

# Yale



## ATEX



**CACO**  
INTELLIGENT MOTION

# Yale®

Yale is the leading brand for standard manual hoisting equipment in Europe. As early as 1877, Yale produced the first spur-gearred hand chain hoist incorporating the Weston screw-and-disc type load brake – a design principle which is still used today. In 1936, hoist manufacture started in Velbert with the production of the world renowned PUL-LIFT®.

The products, which are delivered ready for operation, are used world-wide for the most varied industrial and commercial applications: in construction, (mechanical) engineering, transportation, energy & water management, oil & gas and paper industries.

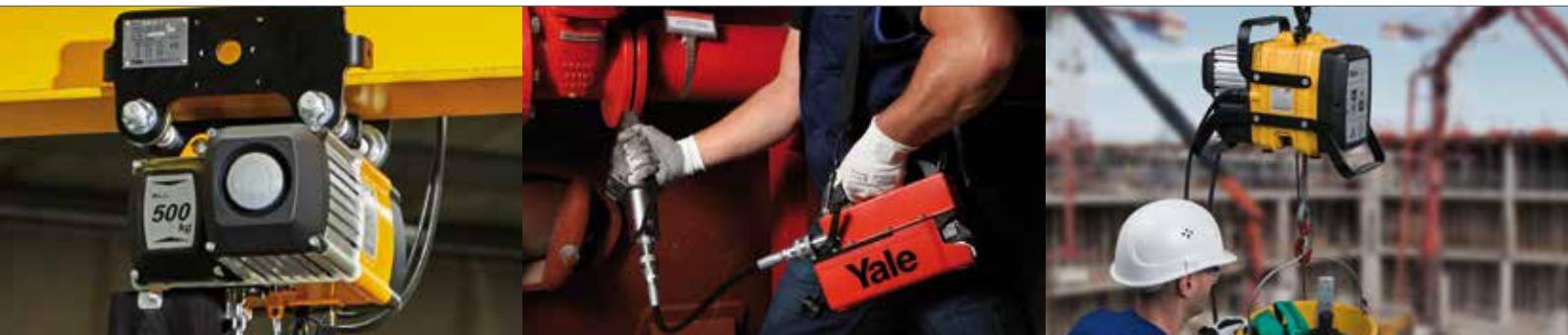
The product range as well as all new and further developments of Yale in the individual product sectors constantly raise the benchmark for quality, reliability and safety.



Pfaff-silberblau (Columbus McKinnon Engineered Products) has been a technology leader in components and system solutions for mechanical drive and lifting technology for 150 years.

The portfolio ranges from high-quality screw jacks, innovative linear drives, lifting columns, screw drives, bevel gears to high-performance lifting tables and cable winches including accessories.

Based on these components, customer-specific solutions for a wide variety of applications are possible.



The comprehensive range of products includes hoists and cranes, balancers, load hoisting tackles and crane weighers, textile lifting and lashing equipment, material handling equipment and load moving systems, hydraulic tools as well as workshop equipment.

Pfaff Verkehrstechnik GmbH is a sister company of Columbus McKinnon Engineered Products GmbH.

In addition to the delivery of traffic engineering components, the company primarily offers complete project planning, installation and maintenance of turnkey lifting systems for rail vehicles, which are used worldwide. The portfolio includes lifting jacks, underfloor lifting systems, roof work platforms for trains and electric buses as well as all workshop equipment.

[www.columbusmckinnon.com/en/yale](http://www.columbusmckinnon.com/en/yale)

[www.columbusmckinnon.com/en/pfaff-silberblau](http://www.columbusmckinnon.com/en/pfaff-silberblau)

# CMCO

**INTELLIGENT MOTION**

Columbus McKinnon designs and produces an extensive portfolio of durable and reliable products for a wide range of industries, with which heavy loads can be moved, lifted, positioned and secured ergonomically and safely.

With a history spanning over 150 years, Columbus McKinnon is a global leader in lifting and smart technology.

Our portfolio of high quality brands as Yale, Pfaff-silberblau, Stahl CraneSystems, CM, Tigris, Magnetek, Duff-Norton und Coffing Hoists are solving high value problems that transform businesses, increase safety and drive business growth and efficiency.

At Columbus McKinnon, we work together, guided by our mission, vision, and values, to raise expectations of ourselves and ultimately increase our value to the customers and shareholders we serve.

#### Our Mission

We provide expert, professional-grade solutions and products, to help solve our customers' high-value problems.

#### Our Vision

To become the leading industrial technology company in safe and productive motion control.



Experience, know-how and innovative strength combined with a far-reaching understanding of user requirements is the formula for success on which our portfolio of hoisting and material handling equipment products has been based for a long time.

Our tradition of close customer relationships and customer services as well as our constant striving for optimisation provide the basis for all new and further developments of the Yale and Pfaff-silberblau brands.

Columbus McKinnon is a global organization with headquarter in Buffalo, New York.

Columbus McKinnon's global footprint includes offices and manufacturing facilities across North America, Latin America, Europe, Africa and Asia.

**Columbus McKinnon Corporation**  
Corporate Headquarters  
205 Crosspoint Parkway  
Getzville, New York 14068

[www.columbusmckinnon.com](http://www.columbusmckinnon.com)

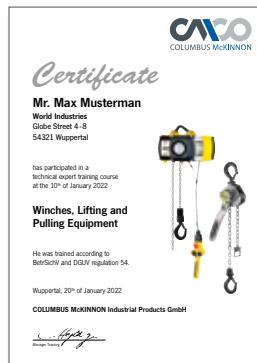


## Training

As a manufacturer, we have many years of experience in inspecting and repairing products in the field of lifting technology. We would like to pass on this knowledge to our customers and offer seminars in our training centre in Wuppertal seminars for "qualified person" in accordance with DGUV regulation 54 for winches, lifting and pulling equipment.

These are not only product training courses, but seminars that provide participants with up-to-date insider information and a solid knowledge of the handling of rope, lifting and slinging technology.

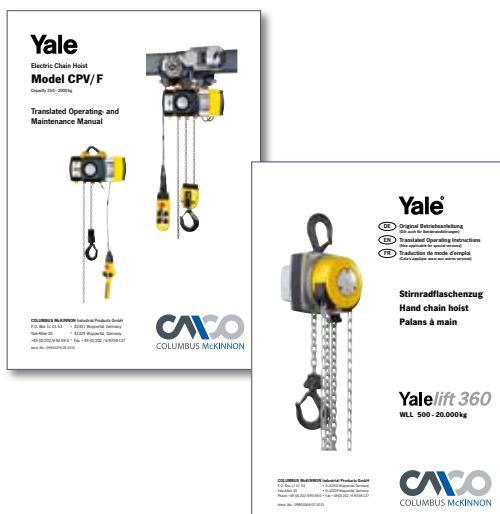
The most modern communication techniques, a portion of practice and optimally designed seminar materials guarantee a quick and lasting seminar success.



## INFO

---

All seminars can also be held in-house if required.



## Certified security

You are in safe hands - Every unit is supplied with operating instructions, CE declaration of conformity resp. manufacturers works test certificate, which confirms the perfect tested status of the product.

Additional documentation, e.g. spare parts manuals or maintenance and repair instructions are available on request or at our homepage.

[www.columbusmckinnon.com/en/yale](http://www.columbusmckinnon.com/en/yale)

## Offering advice

Our qualified personnel are there for you around the globe at all our locations, as well as specialised dealers who provide competent know-how and service.

### Business hours:

Monday - Thursday 08:00 a.m. - 04:30 p.m.  
 Friday 08:00 a.m. - 03:30 p.m.

### Shipping:

Monday - Thursday 06:30 a.m. - 04:30 p.m.  
 Friday 06:30 a.m. - 03:00 p.m.



## EN ISO 9001

Columbus McKinnon Industrial Products GmbH manufactures world wide according to uniform, controlled standards of EN ISO 9001. This is a guarantee for our business partners that given standards in design and development, manufacturing, assembly and service are complied with.

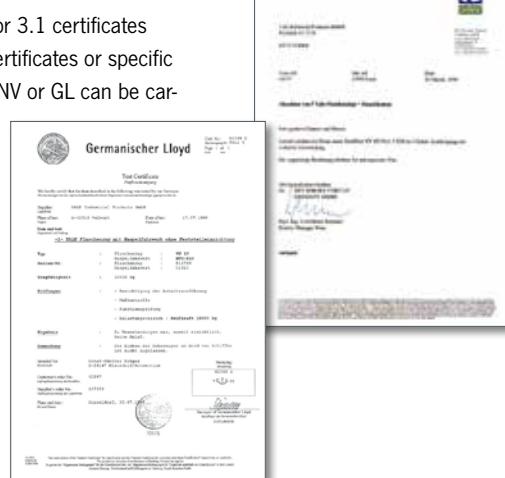
## INFO

The documentation for all products listed here is deposited at TÜV Rheinland.



## Special documentation

Further inspections in form of 2.2 or 3.1 certificates according to EN 10204, GOST R certificates or specific pre-shipment inspections e.g. by DNV or GL can be carried out at cost on request.



The roots of explosion protection lie in the mining industry where the miners are in danger from firedamp, which describes the methane gas escaping underground. The fine coal dust reacts with the air creating an explosive mixture (firedamp explosion).

Explosive atmospheres may however occur in other branches of industry too, for example in the chemical or petrochemical industries. Not only electrical equipment, but also non-electrical equipment must be designed in a way that they cannot form effective ignition sources.

In order to avoid serious injuries and damage to material and the environment, safety regulations, laws, decrees and standards have been established in most states. Hence a high degree of safety has developed in explosion protection across the world. As the physical laws regarding the occurrence of explosions and the measures taken to prevent them are based on similar principles everywhere, the aim is to harmonise approval conditions and regulations regarding conformity on international level.

This brochure merely outlines the European explosion protection directives which however, correspond largely to the international IECEx regulations. It cannot take the place of an intensive analysis of national legal principles and standards, though.

The explosion protection of electrical and non-electrical machines is an important prevention measure for the safety of persons and production, storage and distribution facilities of all kinds, wherever mixtures of flammable gases or dusts and air occur.

### Chemical industry



### Energy supply



### Shipbuilding



# ATEX

### Examples of explosion hazards in different industries:

#### Offshore industry



#### Waste disposal and recycling companies



Gas supply companies



Metal processing companies



Wood processing industry



Paint shops



Agriculture



Food and feed industry



Pharmaceutical industry



Refineries



## ATEX

By defining the ATEX product directive 2014/34/EU (ATEX 95) and the ATEX user directive 1999/92/EC (ATEX 137) the European Community has established the basis for uniform European explosion protection.

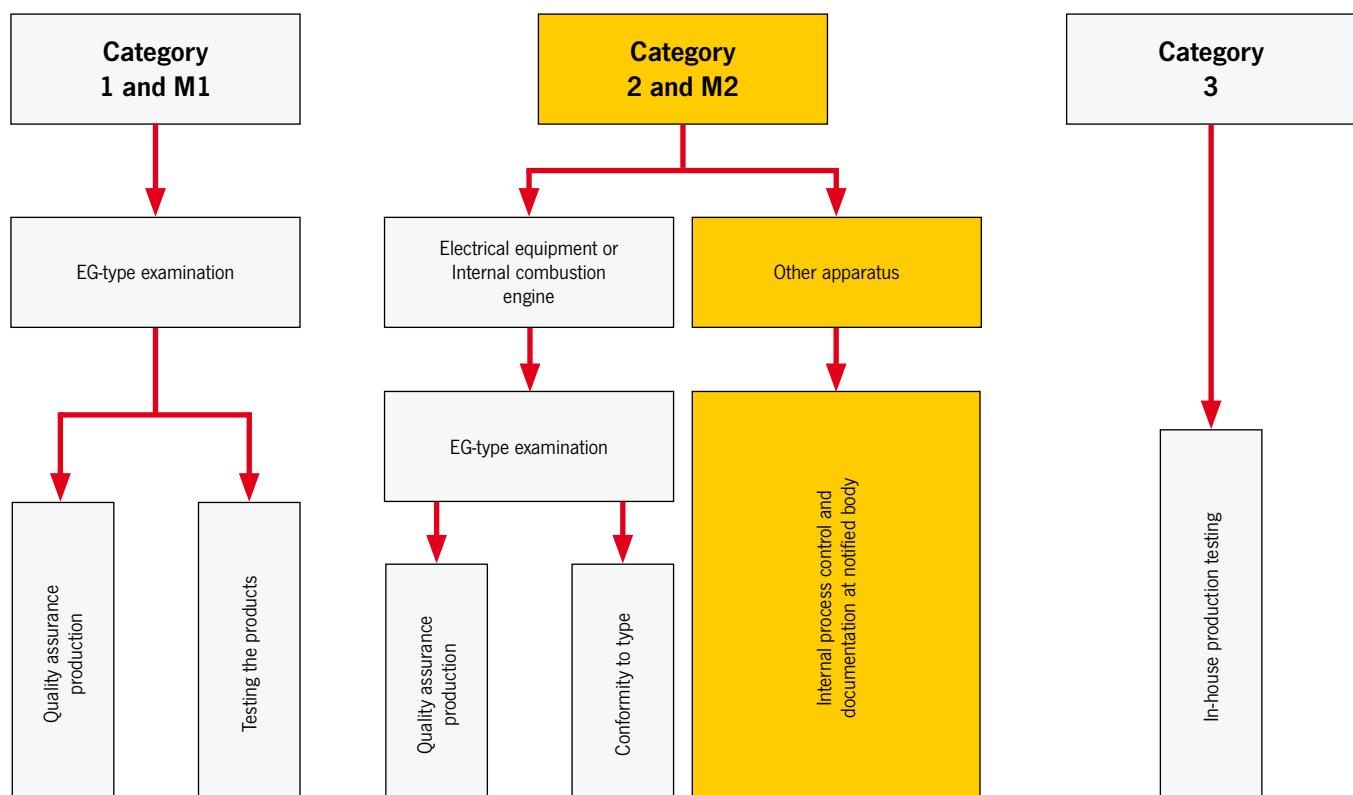
This safety concept is applicable both for manufacturing electrical and non-electrical apparatus and for operating this apparatus in the respective industrial plants. The legislators of the individual member countries implement these directives in equivalent statutory regulations.

In Germany for example these are the Explosion Protection Ordinance ExVO (implementation of directive 2014/34/EU), the Industrial Safety Ordinance (implementation of directive 1999/92/EC) and the Technical Regulations for Industrial Safety (TRBS), the regulations issued by the Employers' Liability Insurance Associations (e.g. BGR 104, BGR 109 and BGR 132), the Employers' Liability Insurance Association information sheets (e.g. BGI 740) and the regulations issued by the VDI (Association of German Engineers) (e.g. 2263 and 3673).

ATEX directive 2014/34/EU defines the properties required by apparatus for safe use in explosive areas.

This includes classification into equipment groups and categories, the respective conformity assessment procedures to be followed, manufacturers' responsibility including EU conformity marking, basic safety requirements for the development and manufacture of explosion-protected equipment and recognised quality management measures to be implemented during production.

ATEX directive 99/92/EC defines the obligations of users and employers for employees' protection in explosive areas. Furthermore, the user must assess the risk and classify the potentially explosive areas into corresponding zones so that the apparatus required by directive 2014/34/EU can be used in safety.



## IECEx

The international IECEx scheme also aims to assess conformity and certify apparatus, systems and services for use in explosive areas.

The IECEx system, introduced in 1996, supports the standardisation of norms and the issuing of certificates of conformity (CoC) unrelated to specific countries or regions, in order to simplify the free global movement of goods.

There is an extensive agreement as to classes and requirements between the European ATEX directives and the IECEx regulations.

IECEx is of great importance outside Europe. A total of 26 countries have acceded to IECEx and there are 34 recognised IECEx certification bodies (ExCB) and 36 recognised test laboratories (ExTLs) around the world. In countries which recognise IECEx, apparatus with the corresponding certification can be commissioned without further testing.

At present, however, IECEx is still used in most cases only for electrical equipment.

