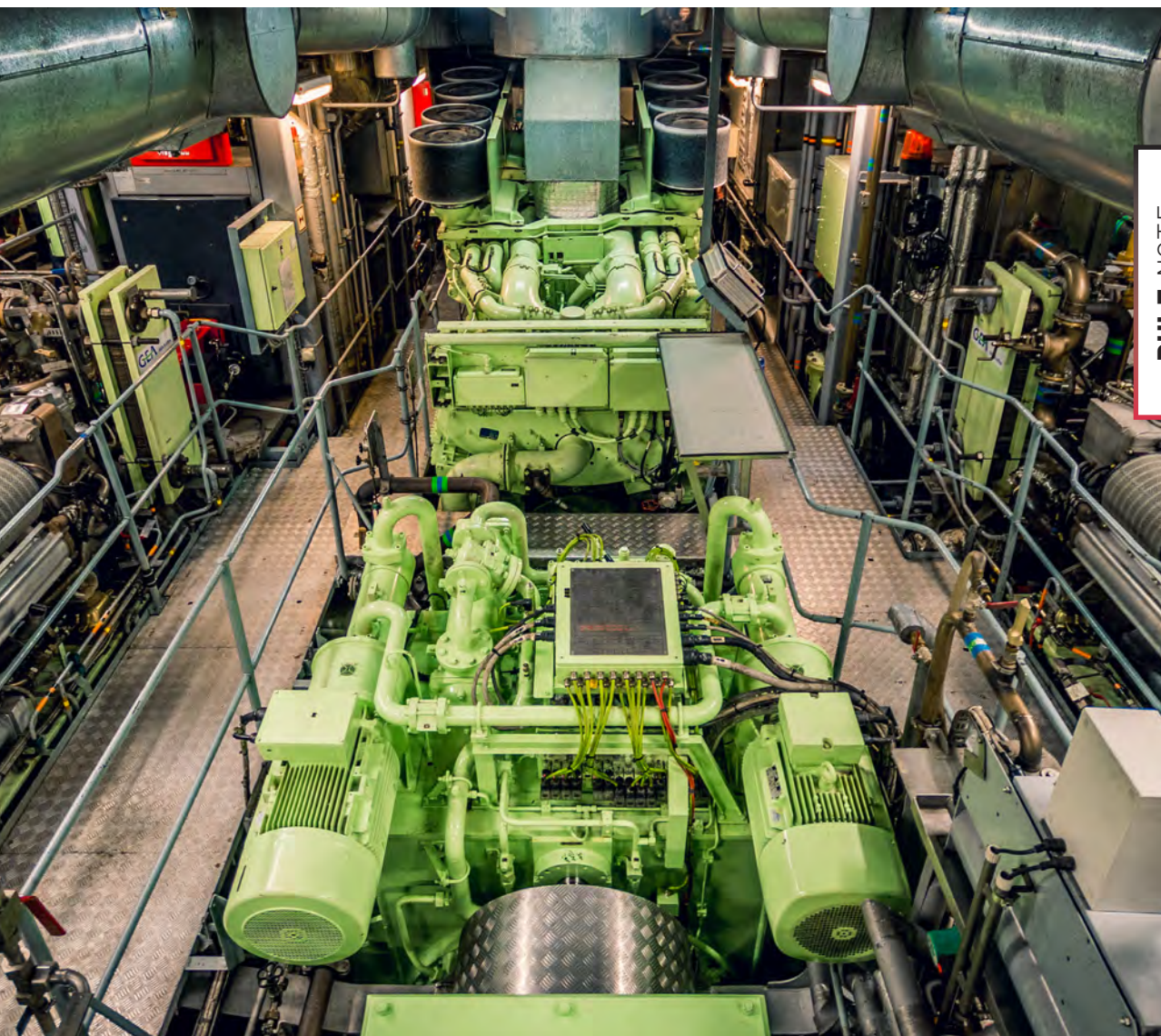


REQUIREMENTS FOR SURVEY OF MATERIALS AND EQUIPMENT FOR THE CLASSIFICATION OF SHIPS AND OFFSHORE UNITS

NR266 - MAY 2023



RULE NOTE



**BUREAU
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RULES, RULE NOTES AND GUIDANCE NOTES

NR266 DT R07 May 2023 takes precedence over previous revision.

The PDF electronic version of this document available at the Bureau Veritas Marine & Offshore website <https://marine-offshore.bureauveritas.com/> is the official version and shall prevail if there are any inconsistencies between the PDF version and any other available version.

These rules are provided within the scope of the Bureau Veritas Marine & Offshore General Conditions, enclosed at the end of Part A of NR467, Rules for the Classification of Steel Ships. The current version of these General Conditions is available at the Bureau Veritas Marine & Offshore website.

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NR266

REQUIREMENTS FOR SURVEY OF MATERIALS AND EQUIPMENT FOR THE CLASSIFICATION OF SHIPS AND OFFSHORE UNITS

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Section 1 General

1 Scope of application

1.1 Purpose

1.1.1 Rule Note NR266 summarizes the certification requirements for materials and equipment (generally referred to as «products») which are covered by the class and used or fitted on board the following units:

- Ships surveyed by the Society during construction in accordance with NR467 Rules for the Classification of Steel Ships,
- Offshore units surveyed by the Society during construction in accordance with NR445 Rules for the Classification of Offshore Units, and
- Naval ships surveyed by the Society during construction in accordance with NR483 Rules for the Classification of Naval Ships,

unless otherwise specified therein.

2 Application

2.1 General

2.1.1 The requirements for materials and equipment covered by the class and used or fitted on board are given in the relevant parts of:

- NR467 Rules for the Classification of Steel Ships,
- NR445 Rules for the Classification of Offshore Units,
- NR483 Rules for the Classification of Naval Ships,

as applicable.

2.1.2 In case of inconsistency, the requirements of the applicable Classification Rules for the concerned unit prevail over the provisions of the present NR266.

2.1.3 The certification scheme of materials and equipment covered by the Class is given in NR320 Certification Scheme of Materials and Equipment for the Classification of Marine Units.

2.1.4 In the case of a discrepancy between the provisions of the applicable International and National Statutory Regulations and those of the Society's Rules, the former takes normally precedence. A valid certification to MED 2014/90/EU is to be recognised for classification purpose.

2.1.5 The Society reserves the right to modify the requirements given in the present NR266 to formulate new ones or to change their application in order to take into account the particulars of a given construction, as well as local circumstances.

2.1.6 The particular conditions and requirements expressed by National Flag Authorities, owners, shipyards or manufacturers may lead to additional surveys or other services to be specified and agreed in each case by the concerned parties.

2.1.7 Shipboard tests or tests on board (both at the moorings and during trials) are not covered by this NR266 and are additional to the workshop tests. Refer to relevant provisions of NR467, NR445 or NR483 regarding shipboard tests, i.e. see NR467, Pt C, Ch 1, Sec 15 for Machinery systems (typical).

2.2 Explanatory notes, symbols and abbreviations

2.2.1 Symbols used in the tables implemented in Section 2 have the following meaning:

“C” indicates that a BV product certificate is required with invitation of the Surveyor to attend the tests unless otherwise agreed, in addition to the manufacturer's document stating the results of the tests performed and/or compliance with the approved type as applicable.

“W” indicates that a manufacturer's document is required, stating the results of the tests performed and/or stating compliance with the approved type (as applicable). Also see item O (General) regarding acceptance of Works certificate “W”: Manufacturer's document (i.e. material inspection certificates type EN 10204 - 3.1).

“X” indicates that examinations and tests are required.

Where fitted, each additional index (h, ndt) indicates a specific type of test:

- h : Hydraulic pressure test (or equivalent)
ndt : Non-destructive tests as per Rules.

2.2.2 Column 1 (item code)

Column 1 contains an alpha-numeric code for ease of reference equipment or component.

2.2.3 Column 2 (item name)

Column 2 contains the name of the equipment or component with, eventually, its sub-systems.

2.2.4 Column 3 (design assessment/approval index)

Column 3 contains the design assessment / approval index. The meaning of letters TA and DA is the following:

TA : Type Approval is required

TA (HBV): Type Approval is required with work's recognition (HBV scheme as per NR320)

DA : Design assessment / Appraisal of the product is required; this one may be carried out as applicable:

- either for a specific unit, or
- using the Type Approval procedure.

Note 1: Where nothing is mentioned in column 3, a design assessment/approval of the specific unit is not required (or the unit is a sub-system whose DA is already addressed within the scope of the Main system approval).

2.2.5 Column 4 (raw material certificate)

Column 4 indicates the nature of the document that is to be submitted by the manufacturer or supplier of the concerned raw material. Consistently with the Rules or agreed specifications, this document includes data such as material tests (chemical composition and mechanical properties), non-destructive tests and surface hardness (if hardened).

2.2.6 Column 5 (examination and testing)

Column 5 indicates that examination and/or testing are required, and are to be carried out by the manufacturer. For the type of examination and/or testing required, reference is to be made to the relevant provisions of NR467, NR445 or NR483.

Note 1: As a general rule, even if a cross "X" is not fitted in a cell under column 5, examination and tests during fabrication may be required with invitation/attendance of the Society's Surveyor.

2.2.7 Column 6 (product certificate)

Column 6 indicates the nature of the document to be supplied by the manufacturer of the concerned product.

2.2.8 Column 7 (remarks)

Column 7 indicates the remarks (if any) associated to the concerned equipment or component.

2.3 Notice regarding columns 3 to 7 (product certification)

2.3.1 Column 3, column 4, column 5 column 6 and column 7 summarize the product certification process or steps to be completed by the manufacturer within the scope of Survey of Materials and Equipment at Works by the Society.

2.4 Notice regarding electrical equipment

2.4.1 Due to the great variety of electrical equipment (item K), it has not been possible to give herewith the details of the surveys to which this electrical equipment is to be submitted. For certain given types of equipment, special type tests leading to their approval are required; the programmes for such type tests are set up for each category of equipment, together with the requirements for their carrying out, and the conditions of validity of the Type approval certificate are given in the relevant provisions of NR467, NR445 or NR483.

As defined in NR467, Pt C, Ch 2, Sec 1, the auxiliaries considered as essential are typically as follows:

a) Equipment for **primary 'essential services'** (services which need to be maintained in continuous operation):

- steering gear
- actuating systems of controllable pitch propellers
- scavenging air blowers, fuel oil supply pumps, fuel valve cooling pumps, lubricating oil pumps and cooling water pumps for main and auxiliary engines and turbines necessary for the propulsion
- forced draught fans, feed water pumps, water circulating pumps, condensate pumps, oil burning installations, for steam plants or steam turbines ship, and also for auxiliary boilers on ship where steam is used for equipment supplying primary essential services
- azimuth thrusters which are the sole means for propulsion/steering with lubricating oil pumps, cooling water pumps
- electrical equipment for electric propulsion plant with lubricating oil pumps and cooling water pumps

- electric generators and associated power sources supplying the above equipment
- hydraulic pumps supplying the above equipment
- viscosity control equipment for heavy fuel oil
- control, monitoring and safety devices/systems for equipment for primary essential services
- speed regulators dependent on electrical energy for main or auxiliary engines necessary for propulsion
- starting equipment of diesel engines and gas turbines.

The main lighting system for those parts of the ship normally accessible to, and used by, personnel and passengers is also considered (included as) a primary essential service.

b) Equipment for **secondary ‘essential services’**:

1) Services which need not necessarily be in continuous operation:

- windlasses
- Towing equipment
- thrusters
- fuel oil transfer pumps and fuel oil treatment equipment
- lubrication oil transfer pumps and lubrication oil treatment equipment
- preheaters for heavy fuel oil
- sea water pumps
- starting air and control air compressors
- bilge, ballast and heeling pumps
- fire pumps and other fire-extinguishing medium pumps
- ventilation fans for engine and boiler rooms
- services considered necessary to maintain dangerous cargo in a safe condition
- navigation lights, aids and signals
- internal safety communication equipment
- fire detection and alarm systems
- electrical equipment for watertight closing appliances
- electric generators and associated power supplying the above equipment
- hydraulic pumps supplying the above mentioned equipment
- control, monitoring and safety for cargo containment systems
- control, monitoring and safety devices/systems for equipment for secondary essential services
- cooling system of environmentally controlled spaces.

2) Services for maintaining conditions of habitability for people on board:

- cooking
- heating
- domestic refrigeration
- mechanical ventilation
- sanitary and fresh water
- electric generators and associated power sources supplying the above equipment.

In the case of installations to be granted an additional class notation, all the electrical equipment used for these installations is to be considered as assuming an ‘essential service’; such is to be the case, for example, of driving motors for compressors of refrigerating plants constructed and surveyed by the Society, lifting appliances for ships classed with **ALP** or **ALM** notations, etc.

The Society reserves the right to add other auxiliaries to this list, whenever deemed necessary and more especially for installations of peculiar type.

2.5 Notice regarding welded equipment

2.5.1 Welding specifications and Welding Procedure Qualification Records are to be compliant to NR216 Rules on Materials and Welding for the Classification of Marine Units.

2.5.2 Welder qualifications are to be compliant to NR476 Approval Testing of Welders.

2.5.3 Non destructive tests when not performed by the manufacturer are to be carried out by supplier approved against NR669 Recognition of Non-Destructive Testing Suppliers.

Section 2 Equipment and Materials Certification Requirements

1 Summary (tables)

1.1 Foreword

1.1.1 The materials and equipment are organized in different families labelled “Item” followed by a letter (**A** to **V**), and a number for its sub-items where applicable; this constitutes an alphanumeric code for ease of reference equipment or component as specified in Section 1 of this NR266.

For each “Item” (and its sub-items where applicable), the certification requirements are summarized in a corresponding table. These tables are not to be considered as an alternative or a substitute to the applicable Classification Rule requirements. Materials or equipment which are not considered in these tables are to be dealt with as per relevant provisions of applicable Classification Rules and/or as per criteria set up in agreement with the Society.

Item	Title
A	Raw materials and components for hull, machinery and cargo equipment
B	Hull outfittings
C	Fire protection, detection and extinction systems
D	Cargo environmental control, IG (inert gas) systems
E	Main diesel engines and their auxiliaries
F	Main turbines, main boilers, and their auxiliaries
G	Auxiliary machinery
H	Cargo handling and containment systems of liquefied gas carriers
I	Cargo handling and containment systems of oil / FLS tankers or chemical tankers
J	Fire fighting ships
K	Electrical equipment
L	Specific equipment for offshore units
M	Refrigerating installation covered by additional class notations REF (REF-CARGO , REF-CONT , REF-STORE)
N	Automation systems covered by additional class notations AUT
O	Lifting appliances for ships and offshore units
P	Container lashing equipment for ships with additional class notation LASHING
Q	Installations covered by additional class notation SPM (Single point mooring)
R	Installations covered by additional class notation DYNAPOS (Dynamic positioning)
S	Pollution prevention installation covered by additional class notations CLEANSHIP (CLEANSHIP , CLEANSHIP SUPER , and other notations)
T	Availability of machinery covered by additional class notations AVM (AVM-APS , AVM-DPS , AVP-IPS)
U	Stainless or high alloy steel for membrane of liquefied gas fuel ships
V	Integrated communication, monitoring and digital systems

Item A - Raw Materials and Components for Hull, Machinery and Cargo Equipment

RAW MATERIALS AND COMPONENTS FOR HULL, MACHINERY AND CARGO EQUIPMENT - ITEM A						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
A1	Steel plates, profiles, bars and pipes for main structure	(1)	C (1)		(2)	(1) Approval as per NR216 and NR480, as applicable (2) See raw material certification
A2	Aluminium alloy plates, profiles, bars and pipes for main structure	(1)	C (1)		(2)	(1) Approval as per NR216 and NR480, as applicable (2) See raw material certification
A3	Filler products for welding (welding consumables)	TA (1)			W	(1) Type approval as per NR216
A4	Aluminium alloy rivets for main structure and fixation of aluminium alloy superstructures on steel hull	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (2) See raw material certification
A5	Transition joints steel / aluminium alloy for fixation of superstructures on steel hull	TA (1)	C		C	(1) Approval as per NR216 and NR480
A6	Stem, stern post, rudder horn skegs and solid rudder pieces in forged or cast steel (1)	DA	C	X ndt	C	(1) Rudders in composite materials: also see provisions of NI590
A7	Cast steel shaft-brackets	DA	C	X ndt	C	
A8	Composite materials	DA (1)		X (2)	C / W (3)	(1) DA for structural assembly; as per NR467. Also see provisions of NR546 - Hull in composite Materials and Plywood, Material Approval, Design Principles, Construction and Survey (2) A representative sample of the structural assembly is to be tested and qualified as per agreed program; relevant tests to be carried out by a testing laboratory accepted by the Society (3) Document type according to the agreed survey scheme - as per conditions set in the DA (4) Type approval or case-by-case approval by the Society; see provisions of NR546, Section 11
	• Adhesives intended for marine structural applications	TA (HBV) (4)			W	
	• Reinforcement fibres	TA (HBV) (4)			W	
	• Resin systems	TA (HBV) (4)			W	
	• Core materials for sandwiches	TA (HBV) (4)			W	
A9	Aluminium alloy castings	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (2) See raw material certification



RAW MATERIALS AND COMPONENTS FOR HULL, MACHINERY AND CARGO EQUIPMENT - ITEM A						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
A10	Steel castings for hull structure	(1)	C (1)		(2)	(1) Approval as per NR216, Ch 6, Sec 10, as applicable. Manufacturers of steel castings are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480 for steel castings having a mass above 1000Kg (2) See raw material certification
A11	Steel forgings for hull structure	(1)	C (1)		(2)	(1) Approval as per NR216, Ch 5, Sec 2, as applicable. Manufacturers of steel castings are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480 for steel castings having a mass above 1000Kg (2) See raw material certification
A12	Pod housing for azipod steering system	DA	C	X ndt	C	
A13	Thruster tunnel for transverse tunnel thruster system	DA	C	X ndt	C	
A14	Glass for windows and side scuttles	(1)	C (1)		(2)	(1) Approval as per NR216. Manufacturers of glass panes are to be recognised by the Society in accordance with NR320 (2) See raw material certification
A15	Steel casting for machinery and cargo equipment (1)	DA (2)	C (2)		(3)	(1) When not addressed in other tables. (1) Approval as per NR216. (2) See raw material certification
A16	Aluminium castings	DA (1)	C (1)		(2)	(1) Approval as per NR216. (2) See raw material certification

Item B - Hull Outfittings

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B1	Steering gears	DA		X	C	(1) Pumps belonging to class I piping system. See item G31 (2) Type tests of hydraulic pumps, as per NR467 (3) For hydraulic pump casings (4) Proof loading of steering chains and rods (5) To comply with class I piping system. See item G26 (6) See also items G30 (Pressure vessels) and G42 (Hydraulic systems) Note: Running tests - under load on board
	1- Pumps (hydraulic pumps)	TA or DA (1) (2)	C (3)	X h	C	
	2- Cylindrical shell of hydraulic cylinders, rotor housing for rotary vane steering gear		C	X h ndt	C	
	3- Rams, piston rods		C	X	C	
	4- Tiller, rotor for rotary vane steering gear, quadrant, steering chains and rods		C	X ndt (4)	C	
	5- Piping system and components (5) (6)					
B2	Rudder (1)	DA				(1) Rudders in composite materials: also see provisions of NI590 (2) Hydraulic nut/piston to be considered on a case-by-case basis, as per technology (not a structural part for the integrity of the Rudder, except in case the connection blade/stock is a key connection without self keeping cone; in this configuration, the nut holds the full weight of the blade and the force is transmitted through the thread to the stock) (3) For streamlined rudder blade of watertight construction
	1- Rudder stock, rudder shaft, pintles, coupling bolts, hydraulic nut/piston (2)		C	X ndt	C	
	2- Rudder blade		C	X h (3)	C	
B3	Bower anchors	DA (1) or TA (2)	C	X ndt	C	(1) DA for ordinary anchors (2) TA for High holding power (HHP) and very high holding power (VH-HP) anchors. Refer to NR467 and NR216
B4	Anchor chain cable	(1)	C (2)	X ndt (3)	C	(1) Approval as per NR216 and NR480 (2) Approval as per NR216 and NR480 for round bars in grades Q2 or Q3 (3) Marking of chain cables as per NR216, Ch 10, Sec 2. Chain cables which meet the requirements are to be stamped at both ends of each length at least with the following marks: chain cable grade, certificate number, Society's stamp.
B5	Anchor chain cable accessories (shackles, kenter shackles and swivels)	(1)	C	X ndt	C	(1) Approval as per NR216 and NR480

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B6	Motorized windlasses	TA/DA (1)		X (2)	C	(1) Or assessment by the mean of type tests according to special conditions. Ref. NR626 - Rule Note for Anchor windlass
	1- Main shaft	DA	C	X ndt	C	(2) Refer to relevant provisions of NR626, Section 1, as amended
	2- Casing or body, drum / gipsy-wheel, and main load-bearing structures	DA	C	X ndt	C	(3) See item G26 (Piping) and G42 (Hydraulic systems)
	3- Hydraulic systems, Electric systems (3) (4)	DA		X h	C	(4) For electric systems (motors, switchboards, starter cabinets, alarm panels, etc.), refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266, of NR626, and of NR467
	4- Chain stopper (wire stopper)	DA	C	X ndt	C	Note: Alternative test methods subject to Society's acceptance / Anchoring tests / load tests on board, as per agreed program - Refer to NR626
	5- Guide roller, Guide pins	DA	C	X ndt	C	
B7	Fibre ropes (1) (2)		W	X ndt	C	(1) Include the fibre ropes intended for emergency towing arrangement, cargo handling gear or similar applications. Exclude the fibre ropes specific for offshore units which are covered in items L15 and L16 (2) Requirements as per NR216 Note: As per NR467, Pt B, Ch 12, Sec 4 - The towing and mooring arrangement as defined in NR467, Pt B, Ch 12, App 2, [1] and the towing and mooring lines as defined in NR467, Pt B, Ch 12, App 2, [2] are given as a guidance but are not required as a condition of classification. Survey of steel wires and fibre ropes for towing and mooring lines, when requested by the Owner, is to be done as per requirements of NR216, Chapter 10, Section 6
B8	Sea inlets and outlets distance pieces or pad		C/W (1)		C	(1) If nominal diameter ND \geq 100 mm: material certificate C (class). If nominal diameter ND < 100 mm: material certificate W (works')
B9	Transducer compartment	DA	C	X h	C	
B10	Hawse pipes (1)		C	X	C	(1) Cast piece
B11	Side scuttles and windows	DA	C (1)	X	C	(1) Refer to item A14 Note 1: Hose test on board Note 2: Also see SOLAS Amendments Ch II-1, Part B-2, Reg 16.: for Hydrostatic tightness test of all Watertight closures such as doors, hatches, side-scuttles, gangway and cargo ports, valves, pipes, ash-chutes, and rubbish-chutes

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B12	Shell doors	DA	C	X ndt	C	Note: Hose test on board
B13	Hatch covers (1) (2)					(1) Hose test on board, for watertight covers (2) Also see SOLAS Amendments Ch II-1, Part B-2, Reg 16.: for Hydrostatic tightness test of all Watertight closures such as doors, hatches, sidescuttles, gangway and cargo ports, valves, pipes, ash-chutes, and rubbish-chutes
	1- Hatch covers (3)	DA	C	X ndt	C	
	2- Hatch covers for stoppers and securing devices (4)	DA	C	X ndt	C	(3) As per NR467, Pt B, Ch 11 Sec 9, [1.3.1] (4) As per NR467, Pt B, Ch 11 Sec 9, [1.3.1] covers for the stoppers and other securing devices, with ref to NR467, Pt B, Ch 4, Sec 1. See NR216 e.g. for forging and casting (refer to NR467, Pt B, Ch 4, Sec 1, [3])
B14	Watertight and weathertight doors (1) (2)	DA or TA (1)	C	X h ndt (3) (4)	C	(1) As per NR467, Pt B, Ch 11, Sec 8 (2) Type of tightness (watertight, weathertight, semi-watertight or unprotected) and various degrees of watertightness are defined in NR467, Pt B, Ch 3, Sec 3, [3.3.2] (3) Inspection and testing: hydrostatic pressure testing, leakage criteria for watertight doors, leakage criteria for semi-watertight doors -as per NR467, Pt B, Ch 11, Sec 8, [5] (4) All watertight, semi-watertight and weathertight doors shall be subject to a hose test after installation in a ship. Hose testing on board is to be carried out as per NR467, Pt B, Ch 11, Sec 8, [5] Note 1: Watertight compartments testing on board: also see provisions of NR467, Pt B, Ch 13, Sec 5 (testing procedures of watertight compartments) Note 2: Also see SOLAS Amendments Ch II-1, Part B-2, Reg 16.: for Hydrostatic tightness test of all Watertight closures such as doors, hatches, sidescuttles, gangway and cargo ports, valves, pipes, ash-chutes, and rubbish-chutes
B15	External ramp	DA	C	X ndt (1)	C	(1) Watertightness, as applicable: see item B14
B16	Movable deck and inner ramp	DA	C	X ndt	C	



HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B17	Hydraulic power station for handling items B11 to B16	DA		X	C	(1) For pump housing, material certificates (C / W) according to the piping class. See item G31 (2) For electrical motors, refer to item K5 ; for the other systems, refer to the relevant provisions of this NR266 and of NR467. For piping, valves and fittings, see items G26 and G27 (3) See item G28 (4) Material certificate C for class 1 pressure vessels; see item G30 Material certificate W for class 2 or 3 pressure vessels; see item G30 Note: Other hydraulic power installations: see item G42
	1- Pumps (hydraulic pumps)		C / W (1)	X h	C	
	2- Electrical motors (2)	(2)		X	C / W	
	3- Flexible hose assembly (3)	TA	W	X h	C	
	4- Hydraulic jacks, hydraulic cylinders and accumulators	DA	C / W (4)	X h ndt	C	
B18	Fixed parts of lifting appliances (e.g: Crane pedestal, Winch foundations, King posts, Derrick heel seatings, Padeyes) and elements connecting them with the ship structure (1)	DA	C	X ndt	C	(1) See items O1 , O2 and O3
B19	Ropes, constituent of Shrouds for item B18 (1)	DA		X (2)	C	(1) See item O1 for ropes (2) Breaking test on specimen
B20	Loading instrument or calculator / Stability computer (1)	TA or DA (2) (3)		X (2) (3)	C / W (4)	(1) Concerns only ships for which the Rules require a loading calculator (2) Ship specific onboard equipment. Requirements as per NR467, Pt B, Ch 1, Sec 5 and NR467, Pt C, Ch 3, Sec 6. Also see relevant provisions of NR266 item N (Automation systems) (3) Loading instrument approval consists of: <ul style="list-style-type: none"> approval of hardware according to NR467, Pt C, Ch 3, Sec 6, [2.2], unless two computers are available on board for loading calculations only approval of basic software according to NR467, Pt C, Ch 3, Sec 6, [2.3] approval of application software, consisting in data verification which results in the Endorsed Test Condition according to NR467, Part B installation testing according to NR467, Pt C, Ch 3, Sec 6, [4] (4) As per conditions set in the TA Note: Following installation on board with reference to the approved manual; on board tests as per NR467, Pt C, Ch 3, Sec 6

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B21	Articulations and hydraulic cylinders of split hopper dredger and split hopper units	DA		X h	C	(1) For welded construction (2) See item B17
	1- Cylinder housing		C	X ndt (1)	C	
	2- Covers		C	X ndt	C	
	3- Piston rods, pins of hinges and eyes		C	X ndt	C	
	4- Main bolting		C	X ndt	C	
	5- Hinge eyes and pins (dock houses and main hinges)		C	X ndt	C	
	6- Hydraulic power station for handling hydraulic cylinders	(2)	(2)	(2)	C	
B22	Emergency towing arrangement (ETA)	TA	C	X	C	(1) Buoy and line-throwing appliance may be type approved (2) Certificate W (works'): for the rope only (3) May be type approved
	1- Towing pennant / hook		W		C	
	2- Chafing gear: chain and associated accessories		C		C	
	3- Fairleads		W		C	
	4- Strongpoint (inboard end fastening of the towing gear); main framing, stopping device		C		C	
	5- Pick-up gear: rope, buoy, line-throwing appliance	(1)			W (2)	
	6- Pedestal roller fairlead	(3)	W			
B23	Corrosion protective coatings (epoxy or equivalent): (1) <ul style="list-style-type: none"> in dedicated seawater ballast tanks of ships of not less than 500 gross tonnage and double-side skin spaces arranged in bulk carriers of length greater than or equal to 150 m in void spaces in bulk carriers and oil tankers in cargo oil tanks of crude oil tankers of 5,000 tonnes deadweight and above. 	TA (HBV) (2)	W	X (3)	W	(1) Coating system means the coating product (CP1), which could be an epoxy-based system or an alternative system (ref table 1 of IMO PSPC), and/or the associated shop primer(s) (SP1) (2) Refer to NR467, Pt A, Ch 1, Sec 2. Only for ships assigned with the additional service feature CPS (WBT), or the additional class notation CPS (WBT), CPS (VSP) or CPS (COT) : coating system assessment and approval as per procedure described in NR530, Coating Performance Standard (3) The laboratory engaged in testing of coating system is to be recognized

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B24	Towing equipment - within the scope of service notations tug, salvage tug, escort tug (1) Anchor handling equipment - within the scope of service notation anchor handling (2)	DA (3)		X ndt (4) (5)	C	(1) Including towing hook, towing winch, hook quick-release device, winch quick-release device, winch slip device - within the scope of service notations tug, salvage tug, escort tug (see NR467, Part E, Chapter 1) (2) Intended for towing vessels and/or supply vessels equipped with winches for anchor handling operations - within the scope of service notation anchor handling (see NR467, Part E, Chapter 1) (3) Or assessment by the mean of type tests according to special conditions (4) Tugs, Salvage tugs, Escort tugs: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 1 (5) Anchor handling vessels: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 2 (6) See item G26 (Piping) and G42 (Hydraulic systems) (7) For electric systems (motors, switchboards, starter cabinets, alarm panels, etc.), refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266 and of NR467 Note: On board tests as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 1 and NR467, Part E, Chapter 2
	1- Hook		W	X ndt	C	
	2- Main shaft		C	X ndt	C	
	3- Casing or body, winch drum / gipsy-wheel if any, and main load-bearing structures		C	X ndt	C	
	4- Hydraulic systems, Electric systems (6) (7)	DA		X h	C	
	5- Stern roller, Wire stopper, Guide pins	DA	C	X ndt (4)	C	
B25	Bollards and bitts (1)					(1) As per provisions of NR467, Pt B, Ch 12, Sec 4, [4].
	1- As per recognised standards		W		W	
	2- Other cases	DA	C	X	C	
B26	Bolts, Nuts and Studs	DA	C (1)	X ndt (1)	C	(1) Material tests (mechanical properties and chemical composition) and NDT - as per NR216, Chapter 5

Item C - Fire Protection, Detection and Extinction Systems

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C1	Fire-resisting and fire-retarding divisions and associated doors: Class A, B, H					(1) In the case of a discrepancy between the provisions of the applicable International and National statutory regulations and those of the Society's Rules, normally the former take precedence. A valid certification to MED 2014/90/EU (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose
	- fire-resisting and fire-retarding divisions (bulkheads or decks)	TA (1)		X	C / W (2)	(2) As per survey scheme set in the TA
	- associated doors	TA (1)			C / W (2)	
C2	Upholstered furniture, excluding the frame	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C3	Materials for pipes penetrating A or B class divisions (where they are not of steel or other equivalent material)	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C4	Materials other than steel for pipes conveying oil or fuel oil: pipes and fittings, valves, flexible pipe assemblies	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C5	Materials for electrical cables penetrations through A or B class divisions	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C6	Materials with low flame spread characteristic including paints, varnishes and similar, when they are required to have such characteristic	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C7	Non-combustible materials	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C8	Vertically supported textiles	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C9	Primary deck coverings	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C10	Fixed foam fire-extinguishing systems and associated foam-forming liquids (1)	TA (2)		X h ndt	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C11	Fixed powder fire-extinguishing systems, including powder (1)	TA (2)		X h ndt	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C12	Flexible pipes and expansion bellows of non-conventional material for any type of fluid	TA (1)	W	X h ndt	C / W (2)	(1) See also items G28 and G38 (2) As per conditions set in the TA
C13	Sprinkler heads for automatic sprinkler systems	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C14	Nozzles for fixed pressure water-spraying fire-extinguishing systems for machinery spaces, boiler rooms and spaces intended for the carriage of vehicles	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C15	Sensing heads for automatic fire alarm and fire detection systems	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C16	Fixed fire detection and fire alarm systems (1)	TA (2)		X	C / W (3)	(1) See item N4 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C17	Explosive mixture detecting systems (1)	TA (HBV) (2)			W	(1) See item N4 (2) See item C1 , remark (1)
C18	Portable explosive mixture detecting apparatus	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C19	Fixed instruments for measuring the oxygen content for inert gas systems serving cargo tanks	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C20	Portable instruments for measuring the oxygen content for inert gas systems serving cargo tanks	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C21	Fire dampers	TA (1)		X ndt	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C22	Bedding components	TA (HBV) (1)			W	(1) See item C1 , remark (1)

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C23	Equivalent water-mist fire-extinguishing systems (1)	TA (2)		X	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C24	Equivalent fixed gas fire-extinguishing systems (1)	TA (2)		X	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C25	Fixed local application fire-extinguishing systems (1)	TA (2)		X	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C26	Equivalent water-mist automatic sprinkler systems (1)	TA (2)		X	C / W (3)	(1) Gas bottles and distribution systems: see item C36 (2) See item C1 , remark (1) (3) As per conditions set in the TA
C27	Fire extinguishers	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C28	Surface linings (of bulkheads and ceilings) (1)	TA (HBV) (2)			W	(1) See item C6 (2) See item C1 , remark (1)
C29	Floor coverings (1)	TA (HBV) (2)			W	(1) See item C6 (2) See item C1 , remark (1)
C30	Fire windows	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C31	Prefabricated fire resisting elements (sanitary blocks for example)	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C32	Fire pumps and their prime movers	DA		X (1)	C	(1) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See item G31 (2) For electrical motors, refer to item K ; for other systems, refer to relevant provisions of this NR266 and of NR467 Diesel engines as per item E1
	1- Fire pumps		W	X h ndt	C	
	2- Prime movers	(2)	(2)	X (2)	C / W (2)	
C33	Fire hydrants, pipes, shore connections, valves and accessories	(1)	(1)	(1)	(1)	(1) Requirements according to relevant class of piping; see items G26 and G27



FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C34	Fire hoses	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C35	Dual-purpose nozzles	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C36	High pressure CO ₂ fire smothering systems (1)	DA			C	(1) Specific requirements are given in NR467, Pt C, Ch 4, Sec 15, [4.1.3] (2) Vessels: see item G30 (3) Piping: as per relevant provisions of items G26 , G27 and G28
	1- Gas bottles (2)	DA / TA	C / W	X h ndt	C	
	2- Distribution systems (3)	DA / TA	C / W	X h ndt	C / W	
C37	Low pressure CO ₂ fire smothering storage systems (1) (2) (3)	DA / TA	C / W	X h ndt	C	(1) Except where different requirements are given in this item, the requirements of item C36 for systems with carbon dioxide contained in high pressure bottles are generally to be complied with. (2) Specific requirements are given in NR467, Pt C, Ch 4, Sec 15 [4.1.4] (3) Gas bottles and distribution systems: see item C36
C38	Foam proportioner / inductor	TA	C / W (1)	X h ndt (2)	C / W (1)	(1) See item G26 (2) If of welded construction.
C39	Water / foam monitor	TA		X	C / W (1)	(1) As per conditions set in the TA
C40	Foam applicator	TA HBV		X	W	

Item D - Cargo Environmental Control, IG (Inert Gas) Systems

CARGO ENVIRONMENTAL CONTROL, IG (INERT GAS) SYSTEMS - ITEM D						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
D1	Inert gas generator system: boiler flue gas or oil fired inert gas generators (1)	DA	C	X h ndt	C	(1) See item G15
D2	Burning units for item D1 (1)	DA	(1)	X	C	(1) See item G16 (and item F16)
D3	Uptake valves of main boilers (1)	DA	C / W (1)	X h	C	(1) Considered as class 1 piping accessory: see item G27
D4	Expansion bellows (1)	TA	W	X h ndt	C	(1) See item G38
D5	Inert gas scrubber	DA	C	X h ndt (1)	C	(1) See item G30 for pressure vessels
D6	Blowers	DA		X	C	
D7	Deck water seal	DA		X h	C	
D8	Non return devices supplementing the deck water seal	DA		X	C	
D9	Discharge pipe from scrubber to overboard		C	X h	C	
D10	Isolating valves from IG system and cargo tanks (1)	TA or DA	C / W (1)	X h ndt	C	(1) See item H17 or I14 according to the case
D11	Regulating valves	DA	(1)	X h	C	(1) See item G27 for accessories of pipes (valves and fittings)
D12	Control and monitoring systems and components (gauge, sensors, oxygen analyser, etc...) (1)	TA		X	C / W (2)	(1) See item N5 (2) As per survey scheme set in the TA
D13	Breathing valves or devices	TA		X (1)	C	(1) Setting verification



CARGO ENVIRONMENTAL CONTROL, IG (INERT GAS) SYSTEMS - ITEM D

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
D14	Inert gas coolers	DA	(1)	X h	C	(1) See item G30 for pressure vessels
D15	Other IG Systems / Nitrogen generator system or N2 gas generator system where inert gas is produced by separation of the air into its component gases: i.e. compressed air processed through a bundle of hollow fibres, semi-permeable membranes or adsorber materials (1)	DA	C	X h ndt	C	(1) The requirements for inert gas systems given in item D1 , applicable to vessels, piping arrangements, alarms and instrumentation downstream of the generator, etc., are to be complied with, as far as applicable
D16	Feed air compressors for item D15 and their prime movers	DA				(1) Together with dryers if any (2) For electrical motors, refer to item K ; for other systems, refer to relevant provisions of this NR266 and of NR467 (3) As per provisions of Rules NR467
	1- Feed air compressors	DA	W	X h (1)	C	
	2- Prime movers (2)	(2)	(2)	X (2)	C / W	
	3- P/V Breakers and dryers (2)	DA or TA (3)		X h (1)	C	
D17	Air receivers and process tanks for item D15 (1)	DA	C	X h ndt (2)	C	(1) See item G30 for pressure vessels (2) Including calibration of safety devices
D18	Synthesis gas modules for item D15 (1)	DA		X	W	(1) For special types of process, the Society reserves the right to add requirements or modify those given in item D18
D19	Feed air treatment system for item D15 (1)	DA	W	X h ndt	C	(1) See item G30 for pressure vessels

