be increased by 10%. As a general guide, the

average dosage should be 1:15 000. Alterations can then be made according to operating experience and results obtained. Where fuel analysis for Micro Carbon Residue, (MCR) is available, dose according to the table below:

MCR%	10	12	14	16	18
Dosage Rate	1:15 000	1:12 000	1:10 000	1:7 500	1:4 000
CCAI	835	840	845	850	850+
Dosage Rate	1:15 000	1:12 000	1:10 000	1:7 500	1:4 000

Unitor FuelPower Catalyst can be dosed using Fuel Oil Treatment Dosing Unit, product No 664 619353.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER SOOT REMOVER LIQUID PLUS

Unitor™ FuelPower Soot Remover Liquid Plus keeps exhaust gas boiler clean over time. Deposits and soot formed during combustion are kept from depositing in the EGB improving efficiency over time. Unitor™ FuelPower Soot Remover Liquid Plus works with HSFO the new VLSFO introduced through IMO 2020.



Product Information

If fire-scale is allowed to form on heat exchangers, the loss of efficiency can be directly related to extra fuel consumption. A 1 mm deposit is approximately equivalent to a 10% efficiency loss, a 3 mm deposit can reduce efficiency by up to 50%. The normal oxidation temperature of soot is around 600°C. Soot Remover Liquid Plus contain an organic catalyst with a high efficiency at lower temperatures. The oxidation temperature of Soot Remover Liquid Plus on the soot/fire-scale is as low as 170°C. The carbon deposits are thus oxidised, leaving an easily removable ash. The use of Unitor FuelPower Soot Remover Liquid Plus not only provides greater fuel efficiency, but also prevents acid formation in areas where severe corrosion could result in expensive damage in heat exchangers, superheaters, economisers, exhaust paths/stacks.

Features

- For the prevention of soot and fire-scale deposits in diesel engine and boiler exhaust systems
- For reduction of cold-end corrosion where surface temperatures are lower than the dew point of the exhaust gases
- Improves soot blowing operations

Benefits

- Increase the intervals between cleaning with up to 12 months minimizing down time and improving overall efficiency
- Reduces the discharge of cleaning water to the sea
- Reduced cold-end corrosion in the exhaust gas boiler and reduces your need for maintenance
- Helps to keep exhaust gas system clean while slow steaming and will also reduce cold end corrosion

Product Number	Product Name
778848	FUELPOWER SOOT REMOVER LIQUID PLUS 25LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Green
Density [g/ml]	1,11 - 1,12
Flash Point [°C]	Not applicable
Form	Liquid
pH	8 - 8,5 in As supplied

Accessories

734858	AUTO SOOT TREATMENT UNIT/SINGLE EGB
734861	MANUAL SOOT TREATMENT DOSING UNIT/SINGLE EGB

Directions for Use**Dosage and control**

Soot Remover Liquid Plus should be introduced to the boiler through a suitable port, preferably with an injector, ensuring that the liquid is spread through the flame path toward the back of the combustion chamber.

For Diesel engines, inject Soot Remover Liquid Plus directly into the exhaust system upstream of the area to be treated. Soot Remover Liquid Plus should be injected with the dosing equipment mentioned under Accessories.

Steam Raised (Tons/Hr)	Boiler Fuel (Tons/Day)	Dose Rate (Ltr/Day)
Boiler		
3	5.5	1.0
6	11	2.0
9	16	3.0
12	21	3.5
15	27	4.0
23	41	4.5
31	55	5.0
46	82	5.5
62	110	6.5

Fuel Consumption (Tons/Day)	Dose Rate (Ltr/Day)
Diesel Engines	
10	1.5
20	3.0
30	3.5
40	4.0
50	4.5
60	5.0
70	5.0
80	5.7
90	5.7
100	6.1
100-125	6.4
125-150	7.0
150-200	7.7
200+	8.3

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER ASHFREE

Unitor™ FuelPower AshFree is the solution for combustion and deposit issues with VLSFO introduced through IMO 2020. Unitor™ FuelPower AshFree is formulated to protect against deposit build-up on sensitive engine parts. The product also ensures good combustion to avoid additional build-up of insulating soot deposits.

Product Information

Unitor™ FuelPower AshFree modifies fuel ash, raising the melting points of the ash above the normal engine operating temperatures. Modified ash particles are non-adhesive and follow the exhaust gas stream. Deposits on valve seats are reduced, turbocharger and exhaust system fouling are controlled. Exhaust systems remain cleaner and any ash that is formed is friable and easily removed by conventional methods such as brushing. Unitor™ FuelPower AshFree helps to control acid formation. Sodium Vanadate increase the formation of sulphur trioxide during combustion. The sulphur trioxide reacts with moisture in the exhaust system to form sulphuric acid. Unitor™ FuelPower AshFree reduce sodium vanadate vanadium formation reducing the acid formation and cold corrosion. The combustion catalyst improves combustion resulting in increased combustion efficiency with less carbon left to form smoke and soot. Engine and exhaust systems are kept cleaner with longer service life and less maintenance.

Features

- Raises the melting point of corrosive ashes
- Reduces the high temperature corrosion on sensitive surfaces
- Keeps exhaust valves and turbochargers clean

Benefits

- You can rely on Unitor™ FuelPower AshFree to keep your sensitive engine parts free from corrosive deposits
- Reduction of deposits and corrosion ensures your engine operates more efficiently

Product Number	Product Name
779090	FUELPOWER ASHFREE 25 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-6
Appearance	Dark red to black
Density [kg/dm ³]	1,0
Flash Point [°C]	>61
Form	Liquid

Directions for Use

Dosage and control

Unitor™ FuelPower AshFree should be dosed either directly into the service tank or by automatic metering into the suction side of the booster pumps.

Typical dose rates vary between 1:2000 and 1:6000 depending on the nature and severity of the problem. Use the table below for optimum dosage.

Sodium ppm	Vanadium 50ppm	Vanadium 100ppm	Vanadium 150ppm	Vanadium 200ppm	Vanadium 300ppm	Vanadium 400ppm	Vanadium 500ppm
Tons of fuel							
25	6	8	5	4	3	2,5	2,5
35	4	8	5	4	3	2,5	2,5
50	4	4	5	4	3	2,5	2,5
65	3	4	4	4	3	2,5	2,5
75	3	4	3	4	3	2,5	2,5
85	3	4	3	4	3	2,5	2,5
100	3	4	3	4	3	2,5	2,5
Dosage based on MCR							
MCR%	10	12	14	16	18		
Dose	1:6000	1:4000	1:3000	1:2000	1:1000		

Example: A fuel contains 50ppm Sodium and 150ppm

Vanadium. The dose rate should therefore be:

1 ltr Unitor™ FuelPower AshFree per 5 tons of
fuel (1:5000)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUELPOWER SOOT REMOVER

Unitor™ FuelPower Soot Remover will keep your boiler free from soot and ash deposits. It will remove deposits in the exhaust system in the boiler and keep it clean so intervals between cleaning can be extended.



Product Information

If deposits are allowed to form on boiler heat exchangers, the loss of efficiency can be directly related to extra fuel consumption. A 1 mm deposit is approximately equivalent to a 10% efficiency loss, a 3 mm deposit can reduce efficiency by up to 50%. The normal ignition temperature of soot is around 600°C. This means that it is burned only in the hottest parts of the boiler or diesel exhaust systems. Due to the catalytic action of Unitor™ FuelPower Soot Remover, the ignition temperature of the soot/deposit is reduced to less than 280°C. The carbon deposits are thus ignited, leaving an easily removed ash. The use of Unitor™ FuelPower Soot Remover not only provides greater fuel efficiency, but also prevents acid formation in areas where severe corrosion could result in expensive damage, i.e. heat exchangers, superheaters, economisers, exhaust paths/stacks.

Features

- Reduces cold-end corrosion
- Assists soot blowing
- Keep boiler clean from soot and deposits

Benefits

- Longer time between cleaning intervals
- Saves you money by improving heat transfer
- Saves you money by increasing boiler efficiency

Product Number	Product Name
779115	FUELPOWER SOOT REMOVER 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Appearance	Blue green
Density [kg/dm ³]	1,2 - 1,4
Flash Point [°C]	Not applicable
Form	Dry powder

Accessories

572065	PORTABLE SOOT INJECTOR
572073	FIXED INJECTOR

Directions for Use**Dosage and control**

FuelPower Soot Remover should be introduced to the boiler through a suitable port, preferably with a blower, ensuring that the powder is spread through the flame path towards the back of the combustion chamber. For Diesel engines, inject FuelPower Soot

Remover directly into the exhaust system upstream of the area to be treated. FuelPower Soot Remover is preferably dosed using Unitor's Fixed Injector, product No. 664 572073 and/or Portable Injector, product No. 664 572065.

Steam Raised (Tons/Hr)	Boiler fuel (Tons/Day)	Dose rate (Kg/Day)
Boiler		
3	5.5	1.0
6	11	2.0
9	16	3.0
12	21	3.5
15	27	4.0
23	41	4.5
31	55	5.0
46	82	5.5
62	110	6.5

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TEST KIT AND REAGENTS



Early detection of water and fuel-related issues onboard the vessels can help prevent operational challenges and system downtime. Our range of easy-to-use portable test kits offers crew the flexibility and convenience of performing onboard testing during bunkering and voyage.



Easy-to-use



Convenience



Portable

Test and Treat Programme

Using portable test kits to test fuel sample when the vessel is in operations helps remove uncertainty around fuel quality issues at sea. The crew can quickly and accurately pinpoint the fuel issues and takes mitigation actions to treat the problem areas.

Browse this section to discover the benefits of our Test Kits and Reagents range.

Scan or click on the QR code for more information.



UNITOR COMBINED TEST KIT PLUS

The Unitor Combined Test Kit Plus facilitates efficient evaluation of fuel and lubricant quality, enabling real-time assessment of water contamination and chemical stability. Regular analysis allows early issue detection, proactive maintenance, and informed decision-making for prolonged equipment life and enhanced system reliability. The latest addition minimizes test time through user acceleration, reducing reagent usage by 40%, waste by 80%, and costs. Its data management system offers manual calibration, easy data transfer, and storage for up to 100 data sets, housed in a durable metal casing and compatible with various reagent brands.



Product Information

The Unitor Combined Test Kit Plus enables on-site assessment of lubricant or engine oil quality. It equips engineers to monitor machinery conditions effectively, offering reliable performance assessment without requiring a professional lab. Furthermore, the kit's enhanced features ensure accuracy, usability and traceability. Test parameters: Water-in-oil, TBN Base number, Viscosity, Salt content, and Insoluble contaminants.

Features

- Sensor Shaking process status bar
- Faster Reaction time - 90s (TBN)/ 2 mins (Water in Oil)
- Use 40% less reagent
- Compatible reagents
- Direct Data Transfer (no additional software)
- Replacement and rechargeable battery

Benefits

- Clear Indication of reaction completion that allows consistent reaction process for repeatable and accurate measurement
- Reduced testing time, improving testing productivity and efficiency of the crew
- Reduced consumable needed for tests, enhancing cost management and saving
- Provide the flexibility of supporting new and existing test kits, allowing customers phase in the changes seamlessly
- Direct and self replacement of battery

Product Number	Product Name
673354	UNITOR COMBINED TEST KIT PLUS
Supplied with:	
MK II Combined Cell Device	1 pc
WR Safe Reagent Set 500ml	1 pc
TBN Reagent 500ml	1 pc
Cell Cleaner 500 ml	1 pc
ViscoStick	1 pc
Instruction WR Safe Preparation	1 pc
MK II Combined Cell Device Manual	1 pc
ViscoStick Manual	1 pc
Saltesmo Test Kit	1 pc
Spot Test Paper A5 Block	1 pc
Salt Manual	1 pc
Insoluble Spot Test Manual	1 pc
SDS	5 pcs
Consumables	
773356	Unitor Water in Oil Reagent Kit I (40 Tests)
632306	Unitor TBN Reagent kit I (40 Tests)
773357	Unitor Water in Oil Reagent Kit II (80 Tests)
632307	Unitor TBN Reagent Kit II (80 Tests)
773359	Unitor Water in Oil Reagent Kit III (80 Tests + Cleaner)
632308	Unitor TBN Reagent Kit III (80 Tests + Cleaner)
532335	Unitor MK II Cell Cleaner
Accessories	
532314	Unitor MK II Combined Cell Replacement

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BUNKER SAMPLER

The most common and economic means of obtaining a representative sample is by using a drip type Bunker Sampler. In back to back tests performed by a major fuel testing laboratory over an extended period, samples obtained by drip samplers were identical to those from more expensive automatic fuel samplers.



Product Information

The most common and economic means of obtaining a representative sample is by using a drip type Bunker Sampler. In back to back tests performed by a major fuel testing laboratory over an extended period, samples obtained by drip samplers were identical to those from more expensive automatic fuel samplers.

Features

- Lloyds Register approved and manufactured under strict ISO 9001:2000 quality assurance standards
- IMO MARPOL 73/78 Annex VI compliant - helps you stay within the legal requirements for bunker sampling
- Lightweight and very easy to install - obtaining a representative sample is quick and easy

Benefits

- Complies with current regulation

Product Number	Product Name
606252	BUNKER SAMPLER 3 INCH
606253	BUNKER SAMPLER 4 INCH
606254	BUNKER SAMPLER 5 INCH
606255	BUNKER SAMPLER 6 INCH
606257	BUNKER SAMPLER 8 INCH
606259	BUNKER SAMPLER 10 INCH

Specification

Invent Hazard Material (IMO/EU) classification	NA
Accessories	SAMPLER VALVE COVER PSA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

THE FUEL OIL TEST CABINET

The wall-mounted rugged cabinet on vessels securely stores fuel and lubricating oil test kits. Designed for durability, it provides a dedicated space for organized and accessible storage of essential testing equipment, ensuring easy access for maintenance and monitoring onboard.



Product Information

The Fuel Cabinet is supplied together with essential testing equipment: Viscometer, Density Meter, Combined DIGICELL for Water in Oil and TBN tests, Compatibility Test kit, and Insolubles Test. It's a comprehensive package providing key parameter test kits, offering a centralized solution for critical fuel analysis and assessment of vital parameters

Features

- Viscometer
- Density Meter
- Compatibility Test
- Water in Oil Test
- TBN Test
- Insolubles Test

Benefits

- All equipment is contained in a robust, metal case that is fully lockable for safe and secure sample storage
- Certified by Germanischer Lloyd, providing everything you need to ensure that your fuel samples are compliant with IMO MARPOL 73/78 Annex VI regulations.
- Replacement consumables and a full range of bunker samples are easily available through our network

Product Number	Product Name
507820	THE FUEL OIL TEST CABINET
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Accessories	
632406	TBN REAGENT PACK
625756	SALT WATER TEST
625749	INSOLUBLES TEST KIT
773156	UNITOR EASYSHIP REAGENT PACK WATER

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

INSOLUBLES TEST KIT

Insolubles contamination usually comes from combustion and mainly in the form of unburned hydrocarbon. High insolubles loading will cause lacquering and other undesirable effects like stiction and increased wear.



Product Information

The test is used to detect Insolubles from diesel engine combustion products (such as fuel ash, carbon, partially oxidized fuel, oil oxidation products) and spent lubricant additive.

Test Parameter: Insolubles

Features

- Simple, fast and accurate

Benefits

- Instant indication of conditions for components allowing informed on-site maintenance decisions

Product Number	Product Name
625749	INSOLUBLES TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with:

Bottle 100 ml	1 pc
Bottle Cap	1 pc
Plastic Stirring Rod	1 pc
Drop Bottle Label	1 pc
Chromatography Papers	100 pcs
Large Module Box	1 pc
Test Kit Manual	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SALT WATER TEST

The presence of salt enhances rapid corrosion in lube oil or hydraulics system.



Product Information

The Test is a simple qualitative test to verify if there is salt water contamination.

Test Parameter: Salt

Features

- Fast and easy to use

Benefits

- Provides rapid indication of the presence of salt, even if all the water has been evaporated

Product Number	Product Name
625756	SALT WATER TEST

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with:

Salt Test Pads (For 25 Tests)	1 pc
Pipette Disposable 1 ml	4 pcs
Test Tube	1 pc
Disposable Syringe 5 ml	1 pc
Reagent	1 pc
Large Module Box	1 pc
Test Kit Manual	1 pc
White Closure	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR EASYSHIP WATER TEST KIT

Condition monitoring allows user to make informed operational and maintenance decisions about critical equipment.

Water in oil has the potential to cause corrosion, cavitation or failure. Hence it is essential to have the ability to test on-site and conduct oil analysis to detect out-of-spec fuels and lubricants so to root out the presence of water in oil.



Product Information

Unitor™ DIGI Water in Oil Test / Analysis Kit is used for analysing water content in lubricating oil and fuel oil. It can be used to understand if excess water is present in the fuel and if actions are needed to reduce or remove the water. Using this cell the Unitor™ DIGI Water in Oil Test Kit provides state of the art, digital analysis and gives fast, accurate results for easy monitoring of trends.

With an easy to read digital display providing instructions and water in oil test/analysis results, a five year (10,000 tests) battery life and built in memory for recording previous test results, Unitor™ DIGI Water in Oil Test / Analysis Kits have become a favoured test method worldwide for onsite and onboard testing.

Measuring Range: 0,02-1%, 0-10% or 200-10 000ppm

Features

- Short testing time: 3 min
- Good accuracy
- Reagent packs available worldwide
- The test kit comes with reagents for 25 tests

Benefits

- Instant indication of conditions for components allowing informed on-site maintenance decisions
- Awareness of the conditions allows for performance of necessary on-site maintenance before onset of any critical equipment failures
- Spare availability minimizes the delays and costs associated with off-hire and demurrage

Product Number	Product Name
673155	UNITOR EASYSHIP WATER TEST KIT
Specification	
Invent Hazard Material (IMO/EU) classification	D-1

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR COMPATIBILITY TEST KIT

Being able to understand the compatibility of your fuel is very important. When the fuel is bunkered it is difficult to understand the condition of the fuel, how stable it is and if it needs any sort of help to remain stable.

With the Unitor Compatibility Test Kit you can easily and quickly get an assessment on the stability and compatibility of the fuel you are bunkering. It gives piece of mind if the test looks good but more importantly it gives you time to correct any issues before the vessel leaves port.



Product Information

The Unitor™ Oil Compatibility Tester is the perfect way to make sure your delivery of your VLSFO fuel is stable and compatible. The Tester shows you if the fuel is in danger from asphaltenic sludge formation. It also provides a quick and easy tool for understanding fuel compatibility necessary to mix or blend residual fuel oil. Ultimately, it will give you a quick picture about the stability and compatibility of your fuel.

Features

- Small and compact, completely portable
- Specifically designed for onboard use
- No reagents, no glassware, disposable sample containers and No cleaning
- Complete with guide on methods to prevent sludging

Benefits

- Portable, easy to use and suitable to work onboard the vessels
- Results can be used to determine if pre combustion additives are required and to assess dose rate
- Confirm that the fuel delivery will remain stable in the bunker tanks
- Identify possible stability problems before mixing two fuels
- Help prevent sludge deposits, failure of fuel handling systems and costly combustion related engine damage

Product Number	Product Name
773153	UNITOR COMPATIBILITY TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	340 x 385 x 170
Weight [kg]	3.7
Power	110-220 VAC (Autoselected) rated
Range	As per ASTM D-4740
Test time	20 min (Unattended)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR EASYSHIP COMBINED TEST KIT

Condition monitoring enables informed decisions about critical equipment through on-site oil analysis, swiftly detecting fuel and lubricant issues to prevent failures. The Unitor™ Combined Oil Test Kit provides essential tools for oil condition monitoring, ideal for assessing lube oil quality affected by ULSFO or VLSFO from IMO 2020.



Product Information

The Unitor™ Combined Oil Test Kit offers five essential tests primarily for lubricating and engine oil analysis. The kit coupled with the Unitor™ Digital Cell, introduces smart features for easy sample point setup, result transfer, and battery indication for increased usability. Test parameters: Water-in-oil, TBN Base number, Viscosity, Salt content, and Insoluble contaminants.

Features

- USB-rechargeable battery with indication of tests remaining before charge
- All necessary reagents and consumables
- Practical and clear instructions provide guidance and interpretations of test results for the complete range of tests

Benefits

- Fast, accurate and reliable oil test results
- Multiple oil parameters in an easy to use, portable oil analysis kit
- Make informed on-site maintenance decisions
- Act before the onset of critical failure
- Robust and reliable for use in harsh or remote environments

Product Number	Product Name
673154	UNITOR EASYSHIP COMBINED TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	D-1
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR TBN TEST KIT

Testing for a correct level of Total Base Number (TBN) can help you to optimize the lubricating oil feed rate to the engine. It is also recommended to conduct adequate monitoring of TBN of lubricating oil in order to prevent fouling within the engine and corrosion of the engine components.

The Unitor™ TBN test kit provides a rapid indication of TBN depletion in lubricants, essential for proper maintenance.



Product Information

The Unitor™ TBN, Total Base Number, Test Kit is a major advance in portable tests for oil alkalinity. The kit gives results for crankcase and other lubricants in a very short time, normally about 5 minutes. Designed for testing lubricants with TBN up to 150. The results may be used as an in-service check of depleting TBN to the equilibrium value.

Unitor™ Digital Cell provides a refreshed, but familiar, interface with the addition of smart features to enhance the user experience.

You can easily set up sample points and transferred results to the computer. The unit is also chargeable and is capable of showing the number of tests available before charging is needed.

Features

- USB-rechargeable battery with indication of tests remaining before charge
- Single reagent (patented) and consumables
- Simple cleaning with water after use

Benefits

- Fast, accurate and reliable oil test results within minutes
- Single reagent with simple and user friendly method direct and reliable measurements
- Non-toxic and safe handling for users

Product Number	Product Name
673150	UNITOR TBN TEST KIT

Specification	
Invent Hazard Material (IMO/EU) classification	C-9

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR DENSITY METER

A fast and reliable device to accurately determine the density of fuels from 800-1010 kg/m³ @ 15°C (ISO Fuel Grades DMA to RML 55).



Product Information

Unitor™ Density Meter allows rapid determination of exact bunker delivery quantities.

Unitor Density Meter measures diesel and residual fuel density and confirms the quantity of fuel delivered, verifies that the correct grade of fuel has been delivered and estimates the combustion performance (CCAI), correct viscosity in cP to cSt.

Unitor Density Meter measures fuel density using a hydrometer dropped in warmed oil. Most oils can be measured at 50°C but for very viscous fuels and diesels the units can be set to warm to 70°C. There is a calculator feature, which allows the reading to be adjusted to show density at 15°C in a vacuum.

If the diesel and fuel viscosity is known in centiStokes or centiPoise the calculator will display the CCAI. The Density Meter uses Hydrometers to measure the fuel density and marine diesel's density corrected to kg/m³ at 15°C.

Features

With information and the viscosity of the fuel, the Density Meter can determine:

- Mass of fuel delivered
- Calorific value
- Calculation of density at 15°C in vacuo
- centiPoise to centiStoke
- CCAI (Calculated Carbon Aromaticity Index)
- Easy to use with quick results
- Easy to clean

Benefits

- Confirms the quantity of fuel delivered, and verifies that the correct grade of delivered fuel
- Provide an estimated combustion performance (CCAI)
- Fast, accurate and reliable oil test results within minutes

Product Number

773152

Product Name

UNITOR DENSITY METER

Specification

Invent Hazard Material (IMO/EU) classification

D-1

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HEATED VISCOSITY METER

Testing fuel oil viscosity is important for verifying the correct grade of fuel is delivered, for calculating combustion performance, plus adjusting of fuel handling and injection systems.

Viscosity of lube oil is the most important property with the correct viscosity providing optimum film strength in system clearances, with minimum friction losses and leakage.



Product Information

Unitor™ Heated Oil Viscometer is suitable for measuring both fuel oil viscosity & lube oil viscosity from a wide variety of applications including diesel engines, gas and aviation turbines, gear boxes, hydraulics and fuel oils.

Small, fast and reliable. Measurements can be done without heating (but corrected to 40°C) or heated to 40°C for lube oil viscosity and to 50°C for fuel oil viscosity.

Features

- Reports directly in cSt, repeat reading in one minute
- Calculation of Calculated Carbon Aromaticity Index (CCAI)
- Clear and comprehensive user instructions

Benefits

- Monitors changes in lubricating oil viscosity, preventing costly engine and machinery failures
- Verifies correct fuel grade or blend has been delivered
- Checks that fuel viscosity is acceptable for storage, pumping and purifiers
- Estimates the combustion performance (CCAI) of fuel oil
- Corrects density from 50°C. to kg/m³ @ 15°C in vacuo

Product Number	Product Name
773151	UNITOR HEATED VISCOSITY METER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR BACTERIA SINGLE TEST KIT

The decrease in sulfur in distillate fuels has led to increased microbial contamination—bacteria, fungus, and algae thrive in low-sulfur environments. Additionally, the introduction of FAME biofuel components further exacerbates microbial growth. Maintaining proper fuel hygiene by managing water content, frequent draining, and regular microbial testing is crucial to prevent contaminations.



Product Information

If you need to check your distillate fuel for microbial contamination then Unitor™ Bacteria Test is ideal. Unitor™ Bacteria Test detects the microorganisms which grow in marine oil. It is a rapid, accurate on site test for fuel contamination which requires no special facilities, equipment or skills All that is required to conduct a test is a 15 mL sample of water from the tank to be tested or a 200 mL sample of fuel and water if less than 15 mL of water is available.

Features

- Only rapid onsite test with zero capital investment
- Only rapid test kit with zero set up time
- Fast, accurate and easy to read results
- Distinguishes between type of organism
- No false positives or negatives

Benefits

- Helps you minimize the cost of managing your fuel
- Enables you to identify a contaminated fuel
- No risk of false positives

Product Number	Product Name
764493	UNITOR BACTERIA SINGLE TEST KIT

Specification	
Invent Hazard Material (IMO/EU) classification	C-9

Supplied with:

Test Paddle	1 pc
Sample extraction bottle	1 pc
Pipette and desiccant	1 pc
Instruction leaflet	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR COLD CORROSION TEST KIT (50 PACK)

The Unitor™ Cold Corrosion Test Kit enables ship owners to assess corrosive elements in cylinder oil, averting potential damage. Providing onboard results in under five minutes, it eliminates the need for off-site analysis. Amidst IMO 2020, the kit identifies if new VLSFO is inducing cold corrosion in cylinders and engines, offering crucial insights.



Product Information

Unitor™ Cold Corrosion test goes beyond other cylinder oil tests, which give a total iron figure, by providing users with an accurate measure of the parts per million (PPM) value of Fe²⁺ and Fe³⁺ compounds in used scrape down oil, corresponding to the wear attributable to cold corrosion.

Using a colour-matching test the Unitor Cold Corrosion Test Kit alters the colour of an oil sample, indicating the concentration of non-ferrous iron compounds. The resulting colour is matched to a reference colour wheel that provides a measurement of the corrosive wear present in the sample.

When used in conjunction with ferro-magnetic analysers, such as Unitor™ Ferrous Wear Meter, the exact wear conditions within the cylinder chamber can be monitored and corrective action taken when higher levels of wear are observed.

Features

- Excellent correlation between field measurements and lab Inductively Coupled Plasma (ICP) results (see graph)
- Monitors products of corrosion that cannot be detected magnetically
- Each test is simple, cost effective and quick (<5 minutes) to complete

Benefits

- Provides early warning that cold corrosion is underway
- Gives a running commentary on internal corrosion as the operator adjusts the cylinder liner jacket temperature or oil feed ratelimits.
- Part of a low cost solution for fast and accurate water analysis

Product Number	Product Name
735742	UNITOR COLD CORROSION TEST KIT (50 PACK)

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Temperature [°C]	20 - 55 ambient operating

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR CATALYTIC FINES TEST KIT

Heavy fuel oil (HFO) used in large 2-stroke marine diesel engines often contains catalytic fines, leading to severe abrasive damage to engine cylinder liners. Recent marine air pollution regulations promoting low-sulfur fuels exacerbate this issue. Vessels collect fuel samples during bunkering, but lab test results, obtained after sailing, often reveal engine damage. The Unitor Catalytic Fines Test Kit helps prevent this damage from VLSFO introduced by IMO 2020. It efficiently measures catalytic fines in fuel oil, alerting to dangerous levels and safeguarding the engine



Product Information

The Unitor™ Catalytic Fines Test has been designed to flag up HFO samples that may be contaminated with dangerous levels of cat fines before the fuel has even been pumped aboard. The test is simple to perform, cost effective, and can be completed within a few minutes. The test kit can determine cat fines down to 20 ppm but experimental results demonstrate that the test is capable of identifying those fuel samples that have a cat fine concentration of > 60 ppm (Al + Si), and which therefore exceed the limit recommended by ISO 8217:2012. In fact the test has been specifically designed to provide the crew with a clear sail or don't sail indication with regards to fuel quality.

Features

- Suitable for testing on-board, on-site or in remote locations
- Cost effective, and can be completed within a few minutes

Benefits

- Simple, easy to operate instrument requiring minimal training
- Clear sail or don't sail indication

Product Number	Product Name
735748	UNITOR CATALYTIC FINES TEST KIT
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Dimensions L x W x H [mm]	570 x 370 x 220
Weight [kg]	8

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR FERROUS WEAR TEST KIT

The Unitor™ Ferrous Wear Meter (FWM) safeguards engines and cylinders from VLSFO-induced wear due to IMO 2020. It identifies abrasive wear particles in lubricating oil, providing a straightforward method to manage wear. Trending ferrous wear measurements allows for timely action, minimizing damage by observing degradation in real-time, optimizing servicing schedules, and reducing costs and manpower.



Product Information

Unitor™ Ferrous Wear Meter (FWM) is constructed using a sophisticated magnetometer adapted for field applications. A 5 ml test tube, filled with the sample, is placed directly in the hole in the instrument and its metallic content, in ppm, is displayed on the screen in less than 2 seconds. No further sample preparation is required and the ferrous debris content is displayed instantly on the easy to read screen, providing you with a quick, simple and clean method of analysis. Simple graphical instructions are displayed on the screen, requiring little or no training for users to operate.

It is a rugged, simple, easy to use instrument provides instant, accurate measurements of ferrous wear content on the units screen. Contained in a fully portable case, its rugged design is ideal for testing and analysing oil samples both on-board, in the field or in the laboratory.

Features

- Suitable for testing on-board, on-site or in remote locations
- Simple, easy to operate instrument requiring minimal training
- Direct reading in ppm on the LCD screen within 2 seconds

Benefits

- Gives you a quick answer on the wear in your engine
- Your crew can easily do the test within minutes with minimal training

Product Number	Product Name
735754	UNITOR FERROUS WEAR TEST KIT
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Dimensions L x W x H [mm]	480 x 370 x 165
Weight [kg]	1.1
Display resolution [pixel/inch]	5 ppm
Operating temperature [°C]	15 - 40 (60°F - 104°F) +/- 10 ppm (0 - 1000 ppm), +/- 20 ppm (> 1000 ppm)
Accuracy	
Measurement Range	0 - 2500 ppm
Test time	< 3 seconds per sample

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

X-MET 8000 SULFUR IN OIL ANALYSER

X-MET8000 OPTIMUM for fast on-site sulfur in marine fuel analysis, your key to IMO 2020 sulfur compliance.

The X-MET8000 is a handheld X-ray fluorescence (HHXRF) analyser that delivers the performance needed for rapidly analysing Sulfur in marine fuels. The X-MET is practical, rugged and easy to use to deliver results you can trust.



Product Information

The X-ray fluorescence (XRF) method for sulfur determination in fuels is rapid, chemical-free, and widely adopted in the oil industry. The X-MET8000, a field-portable XRF analyzer, offers quick, non-destructive analysis, utilizing a high-performance X-ray tube and silicon drift detector. Its robust, compact design (IP54 rated and MIL-STD 810G tested) enables onboard ship or on-site analysis, with versatile data management options including automatic storage, USB transfer, Bluetooth printing, and real-time sharing through an app and cloud service.

Features

- Complies with ASTM D4294, ISO8754 and IP336 sulfur test methods
- Rugged, fast and easy to use
- Embedded GPS to pinpoint where the analysis is performed
- Real-time data sharing and management with our app and cloud service
- Long battery life (up to 12 hours): no need to swap or recharge batteries during a shift

Benefits

- Take the analyser from ship to ship, port to port (ideal for port authorities)

Product Number	Product Name
735732	X-MET 8000 SULFUR IN OIL ANALYSER

Specification

Dimensions L x W x H [mm]	93 x 210 x 272
Weight [kg]	1.5
Battery Type	Li-ion with up to 12 hrs running time. Two batteries included
Datalogging	Store 100 000 tests
Display resolution [pixel/inch]	4,3 inch
Operating temperature [°C]	-10 to +50
Test time	30 to 60 seconds

Accessories

735736	INTERGRATED CAMERA FOR X-MET 8000
735740	PORTABLE BLUETOOTH PRINTER F/X-MET 8000
735752	SAMPLE CUP SET X-MET 8000
735756	MYLAR FILM FOR SAMPLE CUPS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SULPHITE TEST KIT

Consumables: Sodium sulphite (Na_2SO_3) is widely used for oxygen scavenging. Sodium sulphite has been found satisfactory at pressures up to about 62 bar (900 psig). Above these pressures decomposition products such as H₂S and SO₂ can affect steam purity.

Monitor and control the sulphite level in your boiler water will be important to ensure corrosion protection.



Product Information

Test kit for the determination of Sulphite levels in Boilerwater.

Test Parameter: Sulphite

Product Number	Product Name
574913	SULPHITE TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WATER SAMPLE KIT

The water analysis service is introduced to respond to the increasing need for laboratory services with regards to water treatment. Your convenient water sample kit contains: 2 x 500 ml sample bottles and sample information forms. Expected sample turnaround is 10 days from receipt of sample and correct ordering information.



Product Information

Cooling Water Test

Analysis of cooling water or related make-up water including test report and recommendations in compliance with manufacturer's recommendations.

Analysis of the following elements: Nitrite, Nitrate , Calcium , Magnesium, Iron, Copper, Chloride, Sulphate, pH, Conductivity, Bacteria (total count).

Boiler Water Test

Analysis of boiler water or related make-up, feed water or condensate including test report and recommendations.

Analysis of the following elements: P-alkalinity, Phosphate, Calcium, Magnesium, Iron, Copper, Silica, Chloride, Sulphate, pH, Conductivity.

Brine Test

Brine test to verify the level of corrosion inhibitor in brine systems.

Analysis of the following elements: Borate, pH, Conductivity.

Product Number	Product Name
767164	WATER SAMPLE KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECTRAPAK 309

Controlling key parameters in engine cooling waters is important for optimum corrosion protection.

Product Information

Compact test kit package designs to encourage daily tests to maintain cooling water within the prescribed limits.

Application: Cooling water

Test parameters: Nitrite, Chloride and pH



Recommended limits:

- a. Nitrite - 700 to 2400ppm as NO₂
- b. pH - 8.3 to 10
- c. Chlorides - max 50ppm

Features

- Sturdy plastic case
- Simple to use test kit
- Test methods included

Benefits

- Helps to maintain optimum corrosion protection
- Protects valuable equipment assets

Product Number	Product Name
739466	SPECTRAPAK 309

Specification	
Invent Hazard Material (IMO/EU) classification	C-55

Supplied with:	
Instruction Sheet	1 pc
Stirring Rod	1 pc
5ml Syringe	1 pc
pH Test Papers 6.6-10 pk.	100 pcs
100ml Shaker Tube	1 pc
Chloride Test	1 pc
Tablets btl. 250	1 pc
Nitrite No.1 Test Tablets btl 100	1 pc
Nitrite No.2 Test Tablets btl. 250	2 pcs

Consumables	
739458	CHLORIDE TEST TABLETS BOTTLES 2 X 250
555631	NITRITE NO.2 TABLETS (2 BOTTLES X 250)
555623	NITRITE NO.1 TABLETS (2 BOTTLES X 100)
555698	PH PAPER F/ 309 TEST KIT
779058	NITRATE TEST STRIPS (PCK 100 PCS)

Accessories	
778648	PLASTIC STIRRING RODS(10)
764418	pH POWDER SCOOP
555557	SAMPLE BOTTLES 250ML (X2)
555714	SHAKER TUBE 309 TEST KIT

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECTRAPAK 310

Controlling key parameters is important to maintain control of boiler system water quality for protection against corrosion and scale formation.

Product Information

Compact test kit designs to encourage daily testing to maintain your boiler water within the desired level of quality.

Application: Low pressure boiler water

Test Parameters: P Alkalinity, Chloride and pH



Recommended Limits:

- a. P. Alkalinity - 150-300 ppm as CaCO₃
- b. Chlorides - 200 ppm maximum as Cl
- c. Condensate pH - 8.5-9.2
- d. Hotwell temperature > 80°C

Features

- Sturdy plastic case
- Simple to use test kit
- Test methods included

Benefits

- Helps you to protect valuable boiler system equipment from the damaging effects of corrosion and scale formation

Product Number	Product Name
739474	SPECTRAPAK 310

Specification

Invent Hazard Material (IMO/EU) classification	C-55
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Supplied with:

Instruction sheet	1 pc
Stirring Rod	1 pc
250 ml Glass Bottle	1 pc
pH Test Papers 7.5 to 14.0	1 pc
pH Test Papers 6.5 to 10.0	1 pc
pH Reagent 80g	1 pc
Measuring Scoop	1 pc
P Alkalinity Test Tablets btl. 250	3 pcs
Chloride Test Tablets btl. 250	1 pc

Consumables

739458	CHLORIDE TEST TABLETS BOTTLES 2 X 250
555664	P-ALKALINITY TABLETS (2 BOTTLES X 250)
555706	PH PAPER + PH REAGENT
777068	PH TEST STRIPS 2 PACK MO319
568873	PH REAGENT FOR 311 KIT
555672	M-ALKALINITY TABLETS (2 BOTTLES X 250)

Accessories

778648	PLASTIC STIRRING RODS(10)
764418	pH POWDER SCOOP
555557	SAMPLE BOTTLES 250ML (X2)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PERMANGANATE VALUE TEST KIT

Sewage on board ships needs to be treated before it is discharged to the sea. Sewage treatment plant is used to treat the final effluents and make it less harmful for the sea.

COD and BOD are among the key parameters to be determined before the effluent discharge.



Product Information

Test Parameter: Permanganate

Measuring Range: 0 to >30PV

The Permanganate Value (PV) is a test for indicating the general quality of final effluents from on board sewage treatment systems.

The PV result enables the COD and BOD of the effluent to be calculated and the effluent classified as to its acceptability for discharge according to MARPOL Annex IV guidelines.

****References**** MEPC 159 13th Oct 2006 describes the performance criteria for effluent treatment plant installed on ships for the period 2010 to 2016. MEPC 227 (annex 22) 5th Oct 2012 (supersedes MEPC 159) and will apply to sewage treatment plants installed on or after 1 January 2016.

Features

- Rapid test to calculate COD and BOD of effluent waters
- Easy and cost effective

Benefits

- Fast and Effective indication for final discharge, ensuring the discharge is within the regulatory requirements

Product Number	Product Name
778861	PERMANGANATE VALUE TEST KIT
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Consumables	
778868	ACIDIFYING SE TABLETS PCK 100
778863	PERMANGANATE VALUE TABLETS PCK 100
Accessories	
555714	SHAKER TUBE 309 TEST KIT

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TEST KIT FOR COOLTREAT AL

Controlling key parameters in engine cooling waters is important for optimum corrosion protection.

Product Information

Application: Cooling water

Test Parameters: Cooltreat AL Concentration, Chloride & pH

Accessible sampling cocks should exist on all cooling systems for each diesel engine. This including, but not limited to, main jacket water, piston cooling, fuel oil valve, auxiliary engines, low temperature systems, etc.



A representative sample must be taken from each cooling water system to be tested

It is advisable to conduct the appropriate tests within 30 minutes of drawing the sample, although this time limit can be extended when the sample container is completely filled and sealed

Features

- Sturdy plastic case
- Simple to use test kit
- Test methods included

Benefits

- Helps you to protect valuable system equipment from the damaging effects of corrosion and scale formation

Product Number	Product Name
758904	TEST KIT FOR COOLTREAT AL

Specification	
Invent Hazard Material (IMO/EU) classification	C-9

Consumables	
735746	COOLTREAT REAGENT REP PACK
555698	PH PAPER F/ 309 TEST KIT
758912	CHLORIDE TITRATOR (CONSISTS OF 40 PCS OF TEST STRIPS)

Accessories	
555814	GLYCOL REFRACTOMETER RHA 218 ATC
762530	REFRACTOMETER
568717	BEAKER 100ML AZLON
735761	COOLTREAT SYRINGES AND PIPETTES 3 SYRINGES AND 6 PIPETTES
735738	COOLTREAT SHAKER TUBE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MOTOR SHIP TEST KIT MO246A.

Combined drop test kit for engine cooling waters and low pressure boilers.
Test parameters are P Alkalinity, Chloride and Nitrite.



Product Information

A portable testing kit designed to analyze various water parameters critical for maintaining the optimal performance and safety of cooling systems and low-pressure boilers. It consists of liquid reagents to perform on-site testing and assess water quality.

Application: Cooling water and boiler water

Test parameters: P Alkalinity, Chloride and Nitrite.

Features

- Compact and portable
- Liquid reagents based chemistries

Benefits

- Portable, easy to use kit for testing water samples
- Suitable for LP boilers and engine cooling waters

Product Number	Product Name
777066	MOTOR SHIP TEST KIT MO246A.

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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Supplied with:

Instruction Sheet	1 pc
mBC1 Chloride Indicator Reagent 65ml	1 pc
mBC2 Chloride Titration Reagent 65ml	2 pcs
mN1 Nitrite Indicator Reagent 65m	1 pc
mN2 Nitrite Titration Reagent 65ml	3 pcs
mpA1 P Alkalinity Indicator Reagent	1 pc
mpA3 P Alkalinity Titration Reagent	2 pcs
10ml Tubes	2 pcs
Syringe 2.5ml	1 pc
Syringe 20ml	1 pc
Pyrex Jar 50ml	1 pc

Consumables

777122	NITRITE TITRANT MN2X2 (65ML)
777121	NITRITE INDICATOR MN1X2 (65ML)
777050	CHLORIDE INDICATOR MBC1X2 (65 ML)
777051	CHLORIDE TITRANT MBC2X2 (65 ML)
777056	CHLORIDE TITRATION PACK M251
777124	P.ALKALINITY INDICATOR MPA1X2(30ML)
777125	P ALKALINITY TITRANT MPA3X2(65ML)
777102	TANNIN TITRANT MO382 MTN2 (2X65 ML)
777101	TANNIN INDICATOR MO381 MTN1 (2X50G)
777102	TANNIN TITRANT MO382 MTN2 (2X65 ML)
777101	TANNIN INDICATOR MO381 MTN1 (2X50G)
777987	UNIVERSAL INDICATOR SOLUTION

Accessories

766416	10 ML TEST TUBE
777094	FILTER PAPER HOLDER MO370
777095	GFC FILTER PAPER MO371

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MAXIDIRECT MD600

Photometers are the all-rounders in water analysis. They measure the concentration of a substance based on the light that passes through a water sample.

They are user-friendly and designed to meet the individual requirements of the user and the respective application.

This ensures not only assured measurement results in accordance with the applicable regulations, but also precise values and tools for documentation and general quality control.



Product Information

A hand held spectrophotometer that can be used to produce a wide range of accurate water tests. This instrument offers a unique ability in that it can be used, dependent upon parameter, with liquids, powders, tablets, or powder sachets. It operates a six filter system for greater accuracy and uses a LED light source, keeping power consumption low. Test Parameters: Various

Features

- Uses tablets, powder packs, liquids or vials
- Wide range of test parameters
- Reproducible results
- Results displayed as ppm (mg/l)

Benefits

- Flexibility with multiple testing ranges and methods available
- Reliable and accurate measurement results

Product Number	Product Name
777180	MAXIDIRECT MD600

Specification

Invent Hazard Material (IMO/EU) classification	C-9

Consumables

777073	FREE CHLORINE DPD 1 TABLETS (250)
777855	TOTAL CHLORINE DPD NO.3 TABLET (FOR D100/600), 250 TESTS
778209	CA HARDNESS PHOTOMETER TABLETS
778211	CYANURIC ACID PHOTOMETER TABLETS
729491	P-ALKALINITY REPLACEMENT PACK
666665	VARIO HYDRAZINE 2 REAGENT PCK 100 ML
778645	IRON LR TABLETS(100)
777182	IRON PHOTOMETER MO404 0-2 PPM
777179	CHLORIDE PHOTOMETER MO401 0-32 PPM
666663	CHLORIDE T2 TABLETS 100 PCS
666661	CHLORIDE T1 TABLETS 100 PCS
777184	SILICA PHOTOMETER MO406 0-8 PPM (50 TESTS)
778646	COPPER NO.1 TABLETS(100)
666667	COPPER 2 TABLETS REAGENT PCK 100 PCS
777181	PHOSPHATE PHOTOMETER MO403 0-80 PPM
666655	PHOSPHATE LR P1 TABLETS, 100 PCS
666657	PHOSPHATE LR P2 TABLETS, 100 PCS
729541	PHOSPHATE HR P1 & P2 REPL. PACK
777185	AMMONIA PHOTOMETER MO407 0-1 PPM
766414	DE-IONISED WATER 1 LTR

Accessories

736645	MAXIDIRECT VERIFICATION SET
778141	MAXIDIRECT TEST CELLS(5 PCS)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MD100 POOLCONTROL 6IN1

Photometers are the all-rounders in water analysis.

They measure the concentration of a substance based on the light that passes through a water sample.

They are user-friendly and designed to meet the individual requirements of the user and the respective application.

This ensures not only assured measurement results in accordance with the applicable regulations, but also precise values and tools for documentation and general quality control.



Product Information

The MD 100 6in1 Photometer is a portable handheld instrument designed for the testing of critical water parameters such as pH, chlorine, bromine, alkalinity, calcium hardness and cyanuric acid. This easy to use instrument is suitable to use for Potable water, Ballast Water, Sewage Water, Pool and Spa, etc.... where measurement of Total Residual Chlorine or Free Residual Chlorine is vital. The units supply accurate, reproducible results using high quality interference filters with long-life LEDs as a light source.

Parameters and Measuring Range:

Chlorine 0-6.0 mg/l

pH Value 6.5-8.4

Alkalinity Total 5-200 mg/l

Ca Hardness 0-500 mg/l

Bromine 0.05-13 mg/l

Cyanuric Acid 2-160 mg/l

Features

- Simple button layout and robust waterproof design
- Come with a large backlit display

Benefits

- Easy to use and ideal for testing pool waters.
- Suitable for use in low lit area such as engine room

Product Number	Product Name
768129	MD100 POOLCONTROL 6IN1

Specification	
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Invent Hazard Material (IMO/EU) classification	D-1
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Supplied with:	
Carrying case	1 pc
Micro batteries (AAA)	4 pcs
Round vials (Glass) with lids	3 pcs
Reagent tablets	1 pc
Crushing / Stirring Rod	1 pc
DPD No. 1	1 Pack of 100
DPD No. 3	1 Pack of 100
Phenol Red Photometer	1 Pack of 100
Cya-Test	1 Pack of 100
Alka M	1 Pack of 100
Calcio H No. 1	1 Pack of 100
Calcio H No. 2	1 Pack of 100
Instruction manual	1 pc

Consumables

777073	FREE CHLORINE DPD 1 TABLETS (250)
777855	TOTAL CHLORINE DPD NO.3 TABLET (FOR D100/600), 250 TESTS
778209	CA HARDNESS PHOTOMETER TABLETS
778211	CYANURIC ACID PHOTOMETER TABLETS
729491	P-ALKALINITY REPLACEMENT PACK

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DEHA CHECKIT TEST KIT

Controlling dissolved oxygen in boiler feed water and boiler water is important to avoid pitting corrosion in boiler systems. Oxygen Scavenger Plus contains DEHA, a low toxicity oxygen scavenger that is distributed throughout the boiler system. Dosage level of Oxygen Scavenger Plus is based on the DEHA value measured in the condensate water.



Product Information

Application: Boiler feedwater and boiler water

Test parameter: DEHA

Measuring range: 0 to 0.5 mg/l as DEHA

Features

- Compact portable test kit

Benefits

- Convenient and onboard testing to help control corrosion in your steam boiler system

Product Number	Product Name
698948	DEHA CHECKIT TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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Supplied with:

Instruction Sheet	1 pc
DEHA Checkit Comparator Disc	1 pc
Checkit Comparator	1 pc
DEHA Test Solution 65ml	2 pcs
DEHA Test Tablets pk.100	2 pcs
30ml Amber Bottle	1 pc
DO Bottle	1 pc
Pipette 0.1 to 0.5ml	1 pc
Rubber Teat and Cap	1 pc
Checkit Test Cell	2 pc

Consumables

698753	DEHA TEST TABLETS REFILL REAGENT 2 X 100
698761	DEHA TEST SOLUTION REFILL REAGENT 2 X 65ML

Accessories

698952	DEHA CHECKIT DISC
778457	CHECKIT TEST CELLS
698944	60 ML SAMPLE BOTTLE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHECKIT COMPARATOR

CHECKIT® Comparator Test Kits are accurate, easy to use test kits for water analysis. Simply add the reagent to the sample cell, rotate the disc until the color matches the prepared water sample and read the concentration value.



Product Information

Wide range of parameters for a variety of applications Color discs have a continuous color gradient making it possible to achieve a direct color match - no need to extrapolate the result between two color standards

Requires 2 x Checkit test cells and appropriate colour disc and reagents.

Features

- Step-By-Step Instructions Wide Variety of Parameters One Piece Comparator Housing Easy to View Results Continuous Color Gradient

Benefits

- Clear instructions for reliable and accurate measurements Flexibility with multiple testing ranges and methods available Direct color matches for easy to read results

Product Number

Product Name

778420	CHECKIT COMPARATOR
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Specification

Invent Hazard Material (IMO/EU) classification

NA

Consumables

777936	PHENOL RED(PH) (250 TESTS)
777934	CHLORINE DPD NO 1 (FREE) 250 TESTS
777935	CHLORINE DPD NO.3(TOTAL)(250 TESTS)
777938	CHLORINE HR TABLETS (250)
777937	ACIDIFYING GP TABLETS(CHLORINE)
778645	IRON LR TABLETS(100)
778646	COPPER NO.1 TABLETS(100)
698753	DEHA TEST TABLETS REFILL REAGENT 2 X 100
698761	DEHA TEST SOLUTION REFILL REAGENT 2 X 65ML

Accessories

778422	CHECKIT pH DISC (6.8 TO 8.4)
778421	CHECKIT FREE CHLORINE DISC
778458	CHECKIT HIGH RANGE CHLORINE DISC
778644	CHECKIT IRON DISC (0 TO 1 MG/L)
778647	CHECKIT COPPER DISC (0 TO 5MG/L)
698952	DEHA CHECKIT DISC
778457	CHECKIT TEST CELLS
698944	60ML SAMPLE BOTTLE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

LOVIBOND 2000 COMPARATOR

The Comparator 2000+ is a versatile colorimetric system for water analysis. Comfortable handling, no compromise on accuracy and reproducibility.



Product Information

A compact, versatile colorimeter. The Comparator 2000+ can be used for wide range of chemical tests. Test parameters: Various
Used with:

1. HYDRAZINE DISC 3/126 (555581)
2. PHOSPHATE DISC 3/70 (555573)
3. SPECTRAPAK 310 (739474)
4. SPECTRAPAK 311 (739482)
5. SPECTRAPAK 315 (739490)

Features

- Compensation for coloured and turbid samples
- Guaranteed constancy of the coloured glass standards
- Integrated prism

Benefits

- Portable, easy to use kit for testing water samples
- Suitable for LP boilers and engine cooling waters

Product Number	Product Name
555565	LOVIBOND 2000 COMPARATOR

Specification	
Invent Hazard Material (IMO/EU) classification	NA

Consumables	
555649	PHOSPHATE TABLETS (2 BOTTLES X 100)
777086	ASCORBIC.ACID POWDER 10 G
777085	COMB PHOSPHATE REAGENT MO357(125ML)
555680	HYDRAZINE TEST POWDER (2 BOTTLES X 30G)

Accessories	
555573	PHOSPHATE DISC 3/70
778417	COLOUR DISC
555581	HYDRAZINE DISC 3/126
555599	MOULDED CELLS 10ML + CAPS (5 PACK)
778418	40MM CELLS F COLOUR MEASUREMENT

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECTRAPAK 312

Spectrapak™ 312 - Hydrazine Upgrade Pack
(Add-on option to Spectrapak 315)

Hydrazine reacts with oxygen, acting as a scavenger. The reaction results in nitrogen and water with no solids being added to the boiler system. Some of the hydrazine will carry over with the steam, aiding in maintaining the condensate pH in an alkaline range, which thereby helps combat acid formation. Hydrazine will also form magnetite which will act as a protective layer against further corrosion.



Product Information

Test reagent and comparator disc to test for hydrazine based oxygen scavengers.
Recommended to ensure boiler water is free from dissolved oxygen.

Test Parameter: Hydrazine
Range 0 to 0.5mg/lit.

Features

- Compact, portable test kit
- Test method included in the kit

Benefits

- Helps to protect your boiler system against oxygen corrosion

Product Number	Product Name
555490	SPECTRAPAK 312
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Supplied with:	
Hydrazine Comparator Disc	1 pc
Hydrazine Powder Pot	1 pc
Measuring Scoop	1 pc
Test Reagent	1 pc
Consumables	
555680	HYDRAZINE TEST POWDER (2 BOTTLES X 30G)
Accessories	
555581	HYDRAZINE DISC 3/126
555599	MOULDED CELLS 10ML + CAPS (5 PACK)
778418	40MM CELLS F COLOUR MEASUREMENT
555565	LOVIBOND 2000 COMPARATOR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ECOSCAN.PH6 METER & ELECTRODE MO34

ECOSCAN pH Meter and pH probe with BNC Connector
Compact, portable meter for testing boiler water, condensate water and engine cooling water



Product Information

ECOSCAN pH 6+ offer you the greatest value-for-money for your basic pH measurement needs. Rugged and user-friendly, these no-frill meters come with protective IP54 rubber boots for protection against harsh field elements

Test Parameter: pH

Measuring range: 0.00 to 14.00 pH

Features

- High pH accuracy of ±0.01
- 3-point push-button calibration with auto-buffer recognition
- Automatic Temperature Compensation (ATC)
- Self-diagnostic messages available

Benefits

- Accurate and reliable reading with pH probe
- Quick, easy calibration with Auto-Buffer Recognition - choice of USA, NIST or pure water buffer standards
- ATC to provide highest temperature accuracy under fluctuating temperatures
- Easy trouble shooting with diagnostic functions

Product Number	Product Name
777080	ECOSCAN.PH6 METER & ELECTRODE MO34

Specification	
Invent Hazard Material (IMO/EU) classification	D-1

Supplied with:	
pH 6+ pH/mV Meter	1 pc
pH 4.01 Buffer Solution 60 ml	1 pc
pH 7.00 Buffer Solution 60 ml	1 pc
Storage Solution 60 ml	1 pc
Deionised (Rinse) Water 60 ml	1 pc

Consumables	
779019	PH 4 BUFFER TABLETS
729632	PH BUFFER 7 & 10 REPLACEMENT PACK
777087	PH7 BUFFER SOLUTION MO359 (125 ML)
777088	PH10 BUFFER SOLUTION MO360 (125 ML)
766412	pH ELECTRODE STORAGE SOLN. 100ML

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PH METER PEN MODEL

Low cost, waterproof hand-held pH meter for the measurement of pH in a range of water samples.



Product Information

Compact, easy-to-use, hand-held instruments for the accurate measurement of pH. With robust housing and fully waterproof (IP67) casing, these testers are the ideal solution for in-situ testing in harsh marine applications.

Test Parameter: pH Measuring Range: 0 - 14 pH

Used with:

1. SPECTRAPAK 309 (739466)
2. SPECTRAPAK 310 (739474)
3. SPECTRAPAK 315 (739490)

Features

- Compact & Robust
- Portable Hand-Held Meter
- Included pH calibration reagents
- Thermometer function included
- Storage function

Benefits

- Convenient and onboard testing
- Ease of use with simultaneous display of result, temperature, date/time and other measurement details
- Easy recalling of data for record keeping requirements

Product Number	Product Name
607800	PH METER PEN MODEL

Specification	
Invent Hazard Material (IMO/EU) classification	D-1

Consumables	
779019	PH 4 BUFFER TABLETS
729632	PH BUFFER 7 & 10 REPLACEMENT PACK
777087	PH7 BUFFER SOLUTION MO359 (125 ML)
777088	PH10 BUFFER SOLUTION MO360 (125 ML)
766412	pH ELECTRODE STORAGE SOLN. 100ML

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ECOSCAN CONDUCTIVITY METER MO347

ECOSCAN COND 6 meter and conductivity probe.

Compact, portable meter for testing boiler water, condensate water and engine cooling water.



Product Information

Sturdy and economical, the ECOSCAN COND 6+ combines ease-of-use with high performance. The handy meters are IP54 splashproof and come with a conductivity/TDS electrode with automatic temperature compensation function

Test Parameter: Conductivity

Measuring range: ... to 19.99 µS/cm, 19.9 µS/cm to 199.9 µS/cm, 199 µS/cm to 1999 µS/cm, 2.00 mS/cm to 19.99 mS/cm, 20.0 mS/cm to 199.9 mS/cm

Features

- Multi-Point Push-button Calibration (up to 5 points) with ±1% full scale accuracy
- Automatic or Manual Calibration
- Automatic Temperature Compensation (ATC)

Benefits

- Quick, easy calibration; use automatic mode with preset calibration points at most popular values or manually set values in the manual mode for more flexibility
- ATC to provide optimum accuracy under fluctuating temperatures

Product Number

777079

Product Name

ECOSCAN CONDUCTIVITY METER MO347

Specification

Invent Hazard Material (IMO/EU) classification

D-1

Supplied with:

COND 6+ Conductivity Meter	1 pc
Electrode ECCONSEN91B Conductivity Carrying Kit Set	1 pc

Consumables

777090	STD CONDUCTIVITY SOLUTION MO362
568683	STD CONDUCTIVITY SOLN FOR CALIBRATN 100 ML
779020	CONDY STANDARD 12.88MS (100ML)

Accessories

777091	SPARE CONDUCTIVITY PROBE FOR MO363
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CONDUCTIVITY METER PEN MODEL

Low cost and waterproof hand-held Conductivity pen meter for the measurement of Conductivity in a variety of water samples.



Product Information

Compact, easy-to-use, hand-held instruments for the accurate measurement of conductivity. With robust housing and fully waterproof (IP67) casing, these testers are the ideal solution for in-situ testing in harsh marine applications.

Test Parameters:

- a. Conductivity
- b. TDS
- c. Salt (Salinity)

Measuring Range:

- a. Con: 0 to 20mS/cm
- b. TDS: 0 to 20ppt
- c. Salt: 0 to 10 g/L

Used with:

- 1. SPECTRAPAK 309 (739466)
- 2. SPECTRAPAK 310 (739474)
- 3. SPECTRAPAK 315 (739490)

Features

- Compact & Robust
- Portable Hand-Held Meter
- Scroll-Through Functionality
- Storage Function

Benefits

- Convenient and onboard testing
- Ease of use with simultaneous display of result, temperature, date/time and other measurement details
- Easy recalling of data for record keeping requirements

Product Number	Product Name
607801	CONDUCTIVITY METER PEN MODEL
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Consumables	
777090	STD CONDUCTIVITY SOLUTION MO362
568683	STD CONDUCTIVITY SOLN FOR CALIBRATN 100 ML
779020	CONDY STANDARD 12.88MS (100ML)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POOLCHECK 6 IN 1 TEST KIT 6 PCS

Pool and spa water treatment are among the key treatments onboard a cruise vessel.

The Poolcheck 6 in 1 test kit provides simple and easy to use testing to meet the strict requirements.



Product Information

The Poolcheck 6 in kit uses rapid dissolving tablets to give accurate reliable results quickly, and provides a simple, cost effective solution for Pool and Spa water management.

Each Poolcheck 6 in 1 test kit comes in a robust case and includes the Poolcheck unit, accessories, reagents for 20 tests and instructions.

Test Parameters:

1. Chlorine
2. pH
3. Total Alkalinity
4. Calcium Hardness
5. Bromine
6. Cyanuric Acid

Features

- The tests are fast, accurate and simple.
- Ready to use, no preparation or calibration needed.
- Utilises rapid dissolving tablets that reduces the risk of operational errors

Benefits

- Portable, easy to use kit for testing water samples
- Fast response to provide a indication and understanding of the conditions of the pool and spa water

Product Number	Product Name
767020	POOLCHECK 6 IN 1 TEST KIT 6 PCS

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHLORINE/BROMINE CHECKIT KIT

A comparator type test kit for the measurement of free chlorine and bromine levels in potable water, waste water and pools and spas.



Product Information

The Test Kit includes the tablet reagents for tests and instruction manual, all packaged in a robust case.

Test Parameter: Free Chlorine and Bromine

Measuring Range: 0 - 4 mg/L Cl₂; 0.2 - 8.0 mg/L Br₂

Used with:

1. CHECKIT COMPARATOR (778420)
2. CHLORINE DPD NO 1 (777934)

Features

- Easy to use
- RAPID fast dissolving tablets

Benefits

- Portable and quick analysis for water samples for acceptance of water quality limits.

Product Number	Product Name
777074	CHLORINE/BROMINE CHECKIT KIT
Specification	
Invent Hazard Material (IMO/EU) classification	C-9
Consumables	
777934	CHLORINE DPD NO 1 (FREE) 250 TESTS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OXYGEN FULL KIT 0 - 40 PPB O2 M341

Test kit for the measurement of oxygen in boiler feed and condensate waters. This test is used to monitor the performance of chemical oxygen scavengers and mechanical de-aerators.



Product Information

Chemet sample tubes work by placing the ampoule into the sample and then gently breaking the end off. The correct amount of sample then gets sucked into the ampoule allowing the test to be performed quickly and accurately.

Test Parameter: Dissolved Oxygen (DO)

Measuring Range: 0 - 40 ppb MDL: 1 ppm

Method: Indigo Carmine Analysis

Time: 2 minutes

Supplied as box of 30 ampoules (Inclusive of: Refill, Comparator, adhesive mounting clamp, permanent mounting clamp, sampling tube, and instructions.)

Features

- Premade reagent vials
- Vacuum sealed ampoules

Benefits

- Portable, easy to use for testing of Boiler Feed and Condensate water

Product Number	Product Name
777060	OXYGEN FULL KIT 0 - 40 PPB O2 M341

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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Consumables

777059	OXYGEN REPLACEMENT AMPOULES M340
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HR TOTAL HARDNESS TEST KIT

Consumables: Water hardness is caused by the presence of calcium and magnesium salts. High levels of hardness prevent the formation of lather with soap, and can cause scaling in water systems, particularly steam boilers, engine cooling systems and fresh water pipework. Hardness is an important control test in a wide variety of applications



Product Information

Test Parameter: Total Hardness

Tablet Chemistry

Foil-wrapped packaging for storage

Benefits

- Easy operation and exact reagent dosing
- High accuracy
- Foil-wrapped tablet reagents with a minimum guaranteed shelf-life of 5 years

Product Number

755775

Product Name

HR TOTAL HARDNESS TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification

C-9

Consumables

755779

HR TOTAL HARDNESS TABLETS PCK(250)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

LR HARDNESS KIT DROP TEST 4-100 PPM

Consumables: The Low Range Hardness Drop Test is a quick and simple method to test the levels of Hardness in water samples from Engine Cooling Systems, Boiler Feed Water, Evaporator Supply Water and Pools and Spas.



Product Information

Test Parameter: Total Hardness (LR)

Measuring Range: 4-100 PPM

Method: Liquid Reagent Drop Test

Features

- Easy to use
- Small disposable kit
- Can be used on a wide range of water samples

Benefits

- Fast detection agent for reliable and accurate measurements
- Safe application with a simple squeeze from the dropper bottle

Product Number

778114

Product Name

LR HARDNESS KIT DROP TEST 4-100 PPM

Specification

Invent Hazard Material (IMO/EU) classification

C-9

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TOTAL RESIDUAL OXIDANT (TRO) CALIBRATION KIT

TRO Calibration Solution kit is a calibration solution compatible and to be used with HF Scientific TRO Analyser. Compatible HF TRO Analysers include CLX-EX, CLX-EX2, CLX-XT, CLX-XT2



Product Information

TRO Calibration Solution Kit is an essential calibration package for the operation of chlorination/oxidation type of ballast water management system. TRO sensor which is calibrated, ensure the right amount of chlorine/oxidant is injected for disinfection of ballast water and excess chlorine/oxidant is neutralised for compliance.

Features

- Designed to be used with HF scientific TRO analyser model CLX-EX, CLX-EX2, CLX-XT, CLX-XT2
- Inclusive: 1 x 500 ml Buffer Reagent, 4x 125 ml Indicator, 4 x 13g DPD powder

Benefits

- Long shelf life reagent, 5 years

Product Number	Product Name
779211	TOTAL RESIDUAL OXIDANT (TRO) CALIBRATION KIT

Specification

Invent Hazard Material (IMO/EU) classification	C-9
Appearance	Light yellow
Density [g/ml]	1.1
Form	Liquid
pH	13-14

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BALLAST CHECK 2 TEST KIT

Ballast-Check 2 is a multiple turnover Pulse Amplitude Modulated (PAM) fluorometer that provides a rapid, indicative analysis of the Abundance and Activity of algae in ballast water samples.



The instrument is configured to provide ship operators with a rapid, indicative determination of whether treated ballast water is at risk of non-compliance with the IMO and USCG, D2 quality standard.

Please refer to the User Manual for more details.

Product Information

Ballast Check 2 measures algae in the 10 to 50um range.

Features

- Rapid, indicative test
- Hand held instrument
- Easy to use, results in a minute
- Measure of gross non compliance
- No chemical reagents are required

Benefits

- Low cost of operation
- Enable you to make quick adjustment decisions
- Improves control of your Ballast Treatment system
- Helps you to maintain compliance

Product Number	Product Name
777848	BALLAST CHECK 2 TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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Directions for Use

Abundance of Algae

Ballast-Check 2 is configured for detecting chlorophyll fluorescence from live algal cells. Light from the fluorometer is absorbed by algae, which causes the cells to fluoresce. Fluorescence emitted by the cells is detected, quantified, and displayed as a digital number estimating the abundance of algae in the sample as cells/ml for 10 -- 50 micron sized cells. The Ballast-Check 2 has a set threshold value of 10 cells per ml. When the measured Abundance of algae is greater than or equal to the set threshold, this indicates a high risk that algae may be in gross exceedance of the discharge standard.

Activity of Algae

Ballast-Check 2 uses two measuring LEDs to estimate photosynthetic efficiency (viability). The first LED (monitoring) is used to excite the sample with very low light intensity so as not to induce a change in chlorophyll reaction centres. While continuously monitoring the sample using the monitoring LED, the second LED (saturating) blasts the sample with a high intensity of light to bring algae to a higher fluorescence state (Fm). The difference between the monitoring LED's measurement of the maximum (Fm) and minimum (Fo) fluorescence states is called variable fluorescence (Fv). The ratio (Fv/Fm) is a good measure of the algal activity, which is measured as a ratio between 0.01 and 0.75. Coupled with the WSS Potable Water Test Kit enables you to implement an on board monitoring programme for your Ballast Water quality.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POTABLE WATER TEST KIT

Improperly managed water on ships serves as a key pathway for infectious disease transmission, as evidenced by Rooney et al.'s review of 100+ outbreaks, with a fifth attributed to waterborne routes. The WHO's "Guide to Ship Sanitation" emphasizes the ship operator's duty to ensure clean, pathogen-free water for all uses, necessitating constant monitoring, reporting of adverse results, and prompt corrective action under the IHR 2005.



Product Information

The Nalfleet Potable Water Test Kit range enables ships staff to monitor the quality of the drinking water on board the ship by providing tests for important operational control parameters and verification tests for bacteria that can be of risk to human health.

Features

- Self contained testing kit for E Coli and Coliforms
- Helps you to meet MLC 2006 recommendations for the quality of drinking water
- Includes compact and robust sample incubator
- Training video included

Benefits

- Incubator ensures that you achieve consistent test results
- Additional test kits can be added as required to meet flag state and/or company requirements
- Video supports you with crew training and competency

Product Number	Product Name
778419	POTABLE WATER TEST KIT

Specification	
Invent Hazard Material (IMO/EU) classification	C-9

Supplied with:	
Nalfleet Incubator	1 pc
E.Coli/Coliform (25 Tests)	1 pc
Antibacterial Swabs (50)	1 pc
Thio bags 100ml (pack of 100)	1 pc
1ml Syringe Pack (potable)	3 pc
Stirring Rod Plastic Short 10cm	1 pc
Battery Operated UV Lamp	1 pc
UV Lamp Battery Pack (potable)	1 pc
Safety Glasses	1 pc
Polythene Gloves Large	1 pc
On Board Potable Water Log	1 pc
Wide Neck Bottle & Cap, 250ml	2 pc

Consumables

778163	COLITAG THIO BAGS (25)
720998	INCUBATION POT F/POTABLE WATER TESTING

Accessories

777619	POTABLE WATER TEST KIT W/O E.COLI
777930	PORTABLE INCUBATOR
777932	E.COLI/COLIFORM (25 TESTS)
777931	UV LAMP (F/E.COLI CONFIRMATION)
778416	INTESTINAL ENTEROCOCCI (20 TEST)
666671	ALCOHOL WIPES 50 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POTABLE WATER TEST KIT W/O E.COLI

Improperly managed water on ships serves as a key pathway for infectious disease transmission, as evidenced by Rooney et al.'s review of 100+ outbreaks, with a fifth attributed to waterborne routes. The WHO's "Guide to Ship Sanitation" emphasizes the ship operator's duty to ensure clean, pathogen-free water for all uses, necessitating constant monitoring, reporting of adverse results, and prompt corrective action under the IHR 2005.



Product Information

The Nalfleet Potable Water Test Kit W/O E. COLI range enables ships staff to monitor the quality of the drinking water on board the ship by providing tests for important operational control parameters and verification tests for bacteria that can be of risk to human health.

Features

- Helps you to meet MLC 2006 recommendations for the quality of drinking water
- Includes compact and robust sample incubator
- Training video included

Benefits

- Incubator ensures that you achieve consistent test results
- Additional test kits can be added as required to meet flag state and/or company requirements
- Video supports you with crew training and competency

Product Number	Product Name
777619	POTABLE WATER TEST KIT W/O E.COLI

Specification

Invent Hazard Material (IMO/EU) classification	C-9
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Supplied with:

Nalfleet Incubator	1 pc
Antibacterial Swabs (50)	1 pc
Thio bags 100ml (pack of 100)	1 pc
1ml Syringe Pack (potable)	3 pc
Stirring Rod Plastic Short 10cm	1 pc
Battery Operated UV Lamp	1 pc
UV Lamp Battery Pack (potable)	1 pc
Safety Glasses	1 pc
Polythene Gloves Large	1 pc
On Board Potable Water Log	1 pc
Wide Neck Bottle & Cap, 250ml	2 pc

Consumables

720998	INCUBATION POT F/POTABLE WATER TESTING
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Accessories

777930	PORTABLE INCUBATOR
777932	E.COLI/COLIFORM (25 TESTS)
777931	UV LAMP (F/E.COLI CONFIRMATION)
778416	INTESTINAL ENTEROCOCCI (20 TEST)
666671	ALCOHOL WIPES 50 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

E.COLI/COLIFORM (25 TESTS)

The most basic test for bacterial contamination of a water supply is the test for total coliform bacteria. Total coliform counts give a general indication of the sanitary condition of a water supply.



For consistent results, an incubator should be used to culture the samples and the correct temperature.

(UV lamp supplied separately)

Product Information

Test Parameters: Coliform and E.Coli bacteria tests

Used with:

1. POTABLE WATER TEST KIT (778419 & 777619)
2. BALLAST CHECK 2 TEST KIT (777848)
3. UV LAMP (777931)

Features

- Simple presence/absence test
- Easy to carry out on board ship
- Can be to test for Potable water and ballast water
- For Ballast water, dilute the sample by 1 part sample and 9 part deionised water (10 ml sample + 90 ml demin water = 100 ml sample)

Benefits

- Convenient method for measuring and monitoring bacteria and microbial activity in water
- High quality and consistently reliable results

Product Number	Product Name
777932	E.COLI/COLIFORM (25 TESTS)
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Supplied with:	
COLI TEST BAGS	25 pcs
GROWTH MEDIA AMPULES	25 pcs
Consumables	
778163	COLITAG THIO BAGS (25)
720998	INCUBATION POT F/POTABLE WATER TESTING
Accessories	
777930	PORTABLE INCUBATOR
777931	UV LAMP (F/E.COLI CONFIRMATION)
666671	ALCOHOL WIPES 50 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

INTESTINAL ENTEROCOCCI (20 TEST)

Intestinal Enterococci are bacteria that can be used as a marker to indicate fecal contamination of Potable Water or Ballast Water.



Product Information

The test is designed to detect Enterococcus species in drinking water samples within 24 hours. When the substrate is metabolised by enterococci the sample turns from blue to green to indicate a positive detection. Any change from the original colour to green is considered a positive result. No ultraviolet light source is required.

Test Parameter: Bacteria - Intestinal Enterococci

Used with:

1. POTABLE WATER TEST KIT (778419)
2. BALLAST CHECK 2 TEST KIT (777848)

Features

- Simple presence/absence test
- Easy to carry out on board ship

Benefits

- Portable, easy to use for testing of potable water and ballast water
- Optional: For Ballast water, dilute the sample by 1 part sample and 9 part deionised water (10 ml sample + 90 ml demin water = 100 ml sample)

Product Number	Product Name
778416	INTESTINAL ENTEROCOCCI (20 TEST)
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Consumables	
778163	COLITAG THIO BAGS (25)
720998	INCUBATION POT F/POTABLE WATER TESTING
Accessories	
777930	PORTABLE INCUBATOR
778416	INTESTINAL ENTEROCOCCI (20 TEST)
666671	ALCOHOL WIPES 50 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

LEGIONELLA TEST KIT

Product Information

The Nalfleet Legionella Test Kit is a quick and effective kit to deliver results for the presence of Legionella bacteria in minutes instead of days.

The test kit is a compact kit delivered in a case with easy and clear instructions

The Nalfleet Legionella Test Kit uses an immunochromatographic assay to detect the presence of cell surface antigens from Legionella bacteria in a sample. The presence of antigen causes the Test Line to turn red. Test parameter: Legionella



Supplied with: 5,5 hollow fibre filters, 5 syringes with recovery buffer, 1 filtrate collection bottle, 1 pipework sample adapter with 1/2" and 3/4" female threaded connectors

Features

- Conforms to regulatory guidelines
- Allow weekly and monthly testing
- Easy-to-use, uncompromised accuracy

Benefits

- Portable, easy to use kit for testing water samples
- Flexibility with multiple testing ranges and methods available
- Direct color matches for easy to read results

Product Number	Product Name
777722	LEGIONELLA TEST KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with:

Individual Foil Wrapped Test Strips	5 pcs
Hollow Fibre Filters	5 pcs
Syringes with Recovery Buffer	5 pcs
Filtrate Collection Bottle	1 pc
Pipework Sample Adapter with 1/2" and 3/4" female threaded connectors	1 pc

Consumables

764491	FILTRATION PACK FOR LEGIONELLA KIT (5 X60 ML SYRINGES)
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BACTERIA COUNT TEST (10 PCS)

BT2 general purpose microbiological dip slides are used for rapid, on board monitoring of microbial contamination in water systems.

They can be used to test waste waters and engine cooling waters. The slide is coated with TTC media which supports the growth of most common bacteria.



Product Information

General purpose medium double-sided with triphenyltetrazolium chloride: red colouration when reacting with living cells facilitates counting. The dipslide allows convenient enumeration of aerobic microorganisms (TVC). The dipslide is prepared with nutrient TTC agar on both sides and is used for general purpose cultivation of organisms which can be obtained from surfaces, fluids or the air. The additive in the nutrient agar reacts with enzymes produced in aerobic respiration to produce a colour change from white to red, allowing easy enumeration. Finally, the media is produced to meet ISO 11133.

Test Parameter: Bacteria

Features

- Easy 3 step procedure; dip in fluid, incubate and read results
- Large surface area of 11.5 cm² for high sensitivity
- Effective contact area of 10 cm² for easy calculation in surface testing
- Incubate at 27 to 30° C for 24-48 hours for detection of bacteria

Benefits

- Convenient and cost effective on-site testing which facilitated on board testing
- High sensitivity to detect early signs of corrosion or contamination, reducing equipment breakdown and downtime

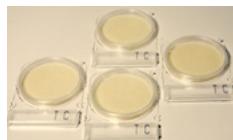
Product Number	Product Name
568568	BACTERIA COUNT TEST (10 PCS)
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
777930	PORTABLE INCUBATOR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

BACTERIA PLATES (40 PCS)

Consumables: Pack of 40 Total Bacteria test plates.



Product Information

Test Parameter: Total Bacteria Count

Used with:

1. DILUTION POTS (778414)
2. POTABLE WATER TEST KIT (778419)

Features

- Easy handling
- Sample ready plates
- Transparent plates

Benefits

- Reduce risk of contamination
- Direct observation of growth stages of microorganisms

Product Number	Product Name
778413	BACTERIA PLATES (40 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with:

Dilution pots (40pcs)	1 pack
Sterile Syringes 1ml (30pcs)	3 packs

Consumables

778414	DILUTION POTS (40 PCS)
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Accessories

777930	PORTABLE INCUBATOR
778483	1 ML STERILE SYRINGES (30)
666671	ALCOHOL WIPES 50 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DRUM BUND FOR 25LTR CHEMICAL DRUM

Sturdy drum bund integrated with a pump stand.
Designed for use with Aquaguard dosing systems.



Features

- Strong construction
- Chemically resistant
- Reduces requirement for chemical handling

Benefits

- Improved Health and Safety
- Spill containment

Product Number	Product Name
778909	DRUM BUND FOR 25LTR CHEMICAL DRUM

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

3-WAY VALVE SET FOR 2 DOSING POINTS

3-way valve set must be used in case of two chemical injection points



Product Number	Product Name
619890	3-WAY VALVE SET FOR 2 DOSING POINTS

Specification	
Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SYPHON SQUEEZER

The Syphon Squeezer has been developed to avoid cleaner spillages.



Product Number	Product Name
572024	SYPHON SQUEEZER

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Directions for use

Put the suction end of the Syphon Squeezer into the container opening and the flexible end in a bucket. Squeeze the syphon bulb several times, until the required amount of cleaner has been transferred from the 25 litre container to the bucket.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AQUAGUARD CW DOSING SYSTEM

AQUAGUARD™ CW is a chemical dosing system designed to safely control and apply corrosion inhibitors to engine cooling water circuits. The application of the chemical is controlled by conductivity measurement. The conductivity of the cooling water is proportional to the level of the engine cooling water treatment.

For use with the following products: Rocor NB, Nallfleet 2000, Cooltreat AL, EWT 9-108.



Features

- Controlled chemical application
- Treatment chemical dosed direct from the drum

Benefits

- Reduced chemical handling and improved Health and Safety
- Surety of application
- Improved corrosion protection

Product Number	Product Name
777336	AQUAGUARD CW DOSING SYSTEM
Specification	
Invert Hazard Material (IMO/EU) classification	D-1
Voltage [V]	230V AC
Spares	
683706	SPARE KIT DOSING PUMP 1602PVT
778927	PVDF INJECTION VALVE 6X4MM R1/2
778911	CONDUCTIVITY PROBE TYPE LMP 1-HT
734808	BETA PUMP 1602PVT WET END
Consumables	
568683	STD CONDUCTIVITY SOLN FOR CALIBRATN 100 ML
Accessories	
619692	SUCTION ASSY/PVC/6X4MM/LEVEL SW
762532	BETA PUMP BT4B1602PVT 2.2L/H 16 BAR
778909	DRUM BUND FOR 25LTR CHEMICAL DRUM

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AQUAGUARD BW 2 PUMP DOSING SYSTEM

The AQUAGUARD™ BW chemical dosing system is designed to apply boiler water treatment chemicals direct from the chemical drum. The application of the chemical treatment programme is proportional to the quantity of Boiler feedwater into the system.



Product Information

Aquaguard BW 2 Pump Chemical Dosing System with WSS Part Number 777332 includes the Control Unit, Dosing Pumps, Suction Assemblies, Injection Valves, Drum Bunds, Dosing Tube and accessories required for the complete system. Multi-function valves need to be ordered separately depending on the location of the injection point.

Features

- Proportion chemical dosing system
- Chemicals dosed direct from the drum
- Suitable for multiple chemical applications

Benefits

- Reduced chemical handling and improved Health and Safety
- Surety of application
- Improved equipment protection

Product Number

Product Number	Product Name
777332	AQUAGUARD BW 2 PUMP DOSING SYSTEM

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Voltage [V]	230V AC

Spares

683706	SPARE KIT DOSING PUMP 1602PVT
734812	GAMMA X 1602 PVT WET END
734808	BETA PUMP 1602PVT WET END
734852	BW DOSING UNIT SPARE PARTS KIT

Accessories

778908	HW INJECTION VALVE/200°C/6MM/R1/2
619692	SUCTION ASSY/PVC/6X4MM/LEVEL SW
762532	BETA PUMP BT4B1602PVT 2.2L/H 16 BAR
778926	GAMMA X PUMP 1602PVT 2.3L/H 16BAR
779088	MFV-DK SIZE 1.5/10 BAR PVDF
779080	6X4MM PTFE DW DOSING TUBE 10M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PUMP AND BUND CHEMICAL DOSING SYSTEMS

Pump & Bund Chemical Dosing Systems for the Boiler Water, Cooling Water, Seawater, Potable Water, Bilge & Ballast Water and Fuel Oil Treatment



Benefits

- Chemical dosing direct from the chemical drum
- Reduced chemical handling
- Chemical leak and spill containment
- Improved Health and Safety
- Compact blueprint
- Tidy appearance

Product Number	Product Description	Additional Info
777310	Boiler Water Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777312	Boiler Water Dosing System without Timer Functionality	Pump & Bund Dosing System without Timer Functionality
777314	Cooling Water Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777316	Cooling Water Dosing System without Timer Functionality	Pump & Bund Dosing System without Timer Functionality
777318	Potable Water Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777320	Seawater Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777322	Seawater Dosing System without Timer Functionality	Pump & Bund Dosing System without Timer Functionality
777324	Bilge/Ballast Water Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777326	Bilge/Ballast Water Dosing System without Timer Functionality	Pump & Bund Dosing System without Timer Functionality
777328	Fuel Oil Dosing System with Timer Functionality	Pump & Bund Dosing System with Timer Functionality
777330	Fuel Oil Dosing System without Timer Functionality	Pump & Bund Dosing System without Timer Functionality

Specification

Invent Hazard Material (IMO/EU) classification	D-1
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EVAPORATOR DOSING UNIT ON GRAVITY

Easily installed dosing equipment for evaporator water treatment.



Product Number	Product Name
656207	EVAPORATOR DOSING UNIT ON GRAVITY
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Spares	
619643	6X4MM PTFE DOSING TUBE 5MTR
619619	60 LTR PE 410X590MM 5KG DOSING TANK
656223	FLOWMETER EVAPORATOR DOSING UNIT

Directions for Use**Dosage and control**

An electrical metering pump for these applications can also be supplied - Use product no. 762532 as an electrical metering pump.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SEA WATER DOSING STATION

Product Information

Seawater Dosing Station DOES NOT contain the Switchover Unit for two dosing points. This has to be ordered separately in case of two dosing points.



Product Number	Product Name
767925	SEA WATER DOSING STATION
Specification	
Invert Hazard Material (IMO/EU) classification	D-1
Supplied with	
Dosing Pump	1 pc
60 Litre Dosing Container	1 pc
Adjustable Suction Assembly, with Float Switch	1 pc
25 metre PE Dosing Tube	1 pc
PVDF Injection Valve	1 pc
Spares	
619718	SUCTION ASSY/PP/8X5MM/LEVEL SW
619619	60 LTR PE 410X590MM 5KG DOSING TANK
683714	SPARE KIT DOSING PUMP 0413/0414 PVT
773226	BETA PUMP BT4B0413PVT 12.3L/H 4BAR
Accessories	
619890	3-WAY VALVE SET FOR 2 DOSING POINTS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOSING UNIT FOR 16 BAR APPLICATION

Dosing unit for BWT 16 Bar, 2.2lit/hr



Product Number	Product Name
767922	DOSING UNIT FOR 16 BAR APPLICATION
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Supplied with	
Electronic Metering Pump	1 pc
Dosing Container	1 pc
Adjustable Suction Assembly, with Float Switch	1 pc
Dosing Tube	1 pc
Injection Valve Assembly for Hot Systems, Complete with 1 Metre Stainless Steel Pipe.	1 pc
Spares	
619643	6X4MM PTFE DOSING TUBE 5MTR
619619	60 LTR PE 410X590MM 5KG DOSING TANK
683706	SPARE KIT DOSING PUMP 1602PVT
619720	SUCTION ASSY/PP/6X4MM/LEVEL SW
762532	BETA PUMP BT4B1602PVT 2.2L/H 16 BAR

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

DOSING UNIT FOR 25 BAR APPLICATION

Dosing unit for BWT 25 Bar, 2.9lit/hr.



Product Number	Product Name
767923	DOSING UNIT FOR 25 BAR APPLICATION
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Supplied with	
Electronic Metering Pump	1 pc
Dosing Container	1 pc
Adjustable Suction Assembly, with Float Switch	1 pc
Dosing Tube	1 pc
Injection Valve Assembly for Hot Systems, Complete with 1 Metre Stainless Steel Pipe. Max. operating temperature 200C	1 pc
Spares	
619643	6X4MM PTFE DOSING TUBE 5MTR
773192	BETA PUMP BT5B2504NPT2 3L/H 25BAR
619619	60 LTR PE 410X590MM 5KG DOSING TANK
619720	SUCTION ASSY/PP/6X4MM/LEVEL SW

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

AUTO SOOT TREATMENT UNIT/SINGLE EGB

The Automatic Soot treatment Dosing unit along with the treatment chemical is used for the prevention of soot and firescale deposits in diesel engines and boiler exhaust systems.

Soot and exhaust deposits greatly reduce efficiency and can ultimately lead to boiler failure. Effective control of those deposits will ensure reliable boiler operation.

The Automatic Dosing Unit gives you full control at the touch of the user-friendly control unit.



Product Information

- Automatic Soot Treatment Dosing Unit injects FP Soot Remover Liquid Plus as a fine mist into the Exhaust Gas Chamber through an injection lance
- Atomization of treatment chemical is air assisted
- Atomized Soot Remover liquid is quickly evaporated and reacts with the unburnt hydrocarbon which is burnt into a dry ash

Features

- Automatic Dosing of Treatment Chemicals with three modes of operation - Manual, Timer and Automatic
- Easy to Install, Operate and Maintain and suitable for Marine environment
- Bunded drum enclosure for spill containment
- Simple indication of chemical drum replacement
- No risk from dosage of treatment chemical when the engine is not in operation or at optimum temperature
- Well organized unit not wasting valuable space onboard

Benefits

- Optimized system protection against Soot formation
- Increase in cleaning interval of Exhaust Gas Boilers
- Improves Soot blowing operations
- Reduction in cold corrosion
- Reduced chemical handling and improved health and safety

Product Number	Product Name
734858	AUTO SOOT TREATMENT UNIT/SINGLE EGB

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Spares

722806	INJECTION LANCE ASSY FOR SRDU
722812	BETA PUMP BT5B1008PVT2 8L/H 10BAR
722816	BETA PUMP BT5B1008PVT2 WET END
722820	SRDU THERMOCOUPLE K TYPE 500MM (Temperature Sensor)
722822	TXRAIL SINGLE CHANNEL T/C 0-10V DC (Signal Converter in Control unit)
722824	PRESSURE GAUGE 0-16BAR GLYCOL FILL
722828	FILTER REGULATOR G1/4 DN16 PN10 (Air Filter Regulator)
722830	SOLENOID VALVE 24V DC G3/8 INCH
722838	8X5MM PTFE DOSING TUBE 15M

Accessories

778848	FUELPOWER SOOT REMOVER LIQUID PLUS 25LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MANUAL SOOT TREATMENT DOSING UNIT/ SINGLE EGB

Manual Chemical Dosing Equipment for the injection of atomized Soot Remover Liquid Plus into the exhaust duct. The chemical is finely dispersed and prevents the build-up of soot and fire scale in the exhaust system and exhaust gas boiler.



Product Number	Product Name
734861	MANUAL SOOT TREATMENT DOSING UNIT/ SINGLE EGB
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
778848	FUELPOWER SOOT REMOVER LIQUID PLUS 25LTR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FIXED INJECTOR

Equipment for blowing soot remover powder into boiler fire-side or into the gas side of exhaust gas boilers. This simple, low cost injector ensures rapid and effective dosing of powder so that soot and firescale may be removed most efficiently.



Product Number	Product Name
572073	FIXED INJECTOR
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
779115	FUELPOWER SOOT REMOVER 25 KG

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POR TABLE SOOT INJECTOR

Equipment for blowing soot remover powder into boiler fire-side or into the gas side of exhaust gas boilers. This simple, low cost injector ensures rapid and effective dosing of powder so that soot and firescale may be removed most efficiently.



Product Number	Product Name
572065	POR TABLE SOOT INJECTOR
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
779115	FUELPOWER SOOT REMOVER 25 KG

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUEL DOSING STATION

Fuel Oil Treatment Dosing Unit



Product Number	Product Name
767924	FUEL DOSING STATION
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Connection [Size/ Type]	6x4 mm
Power [W]	11.2 consumption
Pump pressure [bar]	16 maximum
Pump type	BT4B 1602PVT
Delivery [l/h]	2.20 at max back pressure
Supplied with	
Electronic Metering Pump	1 pc
Dosing Container	1 pc
Adjustable Suction Assembly, with Float Switch	1 pc
Dosing Tube	1 pc
Injection Valve Assembly for Hot Systems, Complete with 1 Metre Stainless Steel Pipe. Max. operating temperature 200C	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR VACUUM DOSING SYSTEM

Unitor Vacuum Dosing System with a cap pump ensures accurate and timely Treatment of Unitor Vacuum Pipe Cleaner into piping, tanks and other ancillary pipe equipment.