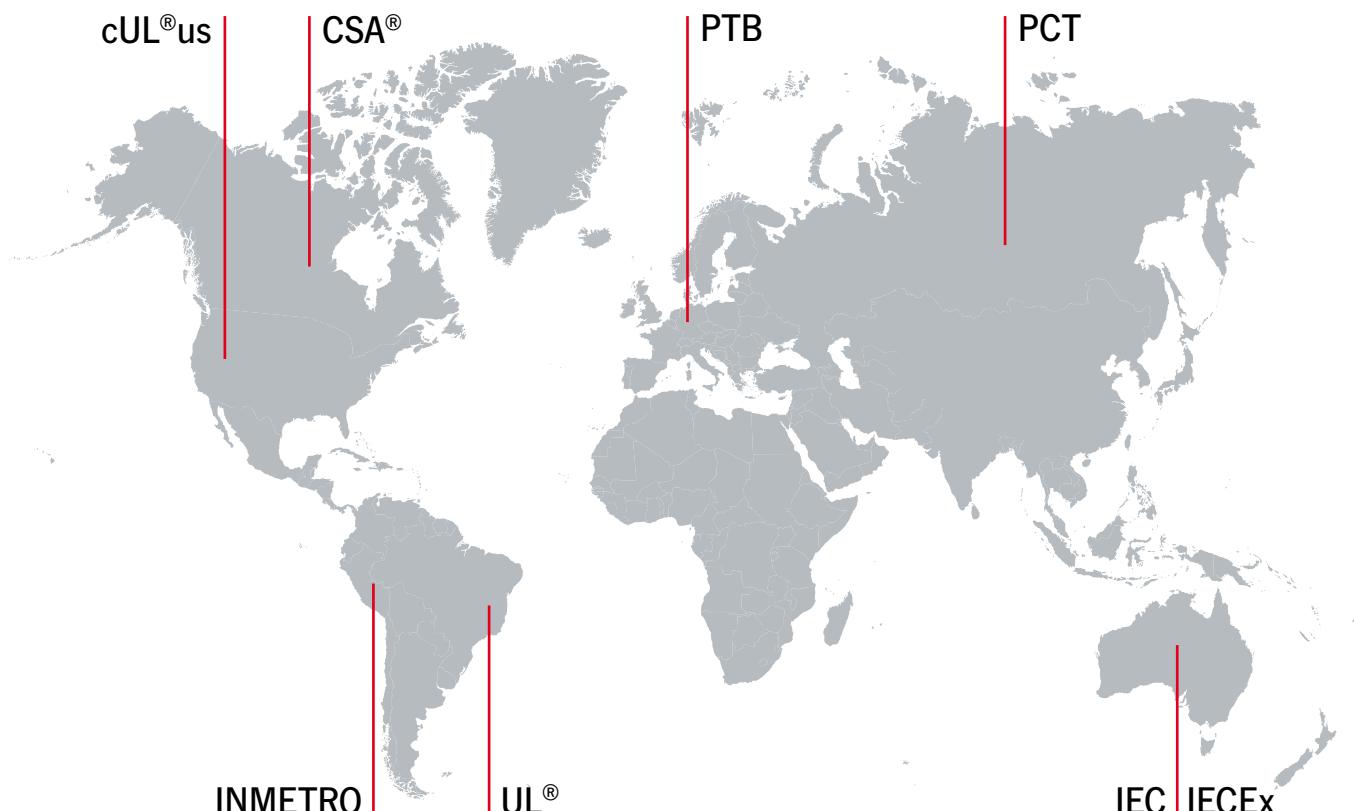
You will find further information on the IECEx system and its provisions including regulations, handbooks and procedures at:

[www.iecex.com](http://www.iecex.com)

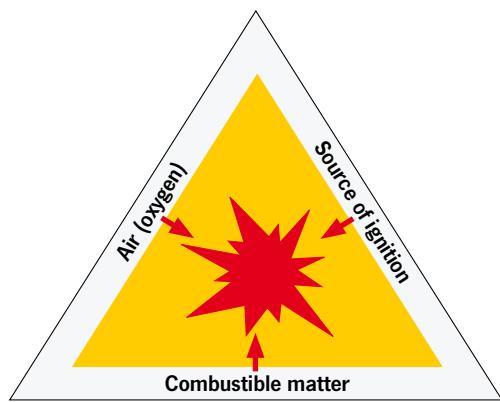
## ATEX and IECEx in comparison

System	ATEX legally required in the EU	IECEx on a voluntary basis in the EU
Inspection and conformity of non-electrical equipment	<b>Equipment category 2* and 3</b> <ul style="list-style-type: none"> <li>Internal process control</li> <li>EU Declaration of Conformity</li> <li>CE marking</li> </ul> <small>*Documentation deposited at notified body</small>	<b>Equipment protection level (EPL a, b, c)</b> not yet clarified, in all probability similar to electrical devices Standard: ISO 80079-36 and -37
Certificate	Certificate with deposit number of the notified body	IECEx Online Datenbase
Repair workshops	is regulated nationally (no EU-certified workshops)	Certified Service Facilities
Service personal	is regulated nationally (no EU-certified personnel)	Certified Competent Employees

## International testing authorities



Explosive atmospheres can occur wherever flammable gases, vapours, mist or dust can be generated. This is a mixture which, when it encounters the oxygen in the air, undergoes a reaction which can trigger an explosion at the slightest spark (e.g. a hot surface).



It is therefore important to avoid ignition or to minimize the effects of an explosion to a safe level.

Therefore, all equipment which will be used in potentially explosive atmospheres must be designed, produced and marked in accordance with the applicable regulations and standards.

The classification of the devices into groups and categories according to the ATEX directive or EPL according to IECEx standards results from their areas of application or the degree of safety of the protective measures and the frequency of occurrence of an explosive atmosphere.

The manufacturer must test the product under the most unfavorable conditions in order to eliminate potential ignition sources. In areas where an explosive atmosphere may occur, only explosion-proof equipment may be used.

This equipment, both electrical and non-electrical, is designed in accordance with the corresponding standard series DIN EN IEC 60079 and DIN EN ISO 80079 in various types of protection. The ignition protection type selected by the manufacturer depends on the type and function of the device. All standardized ignition protection types within a category are equivalent.

The manufacturer confirm that the product complies with the ATEX directives. The EU makes the declaration of conformity accompanying the technical documentation.

#### Types of protection for non-electrical equipment in explosive atmospheres

Type of protection	Symbol new	Diagram	Main application	Standard
basic methods and requirements				ISO 80079-36 EN ISO 80079-36
constructional safety "c"	h		couplings, pumps, gear drives, chain drives, belt drives  old marking according to EN 13463-5: c	ISO 80079-37 EN ISO 80079-37
control of ignition sources "b"	h		pumps, belt drives  old marking according to EN 13463-6: b	ISO 80079-37 EN ISO 80079-37
liquid immersion "k"	h		submerged pumps, gears  old marking according to EN 13463-8: k	ISO 80079-37 EN ISO 80079-37
flameproof enclosures "d"	h		brakes, couplings  old marking according to EN 13463-3: d	IEC 60079-1 EN 60079-1
protection by enclosure "t"	h		equipment for explosive dust atmospheres	IEC 60079-31 EN 60079-31
pressurized enclosure "p"	h		pumps	IEC 60079-2 EN 60079-2

ATEX directive 1999/92/EC defines users' obligations for the protection of employees working in potentially explosive atmospheres. The user is obliged to establish technical and organisational measures to prevent explosions occurring.

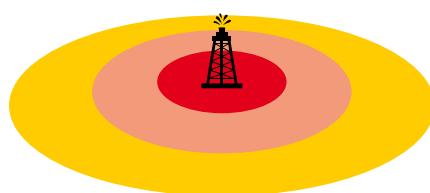
In this respect he must for example assess the potential danger and explosion risk, ensure that the working environment has been designed for safety and classify the hazardous areas into zones in accordance with the directives for safe operation of the apparatus which has been classified into categories.

In addition, he is obliged to issue and maintain an explosion protection document.

Naturally further issues are defined in directive 1999/92/EC in order to implement explosion protection effectively. After a system has been commissioned in due form it must be monitored and maintained so that the safe condition of the system is ensured and all dangers can be excluded. The plant's expert has product-specific documents (rating plate, operating instructions, EC prototype test certificate, declaration of conformity, etc.) and universally valid documents (legal ordinances, industrial safety ordinance, technical regulations TRBS, norms and standards, etc.) at his disposal.

The full product-specific documentation must be managed and retained throughout the period of use of the apparatus and placed at the disposal of the experts entrusted with maintenance work.

#### Gases, mists and vapors



Zone 0  
Zone 1  
Zone 2

#### Dust

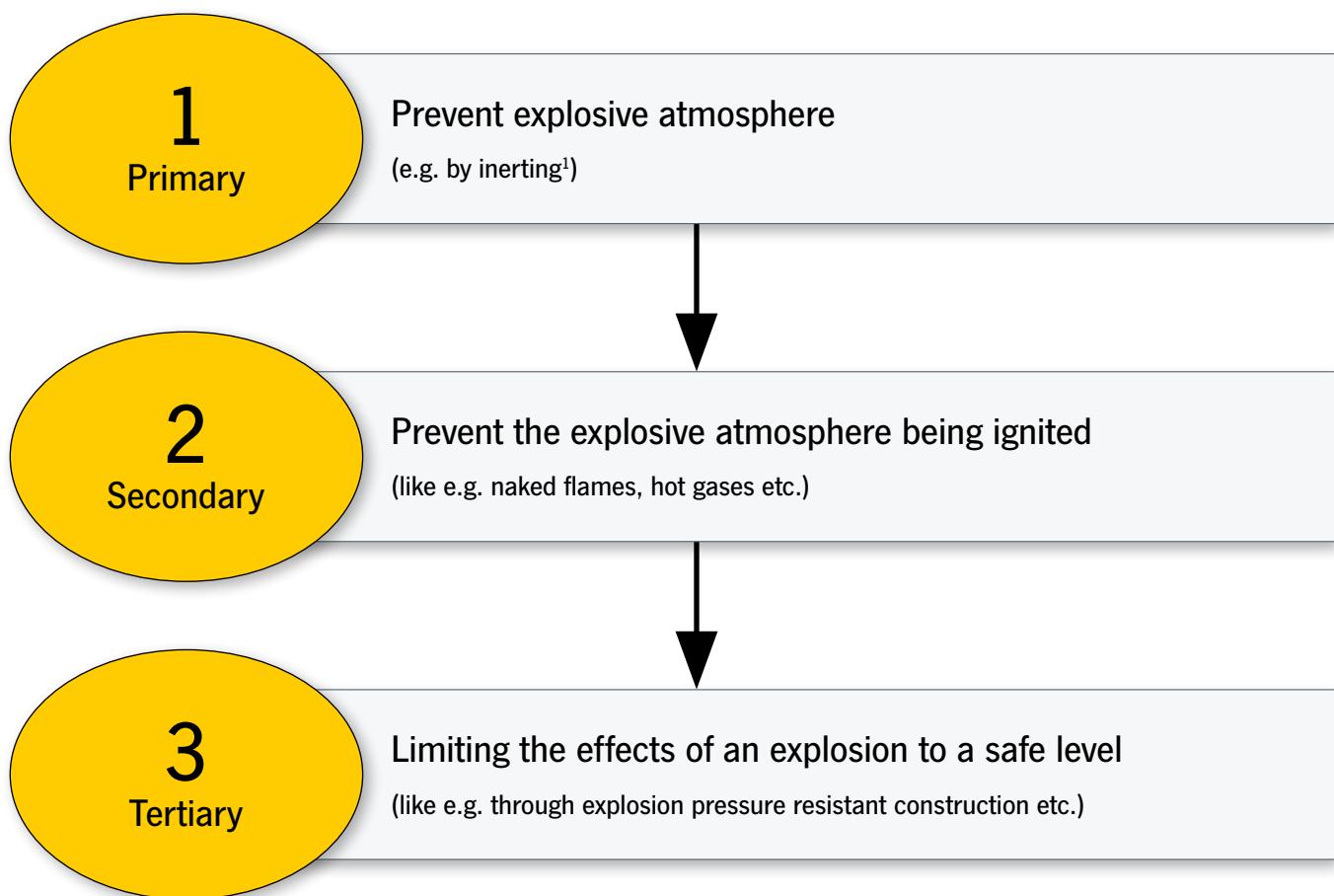


Zone 20  
Zone 21  
Zone 22



## Principle of integrated explosion protection

Explosion protection measures have to be taken in a certain order.



### **<sup>1</sup> Inerting substances**

Inerting substances means their transformation or processing into slow-reacting (inert) substances. Inert substances are, for example, inert gases, glass and porcelain. In refuse dump systems, inerting is used, for example, to render hazardous waste substances harmless. Substances containing heavy metal, which are radioactive or otherwise detrimental, are, for example, often glazed in order to make it possible to finally dispose of them.

### **Inerting rooms**

Inerting rooms means to displace the oxygen contents in the air or potentially reactive or explosive gases or gas mixtures in rooms by adding inert gases or vapours. When inerting as a protection against fire and explosion (industry example: chemicals storage or production facilities), the oxygen contents in the air are displaced by adding inert gas (e.g. argon, nitrogen, carbon dioxide) in order to prevent an explosive atmosphere. In fire protection, this is also called "active fire prevention by permanent inerting".



Equipment for potentially explosive atmospheres is divided into groups, categories and temperature classes in Directive 2014/34/EU. This is necessary because the same requirements do not have to be placed on equipment for every application and for every hazard level.

#### Equipment category and equipment protection level (EPL)

According to EU directive 2014/34/EU (ATEX)		According to IEC and CENELEC	Sufficient safety	
Equipment group	Equipment category	EPL		
<b>Mines susceptible to firedamp</b>				
I	M1	Ma		during rare malfunctions
I	M2	Mb		until de-energizing of the equipment
<b>Explosive gas atmosphere</b>				
II	1G	Ga	Zone 0	during rare malfunctions
II	2G	Gb	Zone 1	during expected malfunctions
II	3G	Gc	Zone 2	during normal operation
<b>Explosive dust atmosphere</b>				
II	1D	Da	Zone 20	during rare malfunctions
II	2D	Db	Zone 21	during expected malfunctions
II	3D	Dc	Zone 22	during normal operation

#### Groups

IEC/CENELEC/NEC 505/NEC 506		NEC 500	
Group I		<b>Mines susceptible to firedamp</b>	
<b>Methan</b>			
Group II		<b>Explosive gas atmosphere</b>	
<b>Subdivisions</b>		<b>Typical dust</b>	
IIA		propane	propane
IIB		ethylene	ethylene
IIC		hydrogen	hydrogen
		acetylene	acetylene
Group III		<b>Explosive dust atmosphere</b>	
<b>Subdivisions</b>		<b>Typical dust</b>	
IIIA		combustible flyings	fibers/flyings
IIIB		non-conductive dust	non-conductive dust
IIIC		conductive dust	carbonaceous dust
			combustible metal dust

The ignition temperature is the lowest temperature of a heated surface at which the ignition of a gas/air or vapour/air mixture occurs. In other words, it is the lowest temperature at which a hot surface can ignite the corresponding explosive atmosphere.

The maximum surface temperature of the equipment must therefore always be lower than the ignition temperature of the gas/air or vapour/air mixture.

#### Temperatureinteilung

Maximum surface temperature	Gas temperature classes		Maximum surface temperature	Gas temperature classes		
	Equipment marking			NEC 500	Equipment marking	
	NEC 500	CENELEC/IEC/NEC 505			CENELEC/IEC/NEC 505	
450 °C	T1	T1	200 °C	T3	T3	
300 °C	T2	T2	180 °C	T3A		
280 °C	T2A		165 °C	T3B		
260 °C	T2B		160 °C	T3C		
230 °C	T2C		135 °C	T4		
215 °C	T2D		120 °C	T4A		
<b>Dust: indication of the max. surface temperature in °C.</b>			100 °C	T5	T5	
			85 °C	T6	T6	



**Definition of dusts**

Dust cannot be classified as finely as the chemically defined gases and vapours. Therefore, dusts are classified according to their type and conductivity

ISO/IEC 80079-20-2 describes the test method for determining the specific electrical resistance of dusts.

