

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

NR266 R10

EDITION MARCH 2026



BUREAU VERITAS MARINE & OFFSHORE **RULE NOTE**

NR266 R10 MARCH 2026

NR266 DT R10 March 2026 replaces the former edition March 2025.

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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 latest version of these General Conditions is available on the Bureau Veritas Marine & Offshore website.

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Rule Note 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,
 - Naval ships surveyed by the Society during construction in accordance with NR483 Rules for the Classification of Naval Ships,
 - Fish farms surveyed by the Society during construction in accordance with NR387 Rules for the Classification of Fish Farms,
- 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,
- NR387 Rules for the Classification of Fish Farms,

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 (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) is to be recognised for classification purpose.

2.1.5 A valid EU RO Mutual Recognition Type Approval Certificate (refer to NR596) for HBV products is to be recognised for classification purpose providing its limitations are compatible with its use onboard.

2.1.6 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.

2.1.7 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.

2.1.8 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 the Rules listed in [2.1.1] regarding shipboard tests, i.e. see NR467, Pt C, Ch 1, Sec 18 for Machinery systems (typical).

2.1.9 Type approval certificate is not required to be re-issued according to new applicable requirements until the existing Type Approval certificate is expired.

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). 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.

“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, NR483 or NR387.

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, NR483 or NR387.

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’**:

- 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.

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.

2.6 Notice regarding cyber security equipment concerned by IACS UR E27

2.6.1 Cyber security for equipment to be installed onboard seagoing ships and offshore units covered by NR467 and NR445 respectively

The requirements of NR659 (Rules on Cyber Security for the Classification of Marine Units) 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.

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 **Z**), 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 outfitings
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 an additional class notation
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) or SUSTAINABILITY
T	Availability of machinery covered by additional class notations AVM (AVM-APS, AVM-DPS, AVP-IPS)
U	LNG, LPG or Ammonia fuel handling and containment systems of gas fuelled ships
V	Integrated communication, monitoring and digital systems
W	Life Saving Appliances (LSA notations)
X	Installations for ships operating in atmospheres contaminated by chemical, biological, radiological or nuclear hazards, covered by notation CBRN
Y	Hydrogen handling and containment systems of hydrogen fuelled ships
Z	Methanol and ethanol fuel handling and containment systems of methanol and ethanol fuelled ships

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, primary and special 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) An equivalent raw material homologation process may be applied according to NR546, App 1, [3]
	• 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 and NR480, 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)	X ndt	(2)	(1) Approval as per NR216, Ch 6, 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
A11	Steel forgings for hull structure	(1)	C (1)	X ndt	(2)	(1) Approval as per NR216, Ch 5, Sec 2, as applicable. Manufacturers of steel forgings are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480 for steel forgings having a mass above 1000Kg (2) See raw material certification
A12	Housing for azimuth propulsion system (1)	DA	C	X ndt	C	(1) Also applicable to all azimuth thrusters
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 castings for machinery and cargo equipment (1)	(1)	C (1)	X h ndt (2)	(3)	(1) Approval as per NR216, Ch 6, Sec 3, 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) Hydraulic test as per NR216, as applicable. Ndt required for casting in finished condition as per NR216, Ch 6, Sec 1 (3) See raw material certification
A16	Rudder trunk or other welded structure fitted on the ship structure	DA	C	X ndt	C	

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	
A17	Iron castings	(1)	C (1)	X h ndt (2)	(3)	(1) Approval as per NR216, Chapter 7. Manufacturers of iron castings are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480 for spheroidal or nodular graphite iron castings intended for crankshafts as per NR216, Ch 7, Sec 3 (2) Hydraulic test as per NR216, as applicable (3) See raw material certification
A18	Copper alloy castings	(1)	C (1)	X h ndt (2)	(3)	(1) Approval as per NR216, Chapter 8. Manufacturers of Copper alloy castings are to be recognised by the Society in accordance with NR320. The manufacturing process is to be approved in accordance with NR480 for propellers and products intended for important uses (2) Hydraulic test as per NR216, as applicable (3) 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) Also applicable to hydraulic gear pumps for ships covered by NR584 "Rules for azimuth thrusters in ice for polar class ships and ice-breakers" (2) Pumps belonging to class I piping system. See item G31 (3) Type tests of hydraulic pumps, as per NR467 (4) For hydraulic pump casings (5) Proof loading of steering chains and rods (6) To comply with class I piping system. See items G26 and G27 (7) See also items G30 (Pressure vessels) and G42 (Hydraulic systems) Note: Running tests - under load on board
	1- Pumps (hydraulic pumps) (1)	TA or DA (2) (3)	C (4)	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 (5)	C	
	5- Piping system and components (6) (7)					
B2	Rudder (1)	DA				(1) Rudders in composite materials: also see provisions of NI590. Rudder Trunk: see Item A16 (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 (VHHP) 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.