Item E - Main Diesel Engines and their Auxiliaries

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E1	Diesel engines listed bellow: <ul style="list-style-type: none"> • Main propulsion engines • Engines driving electric generators, including emergency generators • Engines driving other auxiliaries essential for safety and navigation and cargo pumps in tankers, when they develop a power $P \geq 110$ kW General remarks: (1) (2) (3) (4) (5) (6) (7) (8) (9)	TA (10)		X ndt (11) (12)	C	(1) Symbols specifically used in this item E1 are defined below, in accordance with NR467, Pt C, Ch 1, Sec 2: Chem : Chemical composition CD : Crack detection by MPI (magnetic particle inspection) or DP (dye penetration inspection) D : Cylinder bore diameter (mm) GJL : Grey cast iron GJS : Spheroidal graphite cast iron GS : Cast steel Mech : Mechanical properties C : Society certificate TR : Test report UT : Ultrasonic testing W : Work certificate X : Visual examination of accessible surfaces by the Surveyor (2) For turbochargers: see item E12 and provisions of NR467, Pt C, Ch 1, Sec 16 (3) Crankcase explosion relief valves are to be type tested in accordance with NR467, Pt C, Ch 1, App 4 and documented according to NR467, Pt C, Ch 1, Sec 2, [2.3.4]. Also see item E9 (4) Oil mist detection systems are to be type tested in accordance with NR467, Pt C, Ch 3, App 1 and documented according to NR467, Pt C, Ch 1, Sec 2, [2.3.5]. Also see item E9 (5) For speed governor and overspeed protective devices, see NR467, Pt C, Ch 1, Sec 2, [2.7]. Also see item E9 (6) All the other engines are to be designed and constructed according to sound marine practice, with the equipment required in NR467, Pt C, Ch 1, Sec 2, [2.3.4], and delivered with the relevant works' certificate (see NR216, Ch 1, Sec 1, [4.2.3]) (7) Engines intended for propulsion of lifeboats and compression ignition engines intended for propulsion of rescue boats are to comply with the relevant rule requirements
	1- Welded bedplate		W (Chem+Mech) (13)	W(UT+CD) (14) fit-up + post-welding (15)	C	
	2- Bearing transverse girders GS		W (Chem+Mech) (13)	W(UT+CD) (14) X	C	
	3- Welded frame box		W (Chem+Mech) (13)	W(UT+CD) (14) fit-up + post-welding (15)	C	
	4- Cylinder block GJL (applicable to crosshead engines)			W (16) (17)		
	5- Cylinder block GJS (applicable to crosshead engines)			W (16) (17)		
	6- Welded cylinder frames (applicable to crosshead engines)		W (Chem+Mech) (13)	W(UT+CD) (14) fit-up + post-welding (15)	C	

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E1	7- Engine block GJL (applicable to engines > 400 kW/Cyl.)			W (16) (17)		(8) Additional requirements for control and safety systems for dual fuel engines are given in NR467, Pt C, Ch 1, App 2
	8- Engine block GJS (applicable to engines > 400 kW/Cyl.)		W (Mech) (13)	W (16) (17)		(9) In addition to the requirements of NR467, Pt C, Ch 1, Sec 2, those given in NR467, Pt C, Ch 1, Sec 1 apply
	9- Cylinder liner (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W (16) (17)		(10) Type test: as per NR467, Pt C, Ch 1, Sec 2
	10- Cylinder head GJL (applicable to engines with D > 300 mm)			W (16)		(11) NDT as per NR467, Pt C, Ch 1, Sec 2
	11- Cylinder head GJS (applicable to engines with D > 300 mm)			W (16)		(12) Works trials (factory acceptance tests), as per NR467, Pt C, Ch 1, Sec 2
	12- Cylinder head GS (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W(UT+CD) (14) W (16) X	C	(13) Material properties include chemical composition and mechanical properties, and also surface treatment such as surface hardening (hardness, depth and extent), peening and rolling (extent and applied force)
	13- Forged cylinder head (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W(UT+CD) (14) W (16) X	C	(14) Non-destructive examination means e.g. ultrasonic testing, crack detection by MPI or DP.
	14- Piston crown GS (applicable to engines with D > 400 mm)		W (Chem+Mech) (13)	W(UT+CD) (14) X	C	(15) Visual inspection by the Surveyor
	15- Forged piston crown (applicable to engines with D > 400 mm)		W (Chem+Mech) (13)	W(UT+CD) (14) X	C	(16) Hydraulic testing to be applied on the water/oil side of the component. Items are to be tested by hydraulic pressure at the pressure equal to 1,5 times the maximum working pressure. High pressure parts of the fuel injection system are to be tested by hydraulic pressure at the pressure equal to either 1,5 times the maximum working pressure or the maximum working pressure plus 300 bar, whichever is lesser. Where design or testing features may require modification of these test requirements, special consideration may be given
	16- Crankshaft: made in one piece		C (Chem+Mech) (13)	W(UT+CD) (14) W (18), Random of fillets and oil bores (15)	C	(17) Hydraulic testing is also required for those parts filled with cooling water and having the function of containing the water which is in contact with the cylinder or the cylinder liner
						(18) Dimensional inspection, including surface condition

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E1	17- Semi-built crankshaft (Crank throw, forged main journal and journals with flange)		C (Chem+Mech) (13)	W(UT+CD) (14) W (18), Random of fillets and shrink fittings (15)	C	
	18- Exhaust gas valve cage (applicable to crosshead engines)			W (7-16)		
	19- Piston rod, if applicable (applicable to engines with D > 400 mm)		C (Chem+Mech) (13)	W(UT+CD) (14) CD again after final machining (grinding), Random (13)	C	
	20- Crosshead (applicable to crosshead engines)		C (Chem+Mech) (13)	W(UT+CD) (14) CD again after final machining (grinding), Random (15)	C	
	21- Connecting rod with cap		C (Chem+Mech) (13)	W(UT+CD) (14) W (18), Random of all surfaces, in particular those shot peened (15)	C	

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E1	22- Coupling bolts for crankshaft		C (Chem+Mech) (13)	W(UT+CD) (14) W (18), Random of interference fit (15)	C	(19) Material certification requirements for pumps and piping components are dependent on the operating pressure and temperature. Requirements given in this Item apply unless alternative requirements are given in NR467, Pt C, Ch 1, Sec 10, Tab 40. (20) Applicable to engines with D > 300 mm (21) Applicable to engines with D ≤ 300 mm (22) Material certification requirements for pumps and piping components are dependent on the operating pressure and temperature. Requirements given in this Table apply unless alternative requirements are given in NR467, Ch 1, Sec 10, Tab 40.
	23- Bolts and studs for main bearings (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W(UT+CD) (14)		
	24- Bolts and studs for cylinder heads (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W(UT+CD) (14)		
	25- Bolts and studs for connecting rods (applicable to engines with D > 300 mm)		W (Chem+Mech) (13)	W(UT+CD) (14), TR of thread making (18)		
	26- Tie rod (applicable to crosshead engines)		W (Chem+Mech) (13)	W(UT+CD) (14), TR of thread making (18), Random (15)	C	
	27- High pressure fuel injection pump body (19)			W (16) (20) TR (16) (21)	W (22)	
	28- High pressure fuel injection valves (only for those not autofretted) (19)			W (16) (20) TR (16) (21)	W (22)	
	29- High pressure fuel injection pipes including common fuel rail (19)		W (Chem+Mech) (13)	W (16) (20) TR (16) (21)	W (22)	
	30- High pressure common servo oil system (19)		W (Chem+Mech) (13)	W (16) (20) TR (16) (21)	W (22)	

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E1	31- Cooler (Charge air cooler), both sides (23) (applicable to engines with D > 300 mm) (19) (24) (25)		W (Chem+Mech) (13)	W (16) (24)	W (22)	(23) Charge air cooler (24) Charge air coolers need only be tested on the water side (25) Material and component certifications are to follow the requirements given in NR467, Pt C, Ch 1, Sec 3 for pressure vessels. Depending on their class, a design assessment may be required. (26) Applicable to all engines with accumulators with a capacity of > 0,5 l
	32- Accumulator (19) (25) of common rail fuel or servo oil system		W (Chem+Mech) (13) (26)	W (16) (26)	W (22)	
	33- Piping, pumps, actuators, etc. for hydraulic drive of valves, if applicable (applicable to engines > 800 kW/Cyl.) (19)		W (Chem+Mech) (13)	W (16)		
	34- Engine driven pumps (oil, water, fuel, bilge) other than pumps referred to item 27 to 33 (applicable to engines > 800 kW/Cyl.) (19)			W (16)		
	35- Bearings for main, crosshead, and crankpin (applicable to engines > 800 kW/Cyl.)		TR(C) (13), TR(UT for full contact between basic material and bearing metal) (14)	W (18)		
E2	Cooling pumps, lubricating oil pumps, independent of item E1, and their prime movers					(1) Pump housing: material certificate (C / W) according to the piping class. See item G31 (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Cooling pumps, lubricating oil pumps, independent of E1		C / W (1)	X h	C	
	2- Prime movers (2)			X h	C	
E3	Heat exchangers (lubricating oil or fresh water coolers, fuel heaters)	DA or TA	C / W (1)	X h ndt	C	(1) Material certificate (C / W) according to the vessel class 1, 2 or 3. See item G30 (Pressure vessels)
E4	Exhaust gas-boilers (1)	DA	C	X h ndt	C	(1) See item G15



MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E5	Starting air receivers of item E1 (1)	DA or TA (2)	C	X h ndt (3)	C	(1) See item G30 for pressure vessels (2) Air Starters are part of Starting equipment of diesel engines. Equipment for primary 'essential services' as per NR467 Pt C, Ch 2, Sec 1. Product certificate required for Air Starters: C/W, as per conditions set in the TA (IBV/HBV) (3) Including setting of safety devices, if any Note: During sea trials of the ship (capacity check)
E6	Air compressors for filling of item E5 , and their prime movers	DA (1)				(1) Compressed air systems: ref NR467, Pt C, Ch 1, Sec 10, [17]. Air compressors having a crankcase volume of at least 0,6 m3 are to be fitted with crankcases explosion relief valves satisfying the provisions of NR467, Pt C, Ch 1, Sec 2, [2.3.4]. Also see item E9
	1- Air compressors for filling of item E5		W	X h (2)	C	(2) Including coolers, if any
	2- Prime movers (3)			X h	C	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 Note: Under load, on board (capacity). Also refer to NR467, Ch 1, Sec 17 (Shipboard tests for machinery)
E7	Turning gears of item E1			X	W	Note: Running test - on board
E8	Scavenging and supercharging compressors or blowers (1)	DA or TA	C / W	X h ndt	C / W	(1) For turbochargers, refer to provisions of item E12 (2) As per NR467. 'Scavenging air auxiliary compressors or blowers' are considered as equipment for primary 'essential services' (services which need to be maintained in continuous operation)
	1- Auxiliary compressors or blowers (2) (3)	DA or TA (4)	C (5)	X h ndt (6)	C / W (6)	(3) As general, electrically-driven auxiliary blowers are provided to supplement the scavenge air delivery when engines are operating at low loads and speeds (because, at such low engine loads and speeds, the turbochargers cannot deliver the necessary air for the gas flow process) (4) TA as per NR467, Pt C, Ch 1, Sec 16. Type tests as per agreed program
	2- Electrical motors (7)	DA or TA	W (7)	X (7)	C / W (7)	(5) Shaft and rotor including blades: material certificate C, for auxiliary compressors or blowers fitted on diesel engines with cylinder bore D > 300 mm. Works' certificate W may be accepted for auxiliary compressors or blowers fitted on diesel engines with cylinder bore D ≤ 300 mm (6) Examination, testing and certification: as per relevant provisions of item E12 (turbochargers) (7) Electrical motors: refer to relevant provisions of item K5

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E9	Crankcase explosion relief valves, Oil mist detection, Regulation and safety devices (1) (2)					(1) Speed governor and overspeed protective devices: see NR467, Pt C, Ch 1, Sec 2, [2.7]. (2) Also see relevant provisions of items, K25 , N , G26 , and G27 (3) Diesel engines of a cylinder diameter of 200 mm and above or a crankcase gross volume of 0,6 m ³ and above are to be provided with crankcase explosion relief valves in accordance with Rules. Crankcase construction and crankcase doors are to be of sufficient strength to withstand anticipated crankcase pressures that may arise during a crankcase explosion taking into account the installation of explosion relief valves required by NR467, Pt C, Ch 1, Sec 2. Type testing procedure is to comply with NR467, Pt C, Ch 1, App 4. (4) Oil mist detection arrangements are to be of a type approved and tested in accordance with NR467, Pt C, Ch 3, App 1 and comply with relevant provisions of NR467, Pt C, Ch 1, Sec 2. Engine bearing temperature monitors or equivalent devices used as safety devices have to be of a type approved by the Society for such purposes. (5) Testing and/or document review, as applicable (6) Testing as per NR467 and program accepted by the Society (7) As per technology and conditions set in the TA Note: During running, load tests, according to agreed program
	1- Crankcase explosion relief valves	TA (3) (4)	C (5)	X (6)	C (7)	
	2 - Oil mist detection, Regulation and safety devices	TA (3) (4) HBV		X (6)	W (7)	
E10	Pressure pipes (water, lubricating oil, fuel oil, and compressed air pipes), valves and other fittings	(1)	C / W (1)	X h	C	(1) See items G26 and G27
E11	Mass-produced diesel engines (1)	TA (1)	(1)	X ndt (1)	C (1)	(1) This item E11 is kept for information and records only; the terminologies "Mass-produced diesel engines" or "Mass production" are no longer used in NR467 (such consideration has been withdrawn since July 2016). For diesel engines, refer to item E1 and provisions of NR467, Pt C, Ch 1, Sec 2

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E12	Turbochargers (1) (2) (3)	TA				(1) Turbochargers are to be type approved, either separately or as a part of an engine. The requirements are written for exhaust gas driven turbochargers, but apply also, in principle, to engine driven chargers (2) The requirements escalate with the size of the turbochargers. The size parameter is the engine power (at MCR) supplied by a group of cylinders served by the actual turbocharger (e.g. for a V-engine with one turbocharger for each bank, the size is half of the total engine power) (3) Scavenging/auxiliary compressors or blowers: refer to item E8 (4) Categories B and C turbochargers: documentation for approval and type tests as per NR467, Pt C, Ch 1, Sec 16 (5) Chemical composition of material for the rotating parts; mechanical properties of the material of a representative specimen for the rotating parts and the casing (6) Works' inspection and testing as per NR467, Pt C, Ch 1, Sec 16 (7) UT and crack detection of rotating parts: Works' certificate (W); dimensional inspection of rotating parts: Works' certificate (W)
	1- Category C: Turbochargers having served power by cylinder groups > 2500 kW	TA (4)	W (5)	X h ndt (6) (7) (8) (9) (10)	C	(8) Rotor balancing: Class certificate (C) for category C turbochargers, Works' certificate (W) for category B turbochargers (9) Hydraulic testing of cooling spaces to 4 bars or 1,5 times the maximum working pressure, whichever is higher: Class certificate (C) for category C turbochargers, Works' certificate (W) for category B turbochargers (10) Overspeed test of all the compressor wheels for a duration of 3 minutes at either 20% above the alarm level speed at room temperature or 10% above the alarm level speed at 45°C inlet temperature when tested in the actual housing with the corresponding pressure ratio. The overspeed test may be waived for forged wheels that are individually controlled by an approved non-destructive method: Class certificate (C) for category C turbochargers, Works' certificate (W) for category B turbochargers
	2- Category B: Turbochargers having served power by cylinder groups > 1000 kW and ≤ 2500 kW	TA (4) HBV	W (5)	X h ndt (6) (7) (8) (9) (10)	W	(11) Category A turbochargers: documentation for approval as per NR467, Pt C, Ch 1, Sec 16, Table 1. (12) According to an agreed program
	3- Category A: Turbochargers having served power by cylinder groups ≤ 1000 kW	TA (11) HBV	W	X h ndt (12)	W	

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E13	Gas engines (1) (2) For ships with gas fuelled propulsion; the service notation is completed by one of the following additional service features: <ul style="list-style-type: none"> dualfuel for engines using both gas and fuel oil as fuel gasfuel for engines using only gas as fuel 	TA (3) (4)	C / W (3) (4) (5)	X (3) (4) (5)	C	(1) The gas may be either compressed natural gas or liquefied natural gas (2) Refer to specific requirements of NR529 Gas Fuelled Ships, and relevant provisions of NR467, Pt D, Ch 9, Sec 16 (3) The provisions of item E1 (Main and auxiliary diesel engines) regarding survey of engine components and evaluation of test results are to be complied with, as far as applicable (4) See also relevant provisions of NR467, Part C, Chapter 1, particularly NR467, Pt C, Ch 1, App 2 (5) For piping systems: see also the relevant provisions of NR216 and NR467, Pt C, Ch 1, Sec 10
E14	Chocking systems, chocking resins	TA (1)	W	X	C / W (2)	(1) As per NR467, NR467, Pt C, Ch 1, Sec 1 (2) As per conditions set in the TA



Item F - Main Turbines, Main Boilers, and their Auxiliaries

MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F1	Steam turbines (1) (all steam turbines, including propulsion steam turbines, steam turbines intended for auxiliary services essential for safety and navigation, or for driving cargo pumps in tankers)	DA		X (2)	C	(1) For mass-produced turbines which are requested to be type approved by the Society, the tests and trials on a prototype are to be carried out in the presence of the Surveyor. The minimum required attendance of the Surveyor at the production tests and trials will be agreed between the manufacturer and the Society on a case-by-case basis
	1- Rotating parts (turbine rotors, shafts, stiff and flexible couplings, bolts for couplings and other dynamically stressed parts, integral pinions and gears)		C (3)	X ndt (4) (5)	C	(2) Type tests, material tests, workshop inspection and testing, certification - as per NR467, Pt C, Ch 1, Sec 4
	2- Stationary parts (castings and plates for casings)		W (6)	X h ndt	C	(3) Material tests (all) and NDT: magnetic particle or liquid penetrant (all) and Ultrasonic or X Ray examination (sample)
	3- Blades		C (7)	X ndt	C	(4) Thermal stability test of rotors (solid forged and welded rotors of propulsion turbines are to be subjected to a thermal stability test where the service temperature exceeds 400°C; this test is to be carried out after heat treatment and rough machining or at a later stage of fabrication, in accordance with a procedure agreed by the Society)
	4- Piping, valves and associated fittings	(8)	C / W (8) (9)	X h ndt	C	(5) Balancing and overspeed test of rotors
	5- Regulation and safety devices			X (10)	C	(6) Material tests (all) and NDT: magnetic particle or liquid penetrant (spot as agreed between the Manufacturer and the Surveyor)
	6- Flexible coupling (11)	DA	C / W	X	C / W	(7) Material tests (sample) and NDT: magnetic particle or liquid penetrant (sample) and Ultrasonic or X Ray examination (sample)
	7- Measuring instruments (12)	TA		X (13)	C	(8) See items G26 and G27
	8- Turbine and nozzle casings		W (6)	X h ndt	C	(9) Material tests and NDT: as required in the relevant Sections of the Rules
	9- Intermediate coolers and heat exchangers (14)	DA	C	X h ndt	C	(10) Including overspeed tripping device test (11) See item G1 (12) Such as pressure gauges, thermometers, speed indicators, vibration detectors. Automation systems: see relevant provisions of item N (13) Accuracy (calibration) to be checked (14) See item G30 for pressure vessels
F2	Manoeuvring and distribution valves of item F1	DA	C (1)	X	C	(1) For casing only



MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F3	Main condensers	DA		X h	C	(1) Including chemical analysis (2) Hydraulic test, or examination as per agreed procedure Note: Running tests - during sea trials
	1- Tubes		C (1)	X h (2)		
	2- Tubes plates		C	X		
	3- Water boxes and shells			X		
F4	Turning gears of item F1			X	W	Note: Running tests - on board
F5	Circulating pumps and their prime movers			X	C	(1) Pump housing: material certificates (C / W) according to the piping class. See item G31 (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Circulating pumps		C / W (1)	X h	C	
	2- Prime movers (2)			X h	C	
F6	Lubricating oil pumps and their prime movers (1)			X	C	(1) See item E2 (2) Pump housing: material certificates (C / W) according to the piping class. See item G31 (3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Lubricating oil pumps		C / W (2)	X h	C	
	2- Prime movers (3)			X h	C	
F7	Extraction pumps and their prime movers (1)			X	C	(1) See item F5 (2) Pump housing: material certificates (C / W) according to the piping class. See item G31 (3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Extraction pumps		C / W (2)	X h	C	
	2- Prime movers (3)			X h	C	
F8	Air ejectors (1)			X h	C	(1) Or vacuum pumps and their non electrical prime movers Note: Running tests - on board, general examination
F9	Lubricating oil coolers (1)	DA	C (2)	X h	C	(1) See item E3 (2) For tubes and plates: chemical analysis supplied by the manufacturer
F10	Drain coolers (1)	DA	C (2)	X h	C	(1) And steam traps - see item G30 for pressure vessels (2) Casing only (material certificate W, if vessel class 2 or 3)

MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F11	Main boilers (1) and their accessories (2)	DA		X h	C	(1) See item G30 for pressure vessels (2) Automation systems: see relevant provisions of item N (3) If forming or welding (4) For cylindrical boilers only (internal test) (5) For tubes and headers of steam heaters only (6) And accessories, see item G27 (7) See item G27 (8) Capacity test on prototype (9) Setting and accumulation tests (10) See items G26 and G27 (11) For pressure pipes (12) As per conditions set in TA (13) Accuracy to be checked Note: Running tests - on board under load, during sea trials
	1- Drums and headers		C	X ndt h	C	
	2- Tubes		C	X h ndt (3)	C	
	3- Furnaces (e.g. cylindrical and vertical boilers)		C	X ndt h (4)	C	
	4- Longitudinal stays and screw stays		C	X	C	
	5- Superheaters (heaters, tubes)		C	X ndt h (3)	C	
	6- Economizers		C	X ndt h	C	
	7- Air heaters (5)		C	X ndt h	C	
	8- Valves (6)	(6)	C / W (6)	X h	C	
	9- Safety valves (7)	DA	C	X h (8) (9)	C	
	10- Miscellaneous pipes and flanges connecting various parts (headers, superheaters, etc.)		C (10)	X h (11)	C	
	11- Automatic burning system			X h	C	
	12- Level indicator pillars	TA		X h	C	
	13- Remote level indicators	TA		X h	C / W (12)	
	14- Pressure gauges and thermometers			X h (13)	C	



MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F12	Feed pumps of item F11 and their prime movers	DA		X	C	(1) See item G31 (2) Casing and assembling bolts (centrifugal pumps)
	1- Feed pumps (1)		C (2)	X h (3) (4)	C	(3) Main parts before assembling (4) Rotor balancing (centrifugal pumps)
	2- Prime movers (5)			X h	C	(5) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
F13	Feed water heaters (1)	DA	C (2)	X h	C	(1) And steam traps. See item G30 for pressure vessels (2) Casing only (material certificate W, if vessel class 2 or 3) Note: Running tests - on board, during sea trials
F14	Forced circulation pumps of item F11 and their prime movers	DA			C	(1) See item G31 (2) Casing and assembling bolts
	1- Forced circulation pumps (1)		C (2)	X h	C	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 Note: Running tests - on board during boiler tests
	2- Prime movers (3)			X h	C	
F15	Forced draught fans			X	W	(1) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 Note: Running tests - on board during boiler tests
	and their Prime movers (1)			X h	C	
F16	Burning units of item F11	DA (1)			C	(1) DA not required when the burning unit is already design approved as part of F11 / G15
	1- Pumps			X h	W	(2) See items G26 and G27
	2- Heaters	DA		X h	W	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	3- Filters			X h	W	(4) Calibration to be checked Note: Running tests - on board during boiler tests
	4- Valves and pipes, safety devices (2)		C	X h	W	
	5- Prime movers of pumps (3)			X h	W	
	6- Pressure gauges			X h (4)	W	

MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F17	Gas turbines including propulsion gas turbines, gas turbines intended for auxiliary services essential for safety and navigation Item F17 does not apply to mass-produced gas turbines (1)	TA (2)		X (3)	C	(1) 'Mass-produced' gas turbines are to be tested in accordance with agreed programme. The selection of the turbine to be tested from the production line is to be agreed upon with the Surveyor
	1- Rotating parts (compressors and turbine rotors, shafts, stiff and flexible couplings, bolts for couplings and other dynamically stressed parts, integral pinions and gears)		C (4)	X ndt (5) (6)	C	(2) Type tests: as per NR467
	2- Stationary parts (castings for casings intended for a temperature exceeding 230°C and plates for casings intended for a temperature exceeding 370°C or pressure exceeding 4 MPa)		W (7)	X h ndt	C	(3) Type tests, material tests, workshop inspection and testing, certification - as per NR467, Pt C, Ch 1, Sec 5
	3- Blades		C (8)	X ndt	C	(4) Material tests (all) and NDT: magnetic particle or liquid penetrant (all) and Ultrasonic or X Ray examination (sample)
	4- Piping, valves and associated fittings	(9)	C / W (9) (10)	X h ndt	C	(5) Thermal stability test of rotors (solid forged and welded rotors of propulsion turbines are to be subjected to a thermal stability test where the service temperature exceeds 400°C; this test is to be carried out after heat treatment and rough machining or at a later stage of fabrication, in accordance with a procedure agreed by the Society)
	5- Regulation and safety devices			X (11)	C	(6) Balancing and overspeed test of rotors
	6- Flexible coupling (12)	DA	C / W	X	C / W	(7) Material tests (all) and NDT: magnetic particle or liquid penetrant (spot as agreed between the Manufacturer and the Surveyor)
	7- Measuring instruments (13)	TA		X (14)	C	(8) Material tests (sample) and NDT: magnetic particle or liquid penetrant (sample) and Ultrasonic or X Ray examination (sample)
	8- Turbine and nozzle casings		W (4)	X h ndt	C	(9) See items G26 and G27
	9- Intermediate coolers and heat exchangers (15)	DA	C	X h ndt	C	(10) Material tests and NDT: as required in the relevant Sections of the Rules
						(11) Including overspeed tripping device test
						(12) See item G1
						(13) Such as pressure gauges, thermometers, speed indicators, vibration detectors. Automation systems: see relevant provisions of item N
						(14) Accuracy (calibration) to be checked
						(15) See item G30 for pressure vessels



Item G - Auxiliary Machinery

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G1	Clutches and flexible couplings (1) (for propulsive and auxiliary plants)	DA (2)				(1) See item G5 regarding main propulsion shafting components (2) As a general: when index DA is required, this may be done for a specific unit or using the type approval procedure (TA). Flexible couplings of non-standard type are to be considered on case-by-case basis with the Society
	1- when torque ≥ 1 kN.m		C (3)	X h (4)	C	(3) For metallic parts, i.e. shafts, flanges, power transmitting parts: material certificate C. Welds if any to be documented according to agreed specification
	2- when torque < 1 kN.m	(5)	W	X h (4)	C / W (5)	(4) For hydraulic or pneumatic equipment (5) In case of mass-produced items manufactured in series according to a defined type, document type required as stated at the type approval stage - As per conditions set in the TA
G2	Reduction gears, reverse reduction gears, and multipliers	DA	(1)	X (2)		(1) Material tests and non-destructive examination (pinions and wheel bodies, rims, plates and other elements intended for propulsion, gear casings of welded construction) as per NR216
	1- Reduction and/or reverse gears intended for propulsion plants:					(2) Survey of shafts and their connections (flange couplings, hubs, bolts pins) as per relevant provisions of item G5
	• with a transmitted power $P \geq 220$ kW		C	X h ndt (3) (4)	C	(3) Static balancing test of rotating components (in particular gear wheel and pinion shaft assemblies with the coupling part attached. Where $n^2 \cdot d \geq 1,5 \cdot 10^9$, gear wheel and pinion shaft assemblies are also to undergo a dynamic balancing test
	• with a transmitted power $P < 220$ kW		W		W	(4) Verification of cutting accuracy, meshing test, hydrostatic tests (hydraulic or pneumatic clutches, pressure piping, pumps casings, valves and other fittings)
	2- Other reduction and step-up gears:					Note: Running tests under load on board: during the sea trials, the performance of reverse and/or reduction gearing is to be verified. Shipboard tests to be carried out as per NR467, Pt C, Ch 1, Sec 17 for Machinery systems
	• with a transmitted power $P \geq 110$ kW		C	X h ndt (2) (3)	C	
G3	Main thrust blocks (1)	DA	C (2)	X ndt (3) (4)	C	(1) See item G5 regarding main propulsion shafting components
						(2) For frame only (3) If of welded construction (4) Examination after running test Note: Running tests under load on board

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G4	Thrust shafts, intermediate shafts, shaft couplings and rigid shaft couplings (dismountable type) (1)	DA	C	X ndt (2)	C	(1) See item G5 regarding main propulsion shafting components (2) If welded construction or shrunk elements
	Cardan shafts (flanges, crosses, shafts, yokes) (1)	DA	C	X ndt	C	Note: a- on board: contact on bearing to be examined b- checking of fitting
G5	Main propulsion shafting (1) (shafts, couplings, clutches and other shafting components transmitting power for main propulsion)	DA		X h ndt (2)	C	(1) For shafting components in diesel engines, turbines, gears and thrust-ers, refer to relevant items of this NR266 (2) Parts of hydraulic couplings, clutches of hydraulic reverse gears and control units, hubs and hydraulic cylinders of controllable pitch pro-pellers, including piping systems and associated fittings, are to be hy-drostatically tested to 1,5 times the maximum working pressure. Works' certificates W required
	1- Coupling (separate from shafts)	DA	C (3)	X ndt	C	(3) Material tests (all) and NDT: magnetic particle or liquid penetrant (all, if diameter > 100 mm) and ultrasonic examination (all, if diameter > 200 mm). In case of rolled bars used in place of forgings: material tests (all) and NDT (all, if diameter > 150 mm)
	2- Propeller shafts	DA	C (3)	X ndt	C	(4) Stern tube sealing glands: see item G40
	3- Intermediate shafts	DA	C (3)	X ndt	C	(5) Material tests (all); NDT not required
	4- Thrust shafts	DA	C (3)	X ndt	C	(6) Also see relevant provisions of items A10 and A11 (for Steel castings and Steel forgings)
	5- Cardan shafts (flanges, crosses, shafts, yokes)	DA	C (3)	X ndt	C	(7) Stern tubes, when machine-finished, and propeller shaft liners, when machine-finished on the inside and with an overthickness not exceed-ing 3 mm on the outside, are to be hydrostatically tested to 0,2 N/mm ² . Works' certificates W required
	6- Stern tubes (4)	DA	W (5)(6)	X h ndt (7)	W	(8) Design assessment index, for stern tube bearings: TA for synthetic ma-terials only, as per NR467, Pt C, Ch 1, Sec 7, [2.4]
	7- Stern tube bushes and other shaft bearings	TA (8) / DA	W (5)	X	W (9)	(9) For shafting component completely built under control together with the propulsion shaft and data fully addressed in the main manufacturer's file
	8- Propeller shaft liners	DA	W (5)	X h (7)	W	(10) For special bolts (i.e. expansion type), product certificate C is required
	9- Coupling bolts or studs	DA	W (5)	X	W / C (10)	(11) For metallic parts, i.e. shafts, flanges, power transmitting parts: material certificate C or W depending on the agreed survey scheme. Welds if any to be documented according to agreed specification
	10- Flexible couplings	DA	C / W (5) (11)	X	C / W (12)	(12) See item G1
	11- Thrust sliding-blocks (frame)	DA	W (5)	X	W	Note: During sea trials, the lubricant consumption is to be recorded

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G6	Shaft bearings	DA (1)	W (2) (3)	X	W / C (1) (4)	(1) Case-by-case individual design appraisal and survey may be required, i.e. when the data of Shaft Bearings are not available in manufacturer's file and are therefore addressed separately by the bearings supplier (2) Material tests (all); NDT not required (3) See also provisions of item G5 regarding main propulsion shafting components (sub-item 7- Stern tube bushes and other shaft bearings) (4) Product certificate C covers the examination and test performed in the bearings supplier's workshop only, and witnessed by the Surveyor Note: Checking of the alignment on board
G7	Coupling bolts for items G1 , G2 , G4 and G5	DA	W (1)	X ndt (2)	W / C (3)	(1) See also provisions of item G5 regarding main propulsion shafting components (2) Material tests (mechanical properties and chemical composition) and NDT - as per NR216, Ch 5. (3) For special bolts (i.e. expansion type), product certificate C is required Note: Checking of fitting on board
G8	Stern tubes	DA	W (1) (2)	X h ndt (3) (4)	W	(1) See also provisions of item G5 (main propulsion shafting components) (2) See also relevant provisions of items A10 and A11 (for Steel castings and Steel forgings) (3) Stern tubes, when machine-finished, are to be hydrostatically tested to 0,2 N/mm ² . Works' certificates W required (4) Watertightness (for cast steel or cast iron tubes) Note: Checking of fitting on board
G9	Propellers (1) (2) (propellers of any size and type intended for propulsion, including fixed and controllable pitch propellers, as well as those ducted in fixed nozzles)	DA or TA (3)		X h ndt (4) (5)	C	(1) As per NR467, Pt C, Ch 1, Sec 8. These requirements do not apply to propellers and impellers in rotating or bow and stern thrusters (which are covered in NR467, Pt C, Ch 1, Sec 14); or to propellers for ships with ice strengthening (which are covered in NR467, Pt F, Ch 8, Sec 3) (2) Navigation in polar waters: refer to the requirements for the assignment of additional class notation POLAR CLASS , as per NR527 - Rules for the Classification of Ships Operating in Polar Waters and Icebreakers (3) 'Mass produced' propellers: type approval as per NR467 and program accepted by the Society
	1- Solid propeller	DA	C (6)	X ndt	C	
	2- Built-up propeller, and controllable pitch propellers (CPP) with hydraulic system. (7) (8)	DA	C (6) (9)	X ndt (10)	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G9						(4) a- balancing: finished propellers are to be statically balanced in accordance with the specified ISO 484 tolerance class. However, for built-up and controllable pitch propellers, the required static balancing of the complete propeller may be replaced by an individual check of blade weight and gravity centre position. Refer also to NR216, Ch 8, Sec 3, [1.9.4] b- contact of the propellers shaft cone to be checked (5) Running test: for controllable pitch propellers (CPP) (6) Materials tests and non-destructive examination as per NR216. Manufacturers of castings for propellers are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480. (7) Actuating systems of CPP are considered as primary 'essential services' (services which need to be maintained in continuous operation) (8) See items G42 (Hydraulic systems) (9) Additionally, the materials for studs and for all other parts of the mechanism transmitting torque are to be tested in the presence of the Surveyor (10) The complete hydraulic system for the control of the controllable pitch propeller mechanism is to be hydrotested at a pressure equal to 1,5 times the design pressure. The proper operation of the safety valve is to be tested in the presence of the Surveyor. See items G26 , G27 and G31
G10	Turbines driving electric generators (1)	DA or TA	C	X	C	(1) For such turbines, the relevant provisions are those of item F1 for steam turbines or item F17 for gas turbines, as applicable
G11	Diesel engines driving electric generators (1)	TA	C	X	C	(1) For such diesel engines, the relevant provisions are those of item E1 , as applicable
G12	Lubricating oil pumps and their prime movers (1)					(1) Lube oil pumps for the propulsive plant (2) See item G31 (3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Lubricating oil pumps	(2)	(2)	X (2)	(2)	
	2- Prime movers (3)			X h	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G13	Starting air receivers of item G11 (1) (2)	DA or TA (3)	C	X h ndt (4)	C	(1) See item G30 for pressure vessels (2) Also see provisions of item E5 , as applicable (3) Air Starters are part of Starting equipment of diesel engines. Equipment for primary 'essential services' as per NR467, Pt C, Ch 2, Sec 1. Product certificate required for Air Starters: C/W, as per conditions set in the TA (IBV/HBV) (4) Including calibration of safety devices
G14	Air compressors for filling of item G13 and their prime movers (1) (2)	DA				(1) Together with coolers, if any (2) Also see provisions of item E6 , as applicable
	1- Air compressors		W (3)	X h	C	(3) Compressor housing: material certificates (C / W) according to the piping class. See item G31
	2- Prime movers (4)			X h	C	(4) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
G15	Auxiliary boilers (1) (2)	DA		X h ndt	C	(1) Item G15 applies to auxiliary boilers (class 1) which are part of the ship's essential services and/or located in machinery spaces. Vessel classification as per criteria of item G30
	1- Boilers and drums		C	X h ndt (3)	C	(2) Automation systems: see relevant provisions of item N
	2- Tubes		C	X h	C	(3) If forming or welding operations
	3- Furnaces (cylindrical and vertical boilers for instance)		C	X h ndt (4)	C	(4) For cylindrical boilers only (internal test)
	4- Screw stays and longitudinal stays		C	X h	C	(5) See item G27
	5- Valves and miscellaneous accessories	(5)	C / W (5)	X h	C	(6) Capacity test on prototype
	6- Safety valves	(4)	C	X h (6) (7)	C	(7) Setting and accumulation test
	7- Level indicators	TA		X	C	(8) Calibration to be checked
	8- Pressure gauges and thermometers			X (8)	C	Note: Running tests - on board



AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G16	Burning units for item G15 (1)	DA	C / W (1)	X	C	(1) See item F16
G17	Auxiliary condensers and their tubes					(1) Or examination as per agreed procedure Note: Running tests under load on board; general examination
	1- Auxiliary condensers		W	X h	C	
	2- Tubes		W	X h (1)	C	
G18	Auxiliary units of item G17					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5 Note: Running tests on board
	1- Pumps	(1)	(1)	X (1)	(1)	
	2- Air ejectors			X	W	
	3- Valves and miscellaneous accessories			X h	C	
	4- Prime movers of 1-			X h (2)	C	
G19	Feed pumps of item G15 and their prime movers					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Feed pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	C	
G20	Evaporators, fresh water generators, their auxiliaries and accessories (1)	DA			C (3)	(1) Fresh water generator: class product certificate when required by the Rules NR467, and when not in class III. (2) As per criteria of item G30 (3) See item G31 Note: Running tests on board; general examination
	1- Distillation bodies and heating coils	DA (2)	C / W (2)	X h ndt	C	
	2- Pumps	(3)	(3)	(3)	(3)	
	3- Air ejectors			X	W	
	4- Valves and miscellaneous accessories			X h	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G21	Steam heated steam generators	DA (1)	C (2)	X h ndt	C	(1) Same criteria as for item G15 (2) As per criteria of item G30 Note: Running tests under load, on board
G22	Bilge pumps and their prime movers					(1) See item G31 (2) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See item G31 (3) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Bilge pumps	(1)	(1)	X (1) (2)	(1)	
	2- Prime movers (3)			X h	C	
G23	Ballast pumps and their prime movers (1)					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Ballast pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	W	
G24	Fuel transfer pumps and their prime movers					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Fuel transfer pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	C	
G25	Fuel oil purifying unit; Centrifugal separator (oil and fuel)	DA or TA		X (1)	C	(1) Running test, possibly with a fuel water mixture (2) See item G28 (3) See relevant provisions of item K (4) See item N (5) Checking of the following automatic functions when they are required by an automation mark: level of sludge tank and overflow from the bowl (protection and alarm) (6) As per technology; see relevant provisions of items G26 (Piping) or G30 (Vessels)
	1- Flexible hoses	TA (2)	W (2)	X h	C (2)	
	2- Electrical equipment (motor, switchboards, cables) (3)	(3)		X	C	
	3- Automation equipment (4)	(4)		X (5)	C	
	4- Centrifugal separators (6)	(6)	W	X h	C	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G26	Raw pipes and piping systems (1) (2) P: Design pressure, in MPa T: Design temperature, in °C N: Nominal diameter of the pipe, valve or fitting, in mm					(1) General Notes: <ul style="list-style-type: none"> Piping systems are subdivided into three classes, denoted as class I, class II and class III. Definitions of the classes of piping systems as per NR467, Pt C, Ch 1, Sec 10, Tab 3 (systems not covered by this Tab 3: cargo piping for oil tankers, gas tankers and chemical tankers, and fluids for refrigerating plants) For cargo piping of specialized ships, see item H for liquefied gas carriers and item I for oil/FLS tankers and chemical tankers. See item G35 for refrigerating installations Valves under static pressure on oil fuel tanks or lubricating oil tanks belong to class II Valves and fittings fitted on the ship side and collision bulkhead belong to class II. See NR467, Pt C, Ch 1, Sec 10, [20.5.3], item b) The open ended pipes, irrespective of T, generally belong to class III (as drains, overflows, vents, exhaust gas lines, boiler escape pipes, etc.) Metallic materials are to be used in accordance with NR467, Pt C, Ch 1, Sec 10, Tab 5 Materials for class I and class II piping systems are to be manufactured and tested in accordance with the appropriate requirements of NR216 (materials for class III piping systems are to be manufactured and tested in accordance with the requirements of acceptable National or International standards or specifications) As general, survey during fabrication is required for all piping systems of welded construction (2) Also see particular requirements as per NR216, Chapter 4 regarding seamless and welded steel pipes, tubes and fittings intended for boilers, pressure vessels and systems operating at ambient, high or low temperature. (3) Safeguards for reducing leakage possibility and limiting its consequences: e.g. pipes led in positions where leakage of internal fluids will not cause a potential hazard or damage to surrounding areas which may include the use of pipe ducts, shielding, screening, etc. (4) If of welded construction
	1- Toxic media					
	Class I: without special safeguards (3), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (3), ND < 50		W	X h ndt (4)	W	
	Class II: not applicable					
	Class III: not applicable					
	2- Corrosive media					
	Class I: without special safeguards (3), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (3), ND < 50		W	X h ndt (4)	W	
	Class II: with special safeguards (3), ND ≥ 100		C	X h ndt (4)	C	
	Class II: with special safeguards (3), ND < 100		W	X h ndt (4)	W	
	Class III: not applicable					
	3- Flammable media (5) heated above flashpoint, or having flashpoint < 60°C Liquefied gas					
	Class I: without special safeguards (3), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (3), ND < 50		W	X h ndt (4)	W	
	Class II: with special safeguards (3), ND ≥ 100		C	X h ndt (4)	C	
	Class II: with special safeguards (3), ND < 100		W	X h ndt (4)	W	
	Class III: not applicable					
	4- Oxyacetylene					
	Class I: irrespective of p, ND ≥ 50		C	X h ndt (4)	C	
	Class I: irrespective of p, ND < 50		W	X h ndt (4)	W	
	Class II: not applicable					
	Class III: not applicable					

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G26	5- Steam					(5) Flammable media generally include the flammable liquids as oil fuel, lubricating oil, thermal oil and flammable hydraulic oil
	Class I: $p > 1,6$ or $T > 300$, $ND \geq 50$		C	X h ndt (4)	C	(6) Pressure and temperature conditions other than those required for class I and class III
	Class I: $p > 1,6$ or $T > 300$, $ND < 50$		W	X h ndt (4)	W	(7) Design pressure for fuel oil systems is to be determined in accordance with NR467, Pt C, Ch 1, Sec 10, Tab 4
	Class II: other (6), $ND \geq 100$		C	X h ndt (4)	C	(8) Steering gear hydraulic piping system belongs to class I irrespective of p and T
	Class II: other (6), $ND < 100$		W	X h ndt (4)	W	(9) Including water, air, gases, non-flammable hydraulic oil
	Class III: $p \leq 0,7$ and $T \leq 170$			X h	W	(10) Plastics may be used for piping systems belonging to class III in accordance with NR467, Pt C, Ch 1, App 3. Plastic includes both thermoplastic and thermosetting plastic materials with or without reinforcement, such as PVC and FRP (reinforced plastics pipes). Approval and use of plastic pipes: as per provisions of NR467, Pt C, Ch 1, App 3. See item G39
	6- Thermal oil					(11) As per conditions set in the TA
	Class I: $p > 1,6$ or $T > 300$, $ND \geq 50$		C	X h ndt (4)	C	
	Class I: $p > 1,6$ or $T > 300$, $ND < 50$		W	X h ndt (4)	W	
	Class II: other (6), $ND \geq 100$		C	X h ndt (4)	C	
	Class II: other (6), $ND < 100$		W	X h ndt (4)	W	
	Class III: $p \leq 0,7$ and $T \leq 150$			X h	W	
	7- Fuel oil (7), lubricating oil, flammable hydraulic oil (8)					
	Class I: $p > 1,6$ or $T > 150$, $ND \geq 50$		C	X h ndt (4)	C	
	Class I: $p > 1,6$ or $T > 150$, $ND < 50$		W	X h ndt (4)	W	
	Class II: other (5-6), $ND \geq 100$		C	X h ndt (4)	C	
	Class II: other (5-6), $ND < 100$		W	X h ndt (4)	W	
	Class III: $p \leq 0,7$ and $T \leq 60$			X h	W	
	8- Other media (8) (9)					
	Class I: $p > 4,0$ or $T > 300$, $ND \geq 50$		C	X h ndt (4)	C	
	Class I: $p > 4,0$ or $T > 300$, $ND < 50$		W	X h ndt (4)	W	
	Class II: other (6), $ND \geq 100$		C	X h ndt (4)	C	
	Class II: other (6), $ND < 100$		W	X h ndt (4)	W	
	Class III: $p \leq 1,6$ and $T \leq 200$			X h	W	
	9- Pipes between fuel pumps and diesel engine injectors	TA	C	X h	C	
	10 - Plastic pipes (10)	TA (10)	C / W (11)	X h (10)	C / W (11)	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G27	Accessories of pipes Valves and fittings (1) (2) ND: Nominal diameter of the pipe, valve or fitting, in mm					(1) Such as valves, steam traps, relief valves, safety devices, etc. (2) For cargo valves: refer to relevant provisions of items H17 and I14 (Cargo handling and containment systems)
	Class I: ND ≥ 50 Class II: ND ≥ 100	(3)	C	X h ndt (4)	C	(3) DA not required. Valves and accessories are normally to be built in accordance with a recognised standard. Otherwise, they are subject to special consideration for approval by the Society (on a case-by-case basis)
	Class I: ND < 50 Class II: ND < 100	(3)	W	X h ndt (4)	C	(4) If of welded construction
	Class III			X h	W	
G28	Flexible hoses assembly (1)	TA (2) (3)	W	X h (4)	C (5) (6)	(1) Short length of metallic or non-metallic hose with end fittings ready for installation (2) Prototype testing: see NR467, Pt C, Ch 1, Sec 10, [2.6] (type approval) and [20.2] (type tests) (3) Specific requirements for flexible hoses intended for cargo pipe lines are given in NR467, Part D, Chapter 7 (Oil tankers), Part D, Chapter 8 (Chemical tankers) and Part D, Chapter 9 (Liquefied gas carriers) (4) Each flexible hose together with its connections, is to undergo a hydraulic test under a pressure at least equal to 1,5 times the maximum service pressure. (during the test, the flexible hose assembly is to be repeatedly deformed from its geometrical axis) as per NR467, Pt C, Ch 1, Sec 10, [20.5.6], item a) (5) As per conditions set in the TA (6) Where a flexible hose assembly is made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing
G29	Pipes, valves and fittings connected to: <ul style="list-style-type: none"> the ship side the collision bulkhead fuel oil and lubricating oil tanks and under static pressure 	DA (1)	C (2)	X h (3) ndt (4)	C	(1) Index DA for nominal diameter ≥ 100 mm (2) If nominal diameter ND ≥ 100 mm: material certificate C (class). If nominal diameter ND < 100 mm: material certificate W (works') (3) Examination and testing as per relevant provisions of NR467, Pt C, Ch 1, Sec 10, [40]. (4) If of welded construction


AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G30	Pressure vessels (1) (2) p: Design pressure, in MPa V: Volume, in litres T: Design temperature, in °C t _A : Actual thickness of the vessel, in mm		(3) (4)		(5)	<p>(1) Item G30 applies to all fired or unfired pressures vessels of metallic construction, all boilers and other steam generators, including the associated fittings and mountings with maximum allowable pressure greater than 0,5 bar above atmospheric pressure; with the exception of those indicated in NR467, Pt C, Ch 1, Sec 3, [1.2.2] which are to be considered on a case-by-case basis. The acceptance of national and international standards as an alternative to the requirements of the Rules may be considered by the Society on a case-by-case basis. Pressure vessels are subdivided into three classes, denoted as class I, class II and class III. Definitions of the classes as per NR467, Pt C, Ch 1, Sec 3, Tab 2 (whenever the class is defined by more than one characteristic, the equipment is to be considered belonging to the highest class of its characteristics, independently of the values of the other characteristics)</p> <p>(2) For starting air receivers and liquefied gas cargo tanks, see also items E5 and H1, and items H34, U1 and U38.</p> <p>(3) For class 1 'mass produced' small pressure vessels and heat exchangers: materials certificate C may be waived, and materials certificate W accepted at the Society's discretion for 'mass produced' small pressure vessels (such as accumulators for valve controls, gas bottles, etc.)</p> <p>(4) In addition to the requirement of this column: testing of materials intended for the construction of pressure parts of boilers, other steam generators, oil fired thermal oil heaters and exhaust gas thermal oil heaters is to be witnessed by the Surveyor; material certificate C</p> <p>(5) Product certificate W (works') may be accepted for 'mass produced' small pressure vessels of class 1, 2 and 3 which are type approved by the Society</p>
	1- Steam generators or boilers					
	Class 1: (p > 3,2 and V > 2) or (p V > 20 and V > 2)	DA	C	X h ndt	C	
	Class 2: if not class 1 or class 3	DA	W (4)	X h ndt	C	
	Class 3: p V ≤ 5 or V ≤ 2		W (4)	X h ndt	C	
	2- Pressure vessels for toxic substances					
	Class 1: all in class 1	DA	C	X h ndt	C	
	3- Pressure vessels for corrosive substances					
	Class 1: p > 20 or p V > 20 or T > 350	DA	C	X h ndt	C	
	Class 2: if not in class 1	DA	W	X h ndt	C	
	4- Pressure vessels for gaseous substances					
	Class 1: p > 100 or p V > 300	DA	C	X h ndt	C	
	Class 2: V > 1 and p V > 100 and not in class 1	DA	W	X h ndt	C	
	Class 3: all pressure vessels which are not class 1 or class 2		W	X h ndt	C	
	5- Pressure vessels for liquid substances					
	Class 1: V > 10 and p V > 1000 and p > 50	DA	C	X h ndt	C	
	Class 2: (V ≤ 10 and p > 100) or (1 < p ≤ 50 and p V > 1000)	DA	W	X h ndt	C	
	Class 3: all pressure vessels and heat exchangers which are not class 1 or class 2		W	X h ndt	C	
	6- Pressure vessels for thermal oil					
	Class 1: p > 1,6 or T > 300	DA	C	X h ndt	C	
	Class 2: if not class 1 or class 3	DA	W (4)	X h ndt	C	
	Class 3: p ≤ 0,7 and T ≤ 150		W (4)	X h ndt	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G30	7- Pressure vessels for fuel oil, lubricating oil or flammable hydraulic oil					
	Class 1: $p > 1,6$ or $T > 150$	DA	C	X h ndt	C	
	Class 2: if not class 1 or class 3	DA	W	X h ndt	C	
	Class 3: $p \leq 0,7$ and $T \leq 60$		W	X h ndt	C	
	8- Whatever type of equipment					
	Class 1: $t_A > 40$	DA	C	X h ndt	C	
	Class 2: $15 \leq t_A \leq 40$	DA	W	X h ndt	C	
G31	Pumps and compressors (1) within piping systems covered by Sections of NR467, Part C, Chapter 1	(2)				(1) Also see provisions of item E6, as applicable - Air compressors (crank-cases explosion relief valves) (2) For other pumps and compressors, see additional Rules relevant for related system (3) If not already addressed within the scope of the piping system approval (4) Type tests of hydraulic pumps for Steering gears as per NR467. See provisions of item B1 (5) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See items G22, C32 and J1 (6) DA not applicable to bilge pumps. DA is required for fire pumps. Also see provisions of item C32 (7) See item F12 (8) If of welded construction (9) General examination of main parts before assembling. In addition, balancing test for rotors of centrifugal feed pumps for main boilers, as required in NR467, Pt C, Ch 1, Sec 10 (10) See item F14
	1- When belonging to a class I piping system	DA (3) (4)	C	X h	C	
	2- When belonging to a class II piping system		W	X h	C	
	3- Bilge and fire pump (5)	DA (6)	W	X h (5)	C	
	4- Feed pumps for main boilers (7)	DA (3)	C	X h ndt (8) (9)	C	
	5- Forced circulation pumps for main boilers (10)	DA (3)	C	X h	C	
	6- When belonging to one of the following class III piping systems if design pressure exceeds 0,35 MPa: - boiler feed water or forced circulating - fuel oil or other flammable oil - compressed air		W	X h	C	
	7- When belonging to other class III piping systems			X h	W	
G32	Centrifugal separators (1)	(2)	W	X h	C	(1) See item G25 (2) As per technology - see relevant provisions of items G26 (Piping) or G30 (Vessels)

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G33	Prefabricated pipe lines (1) ND: Nominal diameter of the pipe, valve or fitting, in mm	(2)				(1) Item G33 applies to prefabricated pipes and associated fittings (2) Valves and accessories are normally to be built in accordance with a recognised standard. Otherwise, they are subject to special consideration for approval by the Society (on a case-by-case basis) (3) If of welded construction
	• class I and class II with $ND \geq 65$ or $t \geq 10$	DA	W	X h ndt (3)	C	
	• class I and class II with $ND < 65$ and $t < 10$		W	X h ndt (3)	W	
	• class III where $P > 0,35$ MPa, as follows: - steam pipes and feed water pipes - compressed air pipes - fuel oil or other flammable oil pipes			X h	W	
G34	Thrusters (1) (2) and their prime movers (3) A thruster is a propeller installed in a revolving nozzle or in a special transverse tunnel in the ship, or a water-jet (propulsion propellers in fixed nozzles are not considered as thrusters; see item G9) The requirements given in item G34 apply to the following types of thrusters developing a power $P \geq 110$ kW (4):	DA or TA (5)		X h ndt (6)	C	(1) Thrusters: as per NR467, Pt C, Ch 1, Sec 15. For azimuth thrusters intended for dynamic positioning, the additional requirements in NR467, Part F, Chapter 4 are to be complied with. Thrusters intended for propulsion and steering of ships with an ICE CLASS notation are to comply with the additional requirements of NR467, Part F, Chapter 8. Transverse thrusters intended for manoeuvring of ships with an ICE CLASS notation are required to comply with the additional requirements in NR467, Pt F, Ch 8, Sec 3, [2.4.1] - (for design requirements) (2) Navigation in polar waters: refer to the requirements for the assignment of additional class notation POLAR CLASS , as per NR527 Rules for the Classification of Ships Operating in Polar Waters and Icebreakers (3) Prime movers are to be tested in accordance with the requirements applicable to the type of mover used. For other thruster components such as gears, shaft, couplings, etc., refer to the applicable requirements of NR467 (4) Thrusters developing power less than 110 kW are to be built in accordance with sound marine practice and tested as required by the Rules to the satisfaction of the Surveyor (5) 'Mass produced' propellers may be accepted within the framework of the type approval program of the Society (6) Survey of thrusters as per the applicable requirements of NR467, Pt C, Ch 1, Sec 8, [4.2]. The survey requirements of NR467, Pt C, Ch 1, Sec 8 also apply to Thrusters of ships with an ICE CLASS notation -as per NR467, Part F, Chapter 8
	1- Transverse thrusters intended for manoeuvring	DA	W (7) (8)	X ndt	C	
	2- Thrusters intended for propulsion and steering	DA	C (8) (9)	X ndt	C	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
						<p>(7) Material testing for parts of transverse/athwartship thrusters does not need to be witnessed by a Surveyor, provided test reports are made available to him</p> <p>(8) For requirements relative to material intended for propellers See NR467, Pt C, Ch 1, Sec 8, [2.1.1]. For the requirements relative to materials intended for other parts of the thrusters, such as gears, shaft, couplings, etc., refer to the applicable parts of NR467</p> <p>(9) All materials intended for parts transmitting torque and for propeller/impeller blades are to be tested in accordance with the requirements of NR216. See item G9</p>
G34	Refrigerating installations on all ships; minimum requirements (1)	DA				<p>(1) Where one or more of the following additional class notations REF-CARGO, REF-CONT, REF-STORE, -AIRCONT, -PRECOOLING, -QUICKFREEZE is (are) requested, the applicable requirements of NR467, Part F, Chapter 7 are to be complied with. See item M</p> <p>(2) See item G30. Vessels intended to contain ammonia or toxic substances are to be considered as class 1 pressure vessels</p> <p>(3) Where ammonia is the refrigerant, copper, bronze, brass and other copper alloys are not to be used)</p> <p>(4) Notch toughness of steels used in low temperature plants is to be suitable for the thickness and the lowest design temperature</p> <p>(5) Materials used for the pipes are to be appropriate to the fluids that they convey. Copper, brass, bronze and other copper alloys are not to be used for pipes likely to convey ammonia (methods proposed for joining such pipes are to be submitted to the Society for consideration)</p> <p>(6) Notch toughness of the steels used is to be suitable for the application concerned</p> <p>(7) If not already addressed within the scope of the system drawing approval</p> <p>(8) See also item G26</p> <p>(9) If of welded construction</p> <p>(10) Use of plastic pipes to be considered by the Society on a case-by-case basis. See item G39</p> <p>(11) Statutory requirements: particular attention is to be paid to any limitation on the use of refrigerants imposed by the Administration of the State whose flag the ship is flying</p>
	1- Pressure vessels and heat exchangers (2)	DA (3) (4) (5) (6) (7)	C / W (3) (4)	X h ndt	C	
	2- Piping systems, refrigerant pipes are to be considered as belonging to the following classes: (8)		(8)			
	- class I: where they are intended for ammonia (NH ₃) or toxic substances		C (5) (6)	X h ndt (9)	C	
	- class II: for other refrigerants		C (5) (6)	X h ndt (9)	C	
	- class III: for brine		W	X h	W	
	- plastic pipes (10)	TA (10)	W (10)	X h (10)	C (10)	
	3- Refrigerants (11)					
G35	- toxic or flammable refrigerants: subject to special consideration by the Society					<p>(7) If not already addressed within the scope of the system drawing approval</p> <p>(8) See also item G26</p> <p>(9) If of welded construction</p> <p>(10) Use of plastic pipes to be considered by the Society on a case-by-case basis. See item G39</p> <p>(11) Statutory requirements: particular attention is to be paid to any limitation on the use of refrigerants imposed by the Administration of the State whose flag the ship is flying</p>
	- ammonia (R717): subject to specific requirements					
	- prohibited refrigerants: Methyl chloride, R11-Trichloromonofluoromethane (C Cl ₃ F), Ethane, Ethylene, and other substances with lower explosion limit in air of more than 3,5%		W		W	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G36	Mechanical joints (1)	TA HBV (2)	W (3)	X h ndt (4)	W (5)	<p>(1) Mechanical joints, i.e. pipe unions, compression couplings, slip-on joints or similar joints (as per NR467, application of mechanical joints and their acceptable use for each service is depending on the class of piping, pipe dimensions, working pressure and temperature)</p> <p>(2) See NR467, Pt C, Ch 1, Sec 10. Mechanical joints are to be approved based on type approval procedure defined in NR467, Pt C, Ch 1, App 5. Prototype tests to be carried out in accordance with a program agreed by the Society</p> <p>(3) The materials used for mechanical joints are to comply with the requirements of NR467, Pt C, Ch 1, Sec 10, [2.4.5]. The manufacturer has to submit evidence to substantiate that all components are adequately resistant to working the media at design pressure and temperature specified. See also item G27</p> <p>(4) If of welded construction</p> <p>(5) As per conditions set in the TA</p> <p>Note: The installation of mechanical joints is to be in accordance with the manufacturer's assembly instructions. Where special tools and gauges are required for installation of the joints, they are to be supplied by the manufacturer</p>
G37	Expansion joints (1)	TA (2) (3) (4) (5) (6) (7)	W	X h ndt (8)	C (4)	<p>(1) An assembly of metallic or non-metallic material designed to safely absorb the heat-induced expansion and contraction to allow relative movement</p> <p>(2) Prototype testing: see NR467, Pt C, Ch 1, Sec 10, [2.6] (type approval) and [20.2] (type tests)</p> <p>(3) All flexible hose assemblies or expansion joints are to be satisfactorily prototype burst tested to an international standard to demonstrate they are able to withstand a pressure not less than 4 times its design pressure without indication of failure or leakage. Exemptions from this requirement may be granted for expansion joints of large diameter used on sea water lines and to large diameter expansion joints used on exhaust gas lines, except for those which are fitted directly on engines (TA required)</p> <p>(4) As per conditions set in the TA. Where an expansion joint is made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing</p>



AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G37						<p>(5) Specific requirements for expansion joints intended for cargo pipe lines are given in NR467, Part D, Chapter 7 (Oil tankers), Part D, Chapter 8 (Chemical tankers) and Part D, Chapter 9 (Liquefied gas carriers)</p> <p>(6) For exhaust gas system, required test at 1,5xP only.</p> <p>(7) Expansion joints not accepted on HP fuel oil injection systems.</p> <p>(8) Each expansion joint, together with its connections, is to undergo a hydraulic test under a pressure at least equal to 1,5 times the maximum service pressure (during the test, the joint is to be repeatedly deformed from its geometrical axis) as per NR467, Pt C, Ch 1, Sec 10, [20.5.6], item a)</p>
G38	Expansion bellows (1)	TA	W	X h ndt	C	(1) See relevant provisions of item G37 (Expansion joints)
G39	Plastic pipes (1) (2)	TA (3)	C / W (4)	X h (3)	C / W (4)	<p>(1) Plastics may be used for piping systems belonging to class III in accordance with NR467, Pt C, Ch 1, App 3. The use of plastics for other systems or in other conditions will be given special consideration</p> <p>(2) Plastic includes both thermoplastic and thermosetting plastic materials with or without reinforcement, such as PVC and FRP (reinforced plastics pipes)</p> <p>(3) Type approval of plastic pipes: as per NR467, Pt C, Ch 1, App 3. See item G26</p> <p>(4) As per conditions set in the TA</p>

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G40	Stern tube sealing glands (1) <ul style="list-style-type: none"> • Stern tube seals • Sealing glands • Oil sealing glands 	DA or TA (2) (3) (4)	C / W (5)	X	C / W (5)	(1) See also item G5 (2) Based on the type of shaft and its design, the tailshafts (propeller shafts and tube shafts) may be eligible for modified periodicity of complete survey in service; see NR467, Pt A, Ch 2, Sec 2, [5.5]. Suitable sealing glands are glands which are type-approved by the Society with regard to protection of the stern tube against ingress of water (3) The additional class notation MON-SHAFT is assigned, in accordance with NR467, Pt A, Ch 1, Sec 2, [6.6.3], to ships fitted with oil or water lubricated systems for tailshaft bearings complying with the requirements of NR467, Pt F, Ch 5, Sec 2. The assignment of this notation allows a reduced scope for complete tailshaft surveys; see NR467, Pt A, Ch 2, Sec 2, [5.5] (4) Sealing glands are to be provided with an oil leak prevention air seal or the stern tube oil is to be of a non-toxic and biodegradable quality approved in accordance with recognized standards. Refer to NR467, Pt F, Ch 9, Sec 2, [2], Design requirements for the additional class notation CLEANSHIP (Stern tube leakage) (5) As per conditions set in the TA
G41	Hydraulic motors, hydraulic pumps (1)	DA (2)	C / W (2)	X h	C / W (3)	(1) Within piping systems covered by NR467, Part C, Chapter 1, when belonging to class I, II or III piping systems (2) Same considerations as for Pumps. See item G31 (material certificates according to the piping class) (3) Product certificate W for hydraulic pumps or hydraulic motors belonging to other class III piping systems

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G42	Hydraulic systems, Hydraulic power installations - All hydraulic power installations intended for “essential services”, as defined in Section 1 of this NR266 and in NR467, Pt C, Ch 2, Sec 1, and - Hydraulic power installations not serving “essential services” but located in spaces where sources of ignition are present	DA (1) (2)		X	C	(1) See provisions of NR467, Pt C, Ch 1, Sec 10, [14] (2) Hydraulic power installations with a design pressure of less than 2,5 MPa and hydraulic power packs of less than 5 kW will be given special consideration. Hydraulic power installations with a design pressure exceeding 35 MPa will be given special consideration (3) Specific requirements for Steering gears systems. See item B1 (type tests as per NR467)
	1- Pumps (hydraulic pumps)	(3)	C / W (4)	X h	C	(4) For pump housing, material certificates (C / W) according to the piping class. See item G31
	2- Electrical motors (5)	(5)		X	C / W	(5) For electrical motors, refer to item K5 ; for other electrical systems, refer to relevant provisions of this NR266 and of NR467
	3- Flexible hose assembly (6)	TA	W	X h	C	(6) See item G28
	4- Piping, valves and fittings (7)		C / W (7)	X h ndt	C	(7) For piping, valves and fittings: material certificates (C or W) according to the piping class and the nominal diameter ND. See items G26 and G27
	5- Hydraulic jacks, hydraulic cylinders and accumulators	DA	C / W (8)	X h ndt	C	(8) - Material certificate C for class 1 pressure vessels. See item G30 - Material certificate W for class 2 or 3 pressure vessels. See item G30 Note: Hydraulic systems and hydraulic power installations for handling ‘Side scuttles and windows, Shell doors, Hatch covers, Watertight doors, External ramp, Movable deck and inner ramp’. See item B17
G43	Automatic closing devices (air pipe)	TA (HBV)			W	
G44	Ballast water management system (BWMS)				(1)	(1) Also see relevant provisions of S7 (Statutory) (2) As per conditions set in the TA
	1- Ballast water management system	TA		X (2)	C	(3) Classified as Class III pressure vessel, also see item G30
	2- Filters (3)		W	X h ndt	C	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G45	Wind Propulsion Systems (1)					(1) Ships fitted with a wind propulsion system may be assigned the additional class notations WPS1 (for wind propulsion system including standing part) or WPS2 (for wind propulsion system including standing and running part), as per Rule Note NR206 (2) Approval as per NR216 and NR480, as applicable (3) See raw material certification (4) Type approval as per NR216 (5) see provisions of NR546 (6) Representative samples of the composite construction is to be tested and qualified as per agreed program; relevant tests to be carried out by a testing laboratory accepted by the Society (7) Document type according to the agreed survey scheme - as per conditions set in the DA (8) Checking of fitting on board (9) Approval as per NR206 (10) The extent and the nature of the non-destructive examinations are subject to the Society's agreement. (11) According to type of materials (12) Proof load as per NR206 (13) For special bolts (i.e. expansion type), product certificate C is required
	1- Steel and aluminum (Raw materials)					
	- Steel plates, profiles, bars for mast structure	(2)	C (2)		(3)	
	- Aluminum alloy plates, profiles, bars for mast structure	(2)	C (2)		(3)	
	- Filler products for welding (welding consumables)	TA (4)			W	
	- Aluminum alloy rivets for mast structure	(2)	C (2)		(3)	
	- Transition joints steel / aluminum alloy	TA (2)	C		C	
	- Steel castings/forgings	(2)	C (2)	X ndt	(3)	
	- Aluminum alloy castings	(2)	C (2)	X ndt	(3)	
	2- Laminate composite materials (Raw materials: Composite)	DA (5)		X (6)	C / W (7)	
	- Adhesives assembly	TA HBV		X (6)	W	
	- Reinforcement fibres	TA HBV			W	
	- Resin systems	TA HBV			W	
	- Core materials for sandwiches	TA HBV			W	
	- Adhesives	TA HBV			W	
	- Prepreg	TA HBV			W	
	3- Standing rigging (8)					
	- Mast	DA /TA (9)	(9)	X (10)	C	
	- Shrouds intended for standing rigging (Steel and fiber ropes and Terminal accessories)	DA (9)	W	X (11)	C	
	- Deck eyeplates, chain plate for standing rigging	DA (9)	(9)	X (11) (12)	C	
	- Coupling bolts	DA (9)	W	X	C / W (13)	
	- Bearings	DA	W	X (11)	W	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G45	4- Running rigging					(14) Breaking test on specimen as per NR206
	- Shrouds intended for running rigging (Steel and fiber ropes and Terminal accessories)	DA (9)	W	X (14)	W	(15) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement
	- Deck eyeplates, chain plate for running rigging	DA (9)	W	X (12) (15)	W	(16) Tests as per NR206
	- Clutch, shackle, sheaves and other running rigging accessories	DA (9)	W	X (12) (15)	W	(17) Material as per NR216
	- Winches and their accessories for running rigging	DA (9)	W	X (16)	W	(18) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement
	- Slewing ring	DA	C	X ndt	C	(19) Running test as per agreed program
	5- Drive unit - Mechanical system					(20) Electrical motors and equipment to be considered as intended 'for essential services'. Survey requirements as per item K
	- Reduction gears with transmitted power ≥ 110 kW	DA / TA	W / C	X h ndt	C	(21) As per Society's agreement.
	- Reduction gears with transmitted power < 110 kW	DA / TA	W		W	(22) Diesel engines to be type approved as marine engines. Survey requirements as per NR266 item E1 and applicable provisions of NR467, Pt C, Ch 1, Sec 2
	- Winches for rotating and release systems	DA (9)	(17)	X (18) (19)	C	(23) Material certificate of small pumps or valve required depending on the type of wind propulsion system.
	- Hydraulic systems and other component essential for the function of the winch		C	X	C	
	- Motors and electrical equipment essential for the function of the winch (20)			X	C	
	- Auxiliary machinery items essential for the function of the wind propulsion system	(21) (22)				
	- Hydraulic accumulator	DA / TA	W / C	X h ndt	W / C	
	- Hydraulic cylinders class I	DA / TA	C	X h ndt	C	
	- Hydraulic motors / pumps belonging to class I and II	DA / TA	W	X h ndt	C	
	- Hydraulic motors / pumps belonging to class III			X h	W	
	- Flexible hoses	TA	W	X h	C	
	- Piping system and fittings		W / C (23)	X h ndt	W / C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G45	6- Drive unit - Electrical system					
	- Electric motors for essential functions of the wind propulsion system (1)	DA / TA		X	C / W	
	- Cables, Circuit breakers, Contactors	DA / TA			W	
	- Convertors	DA / TA			C	
	- Switchboard	DA		X	C	
	- Other electrical equipment (1)	DA	(20)	(20)	(20)	
G46	Overridable power limitation systems (EPL and ShaPoLi)	TA (HBV) (1)			W	(1) TA Only. As per NR467, Pt C, Ch 1, Sec 2, [2.7.7]
G47	Carbon capture and storage system covered by additional service feature OCC	TA / DA	C / W	X h ndt	C	(1) As required in other relevant NR266 tables. (2) As required by NR467, Pt C, Ch 1, Sec 12, Tab 3
	1- Solvent system	TA	C / W (1)	X h ndt (2)	C	
	2- Exhaust gas and separation system	DA	C / W (1)	X h ndt (2)	C	
	3- CO2 system	TA	C / W (1)	X h ndt (2)	C	



Item H - Cargo Handling and Containment Systems of Liquefied Gas Carriers

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H1	Steel plates and profiles for independent cargo tanks	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H2	Aluminium alloy plates and profiles for independent cargo tanks	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H3	Stainless or high alloy steel for membrane cargo containment system	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H4	Independent cargo tank supporting materials	TA (1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9 and relevant provisions of NR216 and NR480 Note: Contacts of cargo tanks to supporting blocks to be checked on board
H5	Insulation materials					(1) Test to be witnessed by attending surveyors unless otherwise agreed (2) DA for glue not used in secondary barrier (SB) or inner space (IP) bonding (3) Tensile tests for TA (4) C for Polyurethane Foam, W for Polystyrene (5) Review of bonders operators qualifications Review of bonding and other fabrication or testing qualifications including Flat, Corner and Tri-way panels (6) In the case of shipbuilder's own manufacturing, no certificate would be issued after inspection unless explicitly required
	1 - Paint for inner hull protection	TA			W	
	2 - Studs, nuts, washers, coupler sockets, staples and screws		W		W	
	3 - Load bearing mastic	TA (1)		X	W	
	4 - Adhesives and Glue	TA (2) (3)			W	
	5 - Foam panel	TA			C/W (4)	
	6 - Plywood	TA			W	
	7 - Stainless steel sheet	TA		X	C	
	8 - Stainless steel sheet studs, nuts and washers	DA			C	
	9 - Glass wool and Glass cloth	TA			W	
	10 - Thermal protection				W	
	11 - Aluminium for reinforced elements	TA		X	C	
	12 - Aluminium wedges	TA	C		W	
	13 -Secondary Barrier (composite material)	TA		X	C	
	14 - Insulating Panels	TA	C	X (5)	C	



CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H5	15 - Expansion Rivets (15 mm)	TA	W		W	
	16 - Stainless Steel corners and Anchor Strips	TA	C	X	C	
	17 - Primary barrier component	DA	C	X	C	
	18 - Single Legs	DA	W	X	C	
	19 -Primary Block Assembly	DA	W		C	
	20 - Perlite	TA			W	
	21 - Insulating Material Flexible / Rigid	TA			W	
	22 - Fe-Ni alloy (36% Nickel) strips	TA		X	C	
	23 - Anti-sticking film				W	
	24 - Insulating Boxes	DA	W		W	
	25 - Fe-Ni (36% Nickel) welding filler metal	TA		X	C	
	26 - Densified wood laminated for pipe guide tower	DA	C		C (6)	
H6	Cargo gas compressors and their prime movers					(1) As per provisions of NR467, Part D, Chapter 9
	1- Cargo gas compressors	TA or DA (1)	C (1) (2)	X h (3)	C	(2) Cryogenic pumps and compressors – Product certificate (C) required for materials in contact with the cargo: both the pressure containing parts, and non-pressure containing components (shaft and impellers)
	2- Prime movers (4)	(4)	(4)	X (4)	C	(3) According to an agreed program (4) For electrical motors, refer to item K; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H7	Cargo pumps and their prime movers					(1) As per provisions of NR467, Part D, Chapter 9 (2) Cryogenic pumps and compressors – Product certificate (C) required for materials in contact with the cargo: both the pressure containing parts, and non-pressure containing components (shaft and impellers)
	1- Cargo pumps	TA or DA (1)	C (1) (2)	X h (3)	C	(3) According to an agreed program
	2- Prime movers (4)	(4)	(4)	X (4)	C	(4) For electrical motors, refer to item K; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
H8	Bulkhead seal and Gastight shaft bulkhead penetration devices	DA or TA (1)		X h	C (2)	(1) As per NR467, Pt D, Ch 9, Sec 3 (2) As per conditions set in the TA
H9	Fans for enclosed spaces located within the cargo area, and their prime movers					(1) Concerns the anti sparking fans (2) As per conditions set in the TA
	1- Fans	TA (1)		X	C / W (2)	(3) For electrical motors, refer to item K; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
	2- Prime movers (3)	(3)		X (3)	C	
H10	Condensers, gasifiers or vaporizers, separators, heat exchangers, receivers, or other similar apparatus of cargo reliquefaction plant	DA (1)	C	X h ndt	C	(1) As per provisions of NR467, Part D, Chapter 9. Process pressure vessels handling cargo are to be considered as class 1 pressure vessels, in accordance with NR467, Pt C, Ch 1, Sec 3, [1.4.1] Note: Running tests - during gas trials of the ship
H11	Seamless steel or stainless steel cargo pipes of class I, for liquefied gas carriers (1)					(1) As per provisions of NR467, Part D, Chapter 9. Cargo and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D
	• nominal diameter ND ≥ 50mm		C	X h ndt	C	
	• nominal diameter ND < 50mm		W	X h ndt	W	
H12	Longitudinally welded stainless steel cargo pipes of class I, for liquefied gas carriers (1)					(1) As per provisions of NR467, Part D, Chapter 9. Cargo and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D
	• nominal diameter ND ≥ 50mm		C	X h ndt	C	
	• nominal diameter ND < 50mm		W	X h ndt	C	



CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H13	Cargo pipe fittings (1)	DA (2)	C / W (3)	X h ndt (4)	C	(1) Such as elbows, reducers, flanges: same remarks as for items H11 or H12 , as appropriate (2) If not already addressed within the scope of the system approval (3) Material certificate C for fittings of nominal diameter ND \geq 50 mm; work's certificate W for ND < 50 mm (4) When the fittings are of welded type, the welding procedures are to be examined
H14	Expansion joints (1)	TA	C (2)	X h ndt	C	(1) Specific requirements as per NR467, Part D, Chapter 9 (2) Cargo piping and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D
H15	Expansion bellows (1)	TA (2)	C (3)	X h ndt	C	(1) Specific requirements as per NR467, Part D, Chapter 9 (2) Prototype tests to be performed on each type of expansion bellows intended for use on cargo piping, primarily on those used outside the cargo tank (3) Cargo piping and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D
H16	Cargo hoses (1)	TA	C (2)	X h ndt (3)	C	(1) Specific requirements as per NR467, Part D, Chapter 9 (2) Cargo piping and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D (3) Unit production testing: each produced length of cargo hose complete with end-fittings is to be hydrostatically tested as per NR467, Pt D, Ch 9, Sec 5