Dusts are divided into 3 subgroups according to their resistance:

**IIIA** combustible flyings

**IIIB** non-conductive combustible dust

with a specific electrical resistance  $> 10^3 \Omega$

**IIIC** conductive combustible dust

with a specific electrical resistance  $< 10^3 \Omega$

**Ignition and glow temperature of dusts:**

Category	Substance	T <sub>ign.</sub> [°C]	T <sub>glow</sub> [°C]
Dusts from natural products	Wood	≥ 410	≥ 200
	Coal	≥ 380	≥ 225
	Milk powder	≥ 440	≥ 240
	Paper	≥ 540	≥ 300
Dusts from chemical-technical products	Petroleum coke	≥ 690	≥ 280
	Sulfur	≥ 280	≥ 280
Metal dusts	Aluminium	≥ 530	≥ 280
	Iron	≥ 310	≥ 300

**Safety characteristics of dusts**

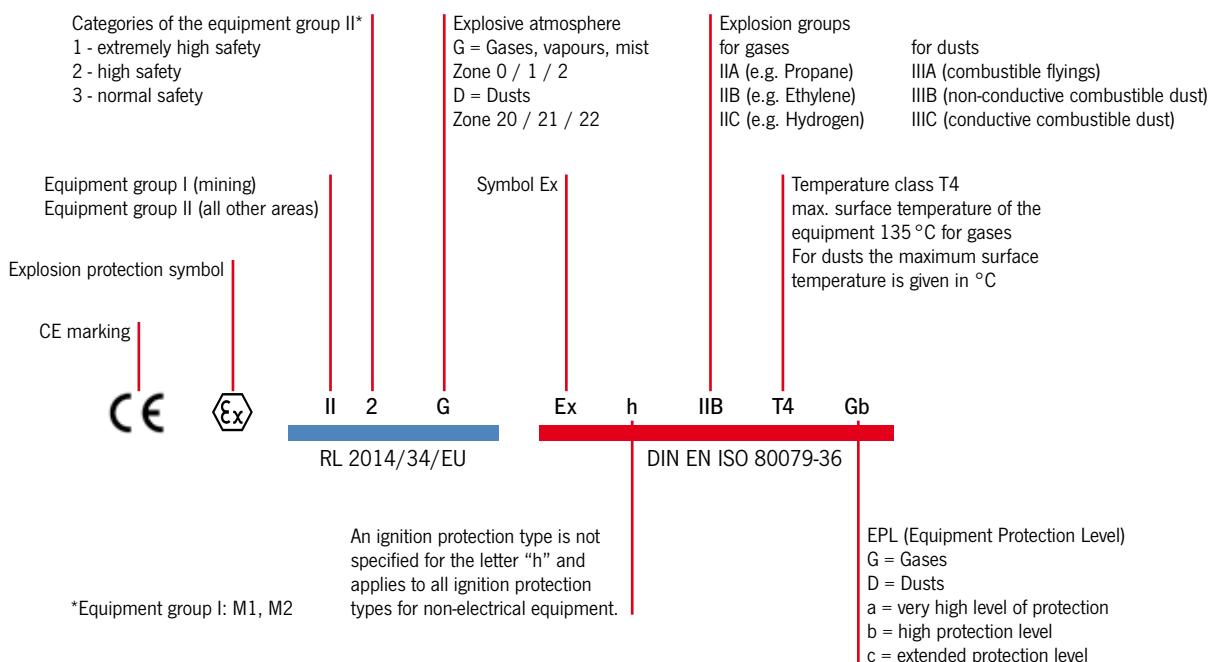
Characteristic	Definition/description	Remarks
Particle size	Dust with a particle size larger than 400 µm is not considered to be ignitable. Dust particles are ignitable when they measure less than 20 µm up to 400 µm.	Due to abrasion, the transportation and processing of coarse dust result in the formation of fine dust.
Explosion limits	For most dust/air mixtures of combustible substances the lower explosion limit is approx. 20... 60 g/m <sup>3</sup> air and the upper explosion limit approx. 2... 6 kg/m <sup>3</sup> air.	In this case allocation of particle size, density, humidity as well as the ignition point is decisive.
Maximum explosion pressure	In enclosed containers of simple design, combustible dust can reach explosion pressures of 8... 10 bar.	For light metal dusts the explosion pressure can exceed this value.
KSt value	This is a classification value which expresses the shattering effect of the combustion. Numerically, it is equal to the value of the maximum rate of explosion pressure rise during the explosion of a dust/air mixture in a 1 m <sup>3</sup> vessel.	This value is the basis for calculating explosion pressure relief surfaces.
Moisture	The moisture of dust is a significant factor for its ignition and explosion behaviour. Currently it is only known that a higher moisture content requires a higher ignition energy and impedes the formation of dust swirls.	
Minimum ignition energy E <sub>min</sub>	Lowest energy of an electrical spark which is sufficient to effect ignition of the critical (most easily ignitable explosive) dust/air mixture under defined framework conditions.	Not every spark is ignitable. The decisive factor is whether sufficient energy is introduced into the dust/air mixture to initiate a self-sustaining combustion of the entire mixture.
Ignition temperature T <sub>ign.</sub>	The lowest temperature of a hot inner wall (e. g. furnace) on which the dust/air mixture is ignited after brief contact. The surface temperature must not exceed 2/3 of the ignition temperature in °C of the relevant dust/air mixture, e. g. starch/milk powder/gelatine:  Ignition temperature 390 °C x 2/3 = 260 °C max. permissible surface temperature $T_{max} \leq \frac{2}{3} T_{ign.}$	
Smouldering temperature T <sub>glow</sub>	The lowest temperature of a hot surface on which ignition occurs in a dust layer with a thickness of 5 mm. On surfaces where a dangerous deposit of ignitable dust is not effectively prevented, the surface temperature must not exceed the ignition temperature reduced by 75 K of the respective dust.  With layer thicknesses over 5 mm, a further reduction of the temperature of the surface is necessary: e. g. wood, grinding dust Ignition temperature 290 °C - 75 °C = 215 °C max. permissible surface temperature $T_{max} \leq T_{glow} - 75 K$	The smouldering temperature is usually well below the calculated ignition temperature of a dust cloud. The smouldering temperature decreases almost linearly with an increase in the layer thickness. For acceptable surface temperatures safety clearances have to be adhered to.

As a result of the current series of standards, a new marking is also required for non-electrical equipment, which is structured as follows:

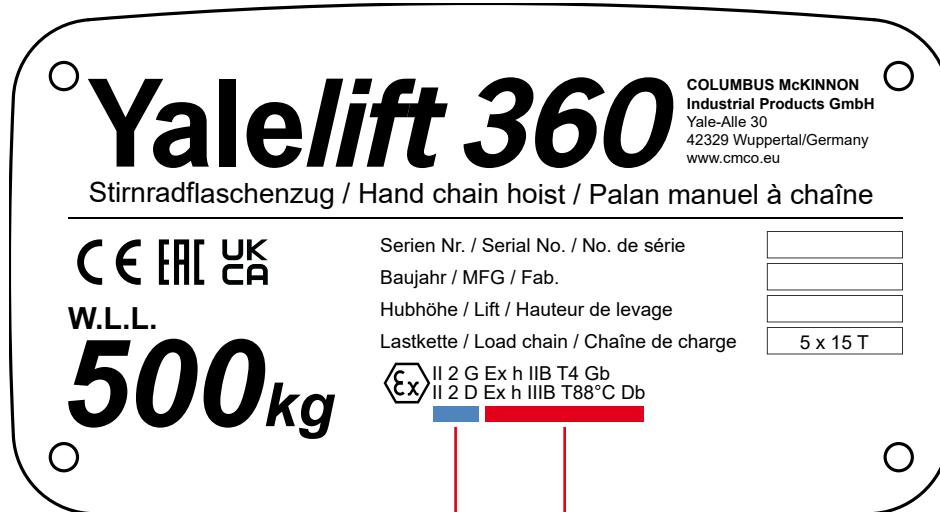
#### Non-electrical equipment

Labeling new							
Gases		II 2 G	Ex	h	IIB	T4	Gb
Vapours		II 2 D	Ex	h	IIIB	T135 °C	Db
Labeling old							
Gases		II 2 G		c k	IIB	T4	
Vapours		II 2 D		c k	IIB	T135 °C	

#### Identification key



#### Type label



ATEX (RL 2014/34/EU)

DIN EN ISO 80079-36

Explosion groups and temperature classes of some gases and vapours (selection)

#### Classification of combustible gases, vapours, mists

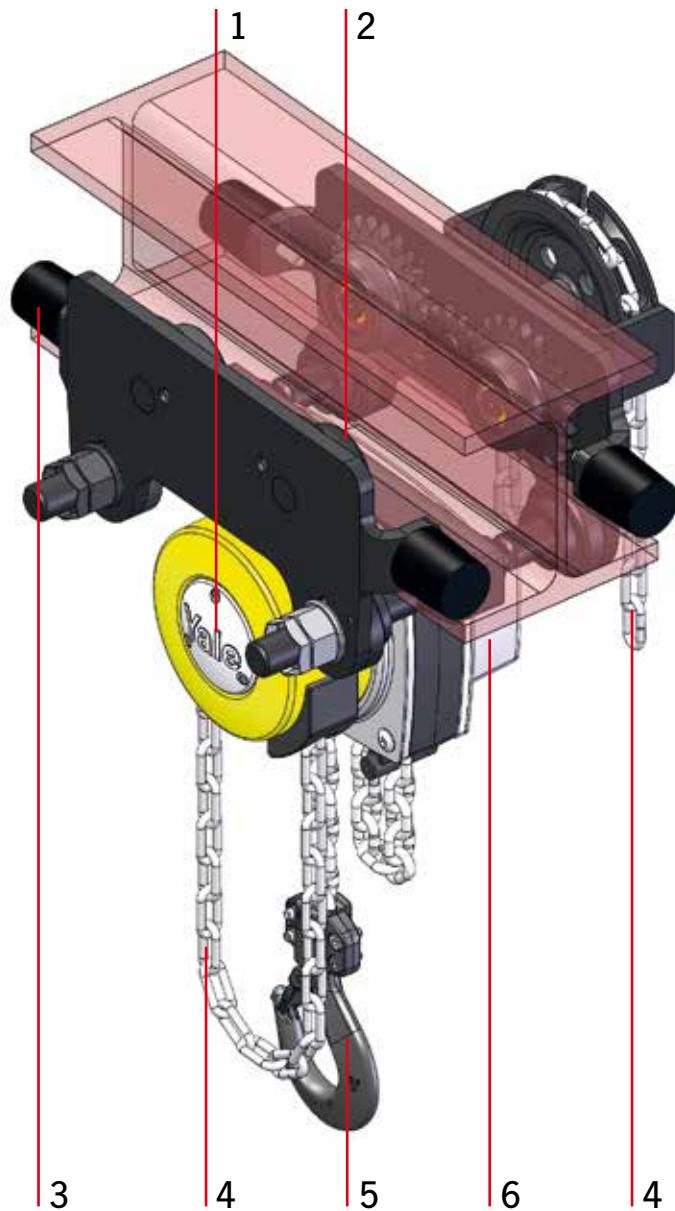
Ex group	Temperature classes					
	T1	T2	T3	T4	T5	T6
Ignition temperature range of the mixtures						
	> 450 °C	> 300 ≤ 450 °C	> 200 ≤ 300 °C	> 135 ≤ 200 °C	> 100 ≤ 135 °C	> 85 ≤ 100 °C
Permissible max. surface temperature of the equipment						
	450 °C	300 °C	200 °C	135 °C	100 °C	85 °C
<b>IIA</b>	Acetone	Ethanol	Petrol (general)	Acetaldehyde		
	Ammonium	i-Amyl acetate	Diesel fuels			
	Benzene (pure)	n-Butane	Aircraft fuels			
	Acetic acid	n-Butanol	Fuel oil DIN 51603			
	Ethane	Cyclohexan	n-Hexane			
	Ethyl acetate	Acetic anhydride				
	Ethyl chloride					
	Carbon monoxide					
	Methane					
	Methanol					
	Methyl chloride					
	Naphthalene					
	Phenol					
	Propane					
	Toluene					
<b>IIB</b>	City gas	Ethylene	Ethylene glycol	Ethyl ether		
		Ethylene oxide	Hydrogen sulfide			
<b>IIC</b>	Hydrogen	Acetylene				Carbon disulphide



In lifting and driving technology there are non-electrical components and parts that can cause an explosion in a potentially explosive atmosphere.

Columbus McKinnon Industrial Products GmbH therefore offers non-electrical equipment that is specially designed for the use in potentially explosive gas and dust atmospheres. This is done in accordance with the currently valid guidelines and standards.

All Atex products have been classified according to the ignition hazard assessment for categories 2 and 3 or M2 and the corresponding documentation is deposited with TÜV Rheinland. A corresponding certificate can be supplied upon customer request.



## 1 Load brake system



To reduce the temperature (hot surface) a cooling hub is additionally used on the Yalelift 360 series. This allows the temperature to be better dissipated.

This is not necessary for all other models.

## 2 / 3 Trolley wheels and buffers



From the **Medium** version upwards, they are made of solid bronze.

**Basic** trolley wheels are MKS coated (micro corrosion protection system). In addition, all trolleys are fitted with buffers to prevent mechanically generated sparks when hitting the end points.

## 4 Hand chain



The hand chains used on all hand chain hoists and geared trolleys are made of stainless steel.

This applies to **Basic**, **Medium** and **High**.

### INFO

The protection type is constructive safety "c".

## 5 Bottom block and top hook



All bottom blocks from **Medium** upwards are copper plated. This also applies to the corresponding top hooks. The bottom blocks and top hooks are MKS coated on **Basic**.

## 6 Gearbox



For all manual hoists, the gearbox is sufficiently greased. On the OMEGA Atex model and all air pressure chain hoists, the gear parts run in oil, so the liquid encapsulation "k" is added here. Lubrication (grease or oil) prevents sparking in the gear unit.

**Design****Protection classification**

CPA ATEX 1-13 / 2-10 / 5-5 / 10-9 Pneumatic chain hoist

CPA ATEX 20-8 bis 100-3 Pneumatic chain hoist

Yalelift 360 ATEX Hand chain hoist

Yalelift 360 IT ATEX Hand chain hoist with integrated push or geared trolley

Yalelift 360 LH ATEX Hand chain hoist with integrated push or geared trolley (low headroom)

HTP/G ATEX Push and geared trolley

C/D 85 ATEX Ratchet lever hoist

UNOplus - A ATEX Ratchet lever hoist

ZWW-L ATEX Wall-mounted rack and pinion jacks

HU 20-115 VATP ATEX PROLINE Hand pallet truck, stainless steel version

OMEGA ATEX Console-mounted wire rope winch with load pressure brake

**NOTE:**

The measured maximum surface temperatures can be taken from the corresponding operating instructions or the name plate!

This only applies when using the units in dusty conditions.



	BASIC	MEDIUM	HIGH	MINING
	 II 3 G Ex h IIA T4 Gc II 3 D Ex h IIIA T135 °C Dc	 II 2 G Ex h IIB T4 Gb II 2 D Ex h IIIB T135 °C Db	 II 2 G Ex h IIC T4 Gb II 2 D Ex h IIIC T135 °C Db	 I M2 Ex h Mb
			on request	
see page 47				
		see page 48		
		see page 49		



## INFO

Due to the use of stainless steel load chains for the HIGH design a reduction of the load capacity is necessary.

Please do refer to the table "technical data" for appropriate values.

### BASIC

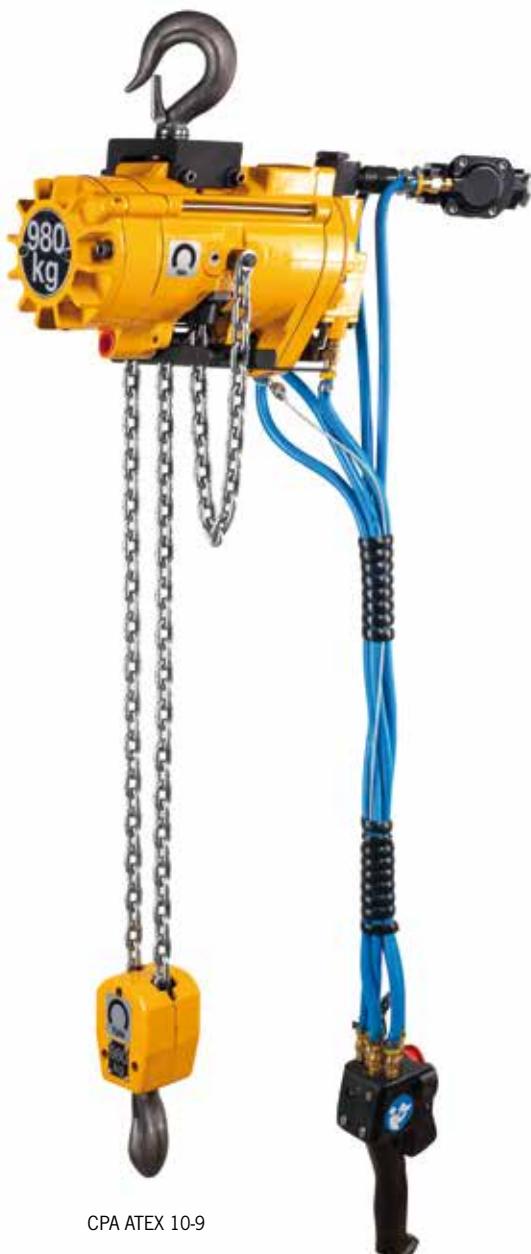
- Load chain galvanic zinc-plated, stainless steel hand chain
- Trolleys with buffers
- Brake with cooling element (Yalelift range only)

### MEDIUM

- Load chain galvanic zinc-plated, stainless steel hand chain
- Top and load hook copper-plated
- Trolleys equipped with buffers and bronze trolley wheels
- Brake with cooling element (Yalelift range only)

### HIGH

- Stainless steel load and hand chain
- Load and top hook copper-plated
- Trolleys equipped with buffers and bronze trolley wheels
- Brake with cooling element (Yalelift range only)



CPA ATEX 10-9

## CPA ATEX 1-13 up to 10-9 Pneumatic chain hoist with suspension hook

Capacity 125 - 980 kg

Pneumatic chain hoists are characterized by high durability in a great number of industrial applications. The robust but light weight housing allows an easy transport.

### Features

- Working pressures 6 bar.
- Rotating piston motor with 100% duty rating and an unlimited number of starts for continuous operation.
- Integrated limit switches for highest and lowest hook position as standard.
- Self-adjusting automatic disc brake.
- Extremely sensitive control with emergency-stop for a precise positioning of the load.
- Air release for brake as standard for model CPA 10-9

### Options

- Trolleys with shackle to fit top hook suspended pneumatic chain hoists.
- Maintenance unit for main air supply pipe (pressure regulator, manometer, lubricator and support).
- Chain container

### Applications

Automobile and aircraft industries, shipyards, on ships and docks. Foundries, on-/offshore, paint factories and paint shops, refineries, oil depots, galvanizing. Printing, textile and food industries, pulp, paper and cement mills. Glass and ceramic industries, wood working industries, chemical industries, heat treatment and power plants etc.