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B5	1- Anchor chain cable accessories (shackles, kenter shackles, swivels)	(1)	C	X ndt	C	(1) Approval as per NR216 and NR480 (2) See NR467, Pt B, Ch 12, Sec 4
	2- Bitter ends	DA (2)	C	X ndt	C	
B6	1- Motorized windlasses	TA / DA (1)		X (2)	C	(1) Or assessment by the mean of type tests according to special conditions. Ref. NR626 Anchor Windlasses and Chain Stoppers. At the request of the manufacturers, windlasses / Chain stoppers produced in series may be Type Approved. (2) Refer to relevant provisions of NR626, Section 1, as amended (3) See item G26 (Piping) and G42 (Hydraulic systems) (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 (5) Only applicable to load bearing components.
	• Main shaft	DA	C	X ndt	C	
	• Casing or body, drum / gipsy-wheel, and main load-bearing structures	DA	C	X ndt	C	
	• Hydraulic systems, Electric systems (3) (4)	DA		X h	C	
	• Guide roller, Guide pins	DA	C (5)	X ndt	C	
	2- Chain stopper (wire stopper)	DA (1)	C (5)	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

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
B12	Shell doors	DA	C	X ndt (1)	C	(1) For watertight shell doors, hydrostatic pressure test is required as per NR467, Part B, Ch 11, Sec 8, [5.1.1]. For non watertight shell doors, only hose test onboard is required
B13	Hatch covers					(1) As per NR467, Pt B, Ch 11, Sec 9
	1- Large hatch covers (1)	DA	C	X ndt (2) (3)	C	(2) Hose test on board, for watertight and weathertight covers (3) 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
	2- Small hatch covers (4)	DA	C	X ndt (2) (3)	C	(4) As per NR467, Pt B, Ch 11, Sec 10
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 6 (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, side-scuttles, gangway and cargo ports, valves, pipes, ash-chutes, and rubbish-chutes



HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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	
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 and O2
B19	Ropes, constituent of shrouds for item B18 (1)	DA		X (2)	C	(1) See items O1 and O2 for ropes (2) Breaking test on specimen

HULL OUTFITTINGS - ITEM B

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
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	



HULL OUTFITTINGS - ITEM B

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B22	Emergency towing arrangement (ETA) (1)	TA	C	X	C	(1) As per NR467 Pt B, Ch 12, Sec 4 [3] (2) Buoy and line-throwing appliance may be type approved (3) Certificate W (works): for the rope only (4) May be type approved
	1- Towing pennant / hook			X	C	
	2- Chafing gear: chain and associated accessories		C	X	C	
	3- Fairleads		W	X	C	
	4- Strongpoint (inboard end fastening of the towing gear):	TA		X	C	
	• Main framing		C			
	• Stopping device		C			
5- Pick-up gear: rope, buoy, line-throwing appliance	(2)			W (3)		
6- Pedestal roller fairlead	(4)	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 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 OUTFITTINGS - 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 2) (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 provisions of item O2 . (7) See item G26 (Piping) and G42 (Hydraulic systems) (8) 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 (9) As per NR216 (10) Approval as per NR216 and NR480. See item B4
	1- Loose gear	DA / TA (6)	W / C (6)	X ndt	C	
	1- 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 (7) (8)	DA		X h	C	
	5- Stern roller, Chain / Wire stopper, Guide pins	DA	C	X ndt (4)	C	
	6- Steel wire		W	X (9)	C	
	7- Chain cables	(10)	C (10)	X ndt	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



HULL OUTFITTINGS - ITEM B

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B27	Helidecks covered by additional class notations HEL , HEL(Y) or HELICOPTER (1) (2)					(1) Refer to NR467, Pt F, Ch 15, Sec 5 for notation HEL , NR500, Pt A, Ch 1, Sec 2 for notation HEL(Y) and NR483, Pt E, Ch 11, Sec 2 for notation HELICOPTER
	1- Structural elements	(3)	(3)		(3)	(2) The design and arrangement of the helicopter facilities are to be in accordance with the Civil Aviation Publication 437 "Offshore Helicopter Landing Areas - Guidance on Standards" (CAP 437)
	2- Fire-fighting elements	(4)	(4)	(4)	(4)	(3) Refer to items A1 to A5
	3- Electrical elements	(5)		(5)	(5)	(4) Refer to items C10 to C12 , C32 to C35 and C38 to C40 (5) Refer to items K22 and K23
B28	Watertight shaft bulkhead penetration	TA		X h	C (1)	(1) As per conditions set in the TA

Item C - Fire Protection, Detection and Extinction Systems

FIRE PROTECTION, DETECTION AND EXTINGUISHION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C0	The following materials, equipment, systems or products in general used for fire protection are to be type approved by the Society, except for special cases for which the acceptance may be given for individual ships on the basis of suitable documentation or ad-hoc tests					
C1	Fire resisting and fire-retardant divisions and associated doors: Class H, A, B and C					(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 (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) is to be recognised for classification purpose (2) As per survey scheme set in the TA
	1- Fire-resisting and fire-retarding divisions (bulkheads or decks)	TA (1)		X	C / W (2)	
	2- Associated doors	TA (1)			C / W (2)	
	3- Fire door control system	TA (HBV) (1)			W	
C2	Upholstered furniture, excluding the frame	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C3	Materials for pipes penetrating H, 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	Bulkhead or deck penetrations for electrical cables passing through H, 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	Textile and non-textile materials suspended vertically, for example curtain	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C9	Non-readily igniting materials for primary deck covering	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 EXTINGUISHION 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	Hose assemblies and expansion bellows of non-conventional material for any type of fluid	TA (1)	W	X h ndt	C	(1) See also items G28 and G38
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, deep fat cooking equipment fire-extinguishing systems, and spaces intended for the carriage of vehicles and for hangars	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 EXTINGUISHING 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) See item C1 (2) TA based on IMO Circular MSC.1/Circ.1387 as corrected by MSC.1/Circ.1387/Corr.1. (3) As per conditions set in the TA
	1- Fixed water-based local application fire-extinguishing systems	TA (1) (2)		X	C / W (3)	
	2- Fixed fire-extinguishing systems for protection of galley cooking equipment	TA (1) (2)		X	C / W (3)	
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	Portable, non-portable and transportable 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 units, window casings)	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)	