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H17	Cargo valves (1)					(1) As per provisions of NR467, Part D, Chapter 9. Cargo piping and process piping have to comply with the applicable requirements of NR467, Pt C, Ch 1, Sec 10 for class I pressure piping, unless otherwise specified in IGC Code or in NR467, Part D
	• nominal diameter ND ≥ 50mm	TA or DA (2) (3)	C (4)	X h ndt (5) (6)	C	(2) Index TA for service temperature < –55°C index DA for service temperature ≥ – 55°C (3) Prototype testing as per NR467, Pt D, Ch 9, Sec 5 (4) As per NR216, Ch 5, Sec 7, [1.8]. Non-destructive examination by both MPI and UT methods are to be carried out on all Class 1 drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24")
	• nominal diameter ND < 50mm	TA or DA (2) (3)	W (4)	X h ndt (5) (6)	C	(5) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined (6) Unit production testing: all valves are to be tested as per NR467, Pt D, Ch 9, Sec 5
H18	Safety relief valves for cargo process piping system	TA or DA (1)	C	X ndt (2) (3)	C	(1) TA, or case-by-case DA (2) Checking of the setting (3) When the valves have welded elements, the welding procedures are to be examined
H19	Safety relief valves for cargo tanks	TA (1)	C	X ndt (2) (3)	C	(1) The approval includes capacity testing (2) Checking of the setting including tightness test (3) When the valves have welded elements, the welding procedures are to be examined
H20	Cargo process and containment instrumentation	TA (1)	C	X	C	(1) For some equipment, DA is applicable on a case-by-case basis; see item K and relevant provisions of NR467, Part D, Chapter 9
H21	Vent lines on cargo tanks (1) (2)	DA	C / W (3)	X h ndt (2)	C	(1) Open-ended lines (the design pressure should be not less than 5 bar gauge) (2) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined (3) Material certificate W for vent head where fitted and meeting the pressure vessel criteria for class 3; see item G30
H22	Inert gas generation systems (1)					(1) See item D



CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H23	Fire prevention materials and arrangements (1)					(1) See item C
H24	Fire fighting systems (1)					(1) See item C
H25	Gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N
H26	Boil-Off Gas (BOG) Handling system (1)	TA (3)		X (4)	C	(1) See relevant provisions of NR467, Pt D, Ch 9, Sec 7, [2]. Also see item L27 (2) In case a component, material or equipment is not listed, refer to the applicable survey requirement of relevant item of this NR266 (3) TA, or DA (on a case-by-case basis) (4) As per agreed program, based on the requirements of IGC Code and/or standards recognized by the Society (5) Heat exchangers (Class 1 vessel) (6) Automation systems: see relevant provisions of items K and N (7) As per conditions set in the TA Note: On board tests of regasification plant after installation, as per agreed program. Onboard tests are intended to demonstrate that the plant with associated safety features is functioning properly in compliance with the Rules criteria. The tests are to be witnessed by a Surveyor
	Boil-Off Gas (BOG) Handling system, as part of Refrigeration / Reliquefaction systems (2)					
	1- Compressor	TA or DA	C	X h ndt	C	
	2- Turbine	TA or DA	C / W	X h ndt	C	
	3- Electric motor	TA or DA	C / W	X	C	
	4- Heat exchangers, Coolers, Sub-coolers	DA	C (5)	X h ndt	C	
	5- Sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric Cables	TA (6)		X	C / W (7)	
	6- Cryogenic piping systems, cryogenic valves, cryogenic flexible hoses assembly	TA or DA	C	X h ndt	C	
	7- Other piping systems, valves, flexible hoses assembly and expansion bellows	TA or DA	C / W	X h ndt	C	

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H27	Regasification components for FSRUs and FSUs: (1) (2) (3) (4) (5) <ul style="list-style-type: none"> Floating Storage Regasification Units (FSRUs) defined as floating units fitted with equipment for storage and regasification of liquefied natural gas (LNG) Floating Storage Units (FSUs) defined as floating units fitted with equipment for storage of liquefied natural gas (LNG) 					(1) As per NR645 Classification of Floating Storage Regasification Units and Floating Storage Units (2) Boil-Off Gas (BOG) Handling system - See item H26 (3) The requirements are only applicable for steel units having one of the structural type notations and service notations defined in NR645. (4) As reference only, a list of recognized regulations and standards relevant for regasification plant and components is given in NR645, Sec 10, Tab 4. (5) Regasification components survey and certification - as per provisions of NR645, Sec 10, Tab 3. In case a component, material or equipment is not listed, refer to the applicable survey requirement of relevant item of this NR266 (6) As per conditions set in the TA (7) Automation systems: see relevant provisions of items K and N Note: On board tests of regasification plant after installation, as per agreed program. Onboard tests are intended to demonstrate that the plant with associated safety features is functioning properly in compliance with the Rules criteria. The tests are to be witnessed by a Surveyor.
	1 - Steel plates, profiles, bars and pipes for main structure		C		C	
	2 - Pipes and fittings		C	X	C	
	3 - Expansion joints	TA	C	X h	C	
	4 - Flexible and loading/offloading hoses	TA	C	X	C	
	5 - Safety valves	TA	C	X	C	
	6 - Cryogenic and Gas valves	DA	C	X	C	
	7 - LP Transfer and HP send out pumps	DA	C	X	C	
	8 - Heat exchanges, vaporizers	DA	C	X	C	
	9 - Pressure vessels, suction drum	DA	C	X	C	
	10 - Compressors	DA	C	X	C	
	11 - Fire passive system and materials	TA			C/W (6)	
	12 - Fire active system	TA/DA	C/W	X	C	
	13 - Gas detection system	TA		X	C	
	14 - Cryogenic protection material	TA/DA		X	C	
	15 - Electro motors	TA/DA	C/W	X	C	
	16 - Automation systems	TA		X	C/W (6)	
	17 - Sensors, transmitters, flow meters, circuit breaker, electrical cable	TA (7)		X	C/W (6)	
	18 - Heating media pump	TA/DA	W	X	C	
	19a - Heating media pipes and fittings, of Class I and II		C	X	C	

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H27	19b - Heating media pipes and fittings, of Class III		W	X	W	
	20 - Insulation material	TA		X	C/W (6)	
	21 - Gas metering / analyzer skid	DA	C	X	C	
	22 - Boiler with associated components	TA/DA	C	X	C	
H28	Glycol water heater (Electric or Steam), Cofferdam heating system (1)	TA / DA	(1) (2)	X (1) (2)	(1) (2)	(1) As per NR467 Pt D, Ch 9, Sec 4 (IGC Code) (2) Also see relevant provisions of items L26 and L27 for associated components
H29	Pump tower (cargo piping and supporting structure)	DA	W/C (1)	X h (2) ndt (3)	C (2)	(1) C for cargo piping, W for supporting structure (2) For cargo piping, See H11 to H15 (3) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications. Survey of the fabrication and witnessing of NDT at random.
H30	Pump Tower Base Support	DA	C	X ndt (1)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications (in particular - gas tracer/leak test). Survey of the fabrication and witnessing of NDT at random.
H31	Dome Cover	DA	C	X ndt (1) (2)	C (2)	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications. Survey of the fabrication and witnessing of NDT at random. (2) For cargo piping, See H11 to H15.
H32	Dome Seat	DA	C	X ndt (1)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications. Survey of the fabrication and witnessing of NDT at random.
H33	Sump well	DA	C	X ndt (1)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications (in particular - gas tracer/leak test). Survey of the fabrication and witnessing of NDT at random.
H34	Independent cargo tank systems	DA (1)	C / W (1)	X ndt	C	(1) As per provisions of NR467, IGC Code and IGF Code.

Item I - Cargo Handling and Containment Systems of Oil / FLS Tankers or Chemical Tankers

CARGO HANDLING AND CONTAINMENT SYSTEMS OF OIL / FLS TANKERS OR CHEMICAL TANKERS - ITEM I						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
I1	Steel or stainless steel plates and profiles for cargo tanks		C (1)			(1) As per relevant provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 and applicable requirements of NR216
I2	Coating systems of cargo tanks	(1) (2)	W (1) (2)	X (1) (2)	W (1) (2)	(1) Also see item B23 (Corrosion protective coatings) (2) As per relevant provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8
I3	Cargo pumps and their prime movers					(1) As per provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 (2) Cargo pumps (material certificate C or W): • C: for Cast body • W: for Welded construction
	1- Cargo pumps	DA or TA (1)	C / W (2)	X h (3)	C	(3) According to an agreed program
	2- Prime movers	(4)	(4)	X (4)	C / W (4)	(4) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
I4	Bulkhead seal and Gastight shaft bulkhead penetration devices	DA or TA (1)		X h	C (2)	(1) As per NR467, Pt D, Ch 7, Sec 4 (2) As per conditions set in the TA
I5	Fans for enclosed spaces located within the cargo area, and their prime movers					(1) Concerns the anti sparking fans (2) As per conditions set in the TA
	1- Fans	TA (1)		X	C / W (2)	(3) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
	2- Prime movers (3)	(3)		X (3)	C / W (3)	
I6	Seamless steel or stainless steel cargo pipes of class I, for chemical tankers (1) (2)					(1) As per NR467, Pt D, Ch 8, Sec 5, cargo pipes and associated accessories are considered as: • class I: when the design pressure is above 1,5 MPa, or the pipe is intended for toxic substances • class II: when the design pressure is equal to or less than 1,5 MPa, or • class III: when they are open ended or placed inside cargo tanks
	• nominal diameter ND ≥ 25mm		C	X h ndt	C	(2) The provisions given in NR467, Part D, Chapter 8, related to cargo piping, supplement those given in NR467, Pt C, Ch 1, Sec 10, [20] for piping systems
	• nominal diameter ND < 25mm		W	X h ndt	C	

CARGO HANDLING AND CONTAINMENT SYSTEMS OF OIL / FLS TANKERS OR CHEMICAL TANKERS - ITEM I						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
17	Cargo pipes of class II, for chemical tankers (1) (2)					(1) As per NR467, Pt D, Ch 8, Sec 5, cargo pipes and associated accessories are considered as: <ul style="list-style-type: none"> class I, when the design pressure is above 1,5 MPa, or the pipe is intended for toxic substances class II, when the design pressure is equal to or less than 1,5 MPa, or class III, when they are open ended or placed inside cargo tanks (2) The provisions given in NR467, Part D, Chapter 8, related to cargo piping, supplement those given in NR467, Pt C, Ch 1, Sec 10, [20] for piping systems
	• nominal diameter ND ≥ 100mm		C	X h ndt	C	
	• nominal diameter ND < 100mm		W	X h ndt	C	
18	Cargo pipes of class II for oil / FLS tankers (1)					(1) As per NR467, Pt D, Ch 7, Sec 4, unless otherwise specified, cargo piping is to be designed and constructed according to the requirements of NR467, Pt C, Ch 1, Sec 10 applicable to piping systems of: <ul style="list-style-type: none"> class III, in the case of ships having the service notation oil tanker class II, in the case of ships having the service notation FLS tanker, with the exception of cargo pipes and accessories having an open end or situated inside cargo tanks, for which class III may be accepted
	• nominal diameter ND ≥ 100mm		C	X h ndt	C	
	• nominal diameter ND < 100mm		W	X h ndt	C	
19	Cargo pipes and accessories of class III (1)			X h	W	(1) Class III: as defined in NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 (see items 16, 17 and 18)
110	Cargo pipe fittings (1)	DA (2)	C / W (3)	X h ndt (4)	C	(1) Such as elbows, reducers, flanges: same remarks as for items 16, 17 or 18, as appropriate (2) If not already addressed within the scope of the system approval (3) - Fittings of class I: material certificate C for ND ≥ 25mm, W for ND < 25 mm - Fittings of class II: material certificate C for ND ≥ 100 mm, W for ND < 100 mm For the definition of class I/class II, refer to relevant provisions of items 16, 17 (chemical tankers) and 18 (oil/FLS tankers) (4) When the fittings are of welded type, welding procedures are to be examined
111	Expansion joints (1)	TA	W	X h ndt	C	(1) Specific requirements as per NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8
112	Expansion bellows (1)	TA	W	X h ndt	C	(1) Specific requirements as per NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8

CARGO HANDLING AND CONTAINMENT SYSTEMS OF OIL / FLS TANKERS OR CHEMICAL TANKERS - ITEM I						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
I13	Cargo hoses (1)	TA	W	X h ndt	C	(1) Specific requirements as per NR467, Part D, Chapter 7 and NR467, Part D, Chapter Ch 8
I14	Cargo valves (1) (2)					(1) As per NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 (2) For definition of class I/class II, refer to relevant provisions of items I6 , I7 (chemical tankers) and I8 (oil/FLS tankers) (3) As per NR216, Ch 5, Sec 7, [1.8]. Non-destructive examination by both MPI and UT methods are to be carried out on all Class 1 drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24")
	<ul style="list-style-type: none"> valves of class I: nominal diameter ND ≥ 25 mm valves of class II: nominal diameter ND ≥ 100 mm 	DA or TA	C (3) (4)	X h ndt (5)	C	(4) Chemical tankers: <ul style="list-style-type: none"> material as per NR216, Ch 5, Sec 7, [1.8] for castings, corrosion tests ASTM A262 Practice E (copper-copper sulphate sulphuric) or Practice C (nitric acid), as appropriate, may be required to be carried out on 1 piece per batch; tests in accordance with other recognised standards are subject to agreement by the Society
	<ul style="list-style-type: none"> valves of class I: nominal diameter ND < 25 mm valves of class II: nominal diameter ND < 100 mm 	DA or TA	W (3) (4)	X h ndt (5)	C	(5) In case of welded construction; when the valves have welded elements, the welding procedures are to be examined
I15	Plastic pipes used as cargo pipes	TA (1) (2)	C	X h (3)	C	(1) As per NR467, Pt D, Ch 7, Sec 4: plastic pipes may be used in the conditions specified in NR467, Pt C, Ch 1, App 3. Arrangements are to be made to avoid the generation of static electricity (2) See item G26 (3) As per agreed program
I16	Safety relief valves for cargo process piping system	TA or DA (1)	C	X ndt (2)	C	(1) TA, or case-by-case DA (2) When the valves have welded elements, the welding procedures are to be examined Note: Running tests - checking of the setting
I17	Pressure / vacuum safety relief valves for cargo tanks	TA (1)	W	X ndt (2)	C	(1) As per provisions of NR467, Part D, Chapter 8. The approval includes capacity testing (2) When the valves have welded elements, the welding procedures are to be examined Note: Running tests - checking of the setting including tightness test



CARGO HANDLING AND CONTAINMENT SYSTEMS OF OIL / FLS TANKERS OR CHEMICAL TANKERS - ITEM I						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
I18	Flame arresting devices	TA (1)		X	C	(1) As per relevant provisions of NR467 Pt D, Ch 7, App 1
I19	Cargo process and containment instrumentation	TA (1) (2)	C	X	C	(1) For some equipment, DA is applicable on a case-by-case basis; see item K and relevant provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 (2) Automation systems: see relevant provisions of item N
I20	Inert gas generation systems (1)					(1) See item D
I21	Fire prevention materials and arrangements (1)					(1) See item C
I22	Fire fighting systems (1)					(1) See item C
I23	Gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N
I24	Tank washing machines, COW systems (1)	TA (1)		X	C	(1) When required, for oil/FLS tankers. Every crude oil tanker of 20 000 tons deadweight and above is to be fitted with a cargo tank cleaning system using crude oil washing and complying with NR467, Pt D, Ch 7, App 2
I25	Tank washing machines, COW systems (1)	DA or TA (1)		X	W	(1) Crude oil washing systems fitted on oil tankers other than crude oil tankers of 20 000 tons deadweight or above are to comply with the provisions of NR467, Pt D, Ch 7, App 2 related to safety
I26	Oil discharge monitoring and control system (1)	TA (2) (3)		X	C	(1) For oil / FLS tankers (2) As per NR467, Part D, Chapter 7 (3) Automation systems: see relevant provisions of item N
I27	Oil-water interface detectors (1)	TA (2) (3)		X	C	(1) For oil / FLS tankers (2) As per NR467, Part D, Chapter 7 (3) Automation systems: see relevant provisions of item N

Item J - Fire Fighting Ships

FIRE FIGHTING SHIPS - ITEM J						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
J1	Fire pumps and their prime movers	DA		X (1)	C	(1) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10, [20.6.1]. See item G31 (2) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467. Diesel engines as per item E1
	1- Fire pumps		W	X h ndt	C	
	2- Prime movers	(2)	(2)	X (2)	C / W (2)	
J2	Fire water main, fire foam main, water spray piping systems and their accessories (1) (2)	DA or TA (1)		X h	C (1)	(1) Requirements according to relevant class of piping. See items G26 and G27 (2) Foam proportioner / inductor, Water / foam monitor, Foam applicator: see items C38 , C39 and C40
J3	Foam generation systems (1)	DA		X	C	(1) Foam proportioner / inductor, Water / foam monitor, Foam applicator: see items C38 , C39 and C40
J4	Water and foam monitors, and their seating					
	1- Water and foam monitors	TA		X	C	
	2- Seating	DA		X	C	
J5	Powder generation systems	DA		X	C	
J6	Foam concentrates	TA (HBV)			W	
J7	Water spray nozzles, dual-purpose nozzles	TA (1)			C / W (2)	(1) In the case of a discrepancy between the provisions of the applicable International and National statutory regulations and those of the Society's Rules, normally the former take precedence. A valid certification to MED 2014/90/EU (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose (2) As per conditions set in the TA



Item K - Electrical Equipment

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K	A summary list of auxiliaries considered as essential is given in Sec 1, [2.4] of this NR266. For an exhaustive definition of equipment intended for “essential services”, refer to NR467.					
K1	Generators and motors for electric propulsion (1)					(1) Considered as essential service: see Sec 1, [2.4] of this NR266
	1- For Steel Ships and Offshore Units (2)					(2) See NR467, Pt C, Ch 2, Sec 4, [3] and [3.1.5]
	• Power P ≥ 100 kW (2)	DA or TA	C (3) (4) (5)	X (6) (7) (8) (9)	C	(3) Shafts are to be made of material complying with NR216, Chapter 5 or, where rolled products are allowed in place of forgings, with NR216, Chapter 3
	• Power P < 100 kW (2)	DA or TA (HBV)	W (3) (4) (5)	X (6) (7) (8) (9)	W (10)	(4) Material certificates for shafts
						(5) Shaft material for electric propulsion motors and for main engine driven generators where the shaft is part of the propulsion shafting is to be certified by the Society
						(6) Testing of electrical rotating machines (a.c. generators and electrical motors) includes type tests and routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	2- For Naval Ships (11)					(7) In addition, for rotating machines intended for propulsion developing a power of more than 1 MW, requirements given in NR467, Pt C, Ch 2, Sec 4, [5] apply
	• Power P ≥ 50 kW (11)	DA or TA	C (3) (4) (5)	X (6) (7) (8) (9)	C	(8) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply (on a case-by-case basis)
	• Power P < 50 kW (11)	DA or TA (HBV)	W (3) (4) (5)	X (6) (7) (8) (9)	W (10)	(9) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
						(10) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
						(11) See NR483, Pt C, Ch 2, Sec 4, [3]

ELECTRICAL EQUIPMENT - ITEM K

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K2	Engine driven generators for the general network of the ship (1) (2)					(1) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266
	1- For Steel Ships and Offshore Units (3)					(2) For rotating machines intended for non essential services, individual works' certificate is to be issued by the manufacturer and test report made available and submitted upon request
	• Power $P \geq 100$ kVA (3)	DA or TA	W (4) (5)	X (6) (7) (8)	C	(3) See NR467, Pt C, Ch 2, Sec 4, [3]
	• Power $P < 100$ kVA (3)	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	(4) Shafts are to be made of material complying with NR216, Chapter 5 or, where rolled products are allowed in place of forgings, with NR216, Chapter 3
	2- For Naval Ships (10)					(5) Shaft material for electric propulsion motors and for main engine driven generators where the shaft is part of the propulsion shafting is to be certified by the Society. Shaft material for other machines is to be in accordance with recognized international or national standard
	• Power $P \geq 50$ kVA (10)	DA or TA	W (4) (5)	X (6) (7) (8)	C	(6) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	• Power $P < 50$ kVA (10)	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	(7) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply
						(8) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
						(9) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
						(10) See NR483, Pt C, Ch 2, Sec 4, [3].

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K3	Emergency generators (1) (2)					(1) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266
	1- For Steel Ships and Offshore Units (3)					(2) For rotating machines intended for non essential services, individual works' certificate is to be issued by the manufacturer and test report made available and submitted upon request
	<ul style="list-style-type: none"> Power $P \geq 100$ kW (3) 	DA or TA	W (4)	X (5) (6) (7)	C	(3) See NR467, Pt C, Ch 2, Sec 4, [3]
	<ul style="list-style-type: none"> Power $P < 100$ kW (3) 	DA or TA (HBV)	W (4)	X (5) (6) (7)	W (8)	(4) Shafts are to be made of material complying with NR216, Chapter 5 or, where rolled products are allowed in place of forgings, with NR216, Chapter 3
	2- For Naval Ships (9)					(5) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	<ul style="list-style-type: none"> Power $P \geq 50$ kW (9) 	DA or TA	W (4)	X (5) (6) (7)	C	(6) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply
	<ul style="list-style-type: none"> Power $P < 50$ kW (9) 	DA or TA (HBV)	W (4)	X (5) (6) (7)	W (8)	(7) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
						(8) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
K4	Ward-Leonard sets (1)	DA (2)		X (3)	C	(9) See NR483, Pt C, Ch 2, Sec 4, [3]
						(1) For auxiliaries considered as essential
						(2) To be specially considered on a case-by-case basis
						(3) According to an agreed program

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K5	Electric motors (1) (2)					(1) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266
	1- For Steel Ships and Offshore Units (3)					(2) For rotating machines intended for non essential services, individual works' certificate is to be issued by the manufacturer and test report made available and submitted upon request
	<ul style="list-style-type: none"> Power $P \geq 100$ kW (3) 	DA or TA	W (4) (5)	X (6) (7) (8)	C	(3) See NR467, Pt C, Ch 2, Sec 4, [3]
	<ul style="list-style-type: none"> Power $P < 100$ kW (3) 	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	(4) Shafts are to be made of material complying with NR216, Chapter 5 or, where rolled products are allowed in place of forgings, with NR216, Chapter 3
K6	2- For Naval Ships (10)					(5) Shaft material for electric propulsion motors and for main engine driven generators where the shaft is part of the propulsion shafting is to be certified by the Society. Shaft material for other machines is to be in accordance with recognized international or national standard
	<ul style="list-style-type: none"> Power $P \geq 50$ kW (10) 	DA or TA	W (4) (5)	X (6) (7) (8)	C	(6) Testing of electrical motors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	<ul style="list-style-type: none"> Power $P < 50$ kW (10) 	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	(7) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply
						(8) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
K6	Transformers intended for essential services					(9) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
	1- Power $P \geq 100$ kVA (or 60 kVA when single phase)	DA or TA		X (1) (2) (3)	C	(10) See NR483, Pt C, Ch 2, Sec 4, [3]
	2- Power $P < 100$ kVA (or 60 kVA when single phase)	DA or TA (HBV)		X (1) (2) (3)	W	(1) Testing of transformers includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 5, [2]
						(2) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
						(3) Temperature rise test may be omitted for starting transformers

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K7	Semiconductor convertors or static convertors (1) (2) (3)					(1) Convertors units intended for essential services and UPS units used as alternative and/or transitional source (2) Convertors units intended for non-essential services, and UPS units not used as alternative and/or transitional source, individual works' certificate is to be issued by the manufacturer and test report made available and submitted upon request
	1- Power $P \geq 50$ kVA	DA or TA		X (4)	C	(3) Refer to relevant provisions of this NR266 and of NR467 for water cooling systems, in particular: pumps and piping system, cooling fluids, pressure vessels, flexible hoses and connections, tubing, penetrations between potential wet area (cooling system) and electrical areas. Cooling and lubricating oil systems are to comply with the requirements of NR467, Pt C, Ch 1, Sec 10 (4) Testing of semiconductor convertors or static convertors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 6, [3]
	2- Power $P < 50$ kVA	DA or TA (HBV)		X (4) (5)	W (6)	(5) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines (6) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
K8	Batteries used as emergency / or transitional source (1)	(2)		X (2) (3)	C	(1) As per NR467, Pt C, Ch 2, Sec 7 (2) For Li Ion batteries used as emergency source or transitional source or of capacity above 20kWh, requirements specified in additional notation BATTERY SYSTEM in NR467, Part F, Ch 14, Sec 1 apply. See also item K26 (3) Insulation measurements are to be carried out. Note: Additionally, the autonomy is to be verified on board in accordance with the operating conditions
K9	Batteries for starting purposes (1) (2)	(3)		X (3)	C	(1) For propulsion engines, main and emergency generating sets (2) See also items K8 and K26 (3) Applicable requirements depending on type of batteries (conventional or non-conventional). Provisions of NI596 to be considered for "accumulator battery", as guidance only. Note: The capacity, autonomy, arrangement and starting sequence are to be verified on board in accordance with the operating conditions

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K10	Regulation and control devices starters	DA		X (1)	C / W (2)	(1) Insulation measurements are to be carried out (2) As per technology and conditions set in the DA (starters)
K11	Electromagnetic couplings (1)	DA		X (2) (3)	C	(1) Intended for propulsive or auxiliary units mentioned in items K2 and K3 (2) Dielectric strength test is to be carried out (3) Insulation measurements are to be carried out
K12	Switchboards for electric propulsion	DA		X (1)	C / W (2)	(1) Tests including: dielectric strength test, insulation measurements, verification of the protection index IP, clearance and creepage distances, check of wiring, etc., as per NR467, Pt C, Ch 2, Sec 8 (2) Tests of main switchboards, emergency switchboards or switchboards rated above 100 kW are to be attended by a Surveyor of the Society
K13	Main and emergency switchboards	DA		X (1)	C / W (2)	(1) Tests including: dielectric strength test, insulation measurements, verification of the protection index IP, clearance and creepage distances, check of wiring, etc, as per NR467, Pt C, Ch 2, Sec 8 (2) Tests of main switchboards, emergency switchboards or switchboards rated above 100 kW are to be attended by a Surveyor of the Society
K14	Distribution switchboards, Controlgear (1)	DA		X (2)	C / W (3)	(1) Controlgear: as per NR467, Pt C, Ch 2, Sec 8. (2) Tests including: dielectric strength test, insulation measurements, verification of the protection index IP, clearance and creepage distances, check of wiring, etc., as per NR467, Pt C, Ch 2, Sec 8 (3) Tests of main switchboards, emergency switchboards or switchboards rated above 100 kW are to be attended by a Surveyor of the Society
K15	Circuit breakers					(1) Dielectric strength test is to be carried out (2) Running test at no load
	1- Medium or high voltage	TA		X (1) (2)	C / W (3)	(3) As per technology and conditions set in the TA Note: Running test under load (on board)
	2- Low voltage	TA (HBV)			W	

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K16	Contactors					(1) Dielectric strength test is to be carried out (2) Running test at no load (3) As per technology and conditions set in the TA Note: Running test under load (on board)
	1- Medium or high voltage	TA		X (1) (2)	C / W (3)	
	2- Low voltage	TA (HBV)			W	
K17	Switches, disconnecting devices, disconnectors, fuses holders					(1) Dielectric strength test is to be carried out (2) Running test at no load (3) As per technology and conditions set in the TA Note: Running test under load (on board)
	1- Medium or high voltage	TA		X (1) (2)	C / W (3)	
	2- Low voltage	TA (HBV)			W	
K18	Fuses and fuses carriers, overcurrent protective devices	TA		X (1)	C / W (1)	(1) As per technology and conditions set in the TA
K19	Cables and insulated cabling wires (1)	TA		X (2) (3)	C / W (4)	(1) As per NR467, Pt C, Ch 2, Sec 9 (2) Type tests in accordance with the relevant IEC 60092-3 Series Publications and IEC 60332-1, IEC 60332-3 Category A and IEC 60331 where applicable (3) Routine tests including: visual examination, check of conductor cross-sectional area by measuring electrical resistance, high voltage test, insulation resistance measurement, dimensional checks (as necessary), according to the Rules (4) Product certificate - As per conditions set in the TA (IBV or HBV)
K20	Heaters, electric (1) (2)	DA		X (3) (4)	C	(1) For heating plants of liquid fuel and for water heaters $P \geq 5000$ W (2) Thermal oil heater (typical) is one or more fired pressure vessels and associated piping systems in which organic liquids (thermal oils) are heated. When heated by electricity thermal oil heater is considered as an unfired pressure vessel. Also see item G30 (Pressure vessels). (3) Dielectric strength test is to be carried out (4) Insulation measurements are to be carried out



ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K21	Fixed electric radiators (1)	DA		X c (2) (3)	C	(1) For passengers ships (2) Dielectric strength test is to be carried out (3) Insulation measurements are to be carried out
K22	Lighting fittings, fluorescent lamps (1)	TA		X c (2) (3) (4)	C	(1) For passengers ships. See item K23 for liquefied gas carriers or tankers safety fittings (2) Dielectric strength test is to be carried out (3) Insulation measurements are to be carried out (4) Tests to be carried out on 1 equipment out of 100 of each type, with a minimum of 5
K23	Safety electrical equipment	TA		X (1) (2) (3)	C	(1) Dielectric strength test is to be carried out (2) Insulation measurements are to be carried out (3) Including, for flameproof material, the hydraulic test that may be made under the responsibility of the manufacturer
K24	Battery chargers (1) (2)	TA		X (3) (4) (5)	C / W (6)	(1) Chargers are to be adequate for the batteries for which they are intended and provided with a voltage regulator (2) See also items K8 and K9 (3) Testing of battery chargers includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 7, [2.2] (4) Electronic components of the battery chargers are to be constructed to withstand the tests required in NR467, Pt C, Ch 3, Sec 6 (5) Type test on prototype battery charger or on at least the first batch of battery chargers. When battery chargers are fabricated in batch, type tests are to be carried out on the first battery charger of the batch (6) Tests of battery chargers of 5 kW and over intended for essential services are to be attended by a Surveyor of the Society

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K25	Generating set, Generator set, Generator package (1) (2) (3)	DA		X (4)	C (5)	(1) See relevant provisions of items K1 , K2 , K3 (Generators), item F17 (Gas turbines), items E1 and E11 (Diesel engines) (2) When the generator set is made of components already covered by individual certifications (bare engine, alternator, automation), the assembled package or skid is subject to special consideration for approval by the Society. "DA" on a case-by-case basis is required for its compliance to relevant provisions of NR467, NR445 (3) The general approach described here may be applied for a Compressor package (4) As per agreed program (5) Final certification for the genset package prior to installation onboard (6) See also item G2 (for Reduction gears, reverse reduction gears, and multipliers), item G26 (for Piping), G30 (for Vessels), G42 (for Hydraulic systems), relevant provisions of item K (for Electrical equipment), relevant provisions of item N (for Automation systems), and other relevant items of this NR266 (7) For equipment and components not covered by the individual certifications of the engine and generator (8) Testing and/or document review, as applicable
	1- Diesel engine or Gas turbine (driver)	(1) (2)	(1) (2)	(1) (2)	C (1) (2)	
	2- Generator (electrical generator) or alternator	(1) (2)	(1) (2)	(1) (2)	C (1) (2)	
	3- ECMs (controls), sensors, electrical harnesses (cabling), flexible hoses, auxiliaries, coolers/heaters/filters, insulation materials, fuel/lube oil spraying protections, crankcase relief valves, turbochargers, couplings, local control panels, voltage regulators, AVR, speed governor, enclosure and associated ventilation and fire/gas protection systems, reduction gears or multipliers), coupling system, etc., as applicable (6)	TA or DA (7)	C / W (8)	X (4)	C / W (8)	

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K26	Batteries used for propulsion and/or electric power supply purpose during ship operation (1) (2)					(1) As per NR467, Part F, Ch 11, Sec 21. The additional class notation BATTERY SYSTEM may be assigned to ships when batteries are used for propulsion and/or electric power supply purpose during ship operation. This notation is mandatory when the ship is relying only on batteries for propulsion and/or electrical power supply for main sources. (2) See also items K8 and K9 (3) Type Approval is required with work's recognition: IBV scheme/HBV scheme (as per NR320) (4) When a battery pack is installed with a BMS, the type approval is to cover battery pack and BMS. A case-by-case approval can be applied with the same review and testing as for the type approval scheme. (5) Definitions as per NR467, Pt F, Ch 14, Sec 1: A battery system is an energy storage device that includes cells, cell assemblies or battery pack(s), as well as electrical circuits and electronics (example of electronics: Battery management system 'BMS', Battery support system 'BSS', cell electronics). Battery pack means one or more sub-packs that can work or the intended purpose as a standalone unit. Cell means the smallest unit of a battery. (6) Prototype tests and Factory acceptance tests as per NR467, Pt F, Ch 11, Sec 21 Note: On-board tests as per NR467, Part F, Ch 11, Sec 21
	1- Battery pack and associated Battery management system (BMS)	TA (IBV) (3) (4) (5)		X (6)	C	
	2- Battery cells	TA (HBV) (3) (5)		X (6)	W	
K27	Fuel cell systems					(1) In compliance with national or international standard (e.g IEC 62282-3 or equivalent).
	1- Fuel cell power system	TA (1)			C or W (2)	(2) When < 100 kW and type approved by the Society, work certificate (W) will be accepted.
	• Fuel cell module	TA (3)			C or W (2)	(3) In compliance with national or international standard (e.g IEC 62282-2 or equivalent).
	• Fuel cell monitoring and control system	TA (1)			C or W (2)	(4) For anti-sparking fans
	2- Fans for hazardous enclosed spaces, and their prime movers					(5) As per conditions set in the TA
	• Fans	TA (4)		X	C or W (5)	(6) For electrical motors, refer to NR266, item K
	• Prime movers	(6)		X (6)	C	

ELECTRICAL EQUIPMENT - ITEM K

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K27	3- Fire and gas detection system	TA (7)		X	C	(7) Automation systems: see relevant provisions of NR266, item N (8) Class of piping as per provisions of NR547, Section 3 (9) C: ND ≥ 50mm W: ND < 50 mm
	4- Gas fuel valve (8)	DA	C or W (9) (10)	X h ndt (11) (12)	C	(10) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined
	5- Safety relief valves	TA or DA (13)	C	X h ndt (14) (15)	C	(11) As per NR216, Ch 2, Sec 3, [7.8]. Non-destructive examination by both MPI and UT methods are to be carried out on all Class I drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having ND ≥ 24") to be tested as per NR547, Section 9
	6- Fuel pipes for gaseous gas fuel with design pressure equal or lower than 10 bar (Class I or Class II): • Class I: single wall pipes, and ND ≥ 50 mm • Class II: double wall pipes, and ND ≥ 100 mm • Class I: single wall pipes, and ND < 50 mm • Class II: double wall pipes, and ND < 100 mm		C W	X h ndt (16) (17) X h ndt (16) (17)	C C/W 18)	(12) Unit production testing: all valves are to be tested as per NR547, Section 9 (13) TA, or case-by-case DA (14) Checking of the setting
	7- Fuel pipes for gaseous gas fuel with design pressure higher than 10 bar (Class I) (19) • ND ≥ 50mm • ND < 50mm		C W	X h ndt (20) (21) X h ndt (20) (21)	C C/W (22)	(15) When the valves have welded elements, the welding procedures are to be examined (16) As per provisions of NR547 and NR467, Pt C, Ch 1, Sec 10 (17) Non-destructive testing to be carried out as required by NR547, Section 9 (18) W for Seamless pipes, C for longitudinally welded steel pipes
	8- Outer pipe of double wall fuel pipes (Class II) (23) • ND ≥ 100mm • ND < 100mm		C W	X h ndt X h ndt	C C/W (24)	(19) For both single and double wall configuration (20) As per provisions of NR547 and NR467, Pt C, Ch 1, Sec 10 (21) Non-destructive testing to be carried out as required by NR547, Section 9 (22) W for Seamless pipes, C for longitudinally welded steel pipes (23) As per provisions of NR547 and NR467, Pt C, Ch 1, Sec 10 (24) W for Seamless pipes, C for longitudinally welded steel pipes
	9- Expansion bellows	TA (25)	C (26)	X h ndt	C	(25) Prototype tests to be performed on each type of expansion bellows intended for use on gas fuel piping (26) Refer to Items 6, 7 and 8 as appropriate

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K28	High-Voltage Shore Connection System (1)	DA or TA (1)	(2)	X (2)	C	<p>(1) As per NR557 High-Voltage Shore Connection System. The additional class notation HVSC is assigned in accordance with NR467, Pt A, Ch 1, Sec 2, to ships fitted with high voltage shore connection systems complying with the requirements of NR577. These requirements apply to the design, safety, reliability and availability of shipboard electrical and control engineering arrangements installed to permit operation of services by connection to an external high voltage electrical power supply in port. These requirements are additional to those applicable in other Parts of NR467 Rules for Steel ships.</p> <p>(2) Electrical and control engineering equipment is to be surveyed at manufacturer's works and undergo survey and operational trials on board in accordance with the approved test schedules and applicable testing requirements in NR467, Part C, Chapters 2 and 3.</p>
K29	Braking resistors (1)	DA / TA (1)	(1)	X (2)(3)	C	<p>(1) As per Rules NR467.</p> <p>(2) For Braking resistors, the following tests are to be carried out:</p> <ul style="list-style-type: none"> - Visual and mechanical inspection and dimensions check - Ohmic value measurement - Insulation resistance measurement - Dielectric test - Earth continuity check - Cabling verification - Function tests of leakage detector, space heater and thermostat. <p>(3) Braking resistors may be provided to absorb excess amounts of regenerated energy and to reduce the speed of the propulsion motor. When provided, they are to be tested in accordance with the relevant provisions of items K.</p>
K30	Cables and charging stations within scope of EVOC notation					(1) See item K19 .
	1- Cables	TA (1)		X (1)	C (1)	
	2- Charging stations	DA		X	C	