## INFO

To ensure faultless operation the compressed air supply must be filtered and oiled!

Also suitable for operation with nitrogen.

Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

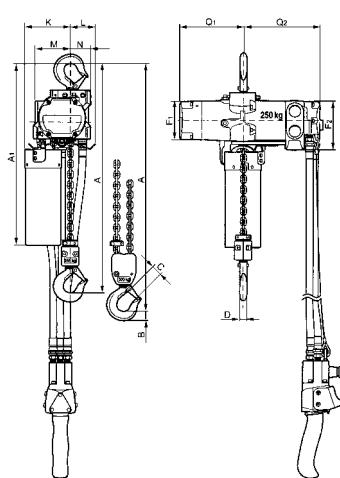
## Technical data CPA ATEX 1-13 up to 10-9 BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc

Model	Art.-No.	Capacity in kg/ Number of chain falls	Chain dimensions d x p mm	Classification FEM/ISO	Lifting speed with rated load <sup>1</sup> m/min	Lifting speed without load <sup>1</sup> m/min	Lowering speed with rated load <sup>1</sup> m/min	Air consump- tion with rated load <sup>1</sup> m <sup>3</sup> /min	Hoist motor kW	Weight at standard lift (3 m) kg
CPA ATEX 1-13	N08501007	125/1	4 x 12.2	1 Am/M4	13.1	17.1	11.3	0.9	0.4	15.4
CPA ATEX 2-10	N08501008	250/1	4 x 12.2	1 Am/M4	9.8	17.1	13.7	0.9	0.4	15.4
CPA ATEX 5-5	N08501010	500/2	4 x 12.2	1 Am/M4	4.6	7.9	6.7	0.9	0.4	17.2
CPA ATEX 10-9	N08501012	980/2	6.3 x 19.5	1 Bm/M3	8.5	16.2	14.9	1.27	1.33	27.7

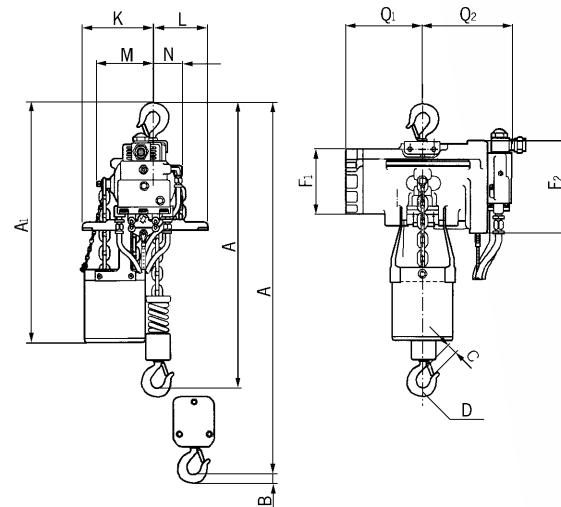
<sup>1</sup> Values for 6 bar flow pressure and 2 m control drop. Speeds will be reduced in case of longer control length.  
 CPA 1-13, CPA 2-10 and CPA 5-5 max. hose length 12 m, air supply 3/8" NPT, air consumption 0.9 m<sup>3</sup>/min.  
 CPA 10-9 max. hose length 20 m, air supply 1/2" NPT, air consumption 1.27 m<sup>3</sup>/min.

## Dimensions CPA ATEX

Model	CPA ATEX 1-13	CPA ATEX 2-10	CPA ATEX 5-5	CPA ATEX 10-9
A, mm	292	292	324	457
A1, mm	410	410	410	508
B, mm	21	21	14	27
C, mm	20	20	24	28
D, mm	16	16	14	28
F1, mm	90	90	90	130
F2, mm	120	120	120	180
K, mm	103	103	103	165
L, mm	57	57	57	83
M, mm	120	120	120	135
N, mm	50	50	50	25
Q1, mm	142	142	142	162
Q2, mm	183	183	183	181



CPA ATEX 1-13 / 2-10 / 5-5



CPA ATEX 10-9



CPA ATEX 1-13 / 2-10 / 5-5



## CPA ATEX 20-8 up to 100-3 Pneumatic chain hoist with suspension hook or with integrated trolley

Capacity 2000 - 10000 kg

With 100 % duty rating and an unlimited number of starts the model CPA is suitable for heavy duty applications.

It is insusceptible to contamination, humidity and aggressive mediums from the outside.

The hoists are composed of three main components which makes service easy and inexpensive.

### Features

- Working pressures 4 - 6 bar.
  - Robust rotating piston motor has an adjustable spring pressure brake that holds the load secure even in the event of an air failure.
  - The standard, oil bath lubricated planetary gearbox is particularly smooth running and enables a low overall height.
  - High starting torque due to switching valves in the motor body.
  - Low noise emission due to large dimension silencer.
  - Sensitive control by means of 2 resp. 4 button pendant control with emergency-stop.
  - The assembly of component parts result in a low overall height (up to 3000 kg only one chain fall).
  - The 5-pocket load chain sheave, manufactured from wear resistant case hardening steel, is matched perfectly to the load chain to guarantee smooth and precise chain motion.
  - Forged suspension and load hooks are made from non-aging, high tensile steel and fitted with robust safety latches.
  - The standard case hardened and zinc-plated link chain is matched perfectly to the load chain to guarantee smooth and precise chain motion.
- All requirements of national and international standards and regulations are fulfilled.
- Copper-coated suspension and load hooks for MEDIUM design or higher.
  - Stainless steel load chain for HIGH design.

### INFO

---

Pneumatic chain hoist CPA ATEX HIGH on request!

### Options

- Trolley for suspension hook version or integrated trolleys for all three designs (MINING / BASIC, MEDIUM, HIGH).
- Rope control
- Limit switch
- Chain container
- Maintenance unit, consisting of pressure regulator, pressure gauge, lubricator and holder
- Mobile maintenance unit
- Additional coating (see pages 52-53)

## Technical data CPA ATEX 20-8 up to 100-3 MINING I M2 Ex h Mb / BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc

Model	Art.-No.	Capacity in kg/ Number of chain falls	Lifting speed with rated load <sup>1</sup> m/min	Lifting speed without load <sup>1</sup> m/min	Lowering speed with rated load <sup>1</sup> m/min	Hoist motor kW	Weight <sup>2</sup> suspension hook kg	Weight <sup>2</sup> geared trolley kg	Weight <sup>2</sup> pneumatic trolley kg
CPA ATEX 20-8	N08505001	2000/1	7.4	9.9	11.0	2.6	121	188	199
CPA ATEX 30-6	N08505002	3000/1	6.0	9.9	13.0	3.2	121	188	199
CPA ATEX 50-3	N08505004	5000/2	3.4	5.0	6.0	3.0	140	206	218
CPA ATEX 60-3	192069175	6000/2	3.0	5.0	6.5	3.2	140	206	218
CPA ATEX 75-2	N08505005	7500/3	2.0	3.3	4.3	3.2	on request	on request	on request
CPA ATEX 100-3	N08505006	10000/4	3.4	5.0	6.0	2 x 3.0	on request	on request	on request

## Technical data CPA ATEX 20-8 up to 100-3 MEDIUM II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °C Db

Model	Art.-No.	Capacity in kg/ Number of chain falls	Lifting speed with rated load <sup>1</sup> m/min	Lifting speed without load <sup>1</sup> m/min	Lowering speed with rated load <sup>1</sup> m/min	Hoist motor kW	Weight <sup>2</sup> suspension hook kg	Weight <sup>2</sup> geared trolley kg	Weight <sup>2</sup> pneumatic trolley kg
CPA ATEX 20-8	N08505023	2000/1	7.4	9.9	11.0	2.6	121	188	199
CPA ATEX 30-6	N08505024	3000/1	6.0	9.9	13.0	3.2	121	188	199
CPA ATEX 50-3	N08505026	5000/2	3.4	5.0	6.0	3.0	140	206	218
CPA ATEX 60-3	192069176	6000/2	3.0	5.0	6.5	3.2	140	206	218
CPA ATEX 75-2	N08505027	7500/3	2.0	3.3	4.3	3.2	on request	on request	on request
CPA ATEX 100-3	N08505028	10000/4	3.4	5.0	6.0	2 x 3.0	on request	on request	on request

<sup>1</sup> Values at 6 bar flow pressure and 2 m control hose. Air consumption at nominal load 4.7 m<sup>3</sup>/min. For CPA 100-3 = 9.4 m<sup>3</sup>/min, air connection R1".<sup>2</sup> Weight for standard lift 3 m HOL. Other lifting heights on request.

Quick exhaust valves are installed from 11 m upwards, max. hose length 20 m.

## INFO

To ensure faultless operation the compressed air supply must be filtered and oiled!

Also suitable for operation with nitrogen.

Where no maintenance unit can be installed permanently, it is recommended to work with a mobile maintenance unit.



Mobile  
maintenance unit

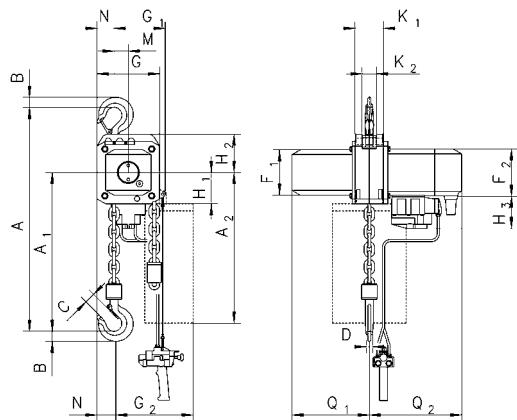
## Technical data trolleys

Capacity kg	Size	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Pneumatic trolley travel speed m/min	Pneumatic trolley motor kW
2000 - 6000	A	98 - 180	27	2.0	18	0.55
2000 - 6000	B	180 - 300	27	1.8	18	0.55
7500 - 10000	B	125 - 310	40	1.8	-	-

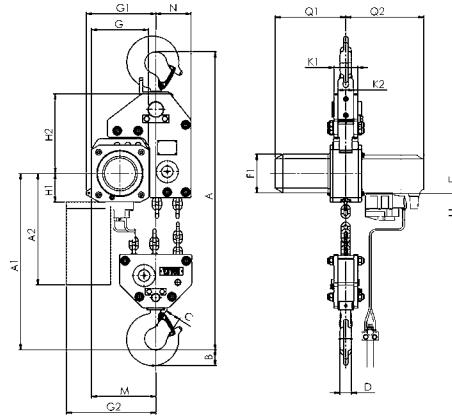
Flow pressure 6 bar, air consumption with rated load 0.75 m<sup>3</sup>/min, air connection R1½".

## Dimensions CPA ATEX 20-8 up to 100-3

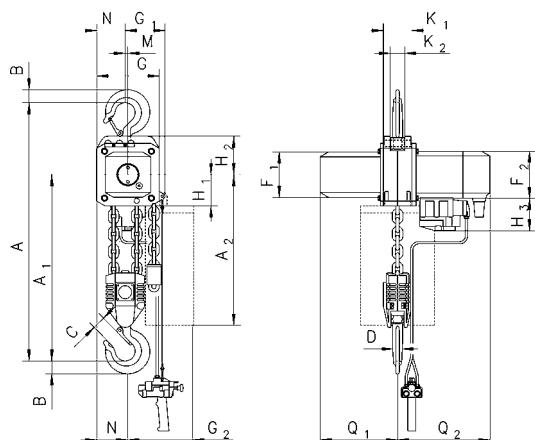
Model	CPA ATEX 20-8	CPA ATEX 30-6	CPA ATEX 50-3	CPA ATEX 60-3	CPA ATEX 75-2	CPA ATEX 100-3
A, mm	516	516	681	681	950	1068
A1, mm	286	286	428	428	479	651
B, mm	35	35	45	49	60	60
C, mm	37	37	46	44	52	52
D, mm	24	24	30	30	40/45	40/45
F1, mm	160	160	160	160	160	160
F2, mm	165	165	165	165	165	165
G, mm	220	220	220	220	220	581
G1, mm	180	180	140	140	268	311
G2 (13 m), mm	258	258	218	218	-	-
G2 (21 m), mm	278	278	238	238	345	408
H1, mm	110	110	110	110	110	110
H2, mm	135	135	135	135	307	256
H3, mm	115	115	115	115	115	115
K1, mm	100	100	100	100	92	92
K2, mm	51	51	51	51	62	62
M, mm	50	50	9,6	9,6	139	181
N, mm	60	60	100	100	136	291
Q1, mm	272	272	272	272	272	272
Q2, mm	325	325	325	325	325	325



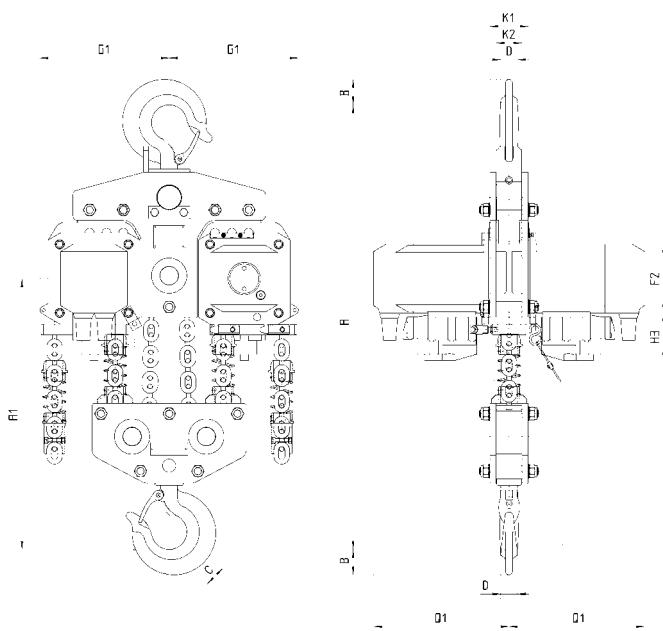
CPA ATEX with suspension hook, 2000 - 3000 kg, single fall



CPA ATEX with suspension hook, 7500 kg, three chain falls



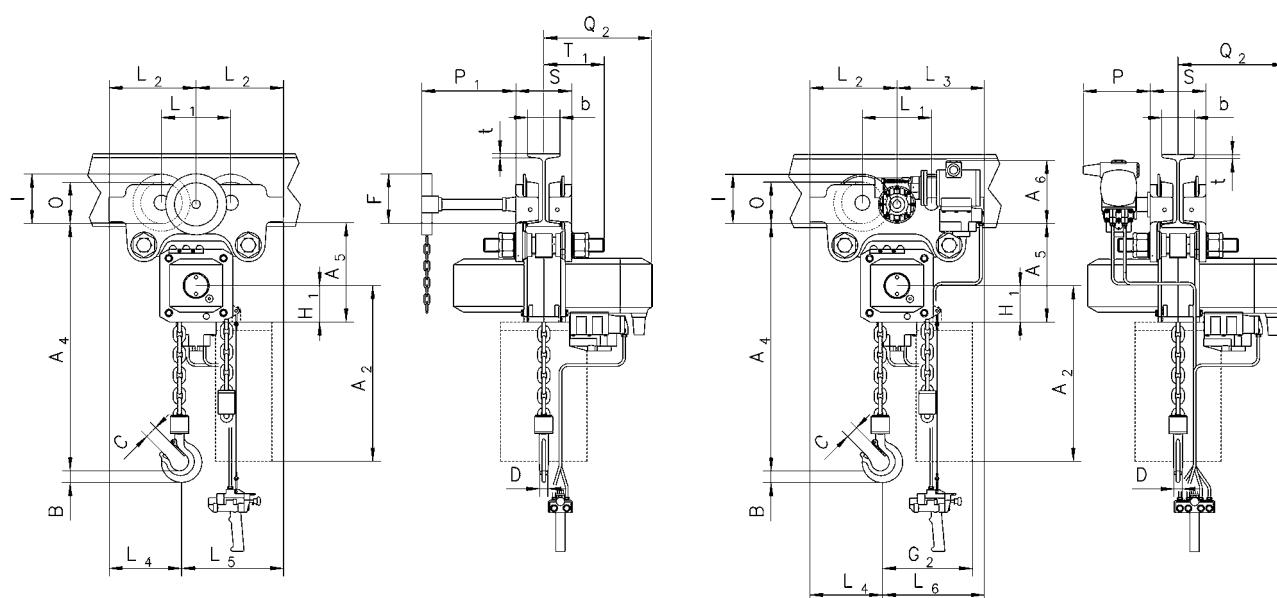
CPA ATEX with suspension hook, 4000 - 5000 kg, double fall



CPA ATEX with suspension hook, 10000 kg, four chain falls

## Dimensions CPA ATEX 20-8 up to 100-3

Model	CPA ATEX 20-8	CPA ATEX 30-6	CPA ATEX 50-3	CPA ATEX 60-3	CPA ATEX 75-2	CPA ATEX 100-3
A2 (13 m), mm	430	430	430	430	-	-
A2 (21 m), mm	530	530	530	530	530	530
A4, mm	465	465	615	615	855	965
A5, mm	298	298	298	298	477	425
A6, mm	190	190	190	190	182	182
b, mm	A = 98 - 180/ B = 180 - 300	A = 98 - 180/ B = 180 - 300	A = 98 - 180/ B = 180 - 300	A = 98 - 180/ B = 180 - 300	125 - 310	125 - 310
F, mm	150	150	150	150	113	113
I, mm	142.5	142.5	142.5	142.5	130	130
L1, mm	209	209	209	209	200	200
L2, mm	262,5	262,5	262,5	262,5	215	215
L3, mm	265	265	265	265	265	265
L4, mm	213	213	253	253	291	291
L5, mm	312	312	272	272	-	-
L6, mm	315	315	275	275	-	-
O, mm	125	125	125	125	150	150
P, mm	208	208	208	208	208	208
P1, mm	284	284	284	284	284	284
S, mm	b + 70	b + 70	b + 70	b + 70	b + 98	b + 98
t, mm	27	27	27	27	40	40
T1 Size A	182	182	182	182	-	-
T1 Size B	242	242	242	242	270	270



CPA ATEX with integrated manual geared trolley

CPA ATEX with integrated pneumatic trolley

*Rotating  
hand chain  
guide!*

Image shows  
MEDIUM design



360° ~

## ERLEBEN SIE DIE 360° VORTEILE

### Options

- Adjustable overload protection device.
- Chain container
- Additional coating (see page 52-53)

### INFO

Easy modification from Yalelift 360 ATEX to  
Yalelift IT ATEX is possible.