FIRE PROTECTION, DETECTION AND EXTINGUISHMENT SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
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	
C41	Portable fire-fighting device for stacked containers (1) (2)	TA (2)		X	C / W (3)	(1) Covered by the additional class notation ECFP (2) Refer to NR467, Pt F, Ch 13, Sec 2 (3) As per conditions set in the TA
C42	Flammable gas detection system	TA		X	C / W (1)	(1) As per conditions set in the TA

FIRE PROTECTION, DETECTION AND EXTINGUISHMENT SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C43	Low location lighting systems	TA (HBV) (1)			W	(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 (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) is to be recognised for classification purpose.
C44	Portable fire-fighting devices for ships covered by additional class notation EVFP-2 or EVFP-3 (1)					(1) As per NR467, Pt F, Ch,13, Sec 4
	1-Portable water curtain nozzles	TA		X	C	
	2- Portable upward water-spray devices	TA		X	C	
	3- Fixed gas detection systems	TA		X	C	
C45	Fiberglass Reinforced Plastic grating (FRP grating) (1) (2)	TA (HBV)			W	(1) Use for safe access to bow as per NR467, Pt D, Ch 7, Sec 2; NR467, Pt D, Ch 8, Sec 3 and NR467, Pt D, Ch 9, Sec 3 (2) Use for offshore application as per NR445, Pt C, Ch 4, Sec 8, [2.4]
C46	Insulation system or component for passive fire protection against hydrocarbon or jet fires	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 H18 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
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



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	
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 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 below: <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) (10)	TA (11)		X ndt (12) (13)	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 17 (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) (14)	W(UT+CD) (15) fit-up + post-welding (16)	C	
	2- Bearing transverse girders GS		W (Chem+Mech) (14)	W(UT+CD) (15) X	C	
	3- Welded frame box		W (Chem+Mech) (14)	W(UT+CD) (15) fit-up + post-welding (16)	C	
	4- Cylinder block GJL (applicable to engines > 400 kW/Cyl.)			W (17) (18)		
	5- Cylinder block GJS (applicable to engines > 400 kW/Cyl.)			W (17) (18)		
	6- Welded cylinder frames (applicable to crosshead engines)		W (Chem+Mech) (14)	W(UT+CD) (15) fit-up + post-welding (16)	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 (17) (18)		(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) (14)	W (17) (18)		(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) (14)	W (17) (18)		(10) Each component is to be certified according to TA of the corresponding engine(s)
	10- Cylinder head GJL (applicable to engines with D > 300 mm)			W (17)		(11) Type test: as per NR467, Pt C, Ch 1, Sec 2
	11- Cylinder head GJS (applicable to engines with D > 300 mm)			W (17)		(12) NDT as per NR467, Pt C, Ch 1, Sec 2
	12- Cylinder head GS (applicable to engines with D > 300 mm)		W (Chem+Mech) (14)	W(UT+CD) (15) W (17) X	C	(13) Works trials (factory acceptance tests), as per NR467, Pt C, Ch 1, Sec 2
	13- Forged cylinder head (applicable to engines with D > 300 mm)		W (Chem+Mech) (14)	W(UT+CD) (15) W (17) X	C	(14) 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)
	14- Piston crown GS (applicable to engines with D > 400 mm)		W (Chem+Mech) (14)	W(UT+CD) (15) X	C	(15) Non-destructive examination means e.g. ultrasonic testing, crack detection by MPI or DP. When certain NDE method on the finished component is impractical, the NDE method can be performed at earlier appropriate stages in the production of the component
	15- Forged piston crown (applicable to engines with D > 400 mm)		W (Chem+Mech) (14)	W(UT+CD) (15) X	C	(16) Visual inspection by the Surveyor
	16- Crankshaft: made in one piece		C (Chem+Mech) (14)	W(UT+CD) (15) W (19), Random of fillets and oil bores (16)	C	(17) 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
					(18) 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	
					(19) 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) (14)	W(UT+CD) (15) W (19), Random of fillets and shrink fittings (16)	C	
	18- Exhaust gas valve cage (applicable to crosshead engines)			W (8-17)		
	19- Piston rod, if applicable (applicable to engines with D > 400 mm)		C (Chem+Mech) (14)	W(UT+CD) (15) CD again after final machining (grinding), Random (14)	C	
	20- Crosshead (applicable to crosshead engines)		C (Chem+Mech) (14)	W(UT+CD) (15) CD again after final machining (grinding), Random (16)	C	
	21- Connecting rod with cap		C (Chem+Mech) (14)	W(UT+CD) (15) W (19), Random of all surfaces, in particular those shot peened (16)	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) (14)	W(UT+CD) (15) W (19), Random of interference fit (16)	C	(20) 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 41 (21) Applicable to engines with D > 300 mm (22) Applicable to engines with D ≤ 300 mm (23) 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, Pt C, Ch 1, Sec 10, Tab 41
	23- Bolts and studs for main bearings (applicable to engines with D > 300 mm)		W (Chem+Mech) (14)	W(UT+CD) (15)		
	24- Bolts and studs for cylinder heads (applicable to engines with D > 300 mm)		W (Chem+Mech) (14)	W(UT+CD) (15)		
	25- Bolts and studs for connecting rods (applicable to engines with D > 300 mm)		W (Chem+Mech) (14)	W(UT+CD) (15), TR of thread making (19)		
	26- Tie rod (applicable to crosshead engines)		W (Chem+Mech) (14)	W(UT+CD) (15), TR of thread making (19), Random (16)	C	
	27- High pressure fuel injection pump body (20)		W (Chem+Mech) (14)	W (17) (21) TR (17) (22)	C / W (23)	
	28- High pressure fuel injection valves (only for those not autofretted) (20)			W (17) (21) TR (17) (22)	C / W (23)	
	29- High pressure fuel injection pipes including common fuel rail (20)		W (Chem+Mech) (14)	W (17) (21) TR (17) (22)	C / W (23)	
30- High pressure common servo oil system (20)		W (Chem+Mech) (14)	W (17) (21) TR (17) (22)	C / W (23)		