Item L - Specific Equipment for Offshore Units

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L0	Note: NR445 “Rules for the classification of offshore units” give the requirements for the assignment and the maintenance of classification for offshore units. The application criteria of the different parts of the present Rules are the following: - NR445, Part A for classification and surveys, which applies to all units - NR445, Part B (for structural safety), NR445, Part C (for facilities: machinery, systems and safety features) and NR445, Part D (for specific requirements dedicated to the service of the offshore unit), which apply to offshore units of welded steel construction. Requirements of NR445, Part D are complementary to the provisions of Parts A, B and C which remain applicable, except when otherwise specified. The classification of units other than those dealt with in the above-mentioned Parts B, C and D is covered by specific Rules published by the society.					
L1	Castings (1)	DA	C (2)	X ndt (3)	C	(1) Especially: - cast nodes - connection and articulation parts (2) As per NR216 and NR480 (3) If repairs are to be done, the repair procedure shall be submitted for preliminary examination
L2	Self elevating mechanisms (1) (2)	DA	C (3)	X h ndt (4) (5)	C	(1) Including jacking systems and locking systems for jack-up units; refer to NR445, Offshore Rules (2) Survey of system components to be done as per relevant requirements of NR445, and relevant provisions of this NR266 (i.e. items G26 and G30 for piping and pressure vessels, item K for electrical equipment, etc.) (3) As per NR216 and NR480 (4) For welded construction (5) Proof tests and running as per agreed program
L3	Instrumentation for remote gauging of ballast systems (1)	DA		X (2)	C	(1) Concerning other parts of the ballast systems, refer to NR467 (2) Pressure test for hydraulic systems. As for instrumentation systems, refer to item N5
L4	Cathodic protection systems with sacrificial anodes (1)	DA or TA	W	X (1)	C / W (2)	(1) As per NR445 and NI423, Corrosion Protection of Steel Offshore Units and Installations (2) As per conditions set in the TA
L5	Cathodic protection systems with impressed currents (1)	DA or TA		X (1)	C / W (2)	(1) As per NR445 and NI423, Corrosion Protection of Steel Offshore Units and Installations (2) As per conditions set in the TA

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L6	Lifting appliances (1)	DA	C (2)	X	C	(1) As per NR526. See items O3 regarding additional class notations ALM (2) As per NR216 and NR480
L7	Flexible pipes (non-bonded) for production risers (RIPRO notation) or for drilling units. The additional class notation (RIPRO notation) may be assigned to permanent units fitted with risers meeting the corresponding requirements of NR445, Pt D, Ch 1, Sec 14:	(1)				(1) See API 17J "Specification for Unbonded Flexible Pipe" and ISO 13628-2 "Subsea flexible pipe systems" (2) Mechanical tests on end fittings (3) As per an agreed procedure; see NI364, Verification Scheme for Unbonded Flexible Pipes
	• Risers	TA	C (2)	X (3)	C	
	• Drilling lines	TA	C (2)	X (3)	C	
L8	Fluid swivels (1)	DA	C	X	C	(1) See NR445, Part D
L9	Electrical swivels (1)	DA	C	X	C	(1) See NR445, Part D
L10	Process valves and ESD Valves (1)	TA or DA (2)	C	X h ndt	C	(1) See relevant provisions of items H and I As per NR216, Ch 5, Sec 7, [1.8]. Non-destructive examination by both MPI and UT methods are to be carried out on all Class 1 drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24") (2) See relevant provisions of NR445, Pt C, Ch 1, Sec 7.
L11	Hydraulic power unit for subsea valves: (1)	DA			C	(1) For electrical motors, refer to item K5 ; for other systems, refer to relevant provisions of this NR266 and of NR445. Also see Hydraulic systems as per items G42 . Piping, valves and fittings as per items G26 and G27 (2) Pump housing: material certificates (C / W) according to the piping class. See item G31 (3) See item G28 (4) See item G30
	• Pumps (2)		C / W (2)	X h	C	
	• Electrical motor (1)	(1)		X	C / W	
	• Flexible hose assembly (3)	TA	W	X h	C	
	• Hydraulic jack-accumulator (4)	DA	C / W	X h ndt	C	
L12	Cargo offloading pumps and their prime movers (1) (2)	DA	C	X h	C	(1) See relevant provisions of items H and I (2) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR445

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L13	Cargo lines (1)	DA	C	X h ndt	C	(1) Class 1 piping system; see relevant provisions of items H and I
L14	Bonded flexible pipes and marine hoses	TA or DA (1)	C (1) (2)	X (1) (3)	C (1)	(1) Bonded flexible pipes' used as flowlines oil or gas production) are approved as per relevant industry standard API 17K (specification for bonded flexible pipes) (2) Mechanical tests on end fittings (3) As per an agreed procedure; refer to OCIMF, Guide to Purchasing, Manufacturing and Testing of Loading and Discharge Hoses for Off-shore Moorings, within 100 m waterdepth
L15	Fibre ropes for deep-water offshore services (1)	TA	C (2)	X ndt	C	(1) As per NI432, Certification of Fibre Ropes for Deepwater Offshore Services (2) As per NI658, Type Approval of fibre and yarns for the manufacturing of fibre rope
L16	Fibre ropes for Single Point Mooring hawsers (1) (2)	TA (3)	C	X ndt	C	(1) For offloading buoys and FP(S)O tandem offloading (2) As per NR216, Ch 10, Sec 6, [1.1.2]; see NI432, NI658 and OCIMF Guidelines for the purchasing and testing of single point mooring hawsers (3) As per NI658, Type Approval of fibre and yarns for the manufacturing of fibre rope
L17	Fibre ropes other than L15 and L16 , i.e. intended for emergency towing arrangement, cargo handling gear or similar applications (1) (2)		W	X ndt	C	(1) See item B7 (2) Requirements as per NR216 Note: As per NR467, Pt B, Ch 12, Sec 4, [4.1.1] - The towing and mooring arrangement as defined in NR467, Pt B, Ch 12, App 2, [1] and the towing and mooring lines as defined in NR467, Pt B, Ch 12, App 2, [2] are given as a guidance but are not required as a condition of classification. Survey of steel wires and fibre ropes for towing and mooring lines, when requested by the Owner, is to be done as per requirements of NR216, Ch 10, Sec 6
L18	LSA equipment: survival crafts, rescue boats, lifebuoys, life jackets, immersion suits, visual signals and other life-saving appliances	(1)		(1)	(1)	(1) Certification of Life-saving appliances is outside the scope of classification. For offshore units intended to be granted the applicable additional class notation LSA , type approval certificates showing compliance with SOLAS requirements are required as well as the associated individual or batch production documents

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L19	Pull-in systems (risers and mooring pull-in systems) (1)	DA (1)		X (2)	C	(1) Optional item L19 : scope and references to be specially agreed with the Society on a case-by-case basis. Refer to detailed provisions of item L23 (Offshore handling systems and associated equipment) (2) Shop tests, as per agreed program. See relevant provisions of NR595, Sec 3 (3) See item G26 (for Piping) and G42 (for Hydraulic systems) (4) For electrical motors, switchboards, starter cabinets and alarm panels, refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266 and of NR467 Note: On board load tests, as per agreed program
	1- Main shaft	DA	C	X ndt	C	
	2- Casing or body, main load-bearing structures	DA	C	X ndt	C	
	3- Hydraulic systems (3) (4)	(3)	(3)	X h	C	
	4- Guide roller, Wire stopper, Guide pins	DA	C	X ndt	C	
L20	Mooring (station keeping) system (1): <ul style="list-style-type: none"> mooring line components (chains, steel wire ropes and accessories) hull mounted equipment (fairleads, stoppers,...) anchors 	TA or DA (2)	C (2) (3)	X (2)	C	(1) For offshore units intended to be granted the additional class notations POSA , POSA-HR , POSA MU , or POSA JETTY (2) As per provisions of NR216, NR480 and NR493 - Classification of Mooring Systems for Permanent and Mobile Offshore Units (3) For mooring accessories: forges and foundries are to be approved
L21	Process systems on board offshore units (1) 1 - A1 Rating: <ul style="list-style-type: none"> Main pumps Main pressure vessels and pressurised equipment and piping: <ul style="list-style-type: none"> for flammable or toxic fluids equal or above class 300 psi for non flammable or non toxic fluids Main boilers Main rotating machinery above 100 kW Main electrical components such as rotating machines above 100kW, switchboards, control panels and uninterruptible power supplies Main internal combustion engines Steam or gas turbines Well control equipment Safety shutdown systems. 	DA	W (2)	X h ndt (2)	C	(1) Only for offshore units intended to be granted the additional class notation PROC (2) Reviews: <ul style="list-style-type: none"> Traceability of materials and review of mill certificates Welders, and NDT operators qualifications Forming, heat treating, welding, NDT and other fabrication or testing qualifications Survey of the fabrication and witnessing of NDT at random Witnessing of tests such as hydraulic tests, running tests, dielectric tests, etc. Assessment of the Manufacturer's QA/QC dossier (3) The following reviews: <ul style="list-style-type: none"> assessment of an independent design review review of vendor's test reports / certificates witness of pressure and final tests. (4) Review by the Society of the Manufacturer's inspection certificate and/or tests reports

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L21	2 - A2 Rating: <ul style="list-style-type: none"> Small pressure vessels Internal combustion engines below 370 kW Pipes, valves and fittings with diameter \geq to 4" and: <ul style="list-style-type: none"> below class 150 psi carrying steam, flammable or toxic fluids below class 300 psi for other non toxic or non flammable fluids 	DA (3)	W (3)	X (3)	C	(5) It is the Manufacturer's responsibility to obtain type approval certificate by a National Administration which is a signatory to the SOLAS Convention 1974 and to submit the corresponding certificate to the Society for review (6) is to be tested by a recognised laboratory recognized by The Society. It is the Manufacturer's responsibility to obtain the written approval and certificate of an independent inspection body. This certificate is to be submitted to the Society for review (7) The Society will: <ul style="list-style-type: none"> review the type approval certificates review the routine test inspection certificates issued by recognised independent inspection body (8) are to be certified or equivalent and the type approval certificate issued by the national approval authority is to be supplied to the Society for review
	3 - A3.1 Rating: <ul style="list-style-type: none"> Other pressure (unfired) vessels and heat exchangers Other pipes, valves and fittings Other compressors (auxiliaries) Other pumps Rotating machines less than 100 kW Instrumentation Other electrical equipment 		W (4)	X h ndt (4)	W (4)	
	4 - A3.2 Rating <ul style="list-style-type: none"> Statutory safety equipment such as safety and life saving appliances, navigation aids, etc. 	TA (5)				
	5 - A3.3 Rating <ul style="list-style-type: none"> Fire safe valves, passive fire protection materials, etc. 	TA (6)		(6)	(6)	
	6 - A3.4 Rating <ul style="list-style-type: none"> Electrical components, such as cables, switching devices, computer based systems, fire and gas detection equipment, fire fighting equipment and flexible hoses containing non-flammable and non-toxic fluids 	TA (7)		(7)	(7)	
	7 - A3.5 Rating <ul style="list-style-type: none"> Electrical components located in hazardous areas 	TA (8)				

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L22	Drilling systems and equipment (1) (2)	DA (2)	C / W (2) (3)	X (2) (4)	C / W (5)	<p>(1) Apply to all drilling systems and equipment intended to be granted the additional class notation DRILL</p> <p>(2) As per NR570</p> <p>(3) The manufacturing/testing of materials should be in accordance with either the relevant provisions of NR445 / NR216 (marine practices), or the provisions of accepted specifications and codes/standards (offshore industry practices) as quoted in NR570. Case-by-case for each particular offshore project, the detailed 'Materials certification requirements' agreed at the design review stage should clarify, among others, the relevant type of document to be produced by the manufacturer's selected materials suppliers: may be either materials certificate W, i.e. material inspection certificates type EN 10204 (3.1), or materials certificate C issued by the Society when agreed with the Operator/Duty holder</p> <p>(4) Where required, the 'traceability of materials and review of mill certificates' should be done with due consideration to the 'Materials certification requirements' specified in the applicable 'design documents' reviewed and case-by-case agreed at the design stage by the Society and the Operator/Duty holder</p> <p>(5) NR570 provides principles and specific requirements for the survey and certification of drilling systems and equipment; for the purpose, survey ratings (A1, A2, A3) are defined in order to address the scope of survey and certification (these requirements are complementary to those of this NR266)</p>

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L23	Offshore handling systems and associated equipment such as winches, strand jacks, chain jacks, sheaves and their foundations used for lifting/pulling of a load. In particular, the following equipment is covered: Equipment used for the installation and tensioning of mooring lines such as winches, chain jacks and sheaves; Tensioning winches and strand jack systems for riser pull-in (1) (2)	DA (2) (3)	C / W (4)	X (5)	C (2)	(1) Apply to offshore handling systems and associated equipment for ship or offshore units intended to be granted with the additional class notation OHS (2) As per NR595. Other handling equipment not listed herein may be covered on a case-by-case basis (the equipment covered by the notation OHS is to be used occasionally) (3) Provisions of NR526 are to be complied with regarding: - electrical and hydraulic systems - control and safety systems. (4) The manufacturing/testing of materials should be in accordance with the relevant provisions of NR445 / NR216 (marine practices) (5) The handling systems covered are to be tested at the manufacturer's workshop (FAT) as per procedures and provisions of NR595, Section 3 (6) Survey to be done as per relevant requirements of NR445, Pt C, Ch 1, Sec 3 and NR445, Pt C, Ch 1, Sec 7, or relevant provisions of NR467 (7) Cylinder shell and piston rod only (8) Survey to be done as per relevant requirements of NR445, Part C, Chapter 2, or relevant provisions of NR467 (9) Individual load test Note: The handling systems covered are to be tested after installation on board the unit as per procedures and provisions of NR595, Section 3
	1- Main load carrying structural elements: drum, flanges, supports or baseplate, shaft, etc.		C	X	C	
	2- Gear system		C	X	C	
	3- Ropes		W	X	C	
	4- Hydraulic system components		(6)	X	C / W (6)	
	5- Hydraulic cylinders		C (7)	X	C	
	6- Electric system components	DA or TA (8)	(8)	X	C / W (8)	
	7- Loose gear and accessories		W	X	C (9)	

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	<p>Offshore oil offloading - Transfer arms: (1)</p> <ul style="list-style-type: none"> transfer arms applied in a side-by-side configuration transfer arms applied in a tandem configuration <p>As a rule, the classification covers the following items:</p> <ul style="list-style-type: none"> foundations and connections of the transfer system with unit's hull supporting structures transfer line and associated equipment including swivels and bearings, when relevant emergency release system control/detection systems equipment for energy supply mooring and fendering equipment <p>Liquefied gas transfer systems: see Note 3.</p>	TA or DA (2) (3)	C (3)	X (3)	C (3)	<p>(1) As per NR588. Requirements applicable for floating offshore units intended to be granted the additional class notation oil offloading (transfer arms), as defined in NR445, Part A. The detailed scope of classification will be established by the Society on a case-by-case basis, taking into account the specificities and configuration of each transfer system</p> <p>(2) Transfer systems covered by the notation oil offloading (transfer arms) and using new or unproven technology are to be subject to a qualification process. The identification of new technology is to be carried based on the provisions of NI525, Risk Based Qualification of New Technology. Documentation containing a list of components of the transfer system categorized as new technology and requiring a qualification process is to be submitted</p> <p>(3) As per the relevant provisions of NR216, NR480, NR588, and when deemed necessary, the applicable requirements of:</p> <ul style="list-style-type: none"> OCIMF "Design and Construction Specification for Marine Loading Arms (Third Edition 1999)" European Standards EN 1474-1 "Design and testing of marine transfer systems", Part 1 (Design and testing of transfer arms) EN 1474-3 "Design and testing of marine transfer systems", Part 1 (Offshore transfer systems) <p>Note 1: Site acceptance tests are to be performed in accordance with the requirements of EN 1474-1, [8.4.8]</p> <p>Note 2: Oil offloading (transfer arms): The additional class notation Oil offloading (transfer arms) may be assigned to units having a transfer system for oil products, using transfer arms, and complying with the requirements of NR588 Offshore Oil Offloading - Transfer Arms. This additional class notations covers the following types of transfer systems: side-by-side transfer arms, tandem transfer arms</p> <p>Note 3: Liquefied gas transfer: The additional class notation liquefied gas transfer may be assigned to units having a liquefied gas transfer system fitted on-board, complying with the requirements of NR542 - Rules for the Classification of Offshore Floating Gas Units. This additional class notation covers the following types of transfer systems: side-by-side transfer arms, tandem transfer arms, transfer systems based on flexible hoses</p>

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L25	Diving systems and equipment (1)	DA (1)	(1)	X (1)	(1)	(1) Survey as per relevant provisions of NR610 for diving systems and equipment
L26	Offshore access systems (OAS) materials and components (1)	DA (1)		X (1)	C (1)	(1) NI629 provides guidelines for the certification of offshore access systems (OAS) based on gangways and used for the transfer of persons from ships to offshore facilities or from ship to ship. The principles and requirements developed in NI629 are applicable to active and passive offshore access systems (OAS), as defined in NI629, Sec 1, [4.2]. This Guidance Note also provides requirements for the classification of the offshore access system, i.e. its integration on the supporting ship on which it is fitted (2) As per relevant requirements of NR467 and NR445 - See items G26 (Piping) and G42 (Hydraulic systems) (3) Cylinder shell and piston rod only (4) For electrical components, refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266 and of NR467 (5) For control and monitoring system, refer to the relevant provisions of items K and N ; for the other systems, refer to the relevant provisions of this NR266 and of NR467 (6) Calibration test report, in accordance with an agreed program (7) Product certificate required for active OAS (8) As per relevant provisions of this NR266 or in compliance with an international standard. See also item O3 for ropes (9) Proof load as per NR526. See also item O5 for loose gear Note: On board load tests, as per agreed program
	1- Main load bearing structure		C	X ndt	C	
	2- Mechanical gears		C	X	C	
	3- Bearings		W	X	W	
	4- Slewing ring		C	X	C	
	5- Connection/disconnection device		W	X	W	
	6- Bolts and nuts				W	
	7- Hydraulic system components of class I		C (2)	X h ndt	C (2)	
	8- Hydraulic cylinders		C (3)	X h ndt	C	
	9- Winches		C	X	C	
	10- Electric system components	(4)	(4)	(4)	(4)	
	11- Control and monitoring system	(5)	(5)	(5)	(5)	
	12- Motion reference unit (6) (7)			X (6)	W / C (7)	
	13- Wire ropes (8)		W	X (8)	C	
	14- Loose gear and accessories (9)			X (9)	C	
L27	Gas production or liquefaction components for Floating gas units (1) (2) (3) (4) (5) (6) (7)					(1) As per NR542 - Classification of Floating Gas Units. Also see relevant provisions of item L21 for Rating principles (NR459) (2) Only applicable for units having one of the structural type notations and service notations defined in NR542. These requirements are complementary to the provisions of NR445 Rules for the Classification of Offshore Units, which remain applicable, except where otherwise specified
	Boil-Off Gas (BOG) Handling system (8) Boil-Off Gas (BOG) Handling system, as part of Refrigeration / Reliquefaction systems (9)	TA (10)		X (11)	C	
	1- Compressor	TA or DA	C	X h ndt	C	

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L27	2- Turbine	TA or DA	C / W	X h ndt	C	(3) Units intended to be assigned with the service notation(s) liquefied gas storage , are to comply with the requirements of IGC Code, except where otherwise specified in NR542. NR542 provides additional requirements and interpretations of IGC Code to be considered for the purpose of classification
	3- Electric motor	TA or DA	C / W	X	C	(4) All the gas production system components covered by the service notation PROC-GP are to comply with the relevant requirements of NR459 Process Systems Onboard Offshore Units and Installations, with regards to design, certification, construction survey and testing.
	4- Heat exchangers (12)	DA	C	X h ndt	C	(5) All the gas liquefaction system components covered by the service notation PROC-GL are to comply with the relevant requirements of NR459 Process Systems Onboard Offshore Units and Installations, with regards to design, certification, construction survey and testing.
	5- Sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric Cables	TA (13)		X	C / W (14)	(6) Systems and components covered by the additional class notation PROC are to comply with the requirements of NR459 Process Systems Onboard Offshore Units and Installations
	6- Cryogenic piping systems, cryogenic valves, cryogenic flexible hoses assembly	TA or DA	C	X h ndt	C	(7) Additional class notation PROC, PROC-GL or PROC-GP - Also see item L21
	7- Other piping systems, valves, flexible hoses assembly and expansion bellows	TA or DA	C / W	X h ndt	C	(8) See relevant provisions of NR467, Pt D, Ch 9, Sec 7, [2] and NR542, Section 13. Also see item H26
						(9) In case a component, material or equipment is not listed, refer to the applicable survey requirement of relevant item of this NR266

- (10) TA, or DA (on a case-by-case basis)
- (11) As per agreed program, based on the requirements of IGC Code and/or standards recognized by the Society
- (12) Heat exchangers (Class 1 vessel)
- (13) Automation systems: see relevant provisions of items **K** and **N5**
- (14) As per conditions set in the TA
- Note 1: Onboard tests are intended to demonstrate that the plant with associated safety features is functioning properly in compliance with the Rules criteria. The tests are to be witnessed by a Surveyor
- Note 2: Boil-Off Gas (BOG) Handling system: to consider NR467, Pt C, Ch 3, Sec 3 (or IACS UR E22).

Item M - Refrigerating Installation covered by Additional Class Notation REF (REF-CARGO, REF-CONT, REF-STORE)

REFRIGERATING INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION REF (REF-CARGO, REF-CONT, REF-STORE) - ITEM M						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
M	Note: The requirements of NR467, Part F, Chapter 7 summarized in this item M are specific to permanently installed refrigerating installations and associated arrangements and are to be considered additional to those specified in NR467, Pt C, Ch 1, Sec 15 (addressed in item G35) which are the minimum requirements mandatory for all ships with refrigerating installations - Individual pieces of equipment: shop tests are to be carried out on pumps, fans, electric motors and internal combustion engines forming parts of refrigerating installations, following procedures in accordance with the requirements applicable to each type of machinery. The relevant running data (capacity, pressure head, power and rotational speed, etc.) are to be recorded for each item - Pressure tests of components at the workshop include hydrostatic test (strength) and leak test (tightness) as per NR467, Part F, Chapter 7 - At least one refrigerating unit of each type installed on board is to be subjected to shop tests in order to ascertain its refrigerating capacity in the most unfavourable temperature conditions expected, or in other temperature conditions agreed by the Society Where the complete unit cannot be shop tested (for instance, in the case of direct expansion installations), alternative test procedures are to be agreed with the Society					
M1	Refrigerating compressors, and their prime movers	DA				(1) Compressor crankshaft or rotor, couplings, connecting rods and piston rods; compressor liners, cylinder heads and other parts subjected to pressure
	1- Refrigerating compressors		C (1)	X h (2)	C	(2) Including, for refrigerated container ships, checking at works of the performances as per Rules
	2- Prime movers (3)			X h	C / W (3)	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 ; diesel engines as per item E1
M2	Condenser circulating pumps, and their prime movers	DA				(1) Pump housing: material certificates (C / W) according to the piping class. See item G31
	1- Condenser circulating pumps		C / W (1)	X h (2)	C	(2) Including, for refrigerated container ships, checking at works of the performances as per Rules, where the prime movers have an output exceeding 50 kW
	2- Prime movers (3)			X h	C / W (3)	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
M3	Brine and refrigerant pumps, and their prime movers	DA				(1) Casing if temperatures ≤ – 40°C
	1- Brine and refrigerant pumps		C (1)	X h (2)	C	(2) Including, for refrigerated container ships, checking at works of the performances as per Rules, where the prime movers have an output exceeding 50 kW
	2- Prime movers (3)			X h	C / W (3)	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
M4	Air-cooler fans and their prime movers (1)	DA		X (2)	C	(1) For electrical motors driving fans, refer to item K5 (2) Determination of characteristics: capacity, pressure and power consumption

REFRIGERATING INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION REF (REF-CARGO, REF-CONT, REF-STORE) - ITEM M						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
M5	Condensers, heat exchangers, evaporators of shell type (tube or welded plate) and similar apparatuses: body, shell, covers, tubes or plates (1) (2)	DA		X h ndt (3)	C	(1) Brine (coolant): requirements as per pressure vessels criteria. See item G30 (pressure vessels for liquid substances) (2) Particular attention is drawn to provisions of NR467, Pt F, Ch 7, Sec 1, [7.5] regarding air coolers arrangement (3) Pressure tests as per Rules (4) See items G30 and G35 (5) Except for water side (6) Individual hydraulic test and non-destructive examination by approved method
	1- Body or shell (4)		C	X ndt	C	
	2- Covers		C (5)	X ndt	C	
	3- Tubes or plates		C	X h (6)	C	
M6	Pressure vessels: oil separators, intermediate receivers and other pressure vessels included in the gas circuit (1)	DA	C	X h	C	(1) See items G30 and G35
M7	Refrigerant pipes: steel and copper tubing for evaporator and condenser coils and for pressure piping in general (1)		C	X h	C	(1) See items G26 and G35
M8	Accessories of refrigerant pipes (1)		C	X h	C	(1) See items G27 , G28 and G35
M9	Brine pipes (1)		W	X h	W	(1) Class III piping system. See items G26 and G35
M10	Accessories of brine pipes (1)		W	X h	W	(1) Class III piping system. See items G27 , G28 and G35
M11	Equipment of refrigerated container ships					(1) See item M2 (2) See item M1 (3) Automation systems: see relevant provisions of item N (4) Calibration by the manufacturer. The Society reserves the right to require random checks of the calibration Note: For less important installations, running tests could be made on board
	1- Air ducts and couplings	DA		X h	C	
	2- Circulating pumps (1)	DA			C	
	3- Compressors (2)	DA			C	
	4- Temperature monitoring system	DA (3)		X h	C	
	5- Temperature sensors (detectors and thermometer)	TA (3)		X (4)	C / W	

REFRIGERATING INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION REF (REF-CARGO, REF-CONT, REF-STORE) - ITEM M						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
M12	Instrumentation (level detector, thermometers, pressure detector)	TA (1)		X (2)	C / W (3)	(1) Automation systems: see relevant provisions of item N (2) Calibration by the manufacturer. The Society reserves the right to require random checks of the calibration (3) As per conditions set in the TA
M13	Refrigerants (1)	(2) (3)	W	X	W	(1) For direct refrigerating systems: R12, R21, R22, R113, R114, R134a, R500, R502. The use of refrigerants other than those listed may be authorized by the Society on a case-by-case basis, provided that the physical properties and chemical analysis are clearly stated and the appropriate safety measures are foreseen in the installation design (2) Ammonia (R717) may be used only in indirect system refrigerating plants (3) Restrictions on the selection of refrigerants: see also item G35



Item N - Automation Systems covered by Additional Class Notations AUT

AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATIONS AUT - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N0	<p>The following Notes apply to all items from N1 to N10:</p> <p>Note 1: Automation systems requirements are divided in 2 parts:</p> <ul style="list-style-type: none">• Hardware: Automation systems are to be tested according to NR467, Pt C, Ch 3, Sec 6. The list of tests will depend on their design and their installation on board. The test program is to be submitted for approval. Automation systems are to be tested, at works and on board, when required. Tests are to be carried out under the supervision of a Surveyor of the Society.• Software: Automations systems are to be documented and tested depending on their Category (Cat I, Cat II, Cat III) according to NR467, Pt C, Ch 3, Sec 3, Tab 2. The category will depend on the risk assessment for all operational scenarios. The surveyor will ensure that a Software quality system is in place and that the proper documentations and justifications are available. In addition, software of automation systems will be submitted to functional tests, integration tests before installation on board and final integration tests, depending on their category. <p>Note 2: Automation systems covered by additional class notations AUT:</p> <p>Documentation and approval as per relevant provisions of:</p> <ul style="list-style-type: none">• NR467, Pt F, Ch 3 for notations AUT-UMS, AUT-CCS, AUT-PORT or AUT-IMS• for offshore units: NR445, Pt C, Ch 3 for notation AUTO• for naval ships: NR483, Pt E, Ch 4, for notations AUT-QAS, AUT-PORT, AUT-IAS. <p>Testing according to NR467, Pt C, Ch 3, Sec 6.</p> <p>Note 3: Cyber security for the classification of marine units: The requirements of NR659 apply to design, construction, commissioning and maintenance of computer based systems where they depend on software for the proper achievement of their functions. The requirements focus on the functionality of the software and on the hardware supporting the software. These requirements apply to the use of IT (Information Technologies) and OT (Operational Technologies), computer based systems which provide, communicate or transport control, alarm, monitoring, safety or internal communication functions which are subject to classification requirements.</p> <p>The additional class notations CYBER MANAGED, CYBER RESILIENT and CYBER SECURE may be assigned to ships or offshore units whose equipment and networks comply with the requirements of NR659.</p> <p>For equipment to be fitted onboard a ship having the additional class notation CYBER SECURE, any equipment defined in the scope of application is to be approved in compliance with the requirements of NR659, Chapter 3</p> <p>Note 4: Type approvals (TAC) addressed as per NR659 typically include cyber equipment, cyber monitoring system, cyber data diode, cyber ship-shore data sharing system, and other cyber security services.</p> <p>Note 5: Cyber security for products to be installed on-board naval ships: The requirements of NR642 apply to naval ships covered by NR483. they can be applied on request to other kind of ships. The goal of NR642 is to define a process in order to assess: that a manufacturer has set in place procedures in order to deliver products following requirements regarding cyber security, and that a product delivered by a manufacturer fulfils requirements regarding cyber security. Any equipment containing any logical code or addressable memory should be considered in the scope of NR642. The Cyber security requirements contained therein are dedicated to manufacturers and their products. The agreement between the Society and the Manufacturer does not need to be linked to a specific ship classification. Upon satisfactory completion by the Society of security verification and surveys, the Society delivers to the manufacturer survey certificates in accordance with NR642.</p> <p>Note 6: Control console (BCC) and engine control console (ECC):</p> <p>Each product certificate is to include reference to the corresponding console. As applicable, the equipment/item(s) installed on the console are certified by the Society as per relevant rule or TAC granted to manufacturer of each equipment according to purchaser order by console manufacturer. Also see NR467 Pt C, Ch 3, Sec 4, [5]; Sec 5, [5] and Sec 6, [3]. As far as electrical distribution and cabling are concerned, NR467, Pt C, Ch 2, Sec 8, [2] and [3] may be applicable.</p>					


AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATIONS AUT - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N1	Machinery monitoring and alarm systems	TA or DA (1)		X (2)	C / W (3)	(1) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA
N2	Propulsion plant remote control systems: diesel engines, turbines, clutches, controllable pitch propellers, thrusters, automatic shaft brakes, ...	TA or DA (1)		X (2)	C / W (3)	(1) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA
N3	Control and monitoring systems for auxiliaries equipment: generating sets, boilers, air compressors, fresh water generators, ...	TA or DA (1)		X (2)	C / W (3)	(1) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA
N4	Fire or gas detection systems: detectors, control cabinet,...	TA or DA (1)		X	C / W (2)	(1) In the case of a discrepancy between the provisions of the applicable International and National statutory regulations and those of the Society's Rules, normally the former take precedence. A valid certification to MED 2014/90/EU is to be recognised for classification purpose (2) As per conditions set in the TA
N5	Sensors and control equipment and/or monitoring devices: 1- Sensors: Pressure or temperature sensors, shut-down electric valves, level sensors, automatic pressure, temperature or level controllers,...) 2- Control equipment and / or monitoring devices: Alarm panels, electronic protective devices, automatic and remote control equipment, actuators, safety devices for installations intended for essential services, electronic speed regulators for auxiliary engines, ...)	TA or DA (1)		X (1)	C / W (2)	(1) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3 (2) As per conditions set in the TA

AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATIONS AUT - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N6	Integrated computer-based system (1)	TA or DA (2)		X (3)	C / W (4)	<p>(1) Integrated system is a system consisting of two or more subsystems having independent functions connected by a data transmission network and operated from one or more workstations (data communication link includes point to point links, instrument net and local area networks, normally used for inter-computer communication on board units. The software and hardware which support the data communication are also included)</p> <p>(2) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3</p> <p>(3) According to a program to be agreed with the Society</p> <p>(4) As per conditions set in the TA</p>
N7	Condition Monitoring Systems (CMS) and Computerized Maintenance Management Systems (CMMS)	TA / DA (1)		X (2)	C / W (3)	<p>(1) Approval of hardware and software as per NR674 and NI684 for additional service feature [CBM], and as per NR496 for computerized maintenance management systems (CMMS)</p> <p>(2) According to a program to be agreed with the Society</p> <p>(3) As per conditions set in the TA / DA.</p>
N8	Programmable logic controllers (PLC) and computers used for tasks essential to safety, all components related to safety functions	TA or DA (1)		X (1) (2)	C / W (3)	<p>(1) Hardware and software type approval and testing as per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3</p> <p>(2) According to a program to be agreed with the Society</p> <p>(3) As per conditions set in the TA</p>
N9	Expert system (1)	TA (HBV) or DA (2) (3)		X (4)	W (5)	<p>(1) Expert system is an intelligent knowledge-based system that is designed to solve a problem with information that has been compiled using some form of human expertise</p> <p>(2) As per NR467, Part F, Chapter 3 (or, as applicable, NR445, Part C, Chapter 3 or NR483, Part E, Chapter 4) and relevant requirements of NR467, Part C, Chapter 3</p> <p>(3) The expert system software is not to be implemented on a computer linked with essential functions. Expert system software is not to be used for direct control or operation, and needs human validation by personnel on watch</p> <p>(4) According to a program to be agreed with the Society</p> <p>(5) As per conditions set in the TA (HBV)</p>



AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATIONS AUT - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N10	Loading instrument or calculator / Stability computer (1)	TA or DA (1)		X (2)	C / W (3)	(1) Approval of hardware, basic software and application software according to relevant provisions of NR467, Pt C, Ch 3, Sec 6 and NR467, Part B. Also see item B20 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA

Item O - Lifting Appliances for Ships and Offshore Units

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O	The following notes apply to all items: O1 for derricks; O2 and O3 for cranes; O4 for SAS (supply at sea) components, O5 for winches not covered by items O1 , O2 , O3 or O4 .					
	Note 1: Scope and limitation: It is applicable to materials and components intended to be part of lifting appliances and accessories covered by NR526 fitted on ships, floating supports, fixed or mobile offshore platforms, and used at harbour or in offshore conditions (for loading or unloading cargoes, equipment, spare parts or consumables). The use of lifting appliance for personnel transfer operations is excluded from the Class approval scope, except if -MR notation is granted; the use of lifting appliance for personnel transfer is subject to regulations of the relevant Flag administration.					
	Note 2: The applicable requirements for cranes depend on the actual context, which is a mix of Statutory/International regulations and National and Flag Authority regulations for the given ship/marine unit. In this respect, three cases may be found:					
	<ul style="list-style-type: none">ILO 152 / ILO 160 (disregarding any specific Flag Authority regulations). Voluntary request to the Society.ILO 152 / ILO 160 + specific National or Flag Authority regulations (i.e. typically: the French Maritime Regulations “Règlementation de la Sécurité des Navires”, Division 214). Mandatory as per Ship’s flag requirements.Classification Rules requirements, as per additional class notation (i.e. ALP, ALM). Mandatory as per Classification requirements.					
	Therefore, a case-by-case examination enables to identify which of the three previous options should be applied to a particular equipment (Crane) for a given ship or offshore unit entitled to fly the Flag of a given State.					
	Note 3: Scope of classification for cranes and derricks (as per NR526):					
	The additional class notations ALP , (ALP), ALM , (ALM) are granted to the supporting ship or offshore units. The notation ALM may be completed by: -EN when, in addition, the lifting appliances are in compliance with additional safety requirements, or -SUBSEA when, in addition, the lifting appliances are intended to be used for lifting of subsea equipment and are in compliance with relevant provisions of NR526. The additional class notations ALP , ALM , ALM-EN and ALM-SUBSEA may be completed by -MR when, in addition, the lifting appliances are intended to be used for lifting of personnel and are in compliance with NR526, Ch 3, Sec 3.					
	Note 4: When the Lifting appliance is intended for certification in compliance with statutory regulations without additional class notation, as per NR526 Ch 1 Sec 1 [2], see item O2 .					
	The certificates issued by the Society on behalf of Administration correspond to the forms recommended by ILO for entering them in the Register of ship’s Lifting appliances.					
	<ul style="list-style-type: none">The materials are to be identified by certificate W (Works') issued by the Manufacturer, and submitted to the Surveyor for review (materials to be in compliance with NR216 or accepted specifications). The Works' certificate issued by the Manufacturer shall indicate the guaranteed chemical and mechanical properties (i.e. may be material inspection certificates type EN 10204-3.1) as well as the results of the tests performed.Loose gear are to be documented by the Manufacturer with relevant product certificates in accordance with ILO regulations.					
Note 5: When the Lifting appliance is intended to be covered by Classification, as per NR526 Ch 1 Sec 1 [3] with additional class notation ALP , or ALM assigned with construction mark  , see item O3 :						
<ul style="list-style-type: none">The materials are to be covered by BV product certificate issued by a Surveyor of the Society (materials to be in compliance with NR216 or accepted specifications). The tested materials are to be individually certified by the Society; an alternative inspection scheme may be agreed by the Society with the Manufacturer whereby the attendance of the Surveyor will not be required.The BV product certificate mentioned in a) is required in addition to any other Manufacturer's documents (i.e. material inspection certificates type EN 10204 - 3.1) included in the Manufacturer Record Book.						
Note 6: For Supply at Sea (SAS) components: the additional class notation SAS is assigned in accordance with NR467, Pt A, Ch 1, Sec 2 to ships having the service notation supply fitted with installations for underway ship-to-ship supply at sea of liquid and solid supplies. See item O4 .						
Note 7: Programmable logic controllers (PLC) and computers used for tasks essential to safety, all components related to safety functions: see relevant provisions of item N8						

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O1	Derricks (1)	DA	(2)	X (3)	C	(1) As per NR526
	1- Masts and boom supports (4)		C	X	C	(2) Materials as per NR216
	2- Derrick booms		C	X ndt (5)	C	(3) Shop tests as per agreed program
	3- Gooseneck		C	X	C	(4) See item B18
	4- Span block trunnions		C	X	C	(5) For welded construction; the extent and the nature of the non-destructive examinations are subject to the Society's agreement
	5- Ropes for lifting, span and slewing		W	X (6)	C	(6) See the corresponding requirements of items O2 or O3 , as applicable.
	6- Loose gear (blocks, hooks, shackles)	(7)	C	X ndt	C	(7) May be submitted to individual assessment in separate scope as per the corresponding requirements of items O2 or O3 , as applicable.
	7- Other component essential for the function of the lifting appliance, or structural items, i.e. winches (if any)	(8) (9) (10)	C	X	C	(8) No individual design assessment of winches; the main load carrying structural elements of winches (drum, flanges, supports or baseplate, shaft, etc.) are reviewed as part of item O1 structures
O2	Lifting appliances (except derricks, but including cargo lifts) intended for certification in compliance with statutory regulations	DA		X (1)	C (2)	(9) Survey of other equipment to be done as per relevant requirements of Rules: i.e. for piping and pressure vessels, see items G26 and G30 ; for electrical equipment, see the corresponding requirements of items O2 or O3 , as applicable.
	1 - Main structure					(10) Control and monitoring system, refer to the relevant provisions of items K and N (Automation systems)
	• Slewing/flange rings	DA	W (3)	X ndt (4)	W	Note: Running tests on board as per agreed program
	• Jib, crane house, platforms	DA	W (5)	X ndt (4)	W	(1) Refer to NR526, Ch 4, Sec 1, [6]
	• Pedestal (not welded to the hull)	DA	W (3)	X ndt (4)	W	(2) Product certificate is issued when all tests required by NR526 are performed, in particular:
	• Load bearing shafts	DA	W (5)	X ndt (4)	W	- overload test
	• Other load carrying structural elements	DA	W (5)	X ndt (4)	W	- functional test.
	• Fixed parts of lifting appliances and elements connecting them with the ship structure (6)	DA	C	X	C	(3) The material inspection certificate is to be of type EN 10204-3.2 and is to indicate the guaranteed chemical and mechanical properties as well as the results of the tests performed.
						(4) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement. Refer to NR526, Ch 4, Sec 1, [3]
						(5) The material inspection certificate is to be of type EN 10204-3.1 or 3.2 and is to indicate the guaranteed chemical and mechanical properties as well as the results of the tests performed.
						(6) Refer to NR467