Features

- Dosing pump directly fitted onto chemical drum as a cap
- Complete dosing system with pump, dosing tube and injection valve
- Easy to install and use
- Durable and long-lasting

Benefits

- Reduced blueprint
- Timer controlled dosing, highly efficient and reducing the manual one-to-one dosing
- Safe chemical handling and improved health & safety
- Resistant to a wide range of chemicals

Product Number	Product Name
779197	UNITOR VACUUM DOSING SYSTEM

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Ingress protection	44
Operating temperature [°C]	0 - 55
Voltage [V]	230VAC / 24VDC
Capacity	60-350ml/min

Supplied with

Suction tube 0.5m	1 pc
Feed tube 5m	1 pc
Pipe connector 1.5"	1 pc
Installation and operating manual	1 pc

Consumables

740498	VACUUM PIPE CLEANER 25 LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SAMPLE COOLER SCC2 8MM O/D 16BAR

Sample Cooler for boiler pressures up to 16 Barg, 202 °C. Sample Coolers are used to reduce the temperature of Boiler Water to around 25 °C for safe and immediate analysis.



Product Information

Water samples at temperatures exceeding 25 °C must be cooled prior to collection to maintain a representative sample, prevent the loss of sample volatiles and assure the safety of collection personnel. More accurate water test results are achieved using a Sample Cooler as the cooling equipment rather than allowing the sample to cool on its own and thus, causing steam flashing

The use of sample coolers help you to maintain compliance with Health and Safety regulations at work

Please order Valve Assembly Kit 762540 along with your sample cooler.

Features

- Type SCC2 - removable copper coil with brass compression fittings
- Sample Coolers meet the design and construction requirements of BS5500
- Boiler Water sample available for immediate analysis

Benefits

- Better and more accurate test results
- Improved safety and better protection for personnel doing water analysis
- Sample Coolers can also be used for other sampling and cooling applications where the materials of construction are suitable and compatible

Product Number	Product Name
762538	SAMPLE COOLER SCC2 8MM O/D 16BAR
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
762540	VALVE ASSEMBLY 8MM O/D FOR SCC

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VALVE ASSEMBLY 8MM O/D FOR SCC

Valve assembly and accessories for Sample Coolers



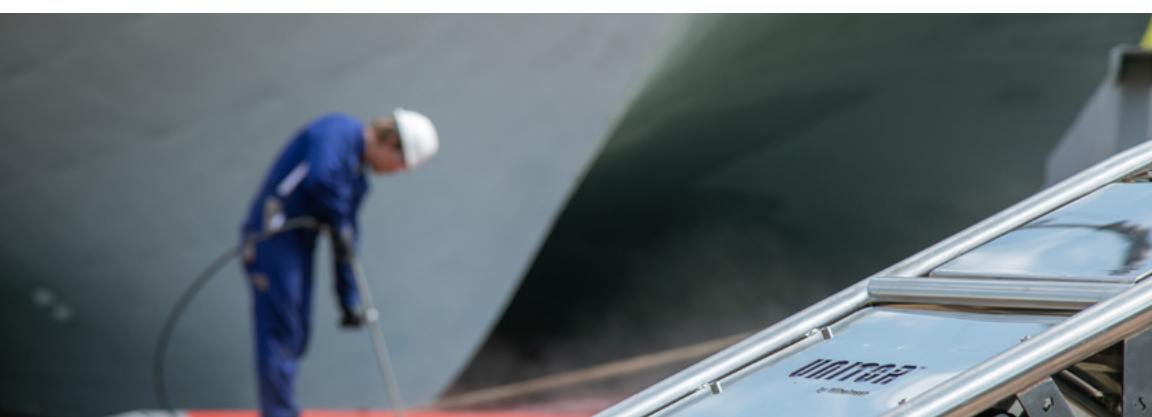
Product Number	Product Name
762540	VALVE ASSEMBLY 8MM O/D FOR SCC
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Supplied with	
Discharge Spout 8MM O/D Copper	1 pc
Coupling Tube 8MM O/D Copper	1 pc
Globe Valve 1/2" BSP	1 pc
Hexagon Nipple 1/2" BSP M.Iron	1 pc
Adaptor 8MM O/D to 1/4" BSP M	1 pc
Needle Valve 1/4" BSP.PL.F.S.ST	1 pc

Accessories	
762538	SAMPLE COOLER SCC2 8MM O/D 16BAR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CLEANING EQUIPMENT



Achieve operational efficiencies through cost-effective solutions from precision application tools to high powered machines. Our cleaning equipment introduces a level of safety that puts the well-being and health of the crew first. Coupled with advanced chemical solutions, the cleaning equipment is strategically designed to maximize utility through mechanical force that creates the ease of cleaning and maintenance on board. Our focus on providing a seamless method with compliance in cleaning protocols offers unparalleled efficiency while aligning with the financial considerations of vessel cleaning.



Crew safety



Versatility in application



Time efficiency

Browse this section to discover the benefits of our Cleaning Equipment range.

Scan or click on the QR code for more information.



UNITOR HPC 30/1

Compact and light high pressure cleaner ideal for marine use. Ideal for small and random spot cleaning onboard, e.g engine room and accommodation decks.

Product Information

The HP Cleaner Unitor™ HPC 30/1 has 20% stronger water jet compared to previous model. Higher effect reducing cleaning time and hence labor costs.

The high pressure washer can be used where electrical power supply is limited. Ideal for use as an extra machine or in areas where space is limited and larger machines are not appropriate, e.g engine rooms and accommodation decks.



Practical transport handle making storage and transport easy. The with large wheels helps to increase mobility and stability.

The pump has 3 stainless steel pistons, long life pump for light cleaning tasks onboard.

Unitor™ HPC 30/1 is supplied with a 2.5 ltr bottle for foaming application. The bottle can be attached to the gun. Foaming makes cleaning easier and more efficient. When parked, the bottle can be stored on the back of the machine.

Practical storage for cable and hose enhances mobility. The built in lance holder provides ideal storage and protects lance from damage.

Features

- Innovative foam sprayer
- Washable feed water filter 50µ
- Oil level indicator
- Stainless steel pistons
- Pressure gauge

Benefits

- Light and compact - easy to transport and store
- Fast to connect - saves time
- Ideal for areas with limited space
- Ergonomic design - improves work capabilities

Product Number	Product Name
729333	UNITOR HPC 30/1 220V/60Hz

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	382 x 382 x 1017
Weight [kg]	35.7
Frequency [Hz]	60
Ingress protection	5X
Inlet water temperature [°C]	60 maximum
Operating pressure [bar]	150
Power rating [kW]	3.5
Voltage [V]	220 mains supply
Water flow rate [l/min]	11 maximum
Water pressure [bar]	200 maximum

Supplied with

Tornado lance	1 pc
Spray handle	1 pc
Quick coupling	1 pc
10m HP hose	1 pc
Water inlet coupling	1 pc

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
571729	HP WASH 25 LTR
671735	AIR HOSE 1 "", PVC 50 M COIL
671727	AIR HOSE 3/4 "", PVC 50 M COIL
718585	NOZZLE 05/25DGR. F/EXTENDABLE LANCE
671818	HEAVY DUTY HOSE, BLUE 25M
621813	DRAIN CLEANER 6401266 F/HPC 54, 20M
545335	FOAM INJECTOR DETACHABLE
636159	DOUBLE LANCE F/HPC 30CA-1PH
621938	LONG REACH LANCE
545343	FOAM LANCE 120CM LONG
665158	ERGO 3000 SPRAY GUN
718601	NOZZLE 05/ODGR. F/EXTENDABLE LANCE
621896	HOSE CART, MOBILE

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

Applied national standards and technical specifications:

DIN EN 60335-2-79

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79, EN 55014-1(2002), EN 55014-2(2001), EN 61000-3-2 (2006)

Applied harmonised standards:

EN 12100, EN 60335-2-79, EN 55014-1,

EN 55014-2, EN 61000-3-2

Applied national standards and technical specifications:

IEC 60335-2-79

Directions for Use

Oil change: use oil SAE 80W-90. Oil capacity

0,42 liter, Feed water temperature max 60C. For

operation exceeding one hour max 40C is allowed.

Always refer to user manual.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC 54/1

The ideal partner for cleaning tasks onboard. High performance, excellent ergonomics, low noise levels and easy servicing make this an efficient pressure washer.



Product Information

The Unitor™ HPC 54/1 with it's robust and stable design make it adapted to even the toughest environments.

Ideal for 3-4 hours continuously operations. The 3 piston pump as a low rpm of 1750. 50% reduction in noise level and all controls in one place for ease of use.

For more efficient cleaning with reduced chemical consumption the unit can be fed with hot water up to 60 degrees C.

Features

- Robust unit
- Low RPM for reduced noise and longer life span
- Practical storage for lance and cable

Benefits

- Economic all purpose high pressure cleaner
- Effectively removes dirt
- Compact and easy to store
- Solves smaller to medium sized cleaning jobs with ease

Product Number	Product Name
777886	UNITOR HPC 54/1 3x440/60Hz

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	735 x 570 x 1020
Nozzle size	0500
Weight [kg]	71
Amperage [A]	11.4
Cleaning impact [kg]	5.3
Electrical phase	3
Frequency [Hz]	60
Ingress protection	X5
Inlet water temperature [°C]	60 maximum
Operating pressure [bar]	200
Power rating [kW]	6.1
Voltage [V]	440 mains supply
Water flow rate [l/min]	16.7
Water inlet connection [inch]	3/4 male

Supplied with

Tornado lance	1 pc
Spray handle	1 pc
Quick coupling	1 pc
10m HP hose	1 pc
Water inlet coupling	1 pc

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671735	AIR HOSE 1", PVC 50 M COIL
671727	AIR HOSE 3/4", PVC 50 M COIL
718585	NOZZLE 05/25DGR. F/EXTENDABLE LANCE
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
545335	FOAM INJECTOR DETACHABLE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
665158	ERGO 3000 SPRAY GUN
545327	CHEM. INJECTOR DETACHABLE
718601	NOZZLE 05/0DGR. F/EXTENDABLE LANCE
621896	HOSE CART, MOBILE
662155	TORNADO LANCE 10CM WITH 05 NOZZLE

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC
 EC Low-voltage Directive 2006/95/EC
 EC EMC Directive 2004/108/EC
 EC RoHS Directive 2011/65/ECEC
 Machine Directive 2006/42/EC
 EC Low-voltage Directive 2006/95/EC
 EC EMC Directive 2004/108/EC
 EC RoHS Directive 2011/65/EC

Applied harmonised standards:

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79,
 EN 55014-1(2002), EN 55014-2(2001), EN 61000-
 3-2 (2006)
 Applied national standards and technical
 specifications:
 IEC 60335-2-79

Directions for Use

See user manual for details.

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC 67/1

The new Unitor™ HPC 67/1 is a heavy duty cold water high pressure washer that combine renowned lifetime and quality. Optimal ergonomics and mobility offer an innovative partner for applications onboard all vessel types.



Product Information

The Unitor™ HPC 67/1 is equipped with the 4 ceramic pistons pump, double roller bearings, flow activated unloader system and 1750 rpm motor for high intensity use with maximum performance and comfort. Capable of accepting 85°C inlet water, the Unitor™ HPC 67/1 can be used as an effective hot water cleaner. At 85°C degreasing can be performed without usage of chemicals. The new chemical system allows two different chemicals. If higher volume is needed the suction hose in the tank can be place in a larger canister.

The unit is equipped with additional motor protection for superb marine operational safety.

The Unitor™ HPC 67/1 gives you high cleaning efficiency combined with reduced downtime and increased lifetime. Unitor™ HPC 67/1 comes with a castor wheel with brake for high mobility and safety.

Features

- High mobility and ergonomic design
- 4 full ceramic piston pump -- ensures long unit life
- Up to 85° C inlet water
- Two tank chemical dosing

Benefits

- Effectively removes intense dirt
- Reduces cleaning time - cleans faster
- Reduces water consumption compared to conventional cleaning
- Designed for intense applications up to 8 hours continuous operation

Product Number	Product Name
777888	UNITOR HPC 67/1 3x400/50Hz
777889	UNITOR HPC 67/1 3x440/60Hz

Specification

Product Name	UNITOR HPC 67/1 3x400/50Hz	UNITOR HPC 67/1 3x440/60Hz
Invent Hazard Material (IMO/EU) classification	D-1	D-1
Dimensions L x W x H [mm]	775 x 570 x 1020	775 x 570 x 1020
Nozzle size	0680	0680
Weight [kg]	90	90
Amperage [A]	11.4	11.4
Cleaning impact [kg]	6.7	6.7
Ingress protection	X5	X5
Inlet water temperature [°C]	85 maximum	85 maximum
Operating pressure [bar]	195	195
Power rating [kW]	8	8
Voltage [V]	400V mains supply	440V mains supply
Water flow rate [l/min]	21.3	21.3
Water inlet connection [inch]	3/4	3/4

Supplied with

Tornado lance	1 pc
Spray handle	1 pc
Quick coupling	1 pc
10m HP hose	1 pc
Water inlet coupling	1 pc

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
571729	HP WASH 25 LTR
671735	AIR HOSE 1", PVC 50 M COIL
671727	AIR HOSE 3/4", PVC 50 M COIL
671818	HEAVY DUTY HOSE, BLUE 25M
621813	DRAIN CLEANER 6401266 F/HPC 54, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
621938	LONG REACH LANCE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE
659110	TORNADO LANCE 92CM WITH 06 NOZZLE

Approvals

Corresponds to the following pertinent regulations:

EC Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/ECEC

Machine Directive 2006/42/EC

EC Low-voltage Directive 2006/95/EC

EC EMC Directive 2004/108/EC

EC RoHS Directive 2011/65/EC

Applied harmonised standards:

EN ISO 12100-1, EN ISO 12100-2, EN 60335-2-79,

EN 55014-1(2002), EN 55014-2(2001), EN 61000-

3-2 (2006)

Applied national standards and technical

specifications:

IEC 60335-2-79

Directions for Use

See user manual for details.

UNITOR HPC 67/1 3x400/50Hz

Oil: Castrol AlphaSyn 150

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPCE DYNAMIS 300+

Unitor™ HPCE DYNAMIS 300+ is a heavy duty high pressure cleaner which is powerfull, efficient and reliable. Removes dirt and rust quickly and efficiently, making it ideal for the toughest jobs onboard. With its new and improved design, the Unitor™ DYNAMIS 300+ is constructed for the toughest cleaning and surface application tasks on board.



Product Information

The Unitor™ HPCE Dynamis 300+™ is equipped with a high performing pump which allows a water flow rate of 16 ltr/min in combination with 300bar working pressure the cleaning effect is outstanding.

The unit comes with water inlet filter ensuring best pump protection, with two pressure gauges which easily indicate the user when the filter cartridges need to be replaced. This is essential to maintain the pump interior in prime condition.

In addition the unit is safeguarded with low water protection pressure switch and thermo valve to ensure the longest product lifetime.

A safety valve limits the maximum operating pressure to 335 Bar, which offers to both the user and the machine additional safety in case of excessive pressure more than the permissible limit for any other reason.

The stainless steel frame, and housing gives an ideal protection in the harsh marine environment. Lifting eyes enable the crew to quickly transfer the unit. Its ultra slim design has been carefully chosen to allow easy maneuvering on narrow deck passages.

**** Note:** This machine can be operated from 380-440V (3-phase, 50/60 Hz)

Features

- High performing pump 16ltr/min at 300bar working pressure
- Ultra slim design and lifting eyes
- Stainless steel frame and housing
- Dual water filter protection and filter clogging indication
- Comes with safety valve
- Tailor made for maritime use

Benefits

- Heavy duty design ensuring long lifetime
- Removes grease, grime and loose paint/rust fast & efficient
- Reliable operation
- Allows easy maneuvering on board
- User friendly and easy to maintain

Product Number

771716

Product Name

UNITOR HPCE DYNAMIS 300+

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	760 x 970 x 550
Weight [kg]	104
Frequency [Hz]	60
Ingress protection	55
Inlet water temperature [°C]	40
Operating pressure [bar]	300
Power rating [kW]	9
Voltage [V]	440 main supply
Water flow rate [l/min]	16

Supplied with

High pressure handle with swivel	1 pc
Lance 800mm	1 pc
Flat nozzle	1 pc
10m power cord	1 pc
25m HP Extreme 500bar hose	1 pc
Two spare filter elements with spanner	1 pc
Inlet GEKA coupling	1 pc
Plug IP67	1 pc

Accessories

721381	EXTREME HP 500BAR HOSE 25M
671727	AIR HOSE 3/4", PVC 50 M COIL

Approvals

CE EN 1829-1:2021 EN ISO 12100:2010

Directions for Use

Read and familiarize with the Instruction Manual first
before operating the machine.

Pump oil type: SAE 15W40 ISO VG100 DIN 51524

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPCE DYNAMIS 350+

Unitor™ HPCE DYNAMIS 350+ is a heavy duty high pressure cleaner which is powerful, efficient and reliable. Removes dirt and rust quickly and efficiently, making it ideal for the toughest jobs onboard. With its new and improved design, the Unitor™ DYNAMIS 350+ is constructed for the toughest cleaning and surface application tasks on board.



Product Information

The Unitor™ HPCE Dynamis 350+™ is equipped with a high performing pump which allows a water flow rate of 18 ltr/min in combination with 350 bar working pressure the cleaning effect is outstanding.

The unit comes with a water inlet filter ensuring best pump protection, with two pressure gauges which easily indicate the user when the filter cartridges need to be replaced. This is essential to maintain the pump interior in prime condition.

In addition, the unit is safeguarded with low water protection pressure switch and thermo valve to ensure the longest product lifetime.

The stainless-steel frame and housing give ideal protection in the harsh marine environment. Lifting eyes enable the crew to quickly transfer the unit. Its ultra slim design has been carefully chosen to allow easy maneuvering on narrow deck passages.

**** Note:** This machine can be operated from 380-440V (3-phase, 50/60 Hz)

Features

- High performing pump 18 ltr/min at 350 bar working pressure
- Ultra slim design and lifting eyes
- Stainless steel frame and housing
- Dual water filter protection and filter clogging indication
- Comes with safety valve
- Tailor made for maritime use

Benefits

- Heavy duty design ensuring long lifetime
- Removes grease, grime and loose paint/rust fast & efficient
- Reliable operation
- Allows easy maneuvering on board
- User friendly and easy to maintain

Product Number

771785

Product Name

UNITOR HPCE DYNAMIS 350+

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Frequency [Hz]	60
Ingress protection	55
Operating pressure [bar]	350
Power rating [kW]	13.2
Voltage [V]	440 main supply
Water flow rate [l/min]	18

Supplied with

High pressure handle with swivel	1 pc
Lance 800mm	1 pc
Flat nozzle	1 pc
10m power cord	1 pc
25m HP Extreme 500bar hose	1 pc
Two spare filter elements with spanner	1 pc
Inlet GEKA coupling	1 pc
Plug IP67	1 pc

Accessories

721381	EXTREME HP 500BAR HOSE 25M
671727	AIR HOSE 3/4", PVC 50 M COIL

Approvals

CE EN 1829-1:2021 EN ISO 12100:2010

Directions for Use

Read and familiarize with the Instruction Manual first
before operating the machine.

Pump oil type: SAE 15W40 ISO VG100 DIN 51524

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPCE DYNAMIS 500+

The Unitor™ HPCE Dynamis 500+™ is a heavy duty high pressure cleaner which is extremely powerful, efficient and reliable. With its new and improved design, the Unitor™ HPCE Dynamis 500+™ is made for the toughest cargo stains, grease and grime on deck. With 500bar working pressure it is ideal for surface preparation when removing loose paint and rust.



Product Information

The Unitor™ HPCE Dynamis 500+™ is equipped with a high performing pump which allows a water flow rate of 21 ltr/min in combination with 500bar working pressure the cleaning effect is outstanding.

The unit comes with two water filters ensuring best pump protection. Two pressure gauges at the primary filter easily indicate the user when the filter cartridges need to be replaced. This is essential to maintain the pump interior in prime condition.

To overcome temporary shortages in water supply the Unitor™ HPCE Dynamis 500+™ has a built-in water tank that acts as a buffer.

In addition the unit is safeguarded with overflow-, thermo- and low water protection to ensure the longest product lifetime.

The stainless steel frame, and housing gives an ideal protection in the harsh marine environment. Lifting eyes enable the crew to quickly transfer the unit.

Its ultra slim design has been carefully chosen to allow easy maneuvering on narrow deck passages.

**** Note:** This machine can be operated from 380-440V (3-phase, 50/60 Hz)

Features

- High performing pump 21 ltr/min at 500 bar working pressure
- Built-in break tank, ultra slim design and lifting eyes
- Stainless steel frame and housing
- Dual water filter protection and filter clogging indication
- Comes with safety valve
- Tailor made for maritime use

Benefits

- Heavy duty design ensuring long lifetime
- Removes cargo residues, grease, grime and loose paint/rust fast & efficient
- Reliable operation with no downtime due to temporary water shortages
- Allows easy maneuvering on board
- User friendly and easy to maintain

Product Number

720131

Product Name

UNITOR HPCE DYNAMIS 500+

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	920 x 1080 x 570
Weight [kg]	186
Amperage [A]	32.6
Electrical phase	3
Frequency [Hz]	60
Ingress protection	55
Operating pressure [bar]	500
Power rating [kW]	19.2
Voltage [V]	440
Water flow rate [l/min]	21

Supplied with

High pressure handle with swivel	1 pc
Lance 800mm	1 pc
Flat nozzle	1 pc
10m power cord	1 pc
25m HP Extreme 500bar hose	1 pc
Two spare filter elements with spanner	1 pc
Inlet GEKA coupling	1 pc

Spares

715000	HPCE DYNAMIS 500+/300+/FILTER 7"/PACK OF 10
1005020	HPCE DYNAMIS 500+/300+/FLAT NOZZLE/15 030/380V/SS 1/4 NPT MALE
1005008	HPCE DYNAMIS 500+/300+/FLAT NOZZLE/15 035/440V/SS 1/4 NPT MALE
1005041	HPCE DYNAMIS 500+/LANCE ADAPTOR
720133	HPCE DYNAMIS 500+/ROTOR NOZZLE/380V

Accessories

721381	EXTREME HP 500BAR HOSE 25M
720132	HPCE DYNAMIS 500+/ROTOR NOZZLE
671727	AIR HOSE 3/4", PVC 50 M COIL

Directions for Use

Read and familiarize with the Instruction Manual first before operating the machine.

Pump oil type: SAE 15W40 ISO VG100 DIN 51524

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HPC AIRCLEAN 25

Unitor's series of air-driven high-pressure cleaners includes some of the most advanced air-driven units on the market. The machines are developed in cooperation with shipping and offshore customers. They are reliable and can withstand the rigorous demands on the marine environment.



Product Information

Since the Unitor™ HPC Airclean™ models contain any electric or other ignition items, they are regarded as "cold" and therefore do not need any explosion proof certification. They can thus be used everywhere in hazardous areas.

The units are widely used by major oil and gas companies as well as on vessel with ex areas.

Features

- Supplied ready for use including lubricator, hose, air filter, water strainer, handle and lance
- Lightweight and easy to set up - can be moved with ease
- Can be used with hot water, speeding up the cleaning process
- Simple and robust air motor for easy maintenance and long operating lifeboosters

Benefits

- Durable and long lasting
- Can be used in explosive area

Product Number	Product Name
734087	HPC AIRCLEAN 25

Specification

Invent Hazard Material (IMO/EU) classification	NA
Height x Length x Width [mm]	540 x 690 x 380
Air consumption [m³/min]	2.3 - 4.5
Air inlet connection [inch]	3/4 female BSP
Air pressure [bar]	5-11 recommended
Pump pressure [bar]	220 maximum
Ratio	25:1
Water flow rate [l/min]	19 maximum
Water inlet connection [inch]	3/4 male BSP
Water outlet connection [inch]	3/8 male BSP

Supplied with

10 m hose	1 pc
Spray handle	1 pc
Single lance incl. nozzle	1 pc
Air lubricator	1 pc
Exhaust air muffler	1 pc
Air filter	1 pc
Water y-strainer	1 pc

Accessories

191916	600 UPM PLUG 3/4" MALE BSPT
191965	600 UPF PLUG 3/4" FEMALE BSPT
729194	HOSE 25M FOR HPC AIRCLEAN 25 & 32
721945	LANCE 1.5M FOR HPC AIRCLEAN 25 & 32

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HPC AIRCLEAN 32

Unitor's series of air-driven high-pressure cleaners include some of the most advanced air-driven units on the market. The machines are developed in cooperation with shipping and offshore customers. They are reliable and can withstand the rigorous demands on the marine environment.



Product Information

Since the Unitor™ HPC Airclean™ models contain any electric or other ignition items, they are regarded as "cold" and therefore do not need any explosion proof certification. They can thus be used everywhere in hazardous areas.

The units are widely used by major oil and gas companies as well as on vessel with ex areas.

Features

- Supplied ready for use including lubricator, hose, air filter, water strainer, handle and lance
- Lightweight and easy to set up -- can be moved with ease
- Can be used with hot water, speeding up the cleaning process
- Simple and robust air motor for easy maintenance and long operating lifeboosters

Benefits

- Durable and long lasting
- Can be used in explosive areas

Product Number	Product Name
734095	HPC AIRCLEAN 32

Specification

Invent Hazard Material (IMO/EU) classification	NA
Height x Length x Width [mm]	980 x 720 x 380
Weight [kg]	32
Air consumption [m³/min]	7
Air inlet connection [inch]	3/4 male BSP
Pump pressure [bar]	350 maximum
Ratio	32:1
Water flow rate [l/min]	24 maximum
Water inlet connection [inch]	3/4 female BSP
Water oulet connection [inch]	3/8 male BSP

Supplied with

10 m hose	1 pc
Spray handle	1 pc
Single lance incl. nozzle	1 pc
Air lubricator	1 pc
Exhaust air muffler	1 pc
Air filter	1 pc
Water y-strainer	1 pc

Accessories

191965	600 UPF PLUG 3/4" FEMALE BSP.T
729194	HOSE 25M FOR HPC AIRCLEAN 25 & 32
721945	LANCE 1.5M FOR HPC AIRCLEAN 25 & 32

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPCH 61 HW

The Unitor™ HPCH 61 HW is a high pressure cleaner with an electric motor and a diesel burner for efficient cleaning and heating performance. Cleaning with hot water will reduce cleaning time and chemical consumption severely. It is easy to use, easy to transport and assures high reliability & durability.



Features

- Brass pump head
- Flow activated unloader system
- Innovative 4 big wheel design
- Ceramic piston pump
- Low pump oil alarm system
- Low fuel alarm system
- Eco boiler system
- Built-in two detergent tanks with internal injector
- Mobile and robust unit, resistant to shock and vibration
- Information and control panel

Benefits

- Longer lifespan and lower noise emission
- Easy and quick to service
- Reduction in cleaning time and use of chemicals
- Reduced emissions and fuel consumption
- Easy to transport and operate
- Control panel diagnostics function

Product Number	Product Name
729474	UNITOR HPCH 61 HW, 210BAR 220/440V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	1020 x 1180 x 70
Weight [kg]	180
Amperage [A]	24
Frequency [Hz]	60
Inlet water temperature [°C]	40 maximum
Operating temperature [°C]	150 maximum
Power rating [kW]	7.9
Voltage [V]	220 / 440
Water flow rate [l/min]	17.5
Water pressure [bar]	210
Heating capacity [kW]	90 maximum

Accessories

586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
565853	LANCE F/VSB 300 03K
546044	WASHING BRUSH 235CM LONG
545434	DOUBLE LANCE 10CM LONG
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
621938	LONG REACH LANCE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
546150	DOUBLE LANCE 200CM LONG
545327	CHEM. INJECTOR DETACHABLE
565861	RUBBER NOZZLE F/VSB 300
545640	SUCTION HOSE&ROD F/VSB300
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SOLAR BOOSTER W/18KW HEATER 3X440V

Unitor Solar booster stationary hot water high pressure cleaner for optimum cleaning performance on board.

Product Information

The Unitor Solar Booster electric version can optionally be delivered with 36 kW or 54 kW heating element on special request.

Features

- Small and compact – easy fixed to the deck
- Stainless steel frame and robust cabinet – ensures long life span and protects the pump from damage
- Inlet water temp 85° C – ideal for use with pre-heated water in order to reduce the power needed to heat the water to the required temperature
- 4 ceramic piston pump – unit designed using long life pumps for intense applications over 8 hours per day
- Lowered pressure output – units run on 160 bar only, although the pump is capable of delivering 190 bar, in order to lower the service requirements and wear and tear
- 1400 RPM motor – slow running motor gives longer working life in high intensity uses
- Built in water tank with heaters – ensures constant and trouble free heating and constant water supply to the pump
- Electric water heating – unit is pollution free and can be set up almost anywhere
- 1x18 kW heating coils in standard model – can be extended up to 54 kW with 3x18 kW if required

Benefits

- Environmentally friendly, pollution free
- Highly portable unit can be set up almost anywhere
- Long lifespan

Product Number	Product Name
665190	SOLAR BOOSTER W/18KW HEATER 3X440V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	950 x 690 x 860
Weight [kg]	175
Electrical phase	3
Frequency [Hz]	60
Operating pressure [bar]	160
Operating temperature [°C]	85 maximum
Power rating [kW]	7.7
Voltage [V]	440 mains supply
Heating capacity [kW]	18 maximum

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
565853	LANCE F/VSB 300 03K
546044	WASHING BRUSH 235CM LONG
545434	DOUBLE LANCE 10CM LONG
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
623595	TAKE OFF VALVE 6402023 ACID PROOF 316
621938	LONG REACH LANCE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
546150	DOUBLE LANCE 200CM LONG
545327	CHEM. INJECTOR DETACHABLE
565861	RUBBER NOZZLE F/VSB 300
545640	SUCTION HOSE&ROD F/VSB300
623603	TAKE OFF VALVE 6402024 CHR. PLATED BRASS
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC STATIONARY 6P

The Unitor™ HPC Stationary 6P is a flexible pump station that is capable of supplying up to 6 simultaneous operators with pressurized water for high pressure cleaning. Dependant on the amount of operators performing high pressure cleaning on board the vessel, the Unitor™ HPC Stationary detects the line pressure drop and will automatically activate the number of pumps being required.

Product Information

Six pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor Stationary 6P model is for heavy cleaning applications with up to 6 users at same time.



Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 6 pump system, each pump is equipped with four solid ceramic pistons
- Smart pump control system with touch screen at front panel
- Line pressures can be adjusted
- As water requirement drops, pumps will stop automatically
- Pumps operate on rotation to avoid excessive wear on single pumps
- The lower front panel can be opened for easy access to the pumps
- High level of serviceability, pumps and motors are quickly and easily removed

Benefits

- The pumps are installed on the frame with rubber dampers, and flexible connections to power and water
- Smart control system detects the amount of water required by the relevant number of operators and start the required pumps automatically
- Long life pump for intense applications
- Efficient operation and routine maintenance
- Up to 6 simultaneous operators

Product Number	Product Name
729406	UNITOR HPC STATIONARY 6P

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	1800 x 970 x 1050
Weight [kg]	526
Amperage [A]	87
Electrical phase	3
Frequency [Hz]	60
Ingress protection	X5
Inlet water temperature [°C]	70 maximum
Operating pressure [bar]	200
Power rating [kW]	53
Voltage [V]	440 mains supply
Water flow rate [l/min]	128.3 maximum

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
565853	LANCE F/VSB 300 03K
546044	WASHING BRUSH 235CM LONG
545434	DOUBLE LANCE 10CM LONG
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
623595	TAKE OFF VALVE 6402023 ACID PROOF 316
621938	LONG REACH LANCE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
546150	DOUBLE LANCE 200CM LONG
545327	CHEM. INJECTOR DETACHABLE
565861	RUBBER NOZZLE F/VSB 300
545640	SUCTION HOSE&ROD F/VSB300
623603	TAKE OFF VALVE 6402024 CHR. PLATED BRASS
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC STATIONARY 4P

The Unitor™ HPC Stationary 4P is a flexible pump station that is capable of supplying up to 4 simultaneous operators with pressurized water for high pressure cleaning. Dependant on the amount of operators performing high pressure cleaning on board the vessel, the Unitor™ HPC Stationary detects the line pressure drop and will automatically activate the number of pumps being required.

Product Information

Four pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor Stationary 4P model is for heavy cleaning applications with up to 4 users at same time.



Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 4 pump system, each pump is equipped with four solid ceramic pistons
- Smart pump control system with touch screen at front panel
- Line pressures can be adjusted
- As water requirement drops, pumps will stop automatically
- Pumps operate on rotation to avoid excessive wear on single pumps
- The lower front panel can be opened for easy access to the pumps
- High level of serviceability, pumps and motors are quickly and easily removed

Benefits

- The pumps are installed on the frame with rubber dampers, and flexible connections to power and water
- Smart control system detects the amount of water required by the relevant number of operators and start the required pumps automatically
- Long life pump for intense applications
- Efficient operation and routine maintenance
- Up to 4 simultaneous operators

Product Number	Product Name
729404	UNITOR HPC STATIONARY 4P

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	1800 x 970 x 1050
Weight [kg]	408
Amperage [A]	58
Electrical phase	3
Frequency [Hz]	60
Ingress protection	X5
Inlet water temperature [°C]	70 maximum
Operating pressure [bar]	200
Power rating [kW]	35
Voltage [V]	440 mains supply
Water flow rate [l/min]	85 maximum

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
565853	LANCE F/VSB 300 03K
546044	WASHING BRUSH 235CM LONG
545434	DOUBLE LANCE 10CM LONG
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
623595	TAKE OFF VALVE 6402023 ACID PROOF 316
621938	LONG REACH LANCE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL.3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
546150	DOUBLE LANCE 200CM LONG
545327	CHEM. INJECTOR DETACHABLE
565861	RUBBER NOZZLE F/VSB 300
545640	SUCTION HOSE&ROD F/VSB300
623603	TAKE OFF VALVE 6402024 CHR. PLATED BRASS
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC STATIONARY 3P

The Unitor™ HPC Stationary 3P is a flexible pump station that is capable of supplying up to 3 simultaneous operators with pressurized water for high pressure cleaning. Dependant on the amount of operators performing high pressure cleaning on board the vessel, the Unitor™ HPC Stationary detects the line pressure drop and will automatically activate the number of pumps being required.

Product Information

Three pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor Stationary 3P model is for heavy cleaning applications with up to 3 users at same time.



Features

- Stainless steel frame and robust cabinet ensuring that pumps and electronics are well protected
- 3 pump system, each pump is equipped with four solid ceramic pistons
- Smart pump control system with touch screen at front panel
- Line pressures can be adjusted
- As water requirement drops, pumps will stop automatically
- Pumps operate on rotation to avoid excessive wear on single pumps
- The lower front panel can be opened for easy access to the pumps
- High level of serviceability, pumps and motors are quickly and easily removed

Benefits

- The pumps are installed on the frame with rubber dampers, and flexible connections to power and water
- Smart control system detects the amount of water required by the relevant number of operators and start the required pumps automatically
- Long life pump for intense applications
- Efficient operation and routine maintenance
- Up to 3 simultaneous operators

Product Number	Product Name
729403	UNITOR HPC STATIONARY 3P

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	1800 x 970 x 1050
Weight [kg]	349
Amperage [A]	44
Electrical phase	3
Frequency [Hz]	60
Ingress protection	X5
Inlet water temperature [°C]	70 maximum
Operating pressure [bar]	200
Power rating [kW]	27
Voltage [V]	440 V mains supply
Water flow rate [l/min]	63.3 maximum

Accessories

546036	COUPLING KIT ERGO 3000
586792	HEAVY DUTY HOSE 15 MTR
659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
586784	HEAVY DUTY HOSE 25 MTR
671818	HEAVY DUTY HOSE, BLUE 25M
621821	DRAIN CLEANER 6401268 F/HPC 67, 20M
718577	NOZZLE 06/25DGR. F/EXTENDABLE LANCE
545335	FOAM INJECTOR DETACHABLE
565853	LANCE F/VSB 300 03K
546044	WASHING BRUSH 235CM LONG
545434	DOUBLE LANCE 10CM LONG
718593	NOZZLE 06/0DGR. F/EXTENDABLE LANCE
623595	TAKE OFF VALVE 6402023 ACID PROOF 316
621938	LONG REACH LANCE
662163	TORNADO LANCE 92CM WITH 05 NOZZLE
545343	FOAM LANCE 120CM LONG
682070	UNIVERSAL 3000 LANCE 06 NOZZLE
665158	ERGO 3000 SPRAY GUN
546150	DOUBLE LANCE 200CM LONG
545327	CHEM. INJECTOR DETACHABLE
565861	RUBBER NOZZLE F/VSB 300
545640	SUCTION HOSE&ROD F/VSB300
623603	TAKE OFF VALVE 6402024 CHR. PLATED BRASS
659128	POWERSPEED LANCE WITH 06 NOZZLE
621896	HOSE CART, MOBILE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC STATIONARY 2P

The Unitor™ HPC Stationary 2P™ is a twin pump stationary cold water pressure washers for use by up to two users simultaneously.

Product Information

Twin pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor Stationary 2P model is for heavy cleaning applications with 1 or 2 users at same time.



Features

- Small and compact – easily to fix to the bulkhead or deck
- Inlet water temp 70° C – ideal for use with pre-heated water in order to obtain an increased cleaning effect
- 4 ceramic piston pump – long life pumps for intense applications over 8 hours per day
- With the right equipment, one single user can obtain the output of both pumps for heavy flushing and rinsing applications

Benefits

- 2 pump system (2P) with electronic control – enables selection of one or two users simultaneously
- Stainless steel design for added hygiene and protection against corrosion
- High level of serviceability
- Supplied with water break tank – ensures trouble free water supply

Product Number	Product Name
729402	UNITOR HPC STATIONARY 2P

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	355 x 860 x 1000
Weight [kg]	177
Amperage [A]	23
Electrical phase	3
Frequency [Hz]	60
Inlet water temperature [°C]	70 maximum
Operating pressure [bar]	180
Power rating [kW]	16.4
Pressure [bar]	250 maximum
Voltage [V]	440 mains supply
Water flow rate [l/min]	40 maximum

Accessories

621896	HOSE CART, MOBILE
711119	HP.OUTLET HOSE FOR STATIONARY 2M
621904	HOSE, HP OUTLET
711127	HP.OUTLET HOSE FOR STATIONARY 1M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR HPC STATIONARY 1P

The Unitor™ HPC Stationary 1P™ is a one pump stationary cold water high pressure washers for medium to heavy cleaning.



Product Information
Single pump stationary cold water unit for medium and heavy cleaning applications in maritime use.

The Unitor Stationary 1P model is for heavy cleaning applications with 1 user at same time.

Features

- Stainless steel cabinet and robust frame -- ensure long lifespan
- Up to 70° C inlet water – ideal for use with pre-heated water in order to obtain an increased cleaning effect
- 4 ceramic piston heavy duty pump for long working life

Benefits

- Stationary solution reduces time to prepare cleaning
- Small and compact – easily fixed to the bulkhead or deck
- Long life pump for intense applications
- High level of serviceability
- Supplied with water break tank – ensures trouble free water supply

Product Number	Product Name
729401	UNITOR HPC STATIONARY 1P

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	355 x 860 x 560
Weight [kg]	93
Amperage [A]	13
Electrical phase	3
Frequency [Hz]	60
Inlet water temperature [°C]	70 maximum
Operating pressure [bar]	180
Power rating [kW]	8.3
Pressure [bar]	250 maximum
Voltage [V]	440 mains supply
Water flow rate [l/min]	20 maximum

Accessories

621896	HOSE CART, MOBILE
711119	HP.OUTLET HOSE FOR STATIONARY 2M
621904	HOSE, HP OUTLET
711127	HP.OUTLET HOSE FOR STATIONARY 1M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VCAD200 WET AND DRY VACUUM CLEANER

VCAD200 air driven vacuum cleaner. Handles particles and liquids that would damage a normal electric vacuum cleaner.

Product Information

The unit has no moving parts and is designed to be fitted on a standard 200 L drum. The unit can be used for a variety of tasks including removing water and oil spillage, emptying drums or moving chemicals. Able to handle particles and liquids that many electric vacuums would not be able to handle.

By using the VCAD 200 during cargo hold cleaning drying time is cut down significantly enabling holds ready for next cargo faster. Removes ponds from tank top and also excessive Slip Coat Plus on tank top for faster curing of the barrier.



Features

- Attaches on top of any 200 L drum – no need to store a big container when not in use
- Air driven
- No moving parts
- Oil resistant – the unit can be used for small oil spills on board, as an oil transfer pump or to remove wastewater from tanks or double bottoms

Benefits

- Universal - the unit will use any obsolete drum
- No danger of sparks
- Virtually maintenance free
- Versatile – unit can be used as a transfer pump, if needed
- Ideal for removal of liquid on tank tops during cargo hold cleaning

Product Number	Product Name
682054	VCAD200 WET AND DRY VACUUM CLEANER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Weight [kg]	5
Air consumption [m³/min]	0.2 - 1.0
Air inlet connection [inch]	1/4

Accessories

191692	40 USH SOCKET 1/2" HOSE
671719	AIR HOSE 1/2", PVC 50 M COIL
191841	40 UPH PLUG 1/2" HOSE
191726	20 USM SOCKET 1/4" MALE BSP.T

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VCWD27 WET AND DRY VACUUM CLEANER

Flexible vacuum cleaner ideal for all sorts of jobs onboard. Be it wet dirt or blocked pipes or connecting to power tools this Unitor vac will solve many task onboard.



Features

- Rubber enclosed power cord which stays flexible even in very low temperatures and is resistant to wear and tear
- Large application area as the unit is resistant to most chemicals and oils and can be used for a variety of cleaning tasks including removal of liquids and solids in the workshop, engine room, deck areas and accommodation areas
- Large on/off switch can be started or stopped without removing gloves
- Large wheels provide stability even on rough surfaces
- Long range hose, 3m
- Power cord hook ensures the cord stays secured to the unit while in transit or in storage

Benefits

- Low noise level means the unit can be used for longer periods and in environments where noise must be held at a minimum
- Ergonomic design means the unit can be used for longer periods of time due to lower user fatigue

Product Number

Product Number	Product Name
681924	VCWD27 WET AND DRY VACUUM CLEANER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	570 x 390 x 380
Flow rate [l/min]	3700
Power [W]	1500
Voltage [V]	220 mains supply
Capacity	27 ltr

Accessories

681916	FILTER PAPER BAG FOR VCWD27 PACK OF 5 BAGS
665281	FLUID REMOVAL KIT FOR VCWD18,20&27
681908	FILTER ELEMENT FOR VCWD27

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VCW70 WET VACUUM CLEANER

VCW70 is a heavy duty wet vacuum cleaner for removal of liquid spills. The machine is equipped with a stainless steel container and a built-in pump for easier liquid removal from small tanks, double bottoms or engine rooms.

Product Information

VCW70 wet vacuum cleaner is perfect for users who need big capacity and features that focus on efficiency. Our most silent vacuum ever, with superior suction performance, stainless steel tilt or lift-out container, anti-static capability and more.



The 70 liter container found on the wet vacuum cleaner allows long periods of use without emptying the container, and Tilt or lift-off container system is convenient and time-saving.

Operating costs are minimized with the washable PET Fleece filter elements, and the low working noise level allows work when others are nearby, without disturbing them. Automatic On/Off models are suitable for use with electric hand tools as starting or stopping the tool also starts and stops the vacuum.

Note: This unit is only used for liquid removal not for dust/dry vacuum cleaning.

Washable PET fleece filter for high efficiency and low maintenance costs.

SilentPower provides high performance that is seen, but not heard.

70 L stainless steel container and a filter bag for the ultimate in effective filtration and working efficiency.

Features

- Built-in submerged pump can operate without removing or lifting the container
- Heavy duty stainless steel container makes the unit capable of removing a wide range of liquids and solid particles without damaging the container
- Two large wheels at the rear ensure stability during transport and storage
- Brakes on the front wheels means the unit remains stable when in use or in storage
- Heavy-duty steel frame protects the unit from damage during transport and use
- Power supply socket for connection of electric tools; when the pump is not in use the socket can be used to power a power tool
- Dirt basket – when vacuuming dirty liquids the basket makes sure that the particles stay inside the unit when the liquid is pumped out

Benefits

- Cable and accessories holder ensures safe transport and storage
- Large area liquid removal capabilities – with the correct accessories the unit can be used to remove liquids from large areas like decks, pool areas & passenger decks
- Soft start – limits the starting power to reduce the initial power surge on the fuses and reduce wear and tear on the motor

Product Number	Product Name
721944	VCW70 WET VACUUM CLEANER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Height x Length x Width [mm]	970 x 605 x 580
Flow rate [l/min]	3600
Frequency [Hz]	50/60
Power [W]	1500 + 640
Voltage [V]	230 main supply
Capacity	64 ltr

Accessories

681965	SUCTION.HOSE 4M FOR VCW 70
681940	LARGE DECK CLEANING KIT FOR VCW 70
681957	LIQUID.REMOVAL KIT FOR VCW 70

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHEM. CLEAN. UNIT W/HEATING, COATED

The Circulation Cleaning Unit is a portable integral unit comprising mixing tank with lid, air driven stainless steel Double Diaphragm 1050 pump, hoses, heating element and thermostat (without contactor) and connections. The Pump is installed inside a protective powder coated frame.



Product Information

Designed for use with acid and caustic based products for descaling boilers, calorifiers, heat exchangers and other types of equipment where rust and scale form. It is also ideally suited for degreasing or decarbonising contaminated systems. The unit is supplied with a 210 litre steel drum with epoxy coated interior.

Features

- Stainless steel pump
- Epoxy coated steel drum
- Heavy duty equipment

Benefits

- Ideal for CIP (Cleaning in place)
- Effective and efficient cleaning
- Long lasting equipment

Product Number	Product Name
737189	CHEM. CLEAN. UNIT W/HEATING, COATED

Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Fluid inlet and outlet size [inch]	1
Capacity	210 ltr

Accessories	
698704	ACC PLUS 25 LTR

Directions for Use

The Chemical Cleaning Unit can be used in conjunction with the following Unitor chemicals:

Descalex	Coldwash	Air Cooler Cleaner
Descaling Liquid	Enviroclean	Carbon Remover
Disclean	Aquabreak PX	Aquatuff
Metal Brite H.D.	Carbonclean LT	Seaclean Plus
	ACC Plus	Commissioning Cleaner

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR MIXING STATION 4-14

The new Unitor™ Mixing Station 4-14 is a venturi system that can mix up to 4 different chemicals from one dispenser that are easily chosen by the selector wheel.

Product Information

The Unitor™ Mixing Station 4-14 can be mounted in series allowing only one feedwater line.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor™ Mixing Station 4 - 14™ is ideal for filling **buckets, jet sprayers or floor cleaning equipment.**

For filling of smaller bottles the 4 -4 is recommended. The unit can also be connected in series with the Unitor Mixing Station 4-4.



Features

- Venturi system
- Flexible configuration enabling chemical concentrates to be conveniently drawn from side or bottom inlets
- Patented dilution technology offers precise dilution ratios
- Intuitive 4 dial product selector with haptic click to avoid chemical selection error

Benefits

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling and splashes
- Standardized and correct chemical dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection
- Easy removal/cleaning of inlet filter

Product Number	Product Name
710451	UNITOR MIXING STATION 4-14

Specification

Invent Hazard Material (IMO/EU) classification	NA
Dimensions L x W x H [mm]	264 x 140 x 134
Weight [kg]	2.2
Mixing Ratio	6:1 - 350:1
Operating pressure [bar]	2 – 5 bar
Operating temperature [°C]	4 – 65 °C
Flow capacity [l/min]	Minimum water flow: 8.5 L/min, Max water flow: 14 L/min

UNITOR MIXING STATION 4-4 is also included in our EASYCLEAN EQUIPMENT PACK (770036)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

JET SPRAY UNIT STEEL

The Jet Spray Unit Steel steel is polyester coated inside tank. Ideal for applying Unitor cleaning chemicals.



Product Information

The Jet Spray Unit is supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar). Please refer to SDS and user manual.

Features

- 10 L tank with carrying strap
- Spray gun and flexible hose

Benefits

- Ergonomic application of chemicals
- Safe to operate
- Fast to pressurize
- Easy to apply pre-mixed dilution

Product Number	Product Name
572099	JET SPRAY UNIT 10 LTR STEEL

Specification

Invent Hazard Material (IMO/EU) classification	NA

Directions for use

To assemble

Fit lance tube to trigger control valve and connect hose to outlet of the container, ensuring that all washers are in place. Test machine with water to ensure that it is in correct working order.

To operate

Remove complete pump by pressing down on handle, engaging lugs and unscrewing. Pour in up to, but not more than, 10 litres of spray liquid.

Replace pump; screw home firmly onto rubber sealing ring. Charge with air until pointer of Pressure Gauge reaches the red line (6 bar). Lower pressures can be used if desired. The Sprayer is now ready for use.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

To empty

Before removal of the pump from container, push the pressure release valve to reveal the pressure in the unit.

THIS UNIT MUST BE THOROUGHLY WASHED OUT IMMEDIATELY AFTER USE

with fresh water, shaking the unit well and spraying the water out. Remove nozzle to save time. Also rinse nozzle in fresh water.

JET SPRAY UNIT STAINLESS STEEL

The Jet Spray Unit is ideal for applying Unitor cleaning chemicals, degreasers and electrosolvents.



Product Information

Supplied complete with Instantaneous Control Lance, Cone Spray Nozzle, Charge Pump, Pressure Gauge and Relief Valve (set to operate at 6 bar).

Features

- Durable stainless steel design
- 10 L tank with carrying strap
- Spray gun and flexible hose

Benefits

- Ergonomic application of chemicals
- Safe to operate
- Fast to pressurize
- Easy to apply pre-mixed dilution

Product Number	Product Name
572123	JET SPRAY UNIT 10 LTR STAINLESS STEEL

Specification

Invent Hazard Material (IMO/EU) classification	NA

Directions for use

To assemble

Fit lance tube to trigger control valve and connect hose to outlet of the container, ensuring that all washers are in place. Test machine with water to ensure that it is in correct working order.

To operate

Remove complete pump by pressing down on handle, engaging lugs and unscrewing. Pour in up to, but not more than, 10 litres of spray liquid.

Replace pump; screw home firmly onto rubber sealing ring. Charge with air until pointer of Pressure Gauge reaches the red line (6 bar). Lower pressures can be used if desired. The Sprayer is now ready for use.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

To empty

Before removal of the pump from container, push the pressure release valve to reveal the pressure in the unit.

THIS UNIT MUST BE THOROUGHLY WASHED OUT IMMEDIATELY AFTER USE

with fresh water, shaking the unit well and spraying the water out. Remove nozzle to save time. Also rinse nozzle in fresh water.

SPRAY GUN 1 LTR

The Unitor Spray Gun has been designed for efficient spraying of Unitor's range of Electrosolvents and Solvents Degreasers. The adjustable nozzle allows for easy adjustment of the fluid discharge from a fine spray to a solid jet.



Product Number	Product Name
592568	SPRAY GUN 1 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Consumables	
604389	ELECTROSOLV - E 25 LTR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR MIXING STATION 4-4

The New Unitor™ Mixing Station 4-4 is a venturi system that can mix up to 4 different chemicals from one dispenser that are easily chosen by the selector wheel.

Product Information

The Unitor™ Mixing Station 4-4 can be mounted in series allowing only one feedwater line.

Can mix up to 4 different chemicals - easy to choose by using the selector wheel.

Suction from up to 4 canisters of chemicals with up to 4 different mixing ratios.

Unitor™ Mixing Station 4 - 4™ is ideal for **filling smaller sprayers when low foaming is required.**

For filling of larger volume, the the 4 - 14 is recommended. The unit can also be connected in series with the Unitor Mixing Station 4-14.



Features

- Venturi system
- Flexible configuration enabling chemical concentrates to be conveniently drawn from side or bottom inlets
- Patented dilution technology offers precise dilution ratios
- Intuitive 4 dial product selector with haptic click to avoid chemical selection error

Benefits

- Controls your chemical consumption
- Improved health and safety handling - reduced risk of spilling and splashes
- Standardized and correct chemical dosing
- Easy to install, supplied with installation manual
- Low maintenance - no pump or electrical connection
- Easy removal/cleaning of inlet filter

Product Number	Product Name
710450	UNITOR MIXING STATION 4-4

Specification

Invent Hazard Material (IMO/EU) classification	NA
Dimensions L x W x H [mm]	264 x 140 x 134
Weight [kg]	2.2
Inlet water temperature [°C]	4-65 °C
Mixing ratio	2:1 to 128:1 (4L/min)
Operating pressure [bar]	2-5 bars
Flow capacity [l/min]	3.5 - 4.0

UNITOR MIXING STATION 4-4 is also included in our EASYCLEAN EQUIPMENT PACK (770036)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN PUMP & SPRAY KIT

The Navadan Pump & Spray Kit is a cleaning system for tanker vessels.

Product Information

Easy-to-use cleaning system for tanker vessels and bulk carriers. But is mainly used on tankers for both spot cleaning of blind spots by hand and injecting chemicals into butterworth lines.

The kit comes with swivelling short and long lances, which means that inaccessible areas, such as underneath heating coils, can be cleaned. The barrel pump fits directly into a standard 200 ltr barrel and are supplied with hoses, lances and accessories.

Features

- Resistant to chemicals, acidic and caustic materials
- Complete kit including all fittings, hoses and accessories needed for standard operation
- 10:1 pneumatic 2-ball piston pump
- Up to 11 lpm or 3 gpm

Benefits

- Spray reach of 17 mtr
- Stainless steel housing, UHMWPE/PTFE Packings

Product Number	Product Name
2009028	Navadan Pump & Spray Kit

Specification

Dimension L x W x H (mm)	1730 x 420 x 480
Weight (kg)	63

Supplied with

Barrel pump	1 pc
High pressure hose 15 mtr	4 pcs
Lance & pistol kit	1 pc
4,5 meters gold end teflon tape	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN PYTHON

The Navadan Python is a simple and analogue carrier of pressurized water to up to 20 mtr in height.

Product Information

Navadan Pressure Pole is a safe option for cleaning in heights. When connected to our Unitor™ HPCE Dynamis 350™, it will deliver 180bar out of three flat nozzles. In conjunction with the Navadan Hotbox the water temperature can be increased over 75°C which provides excellent cleaning results for oily deposits. Pressure can be increased to 250bar, if connecting the unit to Unitor™ HPCE Dynamis 500™

Features

- Specifically designed for cargo hold cleaning operations in height
- Complete kit including all fittings and hose needed for operation
- Designed for our Unitor™ HPCE Dynamis 350™

Benefits

- Ergonomic design for crew comfort and safety
- Easy-to-use cleaning system for cleaning cargo holds
- Only requires 2-3 crew members to operate
- Only uses 18ltr/min, meaning less water accumulated for cleaning and less to discharge ashore
- Trigger gun attached to the pole, for the operator to be in full control

Product Number	Product Name
2009039	Navadan Python

Specification

Dimension L x W x H (mm)	2900 x 470 x 310
Weight (kg)	60

Supplied with

20 mtr telescopic pole w/ glass fiber base and carbon fiber extension	1 pc
20 mtr high pressure hose with trigger gun attached	1 pc
Heavy duty bracket	1 pc
Tripod with 4 x heavy duty swivel castor wheels	1 pc
High pressure manifold with 3 x flat spray nozzle	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN TOOL CARRIER

The Navadan Tool Carrier is a complete system designed for high pressure cleaning of cargo holds.

Product Information

Navadan TC-1 is our newest generation in our safe cleaning in heights series. The system is fitted with 3 turbo nozzles, which provide a much more efficient cleaning of your cargo holds. In addition, it is safe to use for your crew, due to the innovative connection system.

When connected to our Unitor™ HPCE Dynamis 350™, it will deliver 180bar out of three turbo nozzles. In conjunction with the Navadan Hotbox the water temperature can be increased over 75°C which provides excellent cleaning results for oily deposits. Pressure can be increased to 250bar, if connecting the unit to Unitor™ HPCE Dynamis 500

Features

- Safe working environment, no entanglement in ropes, hoses or cables on tank top
- Wire system makes the tool carrier easier to operate and with less strain on the operator
- Does use FW only, hence FW rinse is not required after the high pressure cleaning
- Can reach total height of 20 mtr, which is sufficient for most vessels
- Designed for our Unitor™ HPCE Dynamis 350™

Benefits

- Only two persons operation, meaning less manpower required
- Fast assembly, as there can be set up both in cargo hold and on deck at the same time
- Ensures very efficient cleaning, due to the distance of nozzles from the side of the cargo hold
- The turbo nozzles, gives a much better cleaning effect, than standard flat nozzles
- Only uses 18ltr/min, meaning less water accumulated for cleaning and less to discharge ashore
- Less force on the operator, as the winch is doing the job. No hard pushing is required
- Safe operation in cargo hold, due to the electrical winch with brake
- Can easily overcome welding seems and other obstacles
- Delivered as a kit with HPC, Hotbox and the TC-1

Product Number	Product Name
2009040	Navadan Tool Carrier

Specification

Dimension L x W x H (mm)	2230 x 830 x 980
Weight (kg)	312

Supplied with

Base unit with wire system	1 pc
2 mtr aluminium poles	10 pcs
Top rigging assembly	1 pc
Tool carrier incl. 3 x turbo nozzles	1 pc
50 mtr electrical cable	1 pc
20 mtr High pressure hose	2 pcs
500 bar trigger gun	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN ANACONDA

The Navadan Anaconda enables the crew to clean persistent cargo stains in high-elevated areas, hence the demand of cleaning contractors or shore gangs can be reduced to a minimum.

Product Information

It is connected to the Unitor™ HPCE Dynamis 500+™, which delivers up to 500bar water pressure to the turbo nozzle up to 20 mtr height. In conjunction with the Navadan Hotbox the water temperature can be increased over 75°C which provides excellent cleaning results for oily deposits.

Features

- Light weight
- Adjustable length up to 20 mtr
- Designed for our Unitor™ HPCE Dynamis 500+™
- Includes the Powerspeed rotating nozzle, trigger gun and lifting accessories

Benefits

- Removes stubborn dirt, coal, cement deposits and petcoke stains
- Reach high elevated areas
- Saving cleaning time and cleaning detergent
- Can be combined with Navadan Hotbox

Product Number	Product Name
2009041	Navadan Anaconda

Supplied with

DECK KIT HPCE AL	1 pc
HOLD KIT HPCE AL	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN ULTIMATE KIT

The Navadan Ultimate Kit is used for spraying blended cleaning chemicals to a height of up to 17m.

Product Information

Cargo hold cleaning system for bulk carriers, which is easy to use, easy to assemble and ensures the crews safety by providing personal protection kit for acid and alkaline cleaners.

Features

- Double diaphragm pump
- Contains an aluminum lance and a stainless-steel lance
- Acid and caustic resistant

Benefits

- Spray capable of reaching 17 meters
- Foam lance included for easy application of chemicals containing foam agent
- Light weight lances, for less workload on crew

Product Number	Product Name
2009029	Navadan Ultimate Kit

Specification

Dimension L x W x H (mm)	1200 x 800 x 647
Weight (kg)	105

Supplied with

1" Pneumatic double diaphragm pump	1 pc
2,45 meters acid resistant spray lance	1 pc
3,50 meters foam lance	1 pc
PVC suction pipe	1 pc
2,45 meters suction hose	1 pc
25 meters delivery hose	2 pcs
15 meters 3/4" air hose	1 pc
30 meters 1/2" air hose	2 pcs
3-way divider	1 pc
Air/foam y-pcs connecter	1 pc
4,5 meters gold end teflon tape	1 pc
Chemical protection suit XL	2 pcs
Chemical protection suit L	2 pcs
Full face mask	2 pcs
Half face mask	2 pcs
Filter cartridge for mask	12 pcs
Chemical gloves onesize	4 pcs
Duct tape	1 pc

Accessories

2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009034	Navadan Protection Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN ESSENTIAL KIT

The Navadan Essential Kit consists of the most necessary equipment needed for basic hold cleaning operations.

Product Information

The equipment has been designed for application of both cleaning chemicals and temporary coatings as well as simple wash down.

Features

- Simple to use - the 3.6 mtr lance applies foaming chemicals from the tank top
- Supplied with 1" Double diaphragm Poly pump
- Ready for use - all hoses and equipment are fitted with quick connectors and couplings
- Designed for smaller bulk carriers

Benefits

- Fast and efficient cleaning solution reduces turnaround time in port
- Simplicity through simple to assembly and clear instructions
- Safe in use and no need for cranes
- The basic kit in ready to use packageFoam lance included for easy application of chemicals containing foam agent
- Light weight lances, for less workload on crew

Product Number

2009026

Product Name

Navadan Essential Kit

Specification

Dimension L x W x H (mm)

1200 x 800 x 430

Accessories

2009029	Navadan Ultimate Kit
2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009034	Navadan Protection Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN PANAMAX KIT

The Navadan Panamax Kit is designed for efficient chemical application, rinse off and wash down of the entire cargo holds on board.

Product Information

The equipment has, depending on the air on board, a reach of up to 25 mtr using the foam nozzle which enables the crew to work from the tank top without the use of cranes or scaffolding even on a Panamax size vessel. By using the guide wire kit (included) this reach may be further extended for use on board cape size vessels.

Features

- Simple to use - 6 mtr lance applies foaming chemicals from the tank top
- Fast - covers up to 150 m²/min of bulkheads with foaming chemicals
- Supplied with Navadan Tornado Kit
- Designed for panamax sized or cape sized vessels

Benefits

- Fast and efficient cleaning solution reduces turnaround time in port
- Simplicity through simple assembly and clear instructions
- Safe in use and no need for cranes
- Easy to maneuver on tank top due to mobile design

Product Number	Product Name
2009025	Navadan Panamax Kit

Specification	
Dimension L x W x H (mm)	1200 x 800 x 764 (box 1) 1200 x 800 x 494 (box 2)

Accessories	
2009029	Navadan Ultimate Kit
2009031	Navadan Maxi Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009034	Navadan Protection Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN PROTECTION KIT

The Navadan Protection Kit comprises complete quality PPE for 4 persons.

Product Information

PPE for 4 persons, which includes both masks, filters, gloves & chemical suits.

Features

- Includes both half face mask & full face mask for better protection

Benefits

- Good for heavy duty use
- Acid proof gloves and chemical suits

Product Number	Product Name
2009034	Navadan Protection Kit

Specification

Dimension L x W x H (mm)	600 x 400 x 200
Weight (kg)	10

Supplied with

Chemical protection suit XL	2 pcs
Chemical protection suit L	2 pcs
Full face mask	2 pcs
Half face mask	2 pcs
Filter cartridge for mask	12 pcs
Chemical gloves onesize	4 pcs

Accessories

2009029	Navadan Ultimate Kit
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN TORNADO KIT

The Navadan Tornado Kit has been designed for use on board medium to large bulk carriers.

Product Information

The intended use is cleaning and descaling of cargo holds. It uses the suppression pump as a water source. This enables the jet to reach the top of the hold and at the same time giving the capacity needed to remove even the most stubborn dirt or scale. Suitable couplings for air and water supply are listed under accessories.

Features

- Shut off ball valve for both air and water supply is mounted on the Tornado for increased safety and simpler operations
- Stainless steel design
- Swivel connection between gun and tripod
- Works on normal fire line and working air line on board
- High water volume

Benefits

- Long operating life with minimum maintenance
- Easy to set-up and connect without any additional equipment
- Enables crew to clean cargo holds quickly
- Easy to use, aim and transport and does not require any special training
- 30 mtr max working distance

Product Number	Product Name
2009030	Navadan Tornado Kit

Specification

Dimension L x W x H (mm)	1200 x 800 x 408
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Supplied with

Tornado 3 Cargo Hold Cleaning Jet	1 pc
Tripod Clamp Kit	1 pc
Cleaning Hose 2" W/Storz C Cpl 15 mtr	3 pcs
Storz C Cpl W/2" Male Thread Alu	1 pc
Air Hose 1/2", Rubber, 50 mtr Coil	1 pc

Accessories

2009029	Navadan Ultimate Kit
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN MAXI KIT

The Navadan Maxi Kit has been designed for use onboard large to Capsize bulk carriers.

Product Information

The intend of use is cleaning, wash down and descaling of very large cargo holds from the tank top. It uses the normal deck fire pump(s) as water source.

This enables the jet to reach the top of the holds and at the same time giving the capacity needed to remove even the most stubborn dirt or scales.

Features

- Shut off ball valve for air supply and the new balanced swivel design increases the safety and simple operation.
- Aluminium and stainless steel design
- Swivel connection between gun and ballast tanks
- Retractable wheels makes mobility easier
- Works on normal fire line and working air line on board
- High water volume up to 120 m³/hr

Benefits

- Long operating life with minimum maintenance
- Easy to set-up and connect without any additional equipment
- Enables crew to clean cargo holds 5-10 times quicker
- Easy to use, aim and transport and does not require any special training
- 60-80 mtr max working distance
- Highest and strongest water jet, possible by an accurate venturi system

Product Number	Product Name
2009031	Navadan Maxi Kit

Specification

Dimension L x W x H (mm)	1142 x 932 x 934
Weight (kg)	185
Range (m)	60 - 80
Estimated water flow (m ³ /hr)	80 - 120
Recommended air and water pressure (bar)	7 - 10
Required air flow (m ³ /min)	5

Supplied with

NAVADAN MAXI-JET COMPLETE WITH AIRVALVE	1 pc
Y-PIECE 2½" WITH COUPLINGS AND PRESSURE GAUGE	1 pc
HATCH PROTECTION 2½" WITH COUPLINGS	2 pcs
WATERHOSE 2 1/2"X30M W/ STORZ B COUPLING BOTH ENDS	2 pcs
WATERHOSE 2 1/2"X15M W/ STORZ B COUPLING ON ONE END	2 pcs
WATER/AIRHOSE PVC ¾" X 50MTR WITH CLAW COUPLINGS	2 pcs

Accessories

2007086	HOSECOPPLING STORZ-B2½ NECK (ALU)
2007088	HOSECOPPLING ADAPTER STORZ B TO C
2007091	HOSE ADAPTER NAKAJIMA 65A 2 1/2", BSP 2" FM ALU -IMPA 331888; ISSA 4762603
2007095	HOSE COUPLING NAKAJIMA 65A 2 1/2, NECK BRONZE 63MM -IMPA 330853; ISSA 4762805
2007097	ADAPTER COUPLING NAKAJIMA 65A 2 1/2" BSP 2" FM BRONZE
2007098	REDUCER COUPLING NAKAJIMA 65A 2 1/2" 1 1/2" NECK BRONZE
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit
2009029	Navadan Ultimate Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN SUBMERSIBLE KIT

The Navadan Submersible Kit is a complete kit designed to assist in emptying cargo holds on bulk carriers after commercial cleaning.

Product Information

Reliable submersible pump kit with good lifting height, which is delivered ready to go with cable and layflat hose.

Features

- Powerful and lightweight
- Simple maintenance
- Motor frame, shaft and screws are made of stainless steel

Benefits

- Max lifting height 33 mtr
- Max volume 550L/min

Product Number	Product Name
2009033	Navadan Submersible Kit

Specification	
Dimension L x W x H (mm)	800 x 600 x 900
Weight (kg)	104

Supplied with	
Electrical submersible pump, 3 HP / 2,3 Kw	1 pc
50 mtr electric cable (attached)	1 pc
50 mtr 3" lay flat hose	1 pc
Hose clamp	2 pcs
Hose nipple	1 pc

Accessories	
2009170	50 meter extension hose w/ storz couplings and hose clamps
2009029	Navadan Ultimate Kit
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit
2009031	Navadan Maxi Kit
2009032	Navadan Diaphragm Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN DIAPHRAGM KIT

The Navadan Diaphragm Kit is a complete kit designed to assist in emptying cargo holds on bulk carriers after commercial cleaning.

Product Information

Compact, air-driven diaphragm pump kit with good lifting height and volume, delivered ready-to-use with air and layflat hose.

Features

- Compact design for easy operation and maintenance
- Housing of stainless steel, diaphragm of santoprene
- Mounted on a trolley
- Hose connections are made with stainless steel kamlock couplings
- Wetted parts are chemical and acid (diluted) resistant

Benefits

- Max lifting height 70 mtr
- Max volume 600L/min
- Max suction height 6 mtr

Product Number	Product Name
2009032	Navadan Diaphragm Kit

Specification

Dimension L x W x H (mm)	577 x 622 x 1114
Weight (kg)	115
Temperatur range (diaphragm)	-40 to +107°C (-40 to 225°F)
Suction height	6m
Air consumption	2.69m³/min (95CFM)
Air supply	max 6.2bar (90PSI)
Estimated water flow at 30m (at 6.2bar and 2.69m³/min)	350l/min

Supplied with

NAVADAN DIAPHRAGM PUMP DP50-SSS STAINLESS STEEL/SANTOPRENE	1 pc
ARMATURE SET 3/4 KH 9006 (FOR PUMP S20)	1 pc
CLAW COUPLING 1" MALE THREAD -IMPA 351029	1 pc
NAVADAN STRAINER SS304 FOR PUMP DP50/2"	1 pc
PVC SUCTION HOSE 2" (MTR)	2.5 pcs
PVC HOSE, FLAT 2" BLUE, 50M	1 pc
CHC HOSE CLAMP W1 2" - 44-56MM	3 pcs
REPKIT FOR DIAPHRAGM PUMP NAVADAN DP50-SSS	1 pc
WATER/AIRHOSE PVC ¾ X 50MTR WITH CLAW COUPLINGS	1 pc

Accessories

2009170	50 meter extension hose w/ storz couplings and hose clamps
2007087	Hosecoupling Storz-C 2 Neck (ALU)
2007112	CHC Hose Clamp W1 2" - 44-56mm
2009029	Navadan Ultimate Kit
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit
2009031	Navadan Maxi Kit
2009030	Navadan Tornado Kit
2009033	Navadan Submersible Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN APPLICATOR KIT

The Navadan Applicator Kit is a simple plug-and-play chemical application system for the application of cleaning chemicals and hold coat in bulk carriers.

Product Information

Plug-and-play system including all fittings. Capable of reaching 12 mtr height.
Can be used for both application of chemical and cargo barrier.

Features

- Easy-to-use chemical application system for cargo holds

Benefits

- Resistant to chemicals, acidic and caustic materials
- Lightweight hybrid pole, allowing crew to use it for a longer period

Product Number	Product Name
2009027	Navadan Applicator Kit

Specification

Dimension L x W x H (mm)	1860 x 360 x 360
Weight (kg)	45

Supplied with

Telescopic pole	1 pc
Diaphragm pump 1/2"	1 pc
Suction hose 7,5 mtr	1 pc
Air hose 25 mtr	1 pc
Delivery hose 3/8" 50 mtr	1 pc
Delivery hose 1/4" 16 mtr	1 pc

Accessories

2009029	Navadan Ultimate Kit
2009026	Navadan Essential Kit
2009025	Navadan Panamax Kit
2009031	Navadan Maxi Kit
2009033	Navadan Submersible Kit
2009032	Navadan Diaphragm Kit
2009034	Navadan Protection Kit

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NAVADAN HOTBOX

The Navadan Hotbox turns our high-pressure cleaner into a hot washer.

Product Information

By heating a pressurized water stream, cleaning is more effective and dissolves dirt and cargo residues.

Features

- Delivered with hose and cable which allows for plug-and-play usage with Navadan HPC machines
- Runs on 220 V / 60 Hz and diesel
- Complies to marine standards
- 500 bar hotbox

Benefits

- Analogue interface ensures simple operations and easy maintenance
- Designed for our Unitor™ HPCE Dynamis 300+, 350, & 500+™

Product Number	Product Name
2009038	Navadan Hotbox

Specification

Dimension L x W x H (mm)	910 x 710 x 950
Weight (kg)	148

Supplied with

High pressure hose 5 meters	1 pc
Electric cable 5 meters (attached)	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR UDF 3900 ULTRASONIC CLEANER

Unitor™ UDF Ultrasonic cleaning machines are specially designed for powerful cleaning of lube and fuel filters, machinery parts and tools. The ultrasound technology will clean inside inaccessible areas without damaging the workpiece.



Product Information

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with Unitor™ Ultraclean GO makes it particularly effective for cleaning fuel and lube oil filter elements, machinery parts and tools. The unit is optimized for cleaning of fine mesh fuel and lube oil filter candles, discs or elements. The new function Dual Frequency allows the user to choose the ultrasonic frequency 45kHz for delicate or 25kHz for heavy duty cleaning jobs.

Professional ultrasonic cleaning avoids the risk of damaging the workpiece unlike conventional cleaning methods.

The new Dynamic function ensures the most efficient ultrasonic cleaning power by switching between sweep and pulse mode to provide an even power distribution and amplification.

Features

- Dual frequency
- Dynamic ultrasonic mode
- New basket design
- Robust electrical components
- User-friendly control panel
- Low water level sensor
- Included anti vibration rubber feet

Benefits

- Increased cleaning performance through even power distribution and amplification
- Optimized cleaning results for delicate or heavy-duty applications
- Prolonged system lifetime and operation
- Efficient and fast heating
- Easy to service

Product Number

779167

Product Name

UNITOR UDF 3900 ULTRASONIC CLEANER 440V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	1240/875/985
Frequency [Hz]	60
Ingress protection	23
Power [W]	8000
Ultrasonic peak perf Max [W]	8000
Voltage [V]	440
Working volume [l]	257
Effective Utrasonic Power [W]	2000
Heating capacity [kW]	6.0

Consumables

571321	ULTRACLEAN GO 25 LTR
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For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

UNITOR UDF 2100 ULTRASONIC CLEANER

Unitor™ UDF Ultrasonic cleaning machines are specially designed for powerful cleaning of lube and fuel filters, machinery parts and tools. The ultrasound technology will clean inside inaccessible areas without damaging the workpiece.



Product Information

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with Unitor™ Ultraclean GO makes it particularly effective for cleaning fuel and lube oil filter elements, machinery parts and tools. The unit is optimized for cleaning of fine mesh fuel and lube oil filter candles, discs or elements. The new function Dual Frequency allows the user to choose the ultrasonic frequency 45kHz for delicate or 25kHz for heavy duty cleaning jobs.

Professional ultrasonic cleaning avoids the risk of damaging the workpiece unlike conventional cleaning methods.

The new Dynamic function ensures the most efficient ultrasonic cleaning power by switching between sweep and pulse mode to provide an even power distribution and amplification.

Features

- Dual frequency
- Dynamic ultrasonic mode
- New basket design
- Robust electrical components
- User-friendly control panel
- Low water level sensor
- Included anti vibration rubber feet

Benefits

- Increased cleaning performance through even power distribution and amplification
- Optimized cleaning results for delicate or heavy-duty applications
- Prolonged system lifetime and operation
- Efficient and fast heating
- Easy to service

Product Number

779159

Product Name

UNITOR UDF 2100 ULTRASONIC CLEANER 230V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	910/805/845
Frequency [Hz]	50/60
Ingress protection	23
Power [W]	3200
Ultrasonic peak perf Max [W]	4000
Voltage [V]	230
Effective Ultrasonic Power [W]	1000
Heating capacity [kW]	2.2

Consumables

571321	ULTRACLEAN GO 25 LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR UDF 1900 BOOSTER ULTRASONIC CLEANER

Unitor™ UDF Ultrasonic cleaning machines are specially designed for powerful cleaning of lube and fuel filters, machinery parts and tools. The ultrasound technology will clean inside inaccessible areas without damaging the workpiece.



Product Information

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned. The new efficient Booster technology Ideal for filter cleaning, since through the opposite located side-ultrasound even internal spaces can be reached and cleaned in an optimum way.

Use of an Ultrasonic machine combined with Unitor™ Ultraclean GO makes it particularly effective for cleaning fuel and lube oil filter elements, machinery parts and tools. The unit is optimized for cleaning of fine mesh fuel and lube oil filter candles, discs or elements. The new function Dual Frequency allows the user to choose the ultrasonic frequency 45kHz for delicate or 25kHz for heavy duty cleaning jobs. Professional ultrasonic cleaning avoids the risk of damaging the workpiece unlike conventional cleaning methods. The new Dynamic function ensures the most efficient ultrasonic cleaning power by switching between sweep and pulse mode to provide an even power distribution and amplification.

Features

- Dual frequency
- Dynamic ultrasonic mode
- Transducer mounted on two sides
- New basket design
- Robust electrical components
- User-friendly control panel
- Low water level sensor
- Included anti vibration rubber feet

Benefits

- Increased cleaning performance through even power distribution and amplification
- Optimized cleaning results for delicate or heavy-duty applications
- Prolonged system lifetime and operation
- Efficient and fast heating
- Easy to service

Product Number

779168

Product Name

UNITOR UDF 1900 BOOSTER ULTRASONIC
CLEANER 230V

CLEANING EQUIPMENT

Ultrasonic - Part and Filter cleaners

Ultrasonic



Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	655/815/1035
Frequency [Hz]	60
Ingress protection	23
Power [W]	3300
Ultrasonic peak perf Max [W]	4000
Voltage [V]	230
Working volume [l]	134

Consumables

571321	ULTRACLEAN GO 25 LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR UDF 1700 ULTRASONIC CLEANER

UnitorTM UDF Ultrasonic cleaning machines are specially designed for powerful cleaning of lube and fuel filters, machinery parts and tools. The ultrasound technology will clean inside inaccessible areas without damaging the workpiece.



Product Information

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with UnitorTM Ultraclean GO makes it particularly effective for cleaning fuel and lube oil filter elements, machinery parts and tools. The unit is optimized for cleaning of fine mesh fuel and lube oil filter candles, discs or elements. The new function Dual Frequency allows the user to choose the ultrasonic frequency 45kHz for delicate or 25kHz for heavy duty cleaning jobs.

Professional ultrasonic cleaning avoids the risk of damaging the workpiece unlike conventional cleaning methods.

The new Dynamic function ensures the most efficient ultrasonic cleaning power by switching between sweep and pulse mode to provide an even power distribution and amplification.

Features

- Dual frequency
- Dynamic ultrasonic mode
- New basket design
- Robust electrical components
- User-friendly control panel
- Low water level sensor
- Included anti vibration rubber feet

Benefits

- Increased cleaning performance through even power distribution and amplification
- Optimized cleaning results for delicate or heavy-duty applications
- Prolonged system lifetime and operation
- Efficient and fast heating
- Easy to service

Product Number

779153

Product Name

UNITOR UDF 1700 ULTRASONIC CLEANER 230V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	740/805/845
Frequency [Hz]	50/60
Ingress protection	23
Power [W]	3000
Ultrasonic peak perf Max [W]	3200
Voltage [V]	230
Effective Utrasonic Power [W]	800
Heating capacity [kW]	2.2

Consumables

571321	ULTRACLEAN GO 25 LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR UDF 800 ULTRASONIC CLEANER

UnitorTM UDF Ultrasonic cleaning machines are specially designed for powerful cleaning of lube and fuel filters, machinery parts and tools. The ultrasound technology will clean inside inaccessible areas without damaging the workpiece.



Product Information

Compared with traditional cleaning methods, use of Ultrasonic cleaning units results in reduced manual work, reduced consumption of hazardous chemicals and improved cleaning performance without damaging the items to be cleaned.

Use of an Ultrasonic machine combined with UnitorTM Ultraclean GO makes it particularly effective for cleaning fuel and lube oil filter elements, machinery parts and tools. The unit is optimized for cleaning of fine mesh fuel and lube oil filter candles, discs or elements. The new function Dual Frequency allows the user to choose the ultrasonic frequency 45kHz for delicate or 25kHz for heavy duty cleaning jobs.

Professional ultrasonic cleaning avoids the risk of damaging the workpiece unlike conventional cleaning methods.

The new Dynamic function ensures the most efficient ultrasonic cleaning power by switching between sweep and pulse mode to provide an even power distribution and amplification.

Features

- Dual frequency
- Dynamic ultrasonic mode
- New basket design
- Robust electrical components
- User-friendly control panel
- Low water level sensor
- Included anti vibration rubber feet

Benefits

- Increased cleaning performance through even power distribution and amplification
- Optimized cleaning results for delicate or heavy-duty applications
- Prolonged system lifetime and operation
- Efficient and fast heating
- Easy to service

Product Number

Product Name

779152	UNITOR UDF 800 ULTRASONIC CLEANER 110V
779151	UNITOR UDF 800 ULTRASONIC CLEANER 230V

CLEANING EQUIPMENT

Ultrasonic - Part and Filter cleaners

Ultrasonic



Specification

Product Name	UNITOR UDF 800 ULTRASONIC CLEANER 110V	UNITOR UDF 800 ULTRASONIC CLEANER 230V
Invent Hazard Material (IMO/EU) classification	D-1	D-1
Dimensions L x W x H [mm]	640/595/775	640/595/775
Frequency [Hz]	50/60	50/60
Ingress protection	23	23
Power [W]	2700	2700
Ultrasonic peak perf Max [W]	2000	2000
Effective Ultrasonic Power [W]	500	500
Heating capacity [kW]	2.2	2.2

Consumables

571321	ULTRACLEAN GO 25 LTR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CLEANING BOOTS S5

Chemical resistant PVC/Nitrile rubber boots ideal for a majority of cleaning jobs on board.



Product Information

The cleaning boots are impervious to a wide range of chemicals and biological hazards ensuring your protection in multi hazard environments.

Standards

CE EN ISO 20345 S5

Features

- Steel toe cap and midsole
- Anti static
- Cold insulating
- Available in sizes 42 to 45

Benefits

- Yellow to identify with chemical clothing
- Resistant to minerals, animal and vegetable oils & fats, disinfectants and various chemicals

Product Number	Product Name
571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CLEANING SUIT PVC-ONE SIZE

The Unitor personal chemical protection kit protects you against splashes when filling or opening drums, moving chemicals around or mixing them.

We supply a complete one size kit except for the boots giving you good levels of protection against none hazard gaseous chemicals.

Note: Product 576853 is replaced by 720008 CHEMICAL PROTECTION SUIT PVC, 720007 CHEMICAL GLOVES PVC, PAIR, 720009 CHEMICAL PROTECTION GOGGLES



Product Information

Helmet Assembly White safety helmet to EN397 High-density polyethylene shell Low-density polyethylene head harness Acetate visor BS2092 Grade 2 Chemical

Goggles EN166 1C

Gloves Rubber gauntlet 43cm long EN374

Suit Blue PVC with elasticated hood, single elasticated sleeves, elasticated single legs. polyester/nylon zip with double storm flap over. Press stud closure Size - Large chest 112cm

Apron Blue PVC apron 76x93cm with eyelet and tapes

Features

- Helmet with visor cap and bib
- Kit comes with suit, goggles, gloves and apron

Benefits

- The fully approved helmet includes a visor for splash protection
- Goggles can be worn under the visor to ensure eyes are fully protected
- Protecting hands is imperative so we include gauntlets to give full hand and lower protection

Product Number	Product Name
576853	CLEANING SUIT PVC-ONE SIZE

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CARGO HOLD CLEANING PPE KIT FOR 3

Personal Protective Equipment kit for the crew being engaged in cleaning the cargo holds.



Product Information

The Cargo Hold Cleaning PPE Kit For 3 includes key personal protective equipment (PPE) to ensure safe cleaning operation on board.

Features

- Protective Equipment for 3 crew member engaged in cleaning operation
- High splash protection
- Strong and robust material

Benefits

- All supplied in one pack to ensure a safe working practice
- Ready for immediate use

Product Number	Product Name
779085	CARGO HOLD CLEANING PPE KIT FOR 3

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

Full face mask	1 pc
Half face mask	2 pcs
Filter cartridge ABEK P3	6 pcs
Chemical protection suit, PVC	3 pcs
Chemical gloves PVC pair	3 pair
Chemical protection goggles	3 pcs
Duct tape 50M, roll	3 pcs

Consumables

720004	FULL FACE MASK
720005	HALF FACE MASK
720006	FILTER CARTRIDGE ABEK P3
720007	CHEMICAL GLOVES PVC, PAIR
720008	CHEMICAL PROTECTION SUIT PVC
720009	CHEMICAL PROTECTION GOGGLES
720010	DUCT TAPE 50M, ROLL

Accessories

571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHEMICAL PROTECTION GOGGLES

Chemical protection goggles for effective splash and particle protection.



Product Information

The goggles frame is manufactured in flexible PVC which allows to wear corrective glasses.

Features

- Anti fog lens
- Closed ventilation

Benefits

- Liquid splash protection
- Clear view field
- Standard EN 166:2001

Product Number	Product Name
720009	CHEMICAL PROTECTION GOGGLES

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Chemical protection goggles is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHEMICAL GLOVES PVC, PAIR

Chemical PVC gloves for safe handling of chemicals while cleaning on deck or in the holds.



Product Information

The chemical protection gloves are delivered 35cm length to ensure best splash protection including wrist and underarm.

Features

- Extra long gloves
- Standard EN 374-2, EN 374-3

Benefits

- High splash protection
- Chemical resistant PVC

Product Number	Product Name
720007	CHEMICAL GLOVES PVC, PAIR

Specification	
Invent Hazard Material (IMO/EU) classification	NA

Chemical gloves PVC, pair is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DUCT TAPE 50M, ROLL

Duct tape roll of 50m

Product Number	Product Name
720010	DUCT TAPE 50M, ROLL

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Duct tape 50m, roll is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHEMICAL PROTECTION SUIT PVC

Chemical protection coverall ideal for all cleaning tasks on deck and in the holds.

Product Information

The chemical protection suit is delivered with a fixed hood, a zipper cover and welded seams for best splash shelter.



Features

- Double sided PVC coated polyester fabric; ± 360 gr / m²
- Standard EN 465: 1995

Benefits

- High splash protection
- Strong and robust material

Product Number	Product Name
720008	CHEMICAL PROTECTION SUIT PVC

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Chemical protection suit PVC is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FULL FACE MASK

Full Face Mask with anti scratch coated polycarbonate visor and wide field of view.

Product Information

Compatible with 720006 Filter cartridges ABEK P3.



Features

- Five anchorage points for the head harness
- Dual bayonet filter system
- Light weight
- Standard EN 136:1998

Benefits

- Clear vision with panoramic anti scratch visor
- Ergonomic design

Product Number	Product Name
720004	FULL FACE MASK

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Full face mask is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HALF FACE MASK

Half Face Mask with two bayonet filter connectors and exhaling valve.



Product Information

Supplied with two filters and compatible with 720006 Filter cartridges ABEK P3.

Features

- Fitted with exhaling valve
- Comfortable neck strap
- Standard EN 140:1998

Benefits

- Easy adjustment for a secure and comfortable fit
- The bayonet seat system allows the filter to be attached quickly and safely

Product Number	Product Name
720005	HALF FACE MASK

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Half face mask is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FILTER CARTRIDGE ABEK P3

Filter cartridge ABEK P3 designed to be used with 720004 Full Face Mask and 720005 Half Face Mask.



Product Number	Product Name
720006	FILTER CARTRIDGE ABEK P3
Specification	
Invent Hazard Material (IMO/EU) classification	NA

Filter cartridge ABEK P3 is also included in our CARGO HOLD CLEANING PPE KIT FOR 3 (779085)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SAFE CHEMICAL HANDLING PROTECTION PPE KIT

Crew working or handling cleaning chemicals on board are at risk of exposure to corrosive or even dangerous splashes and harmful fumes. The Unitor™ Safe Chemical Handling Protection PPE Kit is a convenient package for 1 crew member, consisting of the basic key essential personal protective equipments suitable for handling & working with chemicals.



Product Information

A convenient package that consist of the basic key essential personal protective equipment suitable for the safe handling and application of cleaning chemicals on board.

Features

- Complete protective equipment for **1 crew member** engaged in handling and cleaning operation with chemicals.
- High splash protection against chemicals
- Comes with a clear plastic container for easy recognition, convenient and storage
- Your preferred complete 1st line of defense against any chemical splashes kit

Benefits

- Exceptional chemical protection: over 200 chemicals permeation tested.
- Excellent durability and tough
- Good for heavy duty uses
- Elevated comfort: light weight for long uses
- CE certified
- Conveniently packed in a kit

Product Number

734781

Product Name

SAFE CHEMICAL HANDLING PROTECTION PPE KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

Chemical resistant splash proof apron	1 pc
Nitrile long gloves	1 pair
Face shield clear with head mount	1 pc
Chemical goggles clear	1 pc
Plastic Container	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES



Access our global network of gases wherever you are. With presence in 2,200 ports, our Unitor cylinders are available whenever and wherever you need them. All our cylinders are filled by approved suppliers and meet all the required standards for purity and pressure, ensuring consistent quality and performance no matter what. All this is backed by our Global cylinder exchange program, the world's largest network for distribution, re-filling, maintenance and exchange of Unitor cylinders. Have peace of mind as we help you keep your vessels supplied with gas cylinders compliant with regulations and efficiently manage your cylinder stocks.



Global availability



Quality assured



Total compliance

Global cylinder exchange program

We run the world's largest network for the distribution, re-filling, maintenance and exchange of Unitor gas cylinders. With our presence in 2,200 ports worldwide, we ensure our gas cylinders are available wherever and whenever you need them.

Browse this section to discover the benefits of our Gases range.

Scan or click on the QR code for more information.



GASES, REFRIGERANTS AND CYLINDERS

Gases
Acetylene Filling

UNITOR
by Wilhelmsen

ACETYLENE FILLING

In combination with Oxygen (O₂), Acetylene (C₂H₂) is used for cutting and welding of steel. We provide this product in the unique and global WSS cylinder exchange program.