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 (24) (applicable to engines with D > 300 mm) (20) (25) (26)		W (Chem+Mech) (14)	W (17) (25)	C / W (23)	(24) Charge air cooler (25) Charge air coolers need only be tested on the water side (26) 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 (27) Applicable to all engines with accumulators with a capacity of more than 0,5 l
	32- Accumulator (20) (26) of common rail fuel or servo oil system		W (Chem+Mech) (14) (27)	W (17) (27)	C / W (23)	
	33- Piping, pumps, actuators, etc. for hydraulic drive of valves, if applicable (applicable to engines > 800 kW/Cyl.) (20)		W (Chem+Mech) (14)	W (17)		
	34- Engine driven pumps (oil, water, fuel, bilge) other than pumps referred to item 28 to 34 (applicable to engines > 800 kW/Cyl.) (20)			W (17)		
	35- Bearings for main, crosshead, and crankpin (applicable to engines > 800 kW/Cyl.)		TR(C) (14), TR(UT for full contact between basic material and bearing metal) (15)	W (19)		
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 m ³ 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 (2) Including coolers, if any (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)
	1- Air compressors for filling of item E5		W	X h (2)	C	
	2- Prime movers (3)			X h	C	
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) (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 17. Type tests as per agreed program (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
	1- Auxiliary compressors or blowers (2) (3)	DA or TA (4)	C (5)	X h ndt (6)	C / W (6)	
	2- Electrical motors (7)	DA or TA	W (7)	X (7)	C / W (7)	

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]
	1- Crankcase explosion relief valves	TA (3) (4)	W	X (5)	C (6)	(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
	2 - Oil mist detection, Regulation and safety devices	TA (3) (4) HBV		X (5)	W (6)	(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 as per NR467 and program accepted by the Society (6) As per technology and conditions set in the TA Note: During running, load tests, according to agreed program
E10	Pressure pipes (water, lubricating oil, fuel oil, and compressed air pipes), valves and other fittings	(1)	C / W (1)	X h (1)	C (1)	(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
	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	(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 17 (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
	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	(6) Works' inspection and testing as per NR467, Pt C, Ch 1, Sec 17 (7) UT and crack detection of rotating parts: Works' certificate (W); dimensional inspection of rotating parts: Works' certificate (W) (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
	3- Category A: Turbochargers having served power by cylinder groups ≤ 1000 kW	TA (11) HBV	W	X h ndt (12)	W	(11) Category A turbochargers: documentation for approval as per NR467, Pt C, Ch 1, Sec 17, Table 1 (12) According to an agreed program