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O2	2 - Mechanical elements					(7) Refer to NR526, Ch 4, Sec 1, [3]
	• Slewing ring bearing	DA	W	X	C	(8) Refer to item G30
	• Bolts and nuts of slewing bearing		W		W	(9) Refer to items G26 / G27
	3 - Machinery components and hydraulic systems (7)					(10) As per Society's agreement
	• Winches	DA / TA		X	W	
	• Reduction gears				W	
	• Hydraulic accumulator (8)	DA / TA		X	W / C	
	• Hydraulic motors / pumps			X	W	
	• Hydraulic luffing cylinders class	DA / TA	W	X h ndt	C	
	• Flexible hoses	TA	W	X h	W	
	• Piping system (9)		W	X h ndt	W / C	
	• Auxiliary machinery items essential for the function of the lifting appliance	(10)	(10)	(10)	(10)	
	4 - Electrical equipment					
	• Electric motors for essential functions of the lifting appliance	DA / TA			W	
	• Cables	DA / TA			W	
	• Circuit breakers	DA / TA			W	
	• Contactors	DA / TA			W	
	• Convertors	DA / TA			W	
	• Switchboard	DA		X	W	
	• Slip rings	DA / TA			W	
	• Other electrical equipment essential for the function of the lifting appliance				W	

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O2	5 - Loose gear (Blocks, hooks, shackles ...)					(11) Refer to NR526, Ch 4, Sec 1, [3]
	• Sheaves	DA / TA	W (11)	X ndt (12) (13)	C	(12) Depending on SWL as per NR526, Ch 4, Sec 1, [7]
	• Hooks	DA / TA	W (11)	X ndt (12) (13)	C	(13) For welded construction, the extent and the nature of the non-destructive examinations are subject to the Society's agreement.
	• Blocks	DA / TA	W (11)	X ndt (12) (13)	C	(14) As per NR216. As alternative, tests and checking carried out in compliance with international or national standards may be accepted if they are considered as equivalent (e.g. ISO 3178 "Steel wire ropes for general purposes - Terms of acceptance"). Refer to NR526, Ch 4, Sec 1, [5]
	• Lifting beams	DA	W (11)	X ndt (12) (13)	C	(15) As per NR216. Refer to NR526, Ch 4, Sec 1, [5]
	6 - Ropes					
	• Wire ropes		W	X (14)	C	
	• Fibre ropes		W	X (15)	C	
O3	Lifting appliances (except derricks, but including cargo lifts and lifting of personnel) intended to be under the scope of classification of the supporting ship or offshore unit	DA / TA		X (1) (2) (3)	C (4)	(1) Refer to NR526, Ch 4, Sec 1, [6]
	1 - Main structure					(2) For offshore cranes refer to NR526, Ch 4, Sec 1, [8]
	• Slewing/flange rings	DA	C	X ndt (5)	C	(3) For lifting of personnel refer to NR526, Ch 4, Sec 1, [9]
	• Jib, crane house, platforms	DA	C	X ndt (5)	C	(4) Product certificate is issued when all tests required by NR526, Ch 4, Sec 1 are performed, in particular:
	• Pedestal (not welded to the hull)	DA	C	X ndt (5)	C	- overload test
	• Load bearing shafts	DA	C	X ndt (5)	C	- functional test.
	• Other load carrying structural elements	DA	C	X ndt (5)	C	(5) For welded construction, the extent and the nature of the non-destructive examinations are subject to the Society's agreement. Refer to NR526, Ch 4, Sec 1, [3] and NR526, Ch 4, Sec 1, [4]
	• Fixed parts of lifting appliances and elements connecting them with the ship structure (6)	DA	C	X	C	(6) Refer to NR467
	2 - Mechanical elements					
	• Slewing ring bearing		C	X	C	
	• Bolts of slewing bearing		W		C	
	• Nuts of slewing bearing		W		W	

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O3	3 - Machinery components and hydraulic systems (7)					(7) Refer to NR526, Ch 4, Sec 1, [3] and NR526, Ch 4, Sec 1, [4]
	• Winches	DA / TA	C	X	C	(8) Refer to item G30
	• Reduction gears (transmitted power $P \geq 110$ kW)	DA / TA	W / C	X h ndt	C	(9) Refer to item G28
	• Reduction gears (transmitted power $P < 110$ kW)	DA / TA	W		W	(10) Refer to items G26 / G27
	• Hydraulic accumulator (8)	DA / TA	W / C	X h ndt	W / C	(11) As per Society's agreement. Diesel engines to be type approved as marine engines. Survey requirements as per item E1 and applicable provisions of NR467, Pt C, Ch 1, Sec 2.
	• Hydraulic cylinders class I	DA / TA	C	X h ndt	C	(12) Electrical motors and equipment to be considered as intended 'for essential services'. Survey requirements as per item K .
	• Hydraulic motors / pumps belonging to class I and II	DA / TA	W	X h ndt	C	(13) Refer to item K5
	• Hydraulic motors / pumps belonging to class III			X h	W	(14) Refer to item K14
	• Flexible hoses (9)	TA	W	X h	C	(15) Depending on SWL as per NR526, Ch 4, Sec 1, [3]
	• Piping system and fittings (10)		W / C	X h ndt	W / C	(16) For welded construction, the extent and the nature of the non-destructive examinations are subject to the Society's agreement. Refer to NR526, Ch 4, Sec 1, [4]
	• Auxiliary machinery items essential for the function of the lifting appliance	(11)	(11)	(11)	(11)	(17) Proof load as per NR526, Ch 4, Sec 1, [7]
	4 - Electrical equipment (12)					(18) As per NR216. As alternative, tests and checking carried out in compliance with international or national standards may be accepted if they are considered as equivalent (e.g. ISO 3178 "Steel wire ropes for general purposes - Terms of acceptance"). Refer to NR526, Ch 4, Sec 1, [5]
	• Electric motors for essential functions of the lifting appliance (13)	DA / TA		X	C / W	(19) As per NR216. Refer to NR526, Ch 4, Sec 1, [5]
	• Cables	DA / TA			W	
	• Circuit breakers	DA / TA			W	
	• Contactors	DA / TA			W	
	• Convertors	DA / TA		X	C	
	• Switchboard (14)	DA		X	C	
	• Slip rings	DA / TA		X	C	
	5 - Loose gear (Blocks, hooks, shackles ...)	DA / TA	W / C (15)	X ndt (16) (17)	C	
	6 - Ropes					
	• Wire ropes		W	X (18)	C	
	• Fibre ropes		W	X (19)	C	

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O4	Supply at Sea (SAS) components (1)					(1) Supply at Sea (SAS) components as per relevant provisions of NR467, Pt F, Ch 12, Sec 3. The additional class notation SAS is assigned in accordance with NR467, Pt A, Ch 1, Sec 2, [6.16.4], to ships having the service notation supply fitted with installations for underway ship-to-ship supply at sea of liquid and solid supplies, complying with the requirements of NR467, Pt F, Ch 12, Sec 3
	1- Lifting appliances: masts, cranes, derricks	DA	C (2)	X (3)	C	(2) As per NR216 (3) As per relevant provisions of NR526
	2- Winches, anti-slack devices, Ram tensioner	(4)	C (2)	X	C	(4) As a rule, no individual design assessment of winches and RAS equipment. Also see remark (15) Replenishment at sea (RAS): as per definition, RAS means refuelling at sea or underway replenishment at sea of solid and liquid supplies
	3- Electric motors and electrical equipment used for SAS operations (5)	DA or TA	W	X (6)	C / W (5)	(5) Considered as intended for secondary essential services. Also see relevant provisions of item K5 (6) Testing of electric motors includes type tests and routine tests as per Pt C, Ch 2, Sec 4, [3]
	4- Hydraulic cylinders, piping of class I and equipment essential for SAS operation (winches, Ram tensioner)	(7)	C	X h ndt	C	(7) Where nothing is mentioned in the design index assessment column, an individual design assessment of the specific unit is not required (or the unit DA is already addressed within the scope of the Main system approval).
	5- Control systems of winches and essential systems for SAS operation (Ram tensioner)	DA (8)		X	C	(8) Control and monitoring system, refer to the relevant provisions of items K and N (Automation systems) (9) Only for metallic pieces and couplings
	6- Cargo transfer hoses and pipes couplings, including break-away couplings	TA	C (9)	X h ndt (10) (11)	C	(10) Non-destructive and hydraulic tests as per recognized standards or specification to be specified by the manufacturer (11) Emergency breakaway capabilities to be demonstrated on-board
	7- Loose gear and accessories, including blocks, hooks, shackles, swivels ...	DA (12)	W	X (13)	C	(12) Only for elements not complying with a national or international standard (13) Proof load as per NR467, Pt F, Ch 12, Sec 3, [4.3] (14) Also see the corresponding requirements of item O3 , as applicable
	8- Steel wire ropes (14)	(7)	W	X (15)	C	(15) As per requirement of NR216 or in compliance with a national or international standard (ISO 3178 for instance) Note: Supply at Sea (SAS) arrangements tests and inspections required after their installation on board, according to an agreed programme -ref. NR467, Pt F, Ch 12, Sec 3, [4.4]

LIFTING APPLIANCES FOR SHIPS AND OFFSHORE UNITS - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O5	Winches intended for lifting appliances (not documented with O1 , O2 , O3 and O4), and subject to individual assessment	(1)	(2)	X ndt (3) (4)	C	(1) Scope to be specially considered by the Society and agreed on a case-by-case basis. Acceptance may be done by mean of specification data verifications and prototype testing according to NR526
	1- Main load carrying structural elements: drum, flanges, supports or baseplate, shaft, etc.		C	X	C	(2) Materials as per NR216
	2- Ropes		W	X (5)	C	(3) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement
	3- Hydraulic systems and other component essential for the function of the winch		C	X (6)	C	(4) Shop tests and running tests, as per agreed program
	4- Loose gear and accessories		C	X (7)	C	(5) See the corresponding requirements of items O2 or O3 , as applicable
						(6) Survey to be done as per relevant requirements of the Rules: for piping and pressure vessels, see items G26 and G30 ; for electrical equipment, see the corresponding requirements for items O2 or O3 , as applicable
						(7) Loose gear (if any), as per item O2 or O3 as applicable



Item P - Container Lashing Equipment for Ships with Additional Class Notation LASHING

CONTAINER LASHING EQUIPMENT FOR SHIPS WITH ADDITIONAL CLASS NOTATION LASHING - ITEM P						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
P1	Cargo fixed lashing equipment (cell-guides, corner locking devices, steel wire ropes or chain lashing, steel rods ...) and mobile lashing/securing equipment (1)					(1) As per NR467, Pt F, Ch 12, Sec 5 (2) As per NR216 (3) As per agreed procedures
	1- Fixed lashing equipment (cell-guides, corner locking devices, steel wire ropes or chain lashing, steel rods, ...)	DA	C (2)	X	W	Note: On board. Running tests of mounting of mobile lashing equipment in accordance with the conditions of operation and the lashing plan arrangement are to be carried out
	2- Mobile lashing/securing equipment	TA (3)	C (2)	X (3)	C	



Item Q - Installations covered by Additional Class Notation SPM (SINGLE POINT MOORING)

INSTALLATIONS COVERED BY ADDITIONAL CLASS NOTATION SPM (SINGLE POINT MOORING) - ITEM Q						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Q	Note: The following Note applies to all items, from Q1 to Q3 : The additional class notation SPM is assigned to ships fitted forward with equipment for mooring at single point mooring or single buoy mooring terminals, using standardized equipment complying with the recommendations of the Oil Companies International Marine Forum (OCIMF), 4th edition (2007), subject to the agreement. The application of other editions of OCIMF is considered by the Society on a case-by-case basis)					
Q1	Bow chain stoppers (1)	DA or TA	C (2)	X ndt (3)	C	(1) Components of the equipment used for mooring at single point moorings may be common with the bow emergency towing arrangements specified in item B22 , provided that the provisions of NR467, Pt F, Ch 11, Sec 3 are complied with (2) As per NR216 (3) Testing as per agreed procedure
Q2	Bow fairleads	DA (1)	C (2)			(1) May be type approved (2) As per NR216
Q3	Pedestal roller fairleads	DA (1)	W	X	C	(1) May be type approved



Item R - Installations covered by Additional Class Notation DYNAPOS (Dynamic Positioning)

INSTALLATIONS COVERED BY ADDITIONAL CLASS NOTATION DYNAPOS (DYNAMIC POSITIONING) - ITEM R						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
R1	Control system, controllers, etc	DA (1) (2)		X (3)	C	(1) As per NR467, Pt F, Ch 11, Sec 5 (2) Automation systems: see relevant provisions of item N (3) According to an agreed program
R2	Position reference systems (gyrocompass, acoustic system, taut wire, radio location, inertial system, Doppler system, GPS, etc.)	DA or TA (1) (2)		X (3)	C	(1) DA as per NR467, Pt F, Ch 11, Sec 5 TA for other reference systems i.e. GPS or DGPS designed in accordance with IMO Resolutions (to be approved by a competent national Authority) (2) Automation systems: see relevant provisions of item N (3) According to an agreed program
R3	Vessel sensors (heading and motion, wind speed and direction)	(1)		X (2)	C	(1) Automation systems: see relevant provisions of item N (2) According to an agreed program
R4	Thruster system (1)	DA	C	X ndt	C	(1) See item G34
R5	Power system, electrical installations and their prime movers (1)	DA		X ndt	C / W (1)	(1) See item K and relevant provisions of items E , F and G (i.e. for diesel engines, turbines, etc.)



Item S - Pollution Prevention Installation covered by Additional Class Notations CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations)

POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations) - ITEM S						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S1	15 ppm oil filtering equipment, oily water separators	(1) (2)		(1) (2)	(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S2	Oil content meter	(1) (2)		(1) (2)	(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S3	Sewage treatment plants	(1) (2)		(1) (2)	(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S4	Shipboard incinerators	(1) (2)		(1) (2)	(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant

POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations) - ITEM S						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S5	Scrubbers (1): - Water pumps (2) - Treatment chemical pumps (2) - Tower Unit (Scrubber) (2) - Pipes, valves and fittings (3) - Pressure vessels (4)	DA / TA (5) (6)	W	X ndt (2) (5) (6)	W / C (2) (5) (6)	(1) For SO _x , i.e. Sulfur oxides (2) EGCS Tower Unit (Scrubber) and Treatment chemical pumps are to be certified - Product certificate 'C' as per requirements NR467, Pt.C, Ch.1, Sec.10. Table 41 (3) As per item G29 (4) As per item G30 (5) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (6) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant Note: Scrubber units to be designed and installed in accordance with applicable Statutory requirements and relevant provisions of NR467, Pt C, Ch 1, Sec 11 and NR216. See item G26 and other relevant provisions of this NR266. Additional class notation EGCS-SCRUBBER as per NR467, Pt F, Ch 9, Sec 7, [2], as relevant
S6	SCR, Selective catalytic reduction systems (1) (2) - Pipes, valves and fittings (3) - Pressure vessels (4)	DA / TA (2) (5)	(W)	(2) (5)	C (2) (5)	(1) For NO _x , i.e. nitrogen oxides (2) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (3) As per item G29 (4) As per item G30 (5) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S7	Ballast water management system (BWMS)	TA (1)	C / W (2)	X h (2)	C (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional class requirements, see item G44

POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations) - ITEM S						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S8	Onboard NOx monitoring systems (1)	(2) (3)		(2) (3)	(2) (3)	(1) For NOx, i.e. nitrogen oxides (2) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (3) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S9	Grey Water Treatment Plant (1) (2)	TA	C / W (3)	X h ndt (4)	C	(1) For equipment covered by additional class notations GWT and GWT-B (2) Statutory equipment: certification as per Flag State requirements (3) As required in other relevant items of this NR266 (4) As required by NR467, Pt F, Ch 9, Sec 5



Item T - Availability of Machinery covered by Additional Class Notation AVM (AVM-APS, AVM-DPS, AVM-IPS)

AVAILABILITY OF MACHINERY COVERED BY ADDITIONAL CLASS NOTATION AVM (AVM-APS, AVM-DPS, AVM-IPS) - ITEM T						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
T1	The additional class notation AVM-APS is assigned to self propelled ships arranged with means for alternative propulsion system complying with NR467, Part F, Chapter 2	DA or TA (1)	C or W (1)	X (1)	C or W (1)	(1) Survey of components of the system to be done as per relevant Sections of NR467 and this NR266 for similar systems (2) At least one alternative propulsion system (capable of being brought into operation within 30 mn after the loss of the main propulsion system)
	1- Alternative propulsion system (system that provides thrust of the ship in emergency conditions, when the main propulsion system becomes unavailable after a failure) (2) (3)	DA or TA (1) (4)	C or W (1)	X (1)	C or W (1)	(4) When electrical motor is used as alternative propulsion system, characteristics are to be appropriate for electrical propulsion (3) Electrical power plant so designed that in case of any failure in the plant, there remains enough electrical power to maintain simultaneously: sufficient propulsion and steering capability to operate the ship in safe conditions, and the availability of safety systems
	2- Propulsion auxiliary systems associated to alternative propulsion system	DA or TA (1)	C or W (1)	X (1)	C or W (1)	
T2	The additional class notation AVM-DPS is assigned to ships arranged with redundant propulsion and steering installations complying with NR467, Part F, Chapter 2	DA or TA (1) (2)	C or W (1)	X (1)	C or W (1)	(1) Survey of components of the system to be done as per relevant Sections of NR467 and this NR266 for similar systems (2) Electrical power plant so designed that in case of any failure in the plant, there remains enough electrical power to maintain simultaneously: sufficient propulsion and steering capability to operate the ship in safe conditions, and the availability of safety systems
T3	The additional class notation AVM-IPS is assigned to ships arranged with independent propulsion and steering installations complying with NR467, Part F, Chapter 2	DA or TA (1) (2)	C or W (1)	X (1)	C or W (1)	(1) Survey of components of the system to be done as per relevant Sections of NR467 and this NR266 for similar systems (2) In addition, in the event of fire or flooding casualty in the machinery spaces, the propulsion, steering and power generation capabilities are to remain sufficient to operate the ship in safe conditions. Where a propulsion system becomes inoperative due to a fire or flooding casualty, other propulsion systems are not to be affected by the casualty
	- Propulsion auxiliary systems, and electrical generation and electrical distribution equipment	DA (2)	C or W (1)	X (1)	C or W (1)	



Item U - Stainless or high alloy steel for membrane of liquefied gas fuel ships

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U1	Steel plates and profiles for independent liquefied gas fuel tanks	(1)	C (1)	X	C	(1) As per provisions of NR529, Chapter 7 and NR529, Chapter 16
U2	Aluminium alloy plates and profiles for independent liquefied gas fuel tanks	(1)	C (1)	X	C	(1) As per provisions of NR529, Chapter 7 and NR529, Chapter 16
U3	Stainless or high alloy steel for membrane liquefied gas fuelled ships	(1) TA (2)	C (1) (2)	X	C	(1) As per provisions of NR529, Chapter 7 and NR529, Chapter 16 (2) Provisions of NR529, Appendix 2 are to be applied and relevant provisions of NR216 and NR480 Note: Contacts of gas fuel tanks to supporting blocks to be checked on board
U4	Insulation materials (1)					(1) Refer to NR529 C.6.4.13.3 and NR529, C.6.4.13.3 (a) (2) Test to be witnessed by attending surveyors unless otherwise agreed (3) DA for glue not used in secondary barrier (SB) or inner space (IP) bonding (4) Tensile tests for TA (5) C for polyurethane foam, W for polystyrene (6) Review of bonders operators qualifications Review of bonding and other fabrication or testing qualifications including Flat, Corner and Tri-way panels
	1 - Paint for inner hull protection	TA			W	
	2 - Studs, nuts, washers, coupler sockets, staples and screws		W		W	
	3 - Load bearing mastic	TA (2)		X	W	
	4 - Adhesives and Glue	TA (3) (4)			W	
	5 - Foam panel	TA			C/W (5)	
	6 - Plywood	TA			W	
	7 - Stainless steel sheet	TA		X	C	
	8 - Stainless steel sheet studs, nuts and washers	DA			C	
	9 - Glass wool and Glass cloth	TA			W	
	10 - Thermal protection				W	
	11 - Aluminium for reinforced elements	TA		X	C	
	12 - Aluminium wedges	TA	C		W	
	13 -Secondary Barrier (composite material)	TA		X	C	
	14 - Insulating Panels	TA	C	X (6)	C	

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U4	15 - Expansion Rivets (15 mm)	TA	W		W	(7) In the case of shipbuilder's own manufacturing, no certificate would be issued after inspection unless explicitly required
	16 - Stainless Steel corners and Anchor Strips	TA	C	X	C	
	17 - Primary barrier component	DA	C	X	C	
	18 - Single Legs	DA	W	X	C	
	19 - Primary Block Assembly	DA	W		C	
	20 - Perlite	TA			W	
	21 - Insulating Material Flexible / Rigid	TA			W	
	22 - Fe-Ni alloy (36% Nickel) strips	TA		X	C	
	23 - Anti-sticking film				W	
	24 - Insulating Boxes	DA	W		W	
	25 - Fe-Ni (36% Nickel) welding filler metal	TA		X	C	
	26 - Densified wood laminated for pipe guide tower	DA	C		C (7)	
U5	Gas fuel compressors and their prime movers					(1) As per provisions of NR529
	• Gas fuel compressors	TA or DA (1)	C (1) (2)	X h (3)	C	(2) Cryogenic compressors - Product certificate (C) required for materials in contact with the fuel gas, both the pressure containing parts, and non-pressure containing components (shaft and impellers)
	• Prime movers (4)	(4)		X (4)	C	(3) According to an agreed program (4) For electrical motors, refer to item K
U6	Gas fuel pumps and their prime movers					(1) As per provisions of NR529
	• Gas fuel pumps	TA or DA (1)	C (1) (2)	X h (3)	C	(2) Cryogenic pumps - Product certificate (C) required for materials in contact with the fuel gas: both the pressure containing parts, and non-pressure containing components (shaft and impellers)
	• Prime movers (4)	(4)	(4)	(4)	C	(3) According to an agreed program (4) For electrical motors, refer to item K

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U7	Bulkhead seal and gastight shaft bulkhead penetration devices	DA or TA (1)		X h	C (2)	(1) As per NR529 - Part A-1, C9(a) (2) As per conditions set in the TA
U8	Fans for hazardous enclosed spaces, and their prime movers					(1) Concerns the anti-sparking fans (2) As per conditions set in the TA (3) For electrical motors, refer to item K
	• Fans	TA (1)		X	C / W (2)	
	• Prime movers (3)	(3)		X (3)	C	
U9	Condensers, gasifiers or vaporizers, separators, heat ex-changers, receivers, process pressure vessels, or other similar apparatus of gas fuel supply system	DA (1)	C (1)	X h ndt	C	(1) As per provisions of NR529, Chapter 7. process pressure vessels handling cargo are to be considered as Class I pressure vessels, in accordance with NR467, Pt C, Ch 1, Sec 3, [1.4.1] Note: Running tests - during gas trials of the ship
U10	Fuel pipes for liquefied gas fuel					(1) As per provisions of NR529 and NR467, Pt C, Ch 1, Sec 10 (2) Non-destructive testing: in addition to normal controls before and during the welding, and to the visual inspection of the finished welds, as necessary for proving that the welding has been carried out correctly and according to the regulations in this paragraph, radiographic or ultrasonic inspection or other non-destructive tests shall be carried out as required by NR529, Chapter 16, [16.6.3]
	• nominal diameter ND ≥ 50mm		C	X h ndt (1) (2)	C	
	• nominal diameter ND < 50mm		W	X h ndt (1) (2)	C / W (3)	(3) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
U11	Fuel pipes for gaseous gas fuel with design pressure equal or lower than 10 bar (Class I or Class II)					(1) As per provisions of NR529 and NR467, Pt C, Ch 1, Sec 10 (2) Non-destructive testing: in addition to normal controls before and during the welding, and to the visual inspection of the finished welds, as necessary for proving that the welding has been carried out correctly and according to the regulations in this paragraph, radiographic or ultrasonic inspection or other non-destructive tests shall be carried out as required by NR529, Chapter 16, [16.6.3]
	• Class I: pipes in single wall configuration, and nominal diameter ND ≥ 50mm		C	X h ndt (1) (2)	C	
	• Class II: pipes in double wall configuration, and nominal diameter ND ≥ 100mm					
	• Class I: pipes in single wall configuration, and nominal diameter ND < 50mm		W	X h ndt (1) (2)	W / C (3)	(3) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
	• Class II: pipes in double wall configuration, and nominal diameter ND < 100mm					

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U12	Fuel pipes for gaseous gas fuel with design pressure higher than 10 bar (Class I) (1)					(1) For both single and double wall configuration (2) As per provisions of NR529 and NR467, Pt C, Ch 1, Sec 10 (3) Non-destructive testing: in addition to normal controls before and during the welding, and to the visual inspection of the finished welds, as necessary for proving that the welding has been carried out correctly and according to the regulations in this paragraph, radiographic or ultrasonic inspection or other non-destructive tests shall be carried out as required by NR529, Chapter 16, [16.6.3]
	• nominal diameter ND ≥ 50mm		C	X h ndt (2) (3)	C	(4) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
	• nominal diameter ND < 50mm		W	X h ndt (2) (3)	W / C (4)	
U13	Outer pipe of double wall fuel pipes (Class II) (1)					(1) As per provisions of NR529 and NR467, Pt C, Ch 1, Sec 10
	• nominal diameter ND ≥ 100mm		C	X h ndt	C	(2) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
	• nominal diameter ND < 100mm		W	X h ndt	W / C (2)	
U14	Gas fuel pipe fittings (1)	DA (2)	C / W (3)	X h ndt (4)	C	(1) Such as elbows, reducers, flanges: same remarks as for items U10 , U11 , U12 or U13 , as appropriate (2) If not already addressed within the scope of the system approval (3) Material certificate as for items U10 , U11 , U12 or U13 depending on the pipe type (4) When the fittings are of welded type, the welding procedures are to be examined
U15	Expansion joints (1)	TA	C (2)	X h ndt	C	(1) Specific requirements as per NR529 (2) Refer to Items U10 , U11 , U12 or U13 as appropriate
U16	Expansion bellows (1)	TA (2)	C (3)	X h ndt	C	(1) Specific requirements as per NR529, Chapter 16, [16.7.2] (2) Prototype tests to be performed on each type of expansion bellows intended for use on gas fuel piping, primarily on those used outside the gas fuel tank (3) Refer to Items U10 , U11 , U12 or U13 as appropriate
U17	Liquefied gas bunkering hoses (1)	TA (2)	C	X h ndt	C	(1) Specific requirements as per NR529, Chapter 8 (2) Refer also to NR620

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U18	Gas fuel valves (1)					(1) Class of piping as per provisions of NR529, Chapter 7 (2) Index TA for service temperature < -55°C Index DA for service temperature ≥ -55°C
	• nominal diameter ND ≥ 50mm	TA or DA (2) (3)	C (4)	X h ndt (5) (6)	C	(3) Prototype testing as per NR529, Chapter 16 (4) As per NR216, Ch 5, Sec 7, [1.8]. Non-destructive examination by both MPI and UT methods are to be carried out on all Class I drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24")
	• nominal diameter ND < 50mm	TA or DA (2) (3)	W (4)	X h ndt (5) (6)	C	(5) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined (6) Unit production testing: all valves are to be tested as per NR529, Ch16
U19	Safety relief valves for gas fuel piping system	TA or DA (1)	C	X h ndt (2) (3)	C	(1) TA, or case-by-case DA (2) Checking of the setting (3) When the valves have welded elements, the welding procedures are to be examined
U20	Safety relief valves for gas fuel tanks	TA (1)	C	X h ndt (2) (3)	C	(1) The approval includes capacity testing (2) Checking of the setting including tightness test (3) When the valves have welded elements, the welding procedures are to be examined
U21	Gas fuel process and containment sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric cables	TA (1)		X	C / W (2)	(1) For some equipment, DA is applicable on a case-by-case basis; see item K and relevant provisions of item N and NR529 (2) As per conditions set in the TA
U22	Vent lines on gas fuel tanks and low pressure gas fuel system (1)	DA	W	X h ndt (2)	C	(1) Open-ended lines (the design pressure should be not less than 5 bar gauge) (2) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined
U23	Vent lines on high pressure gas fuel system (1)	DA	C / W (2)	X h ndt (3)	C	(1) The design pressure of the vent pipe is not to be less than the maximum expected pressure, which is to be justified (2) Depending on the class of piping as per NR529, Table C7.3(a) (3) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined
U24	Inert gas generation systems (1)					(1) See item D

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U25	Fire prevention materials and arrangements (1)					(1) See item C and relevant provisions of NR529
U26	Fire fighting systems (1)					(1) See item C and relevant provisions of NR529
U27	Gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N
U28	Integrated gas fuel supply system (1)	DA		X (2)	C	(1) Complete system including fuel containment, tank connection space and gas preparation system (2) As per agreed program, based on the requirements of NR529, IGF Code and/or standards recognized by the Society
U29	Boil-Off Gas (BOG) handling system, as part of refrigeration / reliquefaction systems (1)	TA or DA		X (2)	C	(1) See relevant provisions of NR529, [6.9] (2) As per agreed program, based on the requirements of IGF Code and/or standards recognized by the Society
U30	Gas valve unit (1)	TA or DA		X (2)	C	(1) See relevant provisions of NR529 (2) As per agreed program, based on the requirements of IGF Code and/or standards recognized by the Society
U31	Gas combustion unit (1)	TA or DA		X (2)	C	(1) See relevant provisions of NR529 (2) As per agreed program, based on the requirements of IGF Code and/or standards recognized by the Society
U32	Independent fuel tank supporting materials	TA (1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9 and relevant provisions of NR216 and NR480 Note 1: Contacts of tanks to supporting blocks to be checked on board Note 2: Also see relevant provisions of NR529
U33	Pump tower (fuel piping and supporting structure)	DA	W/C (1)	X h (2) ndt (3)	C (2)	(1) C for fuel piping, W for supporting structure (2) For cargo piping, See U10 to U14 (3) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications. Survey of the fabrication and witnessing of NDT at random.

LNG FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUEL SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U34	Pump tower base support	DA	C	X ndt (1)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications (in particular - gas tracer/leak test). Survey of the fabrication and witnessing of NDT at random.
U35	Dome cover	DA	C	X ndt (1) (2)	C (2)	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications (in particular - gas tracer/leak test). Survey of the fabrication and witnessing of NDT at random. (2) For fuel piping, See U10 to U14 .
U36	Dome seat	DA	C	X ndt (1) (2)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications Survey of the fabrication and witnessing of NDT at random.
U37	Sump well	DA	C	X ndt (1) (2)	C	(1) Review of welders, and NDT operators qualifications. Review of welding, NDT and other fabrication or testing qualifications (in particular - gas tracer/leak test). Survey of the fabrication and witnessing of NDT at random.
U38	Independent cargo tank systems	DA (1)	C / W (1)	X ndt	C	(1) As per provisions of NR467, IGC Code and IGF Code



Item V - Integrated Communication, Monitoring and Digital Systems

INTEGRATED COMMUNICATION, MONITORING AND DIGITAL SYSTEMS - ITEM V						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
V1	Bridge communication systems covered by additional class notation SYS-IBS					(1) See NR467, Pt F, Ch 4, Sec 2
	1- Integrated bridge navigation systems	TA (1)			C	
	2- Controlled network equipment / systems	TA (1)			C	
V2	Ship-shore communication systems covered by additional class notation ASync-COM					(1) See NR467, Pt F, Ch 4, Sec 3 (2) As per conditions set in the Type Approval (TA)
	1- Communication software	TA (1)			C	
	2- Components	TA or DA (1)			C (2)	
V3	Computer based systems covered by additional class notation CII-REALTIME	TA (1)				(1) See NR467, Pt F, Ch 5, Sec 3. A Type Approval (TA) is required for CII ODS and for CII SDS.
V4	Data infrastructures covered by additional class notation DATA-INFRA					(1) As per NR467 Pt C, Ch 2, Sec 15
	1- Acquisition LAN device	TA (1)				
	2- Data logger	TA (1)				
V5	Smart systems covered by additional class notations SMART (1)					(1) See NR675 (2) As per NR467 Pt C, Ch 3, Sec 6 (3) As per NR467, Pt C, Ch 2, Sec 15
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Azipod steering system (pod housing) A12	8

B

Ballast	
Ballast pump G23	43
Ballast water management system (additional class notation CLEANSHIP) S7	118
Ballast water management system (auxiliary machinery) G44	54
Instrumentation for remote gauging of ballast system (offshore unit) L3	85
Bar (main structure)	
Aluminium alloy (hull) A2	7
Steel (hull) A1	7
Steel (regasification component - FSRU and FSU) H27	65

Battery	
Charger K24	80
Emergency or transitional source K8	77
Management system (BMS) K26	82
Propulsion and/or electric power supply purpose (battery cell, pack and system) K26	82
Starting purpose K9	77
Beam (lifting beam, spreader beam)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Bearing	
Main, crosshead, and crankpin (diesel engine) E1	25
Offshore access system (material and component) L26	93
Shaft bearing G6	39
Transverse girder (cast steel) E1	21
Bedding component (fire protection) C22	16
Bedplate (welded) E1	21
Bilge pump	
Auxiliary machinery G22	43
Bilge pump within piping system G31	48
Bitt (see bollard) B25	14
Blade	
Gas turbine F17	35
Rudder B2	9
Steam turbine F1	31
Block	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Blower	
Auxiliary blower (scavenging and supercharging) E8	26
Inert gas blower (inert gas system) D6	19
Body	
Motorized windlass B6	10
Refrigerating installation M5	96
Boiler	
Auxiliary boiler G15	41
Control and monitoring system for auxiliary equipment N3	100
Exhaust gas-boiler E4	25
Feed water or forced circulating (pump) G31	48
Flue gas (inert gas generator) D1	19
Main boiler F11	33
Pressure vessel G30	47
Regasification component (FSRU and FSU) H27	66
Uptake valve of main boiler (inert gas system) D3	19
Boil-off gas handling system (refrigeration/reliquefaction system)	
Gas fuelled ship U29	128
Liquefied gas carrier H26	64
Offshore unit L27	93
Bollard (and bitt) B25	14
Bolt	
Connecting rod (diesel engine) E1	24
Coupling bolt	
Crankshaft (diesel engine) E1	24
Rudder B2	9
Shafting (main propulsion - auxiliary machinery) G5	38
Shafting component (auxiliary machinery) G7	39
Cylinder head (diesel engine) E1	24
Hull outfitting (bolt, nut and stud) B26	14
Main bearing (diesel engine) E1	24
Offshore access system component L26	93
Bonded flexible pipe and marine hose (offshore unit) L14	87
Boom and boom support (derrick) O1	104
Bow chain stopper (single point mooring) Q1	113
Bow fairlead (single point mooring) Q2	113
Bower anchor B3	9
Bracket (cast steel shaft-bracket) A7	7

Braking resistor K29	84
Breakaway coupling (supply at sea system) O4	108
Breathing valve or device (inert gas system) D13	19
Bridge communication and navigation system (Integrated bridge system - notation SYS-IBS) V1	131
Brine (refrigerating installation)	
Accessories of brine pipe (additional class notation REF) M10	96
Brine pipe (additional class notation REF) M9	96
Brine pipe (auxiliary machinery) G35	50
Condensers, heat exchangers, evaporators of shell type (additional class notation REF) M5	96
Pump (additional class notation REF) M3	95
Bulkhead	
Bulkhead seal / gastight shaft bulkhead penetration device	
Gas fuelled ship U7	125
Liquefied gas carrier H8	61
Oil / FLS or chemical tanker I4	67
Fire-resisting and fire-retarding bulkhead C1	15
Surface lining C28	17
Bunkering hose (gas fuelled ship) U17	126
Buoy (pick-up gear - emergency towing arrangement) B22	13
Burning system and unit	
Automatic burning system (main boiler) F11	33
Auxiliary boiler G16	42
Burning system (main boiler) F16	34
Inert gas generator system D2	19
BWMS (ballast water management system)	
Additional class notation CLEANSHIP S7	118
Auxiliary machinery G44	54

C

Cable	
Anchor chain B4	9
Cable and insulated cabling wire K19	79
Cable assembly (charging station) K30	84
Calculator - Loading instrument (stability computer)	
Automation system N10	102
Hull outfitings B20	12
Carbon capture and storage system G47	57
Carbon dioxide (CO ₂) fire smothering system	
High pressure C36	18
Low pressure C37	18
Carbon intensity indicator (notation CII-REALTIME) V3	131
Cardan shaft (flange, crosse, shaft, yoke)	
Main propulsion shafting G5	38
Thrust shaft, intermediate shaft G4	38
Cargo	
Lashing/securing equipment (fixed or mobile) P1	111
Liquefied gas carrier	
Aluminium alloy for independent cargo tank H2	59
Cargo hose H16	62
Cargo pipe fitting H13	62
Cargo pipe of class I (longitudinally welded stainless steel) H12	61
Cargo pipe of class I (seamless steel or stainless steel) H11	61
Cargo Pump H7	61
Cargo valve H17	63
Gas compressor H6	60
Independent cargo tank H34	66
Process and containment instrumentation H20	63
Steel for independent cargo tank H1	59
Vent line on cargo tank H21	63
Offshore unit	
Cargo line L13	87
Offloading pump L12	86