Features

- Acetylene is colourless and slightly lighter than air
- It is non-toxic, but has an anesthetic effect if inhaled
- It is highly flammable and when mixed with oxygen for welding, the flame temperature will reach 3100 ° C

Benefits

- Multi applications for ship maintenance like welding, cutting, brazing, soldering and heating
- Suitable for Ac-Ox Gas Distribution System
- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We offer global availability through our Global Exchange Programme

Specification

Invert Hazard Material (IMO/EU) classification	C-18
Colour	Maroon
Purity	>98%
Valve side connection	G 3/4" R.H. Internal side
Filling pressure	N/A

Product number	Product name	Acetone			Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
		Purity	content	Height					
905026	ACETYLENE A-40 FILLING	>98%	12.4 kg	1360 mm	230 mm	73 kg	6.2 kg	6.2 kg	A-40
905067	ACETYLENE A-5 FILLING	>98%	1.6 kg	620 mm	140 mm	15 kg	0.8 kg	0.8 kg	A-5

Accessories

550152	WASHER NYL 10 PCS FOR AC REGULATOR
510001	REGULATOR 510 AC PRESSURE 0-1.5 BAR
176040	BACK PORTABLE RACK (FOR ACETYLENE A-5 FILLING)
233148	HEAT RESISTANT MITTEN

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Oxygen Filling

UNITOR®
by Wilhelmsen

OXYGEN FILLING

In combination with Acetylene (C_2H_2), Oxygen (O_2) is used for gas cutting and welding. This product is delivered in a Unitor cylinder as part of WSS global cylinder exchange program.



Features

- Colourless, odourless and tasteless
- It is approximately 1.1 times heavier than air
- Oxygen itself is non-flammable, but it supports combustion
- It can cause fire or explosion in combustible materials

Benefits

- Multi applications for ship maintenance like welding, cutting, brazing, soldering and heating
- Suitable for Ac-Ox Gas Distribution System
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Product Name	OXYGEN O-40 FILLING	OXYGEN O-5 FILLING
Invent Hazard Material (IMO/ EU) classification	C-21	C-21
Colour	Marine blue	Marine blue
Purity	2.5 > 99.5%	2.5 > 99.5%
Valve side connection	W21.8mm x 1/14" RH Ext side	W21.8mm x 1/14" RH Ext side
Filling pressure	150 bar	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905034	OXYGEN O-40 FILLING	2.5 >99.5%	1360 mm	230 mm	60 kg	7.8 kg	6.4 nm3	O-40
905075	OXYGEN O-5 FILLING	2.5 >99.5%	620 mm	140 mm	13 kg	1.3 kg	1 nm3	O-5

Accessories

550160	WASHER ALU 10 PCS FOR OX REGULATOR
510000	REGULATOR 510 OX PRESSURE 0-10 BAR
176040	BACK PORTABLE RACK (FOR OXYGEN O-5 FILLING)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Nitrogen Filling

UNITOR
by Wilhelmsen

NITROGEN FILLING

Low purity grade (3.0 = 99.9%) nitrogen is mainly used for purging and simple padding while the high purity grade (5.0 = 99.999%) is mainly used for blanketing/ padding very specific products and for calibration purposes.



Features

- Nitrogen is colourless, odourless and tasteless
- Non-combustible and non-toxic
- Slightly lighter than air and it's an inert gas
- Nitrogen is well suited for purging cargo tanks and pipelines of residual gases and vapours prior to loading cargo
- It is also used as a 'blanket' on top of several types of cargoes to prevent reactions with oxygen from atmospheric air
- The filling pressure is lower in some locations than the normal 200 bar due to local rules and regulations that limit filling pressure

Benefits

- Perfectly suited for inserting / blanketing
- For 5.0 grade only: Quality assured with a certificate of analysis linked to the cylinder serial number
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	3.0 = Green & 5.0 = Green with Orange shoulder
Purity	3.0 (>99.9%) or 5.0 (>99.999%)
Valve side connection	W24.32mm x 1/14" RH Ext side
Filling pressure	200 bar

For the purity 5.0 (>99.999%) the specification is:

- Oxygen < 5ppm
- Moisture (H₂O) < 5ppm
- A certificate of analysis is supplied with the cylinder

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905232	NITROGEN N-1030 FILLING	3.0 >99.9%	1000 mm	140 mm	20 kg	2.3 kg	2 nm ³	N-10
905208	NITROGEN N-5030 FILLING	3.0 >99.9%	1600 mm	230 mm	92 kg	11.5 kg	10.2 nm ³	N-50
905602	NITROGEN N-1050 FILLING	5.0 >99.999%	1000 mm	140 mm	20 kg	2.3 kg	2 nm ³	N-10
905601	NITROGEN N-5050 FILLING	5.0 >99.999%	1600 mm	230 mm	92 kg	11.5 kg	10.2 nm ³	N-50

Accessories

510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
510003	REGULATOR 510 N2 PRESSURE 0-1 BAR
510011	REGULATOR 510 N2 FLOW 0-1.3 L/MIN

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Argon Filling

UNITOR
by Wilhelmsen

ARGON FILLING

Argon is an inert gas used primarily as shielding/backing gas for arc welding (MIG/TIG).

This product is delivered in a Unitor cylinder as part of WSS global cylinder exchange program.



Features

- Argon is a colourless and odourless gas
- Argon is slightly heavier than air and is an inert gas
- It is non-toxic and non-combustible
- It is used as a shielding gas for welding, primarily to protect the molten pool against contaminants in the atmosphere

Benefits

- Suitable for MIG and TIG welding applications like welding of stainless steel
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Grey
Purity	4.0 >99.99%
Valve side connection	W24.32mm x 1/4" RH Ext side
Filling pressure	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx).	Net weight (approx).	Gas capacity (approx).	Cylinder type
905174	ARGON E-50 FILLING	4.0 >99.99%	1690 mm	230 mm	99 kg	18 kg	11 nm3	E-50
905565	ARGON E-10 FILLING	4.0 >99.99%	1000 mm	140 mm	22 kg	3.6 kg	2.2 nm3	E-10

Accessories

510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
778147	TROLLEY F/1 40-50L GAS CYLINDER

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Unimix Filling

UNITOR®
by Wilhelmsen

UNIMIX FILLING

Argon - CO₂ mixtures are used as shielding gas in MIG /MAG wire welding processes.



Features

- Argon-CO₂ mix is a colourless and odourless gas
- Argon-CO₂ mix is slightly heavier than air and is an inert gas
- Argon-CO₂ mix is non-combustible
- It is used as a shielding gas for welding, primarily to protect the molten pool against contaminants from the atmosphere
- 80% Argon/20% CO₂ mix is suitable for welding all un/low alloyed carbon steels (Unimix 20)
- 90% Argon/10% CO₂ mix is suitable for welding all un/low alloyed carbon steels and stainless steels in certain applications (Unimix 10)
- Unimix gives a very stable molten pool together with optimum energy-transmission and spray transfer mode

Benefits

- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Grey with yellow shoulder
Purity	Unimix 20: 80% Argon / 20% CO ₂ (+/- 2%) Unimix 10: 90% Argon / 10% CO ₂ (+/- 1%)
Valve side connection	W24.32mm x 1/14" RH Ext side
Filling pressure	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905673	UNIMIX 10 M-101 FILLING	90% Argon 10% CO ₂	1000 mm	140 mm	22 kg	3.4 kg	2.2 nm ³	M-10
905681	UNIMIX 10 M-501 FILLING	90% Argon 10% CO ₂	1600 mm	230 mm	98 kg	17.1 kg	10.9 nm ³	M-50
905573	UNIMIX 20 M-102 FILLING	80% Argon 20% CO ₂	1000 mm	140 mm	22 kg	3.4 kg	2.2 nm ³	M-10
905581	UNIMIX 20 M-502 FILLING	80% Argon 20% CO ₂	1600 mm	230 mm	98 kg	17.1 kg	10.9 nm ³	M-50

Accessories

510010	REGULATOR 510 AR/CO2 FLOW 0-35 L/MIN
778147	TROLLEY F/1 40-50L GAS CYLINDER

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
CO₂ Filling

UNITOR[®]
by Wilhelmsen

CO₂ FILLING

Carbon dioxide is used to carbonate beverages as well as in potable water plants to control acidity (pH). When welding (MAG) low carbon steel, CO₂ is also used as shielding gas. This product is delivered in a Unitor cylinder as part of WSS global cylinder exchange program



Features

- Colourless, odourless and an incombustible gas
- CO₂ cylinders are fitted with handwheel operated valves and an American type side connection
- For use as a shielding gas in welding, a flow regulator shall be used (product no. 510012)
- For use in beverage carbonation or water treatment, a pressure regulator shall be used (product no. 510004)

Benefits

- Typical in use for carbonation of beers and fizzy drinks on board Cruise ships
- Convenient size, able to fit under bar tops
- Additionally can be used for MAG welding
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Invent Hazard Material (IMO/EU) classification	C-22
Colour	Grey
Purity	>99.5%
Valve side connection	CGA320 Ext side
Filling pressure	N/A

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905695	CARBON DIOXIDE C-27 FILLING	> 99.5%	1350 mm	229 mm	82 kg	27 kg	14.85 nm3	C-27
905565	CARBON DIOXIDE C-9 FILLING	> 99.5%	665 mm	203 mm	28 kg	9 kg	4.95 nm3	C-9

Accessories

510004	REGULATOR 510 CO2 FOR C-9 AND C-27 CYLINDER
510012	REGULATOR 510 CO2 FLOW CGA320

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Helium Filling

UNITOR
by Wilhelmsen

HELIUM FILLING

Helium is used as a component of artificial atmospheres, it is used as a balloon-inflating gas and for blow out preventors in the offshore market.

High purity Helium is mainly used as a carrier gas for Gas Chromatography applications. This product is delivered in a Unitor cylinder as part of WSS global cylinder exchange program.



Features

- Helium is colourless, odourless, inert gaseous element occurring in natural gas.
- It is approximately 7 times lighter than air.
- Non-combustible and non-toxic.
- Helium H-40 is suitable for filling balloons and used in oil & gas applications, specifically for blow-out preventors.
- High purity Helium H-4050 is suitable for use in gas chromatography applications as a carrier gas

Benefits

- H-4050: 5.0 Purity suitable for use as carrier gas in gas chromatographs
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme
- One cylinder Helium H-40 fills on average 375 balloons

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Orange brown
Purity	H-40: >97%; H-4050: >99.999%
Valve side connection	W24.32mm x 1/14" RH Ext side
Filling pressure	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905726	HELIUM H-4050 FILLING 7.4 M3 PURITY 5.0	5.0 >99.999%	1360 mm	230 mm	57 kg	1.2 kg	7.5 nm ³	H-40
905618	HELIUM H-40 FILLING	>97%	1360 mm	230 mm	57 kg	1.2 kg	7.5 nm ³	H-40

Accessories

510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
624434	BALLOON FILL REGULATOR WITH GAUGE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Cruise Gas

UNITOR
by Wilhelmsen

NITROGEN FOOD GR N-10FG FILLING

Nitrogen (N₂) food grade is mainly used for specific beer types in combination with CO₂



Features

- For draught beers which need nitrogen (N₂) in combination with carbon dioxide (CO₂)
- It results in a more smooth taste and a finer dispersed head on top of the beverage
- Food grade nitrogen has a purity of 99.995% (4.5 purity)
- Food grade nitrogen conforms to E961 (food additive) or similar standard (BS4105)
- Regulator 510 Nitrogen is used for N-10FG cylinder, available under product number 510002

Benefits

- Suitable for beverage/beer dispensing and food applications
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Green with black shoulder
Purity	> 99.995% (4.5 grade)
Valve side connection	W24.32mm x 1/14" RH Ext side
Filling pressure	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx.)	Net weight (approx.)	Gas capacity (approx.)	Cylinder type
905679	NITROGEN FOOD GR N-10FG FILLING	> 99.995% (4.5 grade)	1000 mm	140 mm	20 kg	2.3 kg	2 nm ³	N-10

Accessories

510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gases
Cruise Gas

UNITOR
by Wilhelmsen

ARGON FOOD GR E-10FG FILLING

Argon (Ar) food grade is mainly used for dispensing and preservation of wine.



Features

- Argon is a colourless and odourless gas
- Argon is slightly heavier than air and is an inert gas
- It is non-toxic and non-combustible
- Used as an inert gas in wine dispensing systems
- Food grade Argon conforms to E938 (food additive) or similar standard (JECFA)

Benefits

- Suitable for beverage/beer dispensing and food applications
- For your safety, the product is delivered in a Unitor exchange cylinder complete with barcode and unique cylinder serial number.
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme.

Specification

Invent Hazard Material (IMO/EU) classification	NA
Colour	Grey with black shoulder
Purity	> 99.0%
Valve side connection	W24.32mm x 1/14" RH Ext side
Filling pressure	200 bar

Product number	Product name	Purity	Height	Diameter	Gross weight (approx).	Net weight (approx).	Gas capacity (approx).	Cylinder type
905665	ARGON FOOD GR E-10FG FILLING	>99.0%	1000 mm	140 mm	22 kg	3.6 kg	2.2 nm ³	E-10

Accessories

510002	REGULATOR 510 N2 PRESSURE 0-10 BAR
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Spangases
N2 mixtures

UNITOR
by Wilhelmsen

NITROGEN MIXTURES

Span gases are used for calibration and bump testing of gas detection equipment.



Features

- Refillable SG10 cylinder
- High gas volume compared to disposables and thus interesting for users which needs frequent gas
- All cylinders come with individual certificate of analysis of the gas

Benefits

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Length	1000 mm
Diameter	140 mm
Colour	Black with orange shoulder
Valve side connection	W214.32 mm x 1/14" RH Ext side
Gross Weight	21 kg
Cylinder type	SG-10

Product number	Product name	Main component	Cylinder type	Filling pressure (approx)	Shelflife (months) from production date
620179	O2 0.5% IN N2 99.5% SG-10 FILLING	0.5% O2	SG-10	150	36
589051	O2 1% IN N2 99% SG-10 FILLING	1% O2	SG-10	150	36
778176	O2 1.5% IN N2 98.5% SG-10 FILLING	1.5% O2	SG-10	150	36
589044	O2 2% IN N2 98% SG-10 FILLING	2% O2	SG-10	150	36
620146	O2 5% IN N2 95% SG-10 FILLING	5% O2	SG-10	150	36
589135	O2 8% IN N2 92% SG-10 FILLING	8% O2	SG-10	150	36
589127	CO2 5% IN N2 95% SG-10 FILLING	5% CO2	SG-10	150	36
592584	CO2 5% IN N2 95% SG-50 FILLING	5% CO2	SG-50	150	36

Accessories

510011	REGULATOR 510 N2 FLOW 0 - 1.3 L/MIN
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Spangases
LEL mixtures

UNITOR[®]
by Wilhelmsen

LEL MIXTURES

Span gases are used for calibration and bump testing of gas detection equipment.
LEL stands for Lower Explosion Limit.



Features

- Refillable SG10 cylinder
- High gas volume compared to disposables and thus interesting for users which needs frequent gas
- All cylinders come with individual certificate of analysis of the gas

Benefits

- For your safety, the product is delivered in a Unitor cylinder complete with barcode and unique cylinder serial number
- We trace and track all cylinders using our system to give you peace of mind
- We offer global availability through our Global Exchange Programme

Specification

Length	1000 mm
Diameter	140 mm
Colour	Black with orange shoulder
Valve side connection	W24.32mm x 1/14" RH EXT side
Gross Weight	21 kg
Cylinder type	SG-10

GASES, REFRIGERANTS AND CYLINDERS

Spangases
LEL mixtures

UNITOR
by Wilhelmsen

Product number	Product name	Main component	Cylinder type	Filling pressure	Shelflife (months) from production date
656371	METHANE(CH4) 30% LEL IN NITROGEN (1.5% VOL.) SG-10 FILLING	1.5% CH4	SG-10	150	36
620153	METHANE(CH4) 30% LEL IN AIR (1.5% VOL.) SG-10 FILLING	1.5% CH4	SG-10	150	36
620005	METHANE(CH4) 40% LEL IN AIR (2% VOL.) SG-10 FILLING	2% CH4	SG-10	103	36
736348	METHANE(CH4) 50% LEL IN NITROGEN (2.5% VOL.) SG-10 FILLING	2.5% CH4	SG-10	150	36
589085	METHANE(CH4) 50% LEL IN AIR (2.5% VOL.) SG-10 FILLING	2.5% CH4	SG-10	85	36
656363	METHANE(CH4) 60% LEL IN NITROGEN (3% VOL.) SG-10 FILLING	3% CH4	SG-10	150	36
656330	METHANE(CH4) 60% LEL IN AIR (3% VOL.) SG-10 FILLING	3% CH4	SG-10	36	36
682344	METHANE(CH4) 80% LEL IN NITROGEN (4% VOL.) SG-10 FILLING	4% CH4	SG-10	150	36
656389	METHANE(CH4) 30 VOL% IN NITROGEN SG-10 FILLING	30% CH4	SG-10	150	36
673715	METHANE(CH4) 50 VOL% IN NITROGEN SG-10 FILLING	50% CH4	SG-10	150	36
682351	METHANE(CH4) 80 VOL% IN NITROGEN SG-10 FILLING	80% CH4	SG-10	150	36
682336	METHANE 99.995 VOL% SG-10 FILLING	Pure CH4	SG-10	150	36
588997	ETHYLENE(C2H4) 50% LEL IN AIR (1.35% VOL.) SG-10 FILLING	1.35% C2H4	SG-10	50	36
588996	PROPANE(C3H8) 35% LEL IN NITROGEN (0.74% VOL.) SG-10 FILLING	0.74% C3H8	SG-10	150	36
588988	PROPANE(C3H8) 35% LEL IN AIR (0.74% VOL.) SG-10 FILLING	0.74% C3H8	SG-10	111	36
620047	PROPANE(C3H8) 50% LEL IN AIR (1.05% VOL.) SG-10 FILLING	1.05% C3H8	SG-10	85	36
588962	BUTANE(C4H10) 35% LEL IN AIR (0.63% VOL.) SG-10 FILLING	0.63% C4H10	SG-10	105	36
620161	BUTANE(C4H10) 8 VOL%, CO2 15% IN N2 SG-10 FILLING	8% C4H10 +15% CO2	SG-10	13	36
620112	ISOBUTANE(-C4H10) 50% LEL IN AIR (0.9% VOL.) SG-10 FILLING	0.9% C4H10	SG-10	60	36
588947	AMMONIA(NH3) 35% LEL IN AIR (5.25% VOL.) SG-10 FILLING	5.25% NH3	SG-10	-	36

Accessories

510011	REGULATOR 510 N2 FLOW 0 - 1.3 L/MIN
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Spangases
Disposables

UNITOR
by Wilhelmsen

DISPOSABLES

Span gases are used for calibration and bump testing of gas detection equipment. LEL stands for Lower Explosion Limit.

There are two types of disposables in use currently: Minimix 34 with 34 litres of gas and Minimix 58 with 58 litres of gas.



Features

- Minimix disposable cylinder
- Size depends on gas mixture
- Guaranteed and repeatable quality

Benefits

- Safe handling of gas in disposable cylinders
- Easy stock control
- Easy to carry around

Specification

Product Name	MINIMIX 34	MINIMIX 58
Length	289 mm	362 mm
Diameter	76 mm	89 mm
Colour	Silver	Silver
Connection	CGA C-10	CGA C-10
Gross Weight	0.44 kg	0.73 kg

Product number	Product description	Main component	Shelflife (months) from production date
630073	MINIMIX 34 PURE NITROGEN 99.999% N2	Pure N2	Not Applicable
630051	MINIMIX 34 O2 1% IN 99% N2	1% O2	36
630057	MINIMIX 34 O2 2% IN 98% N2	2% O2	36
630069	MINIMIX 34 O2 5% IN 95% N2	5% O2	36
630066	MINIMIX 34 O2 5.5% IN 94.5% N2	5.50%	36
630071	MINIMIX 34 O2 10% IN 90% N2	10% O2	36
630075	MINIMIX 34 O2 12% IN 88% N2	12% O2	36
630063	MINIMIX 34 O2 19% IN 81% N2	19% O2	36
630040	MINIMIX 34 METHANE(CH4) 50% LEL IN AIR (2.5% VOL.)	2.5% CH4	36
630024	MINIMIX 34 METHANE(CH4) 50 VOL% IN NITROGEN	50% CH4	36
630047	MINIMIX 34 PROPANE(C3H8) 50% LEL IN AIR (1.05% VOL.)	1.05% C3H8	36
630034	MINIMIX 34 BUTANE(C4H10) 50% LEL IN AIR (0.9% VOL.)	0.9% C4H10	36
630083	MINIMIX 34 BUTANE(C4H10) 8 VOL% IN NITROGEN	8% C4H10	36
		8% C4H10 +	
630018	MINIMIX 34 BUTANE(C4H10) 8%, CO2 15% IN N2	15% CO2	36
630028	MINIMIX 34 ISOBUTANE(iC4H10) 50% LEL IN AIR (0.9% VOL.)	0.9% C4H10	36
630079	MINIMIX 34 ISOBUTANE(iC4H10) 10 VOL% IN NITROGEN	10% C4H10	36
630012	MINIMIX 34 CO2 2% IN N2 98%	2% CO2	36
782161	MINIMIX 58 AMMONIA(NH3) 50PPM IN AIR	50ppm NH3	24
620138	MINIMIX 58 HYDROGEN SULPHIDE(H2S) 25 PPM IN NITROGEN	25ppm H2S	24
778175	MINIMIX 34 4-MIX 50 CO 25 H2S 50LEL CH4 12 OX	CO/H2S/CH4	24
741306	MINIMIX 34 4-MIX 50 CO 25 H2S 50LEL CH4 18 OX	CO/H2S/CH4	24
742951	MINIMIX 34 4-MIX 100 CO 15 H2S 2.2% CH4 18 OX	CO/H2S/CH4	24
758722	MINIMIX 34 4-MIX 100 CO 15 H2S 50LEL CH4 18 OX	CO/H2S/CH4	24
		CO/H2S/	
630077	MINIMIX 34 4-MIX 50 CO 25 H2S 50LEL i-C4H10 12 OX	i-C4H10	24
	Regulator to be used for above		
620013	REGULATOR F/SCOTTY VI AND 4COMP		

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ALL REGULATORS IN OVERVIEW

An overview of the available cylinder regulators grouped per gas type.

Apart from replacing damaged or faulty gauges, repairs should never be attempted on regulators. Faulty, old or corroded regulators should be replaced. Internal seal and membranes will deteriorate with time and as a rule gas regulators should be replaced with a 5 year interval.



Product number	Product name	Inlet connection	Inlet pressure (bar)	Max. outlet pressure (bar)	Outlet pressure gauge (bar)	Possible applications
Regulators for NITROGEN						
510002	REGULATOR 510 N2 PRESSURE 0-10 BAR	W24.32 mm x 1/14" Int.	200	10	16	Purging
510003	REGULATOR 510 N2 PRESSURE 0-1 BAR	W24.32 mm x 1/14" Int.	200	1	-	Blanketing, bump testing, calibration
771713	REGULATOR 600 NITROGEN 0-200 BAR	W24.32 mm x 1/14" Int.	200	200	200	Topping up accumulators
572594	REGULATOR R-21 NITROGEN 0-28 BAR W. PRESSURE GAUGE	W24.32 mm x 1/14" Int.	200	28	40	Purging
Regulators for ARGON/CO2 and CO2						
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN	W24.32 mm x 1/14" Int.	200	10	35 l/min	Shielding gas
510012	REGULATOR 510 CO2 FLOW CGA320	CGA 320 Int.	150	10	-	Shielding gas
510004	REGULATOR 510 CO2 FOR C-9 AND C-27 CYLINDER	CGA 320 Int.	150	10	16	Beverage and potable water
Regulators for HELIUM						
624434	BALLOON FILL REGULATOR WITH GAUGE	W24.32 mm x 1/14" Int.	200	1	-	Balloon filling
Regulators for SPANGAS						
510011	REGULATOR 510 N2 FLOW 0-1.3 L/MIN	W24.32 mm x 1/14" Int.	200		1.3 l/min	Bump testing and calibration
620013	REGULATOR F/SCOTTY VI AND 4COMP	CGA C-10 Int.	69	10	500 ml/min	Bump testing and calibration
Regulators for OXYGEN and ACETYLENE						
510000	REGULATOR 510 N2 PRESSURE 0-10 BAR	W21.8 mm x 1/14" Int.	150	10	16	Gas welding with cylinder
510001	REGULATOR 510 AC PRESSURE 0-1.5 BAR	G3/4" RH Ext.	20	1.5	2.5	Gas welding with cylinder
510021	REGULATOR 520 OX PRESSURE 0-10 BAR FOR GAS CENTRAL	W21.8 mm x 1/14" Int.	150	10	16	Gas welding with GDS
510020	REGULATOR 520 AC PRESSURE 0-1.5 BAR FOR GAS CENTRAL	G3/4" RH Ext.	20	1.5	2.5	Gas welding with GDS
510031	REGULATOR 530 OX PRESSURE 0-10 BAR FOR OUTLET STATION	3/8" BSPP RH Int.	10	10	16	Gas welding with GDS
510030	REGULATOR 530 AC PRESSURE 0-1.5 BAR FOR OUTLET STATION	3/8" BSPP LH Int.	1.5	1.5	2.5	Gas welding with GDS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERANTS



Our extensive refrigerants portfolio is created to ensure our customer's regulatory compliance with global and regional regulations in the maritime industry. We have the proper technical solutions to support our customers in switching from High GWP refrigerants to Low GWP refrigerants.



Circularity



Reliability



Safety First



Cost Saving

Low GWP Refrigerants

A full range of non flammable refrigerants suitable for maritime use.

Browse this section to discover the benefits of our Refrigerants range.

Scan or click on the QR code for more information.



GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-134A

Unicool
by Wilhelmsen

UNICOOL R-134a REFRIGERANT

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as air conditioning systems, reefer box cooling, engine control room AC and cargo cooling.



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer
- Conforms to ARI-700 purity standard

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number	Product Name
905620	UNICOOL R-134a 12.5 KG REFRIGERANT
905557	UNICOOL R-134a 57 KG REFRIGERANT

Specification

Product Name	UNICOOL R-134a 12.5 KG REFRIGERANT	UNICOOL R-134a 57 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	1430	1430
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Light blue	Light blue

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-774

Unicool
by Wilhelmsen

UNICOOL R-744 27 KG REFRIGERANT

Refrigerant grade carbon dioxide (CO₂) is a high purity natural refrigerant. Its low moisture content makes it suitable to be used in CO₂ refrigeration systems. With 0 ozone depletion potential (ODP) and minimum global warming potential of 1, it is an environmentally friendly alternative to HFC.



Features

- High purity (99.99% CO₂)
- Very low moisture content (\leq 5 ppm)
- ASHRAE Standard 34 Safety Rating A1

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Worldwide Compliance - This low GWP refrigerant solution is a quota-free product and enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905790	UNICOOL R-744 27 KG REFRIGERANT

Specification

GWP	1
ODP	0

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-404A

Unicool
by Wilhelmsen

UNICOOL R-404A REFRIGERANT

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low and medium temperature applications (Evaporating temperatures of -45 to +8°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard
- A replacement option for R-502 and R-22
- Most suitable for new systems

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number	Product Name
905623	UNICOOL R-404A 9.5 KG REFRIGERANT
905606	UNICOOL R-404A 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-404A 9.5 KG REFRIGERANT	UNICOOL R-404A 45 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	3922	3922
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Pastel Orange	Pastel Orange

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-407C

Unicool
by Wilhelmsen

UNICOOl R-407C REFRIGERANT

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as high and medium temperature applications (evaporating temperatures of -25 to +15°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer
- Conforms to ARI-700 purity standard
- Suitable for new systems and retrofits

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905624	UNICOOl R-407C 11 KG REFRIGERANT
905607	UNICOOl R-407C 52 KG REFRIGERANT

Specification

Product Name	UNICOOl R-407C 11 KG REFRIGERANT	UNICOOl R-407C 52 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	1774	1774
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Orange brown	Orange brown

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-407F

Unicool
by Wilhelmsen

UNICOOL R-407F REFRIGERANT

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as high, medium and low temperature applications (evaporating temperatures of -30 to +15°C). This refrigerant is the most cost effective low GWP replacement for existing R-404A/507 system.



Features

- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- No Performance Drop - it provides similar capacity to R-404A for low and medium temp. application with better energy efficiency
- Suitable for new installation and retrofit

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and cost as the refrigerant is compatible with existing R-404A systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905712	UNICOOL R-407F 11 KG REFRIGERANT
905715	UNICOOL R-407F 51 KG REFRIGERANT

Specification

Product Name	UNICOOL R-407F 11 KG REFRIGERANT	UNICOOL R-407F 51 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	1824	1824
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Light green	Light green

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-407H

Unicool
by Wilhelmsen

UNICOOL R-407H REFRIGERANT

A new generation of HFC blend refrigerant which is non-flammable (Class A1) and harmless to the ozone layer. Excellent low GWP for low temperature applications and most suitable for new installations.



Features

- Non-flammable with a safety classification of A1
- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- Suitable for new installation

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective - One of the lower cost R-404A alternatives available in the market
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905761	UNICOOL R-407H 10 KG REFRIGERANT
905760	UNICOOL R-407H 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-407H 10 KG REFRIGERANT	UNICOOL R-407H 45 KG REFRIGERANT
GWP	1495	1495
Cylinder Type	Refr-12	Refr-56
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Gray	Gray

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
513564	CYLINDER STAND
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
711480	DIGI-MANIFOLD SET (4-WAY)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-410A

Unicool
by Wilhelmsen

UNICOOL R-410A REFRIGERANT

A synthetic HFC refrigerant which is harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low, medium and high temperature applications (evaporating temperatures of -45 to +8°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine refrigerant from approved producer
- Conforms to ARI-700 purity standard
- For new systems only

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number

Product Number	Product Name
905627	UNICOOL R-410A 9.5 KG REFRIGERANT
905608	UNICOOL R-410A 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-410A 9.5 KG REFRIGERANT	UNICOOL R-410A 45 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	2090	2090
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Light Pink	Light Pink

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-417A

Unicool
by Wilhelmsen

UNICOOL R-417A REFRIGERANT

Environmentally acceptable HFC solution for replacing ozone depleting R-22 refrigerants in existing refrigeration systems as low, medium and high temperature applications (evaporating temperatures of -35 to +25°C). This is a WSS preferred retrofit solution.



Features

- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- Compatibility - R-417A is compatible with both POE and mineral oil in existing R-22 system
- Recommended for existing R-22 system

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and Cost as the refrigerant is compatible with mineral oil in existing R-22 systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905705	UNICOOL R-417A 11 KG REFRIGERANT
905637	UNICOOL R-417A 51 KG REFRIGERANT

Specification

Product Name	UNICOOL R-417A 11 KG REFRIGERANT	UNICOOL R-417A 51 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	2346	2346
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Green	Green

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-422D

Unicool
by Wilhelmsen

UNICOOL R-422D REFRIGERANT

Environmentally acceptable HFC solution for replacing ozone depleting refrigerants in existing refrigeration systems (evaporating temperatures of -35 to +25°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number	Product Name
905710	UNICOOL R-422D 52 KG REFRIGERANT

Specification

Product Name	UNICOOL R-422D 52 KG REFRIGERANT
Cylinder Type	Refr-56
GWP	2729
Invent Hazard Material (IMO/EU) classification	C-25
ODP	0
Colour	Light Green

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-427A

Unicool
by Wilhelmsen

UNICOOL R-427A REFRIGERANT

Environmentally acceptable HFC solution for replacing ozone depleting refrigerants in existing refrigeration systems (evaporating temperatures of -35 to +25°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number	Product Name
905708	UNICOOL R-427A 53 KG REFRIGERANT

Specification

Product Name	UNICOOL R-427A 53 KG REFRIGERANT
Cylinder Type	Refr-56
GWP	2138
Invent Hazard Material (IMO/EU) classification	C-25
ODP	0
Colour	Green

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-507

Unicool
by Wilhelmsen

UNICOOL R-507 REFRIGERANT

A synthetic HFC refrigerant, harmless to the ozone layer. The gas is used in a variety of maritime refrigeration applications such as low and medium temperature applications (evaporating temperatures of -45 to +8°C).



Features

- All refillable cylinders are inspected prior to refilling
- Residue refrigerant recovered to prevent environmental damage
- Content is 100% genuine virgin refrigerant from approved producer
- Conforms to ARI-700 purity standard

Benefits

- Worldwide compliance
- Assured quality
- Refillable cylinders

Product Number	Product Name
905628	UNICOOL R-507 9.5 KG REFRIGERANT
905610	UNICOOL R-507 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-507 9.5 KG REFRIGERANT	UNICOOL R-507 45 KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	3985	3985
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Teal	Teal

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
513564	CYLINDER STAND

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-448A

Unicool
by Wilhelmsen

UNICOOL R-448A REFRIGERANT

A new generation of HFO/HFC blend refrigerant which is non-flammable and harmless to the ozone layer. Excellent low GWP and highly energy efficient refrigerant for low and medium temperature Applications. Suitable for both new installations and existing R-404A systems.



Features

- Non-flammable with a safety classification of A1
- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- No Performance Drop - it provides similar capacity to R-404A for low and medium temp. application with better energy efficiency
- Suitable for new installation and retrofit

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and cost as the refrigerant is compatible with existing R-404A systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905736	UNICOOL R-448A 10 KG REFRIGERANT
905740	UNICOOL R-448A 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-448A 10 KG REFRIGERANT	UNICOOL R-448A 45 KG REFRIGERANT
GWP	1387	1387
Cylinder Type	Refr-12	Refr-56
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Gray	Gray

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

544932	REFRIGERANT CYL. VALVE ADAPTOR SET
597757	CHARGING HOSE SET UCH-72 3X1.8M
513564	CYLINDER STAND
711480	DIGI-MANIFOLD SET (4-WAY)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-449A

Unicool
by Wilhelmsen

UNICOOL R-449A REFRIGERANT

A new generation of HFO/HFC blend refrigerant which is non-flammable and harmless to the ozone layer. Excellent low GWP and highly energy efficient refrigerant for low and medium temperature applications. Suitable for both new installations and existing R-404A systems.



Features

- Non-flammable with a safety classification of A1
- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- No Performance Drop - it provides similar capacity to R-404A for low and medium temp. application with better energy efficiency
- Suitable for new installation and retrofit

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and cost as the refrigerant is compatible with existing R-404A systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905744	UNICOOL R-449A 10 KG REFRIGERANT
905748	UNICOOL R-449A 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-449A 10 KG REFRIGERANT	UNICOOL R-449A 45 KG REFRIGERANT
GWP	1397	1397
Cylinder Type	Refr-12	Refr-56
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Gray	Gray

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

544932	REFRIGERANT CYL. VALVE ADAPTOR SET
597757	CHARGING HOSE SET UCH-72 3X1.8M
513564	CYLINDER STAND
711480	DIGI-MANIFOLD SET (4-WAY)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-452A

Unicool
by Wilhelmsen

UNICOOL R-452A REFRIGERANT

A new generation of low GWP HFO/HFC blend refrigerant which is non-flammable and harmless to the ozone layer. The refrigerant is suitable in new system, as well as for retrofit of existing systems. This refrigerant is emerging as a lower GWP replacement for R-404A particularly in low temperature application with air-cooled condenser.



Features

- Non-flammable with a safety classification of A1
- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- Low discharge temperature - Suitable for new installation and retrofit of existing R-404A low temperature system with air-cooled condenser

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Exchange program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and cost as the refrigerant is compatible with existing R-404A systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905728	UNICOOL R-452A 10 KG REFRIGERANT
905732	UNICOOL R-452A 45 KG REFRIGERANT

Specification

Product Name	UNICOOL R-452A 10 KG REFRIGERANT	UNICOOL R-452A 45 KG REFRIGERANT
Cylinder Type	Refr-12	-
GWP	2140	2140
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Gray	Gray

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

711480	DIGI-MANIFOLD SET (4-WAY)
513564	CYLINDER STAND
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
597757	CHARGING HOSE SET UCH-72 3X1.8M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
R-513A

Unicool
by Wilhelmsen

UNICOOL R-513A REFRIGERANT

A new generation of HFO/HFC blend refrigerant which is non-flammable and harmless to the ozone layer. Excellent low GWP refrigerant for medium temperature applications. Suitable for both new installation and existing R-134a system.



Features

- Non-flammable with a safety classification of A1
- Quality Guaranteed - purity and moisture content are guaranteed as per AHRI Standard 700
- Global Availability - Products are available in WSS global network with the same specification and quality
- No Performance Drop - it provides similar capacity to R-134a in medium temp. application
- Suitable for new installation and retrofit

Benefits

- Safety and Authenticity - Refrigerants delivered under the WSS Global Cylinder Ex-change program are fully traceable, safe, authentic, and thus eliminate the risks of receiving illegal or counterfeit refrigerants
- Cost Effective- Reduce downtime and cost as the refrigerant is compatible with existing R-134a systems
- Worldwide Compliance - This low GWP refrigerant solution enables ship owners to stay compliant with all international regulations

Product Number	Product Name
905771	UNICOOL R-513A 11 KG REFRIGERANT
905770	UNICOOL R-513A 50 KG REFRIGERANT

Specification

Product Name	UNICOOL R-513A 11 KG REFRIGERANT	UNICOOL R-513A 50KG REFRIGERANT
Cylinder Type	Refr-12	Refr-56
GWP	631	631
Invent Hazard Material (IMO/EU) classification	C-25	C-25
ODP	0	0
Colour	Gray	Gray

ODP = Ozone Depletion Potential

GWP = Global Warming Potential (IPCC Fourth Assessment Report - AR4)

Accessories

513564	CYLINDER STAND
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
597757	CHARGING HOSE SET UCH-72 3X1.8M
711480	DIGI-MANIFOLD SET (4-WAY)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Refrigerants
Refrigerant recovery cylinders

UNITOR®
by Wilhelmsen

RECOVERY CYL EMPTY +DOCUMENTS

Cylinder for recovery and storing of refrigerants during system servicing.
The cylinder is sold to customer and is not part of the cylinder exchange program.



Features

- Two connection ports to enable charging of liquid and extraction of vapour simultaneously
- Cylinder supplied under vacuum
- Cylinder is clearly identified for 'RECOVERY'
- Comes with a complete documentation kit including transport label following European and American requirements

Benefits

- Delivered with filling guideline to protect against over charging
- Includes transport labels specified by USA DOT (Dept of Transportation) and EU

Product Number	Product Name
596544	RECOVERY CYL EMPTY 21.6L+DOCUMENTS
632588	RECOVERY CYL EMPTY 56L+DOCUMENTS

Specification

Product Name	RECOVERY CYL EMPTY 21.6L+DOCUMENTS	RECOVERY CYL EMPTY 56L+DOCUMENTS
Connection [Size/Type]	1/4" flare SAE	CGA 660
Water capacity [l]	21.6 l - 50lbs tank	55.8 l - 123lbs tank

Accessories

597757	CHARGING HOSE SET UCH-72 3X1.8M
544932	REFRIGERANT CYL. VALVE ADAPTOR SET
652522	REFRIGERANT RECOVERY PACKAGE F/220V
652511	REFRIGERANT RECOVERY PACKAGE F/110V
613935	RECOVERY UNIT CONNECTION KIT

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Offshore Racks
Racks and Manifolds

UNITOR
by Wilhelmsen

CYLINDER TRANSPORT RACK OFFSHORE DNV

Standardised gas cylinder transportation rack for offshore use.

Wilhelmsen Ships Service (WSS) delivers gas, cylinders, racks and manifolds as one solution, providing easy and cost efficient operational management.

Product Information

Cylinder transport rack for 16 cylinders, DNV approved for Offshore use.



Features

- Great carrying capacity of 16 standard cylinders inside the rack
- Two doors and loading ramps for easy loading and unloading of cylinders
- Safety bar fitted 2/3rds height above centre of gravity for cylinders to secure them during transport
- Fastening points for straps are present making it possible to safely transport less than 16 or smaller cylinders
- The rack can be equipped with a certified manifold for use with inert gases with central outlet
- Certified wire sling is part of the rack and in some countries, certified chains will be supplied

Benefits

- Racks are of the highest quality and in accordance with the strictest standards/regulation
- Enabling safe transport of cylinders even in the rough offshore environment
- Suitable for offshore lifting and handling of compressed gas cylinders
- Easy to handle by fork lift or crane
- Racks can be returned free of charge to selected key sites to support operational flexibility
- Flexible invoicing scheme to suit your land based organisation's preference
- Predictable cost and thus easy to budget
- Global operational tracking and tracing system ensures location of individual racks whereabouts
- WSS ensures periodic rack inspections and re-certification every 12 and 48 months according to DNV 2.7-1 and ISO 10855-1

Product Number

772202

Product Name

CYLINDER TRANSPORT RACK OFFSHORE DNV

Specification

Invert Hazard Material (IMO/EU) classification

NA

Colour

Blue

Height [mm] x Length [mm] x Width [mm]

2080 x 1170 x 1170

Gross Weight [kg]

1900

Weight [kg]

450 approx. Tare

Accessories

772208

MANIFOLD NITROGEN FOR OFFSHORE RACK

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Offshore Racks
Racks and Manifolds

UNITOR
by Wilhelmsen

MANIFOLD NITROGEN FOR OFFSHORE RACK

A manifold to be used with Offshore Rack consisting of a central header and 16 flexible hoses to connect 16 cylinders at the same time.



Product Information

A manifold for inert gases consisting of a central header and 16 flexible hoses (including explosion cable) and a central outlet. The flexible hoses are extremely suitable to accommodate continuous vibrations as experienced within the maritime/offshore environment. Hose connections suitable for Unitor Nitrogen and Argon cylinders.

Features

- A manifold with flexible hoses compliant to EN 13769
- Working pressure 200 pressure
- Individual serial number
- Connections are W24.32mm x 1/14" for inert gases
- WSS will take care of requalification of the manifold (5 year interval)

Benefits

- A very flexible manifold capable of absorbing vibrations reducing the risk of leakage by fatigue crack forming
- Easy to exchange cylinders from racks resulting in a short turn around time
- Central outlet for gas consumption; one connection connects 16 cylinders resulting in a stable continuous gas flow
- Less need to change cylinders during work; less interruptions/downtime
- Less and safer handling than with individual cylinders

Product Number	Product Name
772208	MANIFOLD NITROGEN FOR OFFSHORE RACK

Specification

Invent Hazard Material (IMO/EU) classification	NA
Applications	Inert gases only like Nitrogen or Argon
Connection [Size/ Type]	W24.32 x 1/14"
Operating pressure [bar]	200 bar = 2900psi maximum
Test Pressure [bar]	300bar = 4350psi

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAS DISTRIBUTION SYSTEM



The Unitor Gas Distribution System is essential to ensuring a safe hot work environment onboard. Our Gas Distribution System is fully configurable, complete with the necessary safety devices, preventing accidents before they happen and keeping your crew and vessels safe. Our reliable gas distribution system ensures cylinders are isolated from the worksite whilst ensuring a steady supply of flammable gas fit for work. Our components are third-party certified and fully compatible with all previous Unitor systems. Ensure the safety of your crew and vessels with our comprehensive solution tailor made for maritime use.



Safety operation



Consistent and reliable gas supply



Reduce consumables expended



Regulatory compliance

Quality and Trusted Components

Components of the gas distribution system are designed and manufactured in conformance with international norms and standards, fit-for-purpose and standardised globally to ensure a trusted and reliable gas distribution system for your crew.

Welding Safety Inspection

Tap into the expertise of our Port Service Engineers and keep your hot work environment safe. We offer a yearly safety inspection survey of your welding equipment onboard. Results of the confidential assessment will be shared with the vessel along with our recommendations and improvements.

Browse this section to discover the benefits of our Gas Distribution System range.

Scan or click on the QR code for more information.



GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System

UNITOR
by Wilhelmsen

GAS DISTR. SYST. 2CYL. 1AC + 1OX

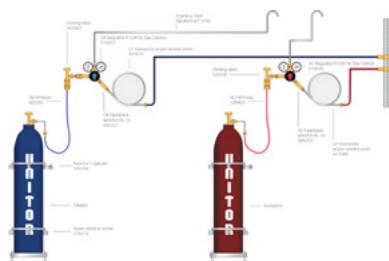
Central gas distribution installation for single acetylene and oxygen cylinders.

Product Information

GDS Gas Central installation complete set for 1 Acetylene + 1 Oxygen cylinder system.

Features

- Includes all items necessary for the gas central room, including signs, racks, equipment and brackets to be screwed or welded to deck and bulkhead
 - Included are also pre-welded unions to be welded to the distribution pipes, and brazed to the evacuation pipes from the regulator safety valves
 - Gas cylinders, cylinder trolley, clamps, bushings should be ordered separately in necessary quantities
 - If the central is to be placed in two separate rooms, one each for Acetylene and Oxygen respectively, one each of signs product no. 183202, 526566 and 526558 are needed
 - Outlet Station (product no. 778199) for installation on the other end of the distribution pipes shall be ordered separately



Benefits

- Increases safety
 - Cylinders are less subject to physical damage
 - Location of cylinders is known to everyone onboard
 - Cylinders can easily be removed in case of fire onboard
 - No cylinder transport to the worksite needed

Product Number	Product Name
233064	GAS DISTR. SYST. 2CYL. 1AC + 1OX

Specification

Invent Hazard Material (IMO/EU) classification NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System

UNITOR
by Wilhelmsen

GAS DISTR. SYST. 3CYL. 1AC + 2OX

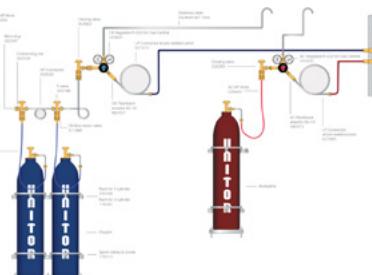
Central gas distribution installation for single acetylene and two oxygen cylinders.

Product Information

GDS Gas Central installation complete set for 1 Acetylene + 2 Oxygen cylinder system.

Features

- Includes all items necessary for the gas central room, including signs, racks, equipment and brackets to be screwed or welded to deck and bulkhead
 - Included are also pre-welded unions to be welded to the distribution pipes, and brazed to the evacuation pipes from the regulator safety valves
 - Gas cylinders, cylinder trolley, clamps, bushings and outlet stations should be ordered separately in necessary quantities
 - If the central is to be placed in two separate rooms, one each for Acetylene and Oxygen respectively, one each of signs product no. 183202, 526566 and 526558 are needed
 - Outlet Station (product no. 778199) for installation on the other end of the distribution pipes shall be ordered separately



Benefits

- Increases safety
 - Cylinders are less subject to physical damage
 - Location of cylinders is known to everyone onboard
 - Cylinders can easily be removed in case of fire onboard
 - No cylinder transport to the worksite needed

Product Number	Product Name
511170	GAS DISTR. SYST. 3CYL. 1AG + 20X

Specification

Invent Hazard Material (IMO/EU) classification NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Complete installations for Ox/Ac

UNITOR[®]
by Wilhelmsen

GAS DISTR. SYST. 4CYL. 2AC + 2OX

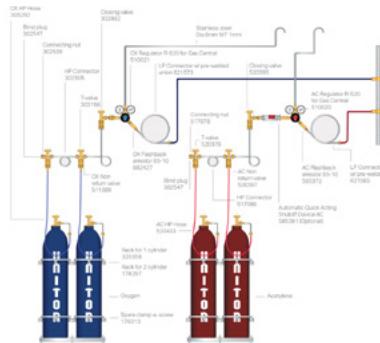
Central gas distribution installation for two acetylene and two oxygen cylinders.

Product Information

GDS Gas Central installation complete set for 2 Acetylene + 2 Oxygen cylinder system.

Features

- Includes all items necessary for the gas central room, including signs, racks, equipment and brackets to be screwed or welded to deck and bulkhead
- Included are also pre-welded unions to be welded to the distribution pipes, and brazed to the evacuation pipes from the regulator safety valves
- Gas cylinders, cylinder trolley, clamps, bushings should be ordered separately in necessary quantities
- If the central is to be placed in two separate rooms, one each for Acetylene and Oxygen respectively, one each of signs product no. 183202, 526566 and 526558 are needed
- Outlet Station (product no. 778199) for installation on the other end of the distribution pipes shall be ordered separately



Benefits

- Increases safety
- Cylinders are less subject to physical damage
- Location of cylinders is known to everyone onboard
- Cylinders can easily be removed in case of fire onboard
- No cylinder transport to the worksite needed

Product Number	Product Name
234849	GAS DISTR. SYST. 4CYL. 2AC + 2OX
Specification	
Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System

UNITOR
by Wilhelmsen

GAS DISTR. SYST. 6CYL. 2AC + 4OX

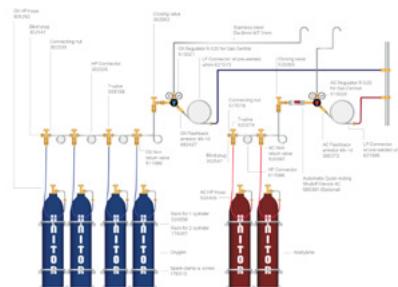
Central gas distribution installation for two acetylene and four oxygen cylinders.

Product Information

GDS Gas Central installation complete set for 2 Acetylene + 4 Oxygen cylinder system.

Features

- Includes all items necessary for the gas central room, including signs, racks, equipment and brackets to be screwed or welded to deck and bulkhead
 - Included are also pre-welded unions to be welded to the distribution pipes, and brazed to the evacuation pipes from the regulator safety valves
 - Gas cylinders, cylinder trolley, clamps, bushings should be ordered separately in necessary quantities
 - If the central is to be placed in two separate rooms, one each for Acetylene and Oxygen respectively, one each of signs product no. 183202, 526566 and 526558 are needed
 - Outlet Station (product no. 778199) for installation on the other end of the distribution pipes shall be ordered separately



Benefits

- Increases safety
 - Cylinders are less subject to physical damage
 - Location of cylinders is known to everyone onboard
 - Cylinders can easily be removed in case of fire onboard
 - No cylinder transport to the worksite needed

Product Number	Product Name
510578	GAS DISTR. SYST. 6CYL. 2AC + 4OX
Specification	Invent Hazard Material (IMO/EU) classification
	NA

Specific

Invent Hazard Material (IMO/EU) classification NA

For more information, please visit the product catalogue

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Complete installations for Ox/Ac

UNITOR[®]
by Wilhelmsen

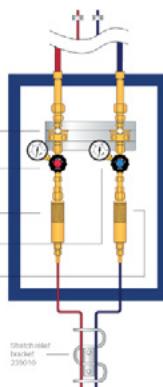
OUTLET STATION 700 COMPL. R530 S55 AND CABINET

Complete set of a Gas Distribution System (GDS) outlet point to be installed in the workshop.

Product Information

The outlet station model 700 for bulkhead mounting is designed to obtain the highest degree of safety together with ease of operation. The standard protective cabinet, which completely encloses the outlet equipment, is made of 1.5 mm steelplate. As standard supply, the outlet station is fitted with the completely enclosed S55 flashback arrestors and R-530 regulators.

The outlet stations are delivered complete with installation instructions and directions for use and maintenance. A stretch-relief bracket for the welding hoses is included.



Features

- Standard connections to distribution piping
- Quick acting ball valves
- Quality regulators and flash back arrestors
- A cabinet protecting the outlet station against dirt and mechanical damage

Benefits

- A complete safe solution for an outlet station

Product Number	Product Name
778199	OUTLET STATION 700 COMPL. R530 S55 AND CABINET

Specification

Invent Hazard Material (IMO/EU) classification	NA
Depth [mm]	160
Height [mm]	500
Width [mm]	350

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System

Cylinder racks

UNITOR®
by Wilhelmsen

RACK FOR 1 CYLINDER

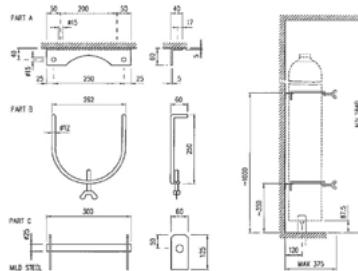
Cylinder racks for safe storage of one cylinder

Product Information

Rack set for mounting and securing 1 Unitor cylinder, equipped with 2 quick release clamps.

Features

- Designed for safe and vibration-free storing of 40 L and 50 L gas cylinders on board
- The racks are galvanized for maximum corrosion protection.
- Screw and nut in the clamp assembly are of stainless steel to ensure easy and fast removal of the cylinders in case of fire



Benefits

- Safe storage of cylinders onboard

Product Number

320358

Product Name

RACK FOR 1 CYLINDER

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Cylinder racks

UNITOR[®]
by Wilhelmsen

RACK FOR 2 CYLINDERS

Cylinder racks for safe storage of two cylinders

Product Information

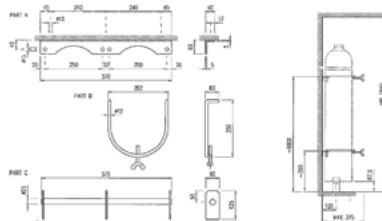
Rack set for mounting and securing 2 Unitor cylinders, equipped with 2 quick release clamps for each cylinder.

Features

- Designed for safe and vibration-free storing of 40 L and 50 L gas cylinders on board
- The racks are galvanized for maximum corrosion protection
- Screw and nut in the clamp assembly are of stainless steel to ensure easy and fast removal of the cylinders in case of fire

Benefits

- Safe storage of cylinders onboard



Product Number

176297

Product Name

RACK FOR 2 CYLINDERS

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

HIGH PRESS. HOSE AC 1 MTR AND CABLE W/ ELBOW

GDS spare part for central installation connects the gas cylinder to the closing valve or T-valve.



Product Information

A high pressure hose for acetylene with 3/4" connection to the acetylene valve and 1/4" BSP LH connection to the manifold. Manufactured conforming to International Standard ISO 14113.

Safety

For safety reasons we strongly recommend to preform annual checking and testing of the hose, and to change the hose every 5 years.

Features

- For acetylene
- Hytrel jacket
- Stainless steel braiding
- Comes with a safety restraining cable

Benefits

- Safe connection between cylinder and manifold

Product Number	Product Name
520403	HIGH PRESS. HOSE AC 1 MTR AND CABLE W/ ELBOW
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Inlet Connection	G3/4" RH Ext.
Outlet Connection	1/4" BSPP LH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HIGH PRESS.HOSE OX 1 MTR AND CABLE W/ ELBOW

GDS spare part for central installation connects the gas cylinder to the closing valve or T-valve.



Product Information

A high pressure oxygen hose with W21.8 connection for the valve outlet of the oxygen cylinder and 1/4" BSP for connection to the manifold. Hoses are cleaned for oxygen service. Manufactured conforming to International Standard ISO 14113.

Safety

For safety reasons we strongly recommend to preform annual checking and testing of the hose, and to change the hose every 5 years.

Features

- Oxygen compatible
- Hytrel jacket
- Stainless steel braiding
- Comes with a safety restraining cable

Benefits

- Safe connection between cylinder and manifold

Product Number	Product Name
305292	HIGH PRESS.HOSE OX 1 MTR AND CABLE W/ ELBOW
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	W21.8mm x 1/14" RH Int.
Outlet Connection	1/4" BSPP RH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AC HIGH PRESSURE CONNECTOR

GDS spare part for central installation used to connect two T-valves

Product Information

High pressure expansion pipe for use on the Acetylene line in the GDS gas central installation to connect between 2 T-valves.



Features

- For acetylene
- Stainless steel tube
- Pig tail shape provides some degree of flexibility

Benefits

- Flexible connection between two valves
- Safe gas tight connection

Product Number	Product Name
517086	AC HIGH PRESSURE CONNECTOR

Specification

Invert Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP LH Int.
Outlet Connection	1/4" BSPP LH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OX HIGH PRESSURE CONNECTOR

GDS spare part for central installation used to connect 2 T-valves



Product Information

High pressure expansion pipe for use on the Oxygen line to connect between 2 T-valves.

Features

- For oxygen; oxygen cleaned
- Stainless steel tube
- Pig tail shape provides some degree of flexibility

Benefits

- Flexible connection between two valves
- Safe gas tight connection

Product Number	Product Name
302505	OX HIGH PRESSURE CONNECTOR

Specification

Invert Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP RH Int.
Outlet Connection	1/4" BSPP RH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR®
by Wilhelmsen

CLOSING VALVE AC W/BRACKET

GDS spare part for central installation. Main isolation valve installed before the primary regulator..



Product Information

A closing valve to isolate the supply of acetylene from the GDS gas central installation. Manufactured conforming to International Standard ISO 10297.

Features

- Isolation valve
- Suitable for acetylene

Benefits

- Shut off acetylene system completely

Product Number	Product Name
520395	CLOSING VALVE AC W/BRACKET

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP LH Ext.
Outlet Connection	G3/4" RH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

CLOSING VALVE OX W/ BRACKET

GDS spare part for central installation. Main isolation valve installed before the primary regulator.



Product Information

A closing valve to isolate the supply of oxygen from the GDS gas central installation. Manufactured conforming to International Standard ISO 10297.

Features

- For oxygen; cleaned for oxygen service

Benefits

- Shut off complete oxygen system

Product Number	Product Name
302992	CLOSING VALVE OX W/ BRACKET

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP RH Ext.
Outlet Connection	W21.8mm x 1/14" RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

T-VALVE AC W/NON RETURN VALVE AND BRACKET

GDS spare part for central installation. Part of the manifold to connect individual cylinders in a multi-cylinder configuration.



Product Information

A T-valve to connect a single acetylene cylinder to the manifold at the GDS Gas Central installation. Manufactured conforming to International Standard ISO 10297.

Features

- For acetylene
- T-model
- Comes with non-return valve (product no. 520387)

Benefits

- Easy to connect
- Prevents backflow of gas to cylinder

Product Number	Product Name
520379	T-VALVE AC W/NON RETURN VALVE AND BRACKET

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP LH Ext.
Outlet Connection	1/4" BSPP LH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
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T-VALVE N2/OX W/NON RETURN VALVE AND BRACKET

GDS spare part for central installation. Part of the manifold to connect individual cylinders in a multi-cylinder configuration.



Product Information

A T-valve to connect a single oxygen cylinder to the manifold at the GDS Gas Central installation. Manufactured conforming to International Standard ISO 10297.

Features

- For oxygen
- T-model
- Comes with non-return valve (product no. 511089)

Benefits

- Easy to connect
- Prevents backflow of gas to cylinder

Product Number	Product Name
303198	T-VALVE N2/OX W/NON RETURN VALVE AND BRACKET

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP RH Ext.
Outlet Connection	1/4" BSPP RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

CONNECTION NUT AC 1/4" FOR AC T-VALVE

GDS spare part for central installation. Holds blind plug in place to close off the open end of a T-valve, corresponding to Position 4 in the drawing.

Product Information

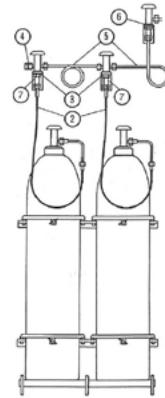
Connection nut is used to secure blind plug in place to plug one side of the T-valve.

Features

- Threaded connection suitable for AC T-valve

Benefits

- Secures blind plug in place



Product Number	Product Name
517078	CONNECTION NUT AC 1/4" FOR AC T-VALVE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection	1/4" BSPP LH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

CONNECTION NUT OX 1/4" FOR OX T-VALVE

GDS spare part for central installation. Holds blind plug in place to close off the open end of a T-valve, corresponding to Position 4 in the drawing.

Product Information

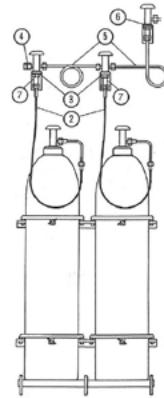
Connection nut is used to secure blind plug in place to plug one side of the T-valve.

Features

- Threaded connection suitable for OX T-valve

Benefits

- Secures blind plug in place



Product Number	Product Name
302539	CONNECTION NUT OX 1/4" FOR OX T-VALVE
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Connection	1/4" BSPP RH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

BLIND PLUG

GDS spare part for central installation corresponding to Position 4 in the drawing.

Product Information

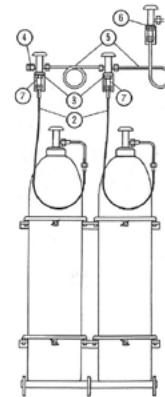
Used to close open end of T-valve in case no connection is needed.
Installed onto the open end of T-valve with a connection nut, 517078 for AC and
302539 for OX.

Features

- Built with tight tolerances

Benefits

- Gas tight end closure



Product Number	Product Name
302547	BLIND PLUG
Specification	
Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
by Wilhelmsen

NON RETURN VALVE AC FOR T-VALVE

GDS spare part for central installation. Installed at the inlet of the T-valve, corresponding to Position 7 in the drawing.

Product Information

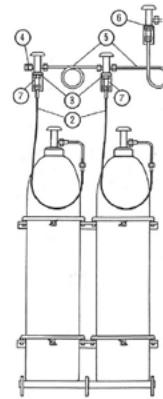
Spare part for T-valve for AC.

Features

- For acetylene
- Stops back flow

Benefits

- Easy replacement of worn out part
- Safe use of installation.



Product Number	Product Name
520387	NON RETURN VALVE AC FOR T-VALVE
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP LH Ext.
Outlet Connection	1/4" BSPP LH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
High pressure components

UNITOR[®]
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NON RETURN VALVE OX FOR T-VALVE

GDS spare part for central installation. Installed at the inlet of the T-valve, corresponding to Position 7 in the drawing.

Product Information

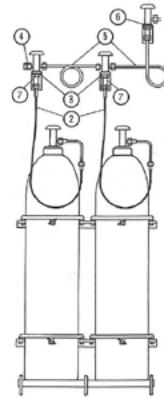
Spare part for T-valve for OX.

Features

- For oxygen; cleaned for oxygen service

Benefits

- Prevents back flow



Product Number	Product Name
511089	NON RETURN VALVE OX FOR T-VALVE
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Inlet Connection	1/4" BSPP RH Ext.
Outlet Connection	1/4" BSPP RH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AUTOMATIC QUICK ACTING SHUTOFF DEVICE AC HDS17

An automatic slam shut device to stop acetylene decomposition in the acetylene manifold.

Product Information

An automatic quick acting slam shut valve to stop dangerous acetylene decomposition in the high pressure acetylene manifold from propagating downstream to the distribution pipeline.



Features

- Pressure activated piston valve stops supply of acetylene.
- Immediately cuts off acetylene supply from high pressure manifold in case of acetylene decomposition.
- Designed and manufactured in accordance to ISO 14114 standards
- Installed at the outlet of the Closing Valve AC (product no. 520395) with included nipple

Benefits

- Prevents propagation of acetylene decomposition in high pressure manifold
- No manual intervention required
- Added safety for gas central with 2 or more Acetylene cylinders connected to manifold

Product Number	Product Name
585381	AUTOMATIC QUICK ACTING SHUTOFF DEVICE AC HDS17

Specification

Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Low pressure components

UNITOR[®]
by Wilhelmsen

REGULATOR 520 AC PRESSURE 0-1.5 BAR FOR GAS CENTRAL

GDS spare part for central installation. Primary regulator installed after the closing valve.



Product Information

Unitor cylinder regulators for acetylene and oxygen are designed for reliability and safety in use as part of a gas distribution system. The large adjustment knobs are red for acetylene and blue for oxygen for easy identification of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8" gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with sufficient capacity for all types of gas welding and cutting work.

- Easy identification of gas types with colour-coded adjustment knobs
- Immediate identification of gas pressure with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor Acetylene gas cylinders
- Full conformance with EN ISO 7291 / 2503

Safety

For safety reasons we strongly recommend to perform annual checking and testing of the regulator, and to change the regulator every 5 years. For vessels subject to OCIMF SIRE or RIGHTESHIP RISQ, replacement of the regulators is mandatory after 5 years from date of manufacture. Manufacturing date is stamped on the regulator.

Features

- Installed at Gas Cylinder Central
- Single stage primary regulator
- Provides constant flow of gas at right pressure
- Safety valve
- Built according to international norm EN ISO 7291 Class 3
- Safety outlet with pipe connection

Benefits

- Provides safe working conditions
- Long lasting quality
- Designed for maritime use
- Includes a locking mechanism to avoid tampering with the set outlet pressure
- Downward compatible with Unitor gas distribution systems for the past 25 years

Product Number

510020

Product Name

REGULATOR 520 AC PRESSURE 0-1.5 BAR FOR GAS CENTRAL

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	G3/4" RH Ext.
Outlet Connection	3/8" BSPP LH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REGULATOR 520 OX PRESSURE 0-10 BAR FOR GAS CENTRAL

GDS spare part for central installation. Primary regulator installed after the closing valve.



Product Information

Unitor cylinder regulators for acetylene and oxygen are designed for reliability and safety in use as part of a gas distribution system. The large adjustment knobs are red for acetylene and blue for oxygen for easy identification of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8" gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with sufficient capacity for all types of gas welding and cutting work.

- Easy identification of gas types with colour-coded adjustment knobs
- Immediate identification of gas pressure with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor Oxygen gas cylinders
- Full conformance with EN ISO 7291 / 2503

Safety

For safety reasons we strongly recommend to perform annual checking and testing of the regulator, and to change the regulator every 5 years. For vessels subject to OCIMF SIRE or RIGTHSHIP RISQ SIRE VIQ 7, replacement of the regulators is mandatory after 5 years from date of manufacture. Manufacturing date is stamped on the regulator.

Features

- Installed at Gas Cylinder Central
- Single stage primary regulator
- Provides constant flow of gas at right pressure
- Safety valve
- Built according to international norm EN ISO 7291 Class 3
- Safety outlet with pipe connection

Benefits

- Provides safe working conditions
- Long lasting quality
- Designed for maritime use
- Includes a locking mechanism to avoid tampering with the set outlet pressure
- Downward compatible with Unitor gas distribution systems for the past 25 years

Product Number	Product Name
510021	REGULATOR 520 OX PRESSURE 0-10 BAR FOR GAS CENTRAL

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	W21.8mm x 1/14" RH Int.
Outlet Connection	3/8" BSPP RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLASHBACK ARRESTOR 85-10 AC FOR GAS CENTRAL REG.

GDS spare part for central installation. A safety device for the prevention of flashback propagation from the fixed distribution pipeline to the cylinders and manifold.



Product Information

Maritime authorities require the installation of flashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause flashbacks of various types.

The in line Acetylene flashback arrestor is the final safety feature to prevent flashback / decomposition from advancing to the high pressure part of the gas distribution system.

The flashback arrestors supplied by Unitor are designed for use both with gas cylinders and gas outlet stations and incorporate several safety functions:

Non-return valve preventing reverse flow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders

Flame filter to quench the flame front of a flashback or a burnback

Temperature activated cut-off to prevent further gas supply in case of fire (activated if the temperature rises to approximately 100° C).

Pressure activated cut-off to prevent further gas supply after a flashback (activated by the pressure shock in front of the flashback).

The flashback arrestors are build Conform to: ISO 5175 with BAM Certification

Safety

For safety reasons we strongly recommend annual testing of the Flash back arrestors, and to change flashback arrestors every 5 years.

Some Class/Flag states (or vetting inspections such as OCIMF SIRE & RIGHTESHIP RISQ) will require yearly testing and replacement 5 years after production. The production date is on the flashback arrestor.

Features

- Flame arrestor
- Thermal valve
- Non-return valve
- In line flashback arrestor

Benefits

- Stops the pressure front
- Prevents fire from being supported by gas
- Stops the flame front
- Stops gas from back feeding into the system

Product Number	Product Name
585372	FLASHBACK ARRESTOR 85-10 AC FOR GAS CENTRAL REG.

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP LH Int.
Outlet Connection	3/8" BSPP LH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLASHBACK ARRESTOR 85-10 OX FOR GAS CENTRAL REG.

GDS spare part for central installation. A safety device for the prevention of flashback propagation from the fixed distribution pipeline to the cylinders and manifold.

Product Information

Maritime authorities require the installation of flashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause flashbacks of various types.

The flashback arrestors supplied by Unitor are designed for use both with gas cylinders and gas outlet stations and incorporate several safety functions:

Non-return valve preventing reverse flow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders
Flame filter to quench the flame front of a flashback or a burnback
Temperature activated cut-off to prevent further gas supply in case of fire (activated if the temperature rises to approximately 100° C).
Pressure activated cut-off to prevent further gas supply after a flashback (activated by the pressure shock in front of the flashback).
The flashback arrestors are build Conform to: ISO 5175 with BAM Certification

Safety

For safety reasons we strongly recommend annual testing of the Flash back arrestors, and to change flashback arrestors every 5 years. Some Class/Flag states (or vetting inspections such as OCIMF SIRE & RIGHTSHIP RISQ) will require yearly testing and replacement 5 years after production. The production date is on the flashback arrestor.

Features

- Flame arrestor
- Thermal valve
- Non-return valve
- In-line flashback arrestor

Benefits

- Stops the pressure front
- Prevents fire from being supported by gas
- Stops the flame front
- Stops gas from back feeding into the system

Product Number	Product Name
682427	FLASHBACK ARRESTOR 85-10 OX FOR GAS CENTRAL REG.

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP RH Int.
Outlet Connection	3/8" BSPP RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>



AC LOW PRESS.CONNECTOR W/PREW.UNION

GDS spare part for central installation. Connects the cylinders and manifold to the fixed gas distribution pipeline.



Product Information

A low-pressure expansion pipe to connect between Flashback arrestor and the fixed distribution pipe.

Features

- For acetylene
- Stainless steel tube
- Pig tail shape
- Comes with pre-welded union

Benefits

- Flexible connection between flashback arrestor and fixed distribution pipe
- Pre-welded pipe allows for direct welding to fixed distribution pipe

Product Number	Product Name
621565	AC LOW PRESS.CONNECTOR W/PREW.UNION

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP LH Int.
Outlet Connection	3/8" BSPP LH Int.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Low pressure components

UNITOR[®]
by Wilhelmsen

OX LOW PRESS.CONNECTOR W/PREW.UNION

GDS spare part for central installation. Connects the cylinders and manifold to the fixed gas distribution pipeline.



Product Information

A low-pressure expansion pipe to connect between Flashback arrestor and the fixed distribution pipe.

Features

- For oxygen; oxygen cleaned
- Stainless steel tube
- Pig tail shape
- Comes with pre-welded union

Benefits

- Flexible connection between flashback arrestor and fixed distribution pipe
- Pre-welded pipe allows for direct welding to fixed distribution pipe

Product Number	Product Name
621573	OX LOW PRESS.CONNECTOR W/PREW.UNION

Specification	
Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP RH Int.
Outlet Connection	3/8" BSPP RH Int.

For more information, please visit the product catalogue.

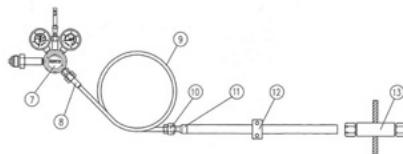
<https://www.wilhelmsen.com/product-catalogue/>

BUSHING FOR STEEL PIPES OD 19.5 TO 23.5MM

Accessory for fixed gas distribution pipeline according to drawing position number 13.

Product Information

Bushing to enclose steel pipes penetrating through decks or bulkheads.



Features

- Allows pipe movement due to vibrations or fretting
- Seals to ensure water-tightness between compartments

Benefits

- Protects the fixed pipeline from mechanical stresses
- Protects fixed pipeline against fretting

Product Number

624684

Product Name

BUSHING FOR STEEL PIPES OD 19.5 TO 23.5MM

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Low pressure components

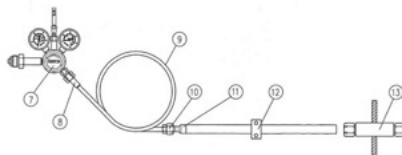
UNITOR[®]
by Wilhelmsen

CLAMP NO.20 F/STEEL

Accessory for fixed gas distribution pipeline according to drawing position number 12.

Product Information

Fastening clamp to secure fixed distribution pipe to the bulkhead



Features

- Insulated
- Compact

Benefits

- Easy to install

Product Number

320226

Product Name

CLAMP NO.20 F/STEEL

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

LEAK DETECTION SPRAY 400 ML

An easy to use leak detector spray to check for leak points in a gas distribution system.

Product Information

It is important that all equipment that is part of a gas system is checked for leaks after assembly and corrective action taken before use. Always use leak detector solutions when looking for gas leakage. Our leakdetection spray TL-4 is perfect for industrial systems. Don't use soapy water or washing up liquid. Ensure the leak detect solution is compatible with the materials used in the equipment construction.

Features

- Spray can
- Highly sensitive

Benefits

- Easy to use

Product Number	Product Name
576389	LEAK DETECTION SPRAY 400 ML

Specification

Invent Hazard Material (IMO/EU) classification	NA
Capacity	400 ml

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Outlet station components

UNITOR[®]
by Wilhelmsen

CABINET F/OUTLET STATION STEEL BLUE

The standard protective cabinet, which completely encloses the outlet equipment, is made of 1.5 mm steelplate.

Product Information

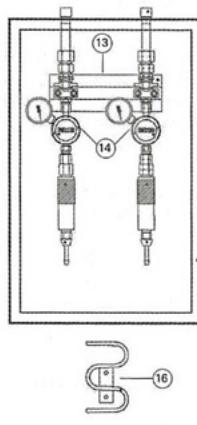
Steel cabinet encloses the outlet station parts and provides protection of critical gas equipment from dirt and mechanical damage.

Features

- Steel cabinet
- Stainless steel hinge pins

Benefits

- Protection of the outlet station against dirt and mechanical damage



Product Number	Product Name
550335	CABINET F/OUTLET STATION STEEL BLUE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Depth [mm]	160
Height [mm]	600
Width [mm]	350

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Outlet station components

UNITOR[®]
by Wilhelmsen

TWIN VALVE UNIT F/OUTLET STATION W/PREW.UNION

Spare part for the Outlet Station. The twin valve unit consist of two pressure-rated ball valves mounted on a rail. Outlet station spare part corresponding to Position 13 in the drawing.

Product Information

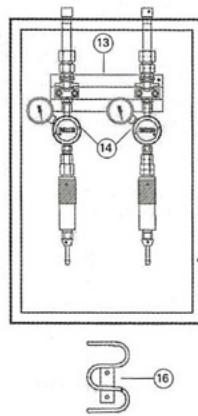
Twin ball-valves suitable for working pressures of Acetylene and Oxygen distribution pipelines. Stops and isolates gas flow to the outlet point.

Features

- Standard connections to distribution piping
- Quick acting ball valves
- Comes with pre-welded unions

Benefits

- Easy for replacing old



Product Number

550319

Product Name

TWIN VALVE UNIT F/OUTLET STATION W/PREW.UNION

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Outlet station components

UNITOR[®]
by Wilhelmsen

REGULATOR 530 AC PRESSURE 0-1.5 BAR FOR OUTLET STATION

Spare part for the outlet station. The secondary regulator will regulate the acetylene pressure from the distribution piping to the twin-hose.



Product Information

Unitor cylinder regulators for acetylene and oxygen are designed for reliability and safety in use as part of the gas distribution system. The large adjustment knobs are red for acetylene and blue for oxygen for easy identification of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8", gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with sufficient capacity for all types of gas welding and cutting work.

- Easy identification of gas types with colour-coded adjustment knobs
- Immediate identification of gas pressure with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor Acetylene gas cylinders
- Full conformance with EN ISO 7291 / 2503

Safety

For safety reasons we strongly recommend to perform annual checking and testing of the regulator, and to change the regulator every 5 years. For vessels subject to OCIMF SIRE or RIGHTSHIP RISQ, replacement of the regulators is mandatory after 5 years from date of manufacture. Manufacturing date is stamped on the regulator.

Features

- Installed at gas outlet station
- Single stage secondary regulator
- Provides constant flow of gas at right pressure
- Built according to international norm EN ISO 7291

Benefits

- Provides safe working conditions
- Connects to all standard hose dimensions
- Long lasting quality
- Designed for maritime use
- Downward compatible with Unitor gas distribution systems for the past 25 years

Product Number	Product Name
510030	REGULATOR 530 AC PRESSURE 0-1.5 BAR FOR OUTLET STATION

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP LH Int.
Outlet Connection	3/8" BSPP LH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Outlet station components

UNITOR[®]
by Wilhelmsen

REGULATOR 530 OX PRESSURE 0-10 BAR FOR OUTLET STATION

Spare part for the outlet station. The secondary regulator will regulate the oxygen pressure from the distribution piping to the twin-hose.



Product Information

Unitor cylinder regulators for acetylene and oxygen are designed for reliability and safety in use as part of the gas distribution system. The large adjustment knobs are red for acetylene and blue for oxygen for easy identification of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8", gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with sufficient capacity for all types of gas welding and cutting work.

- Easy identification of gas types with colour-coded adjustment knobs
- Immediate identification of gas pressure with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor Oxygen gas cylinders
- Full conformance with EN ISO 7291 / 2503

Safety

For safety reasons we strongly recommend to perform annual checking and testing of the regulator, and to change the regulator every 5 years. For vessels subject to OCIMF SIRE or RIGHTESHIP RISQ, replacement of the regulators is mandatory after 5 years from date of manufacture. Manufacturing date is stamped on the regulator.

Features

- Installed at gas outlet station
- Single stage secondary regulator
- Provides constant flow of gas at right pressure
- Built according to international norm EN ISO 7291

Benefits

- Provides safe working conditions
- Connects to all standard hose dimensions
- Long lasting quality
- Designed for maritime use
- Downward compatible with Unitor gas distribution systems for the past 25 years

Product Number	Product Name
510031	REGULATOR 530 OX PRESSURE 0-10 BAR FOR OUTLET STATION

Specification

Invent Hazard Material (IMO/EU) classification	NA
Inlet Connection	3/8" BSPP RH Int.
Outlet Connection	3/8" BSPP RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLASHBACK ARRESTOR S55 AC

Spare part for the Outlet Station. A safety device for the prevention of flashback propagation, installed at the secondary regulator outlet.

Product Information

Maritime authorities, require the installation of flashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause flashbacks of various types.

The S-55 model flashback arrestors are designed for use both with gas cylinders and gas outlet stations. The flashback arrestors are built, conforming to: ISO 5175 with BAM Certification.



Safety

For safety reasons in line with COSWP UK (BCGA CP7), OCIMF SIRE and RIGHSHIP RISQ requirements, we strongly recommend annual testing of the flashback arrestors, and to replace flashback arrestors every 5 years.

Features

- Pressure sensitive cut-off valve to prevent further gas supply after a flashback (activated by the pressure shock in front of the flashback)
- Temperature activated cut-off valve to prevent further gas supply in case of fire (activated if the temperature rises to approximately 100° C)
- Flame filter/arrestor to quench the flame front of a flashback or a burn back
- Non-return valve for preventing reverse flow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders
- Resettable
- Each flashback arrestor 100% tested
- Marking of manufacturing date and serial number for traceability

Benefits

- Stops the pressure front and flame front
- Stops gas from back feeding into the system
- Prevents fire from being supported by gas
- Indicator ring will show if the pressure activated cut-off has been activated; the ring is also used for resetting the flashback arrestor

Product Number

708537

Product Name

FLASHBACK ARRESTOR S55 AC

Specification

Invent Hazard Material (IMO/EU) classification

NA

Inlet Connection

3/8" BSPP LH Int.

Outlet Connection

3/8" BSPP LH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLASHBACK ARRESTOR S55 OX

Spare part for the Outlet Station. A safety device for the prevention of flashback propagation, installed at the secondary regulator outlet.



Product Information

Maritime authorities, require the installation of flashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause flashbacks of various types.

The S-55 model flashback arrestors are designed for use both with gas cylinders and gas outlet stations. The flashback arrestors are built, conforming to: ISO 5175 and with BAM Certification.

Safety

For safety reasons in line with COSWP UK (BCGA CP7), OCIMF SIRE and RIGHSHIP RISQ requirements, we strongly recommend annual testing of the flashback arrestors, and to replace flashback arrestors every 5 years.

Features

- Pressure sensitive cut-off valve to prevent further gas supply after a flashback (activated by the pressure shock in front of the flashback)
- Temperature activated cut-off valve to prevent further gas supply in case of fire (activated if the temperature rises to approximately 100° C)
- Flame filter/arrestor to quench the flame front of a flashback or a burn back
- Non-return valve for preventing reverse flow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders
- Resettable
- Each flashback arrestor 100% tested
- Marking of manufacturing date and serial number for traceability

Benefits

- Stops the pressure front and flame front
- Stops gas from back feeding into the system
- Prevents fire from being supported by gas
- Indicator ring will show if the pressure sensitive cut-off has been activated; the ring is also used for resetting the flashback arrestor

Product Number

708545

Product Name

FLASHBACK ARRESTOR S55 OX

Specification

Invent Hazard Material (IMO/EU) classification

NA

Inlet Connection

3/8" BSPP RH Int.

Outlet Connection

3/8" BSPP RH Ext.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASES, REFRIGERANTS AND CYLINDERS

Gas Distribution System
Outlet station components

UNITOR[®]
by Wilhelmsen

STRETCH RELIEF BRACKET FOR OUTLET STATION

Spare part for the Outlet Station. Installed below the steel protective cabinet.



Product Information

A stretch relief bracket is mounted under the outlet station to relieve any stresses from the hanging rubber twin-hose that is applied on the hose joints.

Features

- Chrome plated
- Easy to use and install

Benefits

- Prevents tearing and leakage of hoses at the connection

Product Number	Product Name
235010	STRETCH RELIEF BRACKET FOR OUTLET STATION

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT



Our range of refrigeration equipment, lubricants, package equipment, system equipment and tools are designed to work together with our range of gases, refrigerants and cylinders and have been formulated to meet local and international regulations whilst protecting operational costs and promoting positive environmental practices.



Regulatory Compliance



Cost Saving

Leak Detection and Prevention

Our wide range of leak detection and prevention equipment from our exclusive supplier SAMON.

Refrigerant Recovery

Carefully selected quality equipment designed to handle recovery from a vessel's refrigeration systems in a controlled manner.

Digital Manifold

A smart and precise Digital Refrigeration Measuring Tool to help ship crew to carry out recovery or charging processes, system optimization and troubleshooting.

Indoor Air Quality

Maintenance products for air duct treatment and disinfection, to keep your air conditioning units operating in optimal condition.

Browse this section to discover the benefits of our Refrigeration Equipment range.

Scan or click on the QR code for more information.



REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
by Wilhelmsen

REFRIGERANT RECOVERY PACKAGE

The Refrigerant Recovery Package consists of carefully selected quality equipment designed to handle recovery from a vessel's refrigeration systems in a controlled manner.

Electrical equipment is set for 115 V and 50/60 Hz
Electrical equipment is set for 230 V and 50/60 Hz



Features

- Comprehensive package that supports a variety of operations
- Maintenance friendly
- Lightweight and portable
- Recovers vapour and liquid refrigerants
- Suitable for all standard (CFC, HCFC and HFC) refrigerants

Benefits

- Helps the ship operator to re-use the refrigerants during system maintenance and service
- Reduces refrigerant consumption
- Cost saving
- Full range of accessories and spare parts
- High value package

Product Number

Product Number	Product Name
652511	REFRIGERANT RECOVERY PACKAGE F/110V
652522	REFRIGERANT RECOVERY PACKAGE F/220V

Specification

Product name	REFRIGERANT RECOVERY PACKAGE F/110V	REFRIGERANT RECOVERY PACKAGE F/220V
Invent Hazard Material (IMO/EU) classification	NA	NA
Connection [Size/ Type]	1/4" SAE FLARE MALE	1/4" SAE FLARE MALE
Height x Length x Width [mm]	343 x 483 x 229	343 x 483 x 229
Weight [kg]	14	14
Power [W]	380 W rated	380 W rated
Voltage [V]	115V 50/60Hz operating	230 V 50/60 Hz operating

Spares

636738	INLET FILTER DRIER 3PCS, 1/4" FLARE
320424	VACUUM PUMP OIL 0.95 LITRE

Accessories

613935	RECOVERY UNIT CONNECTION KIT
734681	UNITOR RECOVERY EQUIPMENT BOX
632588	RECOVERY CYL EMPTY 56L+DOCUMENTS
613885	COMPRESSOR REPAIR KIT
711480	DIGI-MANIFOLD SET (4-WAY)

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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HEAVY DUTY VACUUM PUMP 100/220V UVP-15121A

The heavy duty pump is used for removing moisture and non-condensable gases from large refrigeration installations.

The pump is supplied with a Vacuum pump oil (0.95 l). The oil is made from a paraffinic mineral oil base, to be used in deep vacuum applications.



Features

- Two stage deep vacuum
- Dual voltage (115/230 V) and frequency model (50/60 Hz)
- Achievable rating as low as 20 microns
- Displacement 280 l/min

Benefits

- Built in isolating valve isolates the pump from the system with only a 1/4 turn, making it simple to measure rate of rise
- Can be used on systems using CFC, HCFC and HFC in combination with mineral oil, polyester oil, alkyl benzeen oil and PAG oil
- Referred to as "the long term trouble avoider" among refrigeration specialists
- Gas ballast valve to reduce condensation of moisture

Product Number	Product Name
597658	HEAVY DUTY VACUUM PUMP 100/220V UVP-15121A

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	UVP-15121A
Connection [Size/ Type]	1/4" and 1/2"
Weight [kg]	18

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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VACUUM PUMP 110/220V UVP-15401

The vacuum pump is used for removing moisture and non-condensable gases from refrigeration systems after maintenance or repair.

The pump is supplied with a Vacuum pump oil (0.95 l). The oil is made from a paraffinic mineral oil base, to be used in deep vacuum applications.



Features

- Two stage pump for deep vacuum
- Dual voltage (115/230 V) and Frequency Range (50/60Hz)
- Achievable rating as low as 20 microns
- Displacement 113 l/min @ 60Hz
- Unit is factory wired for high voltage (230V). Refer to operating manual to switch to low voltage (115V) if required

Benefits

- Built in isolating valve isolates the pump from the system with only a 1/4 turn, making it simple to measure rate of rise
- Can be used on systems using CFC, HCFC and HFC in combination with mineral oil, polyester oil, alkyl benzeen oil and PAG oil
- Referred to as "the long term trouble avoider" among refrigeration specialists
- Gas ballast valve to reduce condensation of moisture
- Two stage pump ensures faster and stable vacuum pull

Product Number	Product Name
587568	VACUUM PUMP 110/220V UVP-15401

Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Product code	UVP-15401
Connection [Size/ Type]	1/4" and 1/2"
Weight [kg]	12

Accessories	
320424	VACUUM PUMP OIL 0.95 LITRE
613935	RECOVERY UNIT CONNECTION KIT

This VACUUM PUMP 110/220V UVP-15401 is also included in the Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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DIGITAL WEIGHING PLATFORM

The weighing platform is needed to log the exact amount of refrigerant charged to a system, the amount of refrigerant recovered and to protect the recovery cylinder from overfilling (80%) during refrigerant recovery process.



Features

- Capable of handling cylinders up to 100 kg weight
- Control unit connected to platform by means of a spiral cord
- Digital display
- A "zero" function is included to measure added refrigerant
- Supplied in a sturdy carrying case
- Includes batteries and instructions

Benefits

- Easy to use
- Accurate measurement

Product Number	Product Name
613927	DIGITAL WEIGHING PLATFORM ADS-100
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	387 x 267 x 635 mm
Weight [kg]	2.8
Battery life [months]	30 hours
Battery Type	1 x 9A Alkaline
Accuracy	+/- 0.5% of reading or +/- 1 digit\n
Range	0-100kg

Accessories	
632588	RECOVERY CYL EMPTY 56L+DOCUMENTS
734681	UNITOR RECOVERY EQUIPMENT BOX

This DIGITAL WEIGHING PLATFORM ADS-100 is also included in the Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIGI-MANIFOLD SET (4-WAY)

A Smart, Precise, And More Sustainable Digital Refrigeration Measuring Tool to help ship crew to carry out recovery or charging processes, system optimisation and trouble shooting.



Product Information

The digi-manifold set (4-way) consists of:

- Sturdy plastic case 530mm (H) x 360mm (W) x 100mm (D)
- Main Unit with display
- 2 x external temperature sensors (K-type)
- 5-piece hose set with CA valves
- Special vacuum hose 3/8"

Features

- Support 89 different refrigerants
- Superheat and subcool indicator
- Patented analogue display with pointers
- Large 4.3" TFT colour display
- High precision due to accuracy class 0.5
- Flexible power source (AA batteries or USB)
- Wireless communication with App and other devices.
- Lockable for long-term measurements
- Valve core depressor connections where applicable

Benefits

- Cost-Saving and Lower Long-term Investment Only one tool is required to support all common refrigerants used in maritime applications (including the new HFO/HFC blends like R-448A, R-449A and R-452A). Refrigerant and software updates can be carried out free of charge via REFMESH or computer in future
- Easy Access to Data Wireless communication with the REFMESH App. Long-term logging data and maintenance activities are automatically stored in the device and documented in the REFMESH app. Available for download on the App Store and Google Play Store
- Time-Saving Pressures and temperatures can be shown in your preferred unit of measure. Superheat and Subcool temperatures will be calculated automatically
- Performance Improvement With its high precision sensors, the 4.3" TFT colour screen able to shows measured values accurately. It enables the system to run at its optimum level with correct settings.

Product Number

711480

Product Name

DIGI-MANIFOLD SET (4-WAY)

REFRIGERATION EQUIPMENT

Tools

Tools

UNITOR
by Wilhelmsen

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	4.75
Battery Type	4 x AA or USB Micro-B
Display resolution [pixel/inch]	0.001 bar, 0.5 psi, 1 kPa, 0.0001 MPa, 0.01 kg/cm ²
Ingress protection	IP42
Pressure [bar]	-0.95 to +60
Refrigerant Type	R11 R12 R13 R13B1 R14 R22 R23 R32 R41 R113 R114 R123 R124 R125 R134a R142b R152a R161 R170 R227ea R236ea R236fa R245fa R290 R401A R401B R401C R402A R402B R403B R404A R406A R407A R407B R407C R407D R407F R407H R408A R409A R410A R411A R412A R413A R414B R416A R417A R420A R421A R422A R422B R422C R422D R424A R426A R427A R434A R437A R438A R442A R444A R445A R448A R449A R450A R452A R452B R453A R454A R454B R454C R455A R470A R470B R500 R502 R503 R507 R507A R508A R508B R513A R600 R600a R744 R1234yf R1233zd R1234ze R1270
Temperature [°C]	-20 to +50
Accuracy	0.5 (+/-0.5%)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
by Wilhelmsen

DELUXE MANIFOLD SET 4-WAY

Deluxe service manifold is equipped with high and low pressure gauges and an optical sight glass to observe the refrigerant as it flows through the manifold. This benefits the operator by assisting in assessing the operating performance for a refrigeration system and assisting during recovery or charging processes.