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	Engines using low flashpoint liquid or gas as fuel (1)	TA (2) (3)	C / W (1) (2) (3) (4)	X (1) (2) (3) (4)	C	(1) Refer to specific requirements of NR529 Gas Fuelled Ships, NR647 LPG-fuelled ships and relevant provisions of NR467, Pt D, Ch 9, Sec 16 - For hydrogen engines, refer to NR678 Hydrogen Fuelled Ships - For methanol engines, refer to NR670 Methanol and Ethanol-fuelled Ships - For Ammonia engines, refer to NR671 Ammonia-fuelled Ships (2) 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 (3) See also relevant provisions of NR467, Part C, Chapter 1, particularly NR467, Pt C, Ch 1, App 2 (4) For piping systems: see also the relevant provisions of NR216 and NR467, Pt C, Ch 1, Sec 10 (5) Pressure test at 1,5 x design pressure (6) 10% radiographic or ultrasonic inspection of butt-welded joints as per NR529, Ch 9, Sec 1, [6.3.1], item d (7) If inside diameter > 75 mm or wall thickness > 10 mm: 100% radiographic or ultrasonic inspection of all butt-welded joints as per NR529, Ch 9, Sec 1, [6.3.1], item a (8) Visual inspection of welds is required (9) 100% radiographic or ultrasonic inspection of all butt-welded joints as per NR529, Ch 9, Sec 1, [6.3.1], item a (10) Pressure test at 1,5 x design pressure to ensure gas tight integrity, not less than the expected maximum pressure at gas pipe rupture as per NR529, Ch 9, Sec 1, [7.3.5], and NR529, Ch 5, Sec 2, [4.1.6] (11) "Flanges" limited to the final connection to the engine (12) If nominal diameter > 25 mm (13) Test Report (Material properties include chemical composition and mechanical properties) (14) Leak test
	1- Gas pipe Low-pressure double walled		W	Xh ndt (5) (6) (7) (8)		
	2- Single walled Gas pipes		W	Xh ndt (5) (8) (9)	C	
	3- High-pressure gas pipes		W	Xh ndt (5) (8) (9)	C	
	4- Secondary enclosure for gas pipes		W	Xh ndt (6) (8) (10)		
	5- Gas pipe Low-pressure, Flanges (11)		W	X ndt (6) (7) (8)		
	6- Gas pipe High-pressure, Flanges (11)		W	X ndt (8) (9)	C	
	7- Gas pipe Low-pressure, Fittings and other components		W	Xh (5) (8)		
	8- Gas pipe High-pressure, Fittings and other components		W	Xh (5) (8)	C	
	9- Gas pipe Low-pressure Bodies of valves (12)		W	Xh (5)		
	10- Gas pipe High-pressure Bodies of valves		W	Xh (5)	C	
	11- Gas venting pipes and flanges, build up pressure less than 5,0 bar (11)		W	Xh ndt (5) (6) (8)		
	12- Gas venting pipes and flanges, build up pressure at 5,0 bar or more with secondary enclosure (11)		(13)	Xh ndt (5) (6) (8)		
	13- Gas venting pipes and flanges, build up pressure at 5,0 bar or more (11)		(13)	Xh ndt (5) (8) (9)	C	
14- Gas venting pipes Secondary enclosure		W	Xh (14) (8)			



MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E14	Chocking systems, chocking resins	TA (1)	W	X	C / W (2)	(1) As per NR467, Pt C, Ch 1, Sec 1 (2) As per conditions set in the TA
E15	Explosion relief devices for combustion air inlet and exhaust Gas Manifolds	TA (1)	C	X ndt (2)	C	(1) As per NR 467, Pt C, Ch 1, Appendix 8 (2) Checking of the setting including tightness test

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E14	Chocking systems, chocking resins	TA (1)	W	X	C / W (2)	(1) As per NR467, Pt C, Ch 1, Sec 1 (2) As per conditions set in the TA
E15	Explosion relief devices for combustion air inlet and exhaust Gas Manifolds	TA (1)	C	X ndt (2)	C	(1) As per NR 467, Pt C, Ch 1, Appendix 8 (2) Checking of the setting including tightness test

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, the tests and trials on a prototype are to be carried out in the presence of the Surveyor in the scope of the type approval program of the Society. 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
F3	Main condensers	DA		X h	C	(1) Including chemical analysis
	1- Tubes		C (1)	X h (2)		(2) Hydraulic test, or examination as per agreed procedure
	2- Tubes plates		C	X		Note: Running tests - during sea trials
	3- Water boxes and shells			X		

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	
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) See item G30 for pressure vessels (2) Casing only (material certificate W, if vessel class 2 or 3)
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
	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		