Oil / FLS or chemical tanker	
Cargo hose I13	69
Cargo pipe fitting I10	68
Cargo pipe of class I (seamless steel or stainless) for chemical tanker I6	67
Cargo pipe of class II for chemical tanker I7	68
Cargo pipe of class II for oil / FLS tanker I8	68
Cargo pipe of class III and accessory I9	68
Cargo pump I3	67
Cargo valve I14	69
Plastic pipe (used as cargo pipe) I15	69
Pressure/vacuum (P/V) safety relief valve for cargo tank I17	69
Process and containment instrumentation I19	70
Transfer hose and pipe coupling (supply at sea operation) O4	108
Casing	
Gas turbine F17	35
Pull-in system (riser and mooring pull-in system) L19	88
Steam turbine (stationary part) F1	31
Towing and handling equipment B24	14
Windlass (motorized) B6	10
Casting	
Aluminium alloy casting A9	7
Aluminium casting A16	8
Cast iron (grey cast iron or spheroidal graphite cast iron)	
Cylinder block E1	21
Cylinder head E1	22
Engine block E1	22
Cast steel	
Bearing transverse girder E1	21
Cylinder head E1	22
Piston crown E1	22
Raw material and component for hull A10	8
Raw material and component for machinery and cargo equipment A15	8
Shaft-bracket A7	7
Stem, stern post, rudder horn skegs and solid rudder pieces A6	7
Hull structure A10	8
Machinery and cargo equipment A15	8
Offshore unit (especially cast node, connection and articulation part) L1	85
Propeller G9	39
Catalyser (composite material) A8	7
Catalytic reduction system (selective catalytic reduction - SCR) S6	118
Cathodic protection system (offshore unit)	
Impressed current L5	85
Sacrificial anode L4	85
Ceiling (surface lining) C28	17
Cell	
Battery cell (propulsion and/or electric power supply purpose) K26	82
Cell-guide (cargo fixed lashing equipment) P1	111
Fuel cell system K27	82
Centrifugal separator	
Auxiliary machinery G32	48
Oil and fuel centrifugal separator G25	43
Chafing gear (emergency towing arrangement) B22	13
Chain	
Anchor chain cable B4	9
Chafing gear (emergency towing arrangement) B22	13
Chain jack (offshore handling system) L23	91
Chain lashing (cargo fixed lashing equipment) P1	111
Chain stopper (bow chain stopper - single point mooring) Q1	113
Chain stopper (motorized windlass) B6	10
Loose gear	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Mooring line component (offshore unit) L20	88
Steering chain (steering gear) B1	9

Charger (battery charger) K24	80
Charging (electric charging station - EVOC notation) K30	84
Chocking system (resin and device) E14	29
Circuit breaker K15	78
Circulation pump	
Forced circulation pump within piping system for main boiler G31	48
Main boiler F14	34
Refrigerating installation	
Brine and refrigerant pump M3	95
Condenser circulating pump M2	95
Equipment of refrigerated container ship M11	96
Steam turbine F5	32
Classification of equipment and system	
Pressure vessel (class 1, 2, 3) G30	47
Process and piping system (offshore unit - survey rating level A1, A2, A3) L21	88
Raw pipe and piping system (class I, II, III) G26	44
Closing device (air pipe automatic closing device) G43	54
Clutch	
Propulsion plant remote control system N2	100
Propulsive and auxiliary plant G1	37
Coating	
Coating system of cargo tank (oil / FLS or chemical tanker) I2	67
Corrosion protective coating (epoxy or equivalent) B23	13
Cofferdam heating system (liquefied gas carrier) H28	66
Coil	
Heating coil (evaporator or fresh water generator) G20	42
Pipe for condenser coil (refrigerating installation) M7	96
Combustible (non-combustible material) C7	15
Combustion (gas combustion unit - gas fuelled ship) U31	128
Common fuel rail and servo oil system (diesel engine)	
Accumulator of common rail fuel or servo oil system E1	25
High pressure fuel injection pipe E1	24
High pressure servo oil system E1	24
Communication	
Data infrastructure (Notation DATA-INFRA) V4	131
Integrated bridge system (notation SYS-IBS) V1	131
Ship-shore communication system (notation ASYNC-COM) V2	131
Compartment	
Transducer compartment B9	10
Watertight compartment B14	11
Composite material	
Raw material for hull A8	7
Wind propulsion system (raw material) G45	55
Compressor	
Air compressor (filling of starting air receiver)	
Diesel engine driving electric generator G14	41
Main diesel engine E6	26
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit L27	93
Cargo gas compressor (liquefied gas carrier) H6	60
Compressor within piping system G31	48
Equipment of refrigerated container ship M11	96
Feed air compressor (nitrogen generator system) D16	20
Gas fuel compressor (gas fuelled ship) U5	124
Gas turbine F17	35
Generating set, generator set and generator package (electrical equipment) K25	81
Refrigerating compressor M1	95
Regasification component (FSRU and FSU) H27	65
Scavenging and supercharging compressor E8	26

Computer	
Computer based system (notation CII-REALTIME) V3	131
Computer used for task essential to safety function N8	101
Computerized maintenance management systems N7	101
Integrated computer-based system N6	101
Loading instrument (stability computer) N10	102
Condenser	
Auxiliary condenser G17	42
Cargo reliquefaction plant (liquefied gas carrier) H10	61
Gas fuel supply system (gas fuelled ship) U9	125
Refrigerating installation	
Circulation pump M2	95
Condenser M5	96
Refrigerant pipe M7	96
Steam turbine F3	32
Condition monitoring system N7	101
Connecting rod with cap (diesel engine) E1	23
Connection and articulation part (casting - offshore unit) L1	85
Connection/disconnection device (offshore access system component) L26	93
Consumable for welding (filler product) A3	7
Contactors K16	79
Control equipment and system	
Automation system	
Auxiliary equipment (generating set, boiler) N3	100
Control cabinet (fire or gas detection system) N4	100
Hardware and software N0	99
Installation intended for essential service (automation system - AUT notation) N5	100
Sensor and control equipment (automation system - AUT notation) N5	100
Cargo environmental control - inert gas system D12	19
Control device starter K10	78
Dynamic positioning system R1	115
Supply at sea operation O4	108
Controlgear (switchboard) K14	78
Convertor (semiconductor or static convertor) K7	77
Coolant (brine for refrigerating installation) M5	96
Cooling equipment and system	
Air-cooler fan (refrigerating installation) M4	95
Cooler	
Diesel engine E1	25
Liquefied gas carrier H26	64
Cooling pump (independent of diesel engine) E2	25
Gas turbine (intermediate cooler) F17	35
Heat exchanger (lubricating oil or fresh water cooler, fuel heater) E3	25
Inert gas cooler (inert gas system) D14	20
Steam turbine	
Drain cooler (steam turbine) F10	32
Intermediate cooler F1	31
Lubricating oil cooler F9	32
Copper tubing (refrigerant pipe) M7	96
Core material for sandwich (composite material) A8	7
Core material for sandwich (wind propulsion system - raw material) G45	55
Corner locking device (cargo fixed lashing equipment) P1	111
Corrosion protective coating (epoxy or equivalent) B23	13
Corrosive substance	
Pressure vessel G30	47
Raw pipe and piping system G26	44
Coupling	
Auxiliary machinery	
Coupling bolt (shaft coupling) G7	39
Coupling bolt or stud (main propulsion shafting) G5	38
Flexible coupling (main propulsion shafting) G5	38
Flexible coupling (propulsive and auxiliary plant) G1	37
Shaft coupling G4	38

Coupling bolt (crankshaft - main diesel engine) E1	24
Coupling bolt (rudder) B2	9
Electromagnetic coupling K11	78
Pipe coupling for supply at sea system (including breakaway coupling system) O4	108
Cover	
Articulation and hydraulic cylinder (split hopper dredging vessel) B21	13
Refrigerating installation M5	96
Covering (fire protection)	
Floor C29	17
Primary deck C9	15
Crane	
Crane (certification) O2	104
Crane (classification) O3	106
Crane pedestal	
Crane (certification) O2	104
Crane (classification) O3	106
Hull outfitting B18	12
Offshore unit (lifting appliance) L6	86
Supply at sea system (lifting appliance) O4	108
Crankshaft	
Crank throw E1	23
Crankcase explosion relief valve (diesel engine) E9	27
Crankcase safety valve (diesel engine) E1	21
Crankshaft made in one piece E1	22
Semi-built crankshaft E1	23
Crosshead (crosshead engine) E1	23
Crude oil washing system (tank washing machine)	
FLS tanker and oil tanker of 20 000 tons deadweight and above I24	70
Oil tanker of less than 20 000 tons deadweight I25	70
Cryogenic	
Cryogenic valve (regasification component - FSRU and FSU) H27	65
Flexible hoses assembly (boil-off gas handling system)	
Liquefied gas carrier H26	64
Offshore unit L27	94
Piping system	
Liquefied gas carrier H26	64
Offshore unit L27	94
Protection material (regasification component - FSRU and FSU) H27	65
Valve (boil-off gas handling system)	
Liquefied gas carrier H26	64
Offshore unit L27	94
Cybersecurity device (cybersecure equipment - monitoring system - cyber data diode) N0	99
Cylinder	
Diesel engine	
Cylinder block	
Grey cast iron E1	21
Spheroidal graphite cast iron E1	21
Cylinder frame (welded) E1	21
Cylinder head	
Cast steel E1	22
Forged cylinder head E1	22
Grey cast iron E1	22
Spheroidal graphite cast iron E1	22
Cylinder liner E1	22
Hydraulic cylinder	
Crane (certification) O2	105
Crane (classification) O3	107
Handling of ramp or opening/closing appliance B17	12
Housing (split hopper dredger and split hopper units) B21	13
Hydraulic power installation G42	54
Piping of class I and equipment essential (supply at sea operation) O4	108
Shell (steering gear) B1	9

D

Damper (fire damper) C21	16
Data communication link (integrated computer-based system) N6	101
Data infrastructure / Data logger (notation DATA-INFRA) V4	131
Deck	
Fire-resisting and fire-retarding deck (A, B or H class divisions) C1	15
Movable deck and inner ramp B16	11
Primary deck covering (fire protection) C9	15
Deck water seal (inert gas system) D7	19
Derrick	
Derrick heel seating (hull outfitting) B18	12
Lifting appliance (ship or offshore unit) O1	104
Supply at sea operation O4	108
Detection equipment and system	
Detector and thermometer (equipment of refrigerated container ship) M11	96
Fire or gas detection system (detector, control cabinet) N4	100
Installation intended for essential service (automation system - AUT notation) N5	100
Oil mist detection E9	27
Oil-water interface detector (oil and FLS tanker) I27	70
Sensor and control equipment and/or monitoring device (automation system - AUT notation) N5	100
Diesel engine	
Driving electric generator G11	40
Main diesel engine and their auxiliaries E1	21
Mass-produced diesel engine E11	27
Propulsion plant remote control system N2	100
Disconnecting device/disconnector (switch, fuse holder) K17	79
Distillation body (evaporator - fresh water generator) G20	42
Distribution	
Distribution switchboard K14	78
Distribution system for high pressure CO2 fire smothering system C36	18
Distribution valve (steam turbine) F2	31
Diving system and equipment (offshore unit) L25	93
Dome	
Dome cover	
Gas fuelled ship U35	129
Liquefied gas carrier H31	66
Dome seat	
Gas fuelled ship U36	129
Liquefied gas carrier H32	66
Door	
Fire-resisting and fire-retarding door (divisions, A, B or H class) C1	15
Semi-watertight door B14	11
Shell door B12	11
Watertight door B14	11
Weathertight door B14	11
Doppler system (position reference system) R2	115
Double wall fuel pipe (outer pipe of double wall fuel pipe - fuel cell system) K27	83
Double wall fuel pipes (outer pipe of double wall fuel pipes - gas fuelled ship) U13	126
Drain cooler (steam turbine) F10	32
Dredger (articulations and hydraulic cylinders of split hopper dredger and split hopper units) B21	13
Drilling	
Drilling line (unbonded flexible pipe - offshore unit) L7	86
Drilling system and equipment (offshore unit) L22	90
Driver	
Diesel engine or gas turbine (generator package, generating set, compressor package) K25	81
Drive unit (wind propulsion system)	
Electrical system G45	57
Mechanical system G45	56
Prime mover	
Cooling pump, lubricating oil pump, independent of main diesel engine E2	25
Electrical motor K5	76
Gas engine E13	29
Gas turbine F17	35
Main diesel engine E1	21

Non electrical, i.e. hydraulic motor G41	53
Steam turbine F1	31
Turbine driving electric generator G10	40
Drum	
Auxiliary boiler G15	41
Header (main boiler) F11	33
Winch drum (towing and handling equipment) B24	14
Winch for lifting appliances O5	109
Windlass (motorized) B6	10
Dual fuel engine E13	29
Dual-purpose nozzle	
Fire protection, detection and extinction systems C35	18
Dual-purpose nozzles	
Fire fighting ship J7	71
Dynamic braking resistor K29	84
Dynamic positioning system	
Control system and controller R1	115
Power system and electrical installation R5	115

E

Economizer (main boiler) F11	33
Eductor (steam turbine) F8	32
Ejector (air ejector)	
Auxiliary condenser G18	42
Distillation body and heating coil G20	42
Steam turbine F8	32
Electrical equipment and system	
Battery used for electric power supply purpose K26	82
Battery used for propulsion K26	82
Boil-off gas handling system (liquefied gas carrier) H26	64
Boil-off gas handling system (offshore unit - FLNG) L27	93
Cable and wire	
Cable and insulated cabling wire K19	79
Material for electrical cable penetration through A or B class division (fire protection) C5	15
Dynamic positioning system R5	115
Electric braking K29	84
Electric charging station K30	84
Gas fuel process and containment (gas fuelled ship) U21	127
Generating system K25	81
Generator	
Diesel engine driving electric generator G11	40
Electric generator K25	81
Electric propulsion K1	73
Emergency generator K3	75
Engine driven generator K2	74
Turbine driving electric generator G10	40
Heater	
Electric system K20	79
Lifting appliance - Crane (certification) O2	105
Lifting appliance - Crane (classification) O3	107
Motor	
Electric motor K5	76
Electric propulsion K1	73
Hydraulic power station for handling of ramp or opening/closing appliance B17	12
Hydraulic system and hydraulic power installation G42	54
Radiator (fixed electric radiator) K21	80
Regasification component (FSRU and FSU) H27	65
Safety electrical equipment K23	80
Supply at sea operation O4	108
Switchboard (electric propulsion) K12	78
Swivel (Electrical swivel - offshore unit) L9	86
Towing and anchor handling equipment B24	14
Windlass (motorized windlass) B6	10

Electromagnetic coupling K11	78
Electronic system	
Hardware and Software N0	99
Protective device for installation intended for essential service (automation system - AUT notation) N5	100
Speed regulator (automation system - AUT notation) N5	100
Emergency system	
Battery K8	77
Emergency release system (offshore unit - oil offloading, transfer arm and line) L24	92
Generator K3	75
Switchboard (main and emergency switchboard) K13	78
Emergency towing arrangement (ETA) B22	13
Energy storage (batteries used for propulsion and/or electric power supply purpose) K26	82
Engine	
Engine block	
Grey cast iron E1	22
Spheroidal graphite cast iron E1	22
Engine chocking E14	29
Engine driven generator (general network) K2	74
Engine driven pump (oil, water, fuel, bilge) E1	25
Engine power limitation systems (EPL) G46	57
Main diesel engine E1	21
Speed regulator (automation system - AUT notation) N5	100
Epoxy (corrosion protective coating, epoxy or equivalent) B23	13
Equipment of refrigerated container ship M11	96
Equivalent fire-extinguishing system	
Water-mist automatic sprinkler system C26	17
Escort tug (towing equipment) B24	14
ESD Valve (offshore unit) L10	86
Evaporator	
Auxiliary machinery G20	42
Shell type (tube or welded plate, for refrigerating installation) M5	96
Exchanger (heat exchanger)	
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit L27	94
Cargo reliquefaction plant H10	61
Gas fuel supply system U9	125
Lubricating oil or fresh water cooler, fuel heater E3	25
Pressure vessel for liquid substance G30	47
Refrigerating installation (auxiliary machinery) G35	50
Refrigerating installation M5	96
Exhaust gas	
Carbon capture and storage system G47	57
Exhaust gas boiler (diesel engine) E4	25
Exhaust gas cleaning system	
Scrubber unit S5	118
Selective catalytic reduction (SCR) S6	118
Tower unit (scrubber) S5	118
Valve cage (crosshead engine) E1	23
Expansion bellow	
Auxiliary machinery G38	52
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit L27	94
Gas fuelled ship U16	126
Inert gas system D4	19
Liquefied gas carrier H15	62
Non-conventional material C12	16
Oil / FLS tanker or chemical tanker I12	68
Expansion joint	
Auxiliary machinery G37	51
Gas fuel handling and containment systems (gas fuelled ship) U15	126
Liquefied gas carrier H14	62
Oil / FLS tanker or chemical tanker I11	68
Regasification component (FSRU and FSU) H27	65

Expert system N9	101
Explosion relief valve (crankcase) E9	27
Explosive mixture detection equipment and system	
Fixed system C17	16
Portable system C18	16
External ramp B15	11
Extinguishing equipment and system	
Equivalent	
fixed gas fire-extinguishing system C24	17
Water-mist fire-extinguishing system C23	17
Fire extinguisher C27	17
Fixed	
Foam fire-extinguishing system and associated foam-forming liquid C10	15
Local application fire-extinguishing system C25	17
Powder fire-extinguishing system, including powder C11	16
Nozzle for fixed pressure water-spraying fire-extinguishing systems C14	16
Extraction pump F7	32

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Fairlead	
Bow fairlead (single point mooring) Q2	113
Emergency towing arrangement (ETA) B22	13
Mooring system (offshore unit - station keeping) L20	88
Pedestal roller fairlead (single point mooring) Q3	113
Fan	
Air-cooler fan (refrigerating installation) M4	95
Enclosed space located within the cargo area	
Liquefied gas carrier H9	61
Oil /FLS or chemical tanker I5	67
Forced draught fan F15	34
Fuel cell system (hazardous enclosed space) K27	82
Hazardous enclosed space (gas fuelled ship) U8	125
Feed air (nitrogen generator system)	
Compressor D16	20
Treatment system D19	20
Feed pump	
Auxiliary boiler G19	42
Main boiler F12	34
Pump within piping system (for main boiler) G31	48
Feed water heater (boiler) F13	34
Fibre	
Fibre reinforced plastic pipe (FRP pipe) G26	45
Fibre	
Hollow fibre (nitrogen generator system) D15	20
Reinforcement fibre	
Wind propulsion system (raw material) G45	55
Reinforcement fibre (composite material) A8	7
Fibre rope	
Emergency towing arrangement, cargo handling gear B7	10
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Specific equipment for offshore unit	
Deep-water offshore services L15	87
Emergency towing arrangement, cargo handling gear or similar applications L17	87
Single point mooring hawser L16	87
Filler product for welding (consumable) A3	7
Filtering equipment	
15 ppm oil filtering equipment S1	117
Ballast water management system G44	54
Filter of burning unit (main boiler) F16	34

Fire protection, detection and extinction equipment and system

Alarm and detection system	
Automation system (fire detection system) N4	100
Fire detection system (fuel cell system) K27	83
Fixed fire alarm system C16	16
Fixed fire detection system C16	16
Fixed instrument for measuring the oxygen content for inert gas system C19	16
Sensing head for automatic fire alarm and detection system C15	16
Fire fighting ship	
Fire pump J1	71
Fire fighting system	
Equivalent fixed gas fire extinguishing system C24	17
Equivalent water-mist fire extinguishing system C23	17
Extinguisher (fire extinguisher) C27	17
Fire hydrant, pipe, shore connection, valve and accessory C33	17
Fire pump C32	17
Fire pump within piping system G31	48
Fire smothering system	
High pressure CO2 system C36	18
Low pressure CO2 system C37	18
Fixed foam fire extinguishing system C10	15
Fixed local application fire extinguishing system C25	17
Fixed powder fire-extinguishing system (including powder) C11	16
Hose (fire hose) C34	18
Fire protection system	
Damper (fire damper) C21	16
Fire retarding and resisting division (A, B or H class bulkhead or deck) and associated door C1	15
Window (fire window) C30	17
Gas fuelled ship	
Fire fighting system U26	128
Fire prevention (material and arrangement) U25	128
Liquefied gas carrier	
Fire fighting system H24	64
Fire prevention (material and arrangement) H23	64
Oil / FLS or chemical tanker	
Fire fighting system I22	70
Fire prevention (material and arrangement) I21	70
Regasification component (FSRU and FSU)	
Active system H27	65
Passive system and material H27	65
Fixation (on steel hull)	
Aluminium alloy superstructure A4	7
Transition joints steel/aluminium alloy A5	7
Flame	
Flame arresting device (oil / FLS or chemical tanker) I18	70
Material with low flame spread characteristic including paint and varnish C6	15
Flammable	
Fuel oil or other flammable oil (pump) G31	48
Hydraulic oil	
Pressure vessel (fuel oil or lubricating oil) G30	48
Raw pipe and piping system G26	45
Media (raw pipe and piping system) G26	44
Refrigerant G35	50
Flange (main boiler) F11	33
Flexible coupling	
Gas turbine F17	35
Main propulsion G5	38
Propulsive and auxiliary plant G1	37
Steam turbine rotor F1	31
Flexible hose system	
Boil off gas handling system (liquefied gas carrier) H26	64
Boil off gas handling system (offshore unit - FLNG) L27	94
Flexible hose assembly with end fitting ready for installation (auxiliary machinery) G28	46
Fuel oil purifying unit G25	43

Hydraulic power station (handling of ramp or opening/closing appliance) B17	12
Hydraulic system and hydraulic power installation G42	54
Regasification component (FSRU and FSU) H27	65
Flexible mount (for propulsion or auxiliary machinery) E14	29
Flexible pipe	
Bonded flexible pipe and marine hose (offshore unit) L14	87
Flexible pipe and expansion bellows of non-conventional material (fire protection) C12	16
Non-bonded (offshore unit) L7	86
Pipe of material other than steel for pipe conveying oil or fuel oil C4	15
Floating storage regasification units (regasification component) H27	65
Floor covering (fire protection) C29	17
Flue gas (inert gas generator) D1	19
Fluid swivel (offshore unit) L8	86
Fluorescent lamp K22	80
Foam	
Concentrate (fire fighting ship) J6	71
Fire foam main (fire fighting ship) J2	71
Fixed foam fire-extinguishing system and associated foam-forming liquid C10	15
Foam applicator C40	18
Foam generation system (fire fighting ship) J3	71
Foam proportioner / inductor C38	18
Water / foam monitor	
Fire extinction system C39	18
Fire fighting ship J4	71
Forced circulation pump (main boiler)	
Accessories F14	34
Auxiliary machinery G31	48
Forced draught fan F15	34
Forging	
Forged cylinder head E1	22
Forged main journal and journals with flange E1	23
Forged piston crown E1	22
Hull structure A11	8
Steel forging A11	8
Foundation (fixed part of Lifting appliance)	
Crane (certification) O2	104
Crane (classification) O3	106
Frame box (welded - diesel engine) E1	21
Frequency convertor (semiconductor convertor or static convertor) K7	77
Fresh water generator (auxiliary machinery) G20	42
Fuel (diesel engine)	
Fuel heater E3	25
High pressure fuel injection	
pipe (including common fuel rail) E1	24
Pump body E1	24
Valve E1	24
Fuel (gas fuelled ship)	
Gas fuel compressor U5	124
Gas fuel pipe fitting U14	126
Gas fuel pipe for gaseous gas fuel with design pressure higher than 10 bar U12	126
Gas fuel pipe for gaseous gas fuel with pressure equal or lower than 10 bar U11	125
Gas fuel pipe for liquefied gas fuel U10	125
Gas fuel pump U6	124
Independent gas fuel tank U38	129
Outer pipe of double wall fuel pipe U13	126
Fuel cell system K27	82
Fuel oil (auxiliary machinery)	
Fuel transfer pump G24	43
Pressure vessel G30	48
Pump G31	48
Purifying unit G25	43
Raw pipe and piping system G26	45
Functional test (automation system) N0	99

Furnace	
Auxiliary boiler G15	41
Main boiler F11	33
Fuse	
Fuse and fuse carrier (overcurrent protective device) K18	79
Fuse holder (switch, disconnecting device, disconnecter) K17	79

G

Gantry crane	
Crane (certification) O2	104
Crane (classification) O3	106
Gas bottle for high pressure CO2 fire smothering system C36	18
Gas compressor (cargo gas compressor - liquefied gas carrier) H6	60
Gas cooler (inert gas system) D14	20
Gas detection system	
Fuel cell system K27	83
Liquefied gas carrier H25	64
Oil / FLS or chemical tanker I23	70
Regasification component (FSRU and FSU) H27	65
Gas engine (gas fuelled ship) E13	29
Gas fuelled ship	
Gas combustion unit U31	128
Gas detection system U27	128
Gas fuel compressor (gas fuel handling and containment system) U5	124
Gas fuel pipe fittings U14	126
Gas fuel pump U6	124
Gas fuel tank (material for independent liquefied gas fuel tank) U1	123
Gas fuel tank (vent lines on gas fuel tanks and low pressure gas fuel system) U22	127
Gas fuel valve (fuel cell system) K27	83
Gas fuel valve U18	127
Gas fuelled propulsion E13	29
Gas valve unit U30	128
Process and containment system instrumentation U21	127
Supply (integrated gas fuel supply system) U28	128
System vent lines on	
Gas fuel tanks and low pressure gas fuel system U22	127
High pressure gas fuel system U23	127
Gas metering/analyzer skid (regasification component - FSRU and FSU) H27	66
Gas module (synthesis gas module for nitrogen generator system) D18	20
Gas production or liquefaction components (offshore unit - FLNG) L27	93
Gas turbine F17	35
Gaseous substances (pressure vessel) G30	47
Gasifier	
Gas fuelled ship U9	125
Liquefied gas carrier H10	61
Gastight shaft bulkhead penetration device	
Gas fuel handling and containment systems (gas fuelled ship) U7	125
Liquefied gas carrier H8	61
Oil / FLS or chemical tanker I4	67
Gauge control and monitoring system and component (inert gas system) D12	19
Gear	
Gas turbine F17	35
Mechanical gear (offshore access system component) L26	93
Reduction gear	
Auxiliary machinery G2	37
Generator package, generating set, compressor package K25	81
Reverse reduction gear intended for propulsion plant G2	37
Steam turbine F1	31
Steering gear B1	9
Step-up gear G2	37
Turning gear	
Diesel engine E7	26
Steam turbine F4	32

Generator

Auxiliary machinery

Diesel engine driving electric generator G11	40
Steam generator or boiler (pressure vessel) G30	47
Steam heated steam generator G21	43
Turbine driving electric generator G10	40

Electrical equipment

Emergency generator K3	75
Engine driven generator (general network) K2	74
Generating set K25	81
Generator for electric propulsion K1	73

Gipsy-wheel

Towing and handling equipment B24	14
Windlass (motorized) B6	10

Gland (stern tube sealing gland) G40	53
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Glass for window and side scuttle A14	8
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Glycol water heater (liquefied gas carrier) H28	66
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Gooseneck (derrick) O1	104
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GPS (position reference system) R2	115
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Graphite cast iron and grey cast iron

Cylinder block E1	21
Cylinder head E1	22
Engine block E1	22

Grey Water Treatment Plan S9	119
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Guide (cell-guide - cargo fixed lashing equipment) P1	111
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Guide pin and roller

Pull-in system (riser and mooring pull-in system) L19	88
Towing equipment and anchor handling equipment B24	14

Windlass (motorized windlass) B6	10
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Gyrocompass (position reference system) R2	115
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H

Handling equipment (hook, main shaft, casing or body, winch drum, gipsy-wheel, etc.) B24	14
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Hardware

Automation system N0	99
Smart system V5	131

Hatch cover B13	11
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Hawse pipe B10	10
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Head

Crosshead engine E1	23
Sensing head for automatic fire alarm and fire detection system C15	16
Sprinkler head C13	16

Heading and motion (vessel sensor, dynamic positioning system) R3	115
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Heat exchanger

Boil-off gas handling system

Liquefied gas carrier H26	64
Offshore unit L27	94

Cargo reliquefaction plant H10	61
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Gas fuel supply system U9	125
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Gas turbine F17	35
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Lubricating oil or fresh water cooler, fuel heater E3	25
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Pressure vessel for liquid substance G30	47
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Refrigerating installation

Additional class notation REF M5	96
Auxiliary machinery G35	50

Steam turbine F1	31
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Vaporizer (regasification component - FSRU and FSU) H27	65
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Heater

Electric system K20	79
Glycol water heater (liquefied gas carrier) H28	66

Main boiler	
Air heater F11	33
Feed water heater F13	34
Heater of burning unit F16	34
Superheater (heater, tube) F11	33
Heating coil (distillation body and heating coil) G20	42
Heating media (regasification component - FSRU and FSU)	
Pipes and fittings H27	65
Pump H27	65
Heating system (cofferdam - liquefied gas carrier) H28	66
High alloy steel	
Membrane cargo containment system H3	59
Membrane liquefied gas fuel containment system U3	123
High-voltage shore connection system K28	84
Hinge eye and pin (articulation and hydraulic cylinder of split hopper dredger) B21	13
Hoist	
Lifting appliance - Crane (certification) O2	104
Lifting appliance - Crane (classification) O3	106
Hollow fibre (nitrogen generator system) D15	20
Hook	
Emergency towing arrangement B22	13
Loose gear (derrick) O1	104
Loose gear and accessories	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Supply at sea system O4	108
Towing equipment and handling equipment B24	14
Hopper unit B21	13
Horn skeg for rudder (in forged or cast steel) A6	7
Hose	
Auxiliary machinery	
Flexible hose assembly (fitting ready for installation) G28	46
Flexible hose assembly for hydraulic power installation G42	54
Flexible hose for fuel oil purifying unit G25	43
Bunkering hose (liquefied gas bunkering hose) U17	126
Cargo hose	
Liquefied gas carrier H16	62
Oil / FLS and chemical tanker I13	69
Fire hose C34	18
Floating gas unit (FLNG) - Flexible hose assembly for cryogenic, boil-off gas handling system L27	94
Hydraulic power station for handling of ramp or opening/closing device (flexible hose) B17	12
Liquefied gas carrier - Flexible hose assembly for cryogenic, boil-off gas handling system H26	64
Marine hose (offshore unit) L14	87
Regasification component (FSRU and FSU) - Flexible and loading/offloading hose H27	65
Transfer hose for supply at sea system O4	108
Hull	
Fixation of aluminium alloy superstructure on steel hull A4	7
Fixation of superstructure on steel hull (transition joint steel/aluminium alloy) A5	7
HVCS (high-voltage shore connection system) K28	84
Hydrant (fire hydrant) C33	17
Hydraulic equipment and system	
Articulation and hydraulic cylinder of split hopper dredger and split hopper unit B21	13
Crane (certification) O2	105
Crane (classification) O3	107
Hydraulic motor and hydraulic pump (auxiliary machinery) G41	53
Hydraulic power station for handling of ramp or opening/closing appliance B17	12
Hydraulic power unit for subsea valve L11	86
Hydraulic system and hydraulic power installation (auxiliary machinery) G42	54
Offshore access system (material and component) L26	93
Offshore handling system (lifting/pulling equipment) L23	91
Pressure vessel for flammable hydraulic oil G30	48
Pull-in system (riser and mooring pull-in system - offshore unit) L19	88
Rudder B2	9
Steering gear B1	9
Supply at sea operation O4	108

Towing and anchor handling equipment B24	14
Winch O5	109
Windlass (motorized windlasses) B6	10
Hydrogen (fuel cell system) K27	82
I	
Immersion suit (life-saving appliance - offshore unit) L18	87
Impressed current (offshore unit, cathodic protection system) L5	85
Incinerator (shipboard incinerator) S4	117
Independent cargo tank	
Aluminium alloy plate and profile for independent cargo tank (liquefied gas carrier) H2	59
Liquefied gas carrier H34	66
Steel plate and profile for independent cargo tank (liquefied gas carrier) H1	59
Supporting material for independent cargo tank (liquefied gas carrier) H4	59
Independent liquefied gas fuel tank	
Gas fuelled ship U38	129
Independent liquefied gas fuel tank (gas fuelled ship)	
Aluminium alloy plate and profile U2	123
Steel plate and profile U1	123
Supporting material U32	128
Independent propulsion and steering installations T3	121
Inductor (foam) C38	18
Inert gas system	
Cargo environmental control	
Blower D6	19
Cooler D14	20
Generator system (boiler flue gas or oil fired inert gas generator) D1	19
Scrubber D5	19
Fire detection	
Fixed instruments for measuring the oxygen content for inert gas systems C19	16
Portable instruments for measuring the oxygen content for inert gas systems C20	16
Generation	
Gas fuelled ship U24	127
Liquefied gas carrier H22	63
Oil (FLS and chemical tanker) I20	70
Inertial system (position reference system) R2	115
Injection (high pressure fuel injection - diesel engine)	
Pipe E1	24
Pump E1	24
Valve E1	24
Inlet (sea inlet) B8	10
Inner ramp (movable deck and inner ramp) B16	11
Instrument	
Fixed instruments for measuring the oxygen content for inert gas systems C19	16
Loading instrument or calculator (stability computer)	
Automation systems or additional class notation AUT B20	12
Hull outfitting N10	102
Portable instruments for measuring the oxygen content for inert gas systems C20	16
Instrumentation	
Automation system	
Component related to safety function (computer, PLC's) N8	101
Control and monitoring system for auxiliaries equipment (generating sets, boilers, etc.) N3	100
Electronic speed regulator (AUT notation) N5	100
Fire or gas detection system (detector, control cabinet) N4	100
Installation intended for essential service (AUT notation) N5	100
Machinery monitoring and alarm system N1	100
Propulsion plant remote control system (for diesel engine, turbine, clutches, thrusters, etc.) N2	100
Sensor, control equipment and/or monitoring device (AUT notation) N5	100
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit L27	94

Cargo process and containment instrumentation	
Liquefied gas carrier H20	63
Oil / FLS and chemical tanker I19	70
Gas fuel process and containment system (gas fuelled ship) U21	127
Inert gas system D12	19
Refrigerating installations (level detector, thermometers, pressure detector, ...) M12	97
Regasification component (FSRU and FSU) H27	65
Remote gauging of ballast system (offshore unit) L3	85
Insulation material	
Cabling wire K19	79
Gas fuelled ship U4	123
Liquefied gas carrier H5	59
Regasification component (FSRU and FSU) H27	66
Integrated system	
Computer-based system N6	101
Gas fuel supply system (gas fuelled ship) U28	128
Integrated bridge system (notation SYS-IBS) V1	131
Navigation system N6	101
Integration test (automation system) N0	99
Intelligent knowledge-based system N9	101
Interface detector (oil-water interface detector, oil and FLS tanker) I27	70
Intermediate cooler and heat exchanger	
Gas turbine F17	35
Steam turbine F1	31
Intermediate receiver (pressure vessel - refrigerating installation) M6	96
Intermediate shaft	
Main propulsion G5	38
Thrust shaft, shaft coupling and rigid shaft coupling G4	38
Internal combustion engine	
Diesel engine E1	21
Driving electric generator G11	40
Mass-produced diesel engine E11	27
Isolating valve (inert gas system and cargo tank) D10	19

J

Jack (hydraulic jack) G42	54
Jacking system and locking system (offshore unit - self elevating unit) L2	85
Joint	
Expansion joint	
Auxiliary machinery G37	51
Gas fuel handling and containment systems (gas fuelled ship) U15	126
Liquefied gas carrier H14	62
Oil / FLS tanker or chemical tanker I11	68
Regasification component (FSRU and FSU) H27	65
Mechanical joint G36	51
Transition joint (aluminium alloy/steel for fixation of superstructure on steel hull) A5	7
Journal (forged journal - diesel engine) E1	23

K

Kenter (anchor chain cable accessory) B5	9
King post	
Lifting appliance B18	12
Shroud for king post B19	12
Knowledge-based system (intelligent) N9	101

L

Lamp (lighting fitting, fluorescent lamp) K22	80
Lashing equipment (cargo fixed lashing equipment and mobile lashing/securing equipment) P1	111
Level indicator	
Auxiliary boiler G15	41
Pillar (main boiler) F11	33
Level sensor or controller (automation system - AUT notation) N5	100
Life-saving equipment (offshore unit) L18	87
Lifting appliance	
Crane (certification) O2	104
Crane (classification) O3	106
Derrick O1	104
Lifting of subsea equipment	
Crane (certification) O2	104
Crane (classification) O3	106
Offshore unit L6	86
Personnel transfer or man-riding operation	
Crane (certification) O2	104
Crane (classification) O3	106
Supply at sea system O4	108
Winch O5	109
Lifting beam (loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Lighting fitting K22	80
Liner (cylinder liner - diesel engine) E1	22
Line-throwing appliance (emergency towing arrangement) B22	13
Liquefied gas	
Bunkering hose (gas fuelled ship) U17	126
Raw pipe and piping system G26	44
Transfer system L24	92
Load carrying structural element	
Crane (certification) O2	104
Crane (classification) O3	106
Loading instrument or calculator (stability computer)	
Automation system N10	102
Hull outfitting B20	12
Loading/offloading hoses, flexible (regasification component - FSRU and FSU) H27	65
Loading/unloading of cargo, equipment, spare part or consumable	
Lifting appliance - Crane (certification) O2	104
Lifting appliance - Crane (classification) O3	106
Local area network LAN (Acquisition device - notation DATA-INFRA) V4	131
Locking device	
Corner locking device (cargo fixed lashing equipment) P1	111
Locking device (required for stability of the lifting appliance)	
Crane (certification) O2	104
Crane (classification) O3	106
Locking system and jacking system (offshore unit - self elevating unit) L2	85
Longitudinal stay	
Auxiliary boiler G15	41
Main boiler F11	33
Loose gear	
Lifting appliance	
Crane (certification) O2	106
Crane (classification) O3	107
Derrick O1	104
Supply at sea operation O4	108
Winch O5	109
Specific equipment for offshore unit	
Offshore access system component L26	93
Offshore handling system, lifting/pulling equipment L23	91
Low flame spread, material (paint, varnish and similar) C6	15
Low pressure CO2 fire smothering system C37	18
Low pressure transfer (regasification component - FSRU and FSU) H27	65

Lubricating oil	
Cooler	
Heat exchanger E3	25
Steam turbine F9	32
Pressure vessel (fuel oil or flammable hydraulic oil) G30	48
Pump	
Auxiliary machinery G12	40
Independent of diesel engine E2	25
Steam turbine F6	32
Raw pipe and piping system G26	45