Features

- 80 mm glycerine-filled gauges
- Scale for refrigerants R134a, R404A(R507), R407C and R-407F
- 3 hoses 1/4" (yellow, red , blue) with length of 120 cm; connection 1/4" SAE flare
- 1 vacuum hose 3/8" (yellow) hose with length 90 cm with 3/8" SAE flare connections on both sides
- Valve core depressor connections where applicable
- Hoses classified with working pressure of 40 bar

Benefits

- Liquid filled gauges gives accurate reading
- Easy to use with colour-coded valves and hoses

Product Number	Product Name
711473	DELUXE MANIFOLD SET 4-WAY

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

632588	RECOVERY CYL EMPTY 56L+DOCUMENTS
734681	UNITOR RECOVERY EQUIPMENT BOX

This DELUXE MANIFOLD SET 4-WAY is also included in the Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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MANIFOLD SET 2-WAY

A service manifold with high and low pressure gauges and optical sight glass to observe the refrigerant as it flows through the manifold, assisting in assessing the operating performance for a refrigeration systems and assist during recovery or charging processes. Also suitable for refrigerants with higher operating pressures like R-410A.



Features

- 60 mm glycerine-filled gauges
- Gauge scale for refrigerants like R-410A (higher pressure)
- 2 charging hoses (red & blue) with length of 90 cm; connection 5/16" SAE flare (1/2"-20 UNF) on one end and on the other end 1/4" SAE flare
- 1 charging hose (yellow) with length of 90cm, 1/4" SAE connection on both ends
- Hose working pressure of 60 bar
- Valve core depressor connections where applicable

Benefits

- Liquid filled gauges gives accurate reading
- Easy to use with colour-coded valves and hoses

Product Number	Product Name
711499	MANIFOLD SET 2-WAY

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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DIGI-VACUUM GAUGE UVG-80

Digital gauge to determine that the proper system vacuum has been obtained.
Supplied with 3 x AAA batteries.



Features

- Equipped with Micro-Pirani Sensor
- High Accuracy and Resolution (± 10 micron or $\pm 5\%$ of reading: up to 10'000 micron)
- Pressure scale: inHg | mTorr | Torr | Pa | micron | mbar | psi
- Alternative power supply via USB Micro-B cable.

Benefits

- Effective tool to check for leakages in the refrigeration circuit.
- Better accuracy than conventional analog gauge
- Units of measurement can be switched easily

Product Number	Product Name
7111509	DIGI-VACUUM GAUGE UVG-80
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Battery Type	3 x 1.5V AAA Alkaline with alternate power supply via Micro-B USB cable

This DIGI-VACUUM GAUGE UVG-80 is also included in the REFRIGERANT RECOVERY PACKAGE F/220V (652522), and REFRIGERANT RECOVERY PACKAGE F/110V (652511).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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REFRIGERATION HANDY TOOLS CASE

The kit contains both specialised refrigeration tools and general tools that are necessary for day to day ship-board operation and maintenance of refrigeration systems and their control circuits.

Some of the included products can be reordered.



Features

- Products selected for defined purposes
- Quality tool selection
- Handy light weight suitcase
- Service slide ruler is included
- Vacuum and charging hoses suitable for every day operations
- Refrigeration Fault Diagnostic Slide to assist in fault finding
- Unitor Refrigeration Handling Guide to give practical tips

Benefits

- Convenient
- Every tool needed is collected in one place together with a useful refrigerant handling guide and more

Product Number	Product Name
752154	REFRIGERATION HANDY TOOLS CASE

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Unitor ABS carry case	1 pc
General hand tools	
Screw driver (+)	1 pc
Screw driver (-)	1 pc
Long nose plier	1 pc
Split joint plier	1 pc
Combination plier	1 pc
Angle nose plier	1 pc
adjustable wrench	1 pc
Small screw driver (+)	1 pc
Small screw driver (-)	1 pc
Special Refrigeration Tools Tube cutter "mini"	1 pc
Evaporator Fin straightener	1 pc
Schrade valve core removal tool	1 pc
Schrade valve operating magnet	1 pc
Hose 1.8m with ball valve & sight glass 1/4" SAE, 800 psi	1 pc
Hose with ball valve, 1/4" SAE, 800 psi	1 pc
Hose 0.9m, 1/4" SAE, 800 psi	1 pc
UT-04 1/4" SAE male T-piece.	1 pc
Unitor Refrigeration Handling Guide	1 pc
Unitor Refrigeration Fault Diagnostic Slide	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
by Wilhelmsen

BALL VALVE

Ball valve for charging hoses.
Used with yellow, red, and blue hoses.



Features

- For 1/4" hose
- Minimise refrigerant loss during charging

Benefits

- Environmentally friendly, in line with EPA regulation for low loss fitting
- High quality

Product Number	Product Name
605337	BALL VALVE 1/4 SAE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	UBV 1/4" SAE-N

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR[®]
by Wilhelmsen

VACUUM SEAL VALVE

A brass valve assembly that give maximum control during evacuation and recharging.



Features

- Large internal port for maximized flow
- 1/2" SAE flare female connection to fit directly on vacuum pump
- 1/4" SAE flare connection for vacuum gauge connection
- 3/8" SAE flare connection for system connection

Benefits

- Easy to use
- Excellent control over process

Product Number	Product Name
513382	VACUUM SEAL VALVE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	UVS-13047A

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR[®]
by Wilhelmsen

REFRIGERANT CYL. VALVE ADAPTOR SET

Used when connecting a charging hose to the Unicool refrigerant cylinder valve.



Features

- Package with 4 adaptors: two 1/4" SAE flare and two 3/8" SAE flare
- O-ring included

Benefits

- Helps the ship operator to re-use the refrigerants during system maintenance and service
- Reduces refrigerant consumption
- Cost saving
- Full range of accessories and spare parts
- High value package

Product Number	Product Name
544932	REFRIGERANT CYL. VALVE ADAPTOR SET

Specification	
Invent Hazard Material (IMO/EU) classification	NA
Product code	UVA-001
Connection [Size/ Type]	CGA 660

Accessories	
734681	UNITOR RECOVERY EQUIPMENT BOX

This REFRIGERANT CYL. VALVE ADAPTOR SET is also included in the Refrigeration Handy Tool Case (752154), Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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IR THERMOMETER W/BELT HOLSTER

The infra-red thermometer is a sturdy IR-thermometer designed for easy temperature measurement of refrigeration systems or other engine room equipment and machinery to quickly obtain surface temperature readings when assessing system performance.

Frequent use of this thermometer will prove useful when planning maintenance, but also during trouble-shooting, insulation check, system adjustment and balancing.



Features

- Sturdy construction
- Wide temperature range
- Memory function

Benefits

- Hip holster makes it easy to carry around
- Easy to use
- Batteries are included

Product Number	Product Name
737668	IR THERMOMETER W/BELT HOLSTER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Dimensions L x W x H [mm]	175 x 39 x 72 mm \n
Weight [kg]	0.179
Battery life [months]	14 to 18 hours of continuous use
Temperature [°C]	-50 to +400° C (-58° F to +752° F). range
Accuracy	+/- 2 % of reading

This IR THERMOMETER W/BELT HOLSTER is also included in the Refrigeration Handy Tool Case (752154).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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MAGNET & VOLT STICKS PACK

Simple and quick tool to test solenoid valve activation and if there is power supplied to the system components.

Product Information

The product is always with batteries contained in the instrument.
2 pieces battery type 1.5V Alkaline, Dry Cell are included in the instrument. The batteries do not contain Lithium.
The product is shipped in "off position", and with no risk of a short circuit of the batteries.



Features

- Pocket clip
- Test function
- CE approved
- Batteries and user information included

Benefits

- Easy and practical to use

Product Number	Product Name
743476	MAGNET & VOLT STICKS PACK

Specification

Invent Hazard Material (IMO/EU) classification	NA

This MAGNET & VOLT STICKS PACK is also included in the Refrigeration Handy Tool Case (752154).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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RATCHET WRENCH BIG 1/2-1/4-3&9/16

A wrench necessary when opening and closing system or compressor valves during refrigerant charging, system oil change etc.



Features

- Fits a variety of different valve spindles
- Plastic covered grip for comfort
- Hexagonal 1/2" and 9/16"
- Square 1/4" and 3/16"

Benefits

- 4-in-1 wrench that is easy to carry around Batteries are included

Product Number	Product Name
743203	RATCHET WRENCH BIG 1/2-1/4-3&9/16

Specification

Invent Hazard Material (IMO/EU) classification	NA
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This RATCHET WRENCH BIG 1/2-1/4-3&9/16 is also included in the Refrigeration Handy Tool Case (752154).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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RATCHET WRENCH SMALL 1/4-3/8-3&5/16

A wrench necessary when opening and closing system or compressor valves during refrigerant charging, system oil change etc.



Features

- Fits a variety of different valve spindles
- Plastic covered grip for comfort
- Square 3/16", 1/4", 5/16" and 3/8"

Benefits

- 4-in-1 wrench that is easy to carry around

Product Number	Product Name
743195	RATCHET WRENCH SMALL 1/4-3/8-3&5/16

Specification

Invent Hazard Material (IMO/EU) classification	NA
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This RATCHET WRENCH BIG 1/2-1/4-5&9/16 is also included in the Refrigeration Handy Tool Case (752154).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

UNITOR
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REFRIGERANT LEAK DETECTOR UNIRX-1A

A hand held detector able to detect all halogen refrigerants (CFC, HCFC, HFC, HFO) enabling you to find leaks in your refrigeration system.

One of the most sensitive refrigerant leak detectors in the industry



Product Information

For optimum performance, WSS recommends to replace the sensing tip (kit with product number 548700 contains three tips) and batteries on regular basis.

Sensing tip life is approximately 20 hours

Battery life is approximately 30 hours

Features

- Corona Discharge Sensor
- 5 ppm sensitivity (less than 0.2502 per year)
- High and Low sensitivity level
- Seven-segment visual leak size indicator
- Audible alarm
- Cordless
- Supplied in hard carrying case and spare sensing tip
- Batteries 2 pcs C-cell alkaline
- One touch reset and keypad controls

Benefits

- Solid and Reliable
- Proven Technology
- Delivered in sturdy carry case
- Includes batteries and spare sensing tip

Product Number	Product Name
716142	REFRIGERANT LEAK DETECTOR UNIRX-1A
Specification	
Invent Hazard Material (IMO/EU) classification	D-1
Weight [kg]	560
Battery Type	2 x 3V C Alkaline
Consumables	
548700	MAINTENANCE KIT LEAK DETECTOR-XP2

This REFRIGERANT LEAK DETECTOR UNIRX-1A is also included in the Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

UL classified
CE approved

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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MAINTENANCE KIT LEAK DETECTOR-XP2

XP-2 Maintenance Kit ('Orange tips') for UNIRX-1A hand held leak detector, part no. 716142.



Kit contains 3 tips. Tips need to be changed after 30 hours of usage as they get worn out and stop detecting refrigerant leaks.

Features

- Suitable for all standard (CFC, HCFC, HFC and HFO) refrigerants
- Detects vapour and liquid refrigerants
- Maintenance friendly
- Total package weight is 47 kg

Benefits

- Ease of use (no calibration needed)
- Accurate results

Product Number	Product Name
548700	MAINTENANCE KIT LEAK DETECTOR-XP2

Specification

Invent Hazard Material (IMO/EU) classification	NA
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This MAINTENANCE KIT LEAK DETECTOR-XP2 is also included in the Refrigerant Recovery Package F/220V (652522) and Refrigerant Recovery Package F/110V (652511).

Approvals

Package complies with all US EPA and EC regulations
CE - TUV and ARI - UL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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REFRIGERANT LEAK DETECTION U.V.TRACER KIT 1.5V

Designed for Marine Air-conditioning and Refrigeration system, the Unitor Refrigerant Leak Detection UV. Tracer Kit (1.5V) is an effective tool for pinpointing the invisible refrigerant leaks (tiny or intermittent leakages hidden in inaccessible areas) in the systems.



Product Information

The UV Tracer fluid is an oil based fluorescent liquid that is fully miscible and compatible with all refrigerants and compressor oils. When added to the compressor oil sump, the UV Tracer fluid will mix with the lubricant oil and circulate around the system. If there is a leak, the UV tracer fluids will come out on the surface and they will be visible with yellow fluorescence glow under the UV light

Features

- The UV tracer fluid is suitable for all refrigerants and compressor oils
- SuperBright UV-LED Inspection Torch delivers brilliant fluorescence and is able to effectively pinpoint the exact location of the invisible leaks
- Biodegradable solvent spray cleaner can remove UV
- Tracer fluid residue and other stains effectively
- Protective goggles is DIN certified and conforms to 89/686/EEC, EN166 and EN170 (UV Protection), ensuring that crew members stay safe while conducting leakage checks

Benefits

- Safety of crew members -- Enables ship crew to conduct safety checks from a distance and safeguards crew members from refrigerant poisoning
- Cost savings -- Minimises refrigerant loss and ensures system is always operating in optimum condition
- Environmental protection -- Minimises the release of environmentally-harmful substances into the atmosphere
- Regulatory compliance -- In accordance with major regulatory bodies like EU F-gas regulation, EPA, DNV Clean Notation, LRS EP Notation, ABS ES Notation

Product Number	Product Name
587199	REFRIGERANT LEAK DETECTION U.V.TRACER KIT 1.5V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Product code	INV2021KIT-U4

Supplied with

Sturdy aluminium case	1 pc
SuperBright UV-LED Inspection Torch (400nm) with 3 AA batteries	1 pc
Bottles of Universal tracer fluid (250ml)	4 pcs
Protective goggles (SP301UV)	1 pc
Biodegradable Solvent Spray Cleaner (250ml)	1 pc

Consumables

606268	UV TRACER FLUID-ALLOIL TYPES 250ML
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REFRIGERATION EQUIPMENT

Tools
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Directions for use

Dosing method

1. Add the correct amount of UV tracer fluid to the system (dosage rates as below). UV tracer fluid may be added in one of the following ways:
Directly into the compressor oil reservoir
Via a standard oil charge pump
Through the charging port on the compressor suction valve

1. Operate the system for enough time to allow the UV tracer fluid to permeate all suspected leak areas. Some leaks may show up within minutes. Others may take hours or even days to reveal themselves.
2. Scan the system to locate any leaks by shining the UV lamp supplied over all areas of possible leaks. The precise source of a leak is revealed by a fluorescent yellow or yellow-green glow.
3. Once identified, repair the leaks.
4. Clean off any excess UV tracer fluid with Glo-Klenz cleaner (or with another suitable cleaner/degreaser).

The UV tracer fluid can now remain in the system so that regular leak checks during maintenance may be performed with ease. This should be done at regular intervals to ensure optimum performance.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Dosage and control 1. When the ratio of oil to gas is 1:3, add the fluid at the rate of 0.75% of the total oil charge. 2. When the ratio of oil to gas is more than 1:3, use the formula below. (Amount of oil x 0.01) + (gas charge in kg x 0.0015) = Amount of tracer fluid in ltrs.

Example: A refrigeration system contains 100 ltrs of oil and 500 kgs of refrigerant.

$$(100 \times 0.01) + 500 \times 0.0015 = 1 + 0.75 = 1.75 \text{ ltrs of tracer fluid}$$

NB: The above dosage rates are conservative estimates. Different system capacities and designs, and the various lubricants available can vary the amount of UV tracer fluid required, especially in large systems. Check for fluorescent brightness by shining a UV lamp at the sight glasses. Add more UV tracer fluid if the glow is weak. In some large systems, it may be necessary to add extra UV tracer fluid after a week. This is because there may be much more oil in the system than is specified by the compressor manufacturer.

REFRIGERATION EQUIPMENT

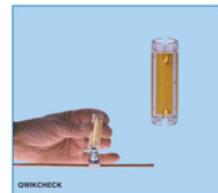
Tools
Tools

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ACID TEST KIT MINERAL+AB+POE OILS

The acid test kit is the fastest and easiest way of checking for acid in the refrigeration compressor oil. The QwikCheck® indicator paper will change from golden yellow to pink or red when being exposed to as little as 1 part per million (PPM) of acid.

It is ideal for preventative maintenance checks or for verifying proper acid cleanup after a compressor burn-out / change-out. The product replaces previous test kits.



Features

- 2 seconds refrigeration acid test
- Color change indicate Pass/Fail
- Test to the AHRI-700 limit of 1ppm
- Work with all refrigerants and oils

Benefits

- Fast, Accurate, and Easy to use

Product Number	Product Name
778514	ACID TEST KIT MINERAL+AB+POE OILS

Specification

Invent Hazard Material (IMO/EU) classification	C-9

Directions for use

1. Insert the valve core depressor into the center of the suction side of the vapor service valve while the system is operating.
2. Allow vapor to flow through the QwikCheck(r) for 2-seconds. If the indicator paper does not change color, hold for another 2-seconds. If the indicator paper still does not change color, inorganic acid was not detected.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
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HAND OIL PUMP 5L & 25L DRUMS

High pressure hand oil pump designed to allow technicians to pump refrigeration oil into the system or compressor crankcase while the unit is in operation, no need for system shutdown during oil charge.



Features

- Pump outlet 1/4" SAE flare
- Pump pressure up to 17 bar
- Universal tapered adapter that fits all oil container necks

Benefits

- Fits all standard cans (5 and 25 L)

Product Number	Product Name
597534	HAND OIL PUMP 5L & 25L DRUMS

Specification

Invent Hazard Material (IMO/EU) classification	NA
Type	RFN Oil Pump
Applications	Fits all standard cans (5&25 litre drums)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Tools
Tools

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UNITOR RECOVERY EQUIPMENT BOX

A sturdy 200 litre box used for storing recovery equipment onboard a vessel; handy for safekeeping and easy to locate during port state inspections.



Features

- Completely weather proof and extremely rugged
- Colour coded: grey box with yellow lid

Benefits

- Colour coded according to international recovery standards
- High quality

Product Number	Product Name
734681	UNITOR RECOVERY EQUIPMENT BOX

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERANT LEAK MONITOR KIT 6CH (SAMON MPU & MP-DS IP54)

For existing ships considering installing a new fixed refrigerant leak monitoring system, our Refrigerant Leak Monitor Kit 6CH can accommodate your needs. The Refrigerant Leak Monitor Kit 6CH offers an ideal solution for multi-point surveillance of machinery rooms and walk-in freezer rooms where refrigerant gases may be present.

Product Information

Note: recommended maximum distance between monitor and detector is 50m. The monitoring unit MPU6C can connect up to 6 MP-DS detectors. Operating statuses and alarm information are independently displayed through each LED channel. It is suitable for monitoring all types of HFC and HFO refrigerants.



The detector is supplied with default alarm thresholds and can be changed using the diagnostic tool DT300. Multiple refrigerant alarm threshold can be set on a single MPU as the channels are independent of each other.

The diagnostic tool DT300 and the sensor module SM300-Self Sense **must be ordered separately (refer to related products)**. They can be used for commissioning, calibration, and annual functional check (required by EN 378) without the need for calibration gas.

Features

- Easily monitor operating statuses remotely through relay output
- Clear visual displays show alarm statuses independently for each channel via LEDs
- Flexibility to monitor different refrigerants with up to 3 configurable alarm concentrations
- Fail-safe monitoring with inbuilt buzzer and ready output for siren use
- User-friendly design for maintenance e.g. built-in self-test feature, service mode and easy calibration with diagnostic tool

Benefits

- Safety of crew members - round the clock monitoring and alarm. Alerts ship crew in case of emergency
- Cost-saving - Minimise refrigerant loss and reduce operating costs
- Time-saving - Product and spares can be delivered together with other marine products from WSS
- Regulatory compliance - Complies with major regulatory bodies such as F-gas Regulation, EPA, Marpol Annex VI, LR ECO Class notation and ABS ES Notation
- Environmentally Friendly - Enables early detection and minimise the release of harmful GHGs into the atmosphere

Product Number	Product Name
708051	REFRIGERANT LEAK MONITOR KIT 6CH (SAMON MPU & MP-DS IP54)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

Monitoring Unit MPU6C	1 pc
Detector New MP-DS-HFC-4000	4 pcs
Red combined flash/siren FI-RL-RSEP	1 pc
100m halogen free cable 3x0.75mm2	2 pcs

REFRIGERATION EQUIPMENT

Package Equipment
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Spares

708037	MONITORING UNIT MPU6C (SAMON: 20-305)
708042	DETECTOR NEW MP-DS-HFC-4000 (SAMON: 38-420 W/SEN027)
708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)

Accessories

708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)
708039	SENSOR MODULE FOR DT300 - SM300-SELF SENSE (SAMON: 60-150)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DETECTOR NEW MP-DS-HFC-4000 (SAMON: 38-420 W/SEN027)

Detectors intended for installation in engine rooms, cold rooms or other spaces where gas is used, handled or stored. The 'MP-Series' is specifically designed for MPU and SPU/SPLS monitoring units.



Measuring ranges and alarm levels

- Alarm levels are always set on the monitoring unit!
- Appropriate ranges and alarm levels depends on the environment in which the detectors is installed and the type of gas to be detected.

Product Information

Detectors intended for installation in engine rooms, cold rooms, or other spaces where gas is used, handled, or stored.

The 'MP-Series' is specifically designed to be used with the MPU monitoring unit. The Alarm levels and measuring range is adjusted on the MPU monitoring unit based on the detector installation environment and the refrigerant type.

Features

- Requires connection to a monitoring unit
- Power supply from monitoring unit
- Robust non corrosive PC enclosure for installation also in aggressive environments

Benefits

- Safety of crew members - round the clock monitoring and alarm. Alerts ship crew in case of emergency
- Cost-saving - Minimise refrigerant loss and reduce operating costs
- Time-saving - Product and spares can be delivered together with other marine products from WSS
- Regulatory compliance - Complies with major regulatory bodies such as F-gas Regulation, EPA, Marpol Annex VI, LR ECO Class notation and ABS ES Notation
- Environmentally Friendly - Enables early detection and minimise the release of harmful GHGs into the atmosphere

Product Number	Product Name
708042	DETECTOR NEW MP-DS-HFC-4000 (SAMON: 38-420 W/SEN027)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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REFRIGERATION EQUIPMENT

Package Equipment
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Spares

708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)
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Accessories

708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)
708039	SENSOR MODULE FOR DT300 - SM300-SELF SENSE (SAMON: 60-150)

Approvals

Complies with the following standards and regulations:

- F-gas regulative 517/2014
- EN 378
- EN14624
- JRA4068

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERANT LEAK DETECTOR: GS SERIES

Detectors intended for installation in engine rooms, cold rooms or other spaces where gas is used, handled or stored.

The detectors can be used independently, connected to a monitoring unit or to any other monitoring system that accepts potential-free contact.



Product Information

To avoid the damage and dangers caused by refrigerant leaks, it is extremely important to follow the recommendations below to ensure that the leak monitoring system is functioning accurately.

1. Replace visibly damaged monitors and detectors immediately.
2. Check and test the detectors once every 12 months with diagnostic tool DT300
Required by Safety Standard for Refrigeration Systems, EN378:2016.
3. Replace sensor every 5 years

Under normal circumstances, the lifetime of the sensor in the detector is up to 5 years. As a preventive measure, we recommend that ship owners plan for sensor replacements when it is reaching 5 years in operation.

Features

- The detector is microprocessor controlled and displays the current operating status via LED's
- Three adjustable alarm levels with relay output (230V/5A)
- Alarm delay, selectable in four steps
- Manual or automatic reset on alarm
- Fail-safe function with built-in monitoring and power failure alarm
- Built-in self-test and service function
- Test terminal for service tools
- Robust non corrosive PC enclosure for installation also in aggressive environments

Benefits

- Safety of crew members - round the clock monitoring and alarm. Alerts ship crew in case of emergency
- Cost-saving - Minimise refrigerant loss and reduce operating costs
- Time-saving - Product and spares can be delivered together with other marine products from WSS
- Regulatory compliance - Complies with major regulatory bodies such as F-gas Regulation, EPA, Marpol Annex VI, LR ECO Class notation and ABS ES Notation
- Environmentally Friendly - Enables early detection and minimise the release of harmful GHGs into the atmosphere

Product Number	Product Name
708029	DETECTOR GS24-HFC-4000-ZM (SAMON: 37-420-ZM)
708030	DETECTOR GS230-HFC-4000-ZM (SAMON: 37-425-ZM)
708031	DETECTOR GS24-HFC-4000 (SAMON: 37-420)
708032	DETECTOR GS230-HFC-4000 (SAMON: 37-425)
708043	DETECTOR NEW GS24-HFC-4000-ZM (SAMON: 37-420-ZM W/SEN027)
708044	DETECTOR NEW GS230-HFC-4000-ZM (SAMON: 37-425-ZM W/SEN027)
708045	DETECTOR NEW GS24-HFC-4000 (SAMON: 37-420 W/SEN027)
708046	DETECTOR NEW GS230-HFC-4000 (SAMON: 37-425 W/SEN027)

Specification

Invent Hazard Material (IMO/EU) classification	NA

REFRIGERATION EQUIPMENT

Package Equipment
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Spares

708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)
708040	HFC SENSOR 0-4000PPM (SAMON: SEN004)

Accessories

708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)
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Approvals

Complies with the following standards and regulations:

- F-gas regulative 517/2014
- EN 378
- EN14624
- JRA4068

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERANT LEAK DETECTOR: GSR SERIES

Detectors intended for installation in engine rooms, cold rooms or other spaces where gas is used, handled or stored.

The detectors can be used independently, connected to a monitoring unit or to any other monitoring system that accepts potential-free contact.



Product Information

To avoid the damage and dangers caused by refrigerant leaks, it is extremely important to follow the recommendations below to ensure that the leak monitoring system is functioning accurately.

1. Replace visibly damaged monitors and detectors immediately.
2. Check and test the detectors once every 12 months with diagnostic tool DT300 Required by Safety Standard for Refrigeration Systems, EN378:2016.
3. Replace sensor every 5 years

Under normal circumstances, the lifetime of the sensor in the detector is up to 5 years. As a preventive measure, we recommend that ship owners plan for sensor replacements when it is reaching 5 years in operation.

SAMON has developed a new sensor, SEN027 (SELF SENSE) that can be fitted in existing installations where SEN004 is used. The main feature of SEN027 (SELF SENSE) is its built-in filter that makes the sensor much more resistant against false alarms caused by dust, dirt, liquids, and aerosols. The change can be performed without any change in alarm settings, and calibration is recommended with DT300 and SM300-SELF SENSE sensor module.

For the replacement of a faulty sensor, ship owners may go with the same sensor in their existing system, either SEN004 or SEN027 (SELF SENSE).

For the 5-year sensor replacement, we recommend that ship owners use only the new sensor, SEN027 (SELF SENSE), for the entire leak monitoring system.

Features

- The detector is microprocessor controlled and displays the current operating status via LED's
- Three adjustable alarm levels with relay output (230V/5A)
- Alarm delay, selectable in four steps
- Manual or automatic reset on alarm
- Fail-safe function with built-in monitoring and power failure alarm
- Built-in self-test and service function
- Test terminal for service tools
- Robust non corrosive PC enclosure for installation also in aggressive environments

Benefits

- Safety of crew members - round the clock monitoring and alarm. Alerts ship crew in case of emergency
- Cost-saving - Minimise refrigerant loss and reduce operating costs
- Time-saving - Product and spares can be delivered together with other marine products from WSS
- Regulatory compliance - Complies with major regulatory bodies such as F-gas Regulation, EPA, Marpol Annex VI, LR ECO Class notation and ABS ES Notation
- Environmentally Friendly - Enables early detection and minimise the release of harmful GHGs into the atmosphere

REFRIGERATION EQUIPMENT

Package Equipment
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Product Number	Product Name
708033	DETECTOR GSR24-HFC-4000 (SAMON: 37-920)
708047	DETECTOR NEW GSR24-HFC-4000 (SAMON: 37-920 W/SEN027)
708048	DETECTOR NEW GSR230-HFC-4000 (SAMON: 37-925 W/SEN027)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Spares

708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)
708040	HFC SENSOR 0-4000PPM (SAMON: SEN004)

Accessories

708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)
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Approvals

Complies with the following standards and regulations:

- F-gas regulative 517/2014
- EN 378
- EN14624
- JRA4068

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERANT LEAK DETECTOR: GR SERIES

Detectors intended for installation in engine rooms, cold rooms or other spaces where gas is used, handled or stored.

The detectors can be used independently, connected to a monitoring unit or to any other monitoring system that accepts potential-free contact.



Product Information

To avoid the damage and dangers caused by refrigerant leaks, it is extremely important to follow the recommendations below to ensure that the leak monitoring system is functioning accurately.

1. Replace visibly damaged monitors and detectors immediately.
2. Check and test the detectors once every 12 months with diagnostic tool DT300 Required by Safety Standard for Refrigeration Systems, EN378:2016.
3. Replace sensor every 5 years

Under normal circumstances, the lifetime of the sensor in the detector is up to 5 years. As a preventive measure, we recommend that ship owners plan for sensor replacements when it is reaching 5 years in operation.

SAMON has developed a new sensor, SEN027 (SELF SENSE) that can be fitted in existing installations where SEN004 is used. The main feature of SEN027 (SELF SENSE) is its built-in filter that makes the sensor much more resistant against false alarms caused by dust, dirt, liquids, and aerosols. The change can be performed without any change in alarm settings, and calibration is recommended with DT300 and SM300-SELF SENSE sensor module.

For the replacement of a faulty sensor, ship owners may go with the same sensor in their existing system, either SEN004 or SEN027 (SELF SENSE).

For the 5-year sensor replacement, we recommend that ship owners use only the new sensor, SEN027 (SELF SENSE), for the entire leak monitoring system.

Features

- The detector is microprocessor controlled and displays the current operating status via LED's
- Three adjustable alarm levels with relay output (230V/5A)
- Alarm delay, selectable in four steps
- Manual or automatic reset on alarm
- Fail-safe function with built-in monitoring and power failure alarm
- Built-in self-test and service function
- Test terminal for service tools
- Robust non corrosive PC enclosure for installation also in aggressive environments

Benefits

- Safety of crew members - round the clock monitoring and alarm. Alerts ship crew in case of emergency
- Cost-saving - Minimise refrigerant loss and reduce operating costs
- Time-saving - Product and spares can be delivered together with other marine products from WSS
- Regulatory compliance - Complies with major regulatory bodies such as F-gas Regulation, EPA, Marpol Annex VI, LR ECO Class notation and ABS ES Notation
- Environmentally Friendly - Enables early detection and minimise the release of harmful GHGs into the atmosphere

REFRIGERATION EQUIPMENT

Package Equipment
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Product Number	Product Name
708049	DETECTOR NEW GR24-HFC-4000 (SAMON: 37-620 W/SEN027)
708050	DETECTOR NEW GR230-HFC-4000 (SAMON: 37-625 W/SEN027)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Spares

708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)
708040	HFC SENSOR 0-4000PPM (SAMON: SEN004)

Accessories

708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)
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Approvals

Complies with the following standards and regulations:

- F-gas regulative 517/2014
- EN 378
- EN14624
- JRA4068

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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DIAGNOSTIC TOOL DT300 (SAMON: 60-130)

DT300 is a unique instrument that is used for checking and calibration of detectors with semi conductive sensors. DT300 features a unique design with an integrated reference sensor that makes it possible to calibrate the relevant sensor without applying synthetic air or "zero gas" from a bottle.



Product Information

DT300 is used together with a sensor module, SM300-HFC or SM300-SELF SENSE. The sensor modules (SM300-HFC and SM300-SELF SENSE) are not included in the DT300 and shall be ordered separately. They are consumable parts and should be replaced annually. SM300-HFC is used to test old sensors like HFC SENSOR 0-4000PPM SEN004. SM300-SELF SENSE is used to test new sensors like NEW HFC SENSOR 0-4000PPM SEN027 (SELF SENSE). The reference sensor is plugged into the unit and the LCD display indicates when the sensor is heated and ready to use. The reference value for the gas appears in the LCD display. The value is then used to calibrate offset-value on the relevant detector.

Alphanumeric LCD display shows:

The integrated reference sensors offset-value
Offset-value on the tested detector
System voltage (+5 V)
C-, B-and A-alarm levels

Features

- For control and calibration of semiconductor detectors
- For the control and adjustment of alarm levels of monitoring units
- Integrated reference sensor for measuring the temperature of gas or other contamination in the detector being tested
- Exchangeable factory "plug-in" reference sensor modules are available for old HFC sensor and new self-sense sensor - filter version
- Power supply: 4 x AA alkaline (8h) or rechargeable Ni-Mh (10h) batteries
- LED indicator for battery level

Benefits

- Allows calibration of the current sensor without introducing calibration gas
- Enable compliance to EN378:2016 where the leak monitoring system need to be inspected at least once every 12 months to ensure their proper functioning

Product Number	Product Name
708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)

Specification	
Invent Hazard Material (IMO/EU) classification	NA

Spares	
708038	SENSOR MODULE FOR DT300 - SM300-HFC (SAMON: 60-134)
708039	SENSOR MODULE FOR DT300 - SM300-SELF SENSE (SAMON: 60-150)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

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SENSOR MODULE FOR DT300 - SM300-HFC (SAMON: 60-134)

Sensor module for diagnostic tool DT300. To be used for HFC sensors.



Product Number	Product Name
708038	SENSOR MODULE FOR DT300 - SM300-HFC (SAMON: 60-134)

Specification	Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

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SENSOR MODULE FOR DT300 - SM300-SELF SENSE (SAMON: 60-150)

Sensor module for diagnostic tool DT300. To be used for new HFC sensors - filter version.



Product Number	Product Name
708039	SENSOR MODULE FOR DT300 - SM300-SELF SENSE (SAMON: 60-150)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

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HFC SENSOR 0-4000PPM (SAMON: SEN004)

Refrigerant sensor for all HFCs and HFOs detectors. It is also known as SP-42A.

Product Information

Under normal circumstances, the lifetime of the sensor in the detector is up to 5 years. As a preventive measure, ship owners are advised to plan for sensor replacements when it is reaching 5 years in operation.



For the replacement of a faulty sensor, ship owners may go with the same sensor in their existing system, either SEN004 or SEN027 (SELF SENSE).

For the 5-year sensor replacement, we recommend that ship owners use only the new sensor, SEN027 (SELF SENSE), product number 708041, for the entire leak monitoring system.

The newly developed sensor, SEN027 (SELF SENSE) that can be fitted in existing installations where SEN004 is used.

The main feature of SELF SENSE is its built-in filter that makes the sensor much more resistant against false alarms caused by dust, dirt, liquids, and aerosols. The change can be performed without any change in alarm settings, and calibration is recommended with DT300 and SM300-SELF SENSE sensor module.

Features

- Easy to calibrate with Diagnostic Tool DT300
- Quick response time
- Long lifetime (5 years)

Benefits

- Cover all HFC and HFO refrigerants

Product Number	Product Name
708040	HFC SENSOR 0-4000PPM (SAMON: SEN004)

Specification	
Invent Hazard Material (IMO/EU) classification	NA

Accessories	
708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)

The new SEN027 (SELF SENSE) sensor is designed to detect all types of HFCs and HFOs refrigerants. It comes equipped with a built-in filter, making it more resistant to false alarms caused by dust, dirt, liquids, and aerosols. The SEN027 (SELF SENSE) is backward compatible (with MP-DS and G series) where SEN004 is used, without any changes to the alarm settings.



Product Information

Under normal circumstances, the lifetime of the sensor in the detector is up to 5 years. As a preventive measure, ship owners are advised to plan for sensor replacements when it is reaching 5 years in operation.

For the replacement of a faulty sensor, ship owners may go with the same sensor in their existing system, either SEN004 or SEN027 (SELF SENSE).

For the 5-year sensor replacement, we recommend that ship owners use only the new sensor, SEN027 (SELF SENSE), for the entire leak monitoring system.

Features

- Easy to calibrate with Diagnostic Tool DT300
- Quick response time
- Long lifetime (5 years)
- Backward compatible with existing installations where older sensor, SEN004 is used
- Additional filter that blocks contaminants which may cause false alarm
- Reduce sensitivity to humidity and short term peaks

Benefits

- 90% lesser false alarm
- Cover all HFC and HFO refrigerants
- Available at the same price as old SEN004 sensor

Product Number	Product Name
708041	NEW HFC SENSOR 0-4000PPM SELF SENSE (SAMON: SEN027)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

708037	DIAGNOSTIC TOOL DT300 (SAMON: 60-130)
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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DRINKING WATER COOLER UNITOR INOX - 220V

The Unitor Drinking Water Cooler for ships crew is made to operate in the most demanding climatic conditions. It is constructed of stainless steel, making it resistant to corrosion and easy to keep clean. Fittings are in brass for long service life. The unit is silent in operation and runs on R-134a refrigerant that functions in the medium pressure range, reducing wear and tear on the system



Features

- Designed to operate under demanding climatic conditions
- Stainless steel construction makes it corrosion resistant
- Fittings in brass for longer service life
- Includes instruction and spare part manual

Benefits

- Silent operation
- Uses environmentally acceptable R-134a refrigerant
- Supplied with high quality brass adjustable bubbler and bottle filler

Product Number	Product Name
708552	DRINKING WATER COOLER UNITOR INOX - 220V

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Depth [mm]	310
Height [mm]	1050
Weight [kg]	22
Width [mm]	310
Voltage [V]	220

Approvals

CE approved

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DUCT AIR TREATMENT

Unitor Duct Air Treatment is a natural, biodegradable, and non-toxic gel block used to sterilize the supply air and entire air conditioning ductworks. It contains pure Australian Tea Tree Oil, which has natural antibacterial, antifungal, anti-inflammatory, and antiviral properties, making it suitable for use in all types of ducted air conditioning systems. Duct Air Treatment facilitates easy disinfection to prevent or control the spread of disease, as required by MLC2006 Guideline B3.1.2 – Ventilation 2b.



Features

- Natural, biodegradable, non-toxic gel block
- Consists of complex polysaccharides, surfactants, purified water and 10% tea tree oil
- Releases 10–45 micrograms of tea tree oil per cubic metre of air
- Formulated into a thermo-reversible solid water gel
- Melts at < 50 °C with decomposition
- Complies with Marine Labour Convention 2006 (MLC2006)

Benefits

- Continued use of Duct Air Treatment will help prevent the build up of bacteria, mould, Legionella bacteria and fungi which are found in marine HVAC systems
- The powerful active ingredient in Duct Air Treatment will also eliminate and oxidize the source of odours associated with bacteria and moulds, leaving the air fresh and clean

Product Number	Product Name
743466	DUCT AIR TREATMENT 2 KG
764417	DUCT AIR TREATMENT 4 KG

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

System Equipment & Spares
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CHARGING/VACUUM HOSES

3/8" hose to connect between Unicool refrigerant cylinder (use adaptor set 544932) and refrigeration system or used for larger vacuum jobs



Features

- High quality hose material
- Embedded O-ring for positive seal

Benefits

- Flexible even in low temperatures without collapsing
- Approved for high pressure blends

Product Number	Product Name
535070	CHARG/VACUUM.HOSE-1.8M, 3/8" FLARE
320234	CHARGING HOSE - 1.8M, 1/4" FLARE
597757	CHARGING HOSE SET UCH-72 3X1.8M
320093	CHARGING HOSE SET-3X0.9M

Specification

Product name	CHARG/VACUUM. HOSE-1.8M, 3/8" FLARE	CHARGING HOSE - 1.8M, 1/4" FLARE	CHARGING HOSE SET UCH-72 3X1.8M	CHARGING HOSE SET-3X0.9M
Invent Hazard				
Material (IMO/EU) classification				
Connection	NA	NA	NA	NA
[Size/ Type]	3/8" SAE flare	1/4" flare	1/4" flare	1/4" flare
Length	1.8 m - 6 ft	1.8 m - 6 ft	1.8 m - 6 ft	0.9 m - 3 ft

Accessories

544932	REFRIGERANT CYL. VALVE ADAPTOR SET
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SIGHT GLASS - SGN6FL

Sight glass for visual inspection

Product Information

014-007



Features

- Indicates excessive moisture content

Benefits

- High quality

Product Number	Product Name
547869	SIGHT GLASS - SGN6FL

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	014-0007
Connection [Size/ Type]	1/4 X 1/4 FL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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GAUGE ADAPTOR 3/8 -1/4, 6 PCS.

Gauge adaptors suitable for both 80mm and 100mm gauges

Features

- From 1/4" BSP female to 3/8" BSP male (3 pieces)
- From 1/4" BSP female to 1/4" flare female (3 pieces)

Benefits

- High quality brass



Product Number

636712

Product Name

GAUGE ADAPTOR 3/8 -1/4, 6 PCS.

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

1/4-3/8 COLLECTION OF FITTINGS

An assorted collection of the most common types of brass fittings that are used in various refrigeration piping and connection applications. Items are not sold individually.

For 3/8 - 5/8", please use part number 636449



Features

- Comprehensive selection

Benefits

- Handy for repairs or system maintenance

Product Number	Product Name
636431	1/4-3/8 COLLECTION OF FITTINGS

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Plug P2-4:1/4" Flare	3 pcs
Equal Tee T2-4:1/4 Flare	3 pcs
Reducing Union Tee TR2-64:3/8x3/8x1/4 Flare	1 pc
Reducing Union Tee TR2-84:1/2x1/2x1/4 Flare	1 pc
Male Connector U1-4A:1/4 FLx1/8NPTE	3 pcs
Male Connector U1-4B:1/4 glx1/4 NPTE	3 pcs
Male Connector U1-6B:3/8FLx1/4 NPTE	3 pcs
Union U2-4: 1/4 Flare	5 pcs
Female Connector U3-4A:1/4 FLx1/8 NPTI	1 pc
Female Connector U3-4B:1/4FLx1/4 NPTI	1 pc
Female Connector U3-6B:3/8FLx1/4 NPTI	2 pcs
Reducing Union UR2-64:3/8 x 1/4 Flare	3 pcs
Reducing Union UR2-84:1/2 x 1/4 Flare	2 pcs
Reducer Female x Male UR3-46: 1/4 x 3/8 Flare	2 pcs
Reducer Female x Male UR3-48: 1/4 x 1/2 Flare	1 pc
Reducer Female x Male UR3-64: 3/8 x 1/4 Flare	2 pc
Manifold Union Coupling US4-4: 1/4 x 1/4 Flare	2 pcs
Tee Female x Male T6-4: 2x 1/4 Male, 1/4 Female	1 pc
Flare nut 1/4"	10 pcs
Flare cap 1/4"	10 pcs

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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PRESSURE CONTROL

The high-pressure switch is a safety device used in the refrigeration system. The high-pressure switch responds directly to system pressure changes on the high side and can provide single-device control of the compressor.



Features

- Stops compressors according to set point
- 1/4" flare connection
- Vibration and shock resistant

Benefits

- High reliability both electrically and mechanically
- High quality

Product Number	Product Name
547406	PRESSURE CONTROL - KP1
547448	PRESSURE CONTROL - KP5

Specification

Product name	PRESSURE CONTROL - KP1	PRESSURE CONTROL - KP5
Invent Hazard Material (IMO/EU) classification	NA	NA
Connection [Size/ Type]	1/4 FLARE	1/4 FLARE
Range	8 TO 28 BAR	-0.2 TO +7.5 BAR
Function	AUTO	MANUAL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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DIFF.PRESS.CTRL-MP55-170

The oil differential pressure switch is a safety device used in the refrigeration system to protect against low lubricating oil pressure. If the oil pressure fails, the switch will stop the compressor after a predetermined time period has elapsed.



Features

- Protects compressor
- Time delay 45 seconds
- 1/4" flare connection
- Vibration and shock resistant

Benefits

- High reliability both electrically and mechanically
- High quality

Product Number	Product Name
547588	DIFF.PRESS.CTRL-MP55-170

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	060B0170
Connection [Size/ Type]	1/4 FLARE
Function	TIME DELAY 45 SEC

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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DUAL PRESS.CTRL-KP15-1243

The dual-pressure switch is a safety device used in the refrigeration system. The dual-pressure control switch responds directly to system pressure changes on both high and low sides and can provide single-device control of the compressor.



Features

- Starts/stops compressors according to set point
- LP auto / HP manual
- Vibration and shock resistant

Benefits

- High reliability both electrically and mechanically
- High quality

Product Number	Product Name
547463	DUAL PRESS.CTRL-KP15-1243

Specification

Invent Hazard Material (IMO/EU) classification	NA
Product code	060-1243
Connection [Size/ Type]	1/4 FLARE
Function	LP/AUTO
Range	HP/MANUAL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SUCTION GAUGE -1+12 BAR 80MM

80 mm liquid filled gauges complete with removable back flange and 1/4" flare bottom connection as standard



Features

- Suitable for suction (compound)

Benefits

- High quality

Product Number	Product Name
741157	SUCTION GAUGE -1+12 BAR 80MM

Specification

Invent Hazard Material (IMO/EU) classification	NA
Type	Suction (compound)
Refrigerant Type	R-22, R-134a, R-404A
Range	-1 / +12

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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DISCHARG /OP GAUGE -1-+25 BAR 80MM

80 mm liquid filled gauges complete with removable back flange and 1/4" flare bottom connection as standard



Features

- Suitable for both discharge (pressure) and oil pressure

Benefits

- High quality

Product Number	Product Name
741165	DISCHARG /OP GAUGE -1-+25 BAR 80MM
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Type	Discharge (pressure)
Refrigerant Type	R-22, R-134a, R-404A
Range	-1 / +25

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

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LIQUID LINE DRIER CORE (MODEL 48-DC)

Compact filter drier insert for liquid line filters. Suitable for R-22, R-134a, R-407C, R-407F, R-404A, R-417A, R-452A, R-507 and more refrigerants. Should be replaced annually.



Features

- Supplied in sealed can
- Includes necessary gaskets for multi core driers

Benefits

- Removes moisture and acid

Product Number	Product Name
548255	LIQUID LINE DRIER CORE (MODEL 48-DC)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Gross Weight [kg]	0.72
Inner Diameter [mm]	44
Length	138.4
Outer Diameter [mm]	93.5
TEV Type	DCR 48DC

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FILTER DRIER

Removing contaminants such as acids and moisture in refrigeration systems can be done by inline driers which should be replaced annually. When a burnout in the semi-hermetic or hermetic compressor has occurred it should be replaced immediately.

Features

- 2 driers per pack
- Ready to use
- Connection 1/4" SAE flare
- Overall length 110 mm and 40 mm diameter

Benefits

- Removes moisture and acid

Product Number	Product Name	Invent Hazard Material (IMO/EU) classification	Connection [Size/ Type]	Diameter [mm]	Length [mm]
636506	FILTER DRIER-UFD-032F	NA	1/4 FLARE (2-PACK)	40	110
636654	FILTER DRIER-UFD-084F	NA	1/4 FLARE (2 PACK)	65	160
636670	FILTER DRIER-UFD-163F	NA	3/8 FLARE (2-PACK)	65	170
636688	FILTER DRIER UFD-164F 1/2' FL	NA	1/2 FLARE (2-PACK)	65	180
666613	FILTER DRIER-UFD-052F	NA	1/4 FLARE (2-PACK)	50	115
636621	FILTER DRIER-UFD-053F	NA	3/8 FLARE (2-PACK)	50	130
636647	FILTER DRIER-UFD-083F	NA	3/8 FLARE (2-PACK)	65	150

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

System Equipment & Spares
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SILICA GEL DESICCANT

Removing contaminants such as moisture in refrigeration system can be done by desiccants. It contains silica gel beads.



Features

- 5kg bucket

Benefits

- Removes moisture

Product Number	Product Name
617696	SILICA GEL DESICCANT
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Quantity	5

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Secondary Refrigerants & Lubricants

Secondary Refrigerants & Lubricants

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HYCOOL BLUE ADDITIVE CAN

Tracer liquid used for detecting leaks in systems using Hycool marine

Features

- A leak is easily detected through blue coloured stains. Dosing: 1.3 % blue additive in Hycool secondary refrigerant (13 litres / cubic meter)

Benefits

- Reduces the risk of system malfunctioning as leaks are quickly detected.



Product Number

708495

Product Name

HYCOOL BLUE ADDITIVE 25L CAN

Specification

Invent Hazard Material (IMO/EU) classification

C-7

Packing Type

CAN

Volume (l)

25

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

REFRIGERATION EQUIPMENT

Secondary Refrigerants &

Lubricants

Secondary Refrigerants &

Lubricants

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HYCOOL MARINE 45 CAN

Hycool Marine is developed to provide a cost efficient and environmentally friendly secondary refrigerant for use in indirect cooling systems. It is based on the organic salt Potassium Formate.

It is environmentally friendly because it is biodegradable and has neither Ozone Depleting Potential nor Global Warming Potential. It is non-flammable and non-toxic and can be used in freezing, cooling and heating applications.



Features

- Wide application range +50 to -45 °C
- Based on the organic salt Potassium Formate
- Corrosion inhibitor included

Benefits

- Ready to use solution, does not need to be diluted
- Low energy cost due to low viscosity
- Low maintenance, installation and heat exchange costs
- High thermal conductivity gives high volumetric cooling/ heating capacity
- Environmentally sound due to zero ODP, zero GWP and biodegradability
- Safe to use, as Hycool Marine is both non-flammable and non-toxic
- It can therefore be used in freezing, cooling and heating applications due to the wide application range

Product Number	Product Name
708511	HYCOOL MARINE 45 25L CAN

Specification

Invent Hazard Material (IMO/EU) classification	C-7
Packing Type	CAN
Volume (l)	25

Accessories

708495	HYCOOL BLUE ADDITIVE 25L CAN
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WELDING



The Unitor range of welding and cutting equipment is tailor-made for maritime use. Our machines are outfitted to address the safety risks of hot work on vessels, with safety features such as a Total Protection function that automatically shuts the machine down to prevent damage or Voltage Reduction Device that reduces open circuit voltage to a safer voltage. Our comprehensive portfolio is fully compliant with current regulations and class requirements including the latest EU Ecodesign for sustainability. Besides offering best-in-class performance, we help you prepare your crew for challenges in hot work onboard through training materials and programs, offering you a one-stop solution to all your hot work needs.



Tailored for maritime use



Safe operation onboard vessels



Regulatory compliance



After-market support and training

Welding Safety Inspection

Tap into the expertise of our Port Service Engineers and keep your hot work environment safe. We offer a yearly safety inspection survey of your welding equipment onboard. Results of the confidential assessment will be shared with the vessel along with our recommendations and improvements.

New Generation of Wire Welding and Plasma Cutting

Shipboard welding and cutting are critical aspects of repair and maintenance programmes to ensure vessels are operational. Today, ship operators have a range of options for better and faster welding and cutting – making the right decision on which to use is hence crucial to improving operations on board. Our new generation of multi-purpose welding machines such as the UWW-301 TP wire welder and plasma cutter, namely the UPC-NEO NG, provide these exact solutions.

Browse this section to discover the benefits of our Welding range.

Scan or click on the QR code for more information.



GAS REGULATORS R-510

Unitor cylinder regulators for Acetylene and Oxygen are designed for reliability and safety of use by reducing cylinder pressure to suitable working pressure and keep it constant.

The large adjustment knobs are red for acetylene and blue for oxygen for easy identification of gas type. Both contents and working pressure gauges are clearly graded in psi and bar.



Features

- Easy identification of gas types with colour-coded adjustment knobs
- Immediate identification of gas pressures with easy to read gauges marked both in psi and bar
- Full capacity for all types of gas welding and cutting work
- Designed for use with Unitor gas cylinders
- Full conformance with EN ISO 2503 - Class 3

Product Number	Product Name
510000	REGULATOR 510 OX PRESSURE 0 - 10 BAR
510001	REGULATOR 510 AC PRESSURE 0 - 2.5 BAR
619379	MANOMETER/GAUGE GUARD +

Specification

Invent Hazard Material (IMO/EU) classification	NA
Oxygen	0 - 16 bar (145 psi) max. 40 m/-3-Vh
Acetylene	0 - 2.5 bar (22 psi) max. 5m/-3-Vh

All regulators are delivered with spare washers, hose connection for 1/4" and 3/8", gas hoses and instructions for use. Unitor regulators ensure a correct and stable working pressure with sufficient capacity for all types of gas welding and cutting work.

Accessories

550160	WASHER ALU 10 PCS FOR OX REGULATOR
550178	CONTENTS GAUGE OX/AR 0 - 400 BAR
550194	WORKING GAUGE OX 0 - 16 BAR
550202	WORKING GAUGE AC 0 - 2.5 BAR
550152	WASHER NYL 10 PCS FOR AC REGULATOR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLASHBACK ARRESTORS

Protects regulators and gas cylinders against flashback and burnback from the welding / cutting flame.

Product Information

Maritime authorities, such as the Norwegian Maritime Directorate, require the installation of flashback arrestors for acetylene and oxygen, as incorrect maintenance or use of gas welding equipment may cause flashbacks of various types.



Normally these will stop in a well designed torch, and are only noticed as a popping sound in the torch. However, faulty handling, maintenance or gas pressure setting may lead to a penetrating flashback. This means that the gas flame passes back through the hose(s). In some cases it may also pass the regulator and ultimately reach the cylinder.

The flashback arrestors supplied by Unitor are designed for use both with gas cylinders and gas outlet stations and incorporate the safety functions in the 'Features' list above.

Features

- All flashback arrestors have a flame filter to quench the flame front of a flashback or a burnback
- The built-in non-return valve (NRV) prevents reverse flow of gases, thereby preventing a gas mixture from reaching pipelines or cylinders

Further features for model W-66S and S55:

- Temperature activated cut-off to prevent further gas supply in case of fire (activated if the temperature rises to approx. 100° C)
 - Pressure activated cut-off to prevent further gas supply after a flashback (activated by the pressure shock in front of the flashback)
 - Indicator lever showing that the pressure activated cut-off has been activated; the lever is also used for resetting the flashback arrestor (W-66S only)
 - Indicator ring showing that the pressure activated cut-off has been activated; the ring is also used for resetting the flashback arrestor (S55 only)
- Further features for model FR20:
- Shank mounted arrestor with non-return valve (NRV) flashback arrestor set (AC-OX)
 - Single use non-resettable

Benefits

- Safety protection when performing gas welding and cutting activities onboard
- The flashback arrestors model (W-66S and S55) are build Conform to: EN 730/ ISO 5175 and with BAM Certification no.: ZBF/009/12
- Compliance with OCIMF SIRE for Tankers and RIGTHSHIP RISQ for Bulkers

Product number	Product name	IHM Classification	Operating pressure [bar]	Capacity [m ³ /h]
708554	FLASHBACK ARRESTOR W-66S ACETYLENE	NA	1.5	19
708550	FLASHBACK ARRESTOR W-66S OXYGEN	NA	10	105
708537	FLASHBACK ARRESTOR S55 AC	NA	1.5	8.5
708545	FLASHBACK ARRESTOR S55 OX	NA	10	50
619270	FLASHBACK ARRESTOR FR-20 FOR AC+OX	NA		

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WELDING GAS HOSES AND RETRACTABLE HOSE REEL

The Unitor welding gas hoses are made according to ISO 3821 / European Norm EN 559 and the retractable hose reel enables safe and easy management of the welding gas hoses onboard.

Product Information

Welding Gas Hoses

Unitor's hoses for welding gases are made according to ISO 3821 / European Norm EN 559.



- Normal working pressure up to 20 bar
- Test pressure 40 bar
- Minimum bursting pressure 60 bar

Self-Retracting Hose Reel

Self-retracting hose reels let you pull out the required length of hose and store the rest on the reel out of harms way.

This saves time, makes the job easier and contributes to increased efficiency. A workshop floor free from hoses reduces tripping accidents, improves access for carts and trolleys and allows for easier cleaning.

Features

- The hoses are colour-coded red for acetylene, blue for oxygen and black for shielding gases
- Hoses for acetylene and oxygen are specially made for use with welding and cutting equipment
- The Unitor Self-Retracting hose reel is made of robust steel construction

Benefits

- High ignition temperature synthetic rubber
- High tensile synthetic textile filament yarn
- Excellent ozone and weather resistant synthetic rubber

Product Number	Product Name
526472	2X6.3MM 1/4 INCH AC/OX TWINHOSE W/FITTING 10MTR
526478	2X9MM 3/8 INCH AC/OX TWINHOSE W/FITTING 10MTR
526482	2X9MM 3/8 INCH AC/OX TWINHOSE W/FITTING 25MTR
620018	TWIN HOSE 2X9.0MM (3/8INCH) RED/BLUE,50 MTR COIL
620022	TWIN HOSE 2X9.0MM (3/8INCH) RED/BLUE,50 MTR COIL
620026	GAS HOSE 6.3MM (1/4INCH) RED,50 MTR COIL
620030	GAS HOSE 6.3MM (1/4INCH) BLUE,50 MTR COIL
620034	GAS HOSE 9.0MM (3/8INCH) RED,50 MTR COIL
620038	GAS HOSE 9.0MM (3/8INCH) BLUE,50 MTR COIL
725260	SELF-RETRACTING HOSE REEL AC/OX

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

QUICK-COUPLENGS AND HOSE JOINTS

The quick couplings are designed for use on gas regulators and flashback arrestors, ensuring quick and gas-tight connection of hoses without use of tools.

Meanwhile, hose joints are supplied in sets consisting of two hose sockets with nuts for connection to gas regulator and torch for a more permanent joint.

Product Information

Quick Couplings

The quick couplings are designed for use on gas regulators and flashback arrestors, ensuring quick and gas-tight connection of hoses without use of tools.

Connection of wrong gas is prevented by different design of male/female connections for acetylene and oxygen.

In addition, connecting sleeves are color-coded red and blue. When disconnected, the female socket (side towards the regulator) automatically shuts off the gas flow. Dirt filters are included to protect the hose coupling and equipment while in use.



Hose Joints

The screw connection hose joints are supplied in sets consisting of two hose sockets with nuts for connection to gas regulator and torch.

A connection stub for use between the hose sockets completes the set as a hose joint.

Nuts and connection stub for acetylene are left-hand threaded and marked with a groove.

Argon and Oxygen are right-hand threaded. The hose joints are made of high-grade brass.

Features

- Easy identification with colour coding on probe (Red for Ac/Blue for Ox) for quick couplings
- Nuts and connection stub for acetylene hose joints are differentiated from oxygen by the left-hand threaded and marked with a groove/notch

Benefits

- Secure and leak free joints
- Quick couplings allow flexible and quick connect /disconnect while hose joints provide permanent joints

Product Number	Product Name
Quick Couplings	
734001	QUICK COUPL. OX REGULATOR TO HOSE 1/4INCH
734010	QUICK COUPL.OX HOSE TO HOSE 1/4INCH
734007	QUICK COUPL. AC REGULATOR TO HOSE 1/4INCH
734004	QUICK COUPL. AC HOSE TO HOSE 1/4INCH
734019	QUICK COUPL. OX REGULATOR TO HOSE 3/8INCH
734022	QUICK COUPL. OX HOSE TO HOSE 3/8INCH
734016	QUICK COUPL. AC REGULATOR TO HOSE 3/8INCH
734013	QUICK COUPL. AC HOSE TO HOSE 3/8INCH
734028	QUICK COUPLING OX MALE G3/8RH
734025	QUICK COUPLING AC MALE G3/8LH
734031	QUICK COUPLING PROBES FOR SHANK
Hose Joints and Hose Clamps	
175588	HOSE JOINT F/6MM (1/4 INCH) AC HOSE
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
175604	HOSE JOINT F/9MM (3/8 INCH) AC HOSE
175612	HOSE JOINT F/9MM (3/8 INCH) OX HOSE
768416	CLAMP 1 EAR 12,3-14,3MM 1/4" HOSE (20PCS)
768432	CLAMP 1 EAR 15,6-17,8MM 3/8" HOSE (20PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SAFETY SPECTACLES AND GOGGLES

The human eye is one of the most valuable assets to any person. Wearing safety eye protection can help protect your eyes from injury and damage while at work. Eye protection wear must fit properly to ensure safety and comfort to the wearer.

Unitor offers a range of safety eye protection wear for hot work-related activities.

Product Information

The safety spectacles have scratchproof hard-coated polycarbonate lenses, side shields and adjustable arms. Lenses are clear or shade 4 green. The shade 4 lenses may be used for light duty gas welding and brazing work.



The light half mask goggle of clear soft synthetic material is designed for protection against dust spatter and sparks during grinding.

The gas welding goggles with flip-up front has soft and comfortable surfaces against the face. The ventilation slots are designed to prevent entry of sparks and spatter, at the same time ensuring sufficient air circulation to prevent dampness and fogging of the glasses.

The filter shade glass is mounted in a flip-up front frame with a protection glass in front to protect the filter glass against spatter. A protection glass is also fitted in the fixed frame for protection when grinding and using the chipping hammer. Spare glasses are supplied in packages of 10.

Features

- Safety Spectacles and goggles comply to European Norms.

Benefits

- The headband is adjustable and elastic for comfortable use
- The lenses are clear, anti-mist acetate
- The design provides ample ventilation

Product Number	Product Name
632943	SAFETY SPECTACLES CLEAR
632950	SAFETY SPECTACLES SHADE 5
653410	SAFETY GRINDING GOGGLES
175273	WELD.GOGGLES W/LIFT-FRONT
633305	SHADE 3 GLASS. 10 PCS
633313	SHADE 5 GLASS. 10 PCS
633321	SHADE 6 GLASS. 10 PCS
633354	SHADE 7 GLASS. 10 PCS
633297	PROTECTION GLASS. 10 PCS

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UCT-500 COMBINATION TORCH MASTER

The UCT-500 Master kit has been assembled to cover all ordinary Acetylene / Oxygen welding, brazing and cutting work that may occur on board.



Product Information

Versatile kit in heavy duty case for heating, brazing, welding and cutting application using acetylene and oxygen (AC-OX).

Features

- The kit is assembled in a strong polyethylene case where each component clicks into its reserved compartment for good protection and complete overview
- Wide range of application include Gas Welding, Heating, Gouging, Flame cleaning, Soldering, Cutting, Rivet burning, Flame straightening etc

Benefits

- Quick overview and easy management of Acetylene Oxygen gas welding and cutting kit
- Equal pressure injector torch for safer handling
- Gas welding for up to 14mm thick steel plates and max gas flow of 1250 nl/h
- Gas cutting for up to 100mm thick steel
- Individual components available for sale as spares

Product Number	Product Name
500000	UCT-500 COMBINATION TORCH MASTER

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	6
Dimensions L x W x H [mm]	380 x 125 x 435

Supplied with

174565	WELDING ATTACHMENT 40 L
174573	WELDING ATTACHMENT 80 L
174581	WELDING ATTACHMENT 230 L
174599	WELDING ATTACHMENT 400 L
174607	WELDING ATTACHMENT 650 L
174615	WELDING ATTACHMENT 1000 L
174623	WELDING ATTACHMENT 1250 L
174698	CUTTING NOZZLE 3 - 10 MM
174706	CUTTING NOZZLE 10 - 25 MM
174714	CUTTING NOZZLE 25 - 50 MM
174722	CUTTING NOZZLE 50 - 100 MM
234807	CUTTING ATTACHMENT 90 DGR
174656	SHANK W/NON-RETURN VALVES
651265	SHANK NONRETURN VALVE F/9MM AC HOSE
651257	SHANK NONRETURN VALVE F/9MM OX HOSE
175356	CLEANING NEEDLES SET
174649	SPANNER
500100	UCT-500 SPARE PART KIT
174680	CIRCULAR MOTION BAR
174672	ROLLER GUIDE STANDARD

Accessories

597336	SHANK NONRETURN VALVE F/6MM AC HOSE
597344	SHANK NONRETURN VALVE F/6MM OX HOSE
619270	FLASHBACK ARRESTOR FR-20 FOR AC+OX
778145	TROLLEY A40/O40 F/GAS WELDING KIT
176024	PORTABLE WELD.TABLE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UCT-500 COMBINATION TORCH COMPACT

The UCT-500 Compact kit is a handy kit consisting of most equipment needed to perform the normally occurring heating, brazing, welding and cutting applications onboard.



Product Information

Versatile kit in heavy duty case for heating, brazing, welding and cutting application using acetylene and oxygen (AC-OX).

Features

- The kit is assembled in a strong polyethylene case where each component clicks into its reserved compartment for good protection and complete overview
- Wide range of application include Gas Welding, Heating, Gouging, Flame cleaning, Soldering, Cutting, Rivet burning, Flame straightening etc.

Benefits

- Quick overview and easy management of Acetylene Oxygen gas welding and cutting kit
- Equal pressure injector torch for safer handling
- Gas welding for up to 7mm thick steel plates and max gas flow of 650 nl/h
- Gas cutting for up to 25mm thick steel
- Individual components available for sale as spares

Product Number	Product Name
500001	UCT-500 COMBINATION TORCH COMPACT

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	3.5
Dimensions L x W x H [mm]	300 x 105 x 375

Supplied with

174573	WELDING ATTACHMENT 80L
174581	WELDING ATTACHMENT 230 L
174607	WELDING ATTACHMENT 650 L
174698	CUTTING NOZZLE 3 - 10 MM
174706	CUTTING NOZZLE 10 - 25 MM
234807	CUTTING ATTACHMENT 90 DGR
174656	SHANK W/NON-RETURN VALVES
651265	SHANK NONRETURN VALVE F/9MM AC HOSE
651257	SHANK NONRETURN VALVE F/9MM OX HOSE
175356	CLEANING NEEDLES SET
174649	SPANNER

Accessories

500100	UCT-500 SPARE PART KIT
619270	FLASHBACK ARRESTOR FR-20 FOR AC-OX
597336	SHANK NONRETURN VALVE F/6MM AC HOSE
597344	SHANK NONRETURN VALVE F/6MM OX HOSE
176024	PORTABLE WELD TABLE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SHANK AND WELDING/HEATING ATTACHMENTS

An overview of the accessories for UCT-500 gas welding/cutting kit, extending its use and especially for heating applications.



Product Information

Shanks are delivered with hose sockets for 6mm hoses. Non-return valves are included in the sockets

The non-return valves are for mounting on UCT-500 shank in order to prevent back flow of gas into hose. They are delivered with nuts. The non-return valves for 6mm hoses are also mounted on the shank when delivered.

The size of welding/heating attachments indicates consumption of oxygen in nl/h.

Acetylene consumption is approximately 10% lower. Material thickness for welding refers to mild steel.

Product Number	Product Name
Shanks	
174656	SHANK W/NON-RETURN VALVES
597336	SHANK NONRETURN VALVE F/6MM AC HOSE
597344	SHANK NONRETURN VALVE F/6MM OX HOSE
651265	SHANK NONRETURN VALVE F/9MM AC HOSE
651257	SHANK NONRETURN VALVE F/9MM OX HOSE
Welding Attachments	
174565	WELDING ATTACHMENT 40 L
174573	WELDING ATTACHMENT 80L.
174581	WELDING ATTACHMENT 230 L
174599	WELDING ATTACHMENT 400 L
174607	WELDING ATTACHMENT 650 L
174615	WELDING ATTACHMENT 1000 L
174623	WELDING ATTACHMENT 1250 L
183780	FLEX.WELD.ATTACHMENT 160 L
Heating Attachments	
234864	HEATING ATTACHMENT 2500 L.
183756	HEATING ATTACHMENT 5000 L.
603407	MULTIFLAME HEATING ATTACHMENT 2500L
603399	MULTIFLAME HEATING ATTACHMENT 5000L

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUTTING ATTACHMENTS & ACCESSORIES

An overview of cutting attachments and accessories for UCT-500 gas welding/cutting kit.

Product Information

Cutting attachments are available with cutting head in three different angles 75, 90 an 0 degrees. The 0 degrees cutting attachment is used for gouging.

The roller guide and circular motion bar that enables efficient cutting of shapes, especially circular shaped items such as flanges or other mechanical parts.



Features

- Cutting torches are adjustable towards shank
- Slim and simple design
- Equipment conforms to EN/ISO 5172

Benefits

- Able to reach difficult locations
- Less strain on operator
- Provides safety and long lasting quality
- Roller guide and circular motion bar enable more efficient workflow when cutting

Product Number	Product Name
174664	CUTTING ATTACHMENT 75 DGR
234807	CUTTING ATTACHMENT 90 DGR
234815	CUTTING ATTACHMENT 0 DGR
174672	ROLLER GUIDE STANDARD
174680	CIRCULAR MOTION BAR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUTTING & GOUGING NOZZLES

An overview of Cutting & Gouging Nozzles specially made for use with UCT-500 gas cutting equipment and with Oxy-Acetylene gases.



Features

- Designed for use with oxy/acetylene
- Made from high quality copper alloys
- Machined to precision for correct seating angle to prevent any gas leakages and uniform gas holes

Benefits

- Made with the highest safety standards in mind for equal pressure torch
- Good cutting & gouging performance
- Durable

Product Number	Product Name	Nozzle type	Material thickness [mm]	OX gas consumption [nl/h]	AC gas consumption [nl/h]
174698	CUTTING NOZZLE 3 - 10 MM	No. 2	3 - 10	1300	460
174706	CUTTING NOZZLE 10 - 25 MM	No. 3	10 - 25	2150	520
174714	CUTTING NOZZLE 25 - 50MM	No. 4	25 - 50	5650	690
174722	CUTTING NOZZLE 50 -100 MM	No. 5	50 - 100	7800	810
183855	CUTTING NOZZLE 140 MM LENGTH 40 - 75 MM	140	40 - 75	5230	570
183863	CUTTING NOZZLE 153 MM LENGTH 25 - 40 MM	153	25 - 40	3800	490

Product Number	Product Name	Furrow width [mm]	Furrow depth [mm]	OX gas consumption [nl/h]	AC gas consumption [nl/h]
174730	GOUGING NOZZLE	8 - 11	6 - 11	11500	1750

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TOOLS & SPARE PARTS FOR UCT-500

An overview of the tools & spare parts for maintaining and extending the life of the UCT-500 welding and cutting equipment.



Product Information

The spanner is a handy tool for tightening all connections on shanks and attachments.

Cleaning needles help clear carbon deposits or slag in welding attachments and cutting nozzles.

The UCT-500 spare part kit contains valve assemblies and o-rings for maintenance of your equipment.

Product Number	Product Name
174649	SPANNER
175356	CLEANING NEEDLES SET
500100	UCT-500 SPARE PART KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

STANDARD GAS ACCESSORIES

A kit comprising all necessary accessories needed for UNITOR acetylene and oxygen cylinders used in portable or transportable solutions.



Product Information

Safety

We recommend that the AC/OX twin hose have been checked for cracks in the outer rubber and leaks every time before you start welding; change the hose if necessary and make sure you have non-return valves attached to the shank.

For safety reasons we strongly recommend annual testing of the gas regulators and flashback arrestors, and to change gas regulators and flashback arrestors every 5 years.

Features

- A complete mobile gas welding workshop will consist of the AC-OX gases, a trolley for the gas cylinders, and UCT-500 Kit* with the standard gas accessories
- The equipment fits together and all items are in accordance with international rules and regulations for use onboard

*UCT-500 Master Kit is recommended for the 40L gas cylinder while the UCT-500 Compact Kit is recommended for the 5L gas cylinder.

Benefits

- With one order number the necessary products of right quality is available for gas welding, brazing and cutting

Product Number	Product Name
526509	STANDARD GAS ACCESSORIES

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Acetylene and oxygen R-510 regulators for cylinder	1 set
Flashback arrestors S55	1 set
10 m twin hose 1/4" with clamp 1 ear hose clampsz	1 pc
Gas ignitor	1 pc
Welding goggles	1 pc
Gas welding gloves	1 pair
Heat resistant mitten	1 pc
Unitor welding handbook for maritime welders	1 pc

Accessories

510000	REGULATOR 510 OX PRESSURE 0 - 10 BAR
510001	REGULATOR 510 AC PRESSURE 0 - 1.5 BAR
708545	FLASHBACK ARRESTOR S55 OX
708537	FLASHBACK ARRESTOR S55 AC
175273	WELD.GOGGLES W/LIFT-FRONT
233148	HEAT RESISTANT MITTEN
633198	GAS IGNITOR TRPL. 2 PCS
633206	SPARE FLINT SET. 10 PCS
632794	TIG GLOVES. 6 PAIRS
778143	TROLLEY A-5/0-5 F/GAS WELDING KIT
778145	TROLLEY A40/O40 F/GAS WELDING KIT
176040	BACK PORTABLE RACK

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

POR TABLE WELDTABLE

Table for safe hot work i.e. welding or AC-OX / plasma cutting work onboard at Engine Room workshop or at deck. Easy to assemble, space saving, ergonomics and highly recommended for regular welding and cutting activities.

Product Information

This sturdy worktable is made of steel and fully galvanized for corrosion protection. It includes a holding clamp for small workpieces. To ensure a stable work surface all four legs are adjustable in length. The legs have pointed ends to ensure high friction and a good hull contact when used for arc welding.



The table is excellent for use as a welding table in workshops on board, and in cases when it is needed outside the workshop it is easily transported as the legs may be detached and fastened under the table surface.

Features

- Legs can be detached and fastened under table
- Adjustable legs length
- Sturdy design made of steel fully galvanised
- Holding clamp

Benefits

- Easily transported and stored
- Stable work surface
- Long lasting high quality
- Able to weld on small work pieces

Product Number	Product Name
176024	POR TABLE WELDTABLE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Depth [mm] x Height [mm] x Width [mm]	400 x 630 x 600
Weight [kg]	14

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TROLLEY A-5/O-5 F/GAS WELDING KIT

Trolley for two cylinders securing cylinders during work and transportation.

Product Information

It is specially designed by Unitor for on board use, and has a low center of gravity which will keep it standing upright even at 30° out of vertical with all equipment mounted.

The strong lightweight steel construction is hot zinc coated for high corrosion resistance. It is fitted with solid rubber wheels for easy transport. Handles at top and bottom ensure easy carrying and lifting. Two double brackets for Unitor rod containers give the possibility to include a selection of four different rod types when transporting.

The trolley is tested and certified according to the International Labour Office for the testing and examination of lifting gear used in the loading and unloading of ships.

Test load 100 kg. Safe Working Load (S.W.L.) 50 kg.



Features

- Sturdy lightweight construction fitted with rubber wheel
- Cylinders firmly locked in place and secured
- Tested and certified for lifting

Benefits

- Prevents accidents caused by cylinders falling over
- Can safely be lifted

Product Number	Product Name
778143	TROLLEY A-5/O-5 F/GAS WELDING KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories	
500001	UCT-500 COMBINATION TORCH COMPACT
526509	STANDARD GAS ACCESSORIES

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TROLLEY A40/O40 F/GAS WELDING KIT

Trolley for two cylinders securing cylinders during work and transportation.

Product Information

This trolley is specially designed for on board use. The sturdy but lightweight construction of steel pipes is fully galvanized for corrosion protection. The trolley takes both 40 l and 50 l size cylinders, which are firmly secured in the trolley by means of two clamps with wing screws. As the weight of two full gas cylinders is approximately 150 kilos, the trolley has been fitted with extra large rubber wheels for easy mobility. For transport by crane the trolley is fitted with a lifting bow.



As safety in transportation and lifting of gas cylinders is a paramount demand, the trolleys are tested and certified according to the International Labour Office for the test and examination of lifting gear used in the loading and unloading of ships. The trolleys are test loaded to 400 kg, and certified for safe working load (S.W.L.) 200 kg.

Being intended to function as a complete mobile gas welding workshop, the trolley is fitted with a large, lockable accessories box. Weight of the trolley itself is 28 kilos.

Features

- Sturdy lightweight construction fitted with large rubber wheel
- Cylinders firmly locked in place and secured
- Tested and certified for lifting

Benefits

- Fast and easy transportation
- Prevents accidents caused by cylinders falling over
- Can safely be lifted

Product Number	Product Name
778145	TROLLEY A40/O40 F/GAS WELDING KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

500000	UCT-500 COMBINATION TORCH MASTER
526509	STANDARD GAS ACCESSORIES

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TROLLEY F/1 40-50L GAS CYLINDER

Trolley for one cylinder securing cylinder during work and transportation.

Product Information

The use of special lifting / transport devices for gas cylinders is required by several marine authorities.

Unitor's cylinder trolley SU-10 is specially designed for on board use when lifting or transporting 40 l and 50 l cylinders.

The cylinder is easily positioned in the trolley and locked in place with three wing screws. The strong lightweight steel construction is galvanized for corrosion protection. Large rubber wheels ensure easy transport along deck., there is ample holding space for 2 to 4 persons for easy lifting and carry.



The trolley is tested and certified according to the International Labour Office for the testing and examination of lifting gear used in the loading and unloading of ships.
 Test load 200 kg. Safe Working Load (S.W.L.) 100 kg.

Note: Unitor has also developed a trolley for two 40/50 l cylinders for use on board as a mobile equipment or for transportation of cylinders.

Features

- Sturdy lightweight construction fitted with rubber wheel
- Cylinder firmly locked in place and secured
- Tested and certified for lifting

Benefits

- Fast and easy transportation
- Prevents accidents caused by cylinders falling over
- Can safely be lifted

Product Number	Product Name
778147	TROLLEY F/1 40-50L GAS CYLINDER

Specification

Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PORTRABLE RACK

For transportation and safe storing of small cylinders.

Product Information

Sturdy and lightweight construction for carrying two 5L gas cylinders.



Features

- Sturdy lightweight construction
- Cylinders firmly locked in place and secured

Benefits

- Can be brought to work locations quickly and easily
- Prevents accidents caused by cylinders falling over

Product Number	Product Name
176032	PORTRABLE RACK

Specification

Invent Hazard Material (IMO/EU) classification	NA

Directions for use

Store gas cylinders in a clearly identified, dry, well-ventilated storage area that is not exposed to heat or the direct rays of the sun, and away from doorways, aisles, elevators, gangways, and stairs.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GAS WELDING AND BRAZING CONSUMABLES

The Unitor gas welding and brazing rods range has been carefully selected to cover all normally occurring applications onboard.

Product Information

These high quality, high efficiency welding consumables are designed for easy to weld and use together with our Unitor gas welding and cutting solutions.

Features

- High quality and versatile for a wide range of gas welding and brazing application onboard
- Standardized welding consumables range available in key ports
- All products are supplied in sealed recyclable high density polyethylene packaging with clear information on application areas and use

Benefits

- More efficient procurement and maintenance process while ensuring consistent welding quality from standardization
- Easy to weld without high demands on the welder's skill ensuring high productivity
- The packaging protects welding consumables from moisture pickup and contamination

Product Number	Product Name
233601	AG 60 252 2.0 X 500 MM 0.5 KG
619744	AG 45 253 2.0 X 500 MM 0.4 KG
233604	AG 45/60 BRAZING FLUX BAF.250GH
604371	ALBRO-FLUX 263 PF 250 G
514265	ALUMAG 235 3.0 MM GAS TIG WELD 0.5 KG
603043	ALUFLUX 234 F. 250 G
233065	BRONZE-264 3.0 X 500 MM 1.7 KG
233551	FC-BRONZE 261 2.0 X 500 MM 1.0 KG
233569	FC-BRONZE 261 3.0 X 500 MM 1.0 KG
603076	BRONZE-FLUX 261 PF.250 G
233577	FC-WEARBRO 262 3.0 X 500 MM 1.0 KG
233585	FC-WEARBRO 262 5.0 X 500 MM 1.1 KG
603068	WEARBRO-FLUX 262 PF.250 G
764485	CAST IRON 237 5.0 X 500 MM 1.1 KG
764487	CAST IRON FLUX 236 F. 250 G
539551	MS-200 2.0 X 500 MM 3.5 KG
539569	MS-200 3.0 X 500 MM 3.5 KG
777973	TIN 241 AG 1.5 MM 0.5 KG SOLDER

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASWELDING CABINET COMPLETE

This cabinet is a complete gas welding work shop with equipment and consumables for all normal gas welding, brazing and cutting operations on board.



Product Information

Compact design provides good access to contents, and ample room for additional spares and accessories. A selection of gas welding and brazing consumables with the gas welding and cutting accessories make it a good fit for engine room workshops.

Features

Consumables and Gas Welding & Cutting Tools

- Selection of gas welding and brazing consumables for silver and bronze brazing, cast iron, aluminium, mild steel and heat resistant steels and tin soldering with Unitor welding handbook guide
- Come with gas welding and cutting kit for all normal gas welding, brazing and cutting operations onboard with basic personal protective equipment (PPE) included

Cabinet

- Sturdy, corrosion resistant construction from electro-galvanized steel plates, with final coating by powder spraying and baking, made for marine conditions
- Shelves are zinc/yellow-chromate passivated for optimal corrosion and scratch resistance, with hardplast protection surface for nozzles and blowpipes
- The door construction provides a stable work surface for torch assembly when open

Benefits

- Perfect fit for all AC-OX Gas Outlet Station in engine room workshop with ready to use gas welding and cutting tools
- Easy overview and management of gas welding and brazing consumables onboard
- Able to perform gas welding and brazing for all normal repair applications onboard

Product Number

589861

Product Name

GASWELDING CABINET COMPLETE

Specification

Invent Hazard Material (IMO/EU) classification

NA

Weight with Content

56 KG

Weight without Content

37.5 KG

Dimensions L x W x H [mm]

300 x 600 x 600

Supplied with

GASWELDING CABINET EMPTY
COMPLETE CONTENT OF UCT-500 MASTER KIT

Welder's Accessories and Manual Guide

WELD.GOGGLES W/LIFT-FRONT
WELDING GLOVES SOFT SKIN
GAS IGNITOR TRIPLEX
WIRE BRUSH 2-ROWS STEEL
UNITOR WELDING HANDBOOK

Silver Brazing

AG 60 252 2.0 X 500 MM	0.5 KG
AG 45 253 2.0 X 500 MM	0.4 KG
AG 45/60 BRAZING FLUX BAF.	250 G
ALBRO-FLUX 263 PF	250 G

Bronze Brazing

BRONZE-264 3.0 X 500 MM	1.7 KG
FC-BRONZE 261 2.0 X 500 MM	1.0 KG
FC-BRONZE 261 3.0 X 500 MM	1.0 KG
BRONZE-FLUX 261 PF.	250 G
FC-WEARBRO 262 3.0 X 500 MM	1.0 KG
FC-WEARBRO 262 5.0 X 500 MM	1.1 KG
WEARBRO-FLUX 262 PF.	250 G

Cast Iron Joining & Rebuilding

CAST IRON 237 5.0 X 500 MM	1.1 KG
CAST IRON FLUX 236 F.	250 G

Aluminium Joining

ALUMAG 235 3.0 MM GAS TIG WELD	0.5 KG
ALUFLUX 234 F.	250 G

Tin Soldering

TIN 241 AG 1.5 MM 0.5 KG SOLDER	0.5 KG
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Mild Steels / Heat Resistant Steels

MS-200 2.0 X 500 MM	3.5 KG
MS-200 3.0 X 500 MM	3.5 KG
ICROMO-216 2.5 X 500 MM	1.0 KG

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GASWELDING CABINET EMPTY

Empty storage cabinet for gas welding rods, brazing rods, fluxes and gas welding equipment.

Product Information

New compact design with improved access to contents, and ample room for additional spares and accessories.

Minimum headroom clearance of 310 mm above the cabinet is required.



Features

- Sturdy, corrosion resistant construction from electro-galvanized steel plates, with final coating by powder spraying and baking, made for marine conditions
- Shelves are zinc/yellow-chromate passivated for optimal corrosion and scratch resistance, with hardplast protection surface for nozzles and blowpipes
- The door construction provides a stable work surface for torch assembly when open

Benefits

- Easy overview and access to content
- Long lasting with no maintenance
- Opportunity to customise content to vessel requirements

Product Number	Product Name
589846	GASWELDING CABINET EMPTY

Specification	
Invent Hazard Material (IMO/EU) classification	NA
Weight	37.5
Dimensions L x W x H [mm]	300 x 600 x 600

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWI-150TP WELDING INVERTER IN CASE

UWI-150TP, compact and portable welding machine for shipboard welding with excellent performance-to-weight ratio for welding all normal coated electrodes up to 3.2mm, including Aluminium electrodes.



Product Information

EU Ecodesign Compliant Welding Machine

Features

- Stick electrode (MMA) with automatic hot start and Lift-Arc TIG welding with TIG Pulse function. Remote control option
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 9VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks
- Delivers in carrying case complete with electrode holder and return clamp

Benefits

- Safe and compliant welding machine for maritime use
- Superior reliability in tough maritime environment
- Easy arc start and anti-sticking
- Excellent thin sheet metal welding properties with low heat input TIG Pulse
- Light (4.4kg) and portable for welding works anywhere around the vessel
- Spare part kit available for easy repair and to minimise downtime

Product Number	Product Name
150150	UWI-150TP WELDING INVERTER IN CASE

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	5-150 A
Duty Cycle [%]	30% at max current
Recommended Fuse [A]	16 A slow
Voltage [V]	1 phase 230V 50/60 Hz mains supply
Ingress Protection	IP23 S
Weight [kg]	4.4
Dimensions L x W x H [mm]	310 x 120 x 215

Supplied with

Carrying strap
Electrode holder with 3m cable and connector
Return clamp with 3m cable and connector
2.5m primary cable mounted on the machine

Ordering Information

For Single Phase (1P 110V), vessel is recommended to use Three Phase (3P 380-440V) welding machine i.e. UWI-203TP due to the capacity limitation of slow blow fuse onboard

Accessories

Recommended for TIG Welding

150000	TIG TORCH T-150 W.DIX 25 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
150151	REMOTE CONTROL FOR UWI-150 TP
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
576157	GAS HOSE 1/4" 6.3MM BLACK (sold per meter)
905565	ARGON E-10 FILLING
778149	TROLLEY E10/M10 F/TIG/MIG WELDING

Recommended Spare Part Kit

150161	SPARE PARTKIT UWI-150TP/UWW-161TP
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWI-203 TP WELDING INVERTER

UWI-203TP, is a compact 200A range welding machine supplied with stick electrode welding accessories for shipboard welding. It can weld all normal coated electrodes up to 4.0mm.



Product Information

EU Ecodesign Compliant Welding Machine

Features

- Stick electrode (MMA) with automatic hot start, adjustable arc force and Lift-Arc TIG welding
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 13VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks
- Delivers complete with electrode holder and return clamp

Benefits

- Safe and compliant welding machine for maritime use
- Superior reliability in tough maritime environment
- Easy arc start and anti-sticking
- Adjustable arc force for stick electrode welding allows the arc characteristics to be changed for specific applications and electrodes: low arc force setting for smooth running electrodes like LH-314N and Special-303N and increased setting provides optimal characteristics for stiffer, more penetrating electrodes like E6010 types, chamfering electrodes like CH-2-382 and electrodes for ACA-384 gouging
- Portable (12kg) for welding works anywhere around the vessel
- Spare part kit available for easy repair and to minimise downtime

Product Number	Product Name
203203	UWI-203 TP WELDING INVERTER

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	5-200A MMA
Duty Cycle [%]	40% at max current
Recommended Fuse [A]	10 - 16A slow
Voltage [V]	3 phase 380-440V 50/60Hz main supply
Ingress Protection	IP23S
Weight [kg]	12.2
Dimensions L x W x H [mm]	460 x 230 x 325

Supplied with

Carrying strap
Electrode holder with 3m cable and connector
Return clamp with 3m cable and connector
4m primary cable mounted on the machine

Note: Plug for the primary cable must fit the socket types used on board and is therefore not included

Accessories**Recommended for TIG Welding**

200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
597328	FLOWCONTROL METER, ARGON
597310	FLOWCONTROL VALVE, ARGON
619379	MANOMETER/GAUGE GUARD +
576157	GAS HOSE 1/4" 6.3MM BLACK (sold per meter)
905174	ARGON E-50 FILLING
905565	ARGON E-10 FILLING
778149	TROLLEY E10/M10 F/TIG/MIG WELDING

Recommended Spare Part Kit

203205	SPARE PART KIT FOR UWI-203TP
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Recommended Trolley

764550	SKID TROLLEY FOR PLASMA AND WELDING
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWI-230TP AC/DC WELDING INVERTER

The UWI-230TP AC/DC is specially design for TIG AC/DC Aluminium Welding and able to weld stick electrode of up to 4,0mm diameter as well perform TIG Brazing. Welding machine is supplied "without" any accessories.

Product Information

EU Ecodesign Compliant Welding Machine



The welding machine is supplied "without" any accessories. To order, include Part No. 670406 ACCESSORIES KIT F/UWI-230,-320,-500.

Features

- TIG Welding of all materials especially for Aluminium with Turbo function for welding thicker gauge aluminium
- Stick electrode (MMA) with automatic hot start and Lift-Arc TIG welding with Square Wave current. Remote control option
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 10VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks

Benefits

- Safe and compliant welding machine for maritime use
- Superior reliability in tough maritime environment
- Designed for TIG Aluminium welding as well for welding all coated electrodes including most 4mm electrodes with 180A capacity
- With the use of remote control, the welder has full control of arc and heat input during welding, and for finishing, able to fully control of down-slope and arc stop
- Portable for welding works anywhere around the vessel
- Spare part kit available easy repair and to minimise downtime

Product Number

230231

Product Name

UWI-230TP AC/DC WELDING INVERTER

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	5 - 220 A
Duty Cycle [%]	40% at max current
Recommended Fuse [A]	16A slow
Voltage [V]	1 phase 230V 50/60Hz main supply
Ingress Protection	IP23S
Weight [kg]	19.4
Dimensions L x W x H [mm]	460 x 230 x 325

Accessories**Recommended for TIG Welding**

200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
597328	FLOWCONTROL METER, ARGON
597310	FLOWCONTROL VALVE, ARGON
619379	MANOMETER/GAUGE GUARD +
576157	GAS HOSE 1/4" 6.3MM BLACK (sold per meter)
905174	ARGON E-50 FILLING
905565	ARGON E-10 FILLING
778149	TROLLEY E10/M10 F/TIG/MIG WELDING

Recommended Spare Part Kit

230233	SPARE PART KIT FOR UWI-203TP AC/DC NO.1
230234	SPARE PART KIT FOR UWI-203TP AC/DC NO.2

Recommended Trolley

764550	SKID TROLLEY FOR PLASMA AND WELDING
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWI-320TP WELDING INVERTER

UWI-320TP, is a compact yet powerful 320Amps welding machine for all types of shipboard welding. It can weld all normal coated electrodes up to 5.0mm. Two machines can be connected parallel together to achieve 640A for welding or gouging applications.