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	10- Miscellaneous pipes and flanges connecting various parts (headers, superheaters, etc.)		C (10)	X h (11)	C	(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
	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	
F12	Feed pumps of item F11 and their prime movers	DA		X	C	(1) See item G31 (2) Casing and assembling bolts (centrifugal pumps) (3) Main parts before assembling (4) Rotor balancing (centrifugal pumps) (5) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Feed pumps (1)		C (2)	X h (3) (4)	C	
	2- Prime movers (5)			X h	C	
F13	Feed water heaters (1)	DA	C (2)	X h	C	(1) 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 (3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 Note: Running tests - on board during boiler tests
	1- Forced circulation pumps (1)		C (2)	X h	C	
	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 (2) See items G26 and G27 (3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 (4) Calibration to be checked Note: Running tests - on board during boiler tests
	1- Pumps			X h	W	
	2- Heaters	DA		X h	W	
	3- Filters			X h	W	
	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 (2) Type tests: as per NR467
	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	(3) Type tests, material tests, workshop inspection and testing, certification - as per NR467, Pt C, Ch 1, Sec 5
	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	(4) Material tests (all) and NDT: magnetic particle or liquid penetrant (all) and Ultrasonic or X Ray examination (sample) (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)
	3- Blades		C (8)	X ndt	C	(6) Balancing and overspeed test of rotors
	4- Piping, valves and associated fittings	(9)	C / W (9) (10)	X h ndt	C	(7) Material tests (all) and NDT: magnetic particle or liquid penetrant (spot as agreed between the Manufacturer and the Surveyor)
	5- Regulation and safety devices			X (11)	C	(8) Material tests (sample) and NDT: magnetic particle or liquid penetrant (sample) and Ultrasonic or X Ray examination (sample)
	6- Flexible coupling (12)	DA	C / W	X	C / W	(9) See items G26 and G27
	7- Measuring instruments (13)	TA		X (14)	C	(10) Material tests and NDT: as required in the relevant Sections of the Rules (11) Including overspeed tripping device test
	8- Turbine and nozzle casings		W (4)	X h ndt	C	(12) See item G1 (13) Such as pressure gauges, thermometers, speed indicators, vibration detectors. Automation systems: see relevant provisions of item N
9- Intermediate coolers and heat exchangers (15)	DA	C	X h ndt	C	(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/TA (2) (3)	W	X h (4)	C/W (3)	(1) See item G5 regarding main propulsion shafting components (2) As a general: when 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 (3) Product certificate W (works') may be accepted for 'mass produced' flexible couplings which are type approved by the Society (4) For hydraulic or pneumatic equipment
G2	Reduction gears, reverse reduction gears, and multipliers		(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 (2) Survey of shafts and their connections (flange couplings, hubs, bolts pins) as per relevant provisions of item G5 (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 (4) Verification of cutting accuracy, meshing test, hydrostatic tests (hydraulic or pneumatic clutches, pressure piping, pumps casings, valves and other fittings) (5) May be applied at the request of the Society for low transmitted power (< 220 KW for propulsion and < 110KW for other) 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 18 for Machinery systems
	1- Reduction and/or reverse gears intended for propulsion plants:					
	• with a transmitted power $P \geq 220$ kW	DA	C	X h ndt (3) (4)	C	
	• with a transmitted power $P < 220$ kW	DA (5)	W	X	W	
	2- Other reduction and step-up gears:					
	• with a transmitted power $P \geq 110$ kW	DA	C	X h ndt (3) (4)	C	
• with a transmitted power $P < 110$ kW	DA (5)	W	X	W		
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
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 Note: a- on board: contact on bearing to be examined b- checking of fitting
	Cardan shafts (flanges, crosses, shafts, yokes) (1)	DA	C	X ndt	C	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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 (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) (4) Also applicable to all azimuth thrusters and impeller shafts of water jets (5) Stern tube sealing glands: see item G40 (6) Material tests (all); NDT not required (7) Also see relevant provisions of items A10 and A11 (for Steel castings and Steel forgings) (8) 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 (9) Design assessment index, for stern tube bearings: TA for synthetic ma-terials only, as per NR467, Pt C, Ch 1, Sec 7, [2.4] (10) For shafting component completely built under control together with the propulsion shaft and data fully addressed in the main manufacturer's file (11) For special bolts (i.e. expansion type), product certificate C is required (12) For metallic parts, i.e. shafts, flanges, power transmitting parts: material certificate W depending on the agreed survey scheme. Welds if any to be documented according to agreed specification (13) See item G1 Note: During sea trials, the lubricant consumption is to be recorded
	1- Coupling (separate from shafts)	DA	C (3)	X ndt	C	
	2- Propeller shafts (4)	DA	C (3)	X ndt	C	
	3- Intermediate shafts	DA	C (3)	X ndt	C	
	4- Thrust shafts	DA	C (3)	X ndt	C	
	5- Cardan shafts (flanges, crosses, shafts, yokes)	DA	C (3)	X ndt	C	
	6- Stern tubes (5)	DA	W (6)(7)	X h ndt (8)	W	
	7- Stern tube bushes and bearings	TA (9) / DA	W (6)	X	W (10)	
	8- Propeller shaft liners	DA	W (6)	X h (8)	W	
	9- Coupling bolts or studs	DA	W (6)	X	W / C (11)	
	10- Flexible couplings	DA	W (6) (12)	X	C / W (13)	
11- Thrust sliding-blocks (frame)	DA	W (6)	X	W		