## Yalelift 360



### Yalelift 360 ATEX Hand chain hoist

Capacity 500 - 20000 kg

Areas of operation as well as operator conditions have been improved far beyond those of a classical hand chain hoist. On basis of the European Directive 2014/34/EU this model series has been further developed for the use in potentially explosive atmospheres (ATEX zones).

#### Ausstattung und Verarbeitung

- The enclosed robust stamped steel housing protects all internal components even in the toughest conditions.
- The extremely low headroom allows maximum use of the lifting height.
- The 360° rotating hand chain guide allows the operator to work from virtually any position, in confined spaces or above the load. The Yalelift can even be operated from the side of the load which also makes it possible to use the hoist for horizontal pulling or tensioning. Due to the additional flexibility, the operator is no longer forced to work in the danger zone near the load.
- The components of the load pressure brake are made of high-quality materials and are additionally galvanized and yellow chromated as corrosion protection. Furthermore, the hand chain wheel is equipped with a cooling body in order not to exceed the specified temperature (135 °C) of temperature class T4.
- Chain guide and gearbox are almost totally enclosed. Even under the toughest conditions the internal gearbox remains protected.
- The hardened load sheave with four precision machined pockets ensures accurate movement of the load chain.
- The surface protected zinc-plated alloy steel load chains fulfil all requirements of current national and international standards and regulations. They are optimally matched to the load sprocket and ensure safe and long-lasting operation of the unit.
- Forged load and suspension hooks that yield under overload instead of breaking, are made of high tensile steel. The hooks are fitted with robust safety latches and rotate 360°.
- Explosion protected version with MKS spark resistant coating.
- Copper-coated suspension and load hooks for MEDIUM design or higher.
- Stainless steel load chain for HIGH design.

## Technical data Yalelift 360 ATEX BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc

Model	Art.-No.	Capacity kg	Number of chain falls	Chain dimensions d x p in mm/ design	Lift per 1 m hand chain overhaul mm	Handle pull at WLL daN	Weight at standard lift (3m) kg
YL ATEX 500	N04705021	500	1	5 x 15 - T	33	21	9
YL ATEX 1000	N04705022	1000	1	6 x 18 - T	20	30	13
YL ATEX 2000	N04705023	2000	1	8 x 24 - T	14	32	21
YL ATEX 3000	N04705024	3000	1	10 x 30 - V	12	38	34
YL ATEX 5000	N04705025	5000	2	10 x 30 - T	6	34	48
YL ATEX 10000	N04705026	10000	3	10 x 30 - V	4	44	71
YL ATEX 20000	N04705027	20000	6	10 x 30 - V	2	2 x 44	196

## Technical data Yalelift 360 ATEX MEDIUM II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °C Db

Model	Art.-No.	Capacity kg	Number of chain falls	Chain dimensions d x p in mm/ design	Lift per 1 m hand chain overhaul mm	Handle pull at WLL daN	Weight at standard lift (3m) kg
YL ATEX 500	N04705007	500	1	5 x 15 - T	33	21	9
YL ATEX 1000	N04705008	1000	1	6 x 18 - T	20	30	13
YL ATEX 2000	N04705009	2000	1	8 x 24 - T	14	32	21
YL ATEX 3000	N04705010	3000	1	10 x 30 - V	12	38	34
YL ATEX 5000	N04705011	5000	2	10 x 30 - T	6	34	48
YL ATEX 10000	N04705012	10000	3	10 x 30 - V	4	44	71
YL ATEX 20000	N04705013	20000	6	10 x 30 - V	2	2 x 44	196

## Technical data Yalelift 360 ATEX HIGH II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db

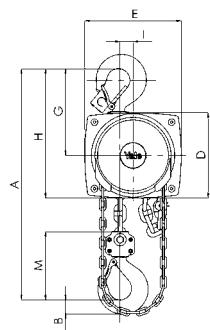
Model	Art.-No.	Capacity <sup>1</sup> kg	Number of chain falls	Chain dimensions d x p in mm/ design	Lift per 1 m hand chain overhaul mm	Handle pull at WLL daN	Weight at standard lift (3m) kg
YL ATEX 500	N04705035	500	1	5 x 15 - S	33	21	9
YL ATEX 1000	N04705036	900	1	6 x 18 - S	20	30	13
YL ATEX 2000	N04705037	1500	1	8 x 24 - S	14	32	21
YL ATEX 3000	N04705038	2500	1	10 x 30 - S	12	38	34
YL ATEX 5000	N04705039	5000	2	10 x 30 - S	6	34	48
YL ATEX 10000	N04705040	7500	3	10 x 30 - S	4	44	71
YL ATEX 20000	N04705041	15000	6	10 x 30 - S	2	2 x 44	196

<sup>1</sup> Models in HIGH design are already labelled with reduced capacities when delivered.

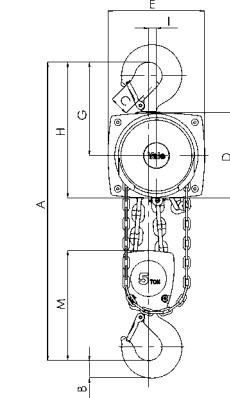
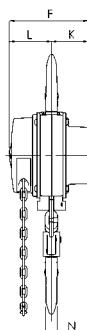


## Dimensions Yalelift 360 ATEX

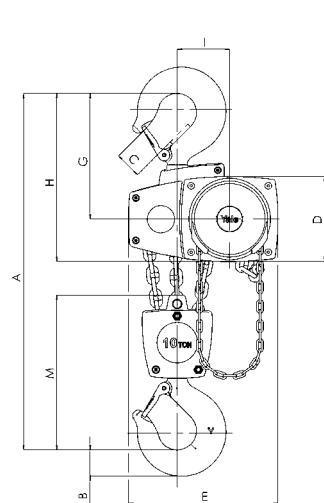
Model	YL ATEX 500	YL ATEX 1000	YL ATEX 2000	YL ATEX 3000	YL ATEX 5000	YL ATEX 10000	YL ATEX 20000
A min., mm	300	335	395	520	654	825	1065
B, mm	17	22	30	38	45	68	85
C, mm	24	29	35	40	47	68	64
D, mm	133	156	182	220	220	220	303
E, mm	148	175	203	250	250	383	555
F, mm	148	167	194	219	219	219	250
G, mm	139	164	192	225	242	326	391
H, mm	206	242	283	335	352	436	501
I, mm	24	24	31	34	21	136	-
K, mm	61	70	83	95	95	95	396
L, mm	87	97	111	124	124	124	125
M, mm	110	125	156	178	285	401	471
N, mm	14	19	22	30	37	50	56



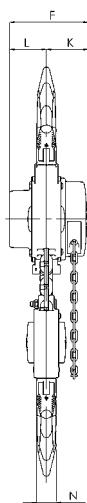
Yalelift 360 ATEX, 500 - 3000 kg, single fall



Yalelift 360 ATEX, 5000 kg, double fall



Yalelift 360 ATEX, 10000 kg, three falls



Yalelift 360 ATEX, 20000 kg, six falls





## **Yalelift 360** Ex

**YLIT ATEX – Hand chain hoist with integrated push or with integrated geared trolley**

**Capacity 500 - 20000 kg**

The combination of the Yalelift 360 with a low headroom manual trolley provides even more flexibility in the application.

### **Features**

- All units of this series up to a capacity of 3000 kg are built with a single chain fall, the min. headroom (Dim. A) has been further reduced. Ideal for applications with low ceilings and limited headroom.
- The approved and almost stepless adjustment system of the trolley enables the simple and quick assembly due to adjusting nuts.
- Trolleys up to 5t capacity are offered for two beam ranges; range A for a flange width of up to 180 mm is standard and covers approx. 80 % of all applications. Conversion to range B for beam width up to 300 mm can be easily accomplished.
- The solid bronze wheels (only for MEDIUM and HIGH design) are designed for a max. beam profile incline of 14 % (DIN 1025-1), excellent rolling features are guaranteed by prelubricated, encapsulated ball bearings.
- Anti-drop and anti-tilt devices as standard.
- Explosion protected version with MKS spark resistant coating.
- Trolleys equipped with rubber buffers.
- Copper-coated load hooks for MEDIUM design or higher.
- Stainless steel load chain for HIGH design.

### **Options**

- Adjustable overload protection device.
- Chain container
- Beam locking device to secure the unloaded hoist with integrated trolley in a fixed position on the beam (park position e.g. on ships).
- Additional coating (see page 52-53)



**EXPERIENCE THE  
ADVANTAGE OF 360°**

**Technical data****Yalelift ITP ATEX BASIC with integrated push trolley II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITP ATEX 500	N04905029	500/1	A	50 - 180	19	0.9	20	26
YLITP ATEX 1000	N04905030	1000/1	A	50 - 180	19	0.9	27	35
YLITP ATEX 2000	N04905031	2000/1	A	58 - 180	19	1.15	44	52

**Technical data****Yalelift ITP ATEX MEDIUM with integrated push trolley II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °C Db**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITP ATEX 500	N04905005	500/1	A	50 - 180	19	0.9	20	26
YLITP ATEX 1000	N04905006	1000/1	A	50 - 180	19	0.9	27	35
YLITP ATEX 2000	N04905007	2000/1	A	58 - 180	19	1.15	44	52

**Technical data****Yalelift ITP ATEX HIGH with integrated push trolley II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db**

Model	Art.-No.	Capacity <sup>3</sup> in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITP ATEX 500	N04905053	500/1	A	50 - 180	19	0.9	20	26
YLITP ATEX 1000	N04905054	900/1	A	50 - 180	19	0.9	27	35
YLITP ATEX 2000	N04905055	1500/1	A	58 - 180	19	1.15	44	52

<sup>1</sup> Size B on request<sup>2</sup> Weight for standard lift 3 m. Other lifting heights available.<sup>3</sup> Models in HIGH design are already labelled with reduced capacities when delivered.**INFO**

Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

**Technical data****Yalelift ITG ATEX BASIC with integrated geared trolley II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITG ATEX 500	N04905041	500/1	A	50 - 180	19	0.9	24	31
YLITG ATEX 1000	N04905042	1000/1	A	50 - 180	19	0.9	32	40
YLITG ATEX 2000	N04905043	2000/1	A	58 - 180	19	1.15	49	57
YLITG ATEX 3000	N04905044	3000/1	A	74 - 180	27	1.5	82	91
YLITG ATEX 5000	N04905045	5000/2	A	98 - 180	27	2.0	130	140
YLITG ATEX 10000	N04905046	10000/3	B	125 - 310	40	1.8	on request	on request
YLITG ATEX 20000	N04905047	20000/6	B	180 - 310	40	5.0	on request	on request

**Technical data****Yalelift ITG ATEX MEDIUM with integrated geared trolley II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °C Db**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITG ATEX 500	N04905015	500/1	A	50 - 180	19	0.9	24	31
YLITG ATEX 1000	N04905016	1000/1	A	50 - 180	19	0.9	32	40
YLITG ATEX 2000	N04905017	2000/1	A	58 - 180	19	1.15	49	57
YLITG ATEX 3000	N04905018	3000/1	A	74 - 180	27	1.5	82	91
YLITG ATEX 5000	N04905019	5000/2	A	98 - 180	27	2.0	130	140
YLITG ATEX 10000	N04905020	10000/3	B	125 - 310	40	1.8	on request	on request
YLITG ATEX 20000	N04905022	20000/6	B	180 - 310	40	5.0	on request	on request

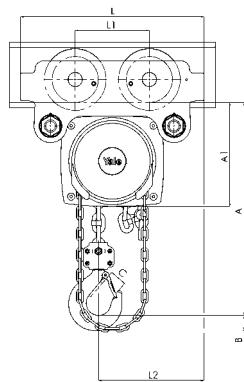
**Technical data****Yalelift ITG ATEX HIGH with integrated geared trolley II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db**

Model	Art.-No.	Capacity <sup>3</sup> in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLITG ATEX 500	N04905065	500/1	A	50 - 180	19	0.9	24	31
YLITG ATEX 1000	N04905066	900/1	A	50 - 180	19	0.9	32	40
YLITG ATEX 2000	N04905067	1500/1	A	58 - 180	19	1.15	49	57
YLITG ATEX 3000	N04905068	2500/1	A	74 - 180	27	1.5	82	91
YLITG ATEX 5000	N04905069	5000/2	A	98 - 180	27	2.0	130	140
YLITG ATEX 10000	N04905070	7500/3	B	125 - 310	40	1.8	on request	on request
YLITG ATEX 20000	N04905071	15000/6	B	180 - 310	40	5.0	on request	on request

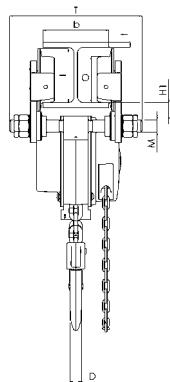
<sup>1</sup> Size B on request<sup>2</sup> Weight for standard lift 3 m. Other lifting heights available.<sup>3</sup> Models in HIGH design are already labelled with reduced capacities when delivered.

## Dimensions Yalelift IT ATEX

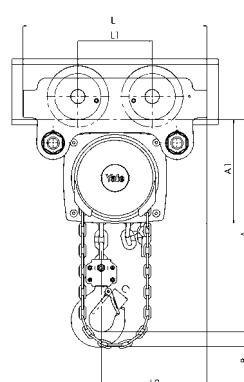
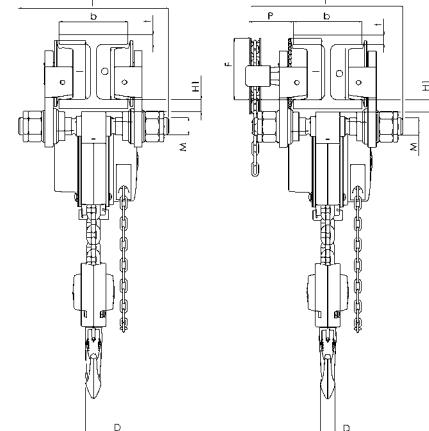
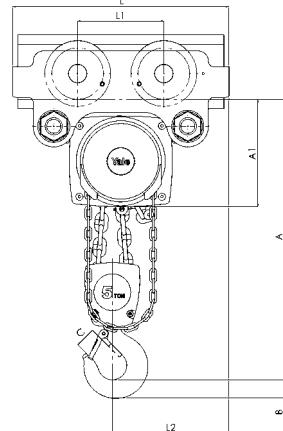
Model	YLIT ATEX 500	YLIT ATEX 1000	YLIT ATEX 2000	YLIT ATEX 3000	YLIT ATEX 5000	YLIT ATEX 10000
A min., mm	245	272	323	382	550	784
A1, mm	158	178	205.5	252	260.5	380
A2, mm	-	-	-	-	-	-
B, mm	17	22	30	38	45	68
C, mm	24	29	35	40	47	68
D, mm	14	19	22	30	37	50
F (Geared trolley), mm	92	92	91	107	149.5	113
H1, mm	24.5	24	23.5	32	30.5	55
I (Push trolley), mm	71.5	71.5	95.5	131	142.5	169
I (Geared trolley), mm	76.5	76.5	98	132.5	148.5	169
L, mm	270	310	360	445	525	430
L1, mm	130	130	150	180	209	200
L2, mm	159	175	207	256	283	261
M, mm	M 18	M 22	M 27	M 30	M 42	M 48
O, mm	60	60	80	112	125	150
P (Geared trolley), mm	108	110	112	112	117	158
T (Size A), mm	280	290	305	320	364	-
T (Size B), mm	400	410	425	440	484	540



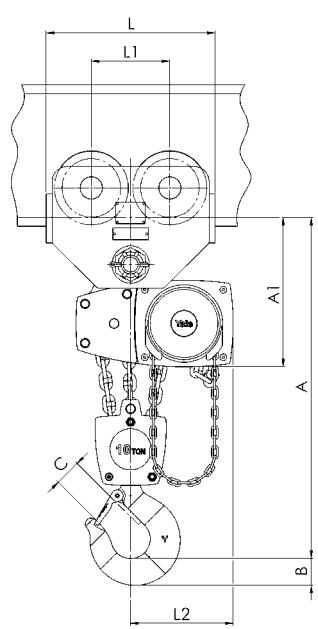
Yalelift IT ATEX, 500 - 3000 kg, single fall



Yalelift ITP/ITG ATEX, 5000 kg, double fall



Yalelift ITG ATEX, 500 - 3000 kg, single fall



Yalelift ITG ATEX, 10000 kg, three falls



## **Yalelift 360** Ex

YL LH ATEX – Hand chain hoist with integrated push or with integrated geared trolley (low headroom)

Capacity 500 - 10000 kg

The hand chain hoist model Yalelift LH with integrated low headroom manual trolley is the consequent further development of the Yalelift IT. Wherever an even smaller headroom is essential, the Yalelift LH is the ideal choice.