Product Information

EU Ecodesign Compliant Welding machine

The welding machine is supplied "without" any accessories. To order, include Part No. 670406 ACCESSORIES KIT F/UWI-230,-320,-500.

Features

- Stick electrode (MMA) with automatic hot start and Lift-Arc TIG welding function.
- Remote control option
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 9VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks

Benefits

- Safe and compliant welding machine for maritime use
- Superior reliability in tough maritime environment
- Easy arc start and anti-sticking
- Full capacity for welding all coated electrodes including 6.0mm high recovery electrode which provides high welding productivity
- Active fan control reduces the amount of dust and dirt deposit inside the machine during cooling thereby eliminating the risk of short circuiting
- Remote control option enables the welder full control of arc and heat input during welding especially down-slope and arc stop during finishing
- Parallel connection of two machines provides 640A output for welding coated electrodes that require more than 320A, and full Air Carbon Arc gouging capability
- Spare part kit available for easy repair and to minimise downtime

Product Number	Product Name
320320	UWI-320TP WELDING INVERTER

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	320
Duty Cycle [%]	30%
Recommended Fuse [A]	20 - 25A slow
Voltage [V]	3 phase 380 - 440V 50/60Hz main supply
Ingress Protection	IP23S
Weight [kg]	18
Dimensions L x W x H [mm]	460 x 230 x 325

Accessories**Recommended for Stick Electrode Welding**

670406	ACCESSORIES KIT F/UWI-230,-320,-500
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Recommended for TIG Welding

200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
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607810	TIG TORCH ACCESSORIES KIT
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510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
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597328	FLOWCONTROL METER, ARGON
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597310	FLOWCONTROL VALVE, ARGON
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619379	MANOMETER/GAUGE GUARD +
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576157	GAS HOSE 1/4" 6.3MM BLACK (sold per meter)
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905174	ARGON E-50 FILLING
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905565	ARGON E-10 FILLING
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778149	TROLLEY E10/M10 F/TIG/MIG WELDING
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Recommended Spare Part Kit

320323	SPARE PART KIT FOR UWI-320TP
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Recommended Trolley

764550	SKID TROLLEY FOR PLASMA AND WELDING
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWI-500TP WELDING INVERTER

UWI-500TP is a powerful welding inverter for all arc welding (Stick/TIG/MIG/MAG) & gouging processes onboard. Ideal for vessels requiring high duty cycle welding using very long welding cables extension especially deck maintenance etc.



Product Information

EU Ecodesign Compliant Welding Machine

The welding machine is supplied "without" any accessories. To order, include Part No. 670406 ACCESSORIES KIT F/UWI-230,-320,-500.

Features

- Stick electrode (MMA) with adjustable hot start and arc force for optimal welding properties
- Lift-Arc TIG welding with remote control option for all welding processes, with total arc control both during welding and for the down-slope finish of the weld. Adjustable gas post-flow prevents faults in the end phase of the weld
- Two machines can be linked in parallel for up to 1000 Amperes for Air Carbon Arc gouging
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 9VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks

Benefits

- Safe and compliant welding machine for maritime use
- Heavy duty and superior reliability in tough maritime environment
- 5-500A current range covers the use of any size of welding electrodes and two machines can be connected parallel to provide 1000A
- Multi-process welding with combination of UWF-102 Wire Feeder for wire welding
- Spare part kit available easy repair and to minimise downtime

Product Number	Product Name
500500	UWI-500TP WELDING INVERTER

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	5 - 500
Duty Cycle [%]	50 at max current
Recommended Fuse [A]	32 A slow
Voltage [V]	3 phase 380 - 440V 50/60Hz main supply
Ingress Protection	IP23S
Weight [kg]	47
Dimensions L x W x H [mm]	670 x 290 x 510

Accessories**Recommended for Stick Electrode Welding**

670406	ACCESSORIES KIT F/UWI-230,-320,-500
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Recommended for TIG Welding

200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
607810	TIG TORCH ACCESSORIES KIT
510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
597328	FLOWCONTROL METER, ARGON
597310	FLOWCONTROL VALVE, ARGON
619379	MANOMETER/GAUGE GUARD +
576157	GAS HOSE 1/4" 6.3MM BLACK (sold per meter)
905174	ARGON E-50 FILLING
905565	ARGON E-10 FILLING
778149	TROLLEY E10/M10 F/TIG/MIG WELDING

Recommended for Air Carbon Arc Gouging

528703	AIR CARBON ARC TORCH 600A
634121	CONVERSION ASSEMBLY 2 PCS

Recommended for Welding Cable Extensions

670422	REMOTE CONTROL CABLE FOR UWI-320/500
175802	WELDING CABLE & CONNECTOR 50 MM2 50M
183665	WELDING CABLE & CONNECTOR 70 MM2 50M
634121	CONVERSION ASSEMBLY 2 PCS
175729	CABLE DRUM W/CRANK

Recommended for Parallel Connection of two welding machines

632901	TRIPLE CONNECTION DIX-70 MMF, 2PCS
676973	REMOTE CONTROL PARALLEL CONNECTION
670414	REMOTE CONTROL FOR UWI-320/500 & UWW-301

Recommended Spare Part Kit

500505	SPARE PART KIT FOR UWI-500TP
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Recommended Trolley

500103	UNDERCARRIAGE FOR UWI-500TP
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Note: For Wire Welding, see product number 500102 UWF-102 Wire Feeder

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNDERCARRIAGE FOR UWI-500TP

Undercarriage specially designed for mounting under UWI-500TP for easy transport of machine, cables and electrodes.



Features

- The undercarriage is delivered with assembly instructions
- UWI-500 is fastened to the undercarriage with 4 bolts
- The driving handles folds backwards when not in use to ensure good access to the front of the welding machine

Benefits

- Simple design and assembly yet robust
- Safe and easy handling of UWI-500 TP power source movement onboard
- A shelf for accessories or electrode packages is placed between the legs of the undercarriage for welder's convenience

Product Number	Product Name
500103	UNDERCARRIAGE FOR UWI-500TP

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	16
Height [mm]	690
Width [mm]	450
Length with handles open [mm]	1120
Length with handles folded [mm]	730

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWF-102 WIRE FEEDER FOR UWI-500TP

UWF-102 wire feeder is a compact and lightweight wire feeder designed for use with UWI-500TP welding inverter.



Product Information

UWF-102 is delivered with 4m connection cables and hose for connection to UWI-500TP.

Adjustable wire spool friction brake and roll pressure setting for the feed system provides smooth feeding of both self shielded wires, gas shielded flux cored wires, and gas shielded solid wires.

Note:

Torch is not included with the unit

V-groove drive roll kit for use with 0.8-1 mm solid wire is installed

A self shield spool adapter is required for 1.6 mm self shield wire which is supplied in coils

Cable/hose extensions may be used between power source and wire feeder

Features

- Spool sizes 200 mm to 300 mm can be used
- Takes wire sizes from 0.6 mm to 2 mm including flux-cored wires and gasless wires
- Delivered with euro-connector for torch and 4 m connection cables and gas hose for connection to UWI-500TP
- Drive roll kit for 0.8 mm wires are included with the feeder

Benefits

- Excellent heavy duty wire feeder especially when welding at a distance
- Universal Euro connection for torch
- Standard spools with 300 mm diameter are fitted vertically inside the wire feeder, fully protected

Product Number	Product Name
500102	UWF-102 WIRE FEEDER FOR UWI-500TP

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	5-500
Duty Cycle Rating	450A @ 60%
Ingress Protection	IP 23
Weight [kg]	17.4
Dimensions L x W x H [mm]	690 x 385 x 440
Wire Size [mm]	0.6 - 2
Wire Speed [m/min]	1.5 - 18

Accessories**Drive Roll Kits for UWF-102**

778191	OUTGOING WIRE DRIVE GUIDE F/UWF-102
778192	DRIVE ROLL V-GROOVE 0.8/1.0MM
778194	DRIVE ROLL V-GROOVE 1.2/1.6MM
778195	DRIVE ROLL KNUR. V-GROOVE 0.8/1.0MM
778196	DRIVE ROLL KNUR. V-GROOVE 1.2/1.6MM
778197	DRIVE ROLL U-GROOVE 0.8/1.0MM
778198	DRIVE ROLL U-GROOVE 1.2/1.6MM

Shielding Gases Equipment and Accessories

510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
619379	MANOMETER/GAUGE GUARD +
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON
576157	GAS HOSE 1/4" 6.3 MM BLACK (sold per meter)
175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
768416	CLAMP 1 EAR 12.3-14.3MM 1/4" HOSE (20PCS)
905581	UNIMIX 20 M-502 FILLING
905573	UNIMIX 20 M-102 FILLING
905174	ARGON E-50 FILLING
905565	ARGON E-10 FILLING
778147	TROLLEY F/1 40-50L GAS CYLINDER

Self-Shielded Torch for Wire Welding T-350

750179	WIRE TORCH T-350 GL WITH 3M CABLE
750181	CONTACT TIPS 1.0 MM 10 PCS T-350 TORCH
750182	CONTACT TIPS 1.6 MM 10 PCS T-350 TORCH
750184	CERAMIC NOZZLE F/T-350 TORCH, 5 PCS
750185	TIP ADAPTER FOR T-350 TORCH, 2 PCS

Gas-Shielded Torch for Wire Welding T-400

607451	WIRE TORCH T-400GS W/3M CABLE
594622	CONTACT TIPS 0.8 MM 10 PCS T-400 TORCH
594630	CONTACT TIPS 1.2 MM 10 PCS T-400 TORCH
607455	CONTACT TIPS 1.4 MM 10 PCS T-400 TORCH
607456	CONTACT TIPS 1.6 MM 10 PCS T-400 TORCH
613763	GAS DIFFUSOR 5 PCS FOR T-400 TORCH
613764	NECK INSULATION 5 PCS T-400 TORCH
613765	GAS NOZZLE FOR T-400 TORCH
613766	NOZZLE INSULATOR 5 PCS T-400 TORCH

Torch Liners for T-350 and T-400

594606	TORCH LINER,TEFLON,0.6 - 1.2 MM, 4.5M
594614	TORCH LINER,STEEL, 0.6 - 1.0 MM 3.0M
607457	TORCH LINER, STEEL, 1.0 - 1.4 MM, 3.0M
777846	TORCH LINER, STEEL, 1.4 - 1.6 MM, 3.0M

Welding Cable / Extensions for UWI-500 to UWF-102

670422	REMOTE CONTROL CABLE FOR UWI-320/500
500104	CONTROL CABLE 25M FOR UWI-500 TP
175802	WELDING CABLE & CONNECTOR 50 MM2 50M
183665	WELDING CABLE & CONNECTOR 70 MM2 50M
634121	CONVERSION ASSEMBLY 2 PCS
632893	CABLE CONNECTOR DIX70 MALE-FEMALE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UWW-301 TP WIRE WELDER

Compact and portable, the UWW-301 TP multi-process (MIG/MAG/Stick/TIG) welding machine is specially designed for shipboard's high deposition wire welding and use in tight spaces. The welding machine is supplied "without" any accessories.

Product Information

EU Ecodesign Compliant Welding Machine



The welding machine is supplied "without" any accessories. To order, include Part No. 670410 ACCESSORIES KIT F/UWW-301 TP or refer to the attached Selection Chart.

Features

- The UWW-301 TP is a versatile 3 phase (380-440V, 50/60Hz) multi-process welder with max current 300A for wire welding of wires diameter 0.8mm - 1.6mm; 250A for stick electrode up to diameter 6.0mm and TIG welding
- Voltage Reduction Device (VRD) function reduces open circuit voltage to only 11VDC which reduces risks of electric shock and electrocution to the lowest level
- Built-in Total Protection (TP), Line-voltage compensation and Thermal overload protection
- Made of high-grade aluminium casing that reduces weight and corrosion risks

Benefits

- Safe and compliant welding machine for maritime use
- Superior reliability in tough maritime environment
- High productivity welding with multi-process capabilities and yet portable, for welding works anywhere around the vessel
- Spare part kit available easy repair and to minimise downtime

Product Number	Product Name
301301	UWW-301 TP WIRE WELDER
Specification	
Invert Hazard Material (IMO/EU) classification	D-1
Welding Current [A]	MIG/MAG 300 (TIG/MMA: 250)
Duty Cycle [%]	MIG/MAG 35% (TIG 50%; MMA 40%)
Recommended Fuse [A]	16 A slow
Voltage [V]	3 phase 380-440V 50/60 Hz main supply
Ingress Protection	IP23S
Weight [kg]	19.0
Dimensions L x W x H [mm]	410 x 270 x 355

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Accessories**Self -Shield Wire Welding and Stick Electrode Welding Accessories Kit**

670410	ACCESSORIES KIT F/UWW-301 TP
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Recommended for TIG Welding

200000	TIG TORCH T-200 W.DIX 70 CONNECTOR
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607810	TIG TORCH ACCESSORIES KIT
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Drive Roll Kit and Wire Guide Set

609716	SPARE ROLLER&WIRE GUIDE F/UWW-301 TP
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Shielding Gases Equipment and Accessories

510010	REGULATOR 510 AR/CO2 FLOW 0-35L/MIN
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619379	MANOMETER/GAUGE GUARD +
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597310	FLOWCONTROL VALVE, ARGON
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597328	FLOWCONTROL METER, ARGON
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576157	GAS HOSE 1/4" 6.3 MM BLACK (sold per meter)
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175596	HOSE JOINT F/6MM (1/4 INCH) OX HOSE
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768416	CLAMP 1 EAR 12.3 - 14.3 MM 1/4" HOSE (20PCS)
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905581	UNIMIX 20 M-502 FILLING
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905573	UNIMIX 20 M-102 FILLING
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905174	ARGON E-50 FILLING
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905565	ARGON E-10 FILLING
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778147	TROLLEY F/1 40-50L GAS CYLINDER
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Self-Shielded Torch for Wire Welding T-350

750179	WIRE TORCH T-350 GL WITH 3M CABLE
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750181	CONTACT TIPS 1.0 MM 10 PCS T-350 TORCH
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750182	CONTACT TIPS 1.6 MM 10 PCS T-350 TORCH
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750184	CERAMIC NOZZLE F/T-350 TORCH, 5 PCS
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750185	TIP ADAPTER FOR T-350 TORCH, 2 PCS
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Gas-Shielded Torch for Wire Welding T-400

607451	WIRE TORCH T-400GS W/3M CABLE
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594622	CONTACT TIPS 0.8MM 10 PCS T-400 TORCH
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594630	CONTACT TIPS 1.2MM 10 PCS T-400 TORCH
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607455	CONTACT TIPS 1.4MM 10 PCS T-400 TORCH
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607456	CONTACT TIPS 1.6MM 10 PCS T-400 TORCH
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613763	GAS DIFFUSOR 5 PCS FOR T-400 TORCH
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613764	NECK INSULATION 5 PCS T-400 TORCH
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613765	GAS NOZZLE FOR T-400 TORCH
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613766	NOZZLE INSULATOR 5 PCS T-400 TORCH
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Torch Liners for T-350 and T-400

594606	TORCH LINER,TEFLON,0.6 - 1.2 MM, 4.5M
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594614	TORCH LINER,STEEL, 0.6 -1.0 MM 3.0M
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607457	TORCH LINER, STEEL, 1.0 - 1.4 MM, 3.0M
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777846	TORCH LINER, STEEL, 1.4 - 1.6 MM, 3.0M
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Recommended Spare Part Kit

230237	SPARE PART KIT FOR UWW-301TP
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UPC-NEO NG PLASMA CUTTER COMPLETE

The UPC-NEO NG is a new-generation, high performance, portable manual plasma cutting and gouging machine. It offers excellent weight-to-cutting ratio, can cut up to 40mm thickness of steel while weighing only 25kg.



Product Information

EU Ecodesign Compliant Welding Machine

Features

- Performs recommended cut of 20mm at cutting speed of 500mm/min and quality cut of 25mm at cutting speed of 250mm/min
- Equipped with Intelligent Voltage Reading (IVR) function to indicate the end of life for plasma consumables and Part In Place (PIP) function to warn if plasma consumables are not correctly mounted on the torch
- Built-in Total Protection (TP) function to protect machine against phase loss from incoming input power supply
- Self-regulation of input supply enables cutting to occur far from the distribution panel, with extension cable of 50m from a 400V 3ph input
- Torch with safety trigger as per CE standard and "Reset" button to avoid accidental trigger
- IP23 ingress protection with high resistance to dust and moisture

Benefits

- Safe and compliant for maritime and outdoor use
- Superior reliability in tough maritime environment
- Excellent cutting performance and versatile as it can cut a wide range of electrically conductive steels such as mild and stainless steels, castings, aluminium, titanium as well as copper alloys
- Quality cut with lesser distortion and smaller Heat-Affected Zone (HAZ) compared to traditional oxy-fuel cutting process
- Spare part kit available for easy repair and to minimise downtime

Product Number	Product Name
404200	UPC-NEO NG PLASMA CUTTER COMPLETE

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Process Power	88V - 20A ; 108V - 70A
Duty Cycle [%]	35% @ 70A
Recommended Fuse [A]	16 A slow
Voltage [V]	3 phase 380-440V 50/60Hz main supply
Ingress Protection	IP23S
Weight [kg]	25
Dimensions L x W x H [mm]	620 x 225 x 360
Air flow [l/min]	150
Air pressure [bar]	5.0 - 5.5
Temperature class	H

Supplied with

Torch with 6m cable (connected directly to machine)
Return clamp with 6m cable and DIX25 connector
4m primary cable mounted on the machine
Initial supply consumables kit consisting of 2 x Electrode, 2 x Tip Cutting, 1 x Cartridge and 1 x Shield Cup
Air regulator with filter and water separator mounted on machine

Note: Plug for the primary cable must fit the socket types used on board and is therefore not included.

Accessories**Consumables for Cutting**

404202	CONSUMABLES KIT F/UPC-NEO NG
310334	ELECTRODE F/UPC-310M/UPC-85ML/UPC-NEO NG, SET OF 5 PCS
310335	START CARTRIDGE F/UPC-310ML/UPC-85ML/UPC-NEO NG
310336	TIP DRAG CUTTINGF/UPC-310ML/UPC-85ML/UPC-NEO NG, SET OF 5PCS
310337	SHIELD CUP BODY F/UPC-310ML/UPC-85ML/UPC-NEO NG
404169	SHIELD CUP 80-100A F/UPC-85ML/UPC-NEO NG
404173	SHIELD CUP BODY MAX LIFE F/UPC-85ML/UPC-NEO NG
404201	TIP STAND OFF CUTTING F/UPC-NEO NG
404177	STAND OFF GUIDE F/UPC-85ML/UPC-NEO NG

Consumables for Gouging

404203	TIP GOUGING F/UPC-NEO NG
404161	SHIELD CUP GOUGING F/UPC-85ML/UPC-NEO NG
404173	SHIELD CUP BODY MAX LIFE F/UPC-85ML/UPC-NEO NG

Related Accessories

624585	AIR LINE UNIT FIL/REG/LUB
310333	TORCH HEAD F/UPC-310ML/UPC-85ML/UPC-NEO NG
404204	TORCH SL60 WITH 6M CABLE F/UPC-NEO NG
310326	CIRCLE CUTT. GUIDE F/UPC-310ML, UPC-NEO NG
176024	PORTABLE WELD.TABLE

Recommended Spare Part Kit

404208	TOTAL REPAIR KIT FOR UPC-NEO NG
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SKID TROLLEY FOR PLASMA AND WELDING

Trolley for welding power source that is sturdy and light weight for giving additional protection to towards mechanical damage.



Product Information

Designed to be used as a mobile solution for Unitor power source model UWW-161TP, UWI-203TP and UWI-320TP.

Features

- High handles in front and back enables coiling of cables for easy transport
- Retractable handle and large wheels
- Bracket for safe cable storing during transport
- Increased protection of the machine the design also provides easy carrying between two persons

Benefits

- Easy transport
- Limits damage to equipment

Product Number	Product Name
764550	SKID TROLLEY FOR PLASMA AND WELDING

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ACCESSORIES KIT F/UWI-230,-320,-500

Basic welding kit for UWI-230 TP AC/DC, UWI-320TP and UWI-500TP welding machines ready for stick electrode welding.



Product Information

Stick electrode welding kit with complete accessories for UNITOR 3 phase welding machine. Also can be used for UWW-301TP wire welder.

Features

- Accessories for stick electrode welding plus one each of welder gloves, chipping hammer and wire brush 2 rows for steel
- Remote amp control

Benefits

- Simplified stick electrode welding accessories package in a kit especially for starters
- Remote control saves time as the welder can adjust the amperage from work site also when the welding machine is not close by
- The other accessories are basic to do stick electrode welding, and is the minimum needed if not already available on board

Product Number	Product Name
670406	ACCESSORIES KIT F/UWI-230,-320,-500

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

FLIPVISION WELDING SHIELD
WELDING GLOVES
ELECTRODE HOLDER 400A W/DIX 70 CONNECTOR
RETURN CLAMP ASSY 400A W/DIX 70
REMOTE CONTROL F/UWI-320/500 & UWW-301
CHIPPING HAMMER STEEL
WIRE BRUSH F/STEEL 2 ROWS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ACCESSORIES KIT F/UWW-301 TP

Accessories Kit for UWW-301 TP Wire Welder is a kit ready for selfshield / gasless wire welding and stick electrode welding.

Product Information

The Accessories Kit combined with UWW-301 TP multi-purpose welder and consumables enables high deposition and efficient shipboard welding.

*For Gas Shielded and TIG Welding, please order the necessary accessories separately.



Features

- Accessories for selfshield wire welding and stick electrode welding
- Ideal for use with wire welding consumables MS-W-203 and TENSILE-W-228 in 5kg spool

Benefits

- The Accessories Kit is a starter kit which enables welder to use Self Shielding Wire Welding as well as Stick Electrode Welding and connect readily with UWW-301 TP Wire Welder unit

Product Number	Product Name
670410	ACCESSORIES KIT F/UWW-301 TP

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

SELF SHIELDED T-350 TORCH W/ 1.0 - 1.4MM STEEL LINER
SPARES 20 PCS CONTACT TIPS DIA. 1.2MM
MULTI-PURPOSE PLIER F/WIRE TORCH
ELECTRODE HOLDER 400A W/DIX 70 CONNECTOR
RETURN CLAMP ASSY 400A W/DIX 70

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TROLLEY E10/M10 F/TIG/MIG WELDING

Transport trolley for 10L shielding gas cylinders, welding machine, welders accessories and welding consumables.



Product Information

Each trolley has a unique serial number and lifting certificate, and can therefore also be used for lifting gas cylinders on board. Safe working load 70kg allows for all the equipment needed.

The cylinder fastening system allows for two cylinders side by side. If one cylinder is used it can be placed in centre, providing good balance during transport.

The welding machines UWI-203TP, UWI-320TP and UWI-230TP AC/DC fit on the shelf for welding machines. They are fastened with two strong straps with good locking function.

A large toolbox has room for welders accessories and electrodes with cables coiled on the driving handles.

Features

- Sturdy lightweight construction fitted with rubber wheel
- Cylinder firmly locked in place and secured

Benefits

- Mobile welding station for portable movement onboard vessel
- Fast and easy transportation
- Prevents accidents caused by cylinders falling over
- Can safely be lifted

Product Number	Product Name
778149	TROLLEY E10/M10 F/TIG/MIG WELDING

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WELDING CABLE AND DRUM

Unitor welding cable, type HO1N2D is designed for use in electric arc-welding machines and is made to be durable and flexible. Selection on welding cable size will depend on the max current capacity rating and duty cycle.



Product Information

Welding Cable

The welding cable supplied by Unitor is recognized by its marking at regular intervals with the text: "Unitor oil resistant welding cable", size of cable, and the standard for oil resistant welding cable: HO1N2-D.

Cable drum

The drum is supplied with brackets for bulkhead mounting. It has a folding crank which locks the drum from uncoiling the cable when the crank is folded inwards. Capacity up to approximately 100m 70mm² welding cable. Weight 10.5kg

Features

- The cable is oil resistant, flame resistant and wear resistant. The conductor is built up from 0.2 mm diameter copper wires to ensure high flexibility
- The cable complies with the harmonised standard HO1N2D for flexible welding cable
- Available in cross-section areas 35 mm², 50 mm² and 70 mm², in standard lengths of 10 m, 20 m and 50 m, fitted with Unitor safety connectors.
- When cable extensions with safety connectors are used the electrode holder and ground clamp with safety connectors should be used

Benefits

- Easy management and housekeeping of welding cables onboard
- The standard length cable extensions are fitted with Unitor safety cable connectors for optimal protection. Connection to the machine panel sockets is done with 2 pcs Dix/Unitor conversions, reducing risk of electric shocks or electrocution
- High quality and reliable for heavy duty welding onboard

Product Number	Product Name	Max Amp 35% duty cycle
175729	CABLE DRUM W/CRANK	
509009	WELDING CABLE 35 MM ² long length in multiples of 100m without connectors	375 A
175794	WELDING CABLE & CONNECTOR 35 MM ² 10M	375 A
175786	WELDING CABLE & CONNECTOR 35 MM ² 20M	375 A
175778	WELDING CABLE & CONNECTOR 35 MM ² 50M	375 A
509013	WELDING CABLE 50 MM ² long length in multiples of 100m without connectors	480 A
175828	WELDING CABLE & CONNECTOR 50 MM ² 10M	480 A
175810	WELDING CABLE & CONNECTOR 50 MM ² 20M	480 A
175802	WELDING CABLE & CONNECTOR 50 MM ² 50M	480 A
509015	WELDING CABLE 70 MM ² long length in multiples of 100m without connectors	600 A
183665	WELDING CABLE & CONNECTOR 70 MM ² 50M	600 A
719017	WELDING CABLE 95 MM ² long length in multiples of 100m without connectors	730 A
709017	WELDING CABLE 95 MM ² WITHOUT CONNECTOR	730 A
634121	CONVERSION ASSEM. 2PCS	

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CABLE CONNECTORS AND ADAPTERS

UNITOR connectors are available in two versions:

Dix version available in three sizes according to current capacity:

DIX 25 for welding machines up to 150A and welding cable up to 25mm²

DIX 70 for bigger machines, and welding cables up to 70mm². In this range there is also an adapted for connecting DIX 70 to DIX 25, and an adaptor for parallel connection of two 70mm² welding cables with DIX 70 connectors from two UWI-500 machines in case more than 500A is required for ACA gouging.

DIX 120 connectors for up to 120mm² welding cable should be used if extension cables from the parallel connection point is required and minimum 95mm² cable should be used.

UNITOR Safety connectors

These connectors are designed for outdoor use where they may be exposed to rain and sea water. Correctly mounted they can be close to splash water proof. They will fit welding cables up to 70mm². A conversion assembly enables connection the welding machine. Standard 10, 20 and 50m welding cable extensions are delivered with these connectors. At the welding site electrode holder and return clamp listed below should be used.

Product Number	Product Name
632885	CABLE CONNECTOR DIX25 MALE-FEMALE
632893	CABLE CONNECTOR DIX70 MALE-FEMALE
633073	ADAP.PLUG DIX70/25. 2 PCS
632901	TRIPLE CONNECTION DIX-70 MMF, 2 PCS
736744	CABLE CONNECTOR DIX120 MALE-FEMALE
513044	CABLE CONNE.SAFETY COMPL
634121	CONVERSION ASSEM. 2 PCS
676973	REMOTE CONTROL PARALLEL CONNECTION
670422	REMOTE CONTROL CABLE FOR UWI-320/500
670414	REMOTE CONTROL FOR UWI-320/400

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>



ELECTRODE HOLDERS AND RETURN CLAMPS

An overview of electrode holders and return clamps available in the Unitor range.

Unitor's fully insulated electrode holders are of the lever screw type, offering higher protection from electric shocks or electrocution for welders compared to other designs of electrode holders.

Our return clamps are compliant with OCIMF SIRE 2.0 electric arc welding safety requirements, with strong grip that provides good contact with any workpiece.



Product number	Product name	Amperage (Amp)	Electrode diameter (mm)	Connector Type	Cable range (mm2)
Electrode Holders					
552497	ELECTRODE HOLDER TWISTY 200AMP	200	1.6 - 3.2	NA	25, 35
513051	ELECTRODE HOLDER TWISTY 400AMP	400	1.6 - 5.0	NA	35, 50, 70
511006	ELECTRODE HOLDER UNIKING 600AMP	600	1.6 - 8.0	NA	70
Electrode Holders with cable					
627877	EL.HOLDER 200A WITH DIX25 CONNECTOR	200	1.6 - 3.2	DIX25	25
627885	EL.HOLDER 200A WITH DIX70 CONNECTOR	200	1.6 - 3.2	DIX70	35
594325	EL.HOLDER 400A WITH DIX70 CONNECTOR	400	1.6 - 5.0	DIX70	50
522680	EL.HOLDER 400A WITH SAFETYCONNECTOR	400	1.6 - 5.0	Safety Connector	50
Return Clamps					
653899	RETURN CLAMP 400A	400	-	NA	NA
175745	RETURN CLAMP 800A	800	-	NA	NA
633164	RETURN CLAMP ASSY 200A W/DIX 25	200	-	DIX25	25
633172	RETURN CLAMP ASSY 200A W/DIX 70	200	-	DIX70	35
594317	RETURN CLAMP ASSY 400A W/DIX 70	400	-	DIX70	50
633180	RETURN CLAMP ASSY 400 A W/SAFETY	400	-	Safety Connector	50
528703	AIR CARBON ARC TORCH 600A	600	-	Safety Connector	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIG TORCH T-150 W.DIX 25 CONNECTOR

The T-150 torch is a lightweight TIG torch (DIX25) well adapted to general applications onboard.



Features

- The torch is rated at a full 150A welding current at 100% duty cycle. At lower duty cycles, higher current may be used
- A screw type gas valve opens fully at only 3/4 turn, switches the gas on and off
- Being gas cooled, the torch has lower weight than water cooled torch
- Unitor supplies nozzles of aluminium oxide (AL203), recognizable by the pink colour. These nozzles will stand for higher temperatures than the ordinary ceramic cups, which are recognized by a light brown color. Note that TIG gas nozzles are brittle and may break if dropped or treated carelessly

Benefits

- Easy to operate for repair and maintenance work in all positions
- The handle ensures a secure grip and reduces heat transfer to the welder's hand
- A remote amperage control can be fixed on the TIG torch by velcro straps in order to adjust amperage during welding

Product Number	Product Name
150000	TIG TORCH T-150 W.DIX 25 CONNECTOR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

4 m cable/hose package	1 pc
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The torch is equipped with an on/off switch and screw type gas valve.

Accessories

607810	TIG TORCH ACCESSORIES KIT
674710	TUNGSTEN EL. 1.6 MM. 10PCS
674736	TUNGSTEN EL. 2.4 MM. 10PCS
551192	SHORT BACK CAP FOR TIG-TORCH
551200	LONG BACK CAP FOR TIG-TORCH
551168	COLLET 1.6 MM FOR TIG-TORCH
551150	COLLET 2.4 MM FOR TIG-TORCH
551184	COLLET BODY 1.6 MM FOR TIG-TORCH
551176	COLLET BODY 2.4 MM FOR TIG-TORCH
551135	TIG NOZZLE 6 FOR TIG-TORCH
551127	TIG NOZZLE 7 FOR TIG-TORCH
551143	HEAT SHIELD FOR TIG-TORCH

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIG TORCH T-200 W.DIX 70 CONNECTOR

The T-200 torch is a lightweight TIG torch (DIX70) well adapted to general applications onboard.



Features

- The torch is rated at a full 200A welding current at 100% duty cycle. At lower duty cycles, higher current may be used
- A screw type gas valve opens fully at only 3/4 turn, switches the gas on and off
- Being gas cooled, the torch has lower weight than water cooled torch
- Unitor supplies nozzles of aluminium oxide (AL203), recognizable by the pink colour. These nozzles will stand for higher temperatures than the ordinary ceramic cups, which are recognized by a light brown color. Note that TIG gas nozzles are brittle and may break if dropped or treated carelessly

Benefits

- Easy to operate for repair and maintenance work in all positions
- The handle ensures a secure grip and reduces heat transfer to the welder's hand
- A remote amperage control can be fixed on the TIG torch by velcro straps in order to adjust amperage during welding

Product Number	Product Name
200000	TIG TORCH T-200 W.DIX 70 CONNECTOR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Supplied with

4 m cable/hose package	1 pc
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The torch is equipped with a screw type gas valve.

Accessories

607810	TIG TORCH ACCESSORIES KIT
674710	TUNGSTEN EL. 1.6 MM. 10PCS
674736	TUNGSTEN EL. 2.4 MM. 10PCS
551192	SHORT BACK CAP FOR TIG-TORCH
551200	LONG BACK CAP FOR TIG-TORCH
551168	COLLET 1.6MM FOR TIG-TORCH
551150	COLLET 2.4 MM FOR TIG-TORCH
551184	COLLET BODY 1.6 MM FOR TIG-TORCH
551176	COLLET BODY 2.4 MM FOR TIG-TORCH
551135	TIG NOZZLE 6 FOR TIG-TORCH
551127	TIG NOZZLE 7 FOR TIG-TORCH
551143	HEAT SHIELD FOR TIG-TORCH

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIG TORCH ACCESSORIES KIT

Accessories kit for T-150,T-161 and T-200 TIG-torches.



Product Information

Unitor TIG torches are supplied complete for use, but the accessories kit is recommended as it contains necessary spares for 1.6 and 2.4mm tungsten electrodes.

Features

- The kit contains necessary TIG torch spares for 1.6 and 2.4mm tungsten electrodes

Benefits

- Easy management of TIG Torch Accessories

Product Number	Product Name
607810	TIG TORCH ACCESSORIES KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Short back cap	1 pc
Heat-shield	1 pc
Collet 1.6 mm	3 pcs
Collet 2.4 mm	3 pcs
Collet body 1.6 mm	1 pc
Collet body 2.4 mm	1 pc
Alumina nozzle 6	2 pcs
Alumina nozzle 7	2 pcs
Tungsten electrodes 1.6 mm alloyed for DC TIG welding	3 pcs
Tungsten electrodes 2.4 mm alloyed for DC TIG welding	3 pcs

Accessories

607810	TIG TORCH ACCESSORIES KIT
674710	TUNGSTEN EL. 1.6 MM. 10PCS
674736	TUNGSTEN EL. 2.4 MM. 10PCS
551192	SHORT BACK CAP FOR TIG-TORCH
551200	LONG BACK CAP FOR TIG-TORCH
551168	COLLET 1.6 MM FOR TIG-TORCH
551150	COLLET 2.4 MM FOR TIG-TORCH
551184	COLLET BODY 1.6 MM FOR TIG-TORCH
551176	COLLET BODY 2.4 MM FOR TIG-TORCH
551135	TIG NOZZLE 6 FOR TIG-TORCH
551127	TIG NOZZLE 7 FOR TIG-TORCH
551143	HEAT SHIELD FOR TIG-TORCH

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TUNGSTEN ELECTRODES

Tungsten electrode 1.6mm and 2.4mm, both 10 pcs each are alloyed for TIG Welding of various base materials including AC or DC welding capable, best performance in DC welding.



Product Information

Thoriated TIG welding electrodes with 2 % thorium oxide (colour code red) are currently the most widely used electrodes worldwide. Thorium is however a radioactive element and as such represents a potential danger to health and environment. Thorium is a so-called "a-emitter," but when enclosed in a tungsten matrix, the "a" radiation emitted externally is negligible.

The danger to the welder arises when thorium oxide gets into the respiratory canals. This problem can occur during welding (vapours) as well as when grinding the electrode tip (grinding dust). In the near future, more stringent legal regulations regarding production, use and disposal of thoriated electrodes are expected. It is expected that TIG-welding electrodes containing thorium will disappear from the market in the foreseeable future, especially as an environmentally friendly and technically better solution is already available.

Features

- Unitor tungsten electrodes are alloyed with Lanthanum (colour code gold) and are sold in sturdy boxes of 10 pcs
- Can be transported, stored and disposed of without legal restrictions
- Suitable for welding all materials - Its an all purpose tungsten electrode that works on carbon steels, stainless steel, nickel alloys, aluminum, magnesium, titanium, cobalt, copper alloys, etc
- Better ignition performance than thorium alloyed type electrodes

Benefits

- Environmentally friendly - no radioactive components
- Low burn off rate, longer service life
- Standardised in national and international norms (ISO 6848, EN 26848, AWS A5.12, JIS Z3233)

Product Number	Product Name
674710	TUNGSTEN EL. 1.6MM. 10PCS
674736	TUNGSTEN EL. 2.4MM. 10PCS

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WIRE TORCH T-400GS W/3M CABLE

MIG/MAG Euro connector wire torch for UNITOR wire welders or wire feeders for gas shield wire welding.



Product Information

The torch has an adjustable neck and is delivered complete with tools for neck adjustment and contact tip change. It is delivered with a 3m cable, complete with liner and contact tips for 1.2mm wire. The teflon liner allows for all wire types including aluminium.

Features

- High capacity air cooled torch
- Adjustable neck
- Ergonomic handgrip

Benefits

- Air cooled i.e., no need for water cooling pump system
- Able to reach difficult locations
- Less strain on operator

Product Number	Product Name
607451	WIRE TORCH T-400GS W/3M CABLE

Specification

Invent Hazard Material (IMO/EU) classification	NA

Accessories

594622	CONTACT TIPS 0.8MM 10 PCS T-400 TORCH
750196	CONTACT TIPS 1.0MM 10 PCS T-400 TORCH
594630	CONTACT TIPS 1.2MM 10 PCS T-400 TORCH
607455	CONTACT TIPS 1.4MM 10 PCS T-400 TORCH
607456	CONTACT TIPS 1.6MM 10 PCS T-400 TORCH
613763	GAS DIFFUSOR 5 PCS FOR T-400 TORCH
613764	NECK INSULATION 5 PCS T-400 TORCH
613765	GAS NOZZLE FOR T-400 TORCH
613766	NOZZLE INSULATOR 5 PCS T-400 TORCH
594606	TORCH LINER,TEFLON, 0.6 - 1.2 MM, 4.5M
594614	TORCH LINER,STEEL, 0.6 - 1.0 MM 3.0M
607457	TORCH LINER, STEEL, 1.0 - 1.4 MM, 3.0M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WIRE TORCH T-350 GL WITH 3M CABLE

T-350 torch for gasless welding with self-shielded wire, complete with 1.2mm contact tip and 1.0 - 1.4mm (red) steel liner for UWW-301 TP Wire Welder.



Product Information

The T-350 wire welding Euro connector torch is for use with self-shielded welding wire and ready to use for MS-W-203 i.e., 1.2mm wire diameter.

If using other wire diameters than 1.2mm, change the contact tip and liner accordingly.

Features

- No need for shielding gas during welding
- Connects to UWW-301 TP and UWF-102 wire feeder
- Ergonomic designed and durable

Benefits

- Enables high deposition welding with selfshield flux cored wires
- No handling of heavy gas cylinders

Product Number	Product Name
750179	WIRE TORCH T-350 GL W/3M CABLE

Specification

Invent Hazard Material (IMO/EU) classification	NA

Accessories

750181	CONTACT TIPS 1.0MM 10 PCS T-350 TORCH
750194	CONTACT TIPS 1.2MM 10 PCS T-350 TORCH
750182	CONTACT TIPS 1.6MM 10 PCS T-350 TORCH
750184	CERAMIC NOZZLE F/T-350 TORCH, 5 PCS
750185	TIP ADAPTER FOR T-350 TORCH, 2 PCS
594606	TORCH LINER, TEFLON, 0.6 - 1.2 MM, 4.5M
594614	TORCH LINER, STEEL, 0.6 - 1.0 MM 3.0M
607457	TORCH LINER, STEEL, 1.0 - 1.4 MM, 3.0M
777846	TORCH LINER, STEEL, 1.4 - 1.6 MM 3.0M

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SHIELDING GAS ACCESSORIES

Shielding gas regulators with flow control

Unitor Argon and CO₂ regulators for shielding gas are designed for reliability and safe use. Built in accordance to EN ISO 2503, they reduce cylinder pressure to a suitable working pressure and a steady flow of shielding gas to the torch / wire feeder. Contents gauge has a scale of psi/bar. Outlet gauges have a scale in l/min.



1/4" Gas hose for shielding gas

Unitor hoses for welding gases conforms to European Norm EN 559. Working pressure up to 20 bar, test pressure is 40 bar, minimum bursting pressure 60 bar. Colour-code black for shielding gases.

Flow Control Needle-valve

The flow-control needle valve used at the gas inlet of the TIG-torch or the wire feeder provides final flow adjustment at the work place regardless of distance to the gas cylinder/gas outlet.

Flow Control meter

The flow-control meter measures actual gas flow at the torch nozzle and provides the operator with accurate information of flow in l/min.

Product number	Product name
510010	REGULATOR 510 AR/CO ₂ FLOW 0-35L/MIN
510012	REGULATOR 510 CO ₂ FLOW CGA320
619379	MANOMETER/GAUGE GUARD +
597310	FLOWCONTROL VALVE, ARGON
597328	FLOWCONTROL METER, ARGON
576157	GAS HOSE 1/4" 6.3 MM BLACK (sold per meter)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AUTODARK 2020 WELDING SHIELD

Head mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding.



Product Information

The Autodark 2020 welding helmet with the latest design and improved optical class covers a wide range of welding applications including grinding and low amperage TIG welding.

Features

- Optical Class: 1 / 1 / 1 / 2
- Automatic darkening filter glass switching time from light to dark state 1/16.000s
- Adjustable shade of darkness between shade 9 - 13
- Darkening filter powered by solar panel (the light from the arc)
- The reaction time from dark to light can be adjusted, according to the preference of the welder, from 0.1s to 1.0s

Benefits

- Protects welder from developing "arc eye". More accurate start location when welding is to commence
- Same face shield can be used for all arc welding processes and amperage settings
- Provide safety and long lasting quality
- Same spares with 779032 Autodark 300 except headshield and filter

Product Number	Product Name
779062	AUTODARK 2020 WELDING SHIELD

Specification

Invent Hazard Material (IMO/EU) classification	NA

Accessories

779060	SWEATBAND H1
779059	HEADGEAR ASSEMBLY H
779057	FRONT/INSIDE COVER LENS C&E
775060	AUTO-DARKENING FILTER F/AUTODARK 2020

Approvals

Conforms to relevant standards: CE, ANSI Z87.1, CSA Z94.3, AS/NZS

Directions of use

The colour shade and welding/grinding mode are controlled by an external knob. The welder can make adjustments on the knob and look at the weld without removing the helmet.

The tension in the neck from the constant nodding is removed and welding at tight spots is easier. The dial knob is located on the left side of the helmet for further convenience of the welder.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AUTODARK 820 FRESHAIR COMPLETE

Autodark 820 Freshair complete consists of a welding helmet and a fresh air system for use in poor ventilation areas to protect welder from welding rays and fumes.



Product Information

The lightweight helmet is worn with a belt around the waist so that the unit and the air hose do not cause any obstruction during welding.

The inside of the belt is designed with a soft shock absorbent material. The extra wide belt ensures that the carried weight of the unit is distributed over the full width and is not pressing in the back during use.

A rechargeable battery provides the power to the fan motor. Depending on the contamination of the filter, the battery last 9hours.

An acoustic alarm provides a warning sound signal when the voltage of the battery is too low. A separate charging station will be supplied with the helmet.

Features

- Optical Class: 1 / 1 / 1 / 1
- Adjustable shade of darkness between share 6 - 9 or shade 9 - 13. There is a switch to choose between the 2 option
- Darkening filter powered by solar panel (the light from the arc)
- The reaction time from dark to light can be adjusted, according to the preference of the welder, from "Short" 0.1 sec to "Long" 1.0 sec

Benefits

- Highest optical class offers clear view during welding
- Protects welder from developing "arc eye"
- Provide comfort to welder with fresh air supply and protect against inhaling harmful welding fumes

Product Number	Product Name
779034	AUTODARK 820 FRESHAIR COMPLETE

Specification

Invent Hazard Material (IMO/EU) classification	NA

Accessories

779040	FACESEAL F/AUTODARK 820 - A1
779041	HEADGEAR F/AUTODARK 820 - A2
779042	SWEATBAND 3 PKT F/AUTODARK 820 - A3
779043	FRONT COVER LENS F/AUTODARK 820 - A7
779046	PARTICLE FILTER F/AUTODARK 820 - B3
779047	PREFILTER F/AUTODARK 820 - B4
779055	BATTERY CHARGER F/AUTODARK 820 - E4
779056	INSIDE COVER LENS F/AUTODARK 820 - A9
779048	SPARK PROTECTOR F/AUTODARK 820 - B5
779049	FILTER COVER F/AUTODARK 820 - B6

Approvals

Conforms to relevant standards: CE, ANSI Z87.1, CSA Z94.3, AS/NZS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLIPVISION WELDING FACE SHIELD

Head mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding.



Product Information

Proper protection is absolutely necessary to guard the welder against the danger of ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards: CE approved and conforms to EN 175: 1997.

The Flipvision face shield with head band fitted with a flip-up front frame.

Features

- A clear safety glass is placed in the fixed frame under the flip-up frame protecting the eyes when chipping slag
- The flip-up front frame is fitted with a filter shade glass with shade selected according to welding current used
- The filter shade glass is protected against spatter by a clear protection glass fitted in front of it. Shade 11 glass is supplied as standard with the shield

Benefits

- Protects welder when chipping slag and when grinding
- Comfortable to use
- Fits all head sizes
- Provide safety and long lasting quality

Product Number	Product Name
709485	FLIPVISION WELDING FACE SHIELD

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

633230	SHADE 8 GLASS. 5 SET
633248	SHADE 9 GLASS. 5 SET
633255	SHADE 10 GLASS. 5 SET
633263	SHADE 11 GLASS. 5 SET
633271	SHADE 12 GLASS. 5 SET
633289	SHADE 13 GLASS. 5 SET
633214	PROTECTION GLASS. 10 PCS
633222	SAFETY GLASS. 10 PCS
709493	HEADBAND FOR AUTOVISION+FLIPVISION
709501	SWEAT BAND F/AUTOVISION+FLIPVISION

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SAFETY HELM W/FACE SHIELD

Safety helmet mounted face shield for protection of the welder's eyes and face against rays, heat and sparks during welding.



Product Information

Proper protection is absolutely necessary to guard the welder against the danger of ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards.

A clear safety glass is placed in the fixed frame under the flip-up frame protecting the eyes when chipping slag. The flip-up front frame is fitted with a filter shade glass with shade selected according to welding current used. The filter shade glass is protected against spatter by a clear protection glass fitted in front of it. Shade 11 glass is supplied as standard with the shield.

Features

- Safety helmet with Flip up frame
- Lightweight design
- Adjustable headband
- Conforms to relevant standards: CE approved and conforms to EN 175: 1997

Benefits

- Protects welder from head injury
- Protects welder when chipping slag and when grinding
- Comfortable to use
- Fits all head sizes
- Provide safety and long lasting quality

Product Number

619114

Product Name

SAFETY HELM W/FACE SHIELD

Specification

Invent Hazard Material (IMO/EU) classification

NA

Accessories

633230	SHADE 8 GLASS. 5 SET
633248	SHADE 9 GLASS. 5 SET
633255	SHADE 10 GLASS. 5 SET
633263	SHADE 11 GLASS. 5 SET
633271	SHADE 12 GLASS. 5 SET
633289	SHADE 13 GLASS. 5 SET
633214	PROTECTION GLASS. 10 PCS
633222	SAFETY GLASS. 10 PCS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FACE SHIELD WITH HANDLE

Hand held face shield for protection of welders eyes and face towards rays, heat and sparks during welding



Product Information

Proper protection is absolutely necessary to guard the welder against the danger of electric shocks, burns, ultra-violet rays and bits of welding slag in the eye.

Unitor face shields for welding are made from a lightweight, robust plastic material which is unaffected by heat, cold or moisture, and both glasses and shields conform to relevant EN standards.

The face shield with handle is supplied with shade 11 dark glass and clear protection glass as standard. It is designed to also protect the hand holding it from radiation.

Features

- Sturdy lightweight design
- Conforms to relevant standards: CE approved and conforms to EN 175: 1997

Benefits

- Comfortable to use
- Provides safety and long lasting quality

Product Number	Product Name
619098	FACE SHIELD WITH HANDLE

Specification
Invent Hazard Material (IMO/EU) classification

Accessories	Product number	Product name	Amperage
	633230	SHADE 8 GLASS. 5 SET	< 20 A
	633248	SHADE 9 GLASS. 5 SET	20-40 A
	633255	SHADE 10 GLASS. 5 SET	40-80 A
	633263	SHADE 11 GLASS. 5 SET	80-175 A
	633271	SHADE 12 GLASS. 5 SET	175-300 A
	633289	SHADE 13 GLASS. 5 SET	300-500 A
	633214	PROTECTION GLASS. 10 PCS	
	633222	SAFETY GLASS. 10 PCS	

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FUMECLEAN-230 WELDING FUME EXTRACTOR

FumeClean-230 is the portable fume extraction solution for maritime to protect against inhaling hazardous welding and cutting fumes (Manganese, Volatile Organic Compounds (VOCs), Chromium Hexavalent (Cr⁶⁺) etc.).

Product Information

Protect welders and crew onboard by controlling the health risks from welding fumes in line with the following Regulations:

In 2017, the International Agency for Research on Cancer (IARC) under WHO has classified welding fumes and UV radiation from welding as Group 1 carcinogens, the agency's designation for agents that carry sufficient evidence of carcinogenicity in humans. Further, the Maritime & Coastguard Agency (MCA UK) has issued directives pertaining to Bulletin No: STSU1 2019 HSE Safety Alert: Change in Enforcement for Mild Steel Welding Fume and updating of welding and cutting fume protection requirements in the Code of Safe Working Practice for Seafarers (COSWP) 2019 amendment.



Features

- High filtration capacity
- Compact, lightweight and portable
- Automatic start stop function
- Connects to 1 phase 230V (Motor is capable for 50/60Hz)
- Supplied with 2.5m hose and nozzle with magnet foot

Benefits

- Protects welder against inhalation of harmful welding fumes that can cause cancer or serious health problems
- Can be used anywhere onboard where welder/fitter are working especially in poor ventilation areas
- No need for manual operation of start/stop
- Fast and easy transportation

Product Number	Product Name
735878	FUMECLEAN-230 WELD. FUME EXTRACTOR

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Weight [kg]	16

Accessories

740373	FUNNEL NOZZLE WITH MAGNETIC FOOT
740399	BULKHEAD BRACKET
740407	CARBON.BRUSHES 2 SETS W.SEALS 230V
740415	DISPOSABLE CARTRIDGE FILTER
740423	HIGH EFFICIENCY PARTICLE FILTER H12
740431	ACTIVE CARBON FILTER
740449	EXTRACT/EXHAUST. HOSE 2,5 M, DIA. 45MM
740456	CONNECTION.PIECE FOR TWO HOSES DIA 45MM
740381	HOSE CONNECTION OUTLET SIDE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PROTECTIVE CLOTHING

A welder should bear in mind that proper protection is absolutely necessary to guard against the danger of electric shocks, burns, ultra-violet rays or bits of welding slag in the eye.

Made from specially treated leather, these protective garments are heat and moisture resistant. They provide good protection during welding, especially when the welder has to work close to the work-piece, or where movement is limited.

It is especially important that a welding jacket is worn when welding in the overhead position, to protect the body and arms against falling sparks and slag.



Product number	Product name
632786	WELDERS GLOVES. 6 PAIRS
632794	TIG GLOVES. 6 PAIRS
633057	WORKING GLOVES. 12 PAIRS
233148	HEAT RESISTANT MITTEN
510438	LEATHER JACKET LARGE
510446	LEATHER JACKET EX LARGE
633016	LEATHER TROUSERS W/BELT
184184	ARM PROTECTOR PAIR
510420	LEATHER APRON F/WELDING
510453	LEATHER SPATS. PAIR
175935	LEATHER CUFFS PAIR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WORKSITE PROTECTION

Welding Curtain with hooks

The purpose of the welding curtain is to avoid other personnel being harmed by the welding work taking place. The curtain reduces light emission , but still enables one to see through the curtain. It is made of self-extinguishing material.



The size of the curtain is 2 m high and 1.3 m wide. The top of the curtain has 7 holes and the curtain comes complete with 7 heavy-duty hooks. With the hooks the curtain can be put in a frame, or hooked up on an existing pipe or wire.

Maximum pipe diameter which the hooks will fit on is 41 mm. In order for the curtain to be drawn freely the pipe should be less than 30 mm. It is possible to join two or more curtains together by the use of snap on buttons along the side. The curtain with hooks is supplied in a plastic bag.

Produced according to EN 1598: 2002-04.

Welding Spatter Blanket

Non-asbestos woven glass fabric with a fire retardant weavelock, for protecting combustible materials and delicate machinery from spatter and spark during welding and cutting.

Available in a roll 1m x 10m. Nom. Thickness 0.82mm. Max operating temperature 550 °C. The welding blanket is supplied in a carton box.

Produced according to EN-ISO 25980: 2012.

Product number	Product name
633065	WELDING CURTAIN W/HOOKS
646067	WELDING SPATTER BLANKET 1 X 10M

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

WELDER'S ACCESSORIES

A selection of welder's accessories, both consumables and tools required to perform shipboard welding tasks efficiently.

Product Information

Multi-Purpose Plier for Wire Torches

Six function tool includes nozzle and tip installation grips, wire cutters, nozzle cleaner, slag hammer and long nose pliers.



Chipping Hammers

The chipping hammers are used for the removal of slag after arc welding. The hammers are of robust construction and well balanced. They are available in steel or stainless steel.

Wire Brushes

The brushes are available in both steel and stainless steel quality. The two row design provides easy access in narrow T-joints to remove the last residues of slag.

Welding Gauge

The welding gauge type J is for measuring 60, 70, 80 and 90 degree groove angle for weld preparation. After welding it is used to measure effective throat thickness up to 20mm in T-joints and reinforcements up to 10mm on flat welds.

Temperature Indicator Kit

Use for marking base metal's temperatures - 200/400/600/800°C.

Welders Chalk, Flat

Welders chalk is used to mark out positions when doing gas and plasma cutting on metals.

Galvanizing Spray, 6 pcs

For touching up pipes where galvanizing has been burnt off during welding.

Anti Spatter Spray, 6 pcs

Anti spatter spray to prevent welding spatters sticking to the adjacent welding seam.

Features

- Good quality and fit for purpose welder's accessories to ensure good weld quality

Benefits

- Enhance the welding quality and efficiency onboard
- Easy to use and reliable products

Product number	Product name
591990	MULTI-PURPOSE PLIER FOR WIRE TORCH
633008	CHIPPING HAMMER ST. 2 PCS
632992	CHIPPING HAMMER STAINLESS
632984	WIRE BRUSH STAINL. 6 PCS
632976	WIRE BRUSH STEEL. 6 PCS
516161	WELDING GAUGE TYPE J
633081	TEMPERATURE INDICATOR KIT
632968	WELDERS CHALK FLAT
633156	GALVANIZING SPRAY. 6 PCS
633149	ANTI SPATTER SPRAY. 6 PCS

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MAGNAFLUX CRACK DETECTION KIT 3+2+3

Magnaflux crack detection kit comes in a convenient shoulder carrying bag.

Product Information

Magnaflux Crack Detection Kit is an easy to use, cost effective and non-destructive inspection method to detect cracks and porosities especially for welding.



Product Number	Product Name
653535	MAGNAFLUX CRACK DETECTION KIT 3+2+3
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Supplied with	
Cleaner spray cans	3 pcs
Penetrant spray cans	2 pcs
Developer spray cans	3 pcs
Cloth	1 pc

Directions of use

Step 1) Remove surface rust, scale, paint by mechanical means, spray cleaner to degrease the inspection area. Leave to dry.

Step 2) Spray penetrant over the area and allow to soak for about ten minutes.

Step 3) Remove all excess penetrant using a dry cloth and wipe dry.

Step 4) Spray developer evenly over the inspection area and wait a few minutes until the area dries white. Any surface defects will appear in red contrast.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ELECTRODE CABINET WITH 27 PACKAGES.

Complete storing cabinet including 27 packages of electrodes.

Also available empty, product number 669994



Product Information

A storage for covered electrodes, including 27 packages of electrodes selected to cover all normally occurring welding applications on mild steels, ship quality steel, stainless steels, 'problem steels', cast iron, copper alloys and aluminium.
Design with easy access to contents and separate room for the welding handbook
Sturdy, corrosion resistant construction from elecktro-galvanized steel plates, with final coating by powder spraying and baking, and zinc/yellow-chromate passivated shelves for optimal corrosion and scratch resistance

Features

- Sturdy and corrosion resistant
- Broad range of electrodes and sizes

Benefits

- Perfect fit for maintenance welding and highly recommended to be part of all sea-going vessel's workshop
- Easy overview and management of welding consumables onboard
- Able to perform all wide range of welding repair applications onboard with the selection of welding consumables included

Product Number	Product Name
670000	ELECTRODE CABINET WITH 27 PACKAGES.

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	112
Dimensions L x W x H [mm]	300 x 600 x 600

This bundle contains

Name	Size (mm)	Qty	Kg	Description
GPO-302 N	2.5	1	5.2	General mild steel repairs, all positions
GPO-302 N	3.2	2	10.8	General mild steel repairs, all positions
GPO-302 N	4.0	1	5.2	General mild steel repairs, all positions
GPR-300 H	4.0	1	5.5	General mild steel repairs, horizontal, high recovery
GPR-300 H	5.0	1	5.6	General mild steel repairs, horizontal, high recovery
SPECIAL-303N	2.0	1	1.7	Ship quality steel and cast steel
SPECIAL-303N	2.5	1	4.1	Ship quality steel and cast steel
SPECIAL-303N	3.2	2	8.2	Ship quality steel and cast steel
SPECIAL-303N	4.0	1	5.2	Ship quality steel and cast steel
LHH-314 H	5.0	1	5.5	Ship quality steel, horizontal, high recovery
LHV-316 N	3.2	1	4.8	Ship quality steel, vertical down welding
LHT-318 N	2.5	1	1.7	Heat resistant steel
LHT-318 N	3.2	1	1.7	Heat resistant steel
LHL-319 N	3.2	1	1.8	Low temperature steel
LHR-320 N	3.2	1	1.8	Weathering resistant steel
18/8-321 N	2.5	1	1.7	Stainless steel, stainless to mild steel, compound steel
18/8-321 N	3.2	1	1.7	Stainless steel, stainless to mild steel, compound steel
23/14-322 N	3.2	1	2.0	Stainless steel, stainless to mild steel, compound steel
TENSILE-328 N	2.5	1	1.6	Problem steels
NICKELE-333 N	2.5	1	2.0	Cast iron
NIFE-334 N	3.2	1	2.2	Cast iron
ALUMIN-351 N	3.2	1	1.1	Aluminium
ALBRONZE-344	3.2	1	1.3	Bronze & brass
WEARMAX-327	2.5	1	1.6	Hardfacing
CH-2-382	3.2	1	1.4	Cutting & gouging
WELDING HANDBOOK FOR MARITIME WELDERS				
ELECTRODE CABINET EMPTY				

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ELECTRODE CABINET COMPACT FULL

Compact cabinet for arc welding electrodes, including welding electrodes

Also available empty, product number 669999

Product Information

The «mini» electrode storing cabinet is designed to contain a limited number of electrode packages, but still covering all normally occurring welding repairs on board. Recommended selection is the following:



GPO-302N in 2.5 and 3.2mm size for all mild steel repairs

LH-314N 2.5mm for ship quality steel repairs on hull and deck plates being part of the structural strength of the ship as well as cast steel components

18/8-321N 2.5mm for stainless steel

TENSILE-328N 2.5mm for «problem steels» like spring steel, chrome-nickel steels, tool steels and other steels that are difficult to weld

NICKEL-333N 2.5mm and NIFE-334N 3.2mm in combination is often required for cast iron repairs

ALUMIN-355N 3.2mm for seawater resistant aluminium

ALBRONZE-344N for bronze alloys and for joining these to steel and cast iron

The range is selected for covering the widest range of applications with maximum 150A welding current and is a good standard selection of electrodes for the welding machine UWI-150TP.

Features

- Compact design with easy access to contents and separate room for the welding handbook
- Sturdy, corrosion resistant construction from electrogalvanized steel plates, with final coating by powder spraying and baking
- Shelf insert for six half packages and three full packages of electrodes
- Separate room for the welding handbook
- Label for correct position of electrode packages

Benefits

- Full overview of a versatile ministore of electrodes for most applications ensures correct update of the content
- The high degree of resistance against scratches and corrosion makes the cabinet well suited for maritime conditions and use in a workshop environment
- The easily available handbook provides detailed instructions for use on all the materials covered by the content

Product Number	Product Name
670001	ELECTRODE CABINET COMPACT FULL

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	33
Dimensions L x W x H [mm]	165 x 350 x 550

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ELECTRODE CABINET EMPTY

The empty cabinet for electrodes provides storage and consumables management onboard.



Product Information

Electrode cabinet empty with room for 27 electrode boxes and the Unitor handbook for maritime welders.

NB! Necessary free distance above cabinet 310mm.

Features

- Sturdy and corrosion resistant
- Large storing capacity

Benefits

- Easy overview and access to content
- Long lasting with no maintenance
- Opportunity to customise content to the ship's need

Product Number	Product Name
669994	ELECTRODE CABINET EMPTY

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	37.5
Dimensions L x W x H [mm]	600H x 600W x 300D mm

ELECTRODE CABINET COMPACT EMPTY is also included in the ELECTRODE CABINET COMPACT FULL (670001)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ELECTRODE CABINET COMPACT EMPTY

The empty cabinet for electrodes provides storage and consumables management onboard.

Product Information

The «mini» electrode storing cabinet is designed to contain a limited number of electrode packages, but still covering all normally occurring welding repairs on board.



Recommended selection is the following:

GPO-302N in 2.5 and 3.2mm size for all mild steel repairs

LH-314N 2.5mm for ship quality steel repairs on hull and deck plates being part of the structural strength of the ship as well as cast steel components

18/8-321N 2.5mm for stainless steel

TENSILE-328N 2.5mm for «problem steels» like spring steel, chrome-nickel steels, tool steels and other steels that are difficult to weld

NICKEL-333N 2.5mm and NIFE-334N 3.2mm in combination is often required for cast iron repairs

ALUMIN-355N 3.2mm for seawater resistant aluminium

ALBRONZE-344N for bronze alloys and for joining these to steel and cast iron

The range is selected for covering the widest range of applications with maximum 150A welding current and is a good standard selection of electrodes for the welding machine UWI-150TP.

Features

- Sturdy and corrosion resistant
- Compact design with easy access to contents and separate room for the welding handbook

Benefits

- Easy overview and access to content
- Long lasting with no maintenance
- Opportunity to customise content to the ship's need

Product Number	Product Name
669999	ELECTRODE CABINET COMPACT EMPTY

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	8
Dimensions L x W x H [mm]	165 X 350 X 550

ELECTRODE CABINET COMPACT EMPTY is also included in the ELECTRODE CABINET COMPACT FULL (670001)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

HEATING CABINET- 85

The cabinet is designed as a ship's store for easy management and standardization of welding electrodes onboard for maintenance and repair needs while ensuring the welding consumables are kept in good condition.



Product Information

The Heating Cabinet-85 and Minidryer-350 offers crew onboard a good and secure welding electrodes storage while maintaining the product quality from degradation due to moisture and humidity.

Features

- Sturdy design with good heating capacity to keep welding electrodes warm from moisture adsorption
- Can store a wide range of electrodes and sizes
- Constructed with five shelves slanted down towards the back to prevent the content from sliding out

Benefits

- Easy overview and access to content
- Avoid mixing and use of wrong welding electrode with the proper storage management
- Ensure the welding electrodes especially low hydrogen electrodes are stored in good condition

Product Number	Product Name
637850	HEATING CABINET- 85

Specification

Invent Hazard Material (IMO/EU) classification	D-1
Weight [kg]	70
Dimensions L x W x H [mm]	640 x 564 x 1095

Spares

637876	HEATING ELEMENT
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MINIDRYER-350

The Minidryer-350 is designed to pre-dry or restore moist electrode before welding especially for low hydrogen and stainless steel electrodes.



Product Information

The Heating Cabinet-85 and Minidryer-350 offers crew onboard a good and secure welding electrodes storage while maintaining the product quality from degradation due to moisture and humidity.

Features

- Adjustable temperature from 100 °C to 350 °C
- Max capacity of 8kg electrodes with 450mm length
- Easy access as the electrodes will protrude 40mm when lid in open position
- The combined handle and support at work site provides support in a tilted position whereby in this position the lid will automatically close and prevent the intrusion of moist air
- A rim around the opening prevents rainwater from entering

Benefits

- Excellent re-drying of electrodes especially low hydrogen type for critical welding
- Light-weight and portable for use when performing welding at open deck or around the vessel
- The minidryer capacity allows 2 hours or more of continuous welding

Product Number	Product Name
637827	MINIDRYER-350

Specification

Invert Hazard Material (IMO/EU) classification	D-1
Weight [kg]	7
Dimensions L x W x H [mm]	170 x 170 x 570

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PICKLING GEL 2L F/STAINLESS STEEL

Pickling gel for discoloration removal and passivation of surface especially after stainless steel welding.



Product Information

Unitor pickling gel is used to remove oxides and discoloration on stainless steel welds and surrounding surfaces.

Features

- HD polyethylene container supplied together with brush
- In gel state

Benefits

- Safe handling and ready to use
- Product will stick in vertical and overhead positions
- Removes surface micro slag particles and other contaminates after welding which may cause local corrosion
- Pickling restores completely the materials corrosion resistance

Product Number	Product Name
661778	PICKLING GEL 2L F/STAINLESS STEEL

Specification

Invent Hazard Material (IMO/EU) classification	C-49
Weight [kg]	2.5

Approvals

ASTM 380 and ASTM 967

Directions for use

Recommended temperature limits for application:
10°C - 40°C and do not pickle under direct sunlight

Stir the gel to a smooth consistency
Spread a thick layer on to the work surface using the
brush supplied

Allow the gel to remain for 50-90 minutes
Rinse off the remaining gel using fresh water
The waste water, after rinsing, contains acids and
heavy metals, and must hence be treated according
to local wastewater requirements before discharge.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR RANGE OF MAINTENANCE ELECTRODES

The Unitor standard electrode range includes electrodes for

- Mild and low alloy steels
- Cast steels
- Heat resistant steel
- Low temperature steel
- Weathering steel
- Stainless and acid-resistant steels
- Tool- and machine-part steels
- Cast iron
- Aluminium and aluminium alloys
- Copper and copper alloys
- Air-carbon-arc gouging
- Gouging with standard equipment



Product Information

A product range selected for maritime use:

High quality coupled with versatility is a basic factor for the selection of arc welding electrodes in the Unitor standard range. It is composed to cover all normally occurring applications onboard, yet to be as compact as possible. Each electrode therefore covers a wide range of applications. This reduces the number of electrode types needed on board.

With the best welding properties:

Special care has been taken to select electrodes with the best all-round welding properties. Easily welded electrodes are necessary to achieve good results without too stringent demands on the welder's skill. Welding onboard often requires awkward positions. The Unitor standard range has been composed with this in mind, whenever possible the electrodes' welding properties are equally good also in the vertical and under-up positions.

LMA properties

All electrode coatings are hygroscopic (they absorb moisture from the atmosphere). When welding the moisture turns into hydrogen in the arc that again ends up as hydrogen porosity in the weld deposit. Combined with other undesirable effects this can turn into hydrogen cracking also known as cold cracking in the weld. In order to extend the electrodes usable lifetime and safeguard against cold cracking, the Unitor electrodes for structural work have been given Low Moisture Absorption properties when manufactured. This greatly reduces the electrodes moisture absorption rate. Electrodes with LMA properties are marked "LMA electrodes".

Packed for maritime conditions

The electrode box is made of high density polyethylene making it the right place for storing and protecting electrodes from moisture pickup, contamination and physical damage. The information label that is placed on the box gives all relevant information to how the electrodes are to be used. Label, cap and box are made out of the same recycled material and does not need to be separated when recycling.

With full instruction for use:

The label on each box fully identifies the contents, and also give basic information on application areas. Complete information on each electrode, with instructions for use and application examples are given in the Unitor handbook for maritime welders.

For Stainless steel materials:

Pickling Gel, product number 661778 should be used

Product Number	Product name	Diameter	Application onboard
599165	GPO-302N 2.5 X 350 MM 295 PCS 5.2 KG	2.5	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.
599173	GPO-302N 3.2 X 350 MM 190 PCS 5.4 KG	3.2	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.
599181	GPO-302N 4.0 X 350 MM 120 PCS 5.2 KG	4.0	Unalloyed steel. General applications. Easy to weld, all positions including vertical down.
699231	GPR-300H 3.2 X 450 MM 85 PCS 5.8 KG	3.2	Unalloyed steel. Large welds in flat position.
699249	GPR-300H 4.0 X 450 MM 51 PCS 5.5 KG	4.0	Unalloyed steel. Large welds in flat position.
699256	GPR-300H 5.0 X 450 MM 35 PCS 5.6 KG	5.0	Unalloyed steel. Large welds in flat position.
699260	GPR-300H 6.0 X 450 MM 23 PCS 5.3 KG	6.0	Unalloyed steel. Large welds in flat position.
599207	SPECIAL-303N 2.5 X 350 MM 200 PCS 4.1 KG	2.5	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
599215	SPECIAL-303N 3.2 X 350 MM 120 PCS 4.1 KG	3.2	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
599223	SPECIAL-303N 4.0 X 450 MM 75 PCS 5.2 KG	4.0	Unalloyed & Low alloyed Steel. Thin plate material. General applications. Double coated electrode, easy to weld.
599264	LH-314N 2.5 X 350 MM 161 PCS 4.0 KG	2.5	Unalloyed & Low alloyed Steel. General applications.
599272	LH-314N 3.2 X 450 MM 96 PCS 5 KG	3.2	Unalloyed & Low alloyed Steel. General applications.
599280	LH-314N 4.0 x 450 MM 78 PCS 5.6 KG	4.0	Unalloyed & Low alloyed Steel. General applications.
699298	LHH-314N 4.0 X 450 MM 54 PCS 5.5 KG	4.0	Unalloyed & Low alloyed Steel. Large welds in flat position.
699306	LHH-314N 5.0 x 450 MM 36 PCS 5.5 KG	5.0	Unalloyed & Low alloyed Steel. Large welds in flat position.
699314	LHV-316N 3.2 X 350 MM 137 PCS 4.8 KG	3.2	Unalloyed & Low alloyed Steel. Specially suitable for vertical down welding.
699322	LHV-316N 4.0 X 350 MM 99 PCS 5.0 KG	4.0	Unalloyed & Low alloyed Steel. Specially suitable for vertical down welding.
699330	LHT-318N 2.5 X 350 MM 75 PCS 1.7 KG	2.5	High temp. steel Boiler plates and pipes up to 550 dgr.C. Up tp 1% Cr, 0.5% Mo.
699348	LHT-318N 3.2 X 350 MM 48 PCS 1.7 KG	3.2	High temp. steel Boiler plates and pipes up to 550 dgr.C. Up tp 1% Cr, 0.5% Mo.
683631	LHL-319N 2.5 X 350 MM 78 PCS 1.8 KG	2.5	Low temp. steel Ice Class hull plates. Up to 2.7% Ni
683649	LHL-319N 3.2 X 350 MM 48 PCS 1.8 KG	3.2	Low temp. steel Ice Class hull plates. Up to 2.7% Ni
683656	LHR-320 N 2.5 X 350 MM 88 PCS 1.7 KG	2.5	Weather resistant steel. Corrosion resistant to sea-water and flue gases.
699389	LHR-320 N 3.2 X 350 MM 48 PCS 1.8 KG	3.2	Weather resistant steel. Corrosion resistant to sea-water and flue gases.
699397	18/8-321N 1.6 X 300 MM 213 PCS 1.7 KG	1.6	Stainless steel AISI 304/316 L. Tanks, piping pumps and valves.
699405	18/8-321N 2.5 X 300 MM 89 PCS 1.7 KG	2.5	Stainless steel AISI 304/316 L. Tanks, piping pumps and valves.
699413	18/8-321N 3.2 X 300 MM 54 PCS 1.7 KG	3.2	Stainless steel AISI 304/316 L. Tanks, piping pumps and valves.
699421	23/14-322N 2.5 X 300 MM 84 PCS 1.7 KG	2.5	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.

Product Number	Product name	Diameter	Application onboard
699439	23/14-322N 3.2 X 350 MM 50 PCS 2.0 KG	3.2	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.
699447	23/14-322N 4.0 X 350 MM 35 PCS 2.0 KG	4.0	Stainless steel AISI 309. Joining stainless to steel. Compound steel. Stainless steel overlays.
699454	DUPLEX-325N 2.5 X 300 MM 91 PCS 1.7 KG	2.5	Duplex steel. Joining of duplex to stainless and steel.
699462	DUPLEX-325N 3.2 X 350 MM 55 PCS 2.0 KG	3.2	Duplex steel. Joining of duplex to stainless and steel.
699470	TENSILE-328N 2.5 X 300 MM 79 PCS 1.6 KG	2.5	Difficult to weld steel. Spring steel, vanadium steel, tool steel, high carbon steel.
699488	TENSILE-328N 3.2 X 350 MM 50 PCS 2.0 KG	3.2	Difficult to weld steel. Spring steel, vanadium steel, tool steel, high carbon steel.
699512	NIFE-334N 3.2 X 350 MM 68 PCS 2.2 KG	3.2	Cast Iron. High strength. Many layers. Joining cast iron to steel.
699520	NIFE-334N 4.0 X 350 MM 51PCS 2.4 KG	4.0	Cast Iron. High strength. Many layers. Joining cast iron to steel.
699496	NICKEL-333N 2.5 X 300 MM 121 PCS 2.0 KG	2.5	Oily cast iron. Tolerant to high Carbon content.
699504	NICKEL-333N 3.2 X 350 MM 68 PCS 2.2 KG	3.2	Oily cast iron. Tolerant to high Carbon content.
606458	TINBRO-341 3.2 X 350 MM 42 PCS 1.4 KG	3.2	Copper alloys Bronze and brass. Joining copper alloys to steel.
606457	ALBRONZE-344 3.2 X 350 MM 46 PCS 1.3 KG	3.2	Bronze and brass. Joining copper alloys to steel.
699538	ALUMIN-351N 3.2 X 350 MM 71 PCS 1.1 KG	3.2	Aluminium Rolled, drawn and castings.
606454	WEARMAX-327 2.5 X 350 MM 49 PCS 1.6 KG	2.5	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606455	WEARMAX-327 3.2 X 350 MM 68 PCS 3.5 KG	3.2	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606456	WEARMAX-327 4.0 X 350 MM 42 PCS 3.4 KG	4.0	Hard surfacing. Wear resistant overlays. Winchwheel pockets, cable drums.
606460	IMPACT-329S 3.2 X 350 MM 39 PCS 1.4 KG	3.2	Hard surfacing. High temp. Wear resistant overlays. Exhaust valves.
606459	CH2-382 3.2 X 350 MM 36 PCS 1.4 KG	3.2	Chamfering/Gauging Using standard equipment.
758474	ACA-384 6.3 X 305 MM 50 PCS 0.8 KG	6.3	Chamfering/Gouging. Air carbon arc gouging. Gouging and weld removal using compressed air.
758466	ACA-384 8.0 X 305 MM 50 PCS 1.3 KG	8.0	Chamfering/Gouging. Air carbon arc gouging. Gouging and weld removal using compressed air.
758458	ACA-384 15X5X305MM 50 PCS 2.1 KG	15x5	Chamfering/Gouging. Air carbon arc gouging. Gouging and weld removal using compressed air.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR RANGE OF WIRE WELDING

Unitor standard range of welding wires for gas metal arc welding (GMAW) and flux cored arc welding (FCAW) is supplied on 200mm diameter spools, 51 mm width, shaft diameter 50 mm. The spools are packed in individually sealed plastic bags and cardboard cartons and labelled with information fully identifying the wire with technical data and classifications. The labels also provide basic information on use.



Product number	Product name	Description
Welding wires		
590117	GPS-W 200 0.8 MM WELD. WIRE 5.0 KG	Copper coated wire for welding unalloyed and low alloyed structural steel. It can be used for welding sheets in thin as well as larger thicknesses. Stable arc and little spatter. Clean all rust, scale and old paint from the area. Use 80/20% Ar/CO ₂ or pure CO ₂ shielding gas.
160100	MS-W-201 SELF SHIELD WIRE 0.8 MM 4.5 KG	Flux-cored self-shielded electrode wire for welding of mild steel where superior weld metal mechanical properties are required. Welds on all positions including vertical up and down. Good arc action and low spatter for excellent operator appeal. Easily removable slag.
722228	MS-W-203 SELF SHIELD WIRE 1.2MM 5.0 KG	General Purpose Self-Shielded Seamless Flux Cored Wire (FCAW) for the welding of mild steel. All position welding, including vertical down.
750187	CORESHIELD8 SELF SHIELD 1.6 MM 11.3 KG	General Purpose Self-Shielded Electrode wire for all position welding of mild steel and ships steel from 5mm thickness. High deposition rate, up to 3.7 kg/h makes it excellent for larger steel repairs. Spool weight 11.3 kg.
597518	S316M-GF, 221, 0.9MM WELD. WIRE 2.5 KG	A rutile flux cored wire designed for welding 19% Cr, 12% Ni, 3% Mo types of stainless steel, and related stabilized steel grades if service temperature is below 400 deg.C. A very stable, spatter free arc produces a bright, smooth weld surface. The slag is self-releasing. As shielding gas use preferably 80% Ar 20% CO ₂ .
309001	S-309M GF-222 0.9MM WELD. WIRE 2.5 KG	Rutile flux cored wire designed for welding of clad steel, stainless steel to mild steel and corrosion resistant overlays on mild steel. Also for stainless steel with up to 23% Cr, 13% Ni and 2.3% Mo. Best result with 80%/20% Ar/CO ₂ shielding gas.
699492	TENSILE-W-228 SELF SHIELD WIRE 1.2MM 5.0 KG	Special Self-Shielded Flux Cored Wire (FCAW) for the welding of stainless steel depositing 29% Chromium – 9% Nickel, dissimilar steel grades (CMn-steel to stainless steel), buffer layers before hardsurfacing, difficult to weld steels e.g. spring steels, high-speed steels, tool steels and manganese steels.
777972	IALBRO-W 237 0.8 MM WELD. WIRE 5.0 KG	Suited for welding most bronze/brass alloys, including aluminum bronzes like Yorcalbro, in wrought as well as cast forms. It is also suited for rebuilding or joining materials to steel or cast iron, and for wear or corrosion resistant overlays on steel and cast iron. Use pure Argon as shielding gas.
590083	ALUMAG-W 235 1.0 MM 2.0 KG	A magnesium alloyed wire for welding all common wrought and cast aluminium alloys, e.g. AlMg, AlMgMn, AlMgSi and AlMg (cu) alloys. It is specially suited for welds which must be resistant to seawater and high tension, and also where high ductility is required. Use pure Argon as shielding gas.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR RANGE OF RODS AND FLUXES FOR TIG WELDING

Unitor range for tungsten insert gas welding (TIG) welding consumables provide high quality welding, good weld penetration and mainly used on thin metals. The common products are also offered as a packaged solution in the gas welding cabinet complete.



Product Information

A product range selected for maritime use with the best welding properties

The Unitor TIG welding rods range has been carefully selected to cover all normally occurring applications onboard. These high quality, high efficiency welding consumables are designed for easy to weld and use together with our Unitor gas welding and cutting solutions.

Features

- High quality and versatile for a wide range of TIG welding application onboard
- Standardized welding consumables range available in key ports
- All products are supplied in sealed recyclable high density polyethylene packaging. All rods are supplied in 500 mm length for convenient use. The label on each container fully identifies the contents, and also gives rod data and basic information on application areas and use

Benefits

- More efficient procurement and maintenance process while ensuring consistent welding quality from standardization
- Easy to weld without high demands on the welder's skill ensuring high productivity
- The packaging protects welding consumables from moisture pickup and contamination

Product number	Product name	Description
Welding rods		
604850	IMS-210 2.0 X 500 MM 1.5 KG	Unitor IMS is a welding rod for unalloyed and low alloyed steels. 2.0 mm Rods with diameter are most used for TIG welding.
305532	ICROMO-216 2.5 X 500 MM 1.0 KG	Icromo is a chromium-molybdenum alloyed welding rod for heat resistant steels types 10 Cr Mo-910 and 13 Mo-44 found in boiler tubes and other heat resistant components. Gas or tensiles strength 560 Mpa.
602979	18/8MO-221 2.0 X 500 MM 0.5 KG	A wire for welding stainless and acid resistant steel. The silicon content ensures smooth transfer and good profile of the bead. When welding very thin sheets and pipes (less than 2mm) it is always an advantage to use the TIG process. TIG is also an advantage for the root bead when welding thicker sheets with prepared V-grooves.
725309	IDUPLEX-222 2.0 X 500 MM 0.5 KG	Iduplex-222 is a TIG rod for welding Duplex stainless steel, Duplex to Mild steel and Duplex to Stainless steel. The deposit offers elevated mechanical strength and toughness resistance to stress corrosion cracking. It is an advantage to use TIG welding in thin sheets and pipe walls. Can also be used for welding the root run in thick wall piping where the rest of the groove is filled up using the duplex electrode Duplex-325 N.
514265	ALUMAG-235 3.0 X 500 MM 0.5 KG	Gas and TIG welding rod for wrought and cast aluminium alloys containing up to 5% Mg. Generally it can be used for all cast alloys containing magnesium as the main alloying element.
778992	IALBRO-237 MF 2.4 X 500 MM 1.4 KG	IALBRO is a flux-coated filler rod for TIG welding of aluminium-brass pipes (Yorcalbro). This type of alloy is widely used in seawater resistant piping. Yorcalbro pipes with a diameter less than 4" which can be joined by means of an overlap joint (capillary action) maybe silver brazed using AG-60 combined with Albro Flux.
1000399	OK TIGROD 19.49 2.4 X 1000 MM 5.0 KG	A welding rod for TIG welding of copper nickel alloys, for example Cunifer pipes. No flux is used in this process. Typical applications are welding flanges on pipes, pipe joints, patching leaking pipes etc. Joint surfaces and adjacent areas must be thoroughly cleaned before welding. Small diameter Cunifer pipes can be joined by means of overlap joints (capillary action) using AG-60 silver solder combined with AG-60 Flux.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

COLD REPAIR POLYMER COMPOUNDS

The Unitor cold repair polymer system is carefully selected for onboard maintenance and repair applications. It covers emergency repairs as well as permanent repairs on pipes, all types of mechanical equipment and machine components onboard, including non-weldable materials.



Product Information

Safety Notice: The European Commission has amended Annex XVII to the REACH Regulation (new entry 74) with Regulation (EU) 2020/1149. Accordingly, starting August 2023, adequate mandatory health & safety training is required before industrial or professional use of product with di-isocyanates.

The following products contain di-isocyanates i.e., Polymer Kit Alfa, Leak-Stop Pipe Repair I, II & III, Rubbergrade 6 Rebuild and Rubbergrade 6 Remould.

Training website suggestion: <https://www.safeusediisocyanates.eu/>

Features

- The complete polymer repair system, POLYMER KIT ALFA is available in a handy kit for easy storage and transport. Each product set has its specified place in the kit, and the individual products may be refilled as needed
- Unitor's Leakstop products is a special water activated bandage impregnated with a resin system for emergency repairs of leaking pipes
- Unitor's Metalgrade, Aquagrade and Ceramigrade products are a range of cold-curing metal repair and rebuilding materials based on the latest polymer resin technology which is the result of many years of development
- Unitor's Rubbergrade products are cold-vulcanising elastomeric repair materials for use on rubber as well as metal components
- All necessary application equipment technical data sheets and health & safety data sheets are included

Benefits

- Easy and fast application
- No sparks or distortion of the base material due to heat
- Excellent chemical resistance and suitable for permanent immersion in many environments including seawater, hydrocarbons, oils and a very wide range of chemical solutions
- Compatible with all ferrous and non-ferrous metals as well as most plastics and have in many cases proven themselves as permanent repairs
- All accessories to do the job available

Product number	Product name
630384	LEAK STOP PIPE REPAIR I
606006	LEAK-STOP PIPE REPAIR II
630392	LEAK STOP PIPE REPAIR III
659250	AQUAGRADE REBUILD
659227	METALGRADE READY-STICK
659235	METALGRADE EXPRESS
659243	METALGRADE REBUILD
663427	METALGRADE HI-TEMP
659268	CERAMIGRADE REBUILD
659276	CERAMIGRADE LINER
659284	RUBBERGRADE 6 REBUILD
659292	RUBBERGRADE 6 REMOULD

Also available in a kit:

659300	POLYMER KIT-ALFA
*POLYMER KIT ALFA (659300) consist of all the items above except for Leak Stop Pipe Repair I (630384) and Leak Stop Pipe Repair III (630392)	

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

AIR TOOLS



Our range of pneumatic tools is built for safety and efficiency, whilst covering a wide range of surface preparation needs. The Unitor range of air tools are lightweight and ergonomically built for easy operation, promising robust and heavy-duty performance. Designed for maximum safety and efficiency, all our tools are equipped with safety features to reduce accidents and remain compliant. Our air tools ensure that you get the job done right the first time, no matter how big or small.



Easy to use and reliable operation



Engineered for safety and excellent performance



Portable and maneuverable



Regulatory compliance

Low-Vibration Needle Scalers VL Series

The UNITOR Low-Vib needle scaler and chisel scaler series is a high quality and low vibrating multipurpose tool, built for maximum safety and best efficiency for surface preparation works.

Angle Grinders AG-PRO Series

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment. It is made compatible and safe to use with our range of abrasive consumables for cutting, grinding, polishing or buffing.

Mini Impact Wrench, IW-PRO 1/2" MINI NG KIT

The UNITOR IW-PRO 1/2" Mini NG Kit is a lightweight and versatile impact wrench used for tight corners and difficult to reach areas. It comes with a selection of impact sockets for onboard use.

Browse this section to discover the benefits of our Air Tools range.

Scan or click on the QR code for more information.



AIR HOSE, RUBBER

Rubber reinforced hose for compressed air line use onboard with excellent flexibility, temperature resistance, chemical resistance and good mechanical wear characteristics.



Ideal for use in maritime industry harsh environment.

Product Information

Rubber hoses is known for its properties of able to retain its flexibility and at same time being resistant to kinks and abrasions. Synthetic rubber hoses is able to handle extreme temperatures than natural rubber hoses and is also better at withstanding chemicals when compared to natural rubber or other common materials used, which can weaken over time.

Features

- Manufactured to ISO2398/1A standard
- Made of SBR&NBR rubber grades with a synthetic reinforcement
- Supplied in coil of 50 m

Benefits

- Excellent resistance towards mechanical wear
- More flexible than PVC and keeps flexibility even in cold weather
- Conforms to EU Regulations EC 1907 / 2006 regarding no usage of Phthalates (plasticizers) in rubber hose compound

Product number	Product name	Burst pressure [bar]	Operating pressure [bar]	Test pressure [bar]
671743	AIR HOSE 1/4", RUBBER (50 MTR. COIL)	6.0 Mpa / 60 BAR	15 bar	4.0 Mpa / 40 BAR
671750	AIR HOSE 3/8", RUBBER (50 MTR. COIL)	6.0 Mpa / 60 BAR	15 bar	4.0 Mpa / 40 BAR
671768	AIR HOSE 1/2", RUBBER, (50 MTR. COIL)	6.0 Mpa / 60 BAR	15 bar	4.0 Mpa / 40 BAR
671776	AIR HOSE 3/4", RUBBER (50 MTR. COIL)	6.0 Mpa / 60 BAR	15 bar	4.0 Mpa / 40 BAR
671786	AIR HOSE 1", RUBBER (50 MTR. COIL)	6.0 Mpa / 60 BAR	15 bar	4.0 Mpa / 40 BAR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AIR HOSE, PVC

PVC reinforced hose for many applications onboard including compressed air and water line. The working pressure range from 10-20 bar depending on hose size.



Product Information

PVC Air Hose is lightweight, flexible and with good abrasion resistance. It is designed for use with air power tools and other compressed air applications, water line for cleaning and other medium pressure applications.

Features

- Constructed with strong reinforced polyester yarns
- Designed for medium pressure fluid applications
- Light weight (40% lighter than rubber hose) and flexible
- Supplied in coil of 50 m

Benefits

- Cost-effective, high-performance alternative to rubber hoses
- Durable with good resistance against abrasion

Product Number	Product Name
671693	AIR HOSE 1/4", PVC 50 M COIL
671701	AIR HOSE 3/8", PVC 50 M COIL
671719	AIR HOSE 1/2", PVC 50 M COIL
671727	AIR HOSE 3/4", PVC 50 M COIL
671735	AIR HOSE 1", PVC 50 M COIL

Specification

Invent Hazard Material (IMO/EU) classification	NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AIR LINE UNIT FIL/REG/LUB

Air line unit FRL combines a filter, regulator, and lubricator into one component to keep air compressor systems in optimal working condition.