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 (4)	(1) Case-by-case individual design appraisal 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 (sub-item 7) regarding main propulsion shafting components (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 15); 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 may be accepted within the framework of the type approval program of 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) (9)	DA	C (6) (10)	X ndt (11)	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. Propellers in composite material as per NI663 (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) Also applicable to propeller's blades for ships covered by NR584 "Rules for azimuth thrusters in ice for polar class ships and ice-breakers" (10) 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 (11) 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
	1- Lubricating oil pumps	(2)	(2)	X (2)	(2)	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	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		C / 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 (2) Automation systems: see relevant provisions of item N (3) If forming or welding operations (4) For cylindrical boilers only (internal test) (5) See item G27 (6) Capacity test on prototype (7) Setting and accumulation test (8) Also see Item G48 (9) As per conditions set in the TA (10) Calibration to be checked Note: Running tests - on board
	1- Boilers and drums		C	X h ndt (3)	C	
	2- Tubes		C	X h	C	
	3- Furnaces (cylindrical and vertical boilers for instance)		C	X h ndt (4)	C	
	4- Screw stays and longitudinal stays		C	X h	C	
	5- Valves and miscellaneous accessories	(5)	C / W (5)	X h	C	
	6- Safety valves	(4)	C	X h (6) (7)	C	
	7- Level indicators (8)	TA		X h	C / W (9)	
8- Pressure gauges and thermometers			X (10)	C		
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	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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	
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	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G24	Fuel transfer pumps and their prime movers					(1) See item G31
	1- Fuel transfer pumps	(1)	(1)	X (1)	(1)	(2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	2- Prime movers (2)			X h	C	
G25	Fuel oil and lubricating oil purifying unit and centrifugal separators	DA or TA		X (1)	C	(1) Running test, possibly with a fuel water mixture
	1- Flexible hoses	TA (2)	W (2)	X h	C (2)	(2) See item G28
	2- Electrical equipment (motor, switchboards, cables) (3)	(3)		X	C	(3) See relevant provisions of item K
	3- Automation equipment (4)	(4)		X (5)	C	(4) See item N
	4- Centrifugal separators (6)	(6)	W	X h	C	(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)
G26	Raw pipes and piping systems (1) (2) P: Design pressure, in MPa T: Design temperature, in °C ND: Nominal diameter of the pipe or fitting, in mm					(1) General Notes:
	1- Toxic media					<ul style="list-style-type: none"> Piping systems are subdivided into three classes (class I, class II and class III), 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). See also NR445 Pt C, Ch 1, Sec 7, Tab 3 for offshore units or NR483 Pt C, Ch 1, Sec 10, Tab 3 for Naval ships 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 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 to be used as per 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
	Class I: without special safeguards (3), ND ≥ 50		W	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		W	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		W	X h ndt (4)	C	
Class II: with special safeguards (3), ND < 100		W	X h ndt (4)	W		
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	3- Flammable media (5) heated above flashpoint, or having flashpoint < 60°C Liquefied gas					(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) ndt applicable if of welded construction (5) Flammable media generally include the flammable liquids as oil fuel, lubricating oil, thermal oil and flammable hydraulic oil (6) Pressure and temperature conditions other than those required for class I and class III
	Class I: without special safeguards (3), ND ≥ 50		W	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		W	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		W	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					
	5- Steam					
	Class I: p > 1,6 or T > 300, ND ≥ 50		W	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 ≥ 100		W	X h ndt (4)	C	
	Class II: other (6), ND < 100		W	X h ndt (4)	W	
	Class III: p ≤ 0,7 and T ≤ 170			X h	W	
	6- Thermal oil					
	Class I: p > 1,6 or T > 300, ND ≥ 50		W	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 ≥ 100		W	X h ndt (4)	C		
Class II: other (6), ND < 100		W	X h ndt (4)	W		
Class III: p ≤ 0,7 and T ≤ 150			X h	W		

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G26	7- Fuel oil (7), lubricating oil, flammable hydraulic oil (8)					(7) Design pressure for fuel oil systems is to be determined in accordance with NR467, Pt C, Ch 1, Sec 10, Tab 4
	Class I: $p > 1,6$ or $T > 150$, $ND \geq 50$		W	X h ndt (4)	C	(8) Steering gear hydraulic piping system belongs to class I irrespective of p and T
	Class I: $p > 1,6$ or $T > 150$, $ND < 50$		W	X h ndt (4)	W	(9) Including water, air, gases, non-flammable hydraulic oil
	Class II: other (6), $ND \geq 100$		W	X h ndt (4)	C	(10) Short length of hose with end fittings ready for installation
	Class II: other (6), $ND < 100$		W	X h ndt (4)	W	(11) Prototype testing: see NR467, Pt C, Ch 1, Sec 10, [2.6] (type approval) and [20.2] (type tests)
	Class III: $p \leq 0,7$ and $T \leq 60$			X h	W	(12) 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)
	8- Other media (8) (9)					(13) As per conditions set in the TA
	Class I: $p > 4,0$ or $T > 300$, $ND \geq 50$		W	X h ndt (4)	C	(14) 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
	Class I: $p > 4,0$ or $T > 300$, $ND < 50$		W	X h ndt (4)	W	(15) 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
	Class II: other (6), $ND \geq 100$		W	X h ndt (4)	C	(16) Fittings refer to piping components such as sleeves, elbows, tees, bends, flanges, etc., which are used to join together sections of pipe
	Class II: other (6), $ND < 100$		W	X h ndt (4)	W	(17) For cargo pipe fittings, refer to relevant provisions of items H14 and I10
	Class III: $p \leq 1,6$ and $T \leq 200$			X h	W	
	9- Flexible hose used for shielding purpose of HP fuel injection pipes (covered by item E1 sub-item 29) (10)	TA (11)	W	X h (12)	C (13) (14)	
	10 - Plastic pipes (15)	TA (15)	C / W (13)	X h (15)	W	
	11- Pipe fittings (16) (17)					
	Class I: $ND \geq 50$		W	X h ndt (4)	C	
	Class II: $ND \geq 100$		W	X h ndt (4)	C	
	Class I: $ND < 50$		W	X h ndt (4)	W	
	Class II: $ND < 100$		W	X h ndt (4)	W	
	Class III		W		W	