### Features

- The specially developed chain reeving system and chain guide allow the bottom block to be pulled laterally to the hoist even further up and almost against the beam flange.
- The integrated design of the innovative Yalelift LH uses the same manual trolleys as incorporated in the Yalelift IT series.
- All units of this series up to a capacity of 3000 kg are built with a single chain fall.
- The approved and almost stepless adjustment system of the trolley enables the simple and quick assembly due to adjusting nuts.
- Trolleys up to 5t capacity are offered for two beam ranges; range A for a flange width of up to 180 mm is standard and covers approx. 80 % of all applications. Conversion to range B for beam width up to 300 mm can be easily accomplished.
- The solid bronze wheels (only for MEDIUM and HIGH design) are designed for a max. beam profile incline of 14 % (DIN 1025-1), excellent rolling features are guaranteed by prelubricated, encapsulated ball bearings.
- The low headroom version of the Yalelift IT is adjustable to fit a wide range of beam profiles (e.g. INP, IPE, IPB).
- Anti-drop and anti-tilt devices as standard.
- Explosion protected version with MKS spark resistant coating.
- Trolleys equipped with rubber buffers.
- Copper-coated load hooks for MEDIUM design or higher.
- Stainless steel load chain for HIGH design.

### Options

- Adjustable overload protection device.
- Chain container
- Beam locking device to secure the unloaded hoist with integrated trolley in a fixed position on the beam (park position e.g. on ships).
- Additional coating (see page 52-53)

**Technical data****Yalelift LHP ATEX BASIC with integrated push trolley II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHP ATEX 500	N05600134	500/1	A	60 - 180	19	0,9	27	33
YLLHP ATEX 1000	N05600135	1000/1	A	70 - 180	19	0,9	35	43
YLLHP ATEX 2000	N05600136	2000/1	A	82 - 180	19	1,15	61	69

**Technical data****Yalelift LHP ATEX MEDIUM with integrated push trolley II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °C Db**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHP ATEX 500	N05600123	500/1	A	60 - 180	19	0,9	27	33
YLLHP ATEX 1000	N05600124	1000/1	A	70 - 180	19	0,9	35	43
YLLHP ATEX 2000	N05600125	2000/1	A	82 - 180	19	1,15	61	69

**Technical data****Yalelift LHP ATEX HIGH with integrated push trolley II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db**

Model	Art.-No.	Capacity <sup>3</sup> in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHP ATEX 500	N05600143	500/1	A	60 - 180	19	0,9	27	33
YLLHP ATEX 1000	N05600144	900/1	A	70 - 180	19	0,9	35	43
YLLHP ATEX 2000	N05600145	1500/1	A	82 - 180	19	1,15	61	69

<sup>1</sup> Size B on request<sup>2</sup> Weight for standard lift 3 m. Other lifting heights available.<sup>3</sup> Models in HIGH design are already labelled with reduced capacities when delivered.**INFO**

Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.



**EXPERIENCE THE  
ADVANTAGE OF 360°**

**Technical data****Yalelift LHG ATEX BASIC with integrated geared trolley II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHG ATEX 500	N05600137	500/1	A	60 - 180	19	0.9	31	38
YLLHG ATEX 1000	N05600138	1000/1	A	70 - 180	19	0.9	40	48
YLLHG ATEX 2000	N05600139	2000/1	A	82 - 180	19	1.15	65	73
YLLHG ATEX 3000	N05600140	3000/1	A	100 - 180	27	1.5	112	121
YLLHG ATEX 5000	N05600141	5000/2	A	110 - 180	27	2.0	157	167
YLLHG ATEX 10000	N05600142	10000/3	B	190 - 310	40	1.8	232	on request

**Technical data****Yalelift LHG ATEX MEDIUM with integrated geared trolley II 2G Ex h IIB T4 Gb / II 2D Ex h IIIB T135 °Db**

Model	Art.-No.	Capacity in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHG ATEX 500	N05600128	500/1	A	60 - 180	19	0.9	31	38
YLLHG ATEX 1000	N05600129	1000/1	A	70 - 180	19	0.9	40	48
YLLHG ATEX 2000	N05600130	2000/1	A	82 - 180	19	1.15	65	73
YLLHG ATEX 3000	N05600131	3000/1	A	100 - 180	27	1.5	112	121
YLLHG ATEX 5000	N05600132	5000/2	A	110 - 180	27	2.0	157	167
YLLHG ATEX 10000	N05600133	10000/3	B	190 - 310	40	1.8	232	on request

**Technical data****Yalelift LHG ATEX HIGH with integrated geared trolley II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db**

Model	Art.-No.	Capacity <sup>3</sup> in kg/ Number of chain falls	Size <sup>1</sup>	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Weight <sup>2</sup> kg	Weight <sup>2</sup> with locking device kg
YLLHG ATEX 500	N05600146	500/1	A	60 - 180	19	0.9	31	38
YLLHG ATEX 1000	N05600147	900/1	A	70 - 180	19	0.9	40	48
YLLHG ATEX 2000	N05600148	1500/1	A	82 - 180	19	1.15	65	73
YLLHG ATEX 3000	N05600149	2500/1	A	100 - 180	27	1.5	112	121
YLLHG ATEX 5000	N05600150	5000/2	A	110 - 180	27	2.0	157	167
YLLHG ATEX 10000	N05600151	7500/3	B	190 - 310	40	1.8	232	on request

<sup>1</sup> Size B on request<sup>2</sup> Weight for standard lift 3 m. Other lifting heights available.<sup>3</sup> Models in HIGH design are already labelled with reduced capacities when delivered.**INFO**

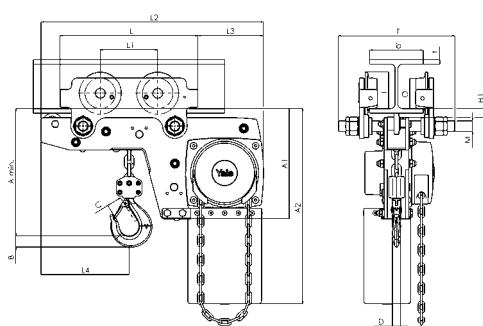
Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

Copper coated for  
MEDIUM and HIGH!

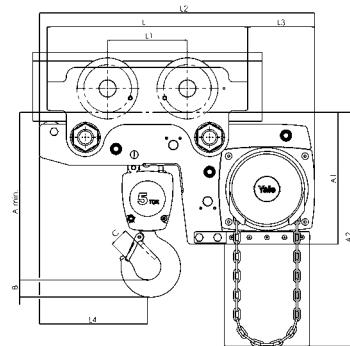


## Dimensions Yalelift LH ATEX

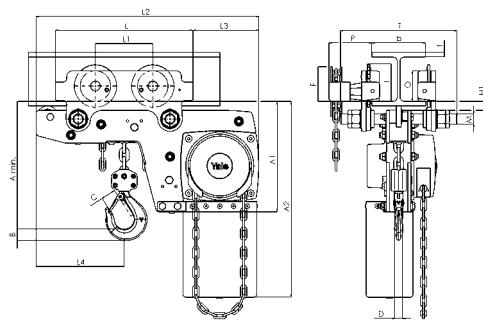
Model	YLLH ATEX 500	YLLH ATEX 1000	YLLH ATEX 2000	YLLH ATEX 3000	YLLH ATEX 5000	YLLH ATEX 10000
A min., mm	188	211	264	316	425	565
A1, mm	223	250	289	346	345	365
A2, mm	381	427	511	614	612	665
B, mm	17	22	30	38	45	68
C, mm	24	29	35	40	47	68
D, mm	14	19	22	30	37	50
F (Geared trolley), mm	92	92	91	107	150	150
H1, mm	24	24	24	32	31	45
I (Push trolley), mm	72	72	96	131	143	170
I (Geared trolley), mm	77	77	98	133	149	170
L, mm	270	310	360	445	525	485
L1, mm	130	130	150	180	209	225
L2, mm	444	488	582	690	720	805
L3, mm	124	135	172	203	175	215
L4, mm	184	201	230	265	283	348
M, mm	M18	M22	M27	M30	M42	M48
O, mm	60	60	80	112	125	150
P (Geared trolley), mm	108	110	112	112	117	165
T (Size A), mm	280	290	305	320	364	440
T (Size B), mm	400	410	425	440	484	540



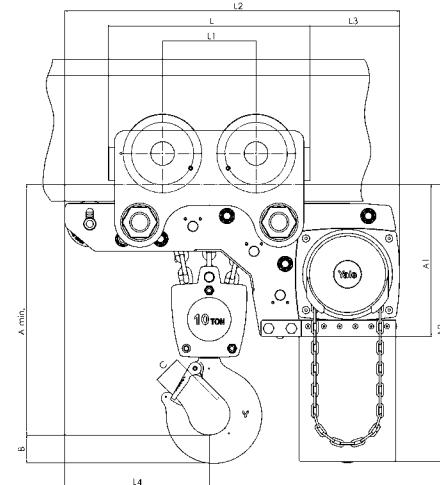
Yalelift LHP ATEX, 500 - 3000 kg, single fall



Yalelift LHP/LHG ATEX, 5000 kg, double fall



Yalelift LHG ATEX, 500 - 3000 kg, single fall



Yalelift LHG ATEX, 10000 kg, three falls



## C 85 ATEX Ratchet lever hoist with roller chain

Capacity 750 - 3000 kg

## D 85 ATEX Ratchet lever hoist with link chain

Capacity 750 - 10000 kg

Almost unlimited applications in maintenance, mining, construction, steel fabrication, shipbuilding and utility work. Ideal for moving and positioning heavy machines and securing heavy loads, simplifies setting pipes etc. in manholes and trenches.

### Features

- Enclosed housing with housing cover, handlever and bottom block made from high tensile white malleable cast iron for overall rugged construction.
- Wet painting colour code RAL 1023.
- The graphite cast iron load sheave for the link chain has precision machined chain pockets for accurate fit and durability of the load chain.
- The roller chain sprocket is made from heat treated chromium-molybdenum steel with precision machined teeth to ensure smooth chain movement.
- Alloyed steel link chain with zinc-plated, in accordance with national and international standards and regulations.

### Option

- Except for the capacity 10t, all units can be equipped with an overload protection (slip clutch). This slip clutch is activated at  $25\% \pm 15\%$  overload, lifting of the load is no longer possible.

## INFO

Since 1936, the Velbert factory has built over 1 million units.

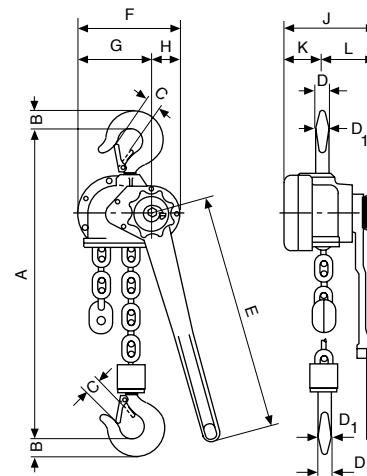
Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

## Technical data C 85 ATEX MINING I M2 Ex h Mb

Model	Art.-No.	Capacity kg	Number of chain falls	Chain dimensions p x b <sub>1</sub> inch	Chain dimensions p x b <sub>1</sub> mm	Lift with one full lever turn mm	Handle pull at WLL daN	Weight at standard lift (1.5 m) kg
ZUGHUB C 85 ATEX 750	N01141295	750	1	5/8" x 3/8"	15.875 x 9.65	115	38	8.7
ZUGHUB C 85 ATEX 1500	N01141296	1500	1	1" x 1/2"	25.4 x 12.7	45	31	17.0
ZUGHUB C 85 ATEX 3000	N01141297	3000	1	1 1/4" x 5/8"	31.75 x 15.875	36	40	22.2

## Dimensions C 85 ATEX

Model	ZUGHUB C 85 ATEX 750	ZUGHUB C 85 ATEX 1500	ZUGHUB C 85 ATEX 3000
A min., mm	322	389	403
B, mm	21	27	35
C, mm	27	30	34
D, mm	15	20	25
D1, mm	17	23	25
E, mm	443	443	570
F, mm	112	189	197
G, mm	56	134	142
H, mm	56	55	55
J, mm	142	171	179
K, mm	39	72	76
L, mm	103	99	103



## Technical data D 85 ATEX MINING I M2 Ex h Mb

Model	Art.-No.	Capacity kg	Number of chain falls	Chain dimensions d x p in mm/ design	Lift with one full lever turn mm	Handle pull at WLL daN	Weight at standard lift (1.5 m) kg
ZUGHUB D 85 ATEX 750	N01541291	750	1	6 x 18.5 - T	111	38	8.2
ZUGHUB D 85 ATEX 1500	N01541292	1500	1	9 x 27 - T	45	31	16.3
ZUGHUB D 85 ATEX 3000	N01541293	3000	1	11 x 31 - T	33	40	19.6
ZUGHUB D 85 ATEX 6000	N01541294	6000	2	11 x 31 - T	17	42	32.9
ZUGHUB D 85 ATEX 10000	N01541511	10000	3	11 x 31 - T	11	37	60.0

## Dimensions D 85 ATEX

Model	ZUGHUB D 85 ATEX 750	ZUGHUB D 85 ATEX 1500	ZUGHUB D 85 ATEX 3000	ZUGHUB D 85 ATEX 6000	ZUGHUB D 85 ATEX 10000
A min., mm	322	389	403	532	805
B, mm	21	27	35	48	61
C, mm	27	30	34	46	54
D, mm	15	20	25	40	40
D1, mm	17	23	25	40	45
E, mm	443	443	570	570	570
F, mm	112	189	197	197	305
G, mm	56	134	142	142	163
H, mm	56	55	55	55	142
J, mm	142	171	179	218	218
K, mm	39	72	76	76	76
L, mm	103	99	103	142	142



COMPACT & TRANSPORTABLE  
**UNIVERSALLY USABLE & USER FRIENDLY**  
LIGHTWEIGHT & CAN BE USED IN THE SMALLEST AREAS.



## **YaleUNOplus** Series A Ex

### UNOplus-A ATEX Ratchet lever hoist

Capacity 750 - 6000 kg

The UNOplus-Series A ATEX ratchet lever hoist is the result of further technical development of the UNOplus, which has proven itself over many years.

The versatile tool for lifting, pulling and securing of loads is characterised by its compact design, robust stamped steel construction and the smoothly running free chaining device.

The further reduced weight optimizes operation, makes the application even more comfortable and the UNOplus-Series A ATEX to a convenient, versatile device.

#### Features

- Due to optimized gearing and improved bearings in the housing cover a minimum effort is required to operate the short hand lever.
- Automatic screw-and-disc type load brake with corrosion protected components.
- Standard free chaining device to quickly attach the load or to pull the chain through the hoist in both directions.
- Robust chain guide rollers eliminate fouling and jamming of chain on the load sheave.
- Robust chain end stop.
- Comfortable rubber grip provides for extra protection against slippage.
- Alloyed steel link chain with zinc-plated resp. yellow chromated finish, in accordance with national and international standards and regulations.
- Forged suspension and load hooks are made from non-aging, high tensile steel and fitted with robust safety latches.