Product Information

The FRL unit strains the air, traps solid particles (dust, dirt, rust), and separates any liquids (water, oil) in the compressed air which improves an air system's service life, safety, and reliability.



Features

- The unit is compact and the stainless steel frame (316 SST) gives exceptionally good protection of the fragile parts in case of tip-over
- The low centre of gravity of the unit increases stability and the Unitor series 400 stainless quick couplings at both inlet and outlet simplifies operation
- The FRL unit also features outlet by-passing the lubricator for oil free air for example during plasma cutting

Benefits

- Unitor airline unit lowers the maintenance costs and adds years of trouble free operation to every air operated tool
- Inlet connection 400 UPM 1/2" quick coupling
- Outlet connection 400 USM 1/2" quick coupling (Lub oil side)
- Outlet connection 3/8" Female (Dry side)

Product number	Product name
624585	AIR LINE UNIT FIL/REG/LUB

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

191908	400 UPM PLUG 1/2" MALE BSP.T
191759	400 USM SOCKET 1/2" MALE BSP.T
191858	400 UPH PLUG 1/2" HOSE
191700	400 USH SOCKET 1/2" HOSE

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

FLEXIBLE HOSE 30CM 3/8IN

Air hose lead for use between tool and air supply hose.



Product Information

The flexible hose provides a secure connection and quick coupling and de-coupling from air tool thus increasing productivity for multi-air tool users and management of several air tools.

Safety

Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves when using air tools.

Features

- 3/8" male in one end
- Plug fits 20, 30 and 40 series Unitor quick coupling
- Working pressure max 300 PSI / max 20 bar

Benefits

- High flexibility and reduces vibration wear on the operator.

Product number	Product name
183418	FLEXIBLE HOSE 30CM 3/8IN

Specification

Invent Hazard Material (IMO/EU) classification	NA
Length	300

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

AIR GUN AG-PRO

The Unitor air gun AG-PRO 10 is ideal for quick removal of chips, dust and particulate from any surface.



Product Information

Ergonomically-designed air blow gun for quick removal of chips, dust and particulate from any surface. Available in two model i.e. long reach nozzle (AG-PRO 30) or short reach nozzle (AG-PRO 10).

Product number	Product name
718940	AIR GUN AG-PRO 10
718957	AIR GUN AG-PRO 30
Specification	
Product Name	AIR GUN AG-PRO 10
Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/Type]	1/8"
Length	100
Accessories	
191874	20 UPM PLUG 1/4" MALE BSP.T

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ANGLE GRINDER AG-PRO 4C 13000 RPM

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment.



Product Information

Please note that you must only use Unitor original consumables due to the high speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Safety

Before using the tool make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Compatible with UNITOR abrasive consumables range for cutting, grinding, buffing, and polishing
- Safety lock pin on angle grinder to prevent accidental trigger, which may cause injury from self-spin cutting or grinding disc
- Adjustable and rotatable exhaust stack depending on working angle to prevent dust directed at operator
- Ergonomically designed and reliable for use in harsh maritime environment
- Spare part kits available for easy repair and to minimise downtime

Benefits

- Designed with operator's safety in mind
- Highly efficient for shipboard surface preparation and corrosion removal works
- Reliable for use in harsh maritime environment
- Spare part kits available for easy repair and maintenance

Product number	Product name
721980	ANGLE GRINDER AG-PRO 4C 13000 RPM
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 PSI / 6.2BAR
RPM	13000 max
Sound power level (Lw) [dB]	109.5 (dB)
Vibration level [m/s ²]	2.6
Consumables	
777697	CUP WIRE BRUSH 2.5" W3/8"X24 UNF
633523	GRINDING DISCS 4" (10 PC)
633515	CUTTING DISCS 100X2.5X16 (25 PC)
633691	MOP DISCS 100X16MM, #36 (10 PC)
633699	MOP DISCS 100X16MM, #60 (10 PC)
633707	MOP DISCS 100X16MM, #80 (10 PC)
779063	RUBBER PAD FOR AG - PRO 4B SANDING DISC
692582	SANDING DISC 100MM, #36 (25 PC)

Accessories

191874	20 UPM AIR PLUG 1/4" M BSP.T
191692	40 USH AIR SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER (50M)
729444	HOSE CLAMP FOR 1/2" HOSE (10 PC)

Spare Parts

722801	TUNE UP KIT (AIR MOTOR)
779067	THROTTLE VALVE OVERHAUL KIT FOR AG -PRO 4B / AG - PRO 5
722827	SERVICE KIT SPEED GOVERNOR
722835	SERVICE KIT BEVEL ANGLE GEAR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ANGLE GRINDER AG-PRO 5

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment.



Product Information

Please note that you must only use Unitor original consumables due to the high speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Not suitable for use with cup wire brush.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Compatible with UNITOR abrasive consumables range for cutting, grinding, and polishing
- Safety lock pin on angle grinder to prevent accidental trigger, which may cause injury from self-spin cutting or grinding disc
- Adjustable and rotatable exhaust stack depending on working angle to prevent dust directed at operator
- Ergonomically designed and reliable for use in harsh maritime environment
- Spare part kits available for easy repair and to minimise downtime

Benefits

- Designed with operator's safety in mind
- Highly efficient for shipboard surface preparation and corrosion removal works
- Reliable for use in harsh maritime environment
- Spare part kits available for easy repair and maintenance

Product number	Product name
721985	ANGLE GRINDER AG-PRO 5

Specification

Invent Hazard Material (IMO/EU) classification	NA
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 PSI / 6.2BAR
RPM	10900
Sound power level (Lw) [dB]	96.7 (dB)
Vibration level [m/s ²]	2.6

Consumables

633555	GRINDING DISCS 5" (10 PC)
633547	CUTTING DISCS 5" 125X3X22 (25 PC)
633603	GRINDING DISCS, INOX, 5" (10 PC)
633595	CUTTING DISCS INOX 125X2,5X22 (25 PC)
633715	MOP DISCS 125X22MM, #36 (10 PC)
633723	MOP DISCS 125X22MM, #60 (10 PC)
633731	MOP DISCS 125X22MM, #80 (10 PC)

Accessories

191874	20 UPM AIR PLUG 1/4" M BSP.T
191692	40 USH AIR SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER (50M)
729444	HOSE CLAMP FOR 1/2" HOSE (10 PC)

Spare Parts

728683	TUNE UP KIT (AIR MOTOR)
779067	THROTTLE VALVE OVERHAUL KIT FOR AG - PRO 4B / AG - PRO 5
779068	MOTOR OVERHAUL KIT FOR AG - PRO 5
722835	SERVICE KIT BEVEL ANGLE GEAR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ANGLE GRINDER AG-PRO 7

The Unitor series of angle grinders is designed to cope with the daily tasks within the tough marine environment.



Product Information

Please note that you must only use Unitor original consumables due to the high rotational speeds of the units and the inherent danger of injury to the operator when using low quality consumables.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Compatible with UNITOR abrasive consumables range for cutting, grinding, buffing, and polishing
- Safety lock pin on angle grinder to prevent accidental trigger, which may cause injury from self-spin cutting or grinding disc
- Adjustable and rotatable exhaust stack depending on working angle to prevent dust directed at operator
- Ergonomically designed and reliable for use in harsh maritime environment
- Spare part kits available for easy repair and to minimise downtime

Benefits

- Designed with operator's safety in mind
- Highly efficient for shipboard surface preparation and corrosion removal works
- Reliable for use in harsh maritime environment
- Spare part kits available for easy repair and maintenance

Product number	Product name
721977	ANGLE GRINDER AG-PRO 7

Specification

Invent Hazard Material (IMO/EU) classification	NA
Air inlet connection [inch]	3/8" NPT
Air pressure [bar]	90 PSI / 6.2 BAR
RPM	7600
Sound power level (Lw) [dB]	101.4 (dB)
Vibration level [m/s ²]	3.7

Consumables

777698	CUP WIRE BRUSH 4" W5/8"X11 UNF
633571	GRINDING DISCS 7" (10 PC)
633563	CUTTING DISCS 7" (25 PC)
633611	CUTTING DISCS 7", INOX (25 PC)
633747	MOP DISCS 180X22MM, #60 (10 PC)
779064	RUBBER PAD FOR AG - PRO 7 SANDING DISC
692582	SANDING DISC 100MM, #36 (25 PC)

Accessories

191882	30 UPM AIR PLUG 3/8" M BSP.T
191692	40 USH AIR SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER (50M)
729444	HOSE CLAMP FOR 1/2" HOSE (10 PC)

Spare Parts

722843	TUNE UP KIT (AIR MOTOR)
779069	THROTTLE VALVE OVERHAUL KIT FOR AG - PRO 7
722884	SERVICE KIT BEVEL ANGLE GEAR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIE GRINDER DG-PRO 18

Compact and easy to handle tools with extremely high operating speeds for polishing metal, deburring, smoothing out surfaces, rust removal etc.



Product Information

Application of die grinder include polishing metal, smoothing out surfaces, rust removal etc. The unit is compact, enabling easier operation in confined spaces.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Easy and fast deburring of machined parts
- Small and compact grinder makes it easy to get in to confined spaces
- Fast removing of welding slag

Benefits

- High quality and easy to use machine
- Lightweight, only 0.56 Kg

Product number	Product name
722009	DIE GRINDER DG-PRO 18

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	0.56
Air consumption [m ³ /min]	0.22
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 PSI / 6.2 BAR
Sound power level (Lw) [dB]	105.5 (dB)
Vibration level [m/s ²]	2.1
Rotation speed [rpm]	18000

Consumables

536797	GRINDING STONES SET (10 PCS)
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Accessories

191874	20 UPM PLUG 1/4" MALE BSPT
191684	30 USH SOCKET 3/8" HOSE
191833	30 UPH PLUG 3/8" HOSE
671750	AIR HOSE 3/8", RUBBER (50 MTR. COIL)
633057	WORKING GLOVES. 12 PAIRS
653410	SAFETY GRINDING GOGGLES
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
768432	CLAMP 1 EAR 15.6-17.8MM 3/8" HOSE (20 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS

Spare Parts

722777	AIR MOTOR SERVICE KIT
779070	VALVE OVERHAUL KIT FOR DG-PRO 18 / DG-PRO 22

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DIE GRINDER DG-PRO 22

Compact and easy to handle with extremely high operating speeds for polishing metal, deburring, smoothing out surfaces, rust removal etc.



Product Information

Application of die grinder include polishing metal, smoothing out surfaces, rust removal etc. The unit is compact, enabling easier operation in confined spaces.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Easy and fast deburring of machined parts
- Small and compact grinder makes it easy to get in to confined spaces
- Fast removing of welding slag

Benefits

- High quality and easy to use machine
- Lightweight, only 1.42 Kg

Product number	Product name
722017	DIE GRINDER DG-PRO 22
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Weight [kg]	1.42
Air consumption [m³/min]	0.22
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 PSI / 6.2 BAR
Sound power level (Lw) [dB]	103.3 (dB)
Vibration level [m/s²]	2.5
Rotation speed [rpm]	22000
Consumables	
536797	GRINDING STONES SET (10 PCS)
Accessories	
191874	20 UPM PLUG 1/4" MALE BSP.T
191684	30 USH SOCKET 3/8" HOSE
191833	30 UPH PLUG 3/8" HOSE
671750	AIR HOSE 3/8", RUBBER (50 MTR . COIL)
633057	WORKING GLOVES. 12 PAIRS
653410	SAFETY GRINDING GOGGLES
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
768432	CLAMP 1 EAR 15.6 - 17.8MM 3/8" HOSE (20PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
Spare Parts	
722777	AIR MOTOR SERVICE KIT
779070	VALVE OVERHAUL KIT FOR DG-PRO 18 / DG-PRO 22

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

IW-PRO 1/2" MINI NG KIT

The UNITOR IW-PRO 1/2" Mini NG Kit is a lightweight and versatile impact wrench used for tight corners and difficult to reach areas. It comes with a selection of impact sockets for onboard use.



Product Information

It meets all the requirements expected of a UNITOR tool with the quality expectations and the reliability for the everyday use onboard a vessel. This is a tool recognized and appreciated by professionals worldwide for all routine bolting/un-bolting works onboard.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. Always use correct type of impact sockets when using this tool, if ordinary sockets are used they might shatter and cause serious injury to the operator. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Powerful and light weight impact wrench with max torque of 610 Nm and bolt capacity up to 24mm bolts
- Six-position power management and variable speed control to meet a wide range of applications onboard
- Special precision motor offers higher torque and productivity

Benefits

- Superior performance, with best Power-to-Size ratio in class
- Easy access in difficult to reach areas yet with strong torque output
- Ergonomic handle and design makes it better to grip, well balanced and easy to operate

Product number	Product name
779310	IW-PRO 1/2" MINI NG KIT

Specification	
Invent Hazard Material (IMO/EU) classification	NA
Dimensions L x W x H [mm]	100 x 265 x 265
Weight [kg]	1.37
Air consumption [m ³ /min]	283 l/min / 10 scfm
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90PSI / 6.2 BAR
Sound power level (Lw) [dB]	106.9
Torque [Nm]	610
Vibration level (m/s ²)	10.2

Supplied with

IW-PRO 1/2" MINI NG with 1 Pcs Nipple	1 pc
Air Sockets size 10, 11, 12, 13, 14, 17, 19, 21, 22, 24 mm	10 pcs
5" Extension Bar and 1 Pcs Universal Joint	1 pc
4 mm Hex. Wrench	1 pc
Oil Pot and 1 Pcs Mini Oiler (Empty)	1 pc
Kit Suitcase	1 pc

Accessories

779311	IW-PRO 1/2" MINI NG
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

1/2" COMPOSITE IMPACT WRENCH

The UNITOR Impact wrench IW-PRO 1/2" is a heavy duty, light weight and robust impact wrench for your mechanical works onboard.



Product Information

It meets all the requirements expected of a UNITOR tool with the quality expectations and the reliability for the everyday use onboard a vessel. This is a tool recognized and appreciated by professionals worldwide for all routine bolting/unbolting works onboard.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. Always use correct type of impact sockets when using this tool, if ordinary sockets are used, they might shatter and cause serious injury to the operator. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- Powerful and light weight impact wrench (weigh only 2kg or 4.4lb)
- Twin hammer system offer high torque with extra performance motor
- Ideal bolt capacity up to 3/4" or 18mm

Benefits

- Easy to operate and portable
- Ergonomic design for better grip and balance
- Powerful and hard-hitting impact wrench with max torque of 814Nm

Product number	Product name
779001	1/2" COMPOSITE IMPACT WRENCH

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	2.0
Air consumption [m³/min]	368 l/min / 13 scfm
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 - 115PSI / 6.2 - 7.9 BAR
Sound power level (Lw) [dB]	114 (dB)
Torque [Nm]	600 FT-LBS / 814 NM
Vibration level (m/s²)	7.32

Accessories

728833	IMPACT SOCKET SET FOR IW-PRO 1/2"
191874	20 UPM PLUG 1/4" MALE BSP.T
191692	40 USH SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER, 50M COIL
779002	TUNE UP KIT FOR IW-PRO 1/2"
779003	BALL BEARING OVERHAUL KIT FOR IW-PRO 1/2"

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

IMPACT WRENCH IW-PRO 3/4" NG

The UNITOR Impact wrench IW-PRO 3/4" NG is a new generation impact wrench with a lighter weight, robust and higher torque for high performance mechanical works onboard.



Product Information

It meets all the requirements expected of a UNITOR tool with the quality expectations and the reliability for the everyday use onboard a vessel. This is a tool recognized and appreciated by professionals worldwide for all routine bolting/unbolting works onboard.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. Always use correct type of impact sockets when using this tool, if ordinary sockets are used, they might shatter and cause serious injury to the operator. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- A very powerful, reversible nut-runner with adjustable torque
- 3-positions power management makes it easier not to over torque the bolts
- Ideal bolt capacity up to 1.1/4" or 32mm

Benefits

- Easy to operate
- Ergonomic design for better grip and balance
- Powerful and hard-hitting impact wrench with max torque of 1627Nm

Product number	Product name
722208	IMPACT WRENCH IW-PRO 3/4" NG

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	5.0
Air consumption [m ³ /min]	396 l/min / 14 scfm
Air inlet connection [inch]	3/8" NPT
Air pressure [bar]	90 - 115PSI / 6.2 - 7.9 BAR
Sound power level (Lw) [dB]	110.6 (dB)
Torque [Nm]	1200 FT-LBS / 1627 NM
Vibration level (m/s ²)	6.42

Accessories

728728	IMPACT SOCKET SET FOR IW-PRO3/4", 9 PCS
191882	30 UPM PLUG 3/8" MALE BSP.T
183418	FLEXIBLE HOSE 30 CM 3/8 IN
191692	40 USH SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER, 50M COIL
768457	CLAMP 1 EAR 22 - 24.8 MM 1/2" HOSE (20 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
632943	SAFETY SPECTACLES CLEAR
633057	WORKING GLOVES. 12 PAIRS
722220	AIR MOTOR OVERHAUL KIT F/IW-PRO 3/4" NG

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

IMPACT WRENCH IW-PRO 1"

The UNITOR Impact wrench IW-PRO 1" is a heavy duty and robust impact wrench.



Product Information

It meets all the requirements expected of a UNITOR tool with the quality expectations and the reliability for the everyday use onboard a vessel. This is a tool recognized and appreciated by professionals worldwide for all routine bolting/un-bolting works onboard.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. Always use correct type of impact sockets when using this tool, if ordinary sockets are used, they might shatter and cause serious injury to the operator. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- A very powerful, reversible nut-runner with adjustable torque
- 3-positions power management makes it easier not to over torque the bolts
- Ideal bolt capacity up to 1.1/2" or 38mm

Benefits

- Easy to operate
- Ergonomic design for better grip and balance
- Heavy duty i.e. powerful and hard-hitting impact wrench with max torque of 2441Nm

Product number	Product name
722199	IMPACT WRENCH IW-PRO 1"

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	10.6
Air consumption [m³/min]	708 l/min / 25 scfm
Air inlet connection [inch]	1/2" NPT
Air pressure [bar]	90 - 115 PSI / 6.2 - 7.9 BAR
Sound power level (Lw) [dB]	117.6 (dB)
Torque [Nm]	1800 FT-LBS / 2441 NM
Vibration level (m/s²)	5.6

Accessories

728742	IMPACT SOCKET SET FOR IWO-PRO1", 10PCS
671768	AIR HOSE 1/2", RUBBER, 50 METER COIL
191890	40 UPM PLUG 1/2" MALE BSP.T
191692	40 USH SOCKET 1/2" HOSE
191841	40 UPH PLUG 1/2" HOSE
768457	CLAMP 1 EAR 22-24.8 MM 1/2 " HOSE (20 PCS)
729444	HOSE CLAMP FOR 1/2" HOSE (10 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
632943	SAFETY SPECTACLES CLEAR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NEEDLE SCALER VL223 IN-LINE LO-VIBE

The UNITOR Low-Vib in line needle scaler and chisel scaler is a high quality and low vibrating multipurpose tool for maximum safety and efficiency for surface preparation works.



Product Information

Heavy-duty, highly efficient and low vibration needle scaler and chisel scaler for the most demanding applications on board.

Features

- Reduces the risk of developing Hand Arm Vibration Syndrome (HAVS)
- Safe and compliant i.e., can be used for a full work day without reaching the max allowed vibration levels for a working day
- Delivered as both needle scaler and chisel hammer
- Comes with chisel tipped needles, chisel attachment and straight chisel in the kit

Benefits

- Improves efficiency of a working day, due to no breaks for maximum vibration levels required
- Easy to change from needle scaler to chisel hammer without needing any tools
- No tools required for maintenance of the tool
- Can be used as a spark resistant tool with changing the needles from ordinary to beryllium copper alloyed needles

Product number	Product name
762675	NEEDLE SCALER VL223 IN-LINE LO-VIBE

Specification

Invert Hazard Material (IMO/EU) classification	NA
Diameter [mm]	23.5
Length [mm]	370
Air consumption [m³/min]	1.89 lps (4.0 cfm)
Piston Stroke	11 mm (0.43")

Accessories

671750	AIR HOSE 3/8 "", RUBBER (50 MTR . COIL)
191874	20 UPM PLUG 1/4" MALE BSPT
191684	30 USH SOCKET 3/8" HOSE
191833	30 UPH PLUG 3/8" HOSE
768432	CLAMP 1 EAR 15.6 - 17.8 MM 3/8" HOSE (20 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSE CLAMPS
762677	CHISEL TIPPED NEEDLES 3 X 180 MM
728766	NEEDLES 3MM FOR NS-PRO SERIES
762680	BERYLLIUM COPPER NEEDLES 3 X 180 MM
762975	PLASTIC BALLS 6MM FOR LOW/VIB NEEDLE SCALER, 5 PCS
762678	SERVICE KIT FOR VL223/203
762681	SERVICE KIT VALVE BODY
653410	SAFETY GRINDING GOGGLES
633057	WORKING GLOVES. 12 PAIRS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NEEDLE SCALER VL303 PISTOL LO-VIBE

The UNITOR Low-Vib pistol grip needle scaler and chisel scaler is a high quality and low vibrating multipurpose tool for maximum safety and best efficiency for surface preparation works.



Product Information

Heavy-duty, highly efficient and low vibration needle scaler and chisel scaler for the most demanding applications on board.

Features

- Reduces the risk of developing Hand Arm Vibration Syndrome (HAVS)
- Safe and compliant i.e., can be used for a full work day without reaching the max allowed vibration levels for a working day
- Delivered as both needle scaler and chisel hammer
- Comes with chisel tipped needles, chisel attachment and straight chisel in the kit

Benefits

- Improves efficiency of a working day due to no breaks required for maximum vibration levels
- Easy to change from needle scaler to chisel hammer, no tools required
- No tools required for maintenance of the tool
- Can be used as spark resistant tool by only changing the needles to beryllium copper alloyed needles (Note. This will not reach ATEX requirement as this require its own certification)

Product number	Product name
762676	NEEDLE SCALER VL303 PISTOL LO-VIBE

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	34.4
Length [mm]	370
Air consumption [m ³ /min]	2.6lps (5.5cfm)
Piston Stroke	20mm (.787")

Accessories

671750	AIR HOSE 3/8", RUBBER (50 MTR . COIL)
191874	20 UPM PLUG 1/4" MALE BSP.T
191684	30 USH SOCKET 3/8" HOSE
191833	30 UPH PLUG 3/8" HOSE
768432	CLAMP 1 EAR 15.6 - 17.8 MM 3/8" HOSE (20 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSE CLAMPS
762677	CHISEL TIPPED NEEDLES 3X180 MM
728766	NEEDLES 3MM FOR NS-PRO SERIES
762680	BERYLLIUM COPPER NEEDLES 3X180 MM
762975	PLASTIC BALLS 6MM FOR LOW/VIB NEEDLE SCALER, 5 PCS
762679	SERVICE KIT FOR VL303
762681	SERVICE KIT VALVE BODY
653410	SAFETY GRINDING GOGGLES
633057	WORKING GLOVES. 12 PAIRS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

VL303 ATEX NEEDLE SCALER KIT

VL303 ATEX needle scaler kit is a low sparking equipment and certified for use in Gas Zone 1 for surface preparation such as for offshore and tankers.



Product Information

The VL-303 ATEX Needle Scaler is a Low-Vibration scaler, reducing the risk of developing Hand-Arm Vibration Syndrome (HAVS) from prolonged handling of air tools.

Features

- Reduces the risk of developing Hand Arm Vibration Syndrome (HAVS)
- Safe and compliant i.e., can be used for a full work day without reaching the max allowed vibration levels for a working day
- Supplied with different cuffs for positional working
- It is possible to attach a vacuum hose to draw away harmful dust and dirt during operation

Benefits

- Safe and compliant for working in ATEX environment and Low-Vibration to prevent injury to operator
- Supplied in kit for different working angle and also fall arrestor for working at height
- Improves efficiency of a working day, due to no breaks for maximum vibration levels required
- No tools required for maintenance of the tool

Product number	Product name
762684	VL303 ATEX NEEDLE SCALER KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
Length [mm]	370
Needle size	28 x 3mm
Weight [kg]	3.51
Air consumption [m³/min]	0.156
Sound power level (Lw) [dB]	109.5 dB (A)
Vibration level (m/s²)	2.3 (AEQ Primary), 4.12 (AEQ Secondary)

Supplied with

VL303 ATEX Needle Scaler Kit	1 pc
Spare set of Beryllium Copper Needles	1 pc
TVS Vacuum Shroud	1 pc
Fall arrestor	1 pc
Corner, Edge and Flat cuffs	1 pc
Operator user guide	1 pc

Accessories

762694	AIR HOSE ATEX 1/4" 10 METER F/VL303 ATEX NEEDLE SCALER
762680	BERYLLIUM COPPER NEEDLES 3X180MM
762686	TVS VACUUM TAKE-OFF KIT F/VL303 ATEX NEEDLE SCALER
762688	CUFF PACKAGE F/VL303 ATEX NEEDLE SCALER
762692	VL303 ATEX ARRESTOR CLAMP ASSEMBLY
762696	SERVICE KIT F/VL303 ATEX NEEDLE SCALER
762681	SERVICE KIT VALVE BODY

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

NEEDLE SCALER NS-PRO 28

The Unitor NS-PRO needle scaler range helps you do the job right the first time, regardless of how big the task is.



Product Information

Heavy duty and highly efficient needle scaler for the most demanding applications on board.

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves while using the tool.

Features

- The quality and efficiency of this tool has made the NS-PRO 28 popular in the marine industry
- This unit removes thick layers of rust and scale hour after hour
- Can be used with 2mm, 3 mm or 4 mm needles depending on application
- Spares available i.e., General overhaul kit, Throttle valve overhaul kit and Needle overhaul kit

Benefits

- The NS-PRO needle scalers operate without springs. This means no springs to break, no irregular power, and the advantage of low air consumption
- The needles adjust automatically to operate efficiently on your work piece irrespective of the contours
- The spare kits simplify maintenance and reliable long term use

Product number	Product name
722025	NEEDLE SCALER NS-PRO 28

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	3/8"
Needle size [mm]	3 & 4
Air consumption [m ³ /min]	0.21
Sound power level (Lw) [dB]	108.9 (dB)
Vibration level (m/s ²)	4.8

Accessories

671750	AIR HOSE 3/8", RUBBER (50 MTR . COIL)
191833	30 UPH PLUG 3/8" HOSE
183418	FLEXIBLE HOSE 30 CM 3/8 IN
191684	30 USH SOCKET 3/8" HOSE
768432	CLAMP 1 EAR 15.6 - 17.8MM 3/8" HOSE (20 PCS)
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
653410	SAFETY GRINDING GOGGLES
633057	WORKING GLOVES. 12 PAIRS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SCALING HAMMER SH-PRO 1

The scaling hammers range have been developed to compliment the needle scalers range for more demanding surface preparation and coating removal applications.



Product Information

Single scaling hammer head for surface preparation.

Vibration level according to EN ISO 11148-4, EN ISO 28927-2 and EN 12096 is: 25.3 +/- 0.20 m/s².

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using wearing protection, eye protection (goggles) and gloves while using the tool.

Product number	Product name
722157	SCALING HAMMER SH-PRO 1
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Overall Length [mm]	480
Weight [kg]	1.9
Piston Size [mm]	30 x 24 x 75
Blow per Min [BPM]	8000
Air Inlet connection [inch]	3/8" NPT
Air pressure [bar]	90 PSI / 6.2 BAR
Sound power level (Lw) [dB]	108.3 (dB)
Vibration level [m/s ²]	25.3
Accessories	
671750	AIR HOSE 3/8 "", RUBBER (50 MTR. COIL)
191684	30 USH SOCKET 3/8" HOSE
183418	FLEXIBLE HOSE 30 CM 3/8IN
191833	30 UPH PLUG 3/8" HOSE
768432	CLAMP 1 EAR 15.6 - 17.8MM 3/8" HOSE (20PCS)
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
722769	PISTON REPLACEMENT KIT FOR SH-PRO 1

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SCALING HAMMER SH-PRO 3

The scaling hammers range have been developed to compliment the needle scalers range for more demanding surface preparation and coating removal applications.



Product Information

Triple scaling hammer head for surface preparation.

Vibration level according to EN ISO 11148-4, EN ISO 28927-2 and EN 12096 is: 13.3 +/- 0.16 m/s².

Safety

Before using the tool, make sure you have read and understood the user manual. Make sure you are wearing the correct personal protection equipment. We strongly recommend using wearing protection, eye protection (goggles) and gloves while using the tool.

Product number	Product name
722165	SCALING HAMMER SH-PRO 3

Specification	
Invent Hazard Material (IMO/EU) classification	NA
Overall Length [mm]	496
Weight [kg]	3.9
Piston Size [mm]	27 x 21 x 68
Blow per Min [BPM]	2800
Air Inlet connection [inch]	3/8" NPT
Air pressure [bar]	90 PSI / 6.2 BAR
Sound power level (Lw) [dB]	101.7 (dB)
Vibration level [m/s ²]	13.3

Accessories

671750	AIR HOSE 3/8"", RUBBER (50 MTR. COIL)
191684	30 USH SOCKET 3/8" HOSE
183418	FLEXIBLE HOSE 30 CM 3/8IN
191833	30 UPH PLUG 3/8" HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
768432	CLAMP 1 EAR 15.6 - 17.8 MM 3/8" HOSE (20 PCS)
722462	PISTON REPLACEMENT KIT FOR SH-PRO 3

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CHISEL SCALER CS-PRO 120

Power and performance to enable you to do scores of shipboard descaling and cleaning jobs quickly, efficiently and economically.



Product Information

Application areas

Removing old paint and rust from ship decks
Dislodging solid matter from outer ship plates
Removing concrete adhered to panels
Cleaning steel tanks
Dislodging scale from boilers plus scores of other applications

Features

- Fast removal of thick paint coatings
- Easily remove larger flakes of rust
- Dislodging solid matter from outer ship plates
- Dislodging scale from boilers, plus scores of other applications
- Removing concrete adhered to panels
- Cleaning steel tanks

Benefits

- High quality and easy to use machine
- 1220mm long makes it more comfortable to be able to work in an standing position
- Light weight i.e., only 6.5kg

Product number	Product name
722124	CHISEL SCALER CS-PRO 120

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	3/8"
Length	1200
Weight [kg]	6.5
Air consumption [m³/min]	0.14
Sound power level (Lw) [dB]	107.4 (dB) A-weighted
Uncertainty K [m/s²]	0.3
Uncertainty KwA	3 (dB)
Vibration level [m/s²]	18.9

Accessories

671750	AIR HOSE 3/8"/", RUBBER (50 MTR. COIL)
191684	30 USH SOCKET 3/8" HOSE
183418	FLEXIBLE HOSE 30 CM 3/8IN
191833	30 UPH PLUG 3/8" HOSE
768507	PINCER TOOL FOR EAR TYPE HOSECLAMPS
768432	CLAMP 1 EAR 15.6 - 17.8MM 3/8" HOSE (20 PCS)
729443	HOSE CLAMP FOR 3/8" HOSE (10 PCS)
653410	SAFETY GRINDING GOGGLES
633057	WORKING GLOVES. 12 PAIRS

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DECK PLANNER DP-PRO 200

The DP-PRO 200 presents a combination of innovative technology with performance, tested features and benefits in a rugged rotary planer unit.

Product Information

The DP-PRO 200 is a tough deck planer machine built to tackle the most demanding applications of surface preparation and material removal from large area steel deck surfaces.

At 45 kg it is light enough to easily manoeuvre between levels and the accurate depth control and variety of accessories enables material from light rust to heavy scale or paint to be removed at a rapid rate. Simple to use, the DP-PRO 200 will take minimal operator training & requires little after sales management.

*Note: Product On Request Basis



Features

- Fully adjustable operating height
- Vacuum port as standard
- Accurate depth control
- Variety of accessories

Benefits

- Operator comfort
- Enable dust control if used with an industrial dust collector
- Able to regulate material removal to desired effect
- Offers the correct tool for every application

Product number	Product name
734046	DECK PLANNER DP-PRO 200

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	3/4"
Width [mm]	200
Air consumption [m³/min]	3.0 - 4.6
Rotation speed	1600 RPM

Accessories

734053	CUTTING WHEEL REPL. KIT, DP-PRO 200
191965	600 UPF PLUG 3/4" FEMALE BSP.T
750928	600 HIGH FLOW SH LIQUID CONNECTOR
671776	AIR HOSE 3/4", RUBBER LTH=50MTR
729445	HOSE CLAMP FOR 3/4" HOSE (10 PCS)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DECK SCALER DSH-PRO 11

For use on large area decks & tank bottoms the DSH-PRO 11 will fracture & reduce scale, corrosion & thick coatings in minutes.

Product Information

The Unitor DSH-PRO 11 is ideally suited for thick coating removal and surface preparation on large areas of deck and tank floor cleaning, complimenting the Unitor hand held scaling hammers range.

Eleven heads impacting at 3000 strokes per minute break down the hardest of coatings.



Features

- Vibration damped
- Low profile body height
- Optional vacuum shroud available
- 11 Hammers x 3000 blows per minute

Benefits

- Increases operator comfort & safety
- For cleaning under steps & pipes
- Reduce hazardous & nuisance dust when used with an industrial dust collector
- Highly productive & effective means of coatings/corrosion removal

Product number	Product name
734061	DECK SCALER DSH-PRO 11

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	3/4"
Air consumption [m ³ /min]	1.9 - 3.0

Accessories

734079	HAMMER REPLACEMENT KIT, DSH-PRO (11PCS)
191965	600 UPF PLUG 3/4" FEMALE BSPT
750928	600 HIGH FLOW SH LIQUID CONNECTOR
671776	AIR HOSE 3/4", RUBBER LTH=50MTR
729445	HOSE CLAMP FOR 3/4" HOSE (10 PCS)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DRILL REVERSIBLE AD-PRO 1500

The AD-PRO 1500 is the latest air drill reversible which is much quieter with lower vibration level. Despite its light weight the AD-PRO 1500 is extremely durable and also highly efficient. It is the perfect tool for light and medium duty drilling operations.



Product Information

The biggest benefits of air-powered drills are its light weight and simple design, making it mean it is a cost effective tool and easy to maintain, especially for tankers.

Safety

Before using the tool, make sure you have read and understood the user manual, and make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, safety spectacles and gloves during the whole operation with the tool.

Features

- Lighter than any electrical drill in its class
- Ideal for light to medium drilling operations

Benefits

- Lightweight
- Easy to operate
- Exhaust position does not stand in the way of efficiency

Product number	Product name
722209	DRILL REVERSIBLE AD-PRO 1500

Specification

Invent Hazard Material (IMO/EU) classification	NA
Weight [kg]	1.24
Air inlet connection [inch]	1/4" NPT
Air pressure [bar]	90 PSI / 6.2 Bar
Sound power level (Lw) [dB]	102.0 (dB)
Vibration level (m/s ²)	1.6

Accessories

614002	DRILL SET,HSS,KM 21.1-13
614005	DRILL SET,HSS,KZ 29 IMPERIAL
191874	20 UPM PLUG 1/4" MALE BSP.T
191692	40 USH SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER, 50M COIL
729444	HOSE CLAMP FOR 1/2" HOSE (10 PCS)

Directions for use

NOTE! Do not exceed maximum operation pressure of the air tool (6.2BAR/90 PSI).

Always use suitable personal protection equipment under operation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

USH SOCKET

The Unitor quick couplings helps you build efficient air lines everywhere on board. They are time tested and proven to out-perform in all applications and to be totally leak free. They are the result of over 30 years of development aimed in one direction: an uncompromising standard of quality and flow performance in each and every application.



Product Information

Quick couplings are often used in situations where a hose has to be connected and disconnected quickly and efficiently. For application or power tools that requires frequent change out, quick couplings are the easiest, safest and most cost-effective way to achieve the desired result.

The plug and socket fitting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the flow capacity of the couplings.

Refer to Unitor Quick Coupling Selection Poster for quick guide.

Features

- Quick couplings allow fluid lines to be quickly and easily connected and disconnected without the need for tools
- Made from stainless steel SS304
- BSP threaded

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191676	20 USH SOCKET 1/4" HOSE
191684	30 USH SOCKET 3/8" HOSE
191692	40 USH SOCKET 1/2" HOSE
191700	400 USH SOCKET 1/2" HOSE
191718	600 USH SOCKET 3/4" HOSE
633459	800 USH SOCKET 1" HOSE

Specification

Invert Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

USM SOCKET

The Unitor quick couplings helps you build efficient air lines everywhere on board.

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Product Information

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Features

- Quick couplings allow fluid lines to be quickly and easily connected and disconnected without the need for tools
- Made from stainless steel SS304
- BSP threaded

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191726	20 USM SOCKET 1/4" MALE BSPT
191734	30 USM SOCKET 3/8" MALE BSPT
191742	40 USM SOCKET 1/2" MALE BSPT
191759	400 USM SOCKET 1/2" MALE BSPT
191767	600 USM SOCKET 3/4" MALE BSPT
633467	800 USM SOCKET 1" MALE BSPT

Specification

Invent Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

USF SOCKET

The Unitor quick couplings helps you build efficient air lines everywhere on board.

They are time tested and proven to out-perform in all applications and to be totally leak free. They are the result of over 30 years of development aimed in one direction: an uncompromising standard of quality and flow performance in each and every application.



Product Information

Quick couplings are often used in situations where a hose has to be connected and disconnected quickly and efficiently. For application or power tools that requires frequent change out, quick couplings are the easiest, safest and most cost-effective way to achieve the desired result.

The plug and socket fitting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the flow capacity of the couplings.

Refer to Unitor Quick Coupling Selection Poster for quick guide.

Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build efficient air lines everywhere on board

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191775	20 USF SOCKET 1/4" FEMALE BSPT
191783	30 USF SOCKET 3/8" FEMALE BSPT
191791	40 USF SOCKET 1/2" FEMALE BSPT
191809	400 USF SOCKET 1/2" FEMALE BSPT
191817	600 USF SOCKET 3/4" FEMALE BSPT
633475	800 USF SOCKET 1" FEMALE BSPT

Specification

Invert Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UPH PLUG

The Unitor quick couplings helps you build efficient air lines everywhere on board.



They are time tested and proven to out-perform in all applications and to be totally leak free. They are the result of over 30 years of development aimed in one direction: an uncompromising standard of quality and flow performance in each and every application.

Product Information

Quick couplings are often used in situations where a hose has to be connected and disconnected quickly and efficiently. For application or power tools that requires frequent change out, quick couplings are the easiest, safest and most cost-effective way to achieve the desired result.

The plug and socket fitting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the flow capacity of the couplings.

Refer to Unitor Quick Coupling Selection Poster for quick guide.

Features

- Time tested and proven for over 30 years to be precision perfect and leakage free
- Helps you build efficient air lines everywhere on board

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191825	20 UPH PLUG 1/4" HOSE
191833	30 UPH PLUG 3/8" HOSE
191841	40 UPH PLUG 1/2" HOSE
191858	400 UPH PLUG 1/2" HOSE
191866	600 UPH PLUG 3/4" HOSE
633483	800 UPH PLUG 1" HOSE

Specification

Invert Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UPM PLUG

The Unitor quick couplings helps you build efficient air lines everywhere on board.

They are time tested and proven to out-perform in all applications and to be totally leak free. They are the result of over 30 years of development aimed in one direction: an uncompromising standard of quality and flow performance in each and every application.



Product Information

Quick couplings are often used in situations where a hose has to be connected and disconnected quickly and efficiently. For application or power tools that requires frequent change out, quick couplings are the easiest, safest and most cost-effective way to achieve the desired result.

The plug and socket fitting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the flow capacity of the couplings.

Refer to Unitor Quick Coupling Selection Poster for quick guide.

Features

- Quick couplings allow fluid lines to be quickly and easily connected and disconnected without the need for tools
- Made from stainless steel SS304
- BSP threaded

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191874	20 UPM PLUG 1/4" MALE BSP.T
191882	30 UPM PLUG 3/8" MALE BSP.T
191890	40 UPM PLUG 1/2" MALE BSP.T
191908	400 UPM PLUG 1/2" MALE BSP.T
191916	600 UPM PLUG 3/4" MALE BSP.T
633491	800 UPM PLUG 1" MALE BSP.T

Specification

Invent Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UPF PLUG

The Unitor quick couplings helps you build efficient air lines everywhere on board.



They are time tested and proven to out-perform in all applications and to be totally leak free. They are the result of over 30 years of development aimed in one direction: an uncompromising standard of quality and flow performance in each and every application.

Product Information

Quick couplings are often used in situations where a hose has to be connected and disconnected quickly and efficiently. For application or power tools that requires frequent change out, quick couplings are the easiest, safest and most cost-effective way to achieve the desired result.

The plug and socket fitting portion of couplings 20, 30 and 40 are interchangeable, as are those of the 400, 600 and 800 couplings. This means that a coupling 20 may be connected to a 30 or 40, the only difference being the flow capacity of the couplings.

Refer to Unitor Quick Coupling Selection Poster for quick guide.

Features

- Quick couplings allow fluid lines to be quickly and easily connected and disconnected without the need for tools
- Made from stainless steel SS304
- BSP threaded

Benefits

- Increased productivity when handling multiple air tools or where required connecting / disconnecting, moving from one air line connection point to another
- Helps you build efficient air lines everywhere on board
- Uncompromising standard of quality and flow performance in each and every application

Product Number	Product Name
191924	20 UPF PLUG 1/4" FEMALE BSP.T
191932	30 UPF PLUG 3/8" FEMALE BSP.T
191940	40 UPF PLUG 1/2" FEMALE BSP.T
191957	400 UPF PLUG 1/2" FEMALE BSP.T
191965	600 UPF PLUG 3/4" FEMALE BSP.T

Specification

Invert Hazard Material (IMO/EU) classification	NA
Operating pressure [bar]	15
Test Pressure [bar]	45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR MEDUSA AIR DISTRIBUTOR

The Medusa is an ideal product for distributing air to several tools or other sources needing compressed air.



Product Information

The Medusa air distributor is a powerful quick coupling socket to help connect and distribute a number of lines from a single source especially when using multi-air tools such as combination of needle scalers, angle grinders and scaling hammers or multi-operators using more than one air tool at same time.

Safety

Make sure you are wearing the correct personal protection equipment. We strongly recommend using hearing protection, eye protection (goggles) and gloves when using air tools.

Features

- The inlet is from a 1/2" or a 3/4" hose with a 400, 600 and 800 series socket
- The five outlets are for 1/4", 3/8" or 1/2" hoses with the respective 20, 30 or 40 series plug

Benefits

- Powerful productivity booster as enables multi-tools i.e. up to 5 different air tools connected especially for heavy duty surface preparation work at deck
- Easy, quick and secure connection

Product number	Product name
193490	UNITOR MEDUSA AIR DISTRIBUTOR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

EAR CLAMPS & HOSE CLAMPS

Hose clamps are widely used onboard to secure hoses with fittings.

For AC-OX service, the Ear Clamp or Clamp 1 Ear is recommended as it offers a better and safer solution when mounting hoses compared to worm type / jubilee clips. Meanwhile worm type hose clamps are offered for non-critical service such as low pressure compressed air or water hoses.



The recommended Ear Clamp or Clamp 1 Ear type of hose clamps are compliant for use onboard tankers (OCIMF SIRE) and bulkers (RIGHTSHIP RISQ) for welding works in accordance with Code of Safe Working Practices of Merchant Seafarers (COSWP, UK) and British Compressed Gas Association Code of Practice No. 7 (BCGA CP7).

Features

- Clamp 1 Ear for gas welding and cutting or critical applications
- Jubilee / worm screw driven clamps for non-critical application

Benefits

- Fast, simple and safe installation

Product number	Product name
Clamp 1 Ear	
768416	CLAMP 1 EAR 12.3 - 14.3 MM 1/4" HOSE (20 PCS)
768432	CLAMP 1 EAR 15.6 - 17.8 MM 3/8" HOSE (20 PCS)
768440	CLAMP 1 EAR 17.1 - 20.0 MM OD HOSE (20 PCS)
768457	CLAMP 1 EAR 22 - 24.8 MM 1/2 " HOSE (20 PCS)
768481	CLAMP 1 EAR 26.5 - 30.0 MM 3/4" HOSE (20 PCS)
777971	CLAMP 1 EAR 29.3 - 34 MM 1" HOSE (20 PCS)
Worm driven type hose clamp	
729442	HOSE CLAMP FOR 1/4" HOSE (10 PCS)
729444	HOSE CLAMP FOR 1/2" HOSE (10 PCS)
729445	HOSE CLAMP FOR 3/4" HOSE (10 PCS)
729446	HOSE CLAMP FOR 1" HOSE (10 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUP WIRE BRUSH 2.5" W 3/8"X24 UNF

Cup wire brush for use with angle grinder AG-PRO 4C.



Product Information

Cup wire brush for buffing or surface preparation to remove weld scales, corrosion, rust or paint coating. Manufactured in accordance with EN 1083-2.

Features

- Material:Steel
- Max RPM: 13000
- Connection: 3/8"x 24UNF

Benefits

- Easy to assemble to the angle grinder
- Effective surface preparation for small work area or geometric surface

Product number

777697

Product name

CUP WIRE BRUSH 2.5" W 3/8"X24 UNF

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUP WIRE BRUSH 4" W 5/8"X11 UNF

Cup wire brush for use with angle grinder AG-PRO 7.



Product Information

Cup wire brush for buffing or surface preparation to remove weld scales, corrosion, rust or paint coating. Manufactured in accordance with EN 1083-2.

Features

- Material:Steel.
- Max RPM: 8500
- Connection: 5/8"x 11UNF

Benefits

- Easy to assemble to the angle grinder
- Effective surface preparation for larger surface than Cup Wire Brush 2"

Product number

777698

Product name

CUP WIRE BRUSH 4" W 5/8"X11 UNF

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GRINDING DISCS

UNITOR cutting and grinding consumables: High quality cutting and grinding wheels ensure the highest possible degree of efficiency without compromising on operator safety.



Product Information

Unitor abrasive discs are ideal to be used with electrical or air operated angle grinders.

Standard depressed wheels with medium bonding for general use on a variety of metals.

Supplied in pack of 25 pcs for cutting discs, 10 pcs for grinding discs and 10 pcs for mop discs.

Features

- Manufactured in accordance with EN 12413
- Expiry date marking on centre of disc metal ring and product label

Benefits

- Compatible with UNITOR Air Tools especially on matching RPM for safe use onboard
- Solution for standardization of Air Tools and Abrasive Consumables with worldwide availability

Product Number	Product Name	Size (Inch)
633523	GRINDING DISCS 100X6X16, 10 PCS	4"
633539	GRINDING DISCS 115X6X22, 10 PCS	-
633555	GRINDING DISCS 125X6X22, 10 PCS	5"
633571	GRINDING DISCS 180X6X22, 10 PCS	7"
633587	GRINDING DISCS 230X6X22, 10 PCS	9"

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Directions for use

Abrasive consumables are relatively fragile and should be stored and handled with care.

Before abrasive discs are used, it should be inspected to ensure that it has not been damaged in storage or transit and do not have any defects.

Abrasive discs should be stored in a clean, dry location, away from water or chemical products (solvents), and where they will not be exposed to frost or high humidity. Store at temperatures between 10°C and 30°C and relative humidity between 45% and 65%.

Manufacturers' instructions should be followed on the selection of the correct type of abrasive consumables for the job in hand. Always ensure that the disc size and RPM speed matches the air tools' size and RPM specifications. An abrasive disc should not be mounted on an air tool for which it is unsuitable.

Incorrect storage of the abrasive discs (except cup wire brush) in open area will cause the disc's resin to absorb moisture over a period of time and this will deteriorate the product quality resulting in disc failure.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUTTING DISCS

UNITOR cutting and grinding consumables: High quality cutting and grinding wheels ensure the highest possible degree of efficiency without compromising on operator safety.

Standard depressed wheels with medium bonding for general use on a variety of metals.



Product Information

Unitor abrasive discs are ideal to be used with electrical or air operated angle grinders.

Standard depressed wheels with medium bonding for general use on a variety of metals.

Supplied in pack of 25 pcs for cutting discs, 10 pcs for grinding discs and 10 pcs for mop discs.

Features

- Manufactured in accordance with EN 12413
- Expiry date marking on centre of disc metal ring and product label

Benefits

- Compatible with UNITOR Air Tools especially on matching RPM for safe use onboard
- Solution for standardization of Air Tools and Abrasive Consumables with worldwide availability

Product Number	Product Name	Size (Inch)
633515	CUTTING DISCS 100X2.5X16, 25 PCS	4"
633531	CUTTING DISCS 115X2.5X22, 25 PCS	-
633547	CUTTING DISCS 125X3X22, 25 PCS	5"
633563	CUTTING DISCS 180X3X22, 25 PCS	7"
633579	CUTTING DISCS 230X3X22, 25 PCS	9"

Specification

Invent Hazard Material (IMO/EU) classification	NA

Directions for use

Abrasive consumables are relatively fragile and should be stored and handled with care.

Abrasive discs should be stored in a clean, dry location, away from water or chemical products (solvents), and where they will not be exposed to frost or high humidity. Store at temperatures between 10°C and 30°C and relative humidity between 45% and 65%.

Incorrect storage of the abrasive discs (except cup wire brush) in open area will cause the disc's resin to absorb moisture over a period of time and this will deteriorate the product quality resulting in disc failure.

Before abrasive discs are used, it should be inspected to ensure that it has not been damaged in storage or transit and do not have any defects.

Manufacturer's instructions should be followed on the selection of the correct type of abrasive consumables for the job in hand. Always ensure that the disc size and RPM speed matches the air tool's size and RPM specifications. An abrasive disc should not be mounted on an air tool for which it is unsuitable.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

CUTTING DISCS INOX

UNITOR cutting and grinding consumables: High quality cutting and grinding wheels ensure the highest possible degree of efficiency without compromising on operator safety.



Product Information

Unitor abrasive discs are ideal to be used with electrical or air operated angle grinders.

Standard depressed wheels with medium bonding for general use on a variety of metals.

Supplied in pack of 25 pcs for cutting discs, 10 pcs for grinding discs and 10 pcs for mop discs.

Features

- Manufactured in accordance with EN 12413
- Expiry date marking on centre of disc metal ring and product label
- Iron free abrasive discs
- Inox depressed wheels with soft bonding for use on stainless steel and high alloy stainless steel
- The soft bonding also enables the Inox wheels to be used on aluminium

Benefits

- Compatible with UNITOR Air Tools especially on matching RPM for safe use onboard
- Solution for standardization of Air Tools and Abrasive Consumables with worldwide availability

Product Number	Product Name	Size (Inch)
633595	CUTTING DISCS INOX 125X2,5X22, 25 PCS	5"
633611	CUTTING DISCS INOX 180X3X22, 25 PCS	7"
633627	CUTTING DISCS INOX 230X3X22, 25 PCS	9"

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Directions for use

Abrasive consumables are relatively fragile and should be stored and handled with care.

Abrasive discs should be stored in a clean, dry location, away from water or chemical products (solvents), and where they will not be exposed to frost or high humidity. Store at temperatures between 10°C and 30°C and relative humidity between 45% and 65%.

Incorrect storage of the abrasive discs (except cup wire brush) in open area will cause the disc's resin to absorb moisture over a period of time and this will deteriorate the product quality resulting in disc failure.

Before abrasive discs are used, it should be inspected to ensure that it has not been damaged in storage or transit and do not have any defects.

Manufacturer's instructions should be followed on the selection of the correct type of abrasive consumables for the job in hand. Always ensure that the disc size and RPM speed matches the air tool's size and RPM specifications. An abrasive disc should not be mounted on an air tool for which it is unsuitable.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MOP DISCS

UNITOR high quality abrasive fibre discs and abrasive mop discs ensure the highest possible degree of efficiency with a long service life.

Product Information

Unitor abrasive discs are ideal to be used with electrical or air operated angle grinders.



Mop discs are made of abrasive coated flaps fastened to a glass fabric backing plate. The even arrangement of the flaps guarantees high flexibility and constant high grinding performance over the tools complete service life. Unitor mop discs are made of alumina zirconia grain with resin bonding. This combination is equally suitable for application on steels, stainless steel, aluminium, plastic, wood, etc.

Supplied in pack of 25 pcs for cutting discs, 10 pcs for grinding discs and 10 pcs for mop discs.

Features

- Manufactured in accordance with EN 12413
- Recognised by a low clogging rate
- Even grinding finish
- Ideal for applications requiring cool grinding

Benefits

- Compatible with UNITOR Air Tools especially on matching RPM for safe use onboard
- Solution for standardization of Air Tools and Abrasive Consumables with worldwide availability

Product Number	Product Name	Size (Inch)
633691	MOP DISCS 100X16MM, #36, 10 PCS	4"
633699	MOP DISCS 100X16MM, #60, 10 PCS	4"
633707	MOP DISCS 100X16MM, #80, 10 PCS	4"
633715	MOP DISCS 125X22MM, #36, 10 PCS	5"
633723	MOP DISCS 125X22MM, #60, 10 PCS	5"
633731	MOP DISCS 125X22MM, #80, 10 PCS	5"
633747	MOP DISCS 180X22MM, #60, 10 PCS	7"

Specification

Invent Hazard Material (IMO/EU) classification	NA

Directions for use

Abrasive consumables are relatively fragile and should be stored and handled with care.

Abrasive discs should be stored in a clean, dry location, away from water or chemical products (solvents), and where they will not be exposed to frost or high humidity. Store at temperatures between 10°C and 30°C and relative humidity between 45% and 65%.

Incorrect storage of the abrasive discs (except cup wire brush) in open area will cause the disc's resin to absorb moisture over a period of time and this will deteriorate the product quality resulting in disc failure.

Before abrasive discs are used, it should be inspected to ensure that it has not been damaged in storage or transit and do not have any defects.

Manufacturers' instructions should be followed on the selection of the correct type of abrasive consumables for the job in hand. Always ensure that the disc size and RPM speed matches the air tools' size and RPM specifications. An abrasive disc should not be mounted on an air tool for which it is unsuitable.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SANDING DISCS

The Unitor high quality abrasive fibre discs and abrasive mop discs ensure the highest possible degree of efficiency with a long service life.

Fibre discs to be used with backing pads. Unitor fibre discs are made of aluminium oxide grain with resin bonding for multi purpose application on a wide range of metals.



Product Information

Unitor abrasive discs are ideal to be used with electrical or air operated angle grinders.

Fibre discs to be used with backing pads. Unitor fibre discs are made of aluminium oxide grain with resin bonding for multi purpose application on a wide range of metals.

Supplied in pack of 25 pcs for sanding discs.

Features

- Manufactured in accordance with EN 12413
- Recognised by a low clogging rate
- Even grinding finish
- Ideal for applications requiring cool grinding

Benefits

- Compatible with UNITOR Air Tools especially on matching RPM for safe use onboard
- Solution for standardization of Air Tools and Abrasive Consumables with worldwide availability

Product Number	Product Name
692582	SANDING DISC 100MM, #36, 25 PCS
633675	SANDING DISC 180MM, #36, 25 PCS
779063	RUBBER PAD FOR AG-PRO 4C SANDING DISC
779064	RUBBER PAD FOR AG-PRO 7 SANDING DISC

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Directions for use

Abrasive consumables are relatively fragile and should be stored and handled with care.

Before abrasive discs are used, it should be inspected to ensure that it has not been damaged in storage or transit and do not have any defects.

Abrasive discs should be stored in a clean, dry location, away from water or chemical products (solvents), and where they will not be exposed to frost or high humidity. Store at temperatures between 10°C and 30°C and relative humidity between 45% and 65%.

Manufacturers' instructions should be followed on the selection of the correct type of abrasive consumables for the job in hand. Always ensure that the disc size and RPM speed matches the air tools' size and RPM specifications. An abrasive disc should not be mounted on an air tool for which it is unsuitable.

Incorrect storage of the abrasive discs (except cup wire brush) in open area will cause the disc's resin to absorb moisture over a period of time and this will deteriorate the product quality resulting in disc failure.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

GRINDING STONES SET

Set of 10 pcs grinding stones with 6mm shaft used for grinding, polishing, carving and cleaning.



Features

- Max. rpm for the stones is 24.000 rpm (smaller stones can rotate faster)
- Compatible with UNITOR DG-PRO 18 and DG-PRO 22 die grinders

Benefits

- Durable i.e. grinding stones made out of aluminum oxide
- Easy mounting on standard die grinders

Product Number	Product Name
536797	GRINDING STONES SET 10PCS

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity [pcs]	10
Size [mm]	6

Supplied with

Model A5 -- cone shape -- Ø20mm x L 28mm x shaft 6mm	1 pc
Model A14 -- pointed cylinder shape -- Ø18mm x L 20mm x shaft 6mm	1 pc
Model A21 -- rounded cylinder shape -- Ø25mm x L 25mm x shaft 6mm	1 pc
Model A26 -- ball shape -- Ø16mm x shaft 6mm	1 pc
Model W177 -- cylindrical shape -- Ø10mm x L 20mm x shaft 6mm	1 pc
Model W186 -- cylindrical shape -- Ø13mm x L 20mm x shaft 6mm	1 pc
Model W204 -- cylindrical shape -- Ø20mm x L 20mm x shaft 6mm	1 pc
Model W205 -- cylindrical shape -- Ø20mm x L 25mm x shaft 6mm	1 pc
Model W218 -- cylindrical shape -- Ø25mm x L 13mm x shaft 6mm	1 pc
Model W228 -- cylindrical shape -- Ø32mm x L 20mm x shaft 6mm	1 pc

Ø is the diameter of the stone, L is the height (length) of the stone part of the grinding point.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

IMPACT SOCKET SETS

Impact Socket Set For IW-PRO 1/2", 11 pcs

Impact Socket Set For IW-PRO 3/4", 9 pcs

Impact Socket Set For IWO-PRO 1", 10 pcs



Product Number	Product Name
728833	IMPACT SOCKET SET FOR IW-PRO 1/2"
728728	IMPACT SOCKET SET FOR IW-PRO 3/4", 9PCS
728742	IMPACT SOCKET SET FOR IWO-PRO 1", 10PCS

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DRILL SET,HSS,KM 21,1-13

Drill bit set containing 21 pcs. DIN 338 RN rollforged, metric (mm).



Product Information

Contents (mm)

1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 10, 11, 12, 13

Features

- Rollforged twist drill with best toughness combined with good cutting efficiency for drilling alloyed carbon and plain steel
- Point angle 118

Product Number	Product Name
614002	DRILL SET,HSS,KM 21,1-13

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	21
Size	MM

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DRILL SET,HSS,KZ 29

Drill bits set containing 29 pieces. DIN 338 RN rollforged inches size 1/16" to 1/2".

Product Information

Content (inches)

1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16, 13/64, 7/32, 15/64, 1/4, 17/64, 9/32, 19/64, 5/16, 21/64, 11/32, 23/64, 3/8, 25/64, 13/32, 27/64, 7/16, 29/65, 15/32, 31/64 and 1/2



Features

- Rollforged twist drill with best toughness combined with good cutting efficiency for drilling alloyed carbon and plain steel
- Point angle 118

Product Number	Product Name
614005	DRILL SET,HSS,KZ 29

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	29
Size	INCHES

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PUMPS



Various fluids are essential across several machines and systems for cooling, heating, lubrication, and fuel to ensure a vessel's continuous operation. We provide a comprehensive range of air-driven and manually operated pumps, levers, and applicators, including barrel pumps, chemical applicators, and grease pumps, all designed for effective and efficient performance. These products come with relevant accessories and spare parts supported by our global network of service technicians.



Comprehensive range



Compatibility



Efficiency



Easy to use

Browse this section to discover the benefits of our Pumps range.

Scan or click on the QR code for more information.



CHEMICAL PUMP LEVER TYPE

The hand pump is a simple and cost effective method of moving small and medium quantities of liquid from a 200 L barrel, 60 L drum or a 25 L pail (requires an adapter).



Product Information

The pump is easy to mount and use and capable of pumping solvents and chemicals compatible with Viton and PTFE seals. The pumps moves 0.33 L per stroke.

Chemical pump lever type (set of 2 pumps).

Features

- Fast and simple liquid transfer
- Flexible

Benefits

- Cost effective
- Ideal for smaller quantities of liquid
- Low maintenance

Product Number	Product Name
637447	CHEMICAL PUMP LEVER TYPE
Specification	
Invent Hazard Material (IMO/EU) classification	NA
Accessories	
655514	CONNECTION FOR HAND PUMP F/25L PAIL

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

1:1 OIL PUMP W/SPOUT FOR 200L DRUM

Suitable for transfer applications of low viscosity fluids, diesel, non aggressive fluids, short distances without reels. Needle valve for regulating pump speed is included.

Product Information

Designed for quiet and reliable operation and for 200l drums, spout and needle valve for flow control supplied. Wetted materials: steel, zink and aluminium.



Features

- Solid heavy duty design
- Handles most light to medium viscosity fluids

Benefits

- Efficient fluid transfer
- Reliable air operated unit

Product Number	Product Name
778893	1:1 OIL PUMP W/SPOUT FOR 200L DRUM

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	52 Pump tube
Length [mm]	915 Pump tube
Total Length [mm]	1202
Air inlet connection [inch]	1/4 BSP
Air pressure [bar]	10 maximum
Fluid outlet connection [inch]	3/4 BSP
Ratio	1:1
Flow capacity [l/min]	57 maximum

Accessories

191718	600 USH SOCKET 3/4" HOSE
191874	20 UPM PLUG 1/4" MALE BSP.T
191692	40 USH SOCKET 1/2" HOSE
671768	AIR HOSE 1/2", RUBBER, 50 METER COIL
671727	AIR HOSE 3/4", PVC 50 M COIL
750928	600 HIGH FLOW SH LIQUID CONNECTOR

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

1:1 CHEMICAL PUMP SST316 FOR 200L

1:1 chemical pump stainless steel 316 is made up of two main parts: a compressed air operated two-way piston air pump and a double-acting liquid pump.



Product Information

The Unitor 1:1 pump stainless steel 316 is designed to move a broad spectrum of fluids compatible with AISI 316, Viton and PTFE seals. It may NOT be used for other purposes or for pumping gasoline, or other explosive liquids. The unit is designed for 200 L drums; a spout and needle valve for flow control are supplied. Maximum permitted air pressure is 10 bar, this limit should NOT be exceeded.

Features

- Solid heavy duty design
- Easy handling

Benefits

- Efficient fluid transfer
- Reliable air operated unit

Product Number	Product Name
718890	1:1 CHEMICAL PUMP SST316 FOR 200L

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	50 Pump tube
Length [mm]	930 Pump tube
Total Length [mm]	1240
Air inlet connection [inch]	1/4 BSP
Fluid outlet connection [inch]	3/4 BSP
Operating pressure [bar]	10 maximum
Ratio	1:1
Flow capacity [l/min]	30 maximum

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

1:1 CHEMICAL PUMP W/HOSE AND GUN

The Unitor 1:1 chemical pump is ideal for use when applying cleaning chemicals before washing with high pressure or the Unitor Cleaning Jet.



Product Information

This unit has been developed as an easy to use and economical alternative to the 10:1 Hydra Clean and is supplied ready to use with a hose, gun and drum fittings. The unit is designed to be mounted in a 200 L/55Gal drum. With the correct accessories this unit can apply chemicals vertically up to 10 m.

10 meter hose with long reach lance is included with the pump.

Features

- Fits in any standard 200 L drum
- Supplied ready to use
- Pre-lubricated air motor, has no need for an air lubricator

Benefits

- Very low noise emission enables use onboard cruise or passenger vessels

Product Number	Product Name
718700	1:1 CHEMICAL PUMP W/HOSE AND GUN

Specification

Invent Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	1/4"
Diameter [inch]	1/4
Diameter [mm]	50 Pump tube
Length [mm]	930 Pump tube
Total Length [mm]	1240
Air pressure [bar]	10 maximum
Flow rate [l/min]	30

Accessories

659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
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Directions for use

Please note that this unit is not suitable for handling concentrated aggressive and corrosive fluids. For detailed chemical compatibility, please contact WSS Customer Services.

Supplied with 10 meter hose. The hose is resistant for lighter chemicals only. Hose cover: Heat and ozone resistant rubber (EPDM)
Inner tube: Heat resistant rubber (EPDM)
Reinforcement: Synthetic textile Operating temp: -40C -> + 100C Safety factor: 4:1

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PRESIDENT 10:1, HYDRA CLEAN.

The Unitor 10:1 Hydra-Clean chemical pump is ideal for a majority of fluid handling tasks onboard. Delivered ready to use and includes strainer, hoses, spray gun and nozzle. Pumps are designed to be mounted on an open 200L/55GAL drum by use of a mounting bracket, and flexible suction hose also allows for other installations.



Product Information

With correct accessories this unit can apply chemicals vertically up to 12m. Ideal for applying chemicals and detergents onto surface, washing down, general transfer of fluids and chemical injection into pressurised systems, e.g tank cleaning systems.

Features

- Supplied ready for use including lubricator, hoses, spray gun and nozzle
- Stainless steel construction (AISI 304) with chemical resistant packings
- Can be used with cold or hot water up to 95 degrees Celsius
- Typical fluids handled: cold water, hot water (up to 95 deg C.), detergent solutions, chemical solutions

Benefits

- Fits all open head universal drums
- Air driven motor

Product Number

625293

Product Name

PRESIDENT 10:1, HYDRA CLEAN.

Specification

Invert Hazard Material (IMO/EU) classification	NA
Connection [Size/ Type]	3/8" NPT (f) gun inlet
Air consumption [m ³ /min]	1.4
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	7.5 maximum
Connection [inch]	3/8
Flow rate [l/min]	11.4
Fluid outlet connection [inch]	3/8 after filter
Operating pressure [bar]	75 maximum

Supplied with

Air lubricator	1 pc
Flexible suction hose	1 pc
Fluid intake filter	1 pc
Spray gun, nozzle and hose	1 pc
Fluid accumulator	1 pc
Pump mounting bracket	1 pc

Accessories

659151	EXTENDABLE LANCE 5.5M W/OUT NOZZLE
625294	HYDRACLEAN PRESIDENT 10:1/FITTING NIPPLE/3/8NPTX3/8BSPP

Directions for use

Please note that this unit is not suitable for handling concentrated aggressive and corrosive fluids. For detailed chemical compatibility, please contact WSS Customer Services.

Application areas

- Applying chemicals and detergent onto surface
- Washing down
- General transfer of fluids
- Injection of chemicals into pressurised system, e.g. tank cleaning systems

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DBL DIAPHRAGM PUMP 1050 POLY

The polypropylene diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive fluids, making this product very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your fluid handling needs.



Product Information

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, stainless steel fluid sections.

20% increase in fluid flow compared to the Husky 1040

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
777992	DBL DIAPHRAGM PUMP 1050 POLY

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	3.2 maximum
Height [mm] x Length [mm] x Width [mm]	406 x 452 x 258
Weight [kg]	8.2
Air consumption [m ³ /min]	1.9 maximum
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	1.4 - 8.6 working range
Fluid inlet and outlet size [inch]	1" raised face ANSI/DIN flange
Operating fluid pressure [bar]	8.6 maximum
Suction lift [m]	8.8
Flow capacity [l/min]	189 l/min maximum
Pump Speed [cpm]	280 maximum

Accessories

778170	SEAT FOR 1050 ALU AND POLY
778173	SST SEAT FOR 1050 ALU, POLY AND SST
191890	40 UPM PLUG 1/2" MALE BSP.T
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778167	HYTREL SEAT FOR 1050 ALU
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
618595	SUCTION HOSE 1 IN 5 MTR
634843	HOSE FLANGES SET FOR 1050 POLY

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DBL DIAPHRAGM PUMP 1050 S.S.

The stainless steel diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive fluids making this product very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your fluid handling needs.



Product Information

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, PVDF, stainless steel fluid sections.

20% increase in fluid flow compared to the Husky 1040.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
777991	DBL DIAPHRAGM PUMP 1050 S.S.

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	3.2 maximum
Height [mm] x Length [mm] x Width [mm]	353 x 348 x 258
Weight [kg]	16.9
Air consumption [m ³ /min]	1.9 maximum
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	1.4 - 8.6 working range
Fluid inlet and outlet size [inch]	1
Operating fluid pressure [bar]	8.6 maximum
Suction lift [m]	8.8
Flow capacity [l/min]	189 maximum
Pump Speed [cpm]	280 maximum

Accessories

778170	SEAT FOR 1050 ALU AND POLY
778173	SST SEAT FOR 1050 ALU, POLY AND SST
191890	40 UPM PLUG 1/2" MALE BSP.T
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778168	ACETAL BALL FOR 1050 ALU & POLY
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
618595	SUCTION HOSE 1 IN 5 MTR
778169	HYTREL DIAP KIT FOR 1050 ALU & POLY

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DBL DIAPHRAGM PUMP 1050 ALU

The 1" diaphragm pump is built with the highest quality precision parts. Long lasting even when used with abrasive fluids making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to fluid handling needs.



Product Information

The 1 inch (25.4 mm) Husky 1050 double diaphragm pump features a stall-free, low pulsation air valve which provides a smooth and rapid changeover. Available in aluminum, polypropylene, conductive polypropylene, PVDF, stainless steel fluid sections. Ideal for spill response (SOPEP pump) and all types of transfer applications incl. bilges

20% increase in fluid flow compared to the Husky 1040.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
777990	DBL DIAPHRAGM PUMP 1050 ALU

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	3.2 maximum
Height [mm] x Length [mm] x Width [mm]	373 x 323 x 258
Weight [kg]	10.5
Air consumption [m³/min]	1.9 maximum
Air inlet connection [inch]	1/2
Air pressure [bar]	1.4 - 8.6 working range
Fluid inlet and outlet size [inch]	1
Operating fluid pressure [bar]	8.6 maximum
Suction lift [m]	8.8
Flow capacity [l/min]	189 maximum
Pump Speed [cpm]	280 maximum

Accessories

778170	SEAT FOR 1050 ALU AND POLY
778173	SST SEAT FOR 1050 ALU, POLY AND SST
191890	40 UPM PLUG 1/2" MALE BSP.T
778171	TEFLON BALL FOR 1050 ALU, POLY, SST
778168	ACETAL BALL FOR 1050 ALU & POLY
729461	HOSE NIPPLES F. 1050 AND 1040 PUMPS
618595	SUCTION HOSE 1 IN 5 MTR
778169	HYTREL DIAP KIT FOR 1050 ALU & POLY

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 2150 ALU

The 2" diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive fluids, making this pump very cost effective. Chosen by professionals for it's easy, hands-off solution to fluid handling needs.



Product Information

This is the highest capacity 2-inch double diaphragm pump in its price class. With all the same durable features of the smaller model, the 2150 has 2 in. npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 2150 has an air valve system that is 100% serviceable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 1/4 in (6.3 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
604926	DOUBLE DIAPHRAGM PUMP 2150 ALU

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	6.3 maximum
Height [mm] x Length [mm] x Width [mm]	585 x 443 x 318
Weight [kg]	26.3
Air consumption [m³/min]	4.9 maximum
Air inlet connection [inch]	1/2
Air pressure [bar]	1.4 - 8.4 working range
Fluid inlet and outlet size [inch]	2
Operating fluid pressure [bar]	8.4 maximum
Suction lift [m]	5.48
Flow capacity [l/min]	568 maximum
Pump Speed [cpm]	145 maximum

Accessories

607835	FLUID KIT F/MOD 2150 ALUM
671768	AIR HOSE 1/2", RUBBER, 50 METER COIL
191890	40 UPM PLUG 1/2" MALE BSP.T
607834	AIR VALVE SEAL KIT
607817	SUCTION HOSE 2 IN 5 MTR
729463	HOSE NIPPLES FOR 2150 PUMP
191692	40 USH SOCKET 1/2" HOSE

Directions for use

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High flow design with complete range of diaphragm options
- Rugged construction for long, trouble free performance Ideal for spill response (SOPEP pump) and all types of transfer applications incl. bilges

Typical fluids handled by this pump:

- Oil: Light oil, gear oil, mineral oil
- Fuel: Diesel, leaded petrol/gasoline, fuel oil
- Other: Seawater/brine, general waste water, white spirit, alcohol.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 2150 S.S.

The diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive fluids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your fluid handling needs.



Product Information

This is the highest capacity 2-inch double diaphragm pump in its price class. With all the same durable features of the smaller model, the 2150 has 2 in. npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 2150 has an air valve system that is 100% serviceable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 1/4 in (6.3 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
607747	DOUBLE DIAPHRAGM PUMP 2150 S.S.

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	6.3 maximum
Height [mm] x Length [mm] x Width [mm]	585 x 443 x 318
Weight [kg]	57.6
Air consumption [m ³ /min]	4.9 maximum
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	1.4 to 8.4 bar working range
Fluid inlet and outlet size [inch]	2
Operating fluid pressure [bar]	8.4 maximum
Operating temperature [°C]	4 - 104 range
Suction lift [m]	5.48
Flow capacity [l/min]	568 maximum
Pump Speed [cpm]	145 maximum

Accessories

607834	AIR VALVE REP KIT
607817	SUCTION HOSE 2 IN 5 MTR
729463	HOSE NIPPLES FOR 2150 PUMP
618884	FLUID KIT FOR SST 2150

Directions for use

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High flow design with complete range of diaphragm options
- Rugged construction for long, trouble free performance
- Ideal for spill response and all types of transfer applications

Typical fluids handled by this pump:

- Acids: Nitric, Cresyllic Bleach, Perchloroethylene,
- Base: Caustic soda, Sodium hydroxide (<12%), Ammonia (except ammonium), Potassium hydroxide.
- Thinners: Alcohol, Tri, Ketones, Acetone, Dichlorobenzene, Toluene.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 307 POLY

Designed to operate at low air pressure while delivering a smooth, reliable flow. Model 307 pumps are ideal for transferring a wide variety of fluids.



Product Information

This pump is designed to operate at low air pressure while delivering a smooth, reliable flow. Model 307 pumps are ideal for transferring a wide variety of fluids. The air motor body is constructed of polypropylene and stainless steel to resist external corrosion. This polypropylene wetted construction model is with Teflon diaphragms and ball checks, suitable for most chemicals including acids and caustic fluids.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number

604918

Product Name

DOUBLE DIAPHRAGM PUMP 307 POLY

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	1.6 maximum
Suction height	3.7
Height [mm] x Length [mm] x Width [mm]	206 x 203 x 135
Weight [kg]	2.2
Air consumption [m ³ /min]	0.156 maximum
Air inlet connection [inch]	1/4 NPT
Air pressure [bar]	1.4 - 7 working range
Fluid inlet connection [inch]	3/8 NPT
Operating fluid pressure [bar]	7 maximum
Operating temperature [°C]	4.4 - 65.5 range
Suction lift [m]	3.7 maximum
Flow capacity [l/min]	24.6 maximum
Pump Speed [cpm]	330 maximum

Accessories

191874	20 UPM PLUG 1/4" MALE BSP.T
671750	AIR HOSE 3/8", RUBBER (50 MTR. COIL)
607832	FLUID SECTION REPAIR KIT F/MOD. 307
607833	AIR VALVE KIT
607830	STAINLESS NIPPLE F/307
191684	30 USH SOCKET 3/8" HOSE

Directions for use

Typical applications

- Sampling and testing
- Drum transfer for fluids up to 1000 centipoise
- Circulation of low viscosity inks, detergents and chemicals
- Fluid circulation and evacuation
- Waste fluid removal
- On-demand batch chemical metering
- Low viscosity adhesive supply
- Consistent low pressure process fluid supply

Typical fluids handled by this pump:

- Acids: Hydrochloric Sulphuric, Phosphoric
- Bleach: Sodium Hypochlorite (<12%)
- Base: Sodium Hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 515 POLY

Designed to operate at low air pressure while delivering a smooth, reliable flow. Model 515 pumps are ideal for transferring a wide variety of fluids.

Product Information

Both models Husky 515 and 716 are based on the same air motor and fluid section, the only difference being the inlet and outlet connections. The 515 has 1/2" suction and discharge ports where the 716 has 3/4" suction and discharge ports. The pumps are well suited for a variety of utility duties requiring up to 60 lpm (15 Gal/min) with light to medium viscosity fluids. The polypropylene or stainless steel body make them ideal for handling chemicals, cleaning fluids and for water treatment applications. The 515/716 are small, easy to carry, and together with the drum suction kit (fits both 515/716 models) they are ideal to mount on top of a 60 (16 gal) or 200 l (55 gal) pail. Both models are fitted with Teflon and stainless steel diaphragms/balls/seats for maximum chemical compatibility, including acids and caustics.



Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
634787	DOUBLE DIAPHRAGM PUMP 515 POLY

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	2.5 maximum
Suction height	7.6
Height [mm] x Length [mm] x Width [mm]	270 x 246 x 159
Weight [kg]	2.9
Air consumption [m³/min]	0.672 maximum
Air inlet connection [inch]	1/4 NPT
Air pressure [bar]	2.1 - 7 working range
Fluid inlet and outlet size [inch]	1/2
Operating fluid pressure [bar]	7 maximum
Operating temperature [°C]	4 - 66 range
Suction lift [m]	7.6
Flow capacity [l/min]	57 maximum
Pump Speed [cpm]	400 maximum

Accessories

634811	AIR VALVE REP KIT
634795	SERVICE KIT F. 515/716
729459	HOSE NIPPLES FOR 515 PUMP
634819	DRUM SUCT. KIT F.515/716

Directions for use

Typical applications

- Sampling and testing
- General purpose
- Handles acids and caustics
- Medium abrasion resistance
- Not recommended for strong thinners
- Drum transfer of low to medium viscosity fluids
- Fluid circulation and evacuation

Typical fluids handled by this pump:

- Acids: Hydrochloric, Sulphuric, Phosphoric
- Bleach: Sodium hypochlorite (<12%)
- Base: Sodium hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide
- Thinners: Alcohol, Tri, Ketones, Acetone, Dichlorobenzene, Toluene

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 716 S.S.

Designed to operate at low air pressure while delivering a smooth, reliable flow. Model 716 is a durable pump in stainless steel, ideal for transferring a wide variety of fluids.



Product Information

Both models Husky 515 and 716 are based on the same air motor and fluid section, the only difference being the inlet and outlet connections. The 515 has 1/2" suction and discharge ports where the 716 has 3/4" suction and discharge ports. The pumps are well suited for a variety of utility duties requiring up to 60 lpm (15 gal/min) with light to medium viscosity fluids. The polypropylene or stainless steel body make them ideal for handling chemicals, cleaning fluids and for water treatment applications. The 515/716 are small, easy to carry, and together with the drum suction kit (fits both 515/716 models) they are ideal to mount on top of a 60 (16 gal) or 200 l (55 gal) pail. Both models are fitted with Teflon and stainless steel diaphragms/balls/seats for maximum chemical compatibility, including acids and caustics.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 0.09 in. (2.29 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number

634803

Product Name

DOUBLE DIAPHRAGM PUMP 716 S.S.

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	2.5
Height [mm] x Length [mm] x Width [mm]	265 x 221 x 153
Weight [kg]	8.2
Air consumption [m ³ /min]	0.672 maximum
Air inlet connection [inch]	1/4 NPT
Air pressure [bar]	2.1 - 7 bar working
Fluid inlet and outlet size [inch]	3/4
Operating fluid pressure [bar]	7 maximum
Operating temperature [°C]	4 - 107 range
Suction lift [m]	7.6
Flow capacity [l/min]	61 maximum
Pump Speed [cpm]	400 maximum

Accessories

634811	AIR VALVE REP KIT
634795	SERVICE KIT F. 515/716
634819	DRUM SUCT. KIT F.515/716
729460	HOSE NIPPLES 3/4" NPT X 3/4 HOSE

Directions for use

Typical applications

- Sampling and testing
- General purpose
- Excellent abrasion resistance
- Handles acids and caustics
- Good with thinners
- Drum transfer of low to medium viscosity fluids
- Fluid circulation and evacuation

Typical fluids handled by this pump:

- Acids: Nitric, Cresylic
- Bleach: Perchloroethylene,
- Base: Caustic soda, Sodium hydroxide (<12%), Ammonia (except Ammonium), Potassium hydroxide
- Thinners: Alcohol, Tri, Ketones, Acetone, Dichlorobenzene, Toluene

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 1590 ALUMIN

The diaphragm pump is built with the highest quality precision parts. Long lasting, even when used with abrasive fluids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your fluid handling needs.



Product Information

This is the highest capacity double diaphragm pump in its price class. With all the same durable features of the smaller model, the 1590 has 1.5" npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 1590 has an air valve system that is 100% serviceable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 3/16 in (4.8 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
718635	DOUBLE DIAPHRAGM PUMP 1590 ALUMIN

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	4.8 maximum
Height [mm] x Length [mm] x Width [mm]	445 x 554 x 265
Weight [kg]	15.2
Air consumption [m ³ /min]	3.5 maximum
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	1.4 - 8.4 working range
Fluid inlet and outlet size [inch]	1-1/2
Operating fluid pressure [bar]	8.4 maximum
Operating temperature [°C]	4 - 65.5 maximum
Suction lift [m]	5.48
Flow capacity [l/min]	378 maximum
Pump Speed [cpm]	200 maximum

Accessories

729462	HOSE NIPPLES FOR 1590 PUMP
742916	SUCTION HOSE FOR 1590

Directions for use

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High flow design with complete range of diaphragm options
- Rugged construction for long, trouble free performance
- Ideal for spill response and all types of transfer applications

Typical fluids handled by this pump:

- Oil: Light oil, gear oil, mineral oil
- Fuel: Diesel, leaded petrol/gasoline, fuel oil
- Other: Seawater/brine, general waste water, white spirit, alcohol

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

DOUBLE DIAPHRAGM PUMP 1590 POLY

The diaphragm pump is built with the highest quality precision parts. It combines low weight with long lasting, even when used with abrasive fluids, making this pump very cost effective. Professionals turn to this pump because it offers an easy, hands-off solution to your fluid handling needs.



Product Information

This is the highest capacity double diaphragm pump in its price class. With all the same durable features of the smaller model, the 1590 has 1,5" npt ports that can take on the heavier, more viscous materials and pump them faster with greater tolerance for suspended solids. Model 1590 has an air valve system that is 100% serviceable without disassembly of the wetted parts, saving valuable maintenance time. This pump requires no air line lubrication, which also saves money.

Features

- Easy maintenance
- Fluid compatibility
- Unique, patented air valves
- Precision-fitted parts

Benefits

- Quick priming and immediate flow of product
- Handles fluid viscosities up to 5000 cps and solids up to 3/16 in (4,8 mm)
- Excellent for abrasive, low-to-medium viscosity fluids and shear sensitive materials

Product Number	Product Name
718643	DOUBLE DIAPHRAGM PUMP 1590 POLY

Specification

Invert Hazard Material (IMO/EU) classification	NA
Pumpable solid size [mm]	4.8 maximum
Height [mm] x Length [mm] x Width [mm]	445 x 554 x 265
Weight [kg]	16
Air consumption [m ³ /min]	3.5 maximum
Air inlet connection [inch]	1/2 NPT
Air pressure [bar]	1.4 - 8.4 working range
Fluid inlet and outlet size [inch]	1-1/2
Operating fluid pressure [bar]	8.4 maximum
Operating temperature [°C]	4 - 65.5 maximum
Suction lift [m]	5.48
Flow capacity [l/min]	378 maximum
Pump Speed [cpm]	200 maximum

Accessories

729462	HOSE NIPPLES FOR 1590 PUMP
718650	HOSE FLANGES SET FOR 1590 POLY
742916	SUCTION HOSE FOR 1590

Directions for use

- Highest reliability air valves for no stall operation
- No Lube air valves reduce routine maintenance
- High flow design with complete range of diaphragm options
- Rugged construction for long, trouble free performance
- Ideal for spill response and all types of transfer applications

Typical fluids handled by this pump:

- Acids: Hydrochloric sulphuric, Phosphoric
- Bleach: Sodium hypochlorite (<12%)
- Base: Sodium hydroxide, Ammonia, Hydrogen peroxide, Potassium hydroxide

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PORTABLE GREASER FOR 20KG DRUM

The 60:1 features a unique air motor that enables quiet and reliable operation as well as easy maintenance.

The pump is recommended for mobile units and piped installations of moderate length, and are designed to dispense greases up to NLGI 3.



Product Information

The air operated pump has two main parts. One double acting air motor driving and a single acting high pressure pump mechanism. The grease is fed into the pump tube by the piston on the upward stroke and is pushed out through the check valve on the down stroke. The relationship between the areas of the air piston and the pump piston decides the pressure ratio. The pressure ratio is 60:1 and the theoretical static pressure when the pump has stopped is 60 times higher than the air pressure.

The pump is mainly made of an extruded aluminum profile with die-cast aluminum/magnesium alloy top and bottom covers. A stainless steel cover protects the air motor. The 4 meter 3/8" hose has an inner tube of synthetic oil resistant layer. Outer layer is made of durable weather and oil resistant rubber. Reinforced by two braids of compact steel wire.

Features

- Robust carrying handle which connects directly
- The fluid section features a double-acting piston design
- New pump design
- Reduced weight

Benefits

- Easy to carry around and when walking
- Even and steady flow of grease
- 30% increase in performance
- 30% weight reduction

Product Number	Product Name
666615	PORTABLE GREASER FOR 20KG DRUM

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	30 Pump tube
Length [mm]	450 Pump tube
Weight [kg]	4.6
Air inlet connection [inch]	1/4
Air pressure [bar]	10 maximum
Fluid outlet connection [inch]	3/8
Ratio	60:1

Accessories

655639	HOSE FLEXIBLE FOR GREASEGUN 45CM
655621	UNION 1/4" MALE X 1/4" MALE
655605	GREASE HOSE 1/4", 6M
655548	GREASE GUN

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

MOBILE GREASER FOR 50-60KG DRUMS

The 60:1 features a unique air motor that enables quiet and reliable operation as well as easy maintenance.

The pump is recommended for mobile units and piped installations of moderate length, and are designed to dispense greases up to NLGI 3.

Product Information

The air operated pump has two main parts. One double acting air motor driving and a single acting high pressure pump mechanism. The grease is fed into the pump tube by the piston on the upward stroke and is pushed out through the check valve on the down stroke. The relationship between the areas of the air piston and the pump piston decides the pressure ratio. The pressure ratio is 60:1 and the theoretical static pressure when the pump has stopped is 60 times higher than the air pressure.



The pump package includes a 2" bunge adapter for mounting the pump on top of the drum cover as well as a hose and applicator gun. The 50 kg unit is, in addition, supplied with a trolley for easy transport of the heavy grease drums.

The 4 meter 3/8" hose has an inner tube of synthetic oil resistant layer. Outer layer is made of durable weather and oil resistant rubber. Reinforced by two braids of compact steel wire.

Features

- Includes handy trolley easy to maneuver
- The fluid section features a double-acting piston design
- New pump design
- Reduced weight

Benefits

- Fast grease transfer, saving time
- Fits several sized drums
- Even and steady flow of grease
- 30% increase in performance
- 30% weight reduction

Product Number	Product Name
711715	MOBILE GREASER FOR 50-60KG DRUMS

Specification

Invent Hazard Material (IMO/EU) classification	NA
Diameter [mm]	30 Pump tube
Length [mm]	750 Pump tube
Weight [kg]	4.6
Air inlet connection [inch]	1/4
Air pressure [bar]	10 maximum
Ratio	60:1

Accessories

655639	HOSE FLEXIBLE FOR GREASEGUN 45CM
655621	UNION 1/4" MALE X 1/4" MALE
655605	GREASE HOSE 1/4", 6M
655548	GREASE GUN

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ROPES



High quality ropes are essential in mooring operations. Our Timm ropes enable safe and efficient mooring operations for vessels all around the world. Explore this section to find out more about our high-quality and high-performance ropes.



Snap Back Arrestor (SBA™) safety feature



Tested and proven in real life situation



Regulatory compliance



Global network and availability

Integrated Mooring Solutions

Achieve and maintain compliance through our total mooring solution consisting of rope products, technical services, and digital innovation.

Line Management Plan

LMP™ by Wilhelmsen is an easy-to-use digital line management plan suitable for all ropes types. This application is designed for vessels and onshore teams to streamline rope lifecycle management and document mooring equipment inspection and maintenance records.

Advanced Mooring Ropes

Our Timm Snap Back Arrestor (SBA™) is the world's first SBA rope to receive the Technology Certification from DNV.

Browse this section to discover the benefits of our Mooring Ropes range.

Scan or click on the QR code for more information.





TIMM MASTER 8

Timm Master 8 is one of the bestselling mixed polymer ropes. A cost efficient, reliable, flexible, and tough mooring rope suitable for all ship types. All Timm Master 8 ropes are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, and Intertanko.



Product Information

Our most recognized product to date, long admired as a premium, mixed polymer rope solution. Timm Master 8 is a flexible and easily handled product made from our Timm Signal B5 polyolefin yarn and high tenacity polyester and has long been admired as a premium, mixed polymer mooring rope.

Master ropes offers a low cost of ownership, very good abrasion properties, excellent UV resistance, are floating and has good elongation properties. Timm Master 8 are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, Intertanko.