M

Machinery (availability of machinery)	
Additional class notation AVM-APS T1	121
Additional class notation AVM-DPS T2	121
Additional class notation AVM-IPS T3	121
Machinery monitoring and alarm system N1	100
Main and emergency switchboard K13	78
Main boiler F11	33
Main bolting (articulation and hydraulic cylinder of split hopper dredger and split hopper units) B21	13
Main condenser (steam turbine) F3	32
Main load-bearing structure	
Main load carrying structural element of winch (drum, flanges, supports or baseplate, shaft) O5	109
Offshore access system component L26	93
Offshore handling system (lifting/pulling equipment) L23	91
Pull-in system (riser and mooring pull-in system) L19	88
Towing and handling equipment B24	14
Windlass (motorized) B6	10
Main propulsion engine (diesel engine) E1	21
Main propulsion shafting G5	38
Main thrust block G3	37
Maintenance (computerized maintenance management systems) N7	101
Manoeuvring valve (steam turbine) F2	31
Man-riding or personnel transfer operation	
Crane (certification) O2	104
Crane (classification) O3	106
Marine hose (offshore unit) L14	87
Mass-produced diesel engine E11	27
Mast	
Boom support (derrick) O1	104
King post for cargo derrick, derrick post, crane column welded to the ship structure B18	12
Shroud for mast and king post (lifting appliance) B19	12
Supply at sea operation O4	108
Wind propulsion system (standing rigging) G45	55
Material	
Material with low flame spread characteristic including paint and varnish C6	15
Non-combustible material (fire protection) C7	15
Measuring instrument	
Gas turbine F17	35
Steam turbine F1	31
Mechanical joint G36	51
Membrane	
Cargo containment system (stainless or high alloy steel - liquefied gas carrier) H3	59
Liquefied gas fuel containment system (gas fuelled ship)	
Stainless or high alloy steel U3	123
Nitrogen generator system (other inert gas system) D15	20
Metal hydride hydrogen storage (fuel cell system) K27	82
Meter	
Control equipment and/or monitoring device (automation system - AUT notation) N5	100
Oil content meter S2	117
Mist detection (oil) E9	27

Monitoring system

Automation system (AUT notation) N5	100
Auxiliaries equipment (generating sets, boilers, etc.) N3	100
Carbon intensity indicator (notation CII-REALTIME) V3	131
Condition monitoring system N7	101
Control system (oil discharge - oil / FLS tanker) I26	70
Inert gas system D12	19
Machinery monitoring and alarm system N1	100
Onboard NOx monitoring systems S8	119
Water / foam monitor	
Fire extinction system C39	18
Fire fighting ship J4	71
Mooring system (offshore unit)	
Mooring line component (chain, steel wire rope and accessory) L20	88
Offshore oil offloading (transfer arm and line) L24	92
Station keeping system L20	88
Motion reference unit (offshore access system component) L26	93
Motor	
Electric motor for boil-off gas handling system (liquefied gas carrier) H26	64
Electric motor for boil-off gas handling system (offshore unit - FLNG) L27	94
Electric motor for supply at sea operation O4	108
Electric motor K5	76
Electrical motor (hydraulic power installation) G42	54
Electro motor (regasification component - FSRU and FSU) H27	65
Hydraulic motor G41	53
Motor for electric propulsion K1	73
Motor used for lifting, topping, slewing or translation of lifting appliance	
Crane (certification) O2	105
Crane (classification) O3	107
Motorized windlass B6	10
Movable deck and inner ramp B16	11
Multiplier intended for propulsion plant G2	37

N

Navigation system (Integrated bridge system - notation SYS-IBS) V1	131
Nitrogen generator system (other inert gas system) D15	20
Non return device supplementing the deck water seal (inert gas system) D8	19
Non-bonded flexible pipe (offshore unit) L7	86
Non-combustible material C7	15
NOx monitoring system S8	119
Nozzle	
Dual-purpose nozzle (fire extinction) C35	18
Fire fighting ship J7	71
Nozzle for fixed pressure water-spraying fire-extinguishing systems (fire extinction) C14	16
Nut (hull outfitting - bolt, nut and stud) B26	14

O

Offshore access system L26	93
Offshore handling system (lifting/pulling equipment) L23	91
Offshore oil offloading/transfer arm L24	92
Offshore process and piping system (survey rating level A1, A2, A3) L21	88
Oil	
Oil content meter S2	117
Oil discharge monitoring and control system (oil and FLS tanker) I26	70
Oil filtering equipment (15 ppm) S1	117
Oil mist detection (diesel engine) E1	21
Oil mist detection E9	27
Oil offloading (offshore unit - transfer arm) L24	92
Oil pump (independent of diesel engine) E2	25

Oil sealing gland G40	53
Oil separator (refrigerating installation) M6	96
Oil-water interface detector (oil and FLS tanker) I27	70
Oily water separator (15 ppm) S1	117
Overcurrent protective device K18	79
Overridable power limitation system (EPL and SHaPoLi) G46	57
Overspeed protective device	
Crankcase explosion relief valve and oil mist detection E9	27
Diesel engine E1	21
Oxidant (oxygen or hydrogen as oxidant for fuel cell system) K27	82
Oxyacetylene (raw pipe and piping system) G26	44
Oxygen	
Fixed instrument for measuring the oxygen content for inert gas system C19	16
Oxidant for fuel cell system K27	82
Oxygen analyser (inert gas system) D12	19
Portable instrument for measuring the oxygen content for inert gas system C20	16

P

Padeye (hull outfitting) B18	12
Paint (material with low flame spread) C6	15
Partition (fire-resisting and fire-retarding division) C1	15
Pedestal	
Crane pedestal	
Crane (certification) O2	104
Crane (classification) O3	106
Hull outfitting B18	12
Pedestal roller fairlead	
Emergency towing arrangement B22	13
Single point mooring or single buoy mooring terminal Q3	113
Penetration	
Bulkhead seal / gastight shaft bulkhead penetration device	
Gas fuelled ship I4	67
Liquefied gas carrier H8	61
Oil / FLS or chemical tanker I4	67
Gastight shaft bulkhead penetration device	
Gas fuelled ship U7	125
Materials for electrical cables penetrations through A or B class divisions C5	15
Pipes penetrating A or B class divisions (where they are not of steel or other equivalent material) C3	15
Pennant (towing pennant - emergency towing arrangement) B22	13
Personnel transfer or man-riding operation	
Crane (certification) O2	104
Crane (classification) O3	106
Pick-up gear (emergency towing arrangement) B22	13
Pinion	
Gas turbine F17	35
Steam turbine F1	31
Pintle (rudder) B2	9
Piping system	
Automatic closing device (air pipe) G43	54
Burning unit (main boiler) F16	34
Crane (certification) O2	105
Crane (classification) O3	107
Diesel engine	
Fuel Injection pipe E1	24
Hydraulic drive of valve E1	25
Pressure pipe E10	27
Discharge pipe from scrubber to overboard (inert gas system) D9	19
Double wall fuel pipe (fuel cell system) K27	83
Fire fighting ship	
Foam main piping system J2	71
Water main piping system J2	71
Water spray piping system J2	71

Fire protection	
Material other than steel for pipe penetrating A or B class division C3	15
Material other than steel for pipes conveying oil or fuel oil C4	15
Fuel cell system K27	83
Gas fuelled ship	
Gas fuel pipe fitting U14	126
Gaseous gas fuel pipe (pressure equal or less than 10 bar) U11	125
Gaseous gas fuel pipe (pressure higher than 10 bar) U12	126
Liquefied gas fuel pipe U10	125
Outer pipe of double wall fuel pipes U13	126
Gas turbine F17	35
Hawse pipe B10	10
Hydraulic power installation G42	54
Liquefied gas carrier	
Boil-off gas handling system H26	64
Cargo pipe fitting H13	62
Cryogenic piping system (boil-off gas handling system) H26	64
Longitudinally welded stainless steel cargo pipe H12	61
Seamless steel or stainless steel cargo pipe H11	61
Offshore unit	
Boil-off gas handling system (FLNG) L27	94
Bonded flexible pipe and marine hose L14	87
Cargo line L13	87
Cryogenic piping system (boil-off gas handling system - FLNG) L27	94
Non-bounded flexible pipe L7	86
Process piping system (survey rating level A1, A2, A3) L21	88
Oil / FLS or chemical tanker	
Cargo pipe fitting I10	68
Cargo pipe of class II (chemical tanker) I7	68
Cargo pipe of class II (oil and FLS tanker) I8	68
Cargo pipe of class III I9	68
Plastic pipe used as cargo pipe I15	69
Seamless steel or stainless steel cargo pipe (chemical tanker) I6	67
Pipe connected to fuel oil and lubricating oil tank G29	46
Pipe connected to the collision bulkhead G29	46
Pipe connected to the ship side G29	46
Pipe connecting various part of main boiler F11	33
Pipe raw material	
Aluminium alloy A2	7
Steel A1	7
Plastic pipe G39	52
Prefabricated pipe line G33	49
Raw pipe	
Air and non-flammable gas G26	45
Classification (pipe class) G26	44
Corrosive media G26	44
Flammable hydraulic oil G26	45
Flammable media G26	44
Fuel oil G26	45
Liquefied gas G26	44
Lubricating oil G26	45
Non-flammable hydraulic oil G26	45
Oxyacetylene G26	44
Pipe between fuel pump and diesel engine injector G26	45
Plastic pipe	
PVC G26	45
Raw pipe and piping system - class III G26	45
Reinforced plastic pipe (FRP pipe) G26	45
Steam G26	45
Thermal oil G26	45
Toxic media G26	44
Water G26	45

Refrigerating installation	
Accessory of brine pipe M10	96
Accessory of refrigerant pipe M8	96
Brine pipe M9	96
Minimum requirement G35	50
Refrigerant pipe M7	96
Regasification component (FSRU and FSU)	
Heating media pipe H27	65
Pipe and fitting H27	65
Steam turbine F1	31
Steering gear B1	9
Supply at sea component O4	108
Piston	
Piston crown (cast steel - diesel engine) E1	22
Piston crown (forging - diesel engine) E1	22
Piston rod	
Articulations and hydraulic cylinders of split hopper dredger B21	13
Diesel engine E1	23
Steering gear B1	9
Rudder (hydraulic piston) B2	9
Plate	
Cargo tank (oil / FLS or chemical tanker) I1	67
Independent cargo tank (liquefied gas carrier)	
Aluminium alloy H2	59
Steel H1	59
Independent liquefied gas fuel tank (gas fuelled ship)	
Aluminium alloy U2	123
Steel U1	123
Main structure	
Aluminium alloy A2	7
Steel A1	7
Membrane cargo containment system (liquefied gas carrier) H3	59
Refrigerating installation (condenser, heat exchanger or evaporator) M5	96
Regasification component (FSRU and FSU) H27	65
Pneumatic starter	
Diesel engine driving electric generator G13	41
Diesel engine E5	26
Pod housing for azipod steering system A12	8
Podded propulsor (thruster) G34	49
Positioning system (dynamic positioning system)	
Control system R1	115
Position reference system (gyrocompass, acoustic system, taut wire, radio location) R2	115
Power system and electrical installation R5	115
Thruster system R4	115
Vessel sensor (heading and motion, wind speed and direction) R3	115
Pourable compound (engine chocking, stern tube chocking) E14	29
Powder system (fire extinction)	
Fixed powder fire-extinguishing system, including powder C11	16
Powder generation system (fire fighting ship) J5	71
Power limitation system (EPL and SHaPoLi) G46	57
Power system (fuel cell system) K27	82
Prefabricated fire resisting element C31	17
Prefabricated pipe line (pipe, valve or fitting) G33	49
Prepreg (wind propulsion system - raw material) G45	55
Pressure equipment and system	
Pressure gauge (auxiliary boiler) G15	41
Pressure gauge (main boiler) F11	33
Pressure gauge of burning unit (main boiler) F16	34
Pressure sensor and control equipment (automation system - AUT notation) N5	100
Pressure valve (diesel engine) E10	27
Pressure vessel	
Corrosive substance G30	47
Fuel oil, lubricating oil or flammable hydraulic oil G30	48
Gaseous substances G30	47
Heat exchanger G30	47

Liquid substance G30	47
Process pressure vessel (gas fuel supply system) U9	125
Refrigerating installation (auxiliary machinery) G35	50
Refrigerating installation M6	96
Steam generator or boiler G30	47
Suction drum (regasification components) H27	65
Thermal oil G30	47
Toxic substance G30	47
Pressure/vacuum safety relief valve for cargo tank (oil / FLS and chemical tanker) I17	69
Primary deck covering (fire protection) C9	15
Prime mover	
Electrical motor K5	76
Gas engine (gas fuel propulsion) E13	29
Gas turbine (propulsion gas turbine) F17	35
Independent system (cooling pump, lubricating oil pump) E2	25
Main diesel engine E1	21
Non electrical (hydraulic motor) G41	53
Steam turbine F1	31
Turbine driving electric generator G10	40
Process piping and system (offshore unit - survey rating level A1, A2, A3) L21	88
Process valve (offshore unit) L10	86
Profile	
Cargo tank (oil / FLS or chemical tanker) I1	67
Independent cargo tank (liquefied gas carrier)	
Aluminium alloy H2	59
Steel H1	59
Independent liquefied gas fuel tank (gas fuelled ship)	
Aluminium alloy U2	123
Steel U1	123
Main structure	
Aluminium alloy A2	7
Steel A1	7
Regasification component (FSRU and FSU) H27	65
Programmable logic controller (PLC - used for task essential to safety function) N8	101
Propeller	
Built-up propeller G9	39
Controllable pitch propeller (CPP) G9	39
Propeller intended for propulsion G9	39
Propeller shaft G5	38
Propeller shaft liner G5	38
Solid propeller G9	39
Proportioner (foam) C38	18
Propulsion system	
Alternative propulsion system (additional class notation AVM-APS) T1	121
Battery used for propulsion purpose K26	82
Electric propulsion (generator and motor) K1	73
Gas fuelled propulsion (gas engine) E13	29
Gas propulsion turbine F17	35
Independent propulsion system (additional class notation AVM-IPS) T3	121
Main propulsion engine (diesel engine) E1	21
Main propulsion shafting G5	38
Propulsion plant remote control system N2	100
Propulsion steam turbine F1	31
Reduction gear G2	37
Redundant propulsion system (additional class notation AVM-DPS) T2	121
Switchboard for electric propulsion K12	78
Thruster G34	49
Water-jet G34	49
Wind propulsion system G45	55
Propulsor (thruster) G34	49
Protective device (electronic protective device for essential service - AUT notation) N5	100
Pull-in system (riser and mooring pull-in system) L19	88

Pump

Auxiliary pump of auxiliary condenser G18	42
Ballast pump G23	43
Bilge pump G22	43
Bilge pump within piping system G31	48
Brine and refrigerant pump M3	95
Burning unit (main boiler) F16	34
Cargo offloading pump (offshore unit) L12	86
Cargo pump (liquefied gas carrier) H7	61
Cargo pump (oil / FLS or chemical tanker) I3	67
Circulating pump	
Condenser (refrigerating installation) M2	95
Equipment of refrigerated container ship M11	96
Steam turbine F5	32
Cooling pump (independent of diesel engine) E2	25
Engine driven pump (diesel engine) E1	25
Evaporator and fresh water generator G20	42
Extraction pump F7	32
Feed pump	
Auxiliary boiler G19	42
Main boiler F12	34
Main boiler within piping system G31	48
Fire pump	
Fire extinction system C32	17
Fire fighting ship J1	71
Within piping system G31	48
Forced circulation pump for main boiler within piping system G31	48
Forced circulation pump of main boiler F14	34
Fuel injection pump body (diesel engine) E1	24
Fuel transfer pump G24	43
Gas fuel pump (gas fuelled ship) U6	124
Hydraulic drive of valve (diesel engine) E1	25
Hydraulic pump	
Handling of ramp or opening/closing appliance B17	12
Hydraulic system and hydraulic power installation G42	54
Steering gear B1	9
Within piping system G41	53
Lubricating oil pump	
Auxiliary machinery G12	40
Independent of diesel engine E2	25
Steam turbine F6	32
Pump tower	
Base support (gas fuelled ship) U34	129
Base support (liquefied gas carrier) H30	66
Cargo piping and supporting structure (liquefied gas carrier) H29	66
Fuel piping and supporting structure (gas fuelled ship) U33	128
Pump within piping system G31	48
Regasification component (liquefied gas carrier) H27	65
Purifying unit (fuel oil purifying unit) G25	43
PVC (plastic pipe) G26	45

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Quadrant (steering gear) B1	9
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R

Radiator (fixed electric radiator) K21	80
Radio location (position reference system) R2	115
Ram	
Ram tensioner (supply at sea system) O4	108
Steering gear B1	9

Ramp	
External ramp B15	11
Inner ramp B16	11
Rating (survey rating of offshore process piping and systems - level A1, A2, A3) L21	88
Raw pipe and piping system G26	44
Receiver	
Air receiver (nitrogen generator system) D17	20
Cargo reliquefaction plant (liquefied gas carrier) H10	61
Gas fuel supply system (gas fuelled ship) U9	125
Intermediate receiver (refrigerating installation) M6	96
Pressure vessel G30	47
Starting air receiver	
Diesel engine driving electric generator G13	41
Main diesel engine E5	26
Recharging station K30	84
Reduction gear	
Auxiliary machinery G2	37
Generator K25	81
Refrigerant pipe	
Additional class notation REF M7	96
Minimum requirement G35	50
Refrigerant pump M3	95
Refrigerant substance	
Additional class notation REF M13	97
Minimum requirement G35	50
Refrigerated container ship (equipment) M11	96
Refrigerating installation	
Additional class notation REF M1	95
Minimum requirement G35	50
Refrigeration/reliquefaction system (boil-off gas - liquefied gas carrier) H26	64
Regasification component (FSRU and FSU) H27	65
Regulation equipment and system	
Diesel engine E9	27
Electronic speed regulator (automation system - AUT notation) N5	100
Gas turbine F17	35
Regulating valve (inert gas system) D11	19
Regulation and control device starter K10	78
Steam turbine F1	31
Reinforcement fibre	
Wind propulsion system (raw material) G45	55
Reinforcement fibre (composite material) A8	7
Relief valve	
Accessory of pipe G27	46
Crankcase explosion relief valve E9	27
Safety relief valve	
Cargo process piping system (liquefied gas carrier) H18	63
Cargo process piping system (oil / FLS or chemical tanker) I16	69
Cargo tank (liquefied gas carrier) H19	63
Gas fuel piping system (gas fuelled ship) U19	127
Gas fuel tank (gas fuelled ship) U20	127
Reliquefaction/refrigeration system (boil-off gas - liquefied gas carrier) H26	64
Remote control equipment and system	
Installation intended for essential service (automation system - AUT notation) N5	100
Propulsion plant remote control system N2	100
Remote gauging of ballast system (offshore unit) L3	85
Remote level indicator (main boiler) F11	33
Rescue boat (life-saving appliance - offshore unit) L18	87
Resin chock (for machinery) E14	29
Resin system	
Wind propulsion system (raw material) G45	55
Resin system (composite material) A8	7
Reverse reduction gear intended for propulsion plant G2	37
Rigging (wind propulsion system)	
Running rigging G45	56
Standing rigging G45	55

Rigging screw (loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Ring (loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Riser	
Offshore handling system (riser pull-in system) L23	91
Unbonded flexible pipe (offshore unit) L7	86
Rivet (aluminium alloy rivet) A4	7
Rod	
Piston rod (steering gear) B1	9
Steel rod (cargo fixed lashing equipment) P1	111
Steering rod (steering gear) B1	9
Roller	
Guide roller (motorized windlass) B6	10
Pedestal roller fairlead	
Emergency towing arrangement B22	13
Single point mooring or single buoy mooring terminal Q3	113
Pull-in system (riser and mooring pull-in system) L19	88
Stern roller (towing and anchor handling equipment) B24	14
Rope	
Fibre rope	
Cargo handling gear (offshore unit) L17	87
Cargo handling gear B7	10
Deep-water offshore service L15	87
Emergency towing arrangement (offshore unit) L17	87
Emergency towing arrangement B7	10
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Single point mooring hawser L16	87
Offshore access system (material and component) L26	93
Offshore handling system (lifting/pulling equipment) L23	91
Pick-up gear (emergency towing arrangement) B22	13
Rope constituent of shroud for lifting appliance B19	12
Rope for lifting and luffing	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Rope for lifting, span and slewing (derrick) O1	104
Steel wire rope	
Cargo fixed lashing equipment P1	111
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Mooring line component L20	88
Supply at sea system O4	108
Winch O5	109
Rotary vane steering gear (rotor and housing) B1	9
Rotor and rotating part	
Gas turbine F17	35
Rotary vane steering gear B1	9
Steam turbine rotor F1	31
Rudder	
Coupling bolt B2	9
Hydraulic piston/nut B2	9
Pintle B2	9
Rudder blade B2	9
Rudder horn skeg in forged or cast steel A6	7
Rudder piece in forged or cast steel A6	7
Rudder shaft B2	9
Rudder stock B2	9
Running rigging (wind propulsion system) G45	56

S

Sacrificial anode (offshore unit - cathodic protection system with sacrificial anode) L4	85
Safety equipment and system	
Accessory of pipe G27	46
Burning unit (main boiler) F16	34
Diesel engine	
Crankcase explosion relief valve E9	27
Oil mist detection E9	27
Speed governor or overspeed protective device E9	27
Fuel cell system (safety relief valve) K27	83
Gas fuelled ship	
Safety relief valve for gas fuel piping system U19	127
Safety relief valve for gas fuel tank U20	127
Gas turbine F17	35
Liquefied gas carrier	
Safety relief valve for cargo process piping system H18	63
Safety relief valve for cargo tank H19	63
Oil / FLS and chemical tanker	
Pressure/Vacuum safety relief valve for cargo tank I17	69
Safety relief valve for cargo process piping system I16	69
Programmable logic controller and computer used for task essential to safety N8	101
Safety device for essential service installation (automation system - AUT notation) N5	100
Safety electrical equipment K23	80
Safety valve	
Auxiliary boiler G15	41
Main boiler F11	33
Regasification component (FSRU and FSU) H27	65
Steam turbine F1	31
Salvage tug (towing equipment) B24	14
Sandwich (core material for sandwich composite material) A8	7
Sanitary block (prefabricated fire resisting element) C31	17
Scavenging and supercharging compressor or blower E8	26
Screw stay	
Auxiliary boiler G15	41
Main boiler F11	33
Scrubber	
Discharge pipe from scrubber to overboard (inert gas system) D9	19
Exhaust gas cleaning system (scrubber unit) S5	118
Inert gas scrubber D5	19
Scuttle (side scuttle)	
Glass for window and side scuttle A14	8
Hull outfitting B11	10
Sea inlet B8	10
Seal (deck water seal - inert gas system) D7	19
Sealing gland (stern tube sealing gland) G40	53
Securing device	
Cargo fixed lashing equipment and mobile lashing/securing equipment P1	111
Hatch cover B13	11
Selective catalytic reduction system (SCR) S6	118
Self elevating mechanism (offshore unit) L2	85
Semi-built crankshaft (diesel engine) E1	23
Semiconductor convertor K7	77
Semi-permeable membrane (nitrogen generator system) D15	20
Semi-watertight door B14	11
Sensor	
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit (FLNG) L27	94
Control equipment and/or monitoring device (automation system - AUT notation) N5	100
Gas fuelled ship (containment sensor) U21	127
Inert gas system (control and monitoring system and component) D12	19
Installation intended for essential service (automation system - AUT notation) N5	100

Regasification component H27	65
Sensing head for automatic fire alarm and fire detection system C15	16
Vessel sensor (dynamic positioning system) R3	115
Separator	
Cargo reliquefaction plant (liquefied gas carrier) H10	61
Centrifugal separator	
Auxiliary machinery G32	48
Fuel oil purifying unit G25	43
Gas fuel supply system (gas fuelled ship) U9	125
Oily water separator (15 ppm) S1	117
Servo oil system (diesel engine) E1	24
Sewage treatment plant S3	117
Shackle	
Anchor chain cable accessory B5	9
Loose gear	
Derrick O1	104
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Supply at sea system O4	108
Shaft and shafting component	
Automatic shaft brake (propulsion plant remote control system) N2	100
Cardan shaft (flange, crosse, shaft, yoke) G4	38
Gas turbine shaft F17	35
Gastight shaft bulkhead penetration device	
Gas fuelled ship U7	125
Liquefied gas carrier H8	61
Oil / FLS tanker and chemical tanker I4	67
Intermediate shaft G4	38
Main propulsion shafting G5	38
Motorized windlass shaft B6	10
Rigid shaft coupling G4	38
Riser and mooring pull-in system L19	88
Rudder shaft B2	9
Shaft bearing G6	39
Shaft bracket (cast steel) A7	7
Shaft coupling G4	38
Steam turbine shaft F1	31
Thrust shaft G4	38
Winch intended for lifting appliance O5	109
Shaft power limitation system (ShaPoli) G46	57
Sheave (offshore handling system) L23	91
Shell door B12	11
Shore connection system (HVCS) K28	84
Shroud for mast and king post (lifting appliance) B19	12
Shut-down electric valve (automation system - AUT notation) N5	100
Side scuttle	
Glass for window and side scuttle A14	8
Hull outfitting B11	10
Single point mooring equipment	
Bow chain stopper Q1	113
Bow fairlead Q2	113
Fibre rope (single point mooring hawser) L16	87
Pedestal roller fairlead Q3	113
Skeg (rudder horn skeg) A6	7
Slewing ring	
Crane slewing ring	
Crane (certification) O2	104
Crane (classification) O3	106
Offshore access system (material and component) L26	93
Slewing ring bearing	
Crane (certification) O2	105
Crane (classification) O3	106
Sling (loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107

Smart system V5	131
Software	
Automation system N0	99
Communication software (ship-shore communication system - notation ASYNC-COM) V2	131
Span block trunnion (derrick - lifting appliance) O1	104
Speed regulator or governor	
Electronic speed regulator (automation system - AUT notation) N5	100
Overspeed protective device	
Diesel engine E9	27
Main diesel engine E1	21
Spheroidal graphite cast iron	
Cylinder block E1	21
Cylinder head E1	22
Engine block E1	22
Split hopper dredger (articulation and hydraulic cylinder) B21	13
Spreader beam (loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Sprinkler system	
Equivalent water-mist automatic sprinkler system C26	17
Sprinkler head for automatic sprinkler system C13	16
Stability computer (loading instrument or calculator)	
Automation system N10	102
Hull outfitting B20	12
Stainless steel	
Gas fuelled ship (membrane liquefied gas fuel containment system) U3	123
Standing rigging (wind propulsion system) G45	55
Starter and starting equipment and system	
Battery (for starting purpose) K9	77
Regulation and control device starter K10	78
Starting air receiver	
Diesel engine driving electric generator G13	41
Diesel engine E5	26
Static convertor (semiconductor convertor or static convertor) K7	77
Station keeping (mooring system) L20	88
Stationary part (casting and plate for casing)	
Gas turbine F17	35
Steam turbine F1	31
Stay (longitudinal or screw stay)	
Auxiliary boiler G15	41
Main boiler F11	33
Steam	
Heated steam generator G21	43
Raw pipe and piping system G26	45
Steam generator or boiler (pressure vessel) G30	47
Steam trap (accessory of pipe) G27	46
Steam turbine F1	31
Steel	
Cargo fixed lashing equipment (steel rod) P1	111
Cast steel	
Rudder piece A6	7
Shaft-bracket A7	7
Diesel engine	
Bearing transverse girder E1	21
Cylinder head (cast steel) E1	22
Piston crown (cast steel) E1	22
Gas fuelled ship	
Stainless or high alloy steel for membrane cargo containment system U3	123
Steel plate and profile for independent liquefied gas fuel tank U1	123
Liquefied gas carrier	
Longitudinally welded stainless steel cargo pipe H12	61
Seamless steel or stainless steel cargo pipe H11	61
Stainless or high alloy steel for membrane cargo containment system H3	59
Steel plate or profile for independent cargo tank H1	59

Oil / FLS or chemical tanker	
Seamless steel or stainless steel cargo pipe (chemical tanker) I6	67
Steel or stainless steel plate or profile for cargo tank I1	67
Raw material and component	
Steel bar, plate, profile or pipe for hull A1	7
Steel bar, plate, profile or pipe for regasification component (FSRU and FSU) H27	65
Steel casting for hull A10	8
Steel casting for machinery and cargo equipment A15	8
Steel casting for wind propulsion system G45	55
Steel forging (for hull) A11	8
Steel forging for wind propulsion system G45	55
Steel plate, profile or bar for mast structure (wind propulsion system) G45	55
Steel tubing (evaporator and condenser coil and pressure piping) M7	96
Transition joint for fixation of superstructure on steel hull A5	7
Wind propulsion system (raw material) G45	55
Wire rope	
Cargo fixed lashing equipment P1	111
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Mooring line component L20	88
Supply at sea system O4	108
Steering	
Pod housing (azipod steering system) A12	8
Steering gear B1	9
Steering installation	
Availability of machinery - AVM-DPS T2	121
Availability of machinery - AVM-IPS T3	121
Thruster G34	49
Stem (rudder) A6	7
Step-up gear (reduction gear) G2	37
Stern post (rudder) A6	7
Stern roller (towing and anchor handling equipment) B24	14
Stern tube	
Auxiliary machinery G8	39
Main propulsion shafting G5	38
Stern tube sealing gland G40	53
Stern tube chocking E14	29
Stock (rudder stock) B2	9
Stopper	
Bow chain stopper (single point mooring) Q1	113
Hatch cover B13	11
Mooring system (offshore unit - station keeping) L20	88
Wire stopper	
Motorized windlass B6	10
Riser and mooring pull-in system L19	88
Towing and anchor handling equipment B24	14
Strand jack (offshore handling system) L23	91
Strongpoint (emergency towing arrangement) B22	13
Stud	
Built-up propeller G9	39
Coupling stud (main propulsion shafting) G5	38
Diesel engine	
Connecting rod E1	24
Cylinder head E1	24
Main bearing E1	24
Hull outfitting (bolt, nut and stud) B26	14
Sub-cooler (liquefied gas carrier) H26	64
Subsea valve (hydraulic power unit for subsea valve) L11	86
Sump well	
Gas fuelled ship U37	129
Liquefied gas carrier H33	66
Supercharging compressor or blower E8	26
Superheater (main boiler) F11	33

Superstructure (fixation)	
Aluminium alloy superstructure (on steel hull) A4	7
Steel hull (transition joint steel/aluminium alloy) A5	7
Supply at sea (SAS) system and component O4	108
Supporting material and equipment	
Independent cargo tank (liquefied gas carrier) H4	59
Surface lining (bulkhead and ceiling) C28	17
Survival craft (life-saving appliance - offshore unit) L18	87
Switch and switchboard	
Distribution switchboard K14	78
Main and emergency switchboard K13	78
Switch K17	79
Switchboard for electric propulsion K12	78
Swivel	
Anchor chain cable accessory B5	9
Electrical swivel (offshore unit) L9	86
Fluid swivel (offshore unit) L8	86
Loose gear	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Supply at sea system O4	108
Offshore oil offloading transfer arm L24	92
Synthesis gas module (nitrogen generator system) D18	20

T

Tackle (hand operated tackle - loose gear)	
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Tank	
Aluminium alloy plate and profile for independent cargo tank (liquefied gas carrier) H2	59
Independent cargo tank (liquefied gas carrier) H34	66
Independent liquefied gas fuel tank (gas fuelled ship) U38	129
Process tank (nitrogen generator system) D17	20
Steel plate or profile for independent cargo tank (liquefied gas carrier) H1	59
Supporting material for independent cargo tank (liquefied gas carrier) H4	59
Washing machine (crude oil washing system)	
FLS tanker and oil tanker of 20 000 tons deadweight and above I24	70
Oil tanker of less than 20 000 tons deadweight I25	70
Taut wire (position reference system) R2	115
Temperature	
Monitoring system and sensors (equipment of refrigerated container ship) M11	96
Temperature controller or sensor (automation system - AUT notation) N5	100
Tensioner (ram tensioner - supply at sea operation) O4	108
Tensioning (equipment for tensioning of mooring line - offshore handling system) L23	91
Textile (vertically supported textile - fire protection system) C8	15
Thermal oil	
Pressure vessel G30	47
Raw pipe and piping system G26	45
Thermometer	
Auxiliary boiler G15	41
Main boiler F11	33
Throw (crank throw) E1	23
Thrust	
Main thrust block G3	37
Thrust shaft (main propulsion shafting) G5	38
Thrust shaft G4	38
Thrust sliding-block (frame) G5	38
Thruster	
Propulsion and steering G34	49
Thruster system (dynamic positioning system) R4	115
Thruster tunnel for transverse tunnel thruster system A13	8
Transverse thruster (manoeuvring) G34	49
Tie rod (crosshead engine) E1	24

Tiller (steering gear) B1	9
Topside equipment and system (offshore unit - survey rating of level A1, A2, A3) L21	88
Tower unit (scrubber) S5	118
Towing	
Emergency towing arrangement (ETA) B22	13
Towing equipment (tugs and anchor handling vessel) B24	14
Toxic media and substance	
Pressure vessel G30	47
Raw pipe and piping system G26	44
Refrigerating installation G35	50
Transducer compartment B9	10
Transfer	
Cargo transfer hose	
Supply at sea system O4	108
Fuel transfer pump (auxiliary machinery) G24	43
Low pressure transfer (regasification component - FSRU and FSU) H27	65
Transfer arm (offshore oil offloading equipment and system) L24	92
Transformer (intended for essential service) K6	76
Transition joint	
Steel/aluminium alloy for fixation of superstructure on steel hull) A5	7
Wind propulsion system (Raw material) G45	55
Transitional source (battery) K8	77
Transmitter sensor (automation system - AUT notation) N5	100
Transverse	
Transverse girder (diesel engine) E1	21
Transverse thruster (manoeuvring) G34	49
Traveling crane	
Crane (certification) O2	104
Crane (classification) O3	106
Trunnion (span block trunnion - derrick) O1	104
Tube	
Auxiliary boiler G15	41
Auxiliary condenser G17	42
Main boiler F11	33
Main condenser (steam turbine) F3	32
Refrigerating installation (condenser, heat exchanger or evaporator) M5	96
Stern tube (main propulsion shafting) G5	38
Stern tube G8	39
Stern tube sealing gland G40	53
Tube plate (main condenser - steam turbine) F3	32
Tubing (steel and copper tubing - refrigerant pipe) M7	96
Tug (towing equipment) B24	14
Turbine	
Boil-off gas handling system	
Liquefied gas carrier H26	64
Offshore unit (FLNG) L27	94
Gas turbine F17	35
Propulsion plant remote control system N2	100
Steam turbine F1	31
Turbine driving electric generator G10	40
Turbocharger E12	28
Turning gear	
Diesel engine E7	26
Steam turbine F4	32

U

Unbonded flexible pipe (offshore unit) L7	86
Uninterruptible power system - UPS (semiconductor convertor or static convertor) K7	77
Upholstered furniture (fire protection) C2	15
Uptake valve of main boiler (inert gas system) D3	19

V

Valve

Accessory of pipe G27	46
Auxiliary boiler G15	41
Auxiliary unit of auxiliary condenser G18	42
Burning unit of main boiler F16	34
Diesel engine	
Exhaust gas valve cage (crosshead engine) E1	23
Explosion relief valve (crankcase) E9	27
High pressure fuel injection valve E1	24
Pressure valve E10	27
Evaporator and fresh water generator G20	42
Fire protection (material other than steel for pipe conveying oil or fuel oil) C4	15
Fuel cell system (gas fuel valve) K27	83
Fuel cell system (safety relief valve) K27	83
Gas fuelled ship	
Gas fuel valve U18	127
Gas valve unit U30	128
Safety relief valve for gas fuel piping system U19	127
Safety relief valve for gas fuel tank U20	127
Gas turbine F17	35
Hydraulic system and hydraulic power installation G42	54
Inert gas system	
Breathing valve D13	19
Isolating valve from inert gas system and cargo tank D10	19
Regulating valve D11	19
Uptake valve of main boiler D3	19
Liquefied gas carrier	
Cargo valve H17	63
Cryogenic valve (boil-off gas handling system) H26	64
Safety relief valve for cargo process piping system H18	63
Safety relief valve for cargo tank H19	63
Main boiler F11	33
Offshore unit	
Cryogenic valve (boil-off gas handling system - FLNG) L27	94
Hydraulic power unit for subsea valve L11	86
Process valve and ESD valve L10	86
Oil / FLS or chemical tanker	
Cargo valve I14	69
P/V safety relief valve for cargo tank I17	69
Safety relief valve for cargo process piping system I16	69
Prefabricated pipe line G33	49
Regasification component (FSRU and FSU)	
Cryogenic and gas valve H27	65
Safety valve H27	65
Shut-down electric valve (automation system - AUT notation) N5	100
Steam turbine F1	31
Valve connected to	
Oil and lubricating oil tank G29	46
The collision bulkhead G29	46
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Vaporizer

Cargo reliquefaction plant (liquefied gas carrier) H10	61
Gas fuel supply system (gas fuelled ship) U9	125
Regasification component (FSRU and FSU) H27	65

Varnish (material with low flame spread characteristic) **C6**

Vent line

Cargo tank (liquefied gas carrier) H21	63
Gas fuel tank and low pressure gas fuel system (gas fuelled ship) U22	127
High pressure gas fuel system (gas fuelled ship) U23	127

Vertically supported textile (fire protection system) **C8**Visual signal (life-saving equipment - offshore unit) **L18**

W

Wall (fire-resisting and fire-retarding division) C1	15
Ward-Leonard set K4	75
Washing machine (crude oil washing system)	
FLS tanker and oil tanker of 20 000 tons deadweight and above I24	70
Oil tanker of less than 20 000 tons deadweight I25	70
Water	
Deck water seal (inert gas system) D7	19
Fire extinction system	
Equivalent water-mist automatic sprinkler system C26	17
Equivalent water-mist fire-extinguishing system C23	17
Nozzle for water-spraying fire-extinguishing system C14	16
Fire fighting ship	
Water monitor J4	71
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Grey Water Treatment Plan S9	119
Water box and shell (main condenser - steam turbine) F3	32
Water cooler (diesel engine) E3	25
Water-jet (propulsion) G34	49
Watertight	
Compartment B14	11
Door B14	11
Weathertight door B14	11
Welding consumable (filler product for welding) A3	7
Winch	
Lifting appliance - Crane (certification) O2	105
Lifting appliance - Crane (classification) O3	107
Lifting appliance (subject to individual assessment) O5	109
Offshore access system L26	93
Offshore handling system L23	91
Supply at sea operation O4	108
Winch foundation	
Hull outfitting B18	12
Lifting appliance - Crane (certification) O2	104
Lifting appliance - Crane (classification) O3	106
Wind propulsion system G45	55
Windlass (motorized windlass) B6	10
Window	
Fire window C30	17
Glass for window and side scuttle A14	8
Hull outfitting B11	10
Wire (cable and insulated cabling wire) K19	79
Wire rope	
Cargo fixed lashing equipment P1	111
Lifting appliance - Crane (certification) O2	106
Lifting appliance - Crane (classification) O3	107
Mooring line component L20	88
Offshore access system L26	93
Supply at sea system O4	108
Wire stopper	
Motorized windlass B6	10
Riser and mooring pull-in system (offshore unit) L19	88
Towing and anchor handling equipment B24	14



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