#### INFO

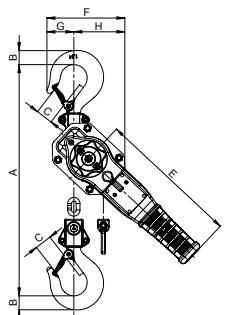
Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

Technical data *UNOplus-A ATEX BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc / Mining I M2 Ex h Mb*

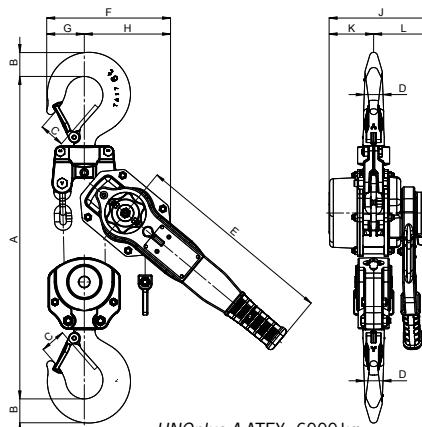
Model	Art.-No.	Capacity kg	Number of chain falls	Chain dimensions d x p in mm/ design	Lift with one full lever turn mm	Handle pull at WLL daN	Weight at standard lift (1.5 m) kg
<i>UNOplus-A ATEX 750</i>	N02305001	750	1	5.6 x 17.1 - T	27	22	6.3
<i>UNOplus-A ATEX 1500</i>	N02305002	1500	1	7.1 x 21 - T	22	35	9.2
<i>UNOplus-A ATEX 3000</i>	N02305003	3000	1	10 x 28 - V	20	40	16.9
<i>UNOplus-A ATEX 6000</i>	N02505004	6000	2	10 x 28 - V	10	43	28.6

### Dimensions *UNOplus-A ATEX*

Model	<i>UNOplus-A ATEX</i> 750	<i>UNOplus-A ATEX</i> 1500	<i>UNOplus-A ATEX</i> 3000	<i>UNOplus-A ATEX</i> 6000
A min., mm	312	375	445	563
B, mm	20	26	37	45
C, mm	27	31	40	47
D, mm	18	21	28	35
E, mm	267	267	376	376
F, mm	121	146	180	232
G, mm	40	51	57	71
H, mm	81	95	123	161
J, mm	144	164	193	193
K, mm	53	68	83	83
L, mm	91	96	110	110



*UNOplus-A ATEX, 750 - 3000 kg,  
single fall*



*UNOplus-A ATEX, 6000 kg,  
double fall*



*UNOplus-A ATEX, 6000 kg,  
double fall*





### Options

- Locking device to secure the trolley in position on the beam (park position e.g. on ships).
- Rotating hand chain guide.
- Additional coating (see page 52-53)

## HTP ATEX and HTG ATEX Push and geared trolley

**Capacity 500 - 20000 kg**

The trolley enables the exact positioning or easy traversing of large loads with either manual or powered hoisting oder pneumatic chain hoist equipment.

### Features

- It has excellent rolling features due to machined steel wheels mounted on prelubricated, encapsulated ball bearings.
- Adjustable to fit a wide range of beam widths and profiles (e.g. INP, IPE and IPB).
- Adjustments are made by rotating the clevis load bar which also ensures the centred positioning of the hoist in the clevis – no creeping to the left or the right (up to 5000 kg capacity, from 8000 kg upwards the traverse is adjusted via sleeves and washers).
- The trolley wheels are designed for a max. beam profile incline of 14 % (DIN 1025 - part 1).
- Explosion protected version with MKS spark resistant coating.
- Trolleys equipped with rubber buffers.
- Stainless steel hand chain for model HTG.

### Technical data HTP ATEX BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc

Model	Art.-No.	Capacity	Size	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Hand effort at WLL daN	Weight kg	Weight with locking device kg
		kg		mm	mm	m	daN	kg	kg
HTP ATEX 500	N05100054	500	A	50 - 220	25	0.9	-	8.0	14.5
HTP ATEX 1000	N05100055	1000	A	50 - 220	25	0.9	-	9.0	17.0
HTP ATEX 2000	N05100056	2000	A	66 - 220	25	1.15	-	16.0	24.0
HTP ATEX 500	N05100057	500	B	160 - 300	40	0.9	-	10.6	17.1
HTP ATEX 1000	N05100058	1000	B	160 - 300	40	0.9	-	12.0	20.0
HTP ATEX 2000	N05100059	2000	B	160 - 300	40	1.15	-	19.3	27.3

### Technical data HTP ATEX HIGH II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db

Model	Art.-No.	Capacity	Size	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Hand effort at WLL daN	Weight kg	Weight with locking device kg
		kg		mm	mm	m	daN	kg	kg
HTP ATEX 500	N05100049	500	A	50 - 220	25	0.9	-	8.0	14.5
HTP ATEX 1000	N05100050	1000	A	50 - 220	25	0.9	-	9.0	17.0
HTP ATEX 2000	N05100051	2000	A	66 - 220	25	1.15	-	16.0	24.0
HTP ATEX 500	N05100064	500	B	160 - 300	40	0.9	-	10.6	17.1
HTP ATEX 1000	N05100065	1000	B	160 - 300	40	0.9	-	12.0	20.0
HTP ATEX 2000	N05100066	2000	B	160 - 300	40	1.15	-	19.3	27.3

**Technical data HTG ATEX BASIC II 3G Ex h IIA T4 Gc / II 3D Ex h IIIA T135 °C Dc**

Model	Art.-No.	Capacity kg	Size	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Hand effort at WLL daN	Weight <sup>1</sup> kg	Weight <sup>1</sup> with locking device kg
HTG ATEX 500	N05300101	500	A	50 - 220	25	0.9	3	9.7	16.2
HTG ATEX 1000	N05300102	1000	A	50 - 220	25	0.9	6	11.2	19.2
HTG ATEX 2000	N05300103	2000	A	66 - 220	25	1.15	7	18.0	26.0
HTG ATEX 3000	N05300104	3000	A	74 - 220	25	1.4	7	35.4	44.6
HTG ATEX 5000	N05300105	5000	A	90 - 220	25	1.8	9	51.8	62.3
HTG ATEX 500	N05300106	500	B	160 - 300	40	0.9	3	12.6	19.1
HTG ATEX 1000	N05300107	1000	B	160 - 300	40	0.9	6	14.1	22.1
HTG ATEX 2000	N05300108	2000	B	160 - 300	40	1.15	7	21.3	29.3
HTG ATEX 3000	N05300109	3000	B	160 - 300	40	1.4	7	39.2	48.4
HTG ATEX 5000	N05300110	5000	B	180 - 300	40	1.8	9	56.0	66.5
HTG ATEX 8000	N05300111	8000	B	125 - 310	40	1.8	14	104.0	-
HTG ATEX 10000	N05300112	10000	B	125 - 310	40	1.8	14	104.0	-
HTG ATEX 20000	N05300114	20000	B	125 - 310	40	5.0	29	230.0	-

<sup>1</sup>Weight HTG: without hand chain

**Technical data HTG ATEX HIGH II 2G Ex h IIC T4 Gb / II 2D Ex h IIIC T135 °C Db**

Model	Art.-No.	Capacity kg	Size	Beam flange width b mm	Beam flange thickness t max. mm	Curve radius min. m	Hand effort at WLL daN	Weight <sup>1</sup> kg	Weight <sup>1</sup> with locking device kg
HTG ATEX 500	N05300085	500	A	50 - 220	25	0.9	3	9.7	16.2
HTG ATEX 1000	N05300086	1000	A	50 - 220	25	0.9	6	11.2	19.2
HTG ATEX 2000	N05300087	2000	A	66 - 220	25	1.15	7	18.0	26.0
HTG ATEX 3000	N05300088	3000	A	74 - 220	25	1.4	7	35.4	44.6
HTG ATEX 5000	N05300089	5000	A	90 - 220	25	1.8	9	51.8	62.3
HTG ATEX 500	N05300115	500	B	160 - 300	40	0.9	3	12.6	19.1
HTG ATEX 1000	N05300116	1000	B	160 - 300	40	0.9	6	14.1	22.1
HTG ATEX 2000	N05300117	2000	B	160 - 300	40	1.15	7	21.3	29.3
HTG ATEX 3000	N05300118	3000	B	160 - 300	40	1.4	7	39.2	48.4
HTG ATEX 5000	N05300119	5000	B	180 - 300	40	1.8	9	56.0	66.5
HTG ATEX 8000	N05300090	8000	B	125 - 310	40	1.8	14	104.0	-
HTG ATEX 10000	N05300091	10000	B	125 - 310	40	1.8	14	104.0	-
HTG ATEX 20000	N05300093	20000	B	125 - 310	40	5.0	29	230.0	-

<sup>1</sup>Weight HTG: without hand chain

**INFO**

Solid bronze wheels only for HIGH design

Yale hoists and trolleys are not designed for passenger elevation applications and must not be used for this purpose.

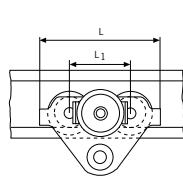


### Dimensions HTP ATEX

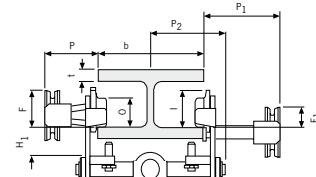
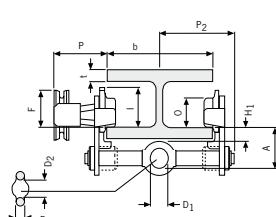
Model	HTP ATEX 500-A	HTP ATEX 1000-A	HTP ATEX 2000-A	HTP ATEX 5000-A	HTP ATEX 500-B	HTP ATEX 1000-B	HTP ATEX 2000-B
A, mm	77	82.5	98.5	114	132.5	92	97.5
D, mm	16	17	22	26	33	16	17
D1, mm	25	30	40	48	60	25	30
D2, mm	30	35	47	58	70	30	35
F1, mm	46	46	46	46	46	46	46
H1, mm	30.5	30.5	30.5	30	45.5	30.5	45.5
I, mm	71.5	71.5	95.5	95.5	71.5	71.5	95.5
L, mm	260	260	310	310	260	260	310
L1, mm	130	130	150	150	130	130	150
O, mm	60	60	80	80	60	60	80
P1, mm	168	168	168	168	168	168	168
P2, mm	146	150	155	167.5	187	187	187
L3, mm	346	346	396	476	556	346	396
P3, mm	194	194	194	195	195	194	195

### Dimensions HTG ATEX

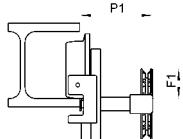
Model	HTG ATEX 500-A	HTG ATEX 1000-A	HTG ATEX 2000-A	HTG ATEX 3000-A	HTG ATEX 5000-A	HTG ATEX 500-B	HTG ATEX 1000-B	HTG ATEX 2000-B	HTG ATEX 3000-B	HTG ATEX 5000-B	HTG ATEX 8000-B	HTG ATEX 10000-B	HTG ATEX 20000-B
A, mm	77	82.5	98.5	114	132.5	92	97.5	113.5	129	147.5	276	276	270
B, mm	-	-	-	-	-	-	-	-	-	-	52	52	70
D, mm	16	17	22	26	33	16	17	22	26	33	30	30	35
D1, mm	25	30	40	48	60	25	30	40	48	60	80	80	110
D2, mm	30	35	47	58	70	30	35	47	58	70	114	114	155
F, mm	91.5	91.5	90.5	107.5	149.5	91.5	91.5	90.5	107.5	149.5	113	113	113
F1, mm	46	46	46	46	45.5	46	46	46	46	45.5	77	77	-
H1, mm	30.5	30.5	30.5	30	30	45.5	45.5	45.5	45	45	45	45	45
I, mm	76.5	76.5	98	132.5	148.5	76.5	76.5	98	132.5	148.5	170	170	170
L, mm	260	260	310	390	450	260	260	310	390	450	430	430	870
L1, mm	130	130	150	180	209	130	130	150	180	209	200	200	200
L2, mm	-	-	-	-	-	-	-	-	-	-	-	-	115
O, mm	60	60	80	112	125	60	60	80	112	125	150	150	150
P, mm	110	110	110	110	110	110	110	110	110	110	163	163	163
P1, mm	168	168	168	168	168	168	168	168	168	168	193	193	-
P2, mm	146	150	155	160	167.5	187	187	189.5	191.5	191.5	-	-	-
T, mm	-	-	-	-	-	-	-	-	-	-	270	270	270
L3, mm	346	346	396	476	556	346	346	396	476	556	536	536	976
P3, mm	194	194	194	195	195	194	194	194	195	195	-	-	-



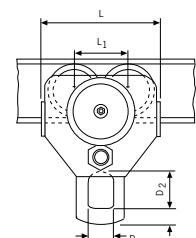
HTP/HTG ATEX 500 - 5000 kg



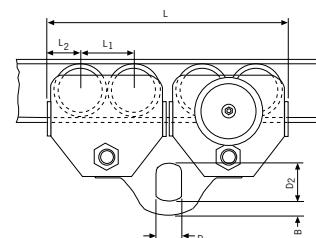
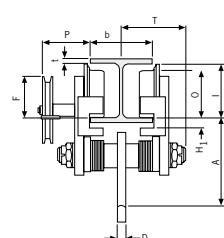
HTP/HTG ATEX 500 - 5000 kg,  
with locking device



HTG ATEX 10000 kg,  
with locking device



HTG ATEX 10000 kg



HTG ATEX 20000 kg

**ZWW-L ATEX****Wall-mounted rack and pinion jacks**

Capacity 600 and 1000 kg

The rack and pinion jack is suitable for lifting, lowering, pulling and pushing, for horizontal displacement, supporting, adjusting or fixing of heavy components or whole appliances and equipment in hazardous areas.

**Features**

- Carefully selected materials and a high-grade coating prevent the occurrence of mechanically caused sparks.
- No inadmissible heating of the surfaces due to the intelligent design of the individual parts.
- Equipotential bonding and limited surface area to avoid electrostatic charging.
- The grease-lubricated, self-locking worm gear is set into operation by rotations on the crank. It provides not only for easy movement of the load, but also for a reliable safety in every position.

**Application areas**

Plant construction, shipping, wastewater treatment plants, chemical industry and food industry.

**ZWW-L ATEX 1000/600 BASIC**

II 3G Ex h IIB T3 Gc  
II 3D Ex h IIIB T200 °C Dc

**ZWW-L ATEX 600/800 BASIC**

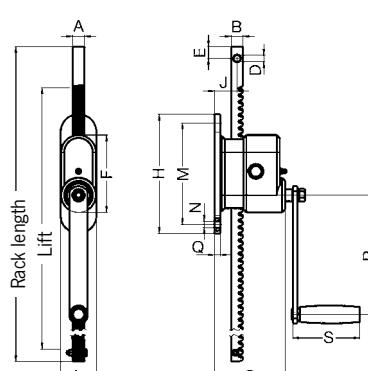
II 3G Ex h IIB T4 Gc  
II 3D Ex h IIIB T135 °C Dc

**Technical data ZWW-L ATEX BASIC**

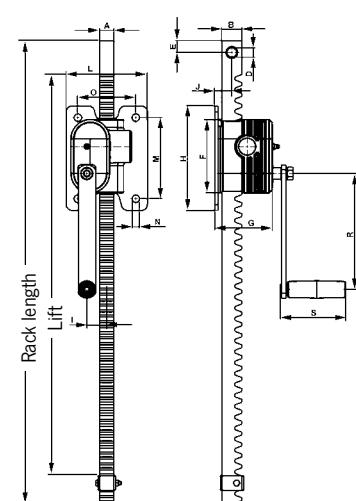
Model	Art.-No.	Capacity kg	Lift mm	Lift per crank rotation mm	Hand effort at WLL	Rack length mm	Weight kg
ZWW-L ATEX 600/800	192069185	600	800	11	15	1000	7.0
ZWW-L ATEX 1000/600	192069187	1000	600	3,6	14	800	8.9

**Dimensions ZWW-L ATEX**

Model	ZWW-L ATEX 600	ZWW-L ATEX 1000
A, mm	20	25
B, mm	25	35
Ø D, mm	13	16.5
E, mm	20	20
F, mm	130	127
G, mm	119	98
H, mm	200	180
I, mm	—	34.5
J, mm	35	29.5
L, mm	60	140
M, mm	170	140
Ø N, mm	11	13
O, mm	—	100
Q, mm	10	—
R, mm	250	200
S, mm	110	110



ZWW-L ATEX, 600 kg



ZWW-L ATEX, 1000 kg



## HU 20-115 VATP ATEX PROLINE Hand pallet truck, stainless steel version

**Capacity 2000 kg**

The hand pallet truck is designed for the use in explosive environments (zone 1 and 2).

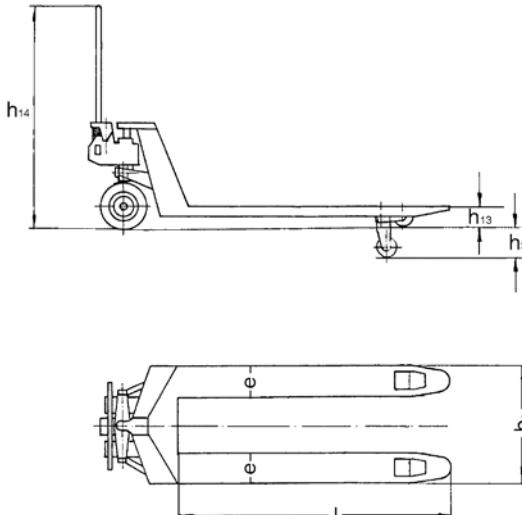
### Features

- Ergonomic safety control handle for one-hand operation of lifting, driving and lowering.
- Low maintenance high performance hydraulic pump with hard chromium plated piston and pressure relief valve. Hydraulic unit made of V4A-316 stainless steel.
- Frame, adjustable connecting rods, bolts and the torsion tube are made of high quality V4A-316 stainless steel.
- Steering angle of 105 degree to each side for easy handling in confined spaces.
- Conductive steering rollers (antistatic).