Features

- 8-strand braided construction
- Floating
- UV stabilised

Benefits

- Excellent strength-to-weight ratio
- High abrasion resistance
- Type approval from DNV
- Meets all OCIMF requirements

Specification

Product Name	TIMM MASTER 8
Material type and grade	Mixed polyolefins (B5 yarn) and HT PES
Colour	White with 3 black marking yarns
Construction	8-strand braided rope
Density [kg/m³]	0.99
Elongation [%]	18% at break
Eyes	1.8m protected eyes (PES)
Line Construction	8-strand braided
Melting point	165°C
Splice type and design	Tuck (2S-2Z)x5

Product Number	Product Name	Diameter [mm]	Length [m]	MBL Spliced [kN]	MBL Unspliced [kN]
410047	TIMM MASTER 8 36MM 220M WHITE 2X1,8M EYE	36	220	256	285
410051	TIMM MASTER 8 40MM 220M WHITE 2X1,8M EYE	40	220	315	350
410055	TIMM MASTER 8 44MM 220M WHITE 2X1,8M EYE	44	220	380	423
410059	TIMM MASTER 8 48MM 220M WHITE 2X1,8M EYE	48	220	451	501
410063	TIMM MASTER 8 50MM 220M WHITE 2X1,8M EYE	50	220	489	543
410067	TIMM MASTER 8 52MM 220M WHITE 2X1,8M EYE	52	220	528	587
410075	TIMM MASTER 8 54MM 220M WHITE 2X1,8M EYE	54	220	569	632
410079	TIMM MASTER 8 56MM 220M WHITE 2X1,8M EYE	56	220	611	679
410083	TIMM MASTER 8 60MM 220M WHITE 2X1,8M EYE	60	220	699	777
410091	TIMM MASTER 8 62MM 220M WHITE 2X1,8M EYE	62	220	746	829
410095	TIMM MASTER 8 64MM 220M WHITE 2X1,8M EYE	64	220	794	882
410099	TIMM MASTER 8 68MM 220M WHITE 2X1,8M EYE	68	220	894	994
410107	TIMM MASTER 8 72MM 220M WHITE 2X1,8M EYE	72	220	1001	1112
410111	TIMM MASTER 8 76MM 220M WHITE 2X1,8M EYE	76	220	1113	1237
410115	TIMM MASTER 8 78MM 220M WHITE 2X1,8M EYE	78	220	1171	1301
410119	TIMM MASTER 8 80MM 220M WHITE 2X1,8M EYE	80	220	1231	1368

Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4. Minimum

Breaking Load (MBL) is according to ISO 10556 and verified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM MASTER 12 SBA™

The safest conventional mooring rope on the market, Timm Master 12 SBA™ reduces dangerous snap backs by utilizing the Timm Snap Back Arrestor (SBA™) technology developed and brought to market by Timm in 2019. All Timm Master 12 SBA™ ropes are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, Intertanko, and are eligible for incentives in specific terminals.



Product Information

Timm Master 12 SBA are the safest conventional mooring ropes in the world, thanks to the integrated SBA™ (Snap Back Arrestor). In November 2022, DNV awarded Timm's Snap Back Arrestor a statement of qualified technology, following the successful completion of an extensive test program, performed in accordance with DNV's recommended practice A203. This is the first and only anti snap back rope in the world to receive this qualification.

As a result of the construction and the rope having high tenacity polyester in the outer layer of the strands, Timm Master 12 SBA has excellent abrasion resistance. The color scheme is designed to give a visual anti-twist indicator to easily spot undesirable twists in the rope. Timm Master 12 SBA™ being floating and resistant to UV, with one of the best strength-to-weight ratios on the market, it serves as a lightweight and reliable solution, suitable for all vessel types.

Features

- 12 strand braided construction
- Integrated Snap Back Arrestor (SBA™)
- Anti-twist colour indicator
- Compliant certification
- Floating

Benefits

- Snap Back Arrestor (SBA™) integrated, reducing dangerous snap back and providing the safest possible working conditions for your crew
- Class leading strength-to-weight ratio, providing a better ease of handling
- Anti-twist indicator integrated in the range, helping the crew to eliminate potentially dangerous twists in the ropes
- High abrasion and UV resistance, providing longer service life and lower expected cost of ownership
- Type Approved by DNV
- Meet all OCIMF MEG4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS and Intertanko requirements, ensuring compliancy with regulations

Specification

Product Name	TIMM MASTER 12 SBA™
Material	75% Polyolefin / 25% HT Polyester
Material type and grade	Mixed polyolefins (B5 yarn) and HT PES
Colour	Blue and white anti-twist colour indicators
Construction	12 strand braided rope with SBA in the core
Density [kg/m³]	0.99
Elongation [%]	18% at break
Eyes	1.8m mesh braid protected eyes
Line Construction	12-strand braided
Melting point	165°C

Product Number	Product Name	LDBF [kN] from:	LDBF [kN] up to:	LDBF [mt] from:	LDBF [mt] up to:
411266	TIMM MASTER 12 SBA F25 [36MM] 220M	203	255	20.7	26
411028	TIMM MASTER 12 SBA F30 [40MM] 220M	256	315	26.1	32.1
411032	TIMM MASTER 12 SBA F35 [45MM] 220M	316	397	32.2	40.5
411036	TIMM MASTER 12 SBA F45 [51MM] 220M	398	508	40.6	51.8
411040	TIMM MASTER 12 SBA F55 [55MM] 220M	509	590	51.9	60.2
411044	TIMM MASTER 12 SBA F60 [57MM] 220M	591	632	60.3	64.4
411048	TIMM MASTER 12 SBA F70 [62MM] 220M	633	746	64.5	76.1
411052	TIMM MASTER 12 SBA F80 [67MM] 220M	747	869	76.2	88.6
411056	TIMM MASTER 12 SBA F100 [73MM] 220M	870	1028	88.7	104.8
411223	TIMM MASTER 12 SBA F110 [77MM] 220M	1029	1142	104.9	116.5
411060	TIMM MASTER 12 SBA F120 [81MM] 220M	1143	1261	116.6	128.6

Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4. Minimum

Breaking Load (MBL) is according to ISO 10556 and verified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>



ACERA AMUNDSEN SBA™

Acera Amundsen is our range of HMPE mooring ropes, widely regarded as the safest HMPE mooring ropes available, utilizing the Timm Snap Back Arrestor (SBA™) technology. All Acera Amundsen SBA™ ropes are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, Intertanko, and are eligible for incentives in specific terminals.



Product Information

Acera Amundsen SBA™ is the safest HMPE mooring rope on the market, and reduces dangerous snap back by utilizing the Timm Snap Back Arrestor (SBA™) technology. In November 2022, DNV awarded the Snap Back Arrestor a statement of qualified technology, following the successful completion of an extensive test program, performed in accordance with DNV's recommended practice A203.

This rope is made from genuine Acera™ HMPE yarns, offering superior strength to weight ratio, and exceptional abrasion resistance due to our unique coating process and optimized construction.

Features

- Snap back arrestor, Timm SBA™
- Floating
- Single yarn coating
- Excellent UV resistance
- Acera Supereye protection with y-connection

Benefits

- Snap Back Arrestor (SBA™) integrated, reducing dangerous snap back and providing the safest possible working conditions for your crew.
- Class leading abrasion resistance providing longer service life and lower expected cost of ownership.
- Vessel specific mooring line certificate, ensuring you are compliant with regulations such as OCIMF MEG4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, and Intertanko.
- Single yarn coating process contributing to our excellent abrasion and UV resistance.
- Type approved by DNV and ClassNK
- Acera Supereye integrated

Specification

Product Name	ACERA AMUNDSEN SBA™
Construction	12 strand plaited
Density [kg/m3]	0.97 (floating)
Elongation [%]	2-3% at break
Eyes	Supereye
Melting point	145°C - 150°C
Oil content in fiber	<0.1%

Product Number	Product Name	LDBF [kN] from:	LDBF [kN] up to:	LDBF [mt] from:	LDBF [mt] up to:
411148	ACERA AMUNDSEN SBA S60 [27MM] 220M	506	590	51.6	60.2
411152	ACERA AMUNDSEN SBA S75 [31MM] 220M	591	765	60.3	78
411156	ACERA AMUNDSEN SBA S85 [34MM] 220M	766	882	78.1	89.9
411160	ACERA AMUNDSEN SBA S105 [37MM] 220M	883	1058	90	107.9
411164	ACERA AMUNDSEN SBA S125 [42MM] 220M	1059	1274	108	129.9
411168	ACERA AMUNDSEN SBA S145 [45MM] 220M	1275	1437	130	146.5



Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV and ClassNK. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4.

The Snap Back Arrestor (SBA™) technology is qualified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ACERA DAGAMA SBA™

Acera daGama SBA™ is a range of jacketed HMPE mooring ropes widely regarded as the safest mooring ropes available, utilizing the Timm Snap Back Arrestor (SBA™) technology. All Acera daGama SBA™ ropes are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, Intertanko, and are eligible for incentives in specific terminals.



Product Information

Acera daGama SBA™ is the safest jacketed HMPE mooring rope on the market, and reduces dangerous snap back by utilizing the Timm Snap Back Arrestor (SBA™) technology. In November 2022, DNV awarded the Snap Back Arrestor a statement of qualified technology, following the successful completion of an extensive test program, performed in accordance with DNV's recommended practice A203.

This rope is made from genuine Acera™ HMPE yarns, offering superior strength to weight ratio, and exceptional abrasion resistance due to our unique coating process and optimized construction. The daGama further improves the resilience of the rope by adding a polyester/HMPE cover to protect the rope from external abrasion.

Due to its compactness, Acera daGama is a preferred option for single drum winches, and the integrated sand filter makes it an ideal solution for ports and operations where dirt and particles can harm the rope.

Features

- Snap back arrestor, Timm SBA™
- Floating
- Sand filter - protecting the rope core against particle ingress
- Single yarn coating
- Excellent UV resistance
- Acera Supereye protection with y-connection

Benefits

- Snap Back Arrestor (SBA™) integrated, reducing dangerous snap back and providing the safest possible working conditions for your crew.
- Sand filter integrated, protecting the ropes from dangerous particles and iron ore penetrating and possibly damaging the ropes.
- Vessel specific mooring line certificate, ensuring you are compliant with regulations such as OCIMF MEG4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, and Intertanko.
- Single yarn coating process contributing to our excellent abrasion and UV resistance.
- Type approved by DNV and ClassNK
- Acera Supereye integrated

Specification

Product Name	ACERA DAGAMA SBA™
Colour	White cover with 3 black marking yarns
Construction	12-strand braided core, braided cover
Elongation [%]	2-3% at break
Eyes	1.8m Supereye
Melting point	145°C - 150°C
Oil content in fiber	<0.1%

Product Number	Product Name	LDBF [kN] from	LDBF [kN] up to:	LDBF [mt] from:	LDBF [mt] up to:
411182	ACERA DAGAMA SBA S60 [27MM/32MM] 220M	506	590	51.6	60.2
411186	ACERA DAGAMA SBA S75 [31MM/36MM] 220M	591	765	60.3	78
411190	ACERA DAGAMA SBA S85 [34MM/38MM] 220M	766	882	78.1	89.9
411194	ACERA DAGAMA SBA S105 [37MM/42MM] 220M	883	1058	90	107.9
411198	ACERA DAGAMA SBA S125 [42MM/49MM] 220M	1059	1274	108	129.9
411202	ACERA DAGAMA SBA S145 [45MM/52MM] 220M	1275	1437	130	146.5

Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV and ClassNK. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4.

The Snap Back Arrestor (SBA™) technology is qualified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM MASTER 8 TAIL

Timm Master 8 Tail is one of the bestselling mixed polymer ropes. A cost efficient, reliable, flexible, and tough mooring rope suitable for all ship types. All Timm Master 8 ropes are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, and Intertanko.



Product Information

Timm Master 8 Tails has been part of our portfolio for many years and are trusted as cost effective and reliable rope stretchers that are compliant with all regulations and is a good supplement to any HMPE mooring arrangement. Timm Master 8 Tails are made from a combination of high tenacity polyester and B5 polyolefin yarns, and effectively absorbs shock/energy in mooring systems, have excellent UV resistance, are floating and have good elongation properties.

Features

- Protected eyes
- Floating
- High elongation

Benefits

- 15-20% lighter than PES and nylon tails
- Excellent abrasion and UV resistance
- Smooth and grippable surface
- Meets all OCIMF requirements

Specification

Product Name	TIMM MASTER 8 TAIL
Material type and grade	Mixed polyolefins (B5 yarn) and HT PES
Colour	White with 3 black marking yarns
Construction	8-strand braided
Density [kg/m³]	0.99
Line Construction	8-strand braided
Melting point	165°C

Product Number	Product Name	Diameter [mm]	Length [m]	TDBF [kN]
410692	TIMM MASTER 8 TAIL 54MM 11M WHITE 2X2.0M EYE	54	11	569
410127	TIMM MASTER 8 TAIL 56MM 11M WHITE 2X2.0M EYE	56	11	611
410135	TIMM MASTER 8 TAIL 60MM 11M WHITE 2X2.0M EYE	60	11	699
410139	TIMM MASTER 8 TAIL 64MM 11M WHITE 2X2.0M EYE	64	11	794
410147	TIMM MASTER 8 TAIL 68MM 11M WHITE 2X2.0M EYE	68	11	894
410159	TIMM MASTER 8 TAIL 72MM 11M WHITE 2X2.0M EYE	72	11	1001
411243	TIMM MASTER 8 TAIL 74MM 11M WHITE 2X2.0M EYE	74	11	1056
410167	TIMM MASTER 8 TAIL 76MM 11M WHITE 2X2.0M EYE	76	11	1113
410175	TIMM MASTER 8 TAIL 80MM 11M WHITE 2X2.0M EYE	80	11	1231
410183	TIMM MASTER 8 TAIL 84MM 11M WHITE 2X2.0M EYE	84	11	1355
410940	TIMM MASTER 8 TAIL 86MM 11M WHITE 2X2.0M EYE	86	11	1419
410187	TIMM MASTER 8 TAIL 88MM 11M WHITE 2X2.0M EYE	88	11	1485
410944	TIMM MASTER 8 TAIL 90MM 11M WHITE 2X2.0M EYE	90	11	1552
410952	TIMM MASTER 8 TAIL 92MM 11M WHITE 2X2.0M EYE	92	11	1620
411096	TIMM MASTER 8 TAIL 94MM 11M WHITE 2X2.0M EYE	94	11	1690
410956	TIMM MASTER 8 TAIL 96MM 11M WHITE 2X2.0M EYE	96	11	1761
410968	TIMM MASTER 8 TAIL 102MM 11M WHITE 2X2.0M EYE	102	11	1984

ROPEs

Rope Stretchers
Timm Master 8 Tail



Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4. Minimum Breaking

Load (MLB) is according to ISO 10556 and verified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM FLEX 8 TAIL

Timm Flex 8 Tail is our updated range of 8-strand Polyamide (often referred to as nylon) tails, designed for special applications that require higher elongation properties. Timm Flex 8 Tails are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, and Intertanko.



Product Information

The new and improved range of Timm Flex 8 Tails was introduced in 2023. Timm Flex 8 Tails are specially designed for special applications that require higher elongation properties. With optimized construction, we can now deliver improved strength-to-weight ratio. Timm Flex 8 Tails have excellent abrasion and UV resistance – providing a durable mooring solution and acting as an absorber for sudden energy changes. As per OCIMF MEG4, the stated TDBF refers to the strength of a spliced tail in wet condition.

Features

- High elongation, making the product ideal for specific applications.
- 100% high tenacity polyamide fibers (often referred to as nylon), meeting requirements from terminals that require polyamide tails.
- Protected eyes, ensuring an optimal utilization of service life.
- Smooth handling surface, optimizing the working conditions for the crew.
- Excellent abrasion resistance.
- Excellent UV resistance

Specification

Product Name	TIMM FLEX 8 TAIL
Colour	White
Construction	8-strand braided
Density [kg/m³]	Approx. 1.14
Elongation [%]	40% at break
Eyes	1.8M protected eyes
Melting point	250°C

Product Number	Product Name	Diameter [mm]	Length [m]	TDBF [kN]
412760	TIMM FLEX 8 90MM 11M 2x1.8M EYE	90	11	1500
412764	TIMM FLEX 8 90MM 22M 2x1.8M EYE	90	22	1500
412768	TIMM FLEX 8 94MM 11M 2x1.8M EYE	94	11	1569
412772	TIMM FLEX 8 94MM 22M 2x1.8M EYE	94	22	1569
412776	TIMM FLEX 8 96MM 11M 2x1.8M EYE	96	11	1638
412780	TIMM FLEX 8 96MM 22M 2x1.8M EYE	96	22	1638
412784	TIMM FLEX 8 98MM 11M 2x1.8M EYE	98	11	1706
412788	TIMM FLEX 8 98MM 22M 2x1.8M EYE	98	22	1706
412792	TIMM FLEX 8 102MM 11M 2x1.8M EYE	102	11	1785
412796	TIMM FLEX 8 102MM 22M 2x1.8M EYE	102	22	1785

Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Product is made according to ISO 1140.

Tested acc. to => ISO 2307, CI 1500A, DN-VGL-CP-0100

Manufactured acc. to => ISO 1140, ISO 9554

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM MASTER 12 SBA™ TAIL

The safest mooring tail on the market, Timm Master 12 SBA™ Tail reduces dangerous snap backs by utilizing the Timm Snap Back Arrestor (SBA™) technology developed and brought to market by Timm in 2019. All Timm Master 12 SBA™ tails are compliant with OCIMF MEG 4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS, Intertanko, and are eligible for incentives in specific terminals.



Product Information

Timm Master 12 SBA are the safest mooring tails in the world, thanks to the integrated SBA™ (Snap Back Arrestor). In November 2022, DNV awarded Timm's Snap Back Arrestor a statement of qualified technology, following the successful completion of an extensive test program, performed in accordance with DNV's recommended practice A203. This is the first and only anti snap back rope in the world to receive this qualification.

Timm Master 12 SBA™ Tails are made from a combination of high tenacity polyester and B5 polyolefin yarns, and effectively absorbs shock/energy in mooring systems. The eyes are protected by mesh braid that is spliced into the eye, providing superior protection that is designed for high durability. Timm Master 12 SBA™ Tails are floating and have excellent UV resistance.

Features

- Integrated Snap Back Arrestor (SBA™)
- Mesh braid protected eyes
- Floating
- High elongation
- White and blue anti-twist color indicator

Benefits

- Snap Back Arrestor (SBA™) integrated, reducing dangerous snap back and providing the safest possible working conditions for your crew
- High abrasion and UV resistance, providing longer service life and lower cost of ownership
- Mesh braid protected eyes, protecting the eyes from rust and sharp edges, providing a longer service life and lower cost of ownership
- Anti-twist indicator, helping the crew to eliminate potentially dangerous twists in the ropes.
- Type Approved by DNV
- Meet all OCIMF MEG4 and SIRE 2.0, RightShip RISQ 2.0, SOLAS and Intertanko requirements, ensuring compliance with regulations

Specification

Product Name	TIMM MASTER 12 SBA™ TAIL
Material type and grade	Mixed polyolefins (B5 yarn) and HT PES
Colour	White and blue
Construction	12-strand braided
Density [kg/m³]	0.99
Elongation [%]	18% at break
Eyes	1.8m mesh braid protected eyes
Melting point	165°C

Product Number	Product Name	LDBF [kN] from:	LDBF [kN] up to:	LDBF [mt] from:	LDBF [mt] up to:
411253	TIMM MASTER 12 SBA TAIL FT70 [62MM] 11M	633	745	64.5	76
411252	TIMM MASTER 12 SBA TAIL FT90 [71MM] 11M	746	973	76.1	99.2
411251	TIMM MASTER 12 SBA TAIL FT110 [76MM] 11M	974	1112	99.3	113.4
411250	TIMM MASTER 12 SBA TAIL FT130 [83MM] 11M	1113	1323	113.5	134.9
411249	TIMM MASTER 12 SBA TAIL FT160 [92MM] 11M	1324	1620	135	165.2
411248	TIMM MASTER 12 SBA TAIL FT180 [97MM] 11M	1621	1797	165.3	183.2
411247	TIMM MASTER 12 SBA TAIL FT210 [105MM] 11M	1798	2100	183.3	214.1

Please contact our customer service, if the required product is not listed, to get a custom offer.

Approvals

Type Approved Product by DNV. This product is produced according to ISO 9554 and tested according to ISO 2307 and OCIMF MEG4. Minimum Breaking

Load (MBL) is according to ISO 10556 and verified by DNV.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM ROPE JACKET REPAIR KIT

Timm Rope Jacket Repair Kit is a good solution to mend damaged rope jackets and eyes.



Product Information

Many ropes, and HMPE ropes in particular, are supplied with a braided protective jacket. Such jackets get worn, and replacing them is expensive and time-consuming. The Timm Repair Kit is developed in order to repair ropes with jacket. Unlike other kits, our solution is free from chemicals.

Timm Repair Kit is delivered with installation guide.

Features

- 100% high-tenacity polyester cross-woven cloth
- Pre-installed double-sided tapes for quick and easy installation
- Installation guide

Benefits

- Easy and quick repair without the use of a coating
- Extension of rope service life
- Great appearance
- No dangerous goods for transportation

Product Number	Product Name
410552	TIMM ROPE JACKET REPAIR KIT

Specification

Product Name	TIMM ROPE JACKET REPAIR KIT
Invent Hazard Material (IMO/EU) classification	NA

Supplied with

20m x 150mm White Polyester Cloth	1 pc
50m High-Performance Double-sided Tape	1 pc
9.1m Scotch Vulcanizing Tape	3 pcs
20m White Masking Tape	5 pcs
100m 3mm Braided Seizing Rope	1 pc
Tackle Tool	1 pc
Scissors	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ACERA SPLICING KIT

Acera Splicing Kit provides what is needed in order to create a new splice of an Acera HMPE rope.



Product Information

Features

- Factory standard on splicing equipment
- Provides what is needed in order to create a new eye splice

Benefits

- Complete splicing kit for on board rope splicing

Product Number	Product Name
411172	ACERA SPLICING KIT

Supplied with

PVC tape	8 pcs
Needle	2 pcs
60 meter Acera yarn	1 pc
Scissors	1 pc
Knife	1 pc
Splicing Instructions	1 pc

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

TIMM CHAFE GUARD

Timm Chafe Guard is designed to protect ropes from surface abrasion with steel surfaces such as chocks and leads.



Product Information

The distinctive red Timm Chafe Guards have been protecting ropes since 2012 and are suitable for protecting all ropes from chafing. Easy to install, the Timm Chafe Guards provides an efficient solution to preventing damage to ropes. Poorly maintained deck equipment is a severe threat to all synthetic ropes, and although we always recommend maintaining the deck equipment, our Timm Chafe Guards will protect the ropes from chafing damages and destructive cutting. The Timm Chafe Guard can also provide an extra protection against chemical and UV damages on the ropes.

Features

- 100% high tenacity polyester
- Protecting the ropes
- Rot-proof
- High melting point (260°C)

Benefits

- Fits all synthetic mooring ropes
- Easy installation
- Lightweight, with a smooth surface
- Excellent UV and heat resistance

Specification

Product Name	TIMM CHAFE GUARD	
Construction	Solid plain woven canvas	
Density [kg/m ³]	1.38	
Melting point	260°C	
Water resistance	0.3% absorption	

Product Number	Product Name	Acera Amundsen		Timm Master		DaGama	
		From [mm]	To [mm]	From [mm]	To [mm]	From [mm]	To [mm]
411255	TIMM CHAFE GUARD W65 3m	16	25	16	22	16	22
411256	TIMM CHAFE GUARD W76 3m	26	38	23	32	23	32
411257	TIMM CHAFE GUARD W90 3m	39	44	33	38	33	40
411258	TIMM CHAFE GUARD W100 3m	45	68	39	45	41	56
411259	TIMM CHAFE GUARD W125 3m	69	82	46	64	57	68
411260	TIMM CHAFE GUARD W150 3m	83	102	65	81	69	96

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS



Wilhelmsen Ships Service has formed an exclusive partnership with Klüber Lubrication in the field of high-performance speciality marine lubricants.

Klüber Lubrication, in close cooperation with leading OEMs, has pioneered the creation of high-performance speciality marine lubricants, including the environmentally friendly range of EALs that safeguard maritime equipment, prolong the lifespan of its components, improve reliability, reduce downtime and operational costs, and extend maintenance intervals.

This exclusive partnership brings you Wilhelmsen Ships Service's reputation for servicing the maritime industry through our worldwide distribution network, our global team of committed technical lubrication experts, and dedicated 24/7 customer service, combined with Klüber Lubrication expertise in precision engineering and high-performance speciality lubricants.



Exceptional performance



Shear & oxidation stability



Wear & corrosion protection



Heat & friction reduction



Seal compatibility

Browse this section to discover the benefits of our Speciality Marine Lubricants range.

Scan or click on the QR code for more information.



SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

KLÜBERPLEX AG 11-462

KLÜBERPLEX AG 11-462 is a white operating and priming lubricant designed to protect and maintain your components. Formulated with white solid lubricants, it reduces contamination of your machine environment while adhering excellently even at low temperatures.



Features

- Minimal contamination of machine environment due to use of white solid lubricants
- Antiwear and anticorrosion
- Good low-temperature adhesion

Benefits

- Reduces maintenance needs of your machines
- High-performing even in low temperatures
- Protects your components from wear and corrosion damage, improving their performance and longevity

Product Number	Product Name
210024	KLÜBERPLEX AG 11-462 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-30
Colour	White
Density at 20 °C [g/cm³]	~ 1.05
NLGI grade, DIN 51818	2
Solid lubricants, percentage	approx. 20 % by weight
Texture	Homogeneous
Packing Size	25 kg
ISO viscosity grade of the base oil, DIN ISO 3448	460
Shelf life [months]	24
Drop point, DIN ISO 2176, IP 396 [°C]	≥ 180
Functional lubricant film [°C]	~ -40
FZG scuffing test, based on DIN ISO 14635, A/2,76/room temperature, scuffing load stage	≥ 12
Lower service temperature	-10 °C / 14 °F
Upper service temperature	150 °C / 302 °F
Water resistance, DIN 51807 pt. 01, 3 h/90 °C, rating	0 - 90
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	265 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	295 x 0.1

Directions for Use

KLÜBERPLEX AG 11-462 is suitable for use as a priming lubricant for gear rim and pinion drives. It can also work as a contrast lubricant for checking the drive's load pattern.

You may also use KLÜBERPLEX AG 11-462 for open gears, low-speed rolling bearings, sliding and guide rails, steel cables of winches or cranes and for marine applications and wind power stations frequently subject to saltwater.

As priming lubrication, apply KLÜBERPLEX AG 11-462 by brush or spatula. For the best result, clean the surfaces before lubrication.

As operational lubrication, apply KLÜBERPLEX AG 11-462 by manually operated grease guns or through appropriate central lubricating systems. You may also apply KLÜBERPLEX AG 11-462 via spraying at temperatures down to 0°C, but use an exhaustion device to avoid inhalation of the spray mist.

Provided sufficient relubrication is ensured, short-term thermal loads of up to 200°C are permissible. Extended exposure to intense sunlight may slightly change the lubricant's surface colour but does not affect its performance.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERPLEX BEM 41-132

KLÜBERPLEX BEM 41-132 is a high-temperature, long-term grease for rolling bearings. Supported by a wide operating temperature range, it comes with excellent oxidation, wear and corrosion resistance, keeping your bearings well-protected and easy to maintain.



Features

- Good high-temperature behaviour
- Oxidation resistance
- Wear and corrosion protection
- Optimised oil release
- Long-term lubricant

Benefits

- Protects your rolling bearings from damage by oxidation
- Protects your rolling bearings from corrosion
- Protects your rolling bearings from chafing and wear
- Extends service lives of your parts
- Reduces maintenance needs

Product Number	Product Name
210064	KLÜBERPLEX BEM 41-132 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-30
Colour	Yellow
Density at 20 °C [g/cm³]	~ 0.90
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 14
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 120
Lubricating greases -K, DIN 51825 in connection with DIN 51502	KPHC2N-30L
Packing Size	25 kg
Chemical composition, thickener	Special lithium soap
Chemical composition, type of oil	Synthetic hydrocarbon oil, mineral oil
Shelf life [months]	36
Speed factor (n x dm)	~ 1 000 000 mm/min
Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water	≤1 corrosion degree
Drop point, DIN ISO 2176, IP 396 [°C]	≥250
FAG FE9 rolling bearing tester, DIN 51821 pt. 02, speed: 6000 min⁻¹, axial load: 1500 N, temperature: 150 °C, service life F50 [h]	≥100
Lower service temperature	-40 °C / -40 °F
Low-temperature torque, IP 186, -40 °C, running [mNm]	≤200
Low-temperature torque, IP 186, -40 °C, start [mNm]	≤1000
Oil separation, DIN 51817 N, after 7 d/40 °C	≤4% by weight
Upper service temperature	150 °C / 302 °F
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	265 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	295 x 0.1

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

Directions for Use

KLÜBERPLEX BEM 41-132 is suitable for the long-term or lifetime lubrication of rolling bearings. You may use it for rolling bearings with a high degree of sliding friction (e.g. tapered, cylinder or spherical roller bearings) or for life-lubricated deep groove ball bearings and rolling bearings. It is also appropriate to use for rolling bearings in vehicle components.

Apply KLÜBERPLEX BEM 41-132 with a spatula, brush, or grease gun. If you would like to use an automatic lubricating system, please check the pumpability beforehand.

We also recommend that you test the compatibility of KLÜBERPLEX BEM 41-132 with the materials it will contact.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERPLEX GE 11-680

KLÜBERPLEX GE 11-680 is an adhesive lubricant built to take on the high-pressure conditions that your gears face. Packed with wear, corrosion and oxidation inhibitors for utmost protection. It is also free of bitumen, solvent and lead, making handling easy and hassle-free for you.



Features

- Resistant to high pressures
- Anti-corrosive, anti-wear
- Oxidation inhibition
- Free of bitumen, solvents and raw materials containing lead
- Free of solid lubricants
- Applicable by automatic lubrication systems

Benefits

- High-performing under high pressures
- Protects your gears from wear and corrosion
- Protects your gears from scuffing
- Protects your gears from oxidation damage
- Easy handling, cleaning, and disposal

Product Number	Product Name
210063	KLÜBERPLEX GE 11-680 25 KG
Specification	
Invent Hazard Material (IMO/EU) classification	C-30
Colour	Brown
Density at 20°C [g/cm³]	~ 0.94
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 685
Texture	Very soft
Packing Size	25 kg
Chemical composition, thickener	Aluminium complex soap
Chemical composition, type of oil	Mineral oil
Shelf life [months]	24
Copper corrosion, DIN 51811, lubricating grease, 24h/100°C	1 - 100 corrosion degree
FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage	>12
FZG scuffing test, based on DIN ISO 14635, A/2.76/50, change in weight	≤0.2 mg/kWh
Lower service temperature	0°C / 32°F
Upper service temperature	140°C / 284°F
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	380 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	420 x 0.1

SPECIALITY MARINE LUBRICANTS

Mineral Grease
Mineral Grease

Directions for Use

KLÜBERPLEX GE 11-680 was developed for the lubrication of open and closed spur and bevel gears, lifting spindles, slideways and guideways, large chain drives and sliding bearings. Particularly suitable for elevated component temperatures and wherever adhesive lubricants containing solid lubricants cannot be used.

Apply KLÜBERPLEX GE 11-680 to the tooth flanks of your gears through automatic spray systems. For smaller drives, lubricate through positive drip-feed equipment, with a brush or hand spray equipment. Splash lubrication is possible as well for components operating at low circumferential speeds (<3 m/s).

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERLUB BE 41-1501

Klüberlub BE 41-1501 is a heavy-duty grease for highly-loaded rolling bearings operating at low speeds



Product information

Would you like to increase the service life of your highly-loaded rolling bearings running at low speed? Do you need a lubricant for a wide service temperature range?

Klüberlub BE 41-1501 has been approved by FAG FE 8 tests for effectiveness of in extreme conditions and has been also approved by various bearing manufacturers, e.g. FAG, to be used for applications in low-speed rolling bearings subject to very high loads and shocks.

If the lubricating film becomes adversely stressed under extreme conditions, e.g. during high levels of oscillation and friction, the solid lubricants MoS₂ and graphite contained in Klüberlub BE 41-1501 ensure excellent emergency lubricating properties providing additional reliability in the event of starved lubrication.

The product also provides good corrosion protection and is compatible with seals, e.g. made of NBR elastomers. Klüberlub BE41-1501 is approved by leading component OEMs, e.g. Flender and David Brown.

Features

- Designed to meet the requirements of rolling bearings subject to extreme conditions.
- Developed for highly-loaded large rolling bearings running at low speeds
- Developed for toothed gear systems
- The operating conditions of roller bearings require use of a heavy duty grease with high base oil viscosity with suitability for the following conditions: low speed, n = 10-30 rpm, high load, P/C = 0.25 - 0.50, bearing temperature approx. 50-70 °C
- Suitable for the lubrication of pivoting bearings, plain bearings and industrial gear couplings.

Benefits

- Excellent wear protection under the highest dynamic load conditions
- Good load-carrying capacity at low rotational speeds
- Reliable lubricant film formation at high service temperatures
- Emergency lubricating properties due to the addition of special solid lubricants

Product Number

Product Name

210081	KLÜBERLUB BE 41-1501 25 KG
210082	KLÜBERLUB BE 41-1501 180 KG

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

Specification

Product Name	KLÜBERLUB BE 41-1501 25 KG	KLÜBERLUB BE 41-1501 180 KG
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Colour	Black	Black
Density at 20°C [g/cm³]	ca 0.92	ca 0.92
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	ca 60	ca 60
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	ca 1500	ca 1500
Materials compatibility	Compatibility with elastomers, 72 NBR 902 ,168h/ 100°C, hardness (Shore A) ca. -5 unit	Compatibility with elastomers, 72 NBR 902 ,168h/ 100°C, hardness (Shore A) ca. -5 unit
NLGI grade, DIN 51818	1	1
Texture	Homogenous	Homogenous
Chemical composition, thickener	Special lithium soap	Special lithium soap
Compatibility	Compatibility with elastomers,72 NBR 902, 68h/100°C, change in volume < 10%	Compatibility with elastomers,72 NBR 902, 68h/100°C, change in volume < 10%
Flow pressure of lubricating greases, DIN 51805, test temperature: -25 °C [mbar]	<- 1 corrosion degree	<- 1 corrosion degree
Shelf life [months]	36	36
Speed factor (n x dm)	ca. 100000 mm/min	ca. 100000 mm/min
Drop point, DIN ISO 2176, IP 396 [°C]	>=180	>=180
FAG FE9 rolling bearing tester, DIN 51821 pt. 02,speed: 6000 min-1, axial load: 1500 N, temperature: 150 °C, service life F50 [h]	>=100 h	>=100 h
Lower service temperature	-10°C	-10°C
Upper service temperature	150°C	150°C

Directions for Use

When using Klüberlub BE 41-1501 with automatic grease pumps, the ambient temperature should be $\geq 15^{\circ}\text{C}$.

Klüberlub BE 41-1501 has been tested and verified for use with selected plastics and elastomers, however, we recommend checking compatibility prior to series application to ensure reliable equipment operation.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLUBERPLEX BEM 34-132 – KLUBERMATIC FLEX



Klüberplex BEM 34-132 is a speciality rolling bearing grease for demanding applications. Klübermatic FLEX is a compact, ready-to-use lubricator. It can be used for diverse applications at temperatures between -20 °C and +60 °C.

The lubrication interval can be selected in monthly increments between 1 and 12 months. An electronically controlled chemical reaction generates the pressure to ensure continuous fresh lubricant supply to the lubrication point at set intervals. Klübermatic FLEX is available in volumes of 30, 60 and 125 cm³.

Klübermatic FLEX is particularly suitable for single-point lubrication in rolling and plain bearings, slideways, open gears, toothed racks, shaft seals and chains. The lubrication system is dust-tight and protected against splash water (according to IP 68).

Features

- Klüberplex BEM 34-132 is used for ball bearings and linear guides, ball screws subject to oscillating motion, high loads and vibration. These may typically be found in: hub units (wheel bearings), shock absorber bearings, water.
- Klüberplex BEM 34-132 is also suitable as sealing grease for rolling bearings due to its excellent media resistance. The product has good resistance to water and steam and presents as well good performance in presence of dilute alkali and acid solutions.

Benefits

- Reliable operation and long-standing experience in the long-term lubrication of highly loaded rolling bearings
- Longer service life of rolling bearings due to good wear protection, also under vibration and oscillation
- Long service life due to excellent corrosion protection and media resistance

Product Number	Product Name
210084	KLUBERPLEX BEM 34-132 – (10X30ML) PACK.KLUBERMATIC FLEX
210085	KLUBERPLEX BEM 34-132 – (10X60ML) PACK.KLUBERMATIC FLEX
210086	KLUBERPLEX BEM 34-132 – (10X125ML) PACK.KLUBERMATIC FLEX

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Colour	Beige
Density at 20°C [g/cm³]	approx. 0.9 (Klübermethod: PN 024,20°C)
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 15.5
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 130
Lubricating greases -K, DIN 51825 in connection with DIN 51502	KPHC2N-30L
NLGI grade, DIN 51818	2
Chemical composition, thickener	calcium complex soap
Chemical composition, type of oil	mineral oil , synthetic hydrocarbon oil
Flow pressure of lubricating greases, DIN 51805-2, test temperature: -30 °C [mbar]	Compatibility with elastomers,72 NBR 902, 68h/100°C, change in volume < 10%
Flow pressure of lubricatinggreases, DIN 51805, test temperature: -25 °C [mbar]	≤ 1600
Shelf life [months]	24
Speed factor (n x dm)	approx. 1000000 mm/min
Corrosion inhibiting properties oflubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water	≤ 1 corrosion degree (Klüber method: distilled water, 168 h)
Drop point, DIN ISO 2176, IP 396 [°C]	≥ 220
FAG FE9 rolling bearing tester, DIN51821 pt. 02, speed: 6000 min-1, axialload: 1500 N, temperature: 150 °C,service life F50 [h]	≥ 100 h
Low-temperature torque, IP 186, -40 °C, running [mNm]	≤ 100 (-35 deg C)
Low-temperature torque, IP 186, -40 °C, start [mNm]	≤ 1000 (-35 deg C)
Lower service temperature	140
Upper service temperature	36
Worked penetration, DIN ISO 2137, 25°C, lower limit value [mm]	265 0.1
Worked penetration, DIN ISO 2137, 25°C, upper limit value [mm]	295 0.1

Directions for Use

Klüberplex BEM 34-132 can be applied by spatula, brush or by manually operated grease guns. We recommend checking the pumpability of Klüberplex BEM 34-132 in automatic lubrication systems prior to use and using Klüberplex BEM 34-132 N for relubrication, in particular with long lubrication pipes; see separate product information leaflet.

This product is also available in our automatic lubricant dispenser Klübermatic. Please consult the application engineering experts from Klüber Lubrication to determine whether Klübermatic might be used under the conditions in your processes.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

GRAFOSCON C-SG 0 ULTRA

GRAFOSCON C-SG 0 ULTRA is a graphite-based lubricant designed to preserve your open gear drives. Formulated with fine graphite particles that form an additional protective layer between the tooth surfaces, it offers excellent protection for your gears, with robust adhesion even at extreme loads.



Features

- Uniquely formulated with fine graphite particles
- Includes solid lubricants for added protection
- Improved load pattern that reduces vibration and temperature differences across tooth flank
- Contains special additives for corrosion-protection properties

Benefits

- Improves the surface condition of loaded tooth flanks
- Enhances service life of gears
- Reduces damage caused by high vibration and temperature differentials
- Provides extra protection during extreme or shock loads
- Effective and economical to use

Product Number	Product Name
210060	GRAFOSCON C-SG 0 ULTRA 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-30
Colour	Black
Density at 20°C [g/cm³]	~ 0.96
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 680
NLGI grade, DIN 51818	0
Texture	Short-fibred, homogeneous
Packing Size	25 kg
Application in automatic spray systems	~ 0 - 90°C
Shelf life [months]	24
Drop point, DIN ISO 2176, IP 396 [°C]	≥110
Functional lubricant film [°C]	≥-30
Thermal stability of the lubricating film [°C]	≤200
Water resistance, DIN 51807 pt. 01, 3 h/40°C	0 - 40

Directions for Use

GRAFOSCON C-SG 0 ULTRA was developed for the running-in of large open gear drives in rotary kilns, tube mills, dryers, lime kilns, rotary coolers, etc. used in the cement, lime, gypsum, mining, steel, power, paper & pulp and chemical industries.

It may be used to lubricate and protect slide and guide rails, large chains, wire ropes and similar devices.

Apply GRAFOSCON C-SG 0 ULTRA to your gear through automatic spray systems. For smaller gear drives, apply with a brush or the Klübermatic® LB manual spray gun.

Do not expose GRAFOSCON C-SG 0 ULTRA to direct sunlight.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

MICROLUBE GL 262

MICROLUBE GL 262 is a lubricating grease designed to skilfully protect your parts against boundary friction and prevent tribo-corrosion. Packed with select high-grade additives, it offers excellent defence under oscillation and micro-movement conditions.



Features

- Protection against boundary friction
- Anti-corrosion
- High-pressure absorbent
- Compatible with central lubrication systems

Benefits

- Protects your parts against tribo-corrosion, extending their service lives
- Protects your parts against wear and damage by oscillations and micro-movements
- High-performance under high pressures
- Reduces running-in wear
- Provides easy, trouble-free operations

Product Number	Product Name
210061	MICROLUBE GL 262 25 KG
Specification	
Invent Hazard Material (IMO/EU) classification	C-30
Appearance	Almost transparent
Colour	Yellow
Density at 20°C [g/cm³]	~ 0.89
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 20
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 280
Texture	Homogeneous, fibrous
Packing Size	25 kg
Chemical composition, thickener	Special lithium soap
Chemical composition, type of oil	Mineral oil
Flow pressure of lubricating greases, DIN 51805, test temperature: -25 °C [mbar]	≤1400
Shelf life [months]	36
Speed factor (n x dm)	300 000 mm/min
Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water	≤1 corrosion degree
Drop point, DIN ISO 2176, IP 396 [°C]	≥250
Lower service temperature	-25°C / -13°F
Upper service temperature	140°C / 284°F
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	265 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	295 x 0.1

SPECIALITY MARINE LUBRICANTS

Mineral Grease

Mineral Grease

Directions for Use

MICROLUBE GL 262 is suitable for low to medium-speed plain and rolling bearings, and for swivel movements and vibrations. Other relevant applications include linear guides, serrations, multiple spline shafts, and small gears such as adjustment gears.

It is generally suitable for machine elements potentially subject to tribo-corrosion.

Apply MICROLUBE GL 262 by brush, spatula, grease gun, or through centralized lubrication systems.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBEROIL GEM 1-46 N

KLÜBEROIL GEM 1-46 N is a gear and multipurpose oil designed for maximum protection of your gear and bearings. Infused with KlüberComp Lube Technology, it offers excellent wear, scuffing, micropitting, oxidation and ageing resistance, so your parts last longer — and more reliably.



Features

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-5

Benefits

- Protects your gears and rolling bearing from wear, scuffing and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performing under high loads
- Reduces your maintenance and repair costs
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number

210065

Product Name

KLÜBEROIL GEM 1-46 N 200 LTR

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m3]	~ 870
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 7
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 46
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 46
ISO viscosity grade of the base oil, DIN ISO 3448	46
Marking acc. to DIN 51502	CLP 46
Shelf life [months]	60
Viscosity index, DIN ISO 2909	≥90
Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-15°C / 5°F
Pour point, DIN ISO 3016 [°C]	≤-20
Upper service temperature	100°C / 212°F

Directions for Use

KLÜBEROIL GEM 1-46 N was developed for the lubrication of spur, bevel, hypoid, and planetary gears that are subject to high loads. It may also be used to lubricate standard worm gears as defined in DIN 3996.

Other applications of KLÜBEROIL GEM 1-46 N include the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

Apply KLÜBEROIL GEM 1-46 N by immersion, immersion circulation or injection. Alternatively, you may use drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems.

When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. The low-viscosity options are suitable for oil mist lubrication.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBEROIL GEM 1-68 N

KLÜBEROIL GEM 1-68 N is a gear and multipurpose oil designed for maximum protection of your gear and bearings. Infused with KlüberComp Lube Technology, it offers excellent wear, scuffing, micropitting, oxidation and ageing resistance, so your parts last longer — and more reliably.



Product information

KLÜBEROIL GEM 1-68 N ensures that your gears remain protected against scuffing damage even at extremely high peak loads, vibrations, or oscillations. Moreover, with high micropitting resistance of $GFT \geq 10$ (according to FVA 54/7, tested at 90, 60 and 40°C), it protects your parts from damage even in high loads. The product's good shear stability offers a strong and reliable lubricant film formation that protects equipment from intense, sustained friction and/or extreme temperatures.

Coupled with its built-in wear and corrosion protection and low-foaming tendency, it also offers excellent ageing and oxidation resistance and significantly longer service intervals, compared to other mineral-oil-based standard gear oils.

KLÜBEROIL GEM 1-68 N is compatible with Freudenberg seals made of 72 NBR 902, 75 FKM 585, 75 FKM 260466 and 75 FKM 170055.

It has already been granted approvals by numerous gear OEMs, and it is used and recommended by brands around the world such as Siemens-Flender, Siemens Geared Motors, FLSmidth MAAG Gears, SEW Eurodrive, Getriebbau Nord, Lenze Gears, Stöber Antriebstechnik, ZAE Antriebssysteme, Moventas, and Bonfiglioli

Features

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-6[“]

Benefits

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-6

Product Number

210066

210032

Product Name

KLÜBEROIL GEM 1-68 N 20 LTR

KLÜBEROIL GEM 1-68 N 200 LTR

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Specification

Product Name	KLÜBEROIL GEM 1-68 N 20 LTR	KLÜBEROIL GEM 1-68 N 200 LTR
Invent Hazard Material (IMO/EU) classification	C-3	C-3
Density, DIN 51757 at 15 °C [kg/m³]	~ 880	~ 880
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]		
	~ 9	~ 9
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]		
	~ 68	~ 68
Classification acc. to ISO 12925-1		
	CKC 68	CKC 68
ISO viscosity grade of the base oil, DIN ISO 3448	68	68
Marking acc. to DIN 51502	CLP 68	CLP 68
Shelf life [months]	60	60
Viscosity index, DIN ISO 2909	≥90	≥90
Ageing properties, ASTM D 2893, increase in viscosity [%]		
	≤6	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C		
	No rust corrosion degree	No rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C		
	1 - 100 corrosion degree	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]		
	≤200	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]		
	<5	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]		
	≥200	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage		
	≥12	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage		
	≥14	≥14
Lower service temperature	-15°C / 5°F	-15°C / 5°F
Pour point, DIN ISO 3016 [°C]	≤-15	≤-15
Upper service temperature	100°C / 212°F	100°C / 212°F

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Directions for Use

KLÜBEROIL GEM 1-68 N was developed for the lubrication of spur, bevel, hypoid, and planetary gears that are subject to high loads. It may also be used to lubricate standard worm gears as defined in DIN 3996.

Other applications of KLÜBEROIL GEM 1-68 N include the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

Apply KLÜBEROIL GEM 1-68 N by immersion, immersion circulation or injection. Alternatively, you may use drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems.

When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. The low-viscosity options are suitable for oil mist lubrication.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBEROIL GEM 1-100 N

KLÜBEROIL GEM 1-100 N is a gear and multipurpose oil designed for maximum protection of your gear and bearings. Infused with KlüberComp Lube Technology, it offers excellent wear, scuffing, micropitting, oxidation and ageing resistance, so your parts last longer — and more reliably.



Features

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-3

Benefits

- Protects your gears and rolling bearing from wear, scuffing and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performing under high loads
- Reduces your maintenance and repair costs
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number

210036

Product Name

KLÜBEROIL GEM 1-100 N 200 LTR

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m³]	~ 880
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 11
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 100
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 100
ISO viscosity grade of the base oil, DIN ISO 3448	100
Marking acc. to DIN 51502	CLP 100
Shelf life [months]	60
Viscosity index, DIN ISO 2909	≥90
Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-5°C / 23°F
Pour point, DIN ISO 3016 [°C]	≤-15
Upper service temperature	100°C / 212°F

Directions for Use

KLÜBEROIL GEM 1-100 N was developed for the lubrication of spur, bevel, hypoid, and planetary gears that are subject to high loads. It may also be used to lubricate standard worm gears as defined in DIN 3996.

Other applications of KLÜBEROIL GEM 1-100 N include the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

Apply KLÜBEROIL GEM 1-100 N by immersion, immersion circulation or injection. Alternatively, you may use drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems.

When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. The low-viscosity options are suitable for oil mist lubrication.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBEROIL GEM 1-150 N

KLÜBEROIL GEM 1-150 N is a gear and multipurpose oil designed for maximum protection of your gear and bearings. Infused with KlüberComp Lube Technology, it offers excellent wear, scuffing, micropitting, oxidation and ageing resistance, so your parts last longer — and more reliably.



Features

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-4

Benefits

- Protects your gears and rolling bearing from wear, scuffing and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performing under high loads
- Reduces your maintenance and repair costs
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number

210040

Product Name

KLÜBEROIL GEM 1-150 N 200 LTR

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m3]	~ 880
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 15
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 150
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 150
ISO viscosity grade of the base oil, DIN ISO 3448	150
Marking acc. to DIN 51502	CLP 150
Shelf life [months]	60
Viscosity index, DIN ISO 2909	≥90
Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
API scuffing load capacity	API GL 4
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24 °C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-5°C / 23°F
Pour point, DIN ISO 3016 [°C]	≤-10
Upper service temperature	100°C / 212°F

Directions for Use

KLÜBEROIL GEM 1-150 N was developed for the lubrication of spur, bevel, hypoid, and planetary gears that are subject to high loads.

It may also be used to lubricate standard worm gears as defined in DIN 3996.

Other applications of KLÜBEROIL GEM 1-150 N include the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

Apply KLÜBEROIL GEM 1-150 N by immersion, immersion circulation or injection. Alternatively, you may use drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems.

When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. The low-viscosity options are suitable for oil mist lubrication.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERFLUID C-F 3 ULTRA

KLÜBERFLUID C-F 3 ULTRA is an eco-friendly, easy-to-apply lubricant for large girth gear drives. Optimised for application via spray systems for improved convenience and reduced consumption. It also offers great adhesion strength, excellent resistance to pressure and wear, and stays high-performing in elevated service temperatures.



Features

- Spray application
- Good behaviour across low and high service temperatures
- Organic solvent
- Good adhesion
- Resistant to high pressure
- Wear protection
- Light-coloured, transparent product

Benefits

- Environmentally-friendly
- Easy to use via spray application
- Low consumption required
- Protects your gear drives from wear
- Protects damage to your gear drives by high pressure
- Adheres to gears well across a wide range of temperatures, reducing your need for maintenance

Product Number	Product Name
210044	KLÜBERFLUID C-F 3 ULTRA 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-30
Colour	Brown
Density at 20°C [g/cm³]	~ 0.92
Kinematic viscosity (without solvent), DIN 51562 pt 01/ASTM D-445/ASTM D 7042, 40°C [mm²/s]	~ 16 500
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 4000
Texture	Homogeneous
Packing Size	25 kg
Application in automatic spray systems	0 - 80°C
Shelf life [months]	24
Viscosity index, DIN ISO 2909	~ 160
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>130
Four-ball EP tester, welding load, DIN 51350 pt. 02 [N]	≥7000
Functional lubricant film [°C]	≥-30
FZG scuffing test, based on DIN ISO 14635, A/2.76/50, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635, A/2.76/50, change in weight	≤0.2 mg/kWh
Pour point, DIN ISO 3016 [°C]	<-5
Thermal stability of the lubricating film [°C]	≤120

SPECIALITY MARINE LUBRICANTS

Mineral Oil

Mineral Oil

Directions for Use

KLÜBERFLUID C-F 3 ULTRA is appropriate to use as spray lubrication for large gear rim/pinion drives. Suitable for all gear sizes and power ratings.

Note that a peripheral speed of 10 m/s should, however, not be exceeded.

Apply KLÜBERFLUID C-F 3 ULTRA to the tooth flanks via spray lubrication systems working with container or barrel pumps.

To view the lubricant film on the tooth flanks, use a UV lamp of at least 366 nm.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERSYNTH GEM 4-150 N LWC

KLÜBERSYNTH GEM 4-150 N LWC is a synthetic, high-performance oil ideal for the lubrication of various gear components. Designed with KlüberComp Lube Technology, it offers excellent scuffing, wear, ageing, oxidation and micropitting resistance — coupled with good viscosity-temperature behaviour, too.



Features

- Multi-purpose
- Scuffing, wear and corrosion protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Good viscosity-temperature behaviour
- Low foaming tendency
- Optimised friction behaviour
- Good elastomer compatibility
- Compliant with DIN 51517-3

Benefits

- Versatile
- Protects your gears from wear, corrosion, scuffing, and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performance under high loads and temperatures
- Reduces power losses and energy consumption
- Protects your gear components against WEC
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number

210048

Product Name

KLÜBERSYNTH GEM 4-150 N LWC 200 LTR

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m3]	~ 860
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 20
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 150
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 150
ISO viscosity grade of the base oil, DIN ISO 3448	150
Marking acc. to DIN 51502	CLP HC 150
Shelf life [months]	24
Viscosity index, DIN ISO 2909	≥150
Ageing properties, ASTM D 2893,	
increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24 °C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-40 °C / -40 °F
Pour point, DIN ISO 3016 [°C]	≤-40
Upper service temperature	140 °C / 284 °F

Directions for Use

KLÜBERSYNTH GEM 4-150 N LWC was developed for the lubrication of spur, bevel, hypoid and planetary gears that are subject to high loads. It is also suitable to lubricate standard worm gears as defined in DIN 3996.

You may also use KLÜBERSYNTH GEM 4-150 N LWC for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps, especially in applications where the equipment is exposed to elevated temperatures or pronounced temperature fluctuations.

Apply KLÜBERSYNTH GEM 4-150 N LWC by immersion, immersion circulation or injection. The use of drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems is also possible. When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. For oil mist lubrication, opt for the low-viscosity selections.

KLÜBERSYNTH GEM 4-150 N LWC is miscible with mineral oils. However, for it to deliver its full performance, any residues of a previously used mineral oil should not exceed 5% in quantity.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERSYNTH GEM 4-320 N LWC

KLÜBERSYNTH GEM 4-320 N LWC is a synthetic, high-performance oil ideal for the lubrication of various gear components. Designed with KlüberComp Lube Technology, it offers excellent scuffing, wear, ageing, oxidation and micropitting resistance — coupled with good viscosity-temperature behaviour, too.



Features

- Multi-purpose
- Scuffing, wear and corrosion protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Good viscosity-temperature behaviour
- Low foaming tendency
- Optimised friction behaviour
- Good elastomer compatibility
- Compliant with DIN 51517-4

Benefits

- Versatile
- Protects your gears from wear, corrosion, scuffing, and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performance under high loads and temperatures
- Reduces power losses and energy consumption
- Protects your gear components against WEC
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number	Product Name
210052	KLÜBERSYNTH GEM 4-320 N LWC 200 LTR

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m3]	~860
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~36
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~320
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 320
ISO viscosity grade of the base oil, DIN ISO 3448	320
Marking acc. to DIN 51502	CLP HC 320
Shelf life [months]	24
Viscosity index, DIN ISO 2909	≥155
Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24 °C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-30°C / -22°F
Pour point, DIN ISO 3016 [°C]	≤-35
Upper service temperature	140°C / 284°F

Directions for Use

KLÜBERSYNTH GEM 4-320 N LWC was developed for the lubrication of spur, bevel, hypoid and planetary gears that are subject to high loads. It is also suitable to lubricate standard worm gears as defined in DIN 3996.

You may also use KLÜBERSYNTH GEM 4-320 N LWC for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps, especially in applications where the equipment is exposed to elevated temperatures or pronounced temperature fluctuations.

Apply KLÜBERSYNTH GEM 4-320 N LWC by immersion, immersion circulation or injection. The use of drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems is also possible. When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. For oil mist lubrication, opt for the low-viscosity selections.

KLÜBERSYNTH GEM 4-320 N LWC is miscible with mineral oils. However, for it to deliver its full performance, any residues of a previously used mineral oil should not exceed 5% in quantity.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERSYNTH GEM 4-460 N

KLÜBERSYNTH GEM 4-460 N is a synthetic, multi-purpose oil ideal for the lubrication of various gear components. Designed with KlüberComp Lube Technology, it offers excellent scuffing, wear, ageing, oxidation and micropitting resistance — coupled with good viscosity-temperature behaviour, too.



Features

- Multi-purpose
- Scuffing, wear and corrosion protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Good viscosity-temperature behaviour
- Low foaming tendency
- Optimised friction behaviour
- Good elastomer compatibility
- Compliant with DIN 51517-5

Benefits

- Versatile
- Protects your gears from wear, corrosion, scuffing, and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performance under high loads and temperatures
- Reduces power losses and energy consumption
- Protects your gear components against WEC
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Product Number	Product Name
210058	KLÜBERSYNTH GEM 4-460 N 200 LTR

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density, DIN 51757 at 15 °C [kg/m³]	~860
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~47
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~460
Packing Size	200 ltr
Classification acc. to ISO 12925-1	CKC 460
ISO viscosity grade of the base oil, DIN ISO 3448	460
Marking acc. to DIN 51502	CLP HC 460
Shelf life [months]	24
Viscosity index, DIN ISO 2909	≥160
Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24 °C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-30°C / -22°F
Pour point, DIN ISO 3016 [°C]	≤-30
Upper service temperature	140°C / 284°F

Directions for Use

KLÜBERSYNTH GEM 4-460 N was developed for the lubrication of spur, bevel, hypoid and planetary gears that are subject to high loads. It is also suitable to lubricate standard worm gears as defined in DIN 3996.

You may also use KLÜBERSYNTH GEM 4-460 N for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps, especially in applications where the equipment is exposed to elevated temperatures or pronounced temperature fluctuations.

Apply KLÜBERSYNTH GEM 4-460 N by immersion,

immersion circulation or injection. The use of drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems is also possible. When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. For oil mist lubrication, opt for the low-viscosity selections.

KLÜBERSYNTH GEM 4-460 N is miscible with mineral oils. However, for it to deliver its full performance, any residues of a previously used mineral oil should not exceed 5% in quantity.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT PGI 68

KLÜBER SUMMIT PGI 68 is a compressor lubricant, designed for rotary screw and piston compressors used in the compression of propane. They are also suitable for refrigeration compressors where propane is the refrigerant.



Features

- Klüber Summit PGI compressor lubricants are designed for rotary screw and piston compressors used in the compression of propane.
- They are also suitable for refrigeration compressors where propane is the refrigerant.
- Because of the variety of gas stream compositions and other operating conditions, please contact your local Klüber sales representatives for specific viscosity recommendations.

Benefits

- For the lubrication of propane compressors and refrigeration compressors with propane as the refrigerant
- Compared with mineral oils, extremely resistant to dilution and absorption by hydrocarbon gas stream

Product Number	Product Name
210055	KLÜBER SUMMIT PGI 68 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Appearance	Clear
Colour	Yellow
Density at 20°C [g/cm³]	approx. 0.99 g/cm³ (DIN 51757)
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 12.7 mm²/s
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 68 mm²/s
Packing Size	200 LTR
Shelf life [months]	36
Viscosity index, DIN ISO 2909	>= 170
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>= 220 °C
Pour point, DIN ISO 3016 [°C]	<= -39 °C

Directions for Use

Drain as much of the previously used compressor oil from the system as possible, making sure that the oil is drained while still warm. Do not forget to drain coolers, separator tanks and all lines. Next, clean or preferably change the filters. Then recharge with the appropriate Klüber Summit PGI oil. We recommend attaching a label indicating the type of lubricant used and the filling date to the lubricant filter or the compressor cover. Compatibility with materials To the

best of our knowledge, the Klüber Summit PGI compressor oils are compatible with NBR (acrylonitrile content > 30 %), EPDM, MVQ (silicone rubber), PTFE and polyurethane foams. They can also be used with paints on an epoxy or phenolic basis. It is not advisable to use these products together with acrylic paints, polyurethane varnishes and synthetic materials on a PVC, polycarbonate and ABS basis.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT PGS 68

KLÜBER SUMMIT PGS 68 is a synthetic lubricant oil uniquely formulated to endure the harsh conditions of gas compressors. With maximal resistance to hydrocarbon dilution, it runs at the optimal operating viscosity, helping your components last longer.



Features

- Highly resistant to hydrocarbon dilution
- Wear protection
- Sludge and deposit reduction

Benefits

- Maintains proper operating viscosity
- Protects your compressor parts from wear, extending parts life
- Enhances equipment performance
- Extends drain intervals of your compressors

Product Number	Product Name
210057	KLÜBER SUMMIT PGS 68 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Colour	Yellow
Density at 20°C [g/cm³]	~ 1.04
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 14
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 68
Packing Size	200 LTR
Shelf life [months]	36
Viscosity index, DIN ISO 2909	≥200
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥230
Pour point, DIN ISO 3016 [°C]	≤-42

Directions for Use

KLÜBER SUMMIT PGS 68 is suitable for use in piston, screw-type and rotary vane compressors for natural or process gas.

Before using KLÜBER SUMMIT PGS 68, drain any old compressor oil from the system as much as possible while it is still warm. Drain coolers, separator tanks, and all lines as well. Next, clean or preferably change the filters. Only recharge with KLÜBER SUMMIT PGS 68 after the aforementioned steps have been completed.

We recommend attaching a label stating the type and fill date of the lubricant to the filter or compressor cover.

To the best of our knowledge, KLÜBER SUMMIT PGS 68 is compatible with NBR (acrylonitrile content > 30 %), EPDM, MVQ (silicone rubber), PTFE and polyurethane foams. It can also be used with paints on an epoxy or phenolic basis.

However, you are advised not to use KLÜBER SUMMIT PGS 68 together with acrylic paints, polyurethane varnishes and synthetic materials on a PVC, polycarbonate and ABS basis.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT PGS 100

KLÜBER SUMMIT PGS 100 is a synthetic lubricant oil uniquely formulated to endure the harsh conditions of gas compressors. With maximal resistance to hydrocarbon dilution, it runs at the optimal operating viscosity, helping your components last longer.



Features

- Highly resistant to hydrocarbon dilution
- Wear protection
- Sludge and deposit reduction

Benefits

- Maintains proper operating viscosity
- Protects your compressor parts from wear, extending parts life
- Enhances equipment performance
- Extends drain intervals of your compressors

Product Number	Product Name
210070	KLÜBER SUMMIT PGS 100 200 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-3
Colour	Yellow
Density at 20°C [g/cm³]	~ 1.05
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 19.6
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 100
Packing Size	200 ltr
Shelf life [months]	36
Viscosity index, DIN ISO 2909	≥200
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥230
Pour point, DIN ISO 3016 [°C]	≤-39

Directions for Use

KLÜBER SUMMIT PGS 100 is suitable for use in piston, screw-type and rotary vane compressors for natural or process gas.

Before using KLÜBER SUMMIT PGS 100, drain any old compressor oil from the system as much as possible while it is still warm. Drain coolers, separator tanks, and all lines as well. Next, clean or preferably change the filters. Only recharge with KLÜBER SUMMIT PGS 100 after the aforementioned steps have been completed.

We recommend attaching a label stating the type and fill date of the lubricant to the filter or compressor cover.

To the best of our knowledge, KLÜBER SUMMIT PGS 100 is compatible with NBR (acrylonitrile content > 30 %), EPDM, MVQ (silicone rubber), PTFE and polyurethane foams. It can also be used with paints on an epoxy or phenolic basis.

However, you are advised not to use KLÜBER SUMMIT PGS 100 together with acrylic paints, polyurethane varnishes and synthetic materials on a PVC, polycarbonate and ABS basis.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

KLÜBER SUMMIT PGS 150

KLÜBER SUMMIT PGS 150 is a synthetic lubricant oil uniquely formulated to endure the harsh conditions of gas compressors. With maximal resistance to hydrocarbon dilution, it runs at the optimal operating viscosity, helping your components last longer.



Features

- Highly resistant to hydrocarbon dilution
- Wear protection
- Sludge and deposit reduction

Benefits

- Maintains proper operating viscosity
- Protects your compressor parts from wear, extending parts life
- Enhances equipment performance
- Extends drain intervals of your compressors

Product Number	Product Name
210059	KLÜBER SUMMIT PGS 150 200 LTR

Specification	
Invent Hazard Material (IMO/EU) classification	C-3
Colour	Yellow
Density at 20°C [g/cm³]	~ 1.06
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 26.9
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 150
Packing Size	200 ltr
Shelf life [months]	36
Viscosity index, DIN ISO 2909	≥200
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥240
Pour point, DIN ISO 3016 [°C]	≤-36

Directions for Use

KLÜBER SUMMIT PGS 150 is suitable for use in piston, screw-type and rotary vane compressors for natural or process gas.

Before using KLÜBER SUMMIT PGS 150, drain any old compressor oil from the system as much as possible while it is still warm. Drain coolers, separator tanks, and all lines as well. Next, clean or preferably change the filters. Only recharge with KLÜBER SUMMIT PGS 150 after the aforementioned steps have been completed.

We recommend attaching a label stating the type and fill date of the lubricant to the filter or compressor cover.

To the best of our knowledge, KLÜBER SUMMIT PGS 150 is compatible with NBR (acrylonitrile content 30%), EPDM, MVQ (silicone rubber), PTFE and polyurethane foams. It can also be used with paints on an epoxy or phenolic basis.

However, you are advised not to use KLÜBER SUMMIT PGS 150 together with acrylic paints, polyurethane varnishes and synthetic materials on a PVC, polycarbonate and ABS basis.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT HYSYN FG 46

KLÜBER SUMMIT HYSYN FG 46 is a synthetic compressor oil made for safe and efficient use in the food-processing, cosmetics, pharmaceutical and animal feed industries. Designed with good oxidation stability to reduce oxidation residues in your compressors — extending oil change intervals for you, and prolonging the service lives of your oil filters and separators. Compliant with FDA 21 CFR § 78.3570 and ISO 21469 certified.



Features

- NSF H1-registered for use in the food-processing and pharmaceutical industries
- Compliant with FDA 21 CFR § 178.3570
- ISO 21469-certified
- Fully synthetic
- Oxidation stability
- Low evaporation tendency
- High scuffing load capacity

Benefits

- Meets safety and hygiene regulations of the food-processing and pharmaceutical industries
- Reduces maintenance and operating costs
- Easy to convert from mineral oils due to miscibility and compatibility with common seal materials
- Low impact of oil vapour on compressed air
- Extends service life of oil filters, activated carbon filters and oil separators

Product Number	Product Name
210067	KLÜBER SUMMIT HYSYN FG 46 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Density at 20°C [g/cm³]	~0.83
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~7.7
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~46
Packing Size	200 ltr
Classification acc. to ISO 12925-1	Corresponds to
NSF-H1 registration	133 734
Shelf life [months]	60
Viscosity index, DIN ISO 2909	≥120
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Demulsifying capacity, DIN 51599, ASTM D 1401, at 54 °C	40/37/3ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥240
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤150/10
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	≤75/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤150/10
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥12
Lower service temperature	-40°C / -40°F
Pour point, DIN ISO 3016 [°C]	≤-45
Upper service temperature	135°C / 275°F

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Directions for Use

KLÜBER SUMMIT HYSYN FG 46 is suitable for use in oil-injected screw-type compressors, reciprocating piston compressors and centrifugal compressors. It was specially developed for the food-processing and pharmaceutical industries requiring oil-free compressed air.

You may also use KLÜBER SUMMIT HYSYN FG 46 to lubricate gears in oil-free screw-type compressors. Due to its good stability, it is suitable for low-temperature applications in industrial gears.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

If you are switching your used compressor from mineral oil to KLÜBER SUMMIT HYSYN FG 46, drain the old oil from the whole circuit of the compressor while it is still warm.

We recommend changing all oil filters and separators before refilling the compressor with KLÜBER SUMMIT HYSYN FG 46.

KLÜBER SUMMIT SH 32

KLÜBER SUMMIT SH 32 is a synthetic air compressor oil for oil change intervals up to 10,000 operating hours



Product information

Klüber Summit SH oils are air compressor oils based on synthetic hydrocarbon and additives. They can be mixed with mineral oils and synthetic hydrocarbon oils, however are not miscible with polyglycol oils.

Klüber Summit SH oils offer excellent oxidation stability due to the synthetic base oil, thus minimizing oxidation residues in the compressors, extending oil change intervals and the service life of oil filters and separators. Special inhibitors contained in the oils keep the inside of compressors clean.

Gumming of pneumatic valves in the compressed air circuit can be prevented as well due to the low oil content of the Klüber Summit SH oils and maintenance intervals can be extended, reducing both the strain on resources and disposal costs.

In addition, Klüber Summit SH contributes significantly to the compressor system's energy efficiency compared with conventional mineral compressor oils. Optimised friction behaviour reduces the compressor's internal friction resistance and operating temperature.

Features

- Designed especially for the lubrication of highly loaded, oil-injected screw-type compressors with oil change intervals up to 10,000 operating hours.
- Used for compressors that were previously run with mineral oils.
- Neutral towards most elastomer seals used in air compressors, therefore leakage is not to be expected.

Benefits

- Low maintenance and operating costs due to extended oil change intervals up to 10,000 operating hours in oilinjected screw-type compressors
- Easy compressor oil conversion due to neutral behaviour of oils towards seals
- Low tendency to evaporation and thus low impact of the oil vapour on the compressed air
- Longer servie life of the oil filters, activated carbon filters and oil separators
- Low formation of oxidation residues in the oil circuit
- Reduced operating costs due to extended oil filter and separator life

Product Number	Product Name
210089	KLÜBER SUMMIT SH 32 20 LTR CANISTER
210088	KLÜBER SUMMIT SH 32 200 LTR DRUM

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Product Name	KLÜBER SUMMIT SH 32 20 LTR CANISTER	KLÜBER SUMMIT SH 32 200 LTR DRUM
Invent Hazard Material (IMO/EU) classification	C-3	C-3
Appearance	Clear	Clear
Colour	Colourless	Colourless
Density at 20°C [g/cm³]	approx.0.85	approx.0.85
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 5.8	approx. 5.8
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 32	approx. 32
Shelf life [months]	60	60
Viscosity index, DIN ISO 2909	≥ 115	≥ 115
Copper corrosion, DIN EN ISO 2160, 24h/100°C"	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree
Demulsifying capacity, DIN 51599, ASTMD 1401, at 54 °C	40-37-3 ml	40-37-3 ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥ 230	≥ 230
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	50/0	50/0
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	50/0	50/0
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	50/0	50/0
Pour point, DIN ISO 3016 [°C]	≤ -51	≤ -51

Directions for Use

When selecting the oil viscosity for air compressors please observe the manufacturers' instructions.

When switching a used compressor to a Klüber Summit SH oil, drain old oil from whole circuit of compressor while still warm. We also recommend changing all oil filters and separators. Then refill the compressor with Klüber Summit SH oil. When switching from mineral oil to a synthetic Klüber Summit SH oil please consider that the compressor may contain oxidation residues in the form of blackened or contaminated oil. As such residues can affect the service life of the fresh Klüber Summit SH oil, the compressor should be cleaned.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT SH 46

KLÜBER SUMMIT SH 46 is a synthetic air compressor oil for oil change intervals up to 10,000 operating hours



Product Information

Klüber Summit SH oils are air compressor oils based on synthetic hydrocarbon and additives. They can be mixed with mineral oils and synthetic hydrocarbon oils, however are not miscible with polyglycol oils.

Klüber Summit SH oils offer excellent oxidation stability due to the synthetic base oil, thus minimizing oxidation residues in the compressors, extending oil change intervals and the service life of oil filters and separators. Special inhibitors contained in the oils keep the inside of compressors clean.

Gumming of pneumatic valves in the compressed air circuit can be prevented as well due to the low oil content of the Klüber Summit SH oils and maintenance intervals can be extended, reducing both the strain on resources and disposal costs.

In addition, Klüber Summit SH contributes significantly to the compressor system's energy efficiency compared with conventional mineral compressor oils. Optimised friction behaviour reduces the compressor's internal friction resistance and operating temperature.

Features

- Designed especially for the lubrication of highly loaded, oil-injected screw-type compressors with oil change intervals up to 10,000 operating hours.
- Used for compressors that were previously run with mineral oils.
- Neutral towards most elastomer seals used in air compressors, therefore leakage is not to be expected.

Benefits

- Low maintenance and operating costs due to extended oil change intervals up to 10,000 operating hours in oilinjected screw-type compressors
- Easy compressor oil conversion due to neutral behaviour of oils towards seals
- Low tendency to evaporation and thus low impact of the oil vapour on the compressed air
- Longer servie life of the oil filters, activated carbon filters and oil separators
- Low formation of oxidation residues in the oil circuit, reduced operating costs due to extended oil filter and separator life

Product Number	Product Name
210080	KLÜBER SUMMIT SH 46 20 LTR CANISTER
210079	KLÜBER SUMMIT SH 46 200 LTR DRUM

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Product Name	KLÜBER SUMMIT SH 46 20 LTR CANISTER	KLÜBER SUMMIT SH 46 200 LTR DRUM
Invent Hazard Material (IMO/EU) classification	C-3	C-3
Appearance	Clear	Clear
Colour	Colourless	Colourless
Density at 20°C [g/cm³]	approx. 0.85	approx. 0.85
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 7.3	approx. 7.3
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 46	approx. 46
Shelf life [months]	60	60
Viscosity index, DIN ISO 2909	>= 115	>= 115
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree
Demulsifying capacity, DIN 51599, ASTM D1401, at 54 °C	40/37/3 ml	40/37/3 ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>= 240	>= 240
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	<=50/0 ml	<=50/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	<=50/0 ml	<=50/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	<=50/0 ml	<=50/0 ml
Pour point, DIN ISO 3016 [°C]	< -36	< -36

Directions for Use

When selecting the oil viscosity for air compressors please observe the manufacturers' instructions.

When switching a used compressor to a Klüber Summit SH oil, drain old oil from whole circuit of compressor while still warm. We also recommend changing all oil filters and separators. Then refill the compressor with Klüber Summit SH oil.

When switching from mineral oil to a synthetic Klüber Summit SH oil please consider that the compressor may contain oxidationresidues in the form of lackened or contaminated oil.

As such residues can affect the service life of the fresh Klüber Summit SH oil, the compressor should be cleaned.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT SH 68

KLÜBER SUMMIT SH 68 is a synthetic air compressor oil for oil change intervals up to 10,000 operating hours



Product information

Klüber Summit SH oils are air compressor oils based on synthetic hydrocarbon and additives. They can be mixed with mineral oils and synthetic hydrocarbon oils, however are not miscible with polyglycol oils.

Klüber Summit SH oils offer excellent oxidation stability due to the synthetic base oil, thus minimizing oxidation residues in the compressors, extending oil change intervals and the service life of oil filters and separators. Special inhibitors contained in the oils keep the inside of compressors clean.

Gumming of pneumatic valves in the compressed air circuit can be prevented as well due to the low oil content of the Klüber Summit SH oils and maintenance intervals can be extended, reducing both the strain on resources and disposal costs.

In addition, Klüber Summit SH contributes significantly to the compressor system's energy efficiency compared with conventional mineral compressor oils. Optimised friction behaviour reduces the compressor's internal friction resistance and operating temperature.

Features

- Designed especially for the lubrication of highly loaded, oil-injected screw-type compressors with oil change intervals up to 10,000 operating hours.
- Used for compressors that were previously run with mineral oils.
- Neutral towards most elastomer seals used in air compressors, therefore leakage is not to be expected.

Benefits

- Low maintenance and operating costs due to extended oil change intervals up to 10,000 operating hours in oil injected screw-type compressors
- Easy compressor oil conversion due to neutral behaviour of oils towards seals
- Low tendency to evaporation and thus low impact of the oil vapour on the compressed air
- Longer service life of the oil filters, activated carbon filters and oil separators
- Low formation of oxidation residues in the oil circuit, reduced operating costs due to extended oil filter and separator life

Product Number	Product Name
210091	KLÜBER SUMMIT SH 68 20 LTR CANISTER
210090	KLÜBER SUMMIT SH 68 200 LTR DRUM

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Product Name	KLÜBER SUMMIT SH 68 20 LTR CANISTER	KLÜBER SUMMIT SH 68 200 LTR DRUM
Invent Hazard Material (IMO/EU) classification	C-3	C-3
Appearance	Clear	Clear
Colour	Colourless	Colourless
Density at 20°C [g/cm³]	approx.0.86	approx.0.86
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 9.8	approx. 9.8
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 68	approx. 68
Shelf life [months]	60	60
Viscosity index, DIN ISO 2909	≥ 115	≥ 115
Copper corrosion, DIN EN ISO 2160, 24h/100°C	1 - 100 - 24 corrosion degree	1 - 100 - 24 corrosion degree
Demulsifying capacity, DIN 51599, ASTM D 1401, at 54 °C	40-37-3 ml	40-37-3 ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>= 240	>= 240
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	50/0	50/0
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	50/0	50/0
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	50/0	50/0
Pour point, DIN ISO 3016 [°C]	≤ -36	≤ -36

Directions for Use

When selecting the oil viscosity for air compressors please observe the manufacturers' instructions. When switching a used compressor to a Klüber Summit SH oil, drain old oil from whole circuit of compressor while still warm. We also recommend changing all oil filters and separators. Then refill the compressor with Klüber Summit SH oil. When switching from mineral oil to a synthetic Klüber Summit SH oil please consider that the compressor may contain oxidation residues in the form of blackened or contaminated oil. As such residues can affect the service life of the fresh Klüber Summit SH oil, the compressor should be cleaned.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBER SUMMIT NGL 444

Klüber Summit NGL compressor lubricants are based on polyalkylene glycols and special additives.



Product Information

Klüber Summit NGL compressor lubricants are based on polyalkylene glycols and special additives. In high-pressure reciprocating compressors pumping natural gas or hydrocarbon-based process gas, petroleum based lubricants are easily absorbed into the gas stream and diluted by the gas. Klüber Summit NGL lubricants are extremely resistant to hydrocarbon dilution and gas stream absorption. The extremely high viscosity index of both products ensures efficient lubricity in a wide temperature range.

Features

- Designed for high pressure reciprocating compressors pumping natural gas, carbon dioxide or process gases (e.g. hydrogen, helium, nitrogen).
- Designed for all oil-lubricated components in reciprocating compressors, e.g. cylinder, highpressure packing, bearings and engine.
- Please observe the manufacturer's viscosity specifications.
- Owing to its low pour point, Klüber Summit NGL-444 is also suitable in case of very low ambient temperatures."

Benefits

- For high pressure reciprocating compressors pumping natural gas, carbon dioxide or process gases
- Extremely resistant to hydrocarbon dilution and absorption and good chemical resistance to process gases
- Very high viscosity index, thus low viscosity change in a wide temperature range
- Very good wear protection for longer component lifetime
- Low residue formation for longer lifetime of valves and piston rings

Product Number	Product Name
210093	KLÜBER SUMMIT NGL 444 20 LTR CANISTER
210092	KLÜBER SUMMIT NGL 444 200 LTR DRUM

SPECIALITY MARINE LUBRICANTS

Synthetic Oil

Synthetic Oil

Specification

Product Name	KLÜBER SUMMIT NGL 444 20 LTR CANISTER	KLÜBER SUMMIT NGL 444 200 LTR DRUM
Invent Hazard Material (IMO/EU) classification	C-3	C-3
Appearance	Clear	Clear
Colour	Colourless	Colourless
Density at 20°C [g/cm³]	approx.1.04	approx.1.04
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 16	approx. 16
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 79	approx. 79
Shelf life [months]	36	36
Viscosity index, DIN ISO 2909	≥ 208	≥ 208
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥225	≥225
Pour point, DIN ISO 3016 [°C]	≤ -42	≤ -42

Directions for Use

The Klüber Summit NGL series is not miscible with mineral oil or PAO! If you wish to change over from mineral oil/PAO oils to the Klüber Summit NGL series, please observe our changeover instructions. Drain as much of the previously used compressor oil from the system as possible, making sure that the oil is drained while still warm. Do not forget to drain coolers, separatortanks and all lines. Afterwards clean or change the filter, then recharge with the Klüber Summit NGL operational lubricant. We recommend attaching a label indicating the type of lubricant used and the filling date to the filter or the cover. Due to the varyingmake-up of gases and operating conditions, please contact your local WSS representative for specific productrecommendations. Materials compatibility Klüber Summit NGL compressor lubricants have been designed to be compatible withNBR (share of acrylonitrile > 30%), EPDM, MVQ (silicone rubber), PTFE, polyurethane foams, as well as paints based onphenolic and epoxy resin. They should not be used with paints based on acrylic resin, polyurethane paints and plastic materialssuch as PVC, polycarbonate and ABS.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

KLÜBERBIO BM 32-142

KLÜBERBIO BM 32-142 is a multi-purpose Environmentally Acceptable Lubricant (EAL) built for rolling and plain bearings. Exhibiting good low-temperature behaviour, it was designed to perform even in very low ambient temperatures, across various environmental sensitivity needs.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants as defined in Appendix A of the 2013 Vessel General Permit
- Multi-purpose
- Good low-temperature behaviour
- High load-carrying capacity
- Corrosion and wear protection

Benefits

- Environmentally-friendly
- Conveniently suitable for a range of applications and components
- High-performance in very low ambient temperatures
- Protects your components from wear and corrosion, extending their service lives
- Extend maintenance intervals of your parts

Product Number	Product Name
210016	KLÜBERBIO BM 32-142 25 KG

Specification

Invent Hazard Material (IMO/EU) classification	C-30
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Colour	Beige
Density at 20°C [g/cm³]	~ 0.94
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 22
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 140
NLGI grade, DIN 51818	2
Packing Size	25 KG
Shelf life [months]	36
Speed factor (n x dm)	~ 300 000 mm/min
Copper corrosion, DIN 51811, (lubricating grease), 24h/100°C	1 - 100 corrosion degree
Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water	≤1 corrosion degree
Four-ball EP tester, wear value, DIN 51350 part 5, procedure E,60s/1000N, wear scar diameter [mm]	≤1.8
Lower service temperature	-40°C / -40°F
Low-temperature torque, IP 186, -40 °C, running [mNm]	≤100
Low-temperature torque, IP 186, -40 °C, start [mNm]	≤1000
Upper service temperature	120°C / 248°F
Water resistance, DIN 51807 pt. 01, 3 h/90 °C, rating	1 - 90

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

Directions for Use

KLÜBERBIO BM 32-14 is suitable for the lubrication of rolling and plain bearings with high surface pressure which may come in direct contact with the natural environment. Given its eco-compatibility, corrosion protection and load-carrying capacity, it is ideal to use in the offshore and maritime industry.

Apply KLÜBERBIO BM 32-14 by brush, spatula, grease gun or automatic lubricant dispensers.

Note that under the effects of UV, KLÜBERBIO BM 32-14 turns a reddish colour. This, however, does not affect its performance.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO LG 39-701 N

KLÜBERBIO LG 39-701 N is an Environmentally Acceptable Lubricant (EAL) designed for maximal efficiency and protection for your open gear drives. Powerfully adhesive, combined with excellent wear and corrosion protection. It is optimised for use in spray systems — even in low temperatures — helping you cut down on your operating costs.



Product Information

Equipment onboard ships like open gear drives and jack-up lifting systems are in frequent contact with seawater and hence at risk of corrosion. To ensure a longer equipment life, KLÜBERBIO LG 39-701 N makes use of a new type of base oil and additive package for a boosted load capacity, good antiwear and anticorrosive properties, and excellent adhesion strength.

Possessing good low-temperature behaviour, KLÜBERBIO LG 39-701 N is optimised for use in centralised lubricating systems where it can be pumped as low as -30 °C or sprayed at 0 °C. It is a versatile lubricant solution that you can use over a wider temperature range than what is common with mineral-oil-based greases (of the same base oil viscosity), including cold conditions.

Moreover, this high-performance grease promises that less is enough --- sprayed in jack-up lifting systems, KLÜBERBIO LG 39-701 N cuts your lubricant consumption by over 50%, meaning lesser operating costs for you, and reduced wastage for the environment.

KLÜBERBIO LG 39-701 N complies with the 2013 Vessel General Permit requirements of the Environmental Protection Agency (EPA) for biodegradability, non-toxicity and non-bioaccumulation. Its base oil is made from 100% renewable resources and ultimately biodegradable, minimising any damage caused to our waters in the event of a leak.

Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Good low-temperature behaviour
- Optimised for use in spray lubrication systems
- Antiwear and anticorrosive
- Powerful adhesion
- Meets requirements for OSPAR conformance, including Norway Yellow 1, Denmark (registration no. 2458948) and Cefas E (registration no. 27423)

Benefits

- Environmentally-friendly
- Protects your equipment from corrosion
- Protects your equipment from wear and tear
- Performs well over a wide range of temperatures including cold ones
- No drip off that could contaminate your deck or goods
- Effective and economical in use, especially by spray systems

Product Number	Product Name
210028	KLÜBERBIO LG 39-701 N 18 KG
210072	KLÜBERBIO LG 39-701 N 180 KG

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

Specification

Product Name	KLÜBERBIO LG 39-701 N 18 KG	KLÜBERBIO LG 39-701 N 180 KG
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60	≥60
Colour	Beige	Beige
Density at 20°C [g/cm³]	~ 0.94	~ 0.94
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 90	~ 90
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 680	~ 680
Texture	Homogeneous	Homogeneous
Chemical composition, thickener	Calcium soap	Calcium soap
Chemical composition, type of oil	Natural ester	Natural ester
Flow pressure of lubricating greases, DIN 51805-2, test temperature: -30 °C [mbar]	≤1400	≤1400
Shelf life [months]	24	24
Vessel General Permit	Passed	Passed
Drop point, DIN ISO 2176, IP 396 [°C]	≥100	≥100
FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage	≥12	>12
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	300 x 0.1	300 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	330 x 0.1	330 x 0.1

Directions for Use

KLÜBERBIO LG 39-701 N was developed for lubricating open gear drives, rack-and-pinion drives, rudder stocks and sliding surfaces with high surface pressure.

It is ideal for maritime applications requiring good eco-compatibility, anticorrosive effects, and/or high load-carrying capacity.

Apply KLÜBERBIO LG 39-701 N continuously using transfer pinion lubrication, spray systems, automatic greasing systems or brush.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO LG 39-700 N

KLÜBERBIO LG 39-700 N is an Environmentally Acceptable Lubricant (EAL) designed for maximal efficiency and protection for your open gear drives. Powerfully adhesive, combined with excellent wear and corrosion protection. It is optimised for use in spray systems — even in low temperatures — helping you cut down on your operating costs.



Features

Equipment onboard ships like open gear drives and jack-up lifting systems are in frequent contact with seawater and hence at risk of corrosion. To ensure a longer equipment life, KLÜBERBIO LG 39-700 N makes use of a new type of base oil and additive package for a boosted load capacity, good antiwear and anticorrosive properties, and excellent adhesion strength.

Possessing good low-temperature behaviour, KLÜBERBIO LG 39-700 N is optimised for use in centralised lubricating systems where it can be pumped as low as -30 °C or sprayed at 0 °C. It is a versatile lubricant solution that you can use over a wider temperature range than what is common with mineral-oil-based greases (of the same base oil viscosity), including cold conditions.

Moreover, this high-performance grease promises that less is enough --- sprayed in jack-up lifting systems, KLÜBERBIO LG 39-700 N cuts your lubricant consumption by over 50%, meaning lesser operating costs for you, and reduced wastage for the environment.

KLÜBERBIO LG 39-700 N complies with the 2013 Vessel General Permit requirements of the Environmental Protection Agency (EPA) for biodegradability, non-toxicity and non-bioaccumulation. Its base oil is made from 100% renewable resources and ultimately biodegradable, minimising any damage caused to our waters in the event of a leak.

Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Good low-temperature behaviour
- Optimised for use in spray lubrication systems
- Antiwear and anticorrosive
- Powerful adhesion
- Meets requirements for OSPAR conformance, including Norway Yellow 1, Denmark (registration no. 2458948) and Cefas E (registration no. 27423)

Benefits

- Environmentally-friendly
- Protects your equipment from corrosion
- Protects your equipment from wear and tear
- Performs well over a wide range of temperatures including cold ones
- No drip off that could contaminate your deck or goods
- Effective and economical in use, especially by spray systems

Product Number	Product Name
210037	KLÜBERBIO LG 39-700 N 25 KG
210071	KLÜBERBIO LG 39-700 N 180 KG

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

Specification

Product Name	KLÜBERBIO LG 39-700 N 25 KG	KLÜBERBIO LG 39-700 N 180 KG
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60	≥60
Colour	Beige	Beige
Density at 20°C [g/cm³]	~ 0.93	~ 0.93
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 90	~ 90
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 680	~ 680
Texture	Homogeneous	Homogeneous
Chemical composition, thickener	Calcium soap	Calcium soap
Chemical composition, type of oil	Natural ester	Natural ester
Flow pressure of lubricating greases, DIN 51805-2, test temperature: -30 °C [mbar]	≤1400	≤1400
Shelf life [months]	24	24
Vessel General Permit	Passed	Passed
Drop point, DIN ISO 2176, IP 396 [°C]	≥100	≥100
FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage	>12	>12
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	355 x 0.1	355 x 0.1
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	385 x 0.1	385 x 0.1

Directions for Use

KLÜBERBIO LG 39-700 N was developed for lubricating open gear drives, rack-and-pinion drives, rudder stocks and sliding surfaces with high surface pressure.

It is ideal for maritime applications requiring good eco-compatibility, anticorrosive effects, and/or high load-carrying capacity.

Apply KLÜBERBIO LG 39-700 N continuously using transfer pinion lubrication, spray systems, automatic greasing systems or brush.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO AM 92-142

KLÜBERBIO AM 92-142 is an Environmentally Acceptable Lubricant (EAL) designed to help your steel wire ropes last. Powerfully adhesive and water-resistant, it also has an excellent load-carrying capacity and anti-wear and anti-corrosion properties.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Good adhesion to metal surfaces
- Water-resistant
- Temperature stability
- Compatible with zinc coatings of galvanized ropes

Benefits

- Environmentally-friendly
- Protects your steel wire ropes from wear and tear
- Protects your steel wire ropes from corrosion
- No drip off that could contaminate your deck or goods
- Effective and economical in use
- KLÜBERBIO AM 92-142 is classified as Environmentally Acceptable Lubricant (EAL) by the biodegradability, toxicity and bioaccumulation standards of the US Environmental Protection Agency and contains over 60% renewable materials, serving our commitment to finding sustainable solutions for our environment.

Product Number	Product Name
210068	KLÜBERBIO AM 92-142 25 KG
210021	KLÜBERBIO AM 92-142 180 KG

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

Specification

Product Name	KLÜBERBIO AM 92-142 25 KG	KLÜBERBIO AM 92-142 180 KG
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]		
	≥60	≥60
Colour	Beige	Beige
Density at 20°C [g/cm³]	~ 0.98	~ 0.98
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]		
	~ 22	~ 22
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]		
	~ 140	~ 140
NLGI grade, DIN 51818	2	2
Texture	Homogeneous, fibrous	Homogeneous, fibrous
Flow pressure of lubricating greases, DIN 51805-2, test temperature: -30 °C [mbar]		
	≤1400	≤1400
Shelf life [months]	24	24
Drop point, DIN ISO 2176, IP 396 [°C]		
	≥170	≥170
Lower service temperature	-30°C / -22°F	-30°C / -22°F
Oil separation, DIN 51817 N, after 7 d/40 °C		
	≤5% by weight	≤5% by weight
Upper service temperature	150°C / 302°F	150°C / 302°F
Water resistance, DIN 51807 pt. 01, 3 h/40°C		
	0 - 40	0 - 40
Worked penetration, DIN ISO 2137, 25 °C [mm]	~ 275 x 0.1	0 - 40

Directions for Use

KLÜBERBIO AM 92-142 is appropriate for use on steel wire ropes in the marine and offshore industry subject to harsh conditions, such as extreme hot or cold climates, constant exposure to seawater, and extreme loads.

You may use KLÜBERBIO AM 92-142 as initial lubrication during the production of the steel wires and/or for relubrication as a coating lubricant. Apply KLÜBERBIO AM 92-142 by brush or automatic wire rope lubricators.

Follow the guidelines of the wire rope manufacturer w.r.t. the maintenance and inspection needs of your wire ropes.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

EAL Grease
EAL Grease

KLÜBERBIO AG 39-602 N

KLÜBERBIO AG 39-602 N is an Environmentally Acceptable Lubricant (EAL) designed to protect your open gears and steel cables. Strongly adhesive, water-resistant, and anti-corrosive.



Product information

Open gears and steel ropes operating in a maritime environment are subject to extreme loads and requirements. Saline and humid air, strong temperature fluctuations and splash water or constant contact with seawater take their toll on the equipment used.

Klüüberbio 39-602 N was developed for the lubrication of open pinion gears on winches and jack-up platforms, as well as steel cables in contact with water. The product can also be used in other maritime applications that require lubricants to have good water washout resistance, very good anti-corrosion resistance and/or good load-carrying capacity e.g. in low-speed plain bearings, guide rails and open winch gears.

Features

- Good adhesion to surfaces and excellent anticorrosive effect.
- Designed with a highly effective anti-wear additive, which contributes to long component life, less lubricant consumption and labour costs.
- In addition to the EU Ecolabel, Klüüberbio AG 39-602 complies with the requirements for classification as an Environmentally Acceptable Lubricant (EAL) in terms of biodegradability, toxicity and bioaccumulation, as defined by the US Environmental Protection Agency for the "2013 Vessel General Permit

Benefits

- Meets the requirements for Environmentally Acceptable Lubricants (EAL) as defined in Appendix A of the 2013 Vessel General Permit
- Long relubrication intervals due to good adhesion and water resistance
- Corrosion protection also under influence of seawater due to specially selected anti-corrosion additives
- Contributes to the achievement of your sustainability goals
- Less impact on the environment due to high content of renewable raw materials
- Extended component life due to reduced wear for less strain on resources and material consumption

Product Number	Product Name
210077	KLÜBERBIO AG 39-602 N 25 KG BUCKET
210078	KLÜBERBIO AG 39-602 N 180 KG

SPECIALITY MARINE LUBRICANTS

EAL Grease

EAL Grease

Specification

Product Name	KLUBERBIO AG 39-602 N 25 KG BUCKET	KLUBERBIO AG 39-602 N 180 KG BUCKET
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	>= 60	>= 60
Colour	Beige	Beige
Density at 20°C [g/cm³]	approx. 0.95	approx. 0.95
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 65	approx. 65
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 600	approx. 600
Texture	Homogeneous	Homogeneous
Chemical composition, thickener	Calcium soap	Calcium soap
Chemical composition, type of oil	Ester oil	Ester oil
Flow pressure of lubricating greases, DIN 51805, test temperature: -20 °C [mbar]	≤1400	≤1400
Shelf life [months]	36	36
Copper corrosion, DIN EN ISO 2160, 24h/100°C	1 - 100 corrosion degree	
Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water	<= 1 corrosion degree	<= 1corrosiondegree
Drop point, DIN ISO 2176, IP 396 [°C]	>= 130	>= 130
FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage	>= 12	>= 12
Lower service temperature	-20 °C / -4 °F	20 °C / -4 °F
Oil separation, DIN 51817 N, after 7 d/40 °C	<= 5 % by weight	<= 5 % by weight
Upper service temperature	120 °C / 248°F	120 °C / 248°F
Water resistance, DIN 51807 pt. 01, 3 h/90 °C, rating	0 - 90	0 - 90
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	290 x 0.1 mm	290 x 0.1 mm
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	330 x 0.1 mm	330 x 0.1 mm

Directions for Use

Klüüberbio AG 39-602 N can be applied continuously through transfer lubrication with pinion or by brush. Compressed-airlubrication equipment can be used for the lubrication of steel cables.

The required lubricant quantity depends on the operatingconditions in each individual case. Our sales engineers will be pleased to assist you in determining lubricating quantities.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO EG 2-68

KLÜBERBIO EG 2-68 is a synthetic Environmentally Acceptable Lubricant (EAL) specially formulated to protect your gears. By providing high scuffing resistance, it safeguards your gear teeth against fretting damage — even at high peak loads.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Awarded the European Ecolabel
- Biodegradable and non-toxic to marine organisms
- Scuffing resistance
- Shear stability
- Compatible to use with standard NBR and FKM elastomers

Benefits

- Environmentally-friendly
- Protects your gear against fretting damage, even at high peak loads
- Maintains good performance under high loads
- Reduces leakage and contamination

Product Number	Product Name
210000	KLÜBERBIO EG 2-68 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density, DIN 51757 at 15 °C [kg/m3]	~ 909
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 11
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 68
Packing Size	200 ltr
Classification acc. to CLP -DIN 51517-3	Corresponds to
ISO viscosity grade of the base oil, DIN ISO 3448	68
Marking acc. to DIN 51502	CLP E 68
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 140
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥260
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	>13
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-25
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil
EAL Oil

Directions for Use

KLÜBERBIO EG 2-68 is ideal for the lubrication of ships' gearboxes, particularly for thrusters and rudder propellers. It is tried, tested and recommended by leading manufacturers of thruster and propeller shaft seals.

Given its wear and pitting protection properties, KLÜBERBIO EG 2-68 complies with the requirements of rolling bearing manufacturers for use on highly loaded, large rolling bearings in pod drives.

KLÜBERBIO EG 2-68 is generally miscible with mineral oils and synthetic hydrocarbons. However, please conduct a miscibility test to safely and completely rule out the possibility of incompatibility between different additives.

Before the changeover, clean the lube points or flush the gear with the KLÜBERBIO EG 2-68 oil to be used. Please note that KLÜBERBIO EG 2-68 needs to be approved by the OEMs of the equipment — if it is not, or the equipment's specification has been changed, consult the OEM prior to changing the oil.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO EG 2-100

KLÜBERBIO EG 2-100 is a synthetic Environmentally Acceptable Lubricant (EAL) specially formulated to protect your gears. By providing high scuffing resistance, it safeguards your gear teeth against fretting damage — even at high peak loads.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Awarded the European Ecolabel
- Biodegradable and non-toxic to marine organisms
- Scuffing resistance
- Shear stability
- Compatible to use with standard NBR and FKM elastomers

Benefits

- Environmentally-friendly
- Protects your gear against fretting damage, even at high peak loads
- Maintains good performance under high loads
- Reduces leakage and contamination

Product Number	Product Name
210004	KLÜBERBIO EG 2-100 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density at 15°C [g/cm³]	~ 919
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 14
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 100
Packing Size	200 ltr
ISO viscosity grade of the base oil, DIN ISO 3448	100
Marking acc. to DIN 51502	CLP E 100
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 140
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥280
Lower service temperature	≤100/10
Pour point, DIN ISO 3016 [°C]	≤100/10
Upper service temperature	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	>13
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-25
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO EG 2-100 is ideal for the lubrication of ships' gearboxes, particularly for thrusters and rudder propellers. It is tried, tested and recommended by leading manufacturers of thruster and propeller shaft seals.

Given its wear and pitting protection properties, KLÜBERBIO EG 2-100 complies with the requirements of rolling bearing manufacturers for use on highly loaded, large rolling bearings in pod drives.

KLÜBERBIO EG 2-100 is generally miscible with mineral oils and synthetic hydrocarbons. However, please conduct a miscibility test to safely and completely rule out the possibility of incompatibility between different additives.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Before the changeover, clean the lube points or flush the gear with the KLÜBERBIO EG 2-100 oil to be used. Please note that KLÜBERBIO EG 2-100 needs to be approved by the OEMs of the equipment — if it is not, or the equipment's specification has been changed, consult the OEM prior to changing the oil.

KLÜBERBIO EG 2-150

KLÜBERBIO EG 2-150 is a synthetic Environmentally Acceptable Lubricant (EAL) specially formulated to protect your gears. By providing high scuffing resistance, it safeguards your gear teeth against fretting damage — even at high peak loads.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Awarded the European Ecolabel
- Biodegradable and non-toxic to marine organisms
- Scuffing resistance
- Shear stability
- Compatible to use with standard NBR and FKM elastomers

Benefits

- Environmentally-friendly
- Protects your gear against fretting damage, even at high peak loads
- Maintains good performance under high loads
- Reduces leakage and contamination

Product Number	Product Name
210008	KLÜBERBIO EG 2-150 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density, DIN 51757 at 15 °C [kg/m3]	~ 927
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 18
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 150
Packing Size	200 ltr
Classification acc. to CLP -DIN 51517-3	Corresponds to
EU Ecolabel registration number	DE/027/260
ISO viscosity grade of the base oil, DIN ISO 3448	150
Marking acc. to DIN 51502	CLP E 150
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 135
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥280
Foam test, ASTM-D 892, ISO 6247, sequence I/24°C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	>13
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-25
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO EG 2-150 is ideal for the lubrication of ships' gearboxes, particularly for thrusters and rudder propellers. It is tried, tested and recommended by leading manufacturers of thruster and propeller shaft seals.

Given its wear and pitting protection properties, KLÜBERBIO EG 2-150 complies with the requirements of rolling bearing manufacturers for use on highly loaded, large rolling bearings in pod drives.

KLÜBERBIO EG 2-150 is generally miscible with mineral oils and synthetic hydrocarbons. However, please conduct a miscibility test to safely and completely rule out the possibility of incompatibility between different additives.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Before the changeover, clean the lube points or flush the gear with the KLÜBERBIO EG 2-150 oil to be used. Please note that KLÜBERBIO EG 2-150 needs to be approved by the OEMs of the equipment — if it is not, or the equipment's specification has been changed, consult the OEM prior to changing the oil.

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

KLÜBERBIO EG 2-320

KLÜBERBIO EG 2-320 is a synthetic Environmentally Acceptable Lubricant (EAL) specially formulated to protect your gears. By providing high scuffing resistance, it safeguards your gear teeth against fretting damage — even at high peak loads.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Awarded the European Ecolabel
- Biodegradable and non-toxic to marine organisms
- Scuffing resistance
- Shear stability
- Compatible to use with standard NBR and FKM elastomers

Benefits

- Environmentally-friendly
- Protects your gear against fretting damage, even at high peak loads
- Maintains good performance under high loads
- Reduces leakage and contamination

Product Number	Product Name
210062	KLÜBERBIO EG 2-320 200 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density, DIN 51757 at 15 °C [kg/m3]	~ 943
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 34
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 320
Packing Size	200 ltr
ISO viscosity grade of the base oil, DIN ISO 3448	320
Marking acc. to DIN 51502	CLP E 320
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 150
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥270
Foam test, ASTM-D 892, ISO 6247, sequence I/24°C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	>13
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-25
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO EG 2-320 is ideal for the lubrication of ships' gearboxes, particularly for thrusters and rudder propellers. It is tried, tested and recommended by leading manufacturers of thruster and propeller shaft seals.

Given its wear and pitting protection properties, KLÜBERBIO EG 2-320 complies with the requirements of rolling bearing manufacturers for use on highly loaded, large rolling bearings in pod drives.

KLÜBERBIO EG 2-320 is generally miscible with mineral oils and synthetic hydrocarbons. However, please conduct a miscibility test to safely and completely rule out the possibility of incompatibility between different additives.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

Before the changeover, clean the lube points or flush the gear with the KLÜBERBIO EG 2-320 oil to be used. Please note that KLÜBERBIO EG 2-320 needs to be approved by the OEMs of the equipment — if it is not, or the equipment's specification has been changed, consult the OEM prior to changing the oil.

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

KLÜBERBIO RM 2-100

KLÜBERBIO RM 2-100 is a synthetic Environmentally Acceptable Lubricant (EAL) designed to support and protect your stern tubes. Offering good ageing, oxidation, and shear stability, it forms a strong hydrodynamic oil film even under high loads, empowering your parts to operate reliably.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Biodegradable and non-toxic to marine organisms
- Shear stability
- Ageing stability
- Oxidation stability
- Compatible to use with standard FKM elastomers

Benefits

- Environmentally-friendly
- Minimises harm to the marine environment in the event of leaks
- High-performing under high loads
- High-performing under high ageing and oxidation conditions
- Protects your stern tube from frictional and/or temperature damage
- Reduces leakage and contamination

Product Number	Product Name
210012	KLÜBERBIO RM 2-100 200 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density at 20°C [g/cm³]	~ 0.94
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 14
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 100
Packing Size	200 ltr
EU Ecolabel registration number	DE/027/261
ISO viscosity grade of the base oil, DIN ISO 3448	100
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 137
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥230
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-30
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO RM 2-100 is suitable for lubricating propeller bushes made of white metal and propeller shaft seals. Tested and approved by all leading propeller shaft seal manufacturers.

Though it is generally miscible with stern tube oils based on mineral or ester oil, we recommend that you still perform a miscibility test beforehand to completely rule out the possibility of any incompatibility between different additives.

Please ensure that KLÜBERBIO RM 2-100 is approved by the OEM of your propellor shaft seal or bearing. If it is not, or the seal or bearing's specification has been changed, consult the OEM before changing the oil.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

EAL Oil
EAL Oil

KLÜBERBIO RM 2-150

KLÜBERBIO RM 2-150 is a synthetic Environmentally Acceptable Lubricant (EAL) designed to support and protect your stern tubes. Offering good ageing, oxidation, and shear stability, it forms a strong hydrodynamic oil film even under high loads, empowering your parts to operate reliably.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Biodegradable and non-toxic to marine organisms
- Shear stability
- Ageing stability
- Oxidation stability
- Compatible to use with standard FKM elastomers

Benefits

- Environmentally-friendly
- Minimises harm to the marine environment in the event of leaks
- High-performing under high loads
- High-performing under high ageing and oxidation conditions
- Protects your stern tube from frictional and/or temperature damage
- Reduces leakage and contamination

Product Number	Product Name
210056	KLÜBERBIO RM 2-150 200 LTR
Specification	
Invent Hazard Material (IMO/EU) classification	C-3
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density at 20°C [g/cm³]	~ 0.92
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 18
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM -445/ASTM D 7042, 40 °C [mm²/s]	~ 150
Packing Size	200 ltr
EU Ecolabel registration number	DE/027/262
ISO viscosity grade of the base oil, DIN ISO 3448	150
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 135
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥250
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-30
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO RM 2-150 is suitable for lubricating propeller bushes made of white metal and propeller shaft seals. Tested and approved by all leading propeller shaft seal manufacturers.

Though it is generally miscible with stern tube oils based on mineral or ester oil, we recommend that you still perform a miscibility test beforehand to completely rule out the possibility of any incompatibility between different additives.

Please ensure that KLÜBERBIO RM 2-150 is approved by the OEM of your propellor shaft seal or bearing. If it is not, or the seal or bearing's specification has been changed, consult the OEM before changing the oil.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

KLÜBERBIO RM 8-100

KLÜBERBIO RM 8-100 is a synthetic Environmentally Acceptable Lubricant (EAL) designed to endure the high loads in your stern tube. Equipped with good shear stability, it forms a strong, hydrodynamic oil film even under tough conditions, helping you keep your parts protected.



Features

- Compliant with the requirements for Environmentally Acceptable Lubricants (EAL) as defined by the EPA 2013 Vessel General Permit
- Biodegradable and non-toxic to marine organisms
- Shear stability
- Ageing stability
- Oxidation stability
- Water resistant
- Compatible to use with standard FKM elastomers

Benefits

- Environmentally-friendly
- Minimises harm to the marine environment in the event of leaks
- High-performing under high loads
- High-performing under high ageing and oxidation conditions
- Protects your stern tube from damage
- Prevents lubricant decomposition caused by water
- Reduces leakage and contamination

Product Number	Product Name
210069	KLÜBERBIO RM 8-100 200 LTR

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Appearance	Slightly turbid
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	≥60
Density at 20°C [g/cm³]	~ 0.93
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 14
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 100
Packing Size	200 ltr
Chemical composition, type of oil	Ester oil
ISO viscosity grade of the base oil, DIN ISO 3448	100
Shelf life [months]	36
Viscosity index, DIN ISO 2909	~ 140
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥265
Foam test, ASTM-D 892, ISO 6247, sequence I/24°C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
Lower service temperature	-25°C / -13°F
Pour point, DIN ISO 3016 [°C]	≤-30
Upper service temperature	120°C / 248°F

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Directions for Use

KLÜBERBIO RM 8-100 is ideal for lubricating propeller bushes made of white metal and propeller shaft seals.

Though it is generally miscible with stern tube oils based on mineral or ester oil, we recommend that you still perform a miscibility test beforehand to completely rule out the possibility of any incompatibility between different additives. You are also advised to flush the stern tube with KLÜBERBIO RM 8-100 before the changeover.

Please ensure that KLÜBERBIO RM 8-100 is approved by the OEM of your propellor shaft seal or bearing. If it is not, or the seal or bearing's specification has been changed, consult the OEM prior to changing the oil.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO LM 2-22

KLÜBERBIO LM 2-22 is a fully biodegradable, eco-friendly hydraulic fluid based on synthetic ester oils.



Features

- Klüberbio LM 2 oils are fully biodegradable, eco-friendly hydraulic fluids based on synthetic ester oils. The product series complies also with the U.S. Environmental Protection Agency's requirements for classification as an Environmentally Acceptable Lubricant (EAL) in terms of biodegradability, toxicity and bioaccumulation standards according to Appendix A of the EPA's Vessel General Permit (VGP)
- In addition, Klüberbio LM 2 oils meet or even exceed the minimum requirements of HEES oils according to ISO 15380

Benefits

- Comply with the requirements for Environmentally Acceptable Lubricants as defined in Appendix A of the EPA 2013 VGP (Vessel General Permit).
- Fully biodegradable, non-toxic products reducing environmental impact in the event of leakage
- Facilitate start - up of hydraulic systems at very low temperatures due to very good viscosity-temperature behaviour and low pour point; can therefore be used in hydraulic systems with high temperature fluctuations
- In addition, Klüberbio LM 2 oils meet or even exceed the minimum requirements of HEES oils according to ISO 15380

Product Number	Product Name
210073	KLÜBERBIO LM 2-22 200 LTR

SPECIALITY MARINE LUBRICANTS

EAL Oil
EAL Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Appearance	Clear
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	>= 60 %
Colour	Green
Density at 20°C [g/cm³]	approx. 0.908 g/cm³ (DIN 551757)
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 5 mm²/s
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 22 mm²/s
Packing Size	200 LTR
Chemical composition, type of oil	Ester oil
ISO viscosity grade of the base oil, DIN ISO 3448	22
Shelf life [months]	48
Vessel General Permit	fulfilled
Viscosity index, DIN ISO 2909	>= 130
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>= 180 °C
Foam test, ASTM-D 892, ISO 6247, sequence I/24°C [ml]	<= 150/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	<= 80/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	<= 150/0 ml
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	not applicable
Lower service temperature	-45 °C / -49 °F
Pour point, DIN ISO 3016 [°C]	<= -50 °C
Upper service temperature	110 °C / 230 °F

Directions for Use

KLÜBERBIO LM 2-22 is intended for applications in mobile hydraulic systems, e.g. in the marine and offshore industries as well as for use in the building and water engineering sectors. They are also preferred in stationary hydraulic equipment operating in ecologically sensitive environments, e.g. in hydroelectric power plants and waterway locks.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO LM 2-32

KLÜBERBIO LM 2-32 is a fully biodegradable, eco-friendly hydraulic fluid based on synthetic ester oils.



Features

Klüberbio LM 2 oils are fully biodegradable, eco-friendly hydraulic fluids based on synthetic ester oils.

Klüberbio LM 2 oils are intended for applications in mobile hydraulic systems, e.g. in the marine and offshore industries as well as for use in the building and water engineering sectors. They are also preferred in stationary hydraulic equipment operating in ecologically sensitive environments, e.g. in hydroelectric power plants and waterway locks

Features

- Fully biodegradable, eco-friendly hydraulic fluids based on synthetic ester oils.
- Complies with the U.S. Environmental Protection Agency's requirements for classification as an Environmentally Acceptable Lubricant (EAL) in terms of biodegradability, toxicity and bioaccumulation standards according to Appendix A of the EPA's Vessel General Permit (VGP)
- Meets or even exceeds the minimum requirements of HEES oils according to ISO 15380

Benefits

- Comply with the requirements for Environmentally Acceptable Lubricants as defined in Appendix A of the EPA 2013 VGP (Vessel General Permit).
- Fully biodegradable, non-toxic products reducing environmental impact in the event of leakage
- Facilitate start-up of hydraulic systems at very low temperatures due to very good viscosity-temperature behaviour and low pour point; can therefore be used in hydraulic systems with high temperature fluctuations.
- In addition, Klüberbio LM 2 oils meet or even exceed the minimum requirements of HEES oils according to ISO 15380.

Product Number	Product Name
210050	KLÜBERBIO LM 2-32 25 LTR CANISTER
210074	KLÜBERBIO LM 2-32 200 LTR

SPECIALITY MARINE LUBRICANTS

EAL Oil

EAL Oil

Specification

Product Name	KLÜBERBIO LM 2-32 25 LTR CANISTER	KLÜBERBIO LM2-32 200 LTR
Invent Hazard Material (IMO/EU) classification	C-30	C-30
Biodegradability of the base oil, acc. to OECD 301F, (within 28 days) [%]	>= 60	≥60
Colour	Beige	Beige
Density at 20°C [g/cm³]	approx. 0.95	approx. 0.95
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 65	approx. 65
Kinematic viscosity of the base oil, DIN 51562 pt.01/ ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 600	approx. 600
Texture	Homogenous	Homogenous
Chemical composition, thickener	Calcium soap	Calcium soap
Chemical composition, type of oil	Ester oil	Ester oil
Flow pressure of lubricating greases, DIN 51805, test temperature: -20 °C [mbar]	≤1400	≤1400
Shelf life [months]	36	36
Copper corrosion, DIN EN ISO 2160, 24h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree
Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMC OR), test duration: 1 week, distilled water	<= 1 corrosion degree	<= 1 corrosion degree
Drop point, DIN ISO 2178, IP 396 [°C]	>=130	>=130
FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage	>=12	>=12
Lower service temperature	-20 °C / -4 °F	20 °C / -4 °F
Oil separation, DIN 51817 N, after after 7 d/40 °C	<= 5 % by weight	<= 5 % by weight
Upper service temperature	120 °C / 248 °F	120 °C / 248 °F
Water resistance, DIN 51807 pt. 01, 3h/90 °C, rating	0-90	0-90
Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]	290 x 0.1 mm	290 x 0.1 mm
Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]	330 x 0.1 mm	330 x 0.1 mm

Directions for Use

KLÜBERBIO LM 2-32 is intended for applications in mobile hydraulic systems, e.g. in the marine and offshore industries as well as for use in the building and water engineering sectors. They are also

preferred in stationary hydraulic equipment operating in ecologically sensitive environments, e.g. in hydroelectric power plants and waterway locks

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

KLÜBERBIO LM 2-46

KLÜBERBIO LM 2-46 is a fully biodegradable, eco-friendly hydraulic fluid based on synthetic ester oils.



Features

- Klüberbio LM 2 oils are fully biodegradable, eco-friendly hydraulic fluids based on synthetic ester oils.
- The product series complies also with the U.S. Environmental Protection Agency's requirements for classification as an Environmentally Acceptable Lubricant (EAL) in terms of biodegradability, toxicity and bioaccumulation standards according to Appendix A of the EPA's Vessel General Permit (VGP)
- In addition, Klüberbio LM 2 oils meet or even exceed the minimum requirements of HEES oils according to ISO 15380

Benefits

- Comply with the requirements for Environmentally Acceptable Lubricants as defined in Appendix A of the EPA 2013 VGP (Vessel General Permit).
- Fully biodegradable, non-toxic products reducing environmental impact in the event of leakage
- Facilitate start-up of hydraulic systems at very low temperatures due to very good viscosity-temperature behaviour and low pour point; can therefore be used in hydraulic systems with high temperature fluctuations
- In addition, Klüberbio LM 2 oils meet or even exceed the minimum requirements of HEES oils according to ISO 15380

Product Number	Product Name
210075	KLÜBERBIO LM 2-46 200 LTR

SPECIALITY MARINE LUBRICANTS

EAL Oil
EAL Oil

Specification

Invent Hazard Material (IMO/EU) classification	C-3
Appearance	Clear
Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]	>= 60 %
Colour	Green
Density at 20°C [g/cm³]	approx. 0.918 g/cm³ (DIN 51757)
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	approx. 7.8 mm²/s
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	approx. 46 mm²/s
Packing Size	200 LTR
Chemical composition, type of oil	Ester oil
ISO viscosity grade of the base oil, DIN ISO 3448	46
Shelf life [months]	48
Vessel General Permit	fulfilled
Viscosity index, DIN ISO 2909	>= 135
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	>= 200 °C
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	<= 150/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/93.5 °C [ml]	<= 80/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence III/24 °C [ml]	<= 150/0 ml
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	>= 12
Lower service temperature	-45 °C / -49 °F
Pour point, DIN ISO 3016 [°C]	<= -50 °C
Upper service temperature	110 °C / 230 °F

Directions for Use

KLÜBERBIO LM 2-46 is intended for applications in mobile hydraulic systems, e.g. in the marine and offshore industries as well as for use in the building and water engineering sectors. They are also preferred in stationary hydraulic equipment operating in ecologically sensitive environments, e.g. in hydroelectric power plants and waterway locks.

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

ENVIRONMENTAL



Our range of oil spill equipment, is a robust collection designed to tackle marine spills effectively. With a commitment to environmental stewardship, our solutions are meticulously designed for swift and efficient response, minimizing the impact of spills on marine ecosystems. Discover a versatile and reliable suite of products that empower maritime professionals to combat oil spills and safeguard our oceans.



Versatility



Efficiency



High Quality



Reliable Results

Browse this section to discover the benefits of our Environmental range.

Scan or click on the QR code for more information.



UNITOR MINI KIT 1/2BARREL

The Unitor 1/2 barrel portable mini oil spill kit is ideal for placing around your vessel where minor spills may occur and can be quickly carried over to the spillage area.



Features

- Complete kit
- Weather proof packing

Benefits

- Ideal for small spills around your vessel

Product Number	Product Name
604330	UNITOR MINI KIT 1/2BARREL

Specification

Invent Hazard Material (IMO/EU) classification	NA
Size	54 x 16 x 18

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OILSPILL MARPOL KIT1 BARREL(1 PALLET)

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.



Product Information

Unitor™ oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Features

- Complete kit
- Personal protection
- Waterproof box

Benefits

- This is a 1 barrel complete kit for a 1 barrel deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Product Number	Product Name
778922	OILSPILL MARPOL KIT1 BARREL(1 PALLET)

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Yellow Unitor™ box	1 pc
Sorbent pads (40cmx50cm)	1 pc
Sorbent socks (120cmx8cm)	10 pcs
Gloves	2 pcs
Safety boots	2 pcs
Overalls	2 pcs
Waste bags	40 pcs
25Ltr Unitor Aquabreak PX	1 pc
Jet spray unit for application	1 pc

Accessories

572099	JET SPRAY UNIT 10 LTR STEEL
575613	AQUABREAK PX 25 LTR
571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45
571752	NATURAL HANDCLEANER 4X5 LTR
592790	OIL SPILL KIT 1 TIME SUIT XL
703184	SORBENT PADS U 94200 (200 PCS)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OILSPILL MARPOL KIT 7 BARREL(2 PALLETS)

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.



Product Information

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Features

- Complete kit
- Personal protection
- Waterproof box

Benefits

- This is a 7 barrel complete kit for a 1100 litre deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Product Number	Product Name
778914	OILSPILL MARPOL KIT 7 BARREL(2 PALLETS)

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Yellow Unitor™ box	1 pc
Sorbent pads (400mmx500mm)	1 pc
Sorbent booms (300cm)	20 pcs
Gloves	2 pcs
Safety boots	2 pcs
Overalls	2 pcs
Waste bags	20 pcs
Big bag (1000Ltr)	1 pc
25Ltr Unitor Aquabreak PX	1 pc
Jet spray unit for application	1 pc

Accessories

572099	JET SPRAY UNIT 10 LTR STEEL
575613	AQUABREAK PX 25 LTR
571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45
571752	NATURAL HANDCLEANER 4X5 LTR
592790	OIL SPILL KIT 1 TIME SUIT XL
592774	OIL SPILL KIT BAGS 1000
592766	SORBENT BOOMS U 94410 S (4 PCS (SINGLE))
703186	SORBENT ROLLS U94150 S (2 PCS)
703187	SORBENT PADS U9450 (50PCS)
703184	SORBENT PADS U 94200 (200 PCS)

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

OILSPILL MARPOL KIT 12 BARREL(2 PALLETS)

Unitor oil spill kits are designed as a marine oil spill response measure to be deployed easily and effectively. They must be used in conjunction with the vessel's response plan as required by IMO and OPA90. Whether you use them as spill control or maintenance protection our absorbents will take in up to 25 times their own weight.



Product Information

Unitor oil spill kits come in 3 sizes:

- 12 barrel to handle 1900 litres of deck spill for tankers 400 ft or greater carrying bulk oil
- 7 barrel to handle 1000 litres of deck spill for tankers under 400 ft
- 1 barrel for inland oil barges

Features

- Complete kit
- Personal protection
- Waterproof box

Benefits

- This is a 12 barrel complete kit for a 1900 litre deck spill
- As well as providing the tools for tackling the spill the kit also includes personal protection equipment
- The box is waterproof so you can store it on deck, ready for an emergency

Product Number	Product Name
778993	OILSPILL MARPOL KIT 12 BARREL(2 PALLETS)

Specification

Invent Hazard Material (IMO/EU) classification	NA

Supplied with

Yellow Unitor™ box	1 pc
Sorbent pads (400mmx500mm)	1 pc
Sorbent booms (300cm)	20 pcs
Gloves	2 pcs
Safety boots	2 pcs
Overalls	2 pcs
Waste bags	20 pcs
Big bag (1000Ltr)	1 pc
25Ltr Unitor Aquabreak PX	1 pc
Jet spray unit for application	1 pc

Accessories

572099	JET SPRAY UNIT 10 LTR STEEL
575613	AQUABREAK PX 25 LTR
571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45
571752	NATURAL HANDCLEANER 4X5 LTR
592790	OIL SPILL KIT 1 TIME SUIT XL
592774	OIL SPILL KIT BAGS 1000
592766	SORBENT BOOMS U 94410 S (4 PCS (SINGLE))
703186	SORBENT ROLLS U94150 S (2 PCS)
703187	SORBENT PADS U9450 (50PCS)
703184	SORBENT PADS U 94200 (200 PCS)

For more information, please visit the product catalogue.<https://www.wilhelmsen.com/product-catalogue/>

OIL SPILL KIT BAGS 1000

For use with Unitor oil spill kits or as a stand alone product, the waste bag allows you to collect oil waste, store it and dispose when in port. The sealed top keeps the contents enclosed until you are ready to dispose of it.



Features

- 1000 litre capacity
- Fold away

Product Number	Product Name
592774	OIL SPILL KIT BAGS 1000

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OIL SPILL KIT PLASTIC BOX

Waterproof for on deck stowage and use for storing Unitor oil spill kits.
Can be used stand alone for other storage requirements.



Features

- Bright yellow colour for easy identification
- Waterproof

Benefits

- Multi-use
- Waterproof

Product Number	Product Name
592725	OIL SPILL KIT PLASTIC BOX

Specification

Invert Hazard Material (IMO/EU) classification	NA
Depth [mm]	700
Height [mm]	840
Width [mm]	1140

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SAFETY SHOVEL

Non sparking shovel for safe handling of oil spill, loose sorbents, etc. Heavy duty but ultra-lightweight.



Features

- Heavy duty and virtually unbreakable.
- Non-sparking -- made from polypropylene.
- Molded plastic D-grip handle provides a secure grip.

Benefits

- Ultra light-weight and at the same time tough and durable.
- Easy to operate.

Product Number	Product Name
607439	SAFETY SHOVEL

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PLASTIC BUCKET 10 LTR



Product Number	Product Name
607440	PLASTIC BUCKET 10 LTR

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PLASTIC SPATULA

Our plastic spatula is ideal for scrapping stubborn solid or liquid residues.

**Features**

- 4" blade
- 100 x 250mm
- Non sparking

Product Number

607443

Product Name

PLASTIC SPATULA

Specification**Invent Hazard Material (IMO/EU) classification**

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

PLASTIC SCOOP-MEDIUM SIZE

Our plastic scoop is ideal for scoping up solid or liquid residues



Features

- 138 x 187 x 310mm
- Non sparking

Product Number

607442

Product Name

PLASTIC SCOOP-MEDIUM SIZE

Specification

Invent Hazard Material (IMO/EU) classification

NA

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SQUEEGEE W/WOODEN HANDLE

Our squeegee is ideal for scraping up solid or fluid spill residues.



Features

- Complete with wooden handle
- 610mm wide

Product Number	Product Name
607441	SQUEEGEE W/WOODEN HANDLE

Specification

Invent Hazard Material (IMO/EU) classification	NA
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For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

OIL SPILL KIT 1 TIME SUIT XL

Single use, two piece suit for light protection during oil spill cleaning operations.



Product Number	Product Name
592790	OIL SPILL KIT 1 TIME SUIT XL
Specification	
Invert Hazard Material (IMO/EU) classification	NA
Size	Extra Large
Accessories	
720007	CHEMICAL GLOVES PVC, PAIR
720009	CHEMICAL PROTECTION GOGGLES
571028	CLEANING BOOTS S5 SIZE42
571036	CLEANING BOOTS S5 SIZE43
571044	CLEANING BOOTS S5 SIZE44
571052	CLEANING BOOTS S5 SIZE45

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

UNITOR SORBENT KIT

The Unitor 7 barrel sorbent kit contains sufficient sorbent materials to handle a spill of approximately 7 barrels of oil (1100 litres).

The kit contains various sorbents to tackle differing spills on your vessel.

Also included are special absorbing pads so you can clean up chemical spills.



Features

- Flexible oil spill cleaning

Benefits

- Whether you require booms, pads, sweeps or pillows our kit will cover most oil spills
- Stored in a waterproof box enabling you to store it where required

Product Number	Product Name
604314	UNITOR SORBENT KIT

Specification

Invent Hazard Material (IMO/EU) classification	NA
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Accessories

703241	SORBENT SWEEP U941800
704363	SORBENT PADS U94200 U (50PCS)
592774	OIL SPILL KIT BAGS 1000
592766	SORBENT BOOMS U 94410 S (4 PCS (SINGLE))
703258	SORBENT PILLOWS U9410 P (10 PCS)
703184	SORBENT PADS U 94200 (200 PCS)

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT SWEEP U941800

Our sorbent sweep is easily controllable allowing you to skim the water surface and collect oil spills.

The multi-layer system contains oils and hydrocarbons giving you a strong tool that also repels water.



Features

- The sweep has built in tension straps so you can control the recovery of the sweep

Benefits

- Easily controllable
- Easy disposal

Product Number	Product Name
703241	SORBENT SWEEP U941800

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	1
Length	30000
Weight [kg]	6.4
Width [mm]	460
Absorbing capacity	114

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PADS U9450 (50PCS)

Our oil sorbent pads will save you time, costs and workload when cleaning up after a spill.

Extremely high absorption rates ensure you contain and clean as quickly as possible.

Even when fully saturated it will keep its shape.



Features

- Oil only absorption pads
- Largest pad in our range
- High absorbency rate
- Keeps shape even when fully saturated

Benefits

- It is fast and efficient ensuring a quick containment of your spill
- By keeping its shape it is easier for you to handle
- This larger pad will tackle your oil spills that have spread quickly

Product Number	Product Name
703187	SORBENT PADS U9450 (50PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	50 per pack
Size	80 X 100cm
Absorbing capacity	260 Litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PADS U94200 (40PCS)

Our Oil only sorbent pads will save you time, costs and workload when cleaning up after a spill.



Extremely high absorption rates ensure you contain and clean as quickly as possible.

Even when fully saturated it will keep its shape.

Features

- Oil absorption pads
- High absorbency rate upto 20 times
- Keeps shape even when fully saturated

Benefits

- It is fast and efficient ensuring a quick containment of your spill
- By keeping its shape it is easier for you to handle
- Strong even when saturated

Product Number	Product Name
704355	SORBENT PADS U94200 (40PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	40 per pack
Size	49 x 39cm
Absorbing capacity	26 litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PADS U94200 U (50PCS)

Our yellow range of sorbent pads are suitable for absorption of all kinds of oils, acid and chemicals



Extremely high absorption rates ensure you contain and clean as quickly as possible.

Even when fully saturated it will keep its shape.

Features

- Chemical absorption pads
- High absorbency rate
- Keeps shape even when fully saturated

Benefits

- It is fast and efficient ensuring a quick containment of your spill
- By keeping its shape it is easier for you to handle

Product Number	Product Name
704363	SORBENT PADS U94200 U (50PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	50 per pack
Size	49 x 39cm
Absorbing capacity	34 litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PADS U 94200 (200 PCS)

Our oil sorbent pads will save you time, costs and workload when cleaning up after a spill.

Extremely high absorption rates ensure you contain and clean as quickly as possible.

Even when fully saturated it will keep its shape.



Features

- Oil only absorption pads
- High absorbency rate
- Keeps shape even when fully saturated

Benefits

- It is fast and efficient ensuring a quick containment of your spill
- By keeping its shape it is easier for you to handle

Product Number	Product Name
703184	SORBENT PADS U 94200 (200 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	200 per pack
Size	49 x 39cm
Absorbing capacity	127 litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT BOOMS U94410 (4 PCS(DOUBLE))

Our range of absorbent booms gives you highly flexible position to contain oil spills.

All booms give you the ability to link them together into any length.

Booms prevent spreading and stop contaminants from getting into the sea so are a vital part of your oil spill kit.



Features

- Highly absorbent
- Absorption material contained
- Can be linked
- Easy disposal

Benefits

- Filled with 100% polypropylene contained in a net sock, ensuring you do not lose any spill during recovery
- The metal hooks at either end allow you to link them together for your required length
- You can incinerate them for easier disposal

Product Number	Product Name
603217	SORBENT BOOMS U94410 (4 PCS(DOUBLE))

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	8
Diameter [mm]	120
Length [m]	3
Absorbing capacity	360 Litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT BOOMS U 94410 S (4 PCS (SINGLE))

Our range of absorbent booms gives you highly flexible position to contain oil spills.

All booms give you the ability to link them together into any length.

Booms prevent spreading and stop contaminants from getting into the sea so are a vital part of your oil spill kit.



Features

- Highly absorbent
- Absorption material contained
- Can be linked
- Easy disposal

Benefits

- Filled with 100% polypropylene contained in a net sock, ensuring you do not lose any spill during recovery
- The metal hooks at either end allow you to link them together for your required length
- You can incinerate them for easier disposal

Product Number	Product Name
592766	SORBENT BOOMS U 94410 S (4 PCS (SINGLE))

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	4
Diameter [mm]	120
Length [m]	3
Weight [kg]	6.4
Absorbing capacity	180 Ltr

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORB.BOOM W/NET U94810 SN (4 PCS)

Our range of absorbent booms give you highly flexible position to contain oil spills.

All give you the ability to link them together into any length.

Booms prevent spreading and stop contaminants getting into the sea so are a vital part of your oil spill kit.



Features

- Highly absorbent
- Absorption material contained
- Can be linked
- Easy disposal

Benefits

- Filled with 100% polypropylene contained in a net sock ensures you do not lose any spill when recovering
- The metal hooks at either end allow you to link them together for your required length
- You can incinerate them for easier disposal

Product Number	Product Name
603233	SORB.BOOM W/NET U94810 SN (4 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	4
Diameter [mm]	200
Length [m]	3
Weight [kg]	22
Absorbing capacity	392 Litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT ROLLS U94300 S (2 PCS)

Our range of sorbent rolls gives you the option to tailor make your own oil spill cleaning solutions.



By providing sorbents on a roll you can cut them to the size you need.

It is easy to tear off the length needed- useful for various applications.

Features

- Wide range of absorption pads
- High absorbency rate
- Keeps shape even when fully saturated
- Easy disposal

Benefits

- Regardless of your spill whether oily, flammable or chemical we can offer you a solution for your cleaning requirements
- They offer a fast and efficient way of ensuring a quick containment of your spill
- By keeping their shape it is easier for you to handle
- You can incinerate for disposal

Product Number	Product Name
703309	SORBENT ROLLS U94300 S (2 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	2
Length [m]	88
Width [mm]	480
Absorbing capacity	277 Litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PADS U941850 (50PCS)

Our static resistant oil sorbent pads will save you time, costs and workload when cleaning up flammable liquids after a spill.



Extremely high absorption rates ensure you contain and clean as quick as possible.

Even when fully saturated it will keep its shape.

Features

- Static resistant absorption pads
- High absorbency rate
- Keep shape even when fully saturated

Benefits

- This static resistant pad ensures no sparks during cleaning flammable liquids so it is a safer operation
- It is fast and efficient ensuring a quick containment of your spill
- By keeping its shape it is easier for you to handle

Product Number	Product Name
703308	SORBENT PADS U941850 (50PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	50 per pack
Size	49 x 39cm
Absorbing capacity	33 litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT ROLLS U94150 S (2 PCS)

Our range of sorbent rolls gives you the option to tailor make your own oil spill cleaning solutions.



By providing sorbents on a roll you can cut them to the size you need.

It is easy to tear off the length needed- useful for various applications.

Features

- Wide range of absorption pads
- High absorbency rate
- Keeps shape even when fully saturated
- Easy disposal

Benefits

- Regardless of your spill whether oily, flammable or chemical we can offer you a solution for your cleaning requirements
- They offer a fast and efficient way of ensuring a quick containment of your spill
- By keeping their shape it is easier for you to handle
- You can incinerate for disposal

Product Number	Product Name
703186	SORBENT ROLLS U94150 S (2 PCS)

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	2
Length [m]	54
Width [mm]	380
Absorbing capacity	266ltr

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT ROLLS U94150

Our range of sorbent rolls gives you the option to tailor make your own oil spill cleaning solutions.



By providing sorbents on a roll you can cut them to the size you need.

It is easy to tear off the length needed- useful for various applications.

Features

- Wide range of absorption pads
- High absorbency rate
- Keeps shape even when fully saturated
- Easy disposal

Benefits

- Regardless of your spill whether oily, flammable or chemical we can offer you a solution for your cleaning requirements
- They offer a fast and efficient way of ensuring a quick containment of your spill
- By keeping their shape it is easier for you to handle
- You can incinerate for disposal

Product Number	Product Name
703183	SORBENT ROLLS U94150

Specification

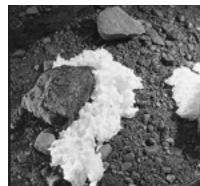
Invent Hazard Material (IMO/EU) classification	NA
Quantity	1
Length [m]	44
Width [mm]	970
Absorbing capacity	277 Litres

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PARTICULATE U94

Our sorbent particulates makes it easier to clean spills by absorbing any residues and providing you with a solid to clean up rather than liquid.



You can spread it over walkways and floors or throwing over open water to absorb spills.

Features

- High absorption rates
- Flexible use
- High absorption rates up to 25 times its own weight and does not absorb water

Benefits

- Easy to handle and recover- its 100% chopped polypropylene materials absorbs oil based liquids so you can simply shovel up the spill or use a net in the water
- Easy to dispose

Product Number	Product Name
603274	SORBENT PARTICULATE U94

Specification

Invent Hazard Material (IMO/EU) classification	NA
Quantity	1
Volume (l)	145
Absorbing capacity	180ltr

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

SORBENT PILLOWS U9410 P (10 PCS)

This 10 piece pack of absorbent pillows gives you many options to contain, clean and protect vulnerable areas from oil spills.

They absorb all types of oils and hydrocarbons, giving you high absorption rates while repelling water.



Features

- High absorption rates
- Flexible use
- Easy to dispose
- Easy to handle

Benefits

- They absorb up to 25 times their own weight
- The absorption materials are held in a sock making them ideal to stopping spills from going under doorways or cupboards- you can also use them for cleaning oil spills
- You can incinerate them so are easy to dispose of
- Their small length allows you to lay them along an area and makes them easier to handle than oil booms

Product Number

703258

Product Name

SORBENT PILLOWS U9410 P (10 PCS)

Specification

Invent Hazard Material (IMO/EU) classification

NA

Quantity

10

Diameter [mm]

200

Length [m]

460

Absorbing capacity

8.6

For more information, please visit the product catalogue.

<https://www.wilhelmsen.com/product-catalogue/>

APPENDIX 3 - STANDARD TERMS AND CONDITIONS FOR THE SUPPLY OF PRODUCTS, GAS CYLINDERS AND RELATED SERVICES

1. Definitions

"Additional Terms" is defined at Condition 2.3.

"Customer" means a person (being any individual, corporation, partnership, trust, unincorporated organization or other legal entity) placing an Order and the party contracting with the Supplier under the resulting Supply Contract.

"Delivery" means the physical delivery of Products and/or Gas Cylinders and (if applicable) Non-Standard Products to the Customer and/or delivery to any third party appointed by the Customer for receipt of such items at the location where the items are agreed to be delivered (as specified on the Order Confirmation).

"Deposit Fee" means the deposit payable by the Customer for Gas Cylinders pursuant to any Supply Contract.

"Discount" means the discount(s) available to the Customer against the List Prices as specified in the Additional Terms and/or the WSS Price List.

"Gas Cylinder(s)" means "Wilhelmsen" or "Unitor" branded gas cylinders supplied by the WSS Group.

"Gas Cylinder Services" means the supply and exchange of Gas Cylinders under a Supply Contract.

"List Price" means the price of a Product as stated in the WSS Price List.

"Non-Standard Products" means an item requested by the Customer which is not listed in the Product Catalogue or the WSS Price List.

"Order" means a request by the Customer for the supply of Products, Gas Cylinder Services, any Related Services and (if applicable) Non-Standard Products from a member of the WSS Group.

"Order Confirmation" is defined at Condition 3.3.

"Order Handling Fee" means a fee that is applicable to each Order to process, handle and deliver an order, as specified in the WSS Price List.

"Products" means the products from time to time included in the Product Catalogue and the WSS Price List.

"Product Catalogue" means the catalogue of products published online at <https://www.wilhelmsen.com/product-catalogue/>, as may be amended by WSS from time to time.

"Product Specifications" means, in respect of a Product or Gas Cylinders, the specification and "technical data" set out in the Product Catalogue.

"Related Services" means the payable services supplied by a member of the WSS Group as specified in the Supply Contract,

"Supplier" means the WSS entity (being a member of the WSS Group) that is the contracting party for the supply of Products, Gas Cylinder Services and/or Related Services and (if applicable) Non-Standard Products under a Supply Contract with the Customer, as identified in the applicable Order Confirmation as the "Selling Company".

"Supply Contract" is defined at Condition 2.4.

"WSS" means Wilhelmsen Ships Service AS.

"WSS Group" means WSS together with the affiliates and subsidiaries of WSS.

"WSS Price List" means the list of prices, fees and charges applicable for the Products and Gas Cylinder Services as published online at <https://www.wilhelmsen.com/marine-products/price-list/>, as may be amended by WSS from time to time.

2. Applicable Terms

2.1 These terms and conditions ("Conditions") shall be deemed to be incorporated into all contracts for the sale and supply of Products and/or Gas Cylinder Services and (if applicable) Non-Standard Products and/or Related Services from the WSS Group, whether the contract is concluded directly or through an agent.

2.2 The Customer agrees that, subject to the following, these Conditions apply to all supplies of Products, Non-Standard Products, Gas Cylinder Services and/or Related Services to the exclusion of all other terms and conditions, including, but not limited to, the Customer's general purchase conditions, other standard conditions of purchase or any terms included in any online registration.

2.3 The parties may agree in writing that additional terms and conditions will be applicable to particular supplies of Products, Non-Standard Products, Gas Cylinder Services and/or Related Services to the Customer ("Additional Terms").

2.4 The Conditions together with any Additional Terms and the Order Confirmation issued to the Customer in accordance with Condition 3 shall, in respect of each Order placed by the Customer, form a separate binding contract between the Supplier and the Customer for the supply of the Products, Non-Standard Products, Gas Cylinder Services and/or Related Services as set out in the Order Confirmation (each a "Supply Contract"). The Customer expressly acknowledges and accepts that in entering into a Supply Contract there is an intention to create legally binding obligations between the Customer and the Supplier only and no member of the WSS Group who is not the Supplier under a Supply Contract shall in any circumstances have any liability to the Customer arising out of or in connection with such Supply Contract.

2.5 In the event of any conflict or ambiguity between the terms of the documents constituting a Supply Contract, the following order of priority shall apply: (i) Additional Terms shall prevail; and then (ii) Conditions; and then (iii) the Order Confirmation.

3. Placement of Orders

3.1 Each Order shall be deemed to be a separate and individual offer by the Customer to purchase the Products and/or Gas Cylinder Services and (if applicable) Non-Standard Products and/or Related Services set out in the Order from any member of the WSS Group, subject to these Conditions and any Additional Terms applicable to the Customer.

3.2 The WSS Group shall in no circumstances be under any obligation to accept any Order and shall be free to accept (on behalf of the Supplier) or decline each Order at its absolute discretion.

3.3 If an Order is accepted, a confirmation shall be issued specifying the identity of Supplier and either confirming that the Supplier can fulfil the Order completely or that it will only fulfil part of the Order (each an "Order Confirmation").

3.4 The Customer shall notify the Supplier of any errors, deficiencies or inaccuracies in an Order Confirmation within three (3) business days from receipt of the Order Confirmation (or within two (2) hours of receipt of the Order Confirmation in the event that Delivery is scheduled to take place less than five (5) days from the date of the Order Confirmation) and the Supplier shall, if necessary, issue a corrected Order Confirmation. For the avoidance of doubt, the Supplier shall not be responsible for any errors, deficiencies or inaccuracies in an Order Confirmation that are not notified to the Supplier in accordance with this Condition 3.4.

3.5 Save in respect of any corrections to be made pursuant to Condition 3.4, an Order Confirmation shall be deemed expressly agreed between the parties following receipt by the Customer.

3.6 Notwithstanding any other provision of these Conditions, in the event that an Order Confirmation provides for only partial fulfilment of an Order, the Customer shall have the option to cancel the Order without liability by written notification within three (3) business days of receipt of such Order Confirmation (or within two (2) hours of receipt of the Order Confirmation in the event that Delivery is scheduled to take place less than five (5) days from the date of the Order Confirmation), provided always that such option shall not be available to the Customer if the items omitted from the Order Confirmation are Non-Standard Products.

3.7 Save as aforesaid, the Customer shall be entitled to amend or cancel an Order (in whole or in part) at any time prior to Delivery provided always that the Customer shall be responsible in full for all costs reasonably incurred by the Supplier in connection with such amended or cancelled Order.

3.8 If an Order is placed by an agent on behalf of a Customer, then by placing the Order such agent accepts and agrees (and to the extent necessary shall be deemed) to be a party to the resulting Supply Contract and shall be jointly

and severally liable with the Customer for the payment of all amounts due and the performance of all obligations of the Customer under such Supply Contract.

4. Pricing

4.1 The purchase price payable by the Customer for Products and Gas Cylinder Services shall be calculated based upon the List Price, any Additional Terms and/or eligible Discounts and in accordance with the WSS Price List in force and as published at the time of the Order Confirmation.

4.2 The price for Non-Standard Products and/or Related Services shall be agreed with the Customer in advance and stated in the Order Confirmation.

4.3 The cylinder fees shall, subject to Condition 4.4(i) below, be calculated based upon any Additional Terms and in accordance with the WSS Price List in force and as published at the time of the Order Confirmation (the "Cylinder Fees").

4.4 The Deposit Fee shall, subject to the terms of the Supply Contract, be refunded to the Customer following return of the Gas Cylinder(s), provided always that:

- (i) notwithstanding Condition 4.3, in the event of a Deposit Fee increase during the time in which a Gas Cylinder is in the Customer's possession, the Customer shall, where it wishes to exchange the Gas Cylinder, be liable to pay the difference between (i) the Deposit Fee paid by the Customer on the original Delivery of the Gas Cylinder and (ii) the Deposit Fee applicable at the time of exchange of the Gas Cylinder;
- (ii) the Supplier's refund obligations in respect of each Gas Cylinder shall cease and the corresponding Customer account shall be deemed closed and finally settled on the date falling twelve (12) months from the date on which such Gas Cylinder is returned (without exchange) in accordance with the terms of the Supply Contract; and
- (iii) the Customer has fulfilled its Gas Cylinder return obligations in accordance with Condition 8.2

4.5 The List Prices and Cylinder Fees do not include VAT (or any other similar sales taxes) and are exclusive of any Order Handling Fees, charges and expenses which the Supplier may be entitled to charge in accordance with the terms of the WSS Price List. For the avoidance of doubt, Discounts, Order Handling Fees, charges and any other additional expenses as stated in an Order Confirmation shall be indicative only and the final amounts shall be calculated in accordance with Condition 6 and invoiced to the Customer in accordance with Condition 5.

5. Invoicing and Payment

5.1 The Supplier, or its nominated affiliate, shall be entitled to invoice for Products and any Non-Standard Products following Delivery and for Related Services as per the terms of the Supply Contract.

5.2 The Supplier, or its nominated affiliate, shall be entitled to invoice for the Deposit Fee in respect of Gas Cylinders following Delivery, and shall invoice all further

Cylinder Fees as per the Additional Terms or as otherwise agreed in advance with the Customer.

5.3 Subject to Condition 6.3 all taxes, fees, customs duties, surcharges and the like applicable to the supply or use of the Products, Gas Cylinders and any Non-Standard Products or Related Services shall be the sole responsibility of the Customer, and where the Supplier incurs expenses or is subject to any claims in relation to such payments, the Customer shall refund any amounts paid by the Supplier on an indemnity basis.

5.4 The Customer shall pay all amounts due in full, free of bank charges, as specified in the invoice within thirty (30) days from the invoice date.

5.5 All sums shall be paid by the Customer without any deduction or withholding other than as required by mandatory law. Where any deduction or withholding is required by mandatory law the Customer shall increase the amount payable to the Supplier to gross up the amount that the Supplier would have received if no deduction or withholding had been made.

5.6 In the event of late payment, the Supplier shall be entitled to interest on all sums outstanding at a rate of 8% per annum above the 6-Month LIBOR rate. Such interest shall accrue on a daily basis from the date on which payment was finally due up to and including the date on which payment is received in full to the Supplier.

5.7 Without prejudice to any other rights and remedies of the Supplier, if the Customer is in default of its payment obligations under a Supply Contract or if the Customer becomes subject to any of the events listed at Condition 16.1, the following provisions shall apply:

- (i) The Supplier shall be entitled to suspend Delivery of further Products, Non-Standard Products, Gas Cylinders and/or Related Services under the Supply Contract pending payment in full of all outstanding amounts owed by the Customer.
- (ii) Any other member of the WSS Group shall be entitled to suspend performance under any other active Supply Contract(s) with the Customer pending payment in full of all outstanding amounts owed by the Customer to the Supplier and the Customer agrees that such act of suspension shall not constitute breach or default by the suspending party under the relevant Supply Contract. For the avoidance of doubt, this Condition is intended to confer benefits on any member of the WSS Group as a third party who is a Supplier under Supply Contracts with the Customer other than the Supply Contract under which Customer is in default of its obligations.
- (iii) The Supplier shall, without any court order or other process of law and provided title has not passed, have the right to retake possession of any Products and/or Non-Standard Products that have not been irrevocably incorporated into another product and/or Gas Cylinders, in each case wherever they are located. The Customer shall make the applicable Products, Non-Standard Products and Gas Cylinders available to the Supplier for collection and the

Supplier shall be entitled to enter the premises of the Customer or any third party where the items are stored. The Customer shall be liable and shall indemnify the Supplier in full for all costs and expenses (including legal costs) incurred by the Supplier in retaking possession.

- (iv) The Supplier shall be entitled to set off any Deposit Fees, credit and bonus amounts held for the account of the Customer under any Supply Contract against any amount owed by the Customer under invoices issued by the WSS Group.
- (v) Supplier shall be entitled to amend the payment term specified in Condition 5.4 or in the Additional Terms to payment before Delivery (advance payment).

6. Delivery and Additional Charges

6.1 Unless otherwise stated in the Order Confirmation, Delivery shall be made Free Alongside Ship (FAS) in accordance with the ICC Incoterms 2020.

6.2 If the parties have initially agreed for the Delivery to be made FAS and the Supplier is subsequently instructed for whatever reason to Deliver at a place other than alongside the vessel or to the agreed delivery port, such alternative Delivery shall, at the Supplier's discretion, be made by another delivery method, with any additional costs incurred by the Supplier to be borne by the Customer.

6.3 Where the relevant Incoterms require the Supplier to obtain clearances for export, such responsibility will only relate to the point of Delivery and not to further export by the Customer.

6.4 Notwithstanding anything else to the contrary in the applicable Incoterms:

- (i) title to Gas Cylinders shall only transfer in accordance with Condition 12 (which shall in all cases take precedent over any conflicting provisions of the applicable Incoterms);
- (ii) the Customer shall, where applicable, pay the Supplier an Order Handling Fee, as specified in the WSS Price List; and
- (iii) the Customer shall pay the Supplier for the costs and expenses of the Supplier in connection with (i) barge, boat or crane hire, (ii) inventory transfer fees which may be necessitated by for example shipment of any items not commonly requested at the place of Delivery or accelerated transfer of unavailable Products and (iii) any additional charges incurred by Supplier in connection with fulfilling mutually agreed Related Services, all as stated on the Order Confirmation.

6.5 If the Customer fails or refuses to take possession when made available by the Supplier for Delivery in accordance with the terms of the Supply Contract, the Supplier shall be entitled to recover all reasonable costs and expenses incurred as a result of such failure or refusal, including without limitation storage and insurance costs, until such time that the Customer accepts Delivery.

6.6 Supplementary fees may be chargeable where Customer makes additional requests to Supplier. Such fees shall be notified by Supplier in the Order Confirmation.

6.7 If there is any conflict between the relevant Incoterms and any term of a Supply Contract, the terms of the Supply Contract shall prevail.

7. Delays in Delivery

7.1 Subject to Condition 5.7, the Supplier shall use reasonable endeavours to ensure that Products, Non-Standard Products and Gas Cylinders are delivered at the time and date stated in the Order Confirmation or otherwise agreed between the parties. For the avoidance of doubt, if the Customer is in default of any payment obligations under the Supply Contract, the Supplier shall not be obliged to make Delivery until such default is remedied.

7.2 Without prejudice to Condition 6.7, if Delivery of any items under the Supply Contract is delayed beyond the date stated in the Order Confirmation (or as otherwise agreed between the parties), the Supplier shall be afforded a reasonable opportunity to complete Delivery but if the Supplier is unable to effect Delivery within a reasonable period then, provided such delay is not due to the Customer or circumstances within the Customer's control, the Customer shall have the option to cancel such delayed items by giving written notice to the Supplier.

7.3 The Supplier and Customer agree that the remedies available to the Customer pursuant to this Condition 7 shall be the Customer's sole remedy and, subject to Condition 14.1, the Customer shall have no further rights or claims and the Supplier shall not be obligated or liable to the Customer in respect of any damages or losses suffered by the Customer whatsoever which arise out of, under or in connection with the Supply Contract or otherwise in respect of any delay in Delivery.

8. Refill, Exchange, Return and Tracking of Gas Cylinders

8.1 Gas Cylinders delivered to and from the Customer under any Supply Contract will be registered and updated by the WSS Group electronic tracking system. The Supplier will periodically provide a report on Gas Cylinders registered to be in the Customer's possession or upon Customer's request. It is however, the Customer's responsibility to ensure that it accurately tracks its inventory of Gas Cylinders and related gas levels in order to comply with its obligations under the Supply Contract (including without limitation Condition 8.2 below).

8.2 The Customer shall be solely responsible to ensure that Gas Cylinders are exchanged or returned to the WSS Group within thirty (30) months from initial delivery. In the event that the Customer does not return a Gas Cylinder within thirty (30) months from initial delivery of the Gas Cylinder to the Customer, late charges may apply.

8.3 It is a condition of the Gas Cylinder Services that Gas Cylinders supplied to the Customer shall only be serviced and refilled by (i) the Supplier or (ii) a member of the WSS Group or

a designated third party appointed by, acting on behalf of and with the express approval of the Supplier. For the avoidance of doubt, if a third party supplies gases to the Customer and/or fills a Gas Cylinder (other than on behalf of WSS Group), WSS Group shall have no liability or responsibility for such supply of those gases or filling or subsequent performance of the Gas Cylinder(s).

8.4 If a Supply Contract is entered into for supply of gas for use in Gas Cylinders, and the Customer has a previously supplied Gas Cylinder that it wishes to exchange, the Supplier shall, subject to the Customer having paid all outstanding fees to the WSS Group in relation to the empty Gas Cylinder, supply to the Customer a filled Gas Cylinder in exchange against receipt of the empty Gas Cylinder, which shall be of the same type and specification as the returned Gas Cylinder. In such cases, the Deposit Fee paid by the Customer in respect of the returned Gas Cylinder shall not be refunded but shall be transferred to the new Gas Cylinder. Any supplementary Deposit Fee due (as described in Condition 4.4(ii)) shall, if applicable, be calculated and due at the time of the exchange.

8.5 Gas Cylinders may be returned by the Customer to a WSS Group depot where the depot location and return time are mutually agreed in advance of the return. Alternatively the Customer can contact the Supplier to arrange for collection at a mutually agreed time and location. Any Customer delivery of Gas Cylinders to locations that have not been agreed with WSS shall not be considered to be returned to WSS.

8.6 Gas Cylinders must be empty when returned to the WSS Group. In the event of residual gases or refrigerants in the returned Gas Cylinder that requires disposal, WSS reserves the right to charge the Customer for the disposal cost.

8.7 Where the Customer only requires Gas Cylinders to be collected and not refilled, the Supplier shall be entitled to charge, and the Customer shall pay, all the relevant collection costs at the time of collection.

8.8 For the avoidance of doubt, the Customer will not be entitled to the refund of any Deposit Fee in the event that the Customer returns a gas cylinder which is not a Gas Cylinder, or a Gas Cylinder that has been offloaded at a location and/or time that was not mutually agreed, or a Gas Cylinder which is not registered to have been last delivered to the Customer by the Supplier (or another member of the WSS Group) and therefore not considered to be in their possession, irrespective of whether the Deposit Fee was paid by another customer for such Gas Cylinder(s) or otherwise.

8.9 WSS reserves the right to only partially refund the Deposit Fee in the event that the Customer returns a Gas Cylinder that is untagged, in other words, missing the labelling.

9. Scope of Warranty

9.1 Subject to the other terms of the Supply Contract, the Supplier warrants that the Products and Gas Cylinders supplied to the Customer shall, at the time of Delivery, be:

- (i) in material conformity with the Product Specifications; and
- (ii) free from material defects in design, materials and workmanship.

- 9.2 Without prejudice to Condition 9.1, the Supplier shall be at liberty, in its sole discretion, to supply alternative Products to the Customer to those stated in an Order Confirmation, provided that such Products have an equivalent or better functionality and that the Supplier shall only be entitled to any increase in the applicable List Price where this is expressly agreed with the Customer in advance.
- 9.3 Notwithstanding any other term of the Supply Contract, the Supplier shall be entitled at any time and without prior notice to amend the WSS Price List and/or Product Specifications and/or to remove Products from the Product Catalogue and/or remove ports from its global network in each case without incurring any liability to the Customer.
- 9.4 The Supplier makes no representations, warranties or guarantees whatsoever with regard to any Non-Standard Products, including without limitation in respect of the quality, safety, reliability, durability and performance of such Non-Standard Products, which shall be non-cancellable, non-exchangeable and non-returnable. For the avoidance of doubt, it is expressly acknowledged that any Non-Standard Products shall be sourced by the Supplier on behalf of the Customer at the Customer's sole risk.
- 9.5 Save as aforesaid, and notwithstanding any Product recommendations the Supplier may make to the Customer, the Supplier makes no representations, warranties or guarantees regarding the Products and/or Gas Cylinders, and all warranties, conditions and other terms implied by statute or common law in respect of any items provided to the Customer under the Supply Contract, including but not limited to sections 13-15 of the Sale of Goods Act 1979, are to the fullest extent permitted by law excluded from the Supply Contract.
- ## **10. Breach of Warranty**
- 10.1 The Customer shall be entitled to reject any Products or Gas Cylinders that do not comply with the warranty at Condition 9.1, provided that notice of rejection is given to the Supplier (i) in the case of a defect that is apparent on visual inspection, within five (5) business days of Delivery and (ii) in the case of a latent defect within a reasonable time of such defect being discovered or when it ought to have been discovered, and in any event within twelve (12) months from the date of Delivery (the "Warranty Period"). For the avoidance of doubt, the Customer shall in no case be entitled to reject Delivery of any Non-Standard Products.
- 10.2 The Customer shall be deemed to accept any Products or Gas Cylinders, and the Supplier shall not be liable for any failure to comply with the warranty at Condition 9.1, if:
- (i) the Customer fails to give valid written notice within the periods specified at Condition 10.1;
 - (ii) the Customer makes any further use of such Products or Gas Cylinders after giving notice in accordance with Condition 10.1;
 - (iii) the defect arises because the Customer failed to follow the Supplier's oral or written warnings, instructions or safety rules for the storage, commissioning, installation, use and/or maintenance of the items or (if there are none) good trade practice regarding the same;
- (iv) the Customer alters or repairs such Products or Gas Cylinders without the written consent of the Supplier; or
- (v) the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal storage or working conditions.
- 10.3 If the Customer validly rejects any Products or Gas Cylinders in accordance with this Condition 10 within the Warranty Period, the Supplier shall, at its sole discretion elect to:
- (i) rectify the breach of warranty by repairing such affected items or supplying replacement components;
 - (ii) deliver substitute Products or Gas Cylinders; or
 - (iii) reduce the payable prices and/or Cylinder Fees proportionally.
- 10.4 Save as expressly provided at Condition 10.3, the Customer shall, to the maximum extent permitted by law, have no further rights or claims in respect of a breach of the warranty at Condition 9.1.
- 10.5 Any dispute as to whether the Customer is entitled to reject Products and/or Gas Cylinders for a failure by the Supplier to comply with the requirements of the warranty at Condition 9.1 shall be resolved in accordance with Condition 21.
- ## **11. Transfer of Title / Transfer of Risk (Products and Non-Standard Products)**
- 11.1 Products (including gases and refrigerants) and Non-Standard Products to be supplied under the Supply Contract shall be at the sole risk of the Customer from the time of Delivery.
- 11.2 Ownership and title to Products and Non-Standard Products to be supplied under the Supply Contract shall not pass to the Customer until the earlier of:
- (i) the time at which the Supplier has received payment in full of all sums due to it in respect of such Products and Non-Standard Products under the Supply Contract (including any taxes, interest, delivery and additional charges) as invoiced to the Customer; or
 - (ii) in the event the Customer resells such Products or Non-Standard Products, the time at which title passes in accordance with Condition 11.3.
- 11.3 Subject to Conditions 11.4 and 17, the Customer may resell or use Products and Non-Standard Products in the ordinary course of its business (but not otherwise) before the Supplier receives payment. If the Customer resells before that time:
- (i) it does so as principal and not as the Supplier's agent; and
 - (ii) title to those Products shall pass from the Supplier to the Customer immediately before the time at which resale by the Customer occurs.
- 11.4 If before title to Products and Non-Standard Products passes to the Customer the Customer becomes subject to any of the events listed at Condition 16.1, then, without limiting any other right or remedy the Supplier may have, the Customer's

right to resell Products and Non-Standard Products and use them in the ordinary course of its business ceases immediately.

12. Transfer of Title / Transfer of Risk (Gas Cylinders)

12.1 Gas Cylinders shall be at the sole risk of the Customer from the time of Delivery until such time as they are returned to the Supplier in accordance with Condition 8. For the avoidance of doubt, at all times following Delivery, the Customer shall be fully responsible for, and liable to the Supplier for loss and damage to, Gas Cylinders in each case regardless of the cause.

12.2 Subject to the following terms of this Condition 12, the Supplier shall retain ownership and title to the Gas Cylinders while in the Customer's possession (including when such Gas Cylinders may be in the possession of a third party appointed by the Customer, or an agent acting on behalf of the Customer) and the Customer shall not claim or dispute ownership of the Gas Cylinder or seek to or actually exercise or create any lien or encumbrance over or in relation to the Gas Cylinders or otherwise do anything which is inconsistent with the Supplier's rights of ownership.

12.3 Title to and ownership of Gas Cylinders shall immediately pass to the Customer if the Customer:

- (i) destroys, defaces or otherwise damages the Gas Cylinder (and Gas Cylinders shall be considered "damaged" if they cannot be reused in the Supplier's gas exchange system due to any reasons other than normal wear and tear);
- (ii) loses the Gas Cylinder (and for the purposes of this Condition "loss" means, without limitation, loss of possession of Gas Cylinders (other than to a member of the WSS Group or an approved third party) regardless of cause, and sale or scrapping of a ship with Gas Cylinders onboard shall constitute loss of all Gas Cylinders onboard such ship);
- (iii) delivers the Gas Cylinder to a third party not approved by the Supplier;
- (iv) has the Gas Cylinder serviced or refilled by a third party which is not a member of the WSS Group, unless the Supplier has consented in writing to the Gas Cylinder being serviced or refilled by that third party; or
- (v) does not return the Gas Cylinder to the Supplier upon expiry or termination of this Supply Contract in accordance with Condition 16.4 (ii).

12.4 If title to a Gas Cylinder transfers to the Customer in accordance with Condition 12.3:

- (i) any obligation, contractual duty or liability on the Supplier with regard to the Gas Cylinder shall terminate immediately;
- (ii) the Customer shall (unless the cylinder has been lost or destroyed) remove or obscure or procure the removal or obscuring of the 'Unitor' and/or 'Wilhelmsen' trade names from the Gas Cylinder in a safe manner;
- (iii) any Deposit Fee paid by the Customer for the relevant Gas Cylinder shall be forfeited and the Supplier shall be entitled to retain same;

(iv) if no Deposit Fee has yet been received by the Supplier or a further Deposit Fee would be due on return (as described in Condition 4.4) or a Deposit Fee was not applicable to the relevant Gas Cylinder exchange model at the time of Delivery, the Supplier will charge the Customer, and the Customer shall pay a fee equal to the Deposit Fee (or shortfall in the Deposit Fee) that would have been due according to WSS Price List in effect at the date that the Supplier becomes aware of the transfer of title.

12.5 The Customer shall, referencing the Gas Cylinder type and serial number, immediately inform the Supplier in writing if title has transferred pursuant to Condition 12.4 and notify the actions taken as a consequence. Failure by the Customer to comply with the requirement to notify the Supplier shall not, for the avoidance of doubt, affect the automatic transfer of title pursuant to Condition 12.4 but the Customer shall be liable to and shall indemnify the Supplier against all liabilities, costs, expenses, damages and losses arising from a breach of this Condition 12.5.

13. Disclaimer and Indemnification

13.1 The Customer shall comply with all warnings, instructions and safety rules provided to it by the Supplier and any member of the WSS Group from time to time and shall familiarise itself with and apply best industry practice at all times in relation to the storage, handling and use of all Products and Gas Cylinders.

13.2 Notwithstanding any pre or post sale surveys or testing, or provision of any warnings, instructions and safety rules by the Supplier or any member of the WSS Group, the Customer acknowledges that the Products sold and the Gas Cylinders supplied are, or may be, hazardous to human health, and, subject only to Condition 9 and Condition 14.1, the Customer assumes all risk for the Products and Gas Cylinders after Delivery.

13.3 The Customer shall familiarise itself and keep itself informed with respect to possible hazards to persons or property involved in the handling and use of the Products and Gas Cylinders, and shall advise its employees, independent contractors and any others who may handle the Products and Gas Cylinders of the suspected or proven hazards of the Products and Gas Cylinders and the proper handling of the Products and Gas Cylinders, and shall require such persons to comply with any reasonable instructions from the Supplier or any member of the WSS Group relating to the safe handling, use and storage of the Products and/or Gas Cylinders, and all applicable laws and regulations.

13.4 Notwithstanding any pre or post sale surveys or testing, and/or any Related Services provided by Supplier or any member of the WSS Group, the Customer acknowledges that it remains fully responsible for the operations, functionality and safety of its vessels and all equipment thereon. The Customer agrees that the Supplier shall not be obligated or liable to the Customer in respect of any damages or losses suffered by the Customer whatsoever which arise out of, under or in connection with its use of information and/or reports provided by the Supplier or any member of the WSS Group.

13.5 The Customer shall be solely liable for, and shall indemnify the Supplier and all members of the WSS Group against an in each case hold them harmless from all losses, liabilities, costs and expenses whatsoever (including any claims by third parties against any member of the WSS Group and legal expenses) arising from the improper use or improper handling of the Products or Gas Cylinders (including their labelling) and/or any breach by the Customer of this Condition 13.

14. Limitation of Liability

14.1 Nothing in these Conditions or any other provision of any Supply Contract is intended to exclude or limit the liability of a Supplier: (i) for death or personal injury caused by the Supplier's negligence; (ii) for fraud or fraudulent misrepresentation; or (iii) for any liability which cannot be limited or excluded by applicable law.

14.2 The provisions of this Condition 14 apply to the entire liability of the Supplier under and in relation to each Supply Contract (including, but not limited to, any liability for the acts or omissions of its employees, agents and sub-contractors) in respect of (i) any breach of the Supply Contract; (ii) any use made or resale by the Customer of any of the Products, Non-Standard Products and Gas Cylinders, or of any product incorporating any of the aforementioned; (iii) any use made of the results, reports and/or advice furnished by Supplier; (iv) any representation, statement or tortious act or omission including negligence arising under or in connection with such Supply Contract; and (v) any other claim or liability whatsoever under or in connection with such Supply Contract.

14.3 A Supplier's total liability in contract, tort (including negligence), statute, misrepresentation, restitution or otherwise, arising under or in connection with a Supply Contract shall be limited in aggregate to the lesser of: (i) twenty-five thousand US Dollars (US\$25,000) and (ii) the value of the Supply Contract (being the combined total of the prices payable by the Customer for the Products).

14.4 Neither the Customer nor the Supplier shall be liable to the other in contract, tort (including negligence), statute, misrepresentation, restitution or otherwise, arising under or in connection with the Supply Contract for any loss of profit or revenue, loss of business, loss of anticipated savings, or depletion of goodwill (in each case whether direct, indirect or consequential) or any indirect or consequential loss whatsoever (howsoever caused) even if that party was made aware of the possibility of such losses or damages.

14.5 The Supplier shall under no circumstance be liable for any loss or damage whatsoever and howsoever arising in relation to, or in any way connected with any Gas Cylinder if the ownership of that Gas Cylinder has transferred in accordance with the terms of the Supply Contract.

14.6 To the fullest extent permitted by law, the Customer will procure that any and all claims to be made against the Supplier and, without prejudice to Condition 2.4, any member of the WSS Group arising out of or in connection with a Supply Contract shall be made by the Customer and not by any affiliate or agent of the Customer or any other third party. For the avoidance of doubt, all claims brought against the Supplier (and, without prejudice to Condition 2.4, any member of the

WSS Group) shall be subject to the exclusions and limitations of liability set out in these Conditions and the Customer shall indemnify the Supplier (and, as applicable, any member of the WSS Group) against all liabilities, costs, expenses, damages and losses (included legal expenses) arising from a breach of this Condition 14.6.

15. Force Majeure

If either party to a Supply Contract is unable to comply with its obligations due to events beyond its reasonable control (including, but not limited to, industrial disputes which are not related to that party's staff, riots, mobs, fires, floods, wars, acts of terrorism, embargo, shortage of labour, power, fuel, lack of means of transportation or general lack of other necessities, laws, regulations or orders from any governmental agency, port or vessel security control, security concerns, adverse weather conditions, or epidemics, pandemics or any other public health crisis), that party's obligations (excluding Customer's payment obligations in connection with a Supply Contract) shall be suspended for the duration of such events and it shall not be liable for any such non-performance.

16. Termination

16.1 The Customer and the Supplier shall be entitled to terminate as provided at Conditions 18.3 and 19.3.

16.2 Without prejudice to any other rights and remedies of the Supplier, a Supply Contract may be terminated by the Supplier with immediate effect if the Customer:

- (i) is declared bankrupt, becomes insolvent, is unable to pay debts or enters into an arrangement with its creditors; or
- (ii) has a petition presented, an order made or a resolution passed for its liquidation (otherwise than for the purposes of a solvent amalgamation or reconstruction), administration, bankruptcy or dissolution; or
- (iii) if an administrative or other receiver, manager, trustee, liquidator, administrator or similar officer is appointed to the Customer and/or over all or any part of the assets of the Customer.

16.3 Without prejudice to any other rights and remedies of the Supplier, the Supplier shall be entitled to terminate the Supply Contract if the Customer (i) is in default of its payment obligations under Condition 5; and/or (ii) if the Customer acts in breach of Condition 17.

16.4 On termination or expiry of a Supply Contract:

- (i) the Customer shall immediately return or make available for collection all Products, Non-Standard Products and Gas Cylinders to which title has not passed;
- (ii) the Customer shall return all Gas Cylinders or make same available for collection (in each case in accordance with Condition 8.5) within one hundred and eighty (180) days of such termination or expiry of the Supply Contract;
- (iii) if termination was triggered by the Customer's breach, the Customer shall be liable and shall indemnify the Supplier in full for all costs and expenses (including legal costs) incurred by the

- (iv) Supplier in retaking possession of such Products, Non-Standard Products and/or Gas Cylinders; and the parties shall, if requested, return or destroy all confidential information of the other party and confirm same to the other party.
- 16.5 Termination or expiry of the Supply Contract shall not prejudice the Supplier or the Customer's rights, remedies, obligations or liabilities which have accrued as at termination or expiry, including the right to claim damages for any breach of the Supply Contract that existed at or prior to such termination or expiry.
- 16.6 Conditions 1, 2.5, 3.8, 4.4, 8.3, 8.5, 8.7, 8.8, 9, 10, 11, 12, 13, 14, 16.4, 16.5, 17, 20, 21, 22.3, 22.4 and 22.8 shall survive the termination or expiry of the Supply Contract.
- ## **17. Intellectual Property Rights**
- 17.1 Nothing in these Conditions nor any other term of a Supply Contract shall operate to transfer any intellectual property rights (including but not limited to patents, designs, trademarks and trade names (whether registered or unregistered), copyright and related rights, database rights and knowhow) in the Products and the Gas Cylinders (or any items supplied with them) nor any proprietary information or data to the Customer.
- 17.2 The Supplier shall grant to the Customer a non-exclusive, non-transferable (except to subsequent purchasers of the Products) royalty free licence to use the intellectual property rights contained within the Products or Gas Cylinders (and any related item delivered with them such as instruction manuals, drawings, commissioning and handover documents) solely to use of the Products or Gas Cylinders for the purpose provided.
- 17.3 Notwithstanding any other term of the Supply Contract, the Customer shall not be entitled to use the name, logo or trademarks of any member of the WSS Group on any external marketing materials without the prior written consent of the Supplier.
- ## **18. Compliance with Law and Ethical Standards**
- 18.1 Each of the Customer and the Supplier, in the performance of the Supply Contract and the business resulting therefrom, shall comply with all laws and regulations applicable to such party.
- 18.2 The Supplier and the Customer further agree that neither shall:
- (i) offer or agree to give any person working for or engaged by the other party any gift or other consideration, which could act as an inducement or a reward for any act or omission to act in connection with any agreement between the parties;
 - (ii) enter into any agreement with the other party if it has knowledge that, in connection with it, any money has been, or will be, paid to any person working for or engaged by the other party or that an agreement has been reached to that effect unless (i) details of any such arrangement have been disclosed in writing to the other party prior to the execution of the
- agreement and (ii) approval of such arrangement by an authorised representative of the other party has been obtained;
- (iii) offer, pay or promise to pay either directly or indirectly, anything of value to a Public Official in connection with any agreement, and the parties further agree that (i) in the performance of their respective obligations hereunder, the parties and their respective agents, sub-contractors and employees shall comply with all applicable laws, rules, regulations and orders of any applicable jurisdiction, including the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and (ii) each party shall notify the other immediately in writing with full particulars in the event that party receives a request from any Public Official requesting illicit payments; or
 - (iv) take any other action which results in a breach by either party of any applicable anti-corruption legislation (including but not limited to the UK Bribery Act 2010 and the US Foreign Corrupt Practices Act of 1977).
- In this Condition 18, the term "Public Official" means (i) any official or employee of any government agency or government-owned or controlled enterprise, (ii) any person performing a public function, (iii) any official or employee of a public international organisation, (iv) any candidate for political office or (v) any political party or an official of a political party.
- 18.3 Without prejudice to any other rights or remedies a party may have, if the Customer or the Supplier is in breach of this Condition 18, the other party shall be entitled to terminate the Supply Contract by written notice with immediate effect.
- ## **19. Compliance with Asset Control Laws and Financial Sanctions**
- 19.1 Each of the Customer and the Supplier shall comply with applicable anti-terrorist financing, sanction and asset control laws, regulations, rules and orders, including but not limited to those imposed by the United Nations, the United States (including the U.S. Department of Treasury, Office of Foreign Assets Control ("OFAC") regulations) and the European Union sanctions or restrictive measures. The Customer and the Supplier further warrant that now, and throughout the course of the Supply Contract, they are not themselves subject to any sanctions listing.
- 19.2 Pursuant to OFAC regulations respecting USD payments, it is expressly acknowledged that neither the Customer nor the Supplier can facilitate USD payments in any transaction related to OFAC sanctioned entities or countries, either directly or indirectly. Either party may be required to request information from the other which supports a verification statement which New York intermediary banks may require according to the OFAC regulations, including whether a person is a "specially designated national" listed by OFAC or any executive order, or a "national" of any country with which transactions are regulated by OFAC and both parties shall provide timely and truthful responses to any such reasonable enquiries that the other may make to support any required verification statements.

19.3 Without prejudice to any other rights or remedies a party may have, if the Customer or the Supplier is in breach of this Condition 19, the other party shall be entitled to terminate the Supply Contract by written notice with immediate effect.

20. Confidentiality

20.1 Subject to these Conditions, both the Customer and the Supplier agree to keep all information disclosed to it by the other party confidential, and not to disclose it without the prior written consent of the other party to any third party, unless: (i) the information was public knowledge at the time of the disclosure; (ii) the information becomes public knowledge other than by breach of the confidentiality requirements set out in this Agreement; (iii) the information subsequently comes lawfully into its possession from a third party; or (iv) such disclosure is required pursuant to any applicable laws or mandatory regulations to which the disclosing party is subject.

20.2 Notwithstanding Condition 20.1, each party shall be entitled to disclose confidential information to (i) its directors, shareholders, officers, employees, advisers, subcontractors and consultants on a need to know basis; (ii) to potential assignees or transferees; and/or (iii) otherwise as necessary for the purposes of performing its obligations under the Supply Contract, provided always that the disclosing party ensures compliance of any recipient third parties with the provisions of this Condition 20.

20.3 Neither party shall use the other party's confidential information for any purpose other than to exercise its rights and perform its obligations under or in connection with the Supply Contract.

21. Governing Law and Dispute Resolution

21.1 These Conditions and all Supply Contracts to which these Conditions apply and any non-contractual obligations arising out of or in connection with these Conditions and such Supply Contracts shall be governed by, and construed in accordance with, English law.

21.2 In the event of a dispute arising out of or in connection with a Supply Contract, the parties shall first attempt to resolve such dispute by negotiation. If the parties are unable to resolve such dispute within forty-five (45) days of commencing negotiations, such dispute may be referred to arbitration in accordance with the Arbitration Act 1996 or any statutory modification or re-enactment thereof.

21.3 Subject to Condition 21.4, the arbitration shall be conducted in accordance the London Maritime Arbitrators Association ("LMAA") Terms current at the time when the arbitration proceedings are commenced. The reference shall be to a panel of three (3) arbitrators. A party wishing to refer a dispute to arbitration shall appoint its arbitrator and send notice of such appointment in writing to the other party requiring the other party to appoint its own arbitrator within 14 calendar days of that notice and stating that it will appoint its arbitrator as sole arbitrator unless the other party appoints its own arbitrator and gives notice that it has done so within the 14 days specified. If the other party does not appoint its own arbitrator and give notice that it has done so within the 14 days specified, the party referring a dispute to arbitration

may, without the requirement of any further prior notice to the other party, appoint its arbitrator as sole arbitrator and shall advise the other party accordingly, and the award of such sole arbitrator shall be binding on both parties as if he had been appointed by agreement.

21.4 Where neither the claim nor any counterclaim exceeds the sum of US\$100,000 the arbitration shall be conducted in accordance with the LMAA Small Claims Procedure. The reference shall be to a sole arbitrator, jointly appointed by agreement between the parties.

21.5 The seat, or legal place, of the arbitration shall be London, England. The language to be used in the arbitration shall be English.

21.6 Nothing stated in this Condition shall preclude the right of either party to seek security or interim orders (by means of any appropriate remedy or relief, including but not limited to in rem arrests, injunctions, attachments, seizures, sales, detention, the exercise of a lien or otherwise howsoever) from any court of competent jurisdiction as may be necessary.

21.7 Nothing in these Conditions shall preclude the Supplier or any member of the WSS Group from claiming or seeking to enforce any outstanding or overdue debt or payable invoice owed by the Customer to the Supplier under these Conditions in the courts of any competent jurisdiction anywhere in the world.

22. Miscellaneous

22.1 Entire Agreement

Each Supply Contract (incorporating, for the avoidance of doubt these Conditions and any Additional Terms (if applicable) together with the Order Confirmation) shall constitute the whole agreement between the parties and supersedes all previous agreements between the parties relating to its subject matter.

Each party acknowledges that, in entering into a Supply Contract, it has not relied on, and shall have no right or remedy in respect of, any statement, representation, assurance or warranty (whether made negligently or innocently) other than as expressly set out in the Supply Contract. Nothing in this Condition shall limit or exclude any liability for fraud or fraudulent misrepresentation.

22.2 Assignment and Subcontracting

- (i) The Supplier may subcontract any of its obligations under a Supply Contract to any member of the WSS Group or any other third party, provided always that the Supplier shall remain liable for actions of its subcontractor which are contrary to the terms of the Supply Contract.
- (ii) Subject to (iii) below, neither Party may assign or transfer all nor any of its rights or obligations under a Supply Contract without the prior written consent of the other party, which shall not be unreasonably withheld or delayed.
- (iii) The Supplier shall be entitled, upon written notice to the Customer, to assign or novate the Supply Contract (including any debt owed by the Customer) in whole or in part to any member of the WSS Group

and the Customer will sign all documents necessary to effect such assignment or novation.

22.3 Waiver

No failure by either of the parties hereto, in case of a default or breach by the other party, to enforce any claim, or to exercise any remedy, or to have resort to any recourse under a Supply Contract or under any applicable law shall be deemed a waiver of any other remedy or recourse or a waiver of the same remedy or recourse for any subsequent default or breach.

22.4 Data Protection

Each Party shall comply at all times with mandatory applicable laws and regulations relating to the protection of data, including the Data Protection Act 2018, the EU General Data Protection Regulation 2018 and, to the extent applicable, any analogous legislation in other jurisdictions.

22.5 No Agency or Partnership

Nothing in these Conditions is intended to, or shall be deemed to, establish any partnership or joint venture between any of the parties, constitute any party the agent of another party, or authorise any party to make or enter into any commitments for or on behalf of any other party.

22.6 Severability

If any term of a Supply Contract is or to any extent subsequently becomes void, unenforceable, or illegal for any reason whatsoever:

- (i) such term shall be deemed excluded to the extent of such invalidity;
- (ii) any exclusion under (i) shall not affect the validity or operation of any other provision of the Supply Contract except only so far as shall be necessary to give effect to the construction of such invalidity; and
- (iii) the parties shall negotiate in good faith to agree a replacement provision that, to the greatest extent possible, achieves the intended commercial result of the original provision.

22.7 Variations

Without prejudice to Condition 9.3, no variation or amendment to a Supply Contract shall be valid unless recorded in writing and signed by both parties to such Supply Contract.

22.8 Third Party Rights

With the exception of any member of the WSS Group, who shall be entitled to enforce and take the benefit of any right expressly stated to be for the benefit of the WSS Group under a Supply Contract (including, but not limited to, those set out in these Conditions), no term of a Supply Contract shall give rise to any rights of third parties under the Contracts (Rights of Third Parties) Act 1999 or otherwise to enforce or to enjoy the benefit of any term of such Supply Contract.

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