### Technical data

**HU 20-115 VATP ATEX PROLINE MEDIUM**

 II 2 G Ex h IIB T6 Gb /  
II 2 D Ex h IIIB T85 °C Db



Model	HU 20-115 VATP ATEX PL
Art-No.	040054147
Capacity, kg	2000
Weight, kg	86
Tyre type <sup>1</sup>	VG/PA
Steering rollers, mm	200 x 50
Load rollers, mm	82 x 70
Stroke h3, mm	115
Height of control handle h14, mm	1200
Fork height lowered h13, mm	85
Fork width e, mm	160
Fork length l, mm	1150
Outside dimension of forks b1, mm	540

<sup>1</sup> VG ... Solid rubber, PA ... Polyamide

### INFO

Before the use in explosive environments the operator has to create an explosion protection document acc. to the machinery directive 1999/92/EG!

## OMEGA ATEX

### Console-mounted wire rope winch with load pressure brake

Capacity 1000 kg

The OMEGA-EX manual wire rope winch was specially developed for the high safety requirements in potentially explosive atmospheres.

All individual parts of the OMEGA-EX are designed in such a way that impermissible heating of the surfaces can be effectively prevented.



#### Ausstattung und Verarbeitung

- Use according to directive 2014/34/EU
- Operating mode: 3 cpl. lowering cycles / hr.
- Suitable for ambient temperature: -20° C - +40° C
- Removable hand crank (drive hexagon SW 30)
- Load safety: Load pressure brake running in an oil bath
- Coating: 2-K - ATEX - paint, Colour RAL 5015
- The winch complies with DGUV regulation 5, DIN EN 13157 and EN ISO 80079-36.

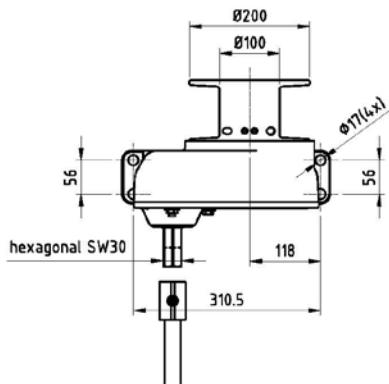
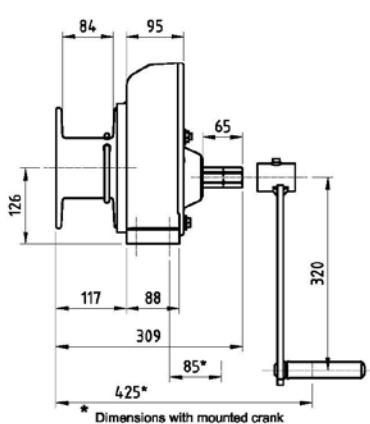
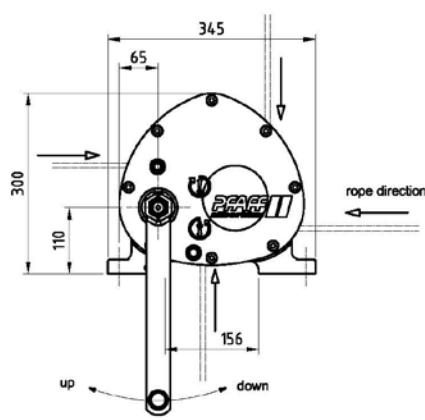
#### Technical data OMEGA ATEX

II 2 G Ex h IIB T6 Gb

II 2 D Ex h IIIB T85°C Db

Model	Art.-No.	Load capacity 1 <sup>st</sup> /4 <sup>th</sup> rope layer kg	Useable rope length 1 <sup>st</sup> /4 <sup>th</sup> rope layer m	Rope Ø mm	Lift per crank rotation 1 <sup>st</sup> /4 <sup>th</sup> rope layer mm	Req. crank effort (full load) daN	Driving torque Mta Nm	Weight w/o rope kg
OMEGA ATEX	192010588	1000 / 692	1,6 / 13,1	8	29 / 42	17	3	approx. 38

recommended rope: DIN EN 12385 SE 1960 N/mm<sup>2</sup>





### BETA-EX Electric winch

Electric winches of the series BETA-EX are designed according to the EU Directives 2014/34/EU and MRL 2006/42/EG.

The models are usable in any place, where the risk of ignition of explosive atmosphere exists (mixture of air, gases, fumes and dust/air-mixture, respectively).



### DSRBX S Sheave block-EX

for rope guidance,  
equipped with ball bearings, incl. earthing screw and copper-coated sheave.

*Application-oriented  
winch solutions on request!*



Wire rope- and electric chain hoists  
in explosion proof version on request!



Corroded Yalelift with integrated trolley  
– still functional after 9 years in use

### Corrosion protection

#### What does corrosion actually mean?

Corrosion is a term from the Latin “corrodere” and means to decompose or eat away and is, from a technical point of view the reaction of a material with its environment. In popular speech, metals are also referred as “rusting”.

#### How does corrosion occur?

Nowadays, metals are exposed to a wide variety of environmental influences, such as climate and air pollution. This can change their structure. Especially with metals such as iron or steel, oxide formation has a negative effect on the material. Rust develops as a product of corrosion.

In untreated or damaged areas, humidity can hit the metal surface and thus attack it. The corresponding area begins to corrode to the point of rusting through completely.

#### Types of corrosion

Technically speaking, types of corrosion are classified according to material, cause and appearance and also according to where they occur.

The standard DIN EN ISO 8044 defines 37 different types of corrosion.

One of the best-known types of corrosion is contact corrosion, in which an electrochemical reaction between two different metallic materials in conjunction with e.g. humidity leads to corrosion of the less noble metal.

#### Other types of corrosion can be:

- pitting corrosion
- surface corrosion
- vibration corrosion cracking
- gap corrosion, etc.

#### Areas of application

Corrosion-protected equipment with galvanised load or hand chains or rust and acid-resistant chains should be used wherever increased demands are made on corrosion resistance are required. Typical applications are in the food industry (e.g. dairies, slaughterhouses, etc.), the chemical industry (e.g. paper industry, colouring), agriculture or wastewater treatment plants.



MKS coated hand chain hoist  
Yalelift 360 with integrated trolley  
and buffers.

This is the standard version with the classification Atex Basic. However, the unit can also be used in non-explosive areas without hesitation.

### Preventive corrosion protection

To prevent early corrosion, all our products are coated.

This coating varies depending on the model and is carried out in the form of a wet coating, powder or MKS coating.

For specifications on corrosion protection, the DIN EN ISO 12944 series of standards is used in many cases. This series of standards is used for steel structures or structures whose components are made of unalloyed or low-alloyed steel with a thickness of at least 3 mm and which are designed in accordance with a structural safety designed.

We can only base our products on the corrosivity categories contained in this series of standards (see table below). For some models, increased corrosion protection can be achieved by applying additional or thicker coatings.

You will find a detailed list on the next page.

### INFO

Corrosion causes annually in Germany alone 75 billion € damage!

### Corrosion protection classes in accordance to DIN EN ISO 12944

Atmospheric-Corrosivity categories, Corrosion stress	Corrosivity	Corrosion protection period	Protection period in years	Examples of typical environments
C1 very low	very low low-aggressive inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Only indoor rooms, insulated buildings 60 % relative humidity
C2 low	low moderate aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Slightly polluted atmosphere, dry climate, e.g. rural areas
C3 medium	moderate low-aggressive outside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	City and industrial atmosphere with moderate SO <sub>2</sub> pollution or moderate climate
C4 high	high moderately aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Industrial and coastal atmosphere with moderate salt pollution
C5 very high	very high aggressive outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Industrial atmosphere with high relative humidity and aggressive atmosphere as well as coastal atmosphere with high salt content
CX extremely	very high maritim outside/inside	short (L) medium (M) long (H) very long (VH)	up to 7 7 to 15 15 to 25 > 25	Offshore areas with high salt content, industrial areas with extreme humidity and aggressive atmosphere as well as subtropical and tropical atmosphere

## MKS Coating

The MKS coating (micro corrosion protection system) is a coating of zinc and aluminium lamellae which primarily protect the unit against corrosion. Even thin layers - typically a system consisting of base and top coat - can achieve high protective effects against base metal corrosion (red rust).

This MKS coating is used on the models Yalelift 360 Atex and HTP/G Atex trolleys for use in explosion-protected areas, but also, for example in wastewater treatment plants.

## Powder coating

This is a coating process in which a metal surface is coated with powder. A typical coating line consists of surface pre-treatment (cleaning and/or application of a conversion coating), intermediate drying, electrostatic coating zone and dryer. The workpieces are transported via a transport system. The powder coatings produced typically have layer thicknesses between 60 and 120 µm. However, depending on the application and surface characteristics, the coating thickness can also be above or below this range.

## Wet painting

Varnish is a liquid coating material. This material is applied thinly to surfaces and built up into a continuous, solid film by chemical or physical processes (for example, evaporation of the solvent). Varnishes usually consist of binders such as resins, dispersions or emulsions, fillers, pigments, solvents and additives.

## Coating types as standard:

Model	Coating type		
	Wet painting	Powder coating	MKS Coating
CD 85	+		
Yalelift 360		++	
YL with integrated trolley <sup>1</sup>	+	++	
HTP/G	+		
CPE/CPA (with integrated trolley/Atex)	+		
Yalelift 360 Atex			+++
YL Atex with integrated trolley			+++
HTP/HTG Atex			+++

<sup>1</sup> Hand chain hoist powder coated/trolley wet painted

## Additional coating possible for:

Model	Coating type		
	Wet painting	Powder coating	MKS + Powder coating
CD 85	x		
Yalelift 360		x	
YL with integrated trolley <sup>1</sup>	x	x	
HTP/G	x		
CPE/CPA with integrated trolley/Atex	x		
Yalelift 360 Atex			x
YL Atex with integrated trolley			x
HTP/HTG Atex			x

<sup>1</sup> Hand chain hoist powder coated/trolley wet painted

All three types of coating have the same purpose:

- **Protection**  
(protective effect, such as protective coating with combination of primer and top coat, protective varnishes),
- **Decoration**  
(optical effect, specific colour effect) and
- **Function**  
(special surface properties, such as modified electrical conductivity)

## Selection criteria

The correct selection of an additional coating is essentially based on the following questions:

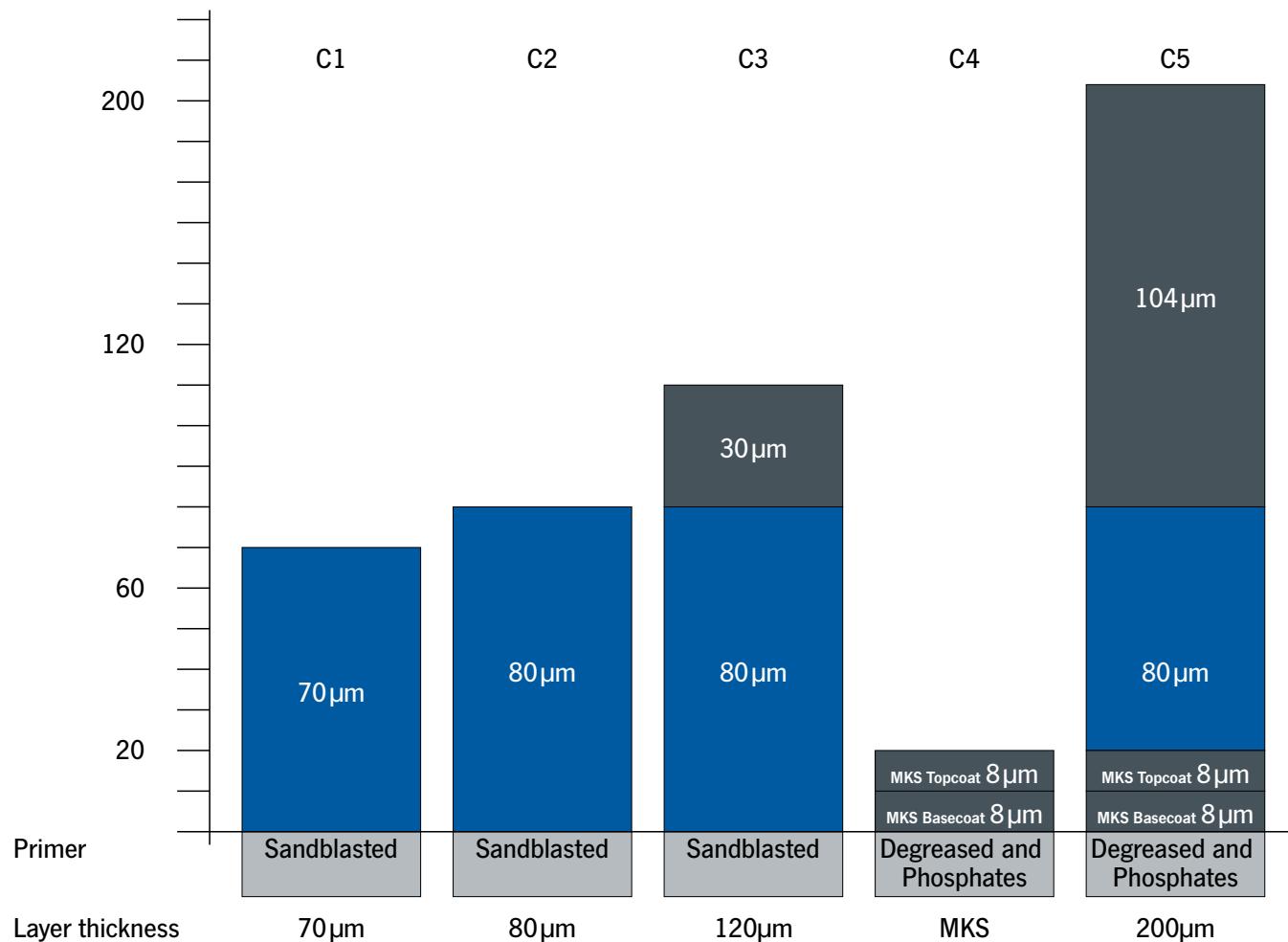
### Where will the relevant equipment be used?

Chemical plants, refineries, off-/On-shore platforms etc.

### What environmental stresses will the unit be exposed to?

This includes, for example, high humidity, industrial exhaust fumes, salty air, fluctuating temperature ranges, etc.

### Layer thickness structure in general



Up to C3 we cover all standard coatings (wet painting and powder coating) on our products.

This means that the corrosivity categories C1 and C2 are also covered.

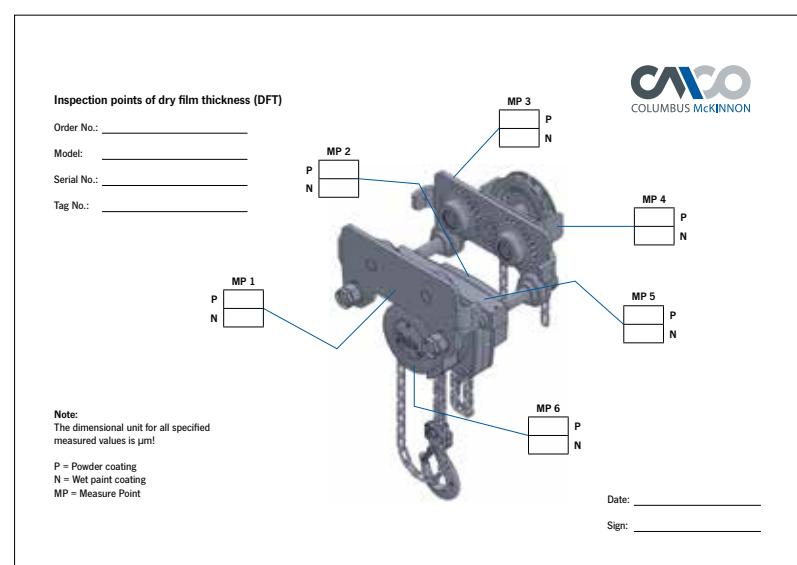
### INFO

We hereby point out that all externally moving parts are subject to abrasion and thus the thickness of the layer is reduced after a very short time, so that base metal corrosion can occur at these areas.

### INFO

When measuring the coating thickness, slight deviations from the values given here are possible, depending on the measuring point.

A coating protocol can be prepared on request, at an additional charge.





**COLUMBUS McKINNON Industrial Products GmbH**

Yale-Allee 30  
42329 Wuppertal

Phone: +49 (0) 202/693 59-0

Fax: +49 (0) 202/693 59-194

Web Site: [www.columbusmckinnon.com/en/yale](http://www.columbusmckinnon.com/en/yale)  
e-mail: [info.wuppertal@cmco.eu](mailto:info.wuppertal@cmco.eu)

**COLUMBUS McKINNON Engineered Products GmbH**

Am Silberpark 2-8  
86438 Kissing

Phone: +49 (0) 82 33/21 21-777

Fax: +49 (0) 82 33/21 21-805

Web Site: [www.columbusmckinnon.com/en/pfaff-silberblau](http://www.columbusmckinnon.com/en/pfaff-silberblau)  
e-mail: [info.kissing@cmco.eu](mailto:info.kissing@cmco.eu)

Subject to engineering changes and improvements.

No warranty for printing errors or mistakes.

Effective December 2022.

Reproduction or reprinting of this catalogue can only  
be carried out with written permission from  
**COLUMBUS McKINNON Industrial Products GmbH.**