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, steam traps, relief valves, safety devices, etc.) (1) (2) ND: Nominal diameter, in mm					(1) For cargo valves: see relevant provisions of items H18 and I14 (Cargo handling and containment systems). For gas fuel valves: see relevant provisions of item U18 For methanol/ethanol fuel valves: see relevant provisions of item Z9
	Class I: ND ≥ 50 Class II: ND ≥ 100	(3)	C	X h ndt (4)	C	(2) Valves under static pressure connected to oil fuel tanks or lubricating oil tanks belong to class II
	Class I: ND < 50 Class II: ND < 100	(3)	W	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 III		W		W	(4) ndt applicable if of welded construction
G28	Flexible hoses assembly (1)	TA (2) (3)	W	X h (4)	C (5)	(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) 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 	DA (1)	C / W (2)	X h (3) ndt (4)	C	(1) DA for nominal diameter ≥ 100 mm (2) Valves: <ul style="list-style-type: none"> If nominal diameter ND ≥ 100 mm: material certificate C (class) If nominal diameter ND < 100 mm: material certificate W (works) Pipes and fittings: <ul style="list-style-type: none"> All nominal diameter ND: material certificate W (Works) (3) Examination and testing as per relevant provisions of NR467, Pt C, Ch 1, Sec 10, Tab 41. (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)	(6)	<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 (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 H5, 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) Hydrostatic tests of all class 1, 2 and 3 pressure vessels are to be witnessed by the Surveyor with the exception of type approved mass produced pressure vessels, and for which work (W) certificates are to be provided</p> <p>(6) 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)
	1- When belonging to a class I piping system (3)	DA (4) (5)	C	X h	C	(2) For other pumps and compressors, see additional Rules relevant for related system
	2- When belonging to a class II piping system (3)		W	X h	C	(3) Also applicable to pumps (except hydraulic gear pump) for ships covered by NR584 "Rules for azimuth thrusters in ice for polar class ships and icebreakers"
	3- Bilge and fire pump (6)	DA (7)	W	X h (6)	C	(4) If not already addressed within the scope of the piping system approval
	4- Feed pumps for main boilers (8)	DA (4)	C	X h ndt (9) (10)	C	(5) Type tests of hydraulic pumps for Steering gears as per NR467. See provisions of item B1
	5- Forced circulation pumps for main boilers (11)	DA (4)	C	X h	C	(6) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See items G22 , C32 and J1
	6- When belonging to one of the following class III piping systems if design pressure exceeds 0,35 MPa (3): - boiler feed water or forced circulating - fuel oil or other flammable oil - compressed air		W	X h	C	(7) DA not applicable to bilge pumps. DA is required for fire pumps. Also see provisions of item C32
	7- When belonging to other class III piping systems (3)			X h	W	(8) See item F12 (9) 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
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	Pipe assemblies and their integral fittings, if any					(1) If of welded construction.
	• Class I	DA		X h ndt (1)	C	
	• Class II			X h ndt (1)	C	
	• Class III				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 and NR584 Rules for azimuth thrusters in ice for polar class ships 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 (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
	1- Transverse thrusters intended for manoeuvring	DA	C / W (7) (8) (9)	X ndt	C (7) (8)	
	2- Thrusters intended for propulsion and steering	DA	C (8) (10)	X ndt	C	

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G34						<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) For tunnel, see item A13</p> <p>(10) 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>
G35	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) If nominal diameter ND ≥ 100 mm: material certificate C (class) If nominal diameter ND < 100 mm: material certificate W (works¹)</p> <p>(11) Use of plastic pipes to be considered by the Society on a case-by-case basis. See item G39</p> <p>(12) 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 or with a design pressure > 4 MPa		C (5) (6)	X h ndt (9)	C	
	- class II : for other refrigerants		W (5) (6)	X h ndt (9)	C / W (10)	
	- class III : for brine		W	X h	W	
	- plastic pipes (11)	TA (11)	W (11)	X h (11)	C (11)	
	3- Refrigerants (12)					
- toxic or flammable refrigerants: subject to special consideration by the Society		W		W		
- ammonia (R717): subject to specific requirements						

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	<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>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	<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) 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)	W	<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) (2) <ul style="list-style-type: none"> • Stern tube seals • Sealing glands • Oil sealing glands 	DA or TA (3) (4) (5)	C / W (6)	X	C / W (6)	(1) See also item G5 (2) Also applicable to propeller shaft seals for ships covered by NR584 "Rules for azimuth thrusters in ice for polar class ships and ice-breakers" (3) Based on the type of shaft and its design, the tailshaft bearings and podded propulsions 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 (4) 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] and pod propulsion systems (5) 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) (6) 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)
	1- Ballast water management system	TA		X (2)	C	(2) As per conditions set in the TA (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)	DA/TA		X ndt	C (2)	(1) Ships fitted with a wind propulsion system are to be assigned the additional class notations WIND PROPULSION-1 (for wind propulsion system including safety rigging parts) or WIND PROPULSION-2 (for wind propulsion system including safety and operating rigging parts), as per Rule Note NR206 (2) When the full assembly is completed by the manufacturer (3) Approval as per NR216 and NR480, as applicable (4) See raw material certification (5) Type approval as per NR216 (6) See provisions of NR546 (7) 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 (8) Document type according to the agreed survey scheme - as per conditions set in the DA (9) Mechanical tests according to NR206, Sec 3, [3.4.3] (10) Checking of fitting on board (11) Approval as per NR206 (12) The extent and the nature of the non-destructive examinations are subject to the Society's agreement. (13) According to type of materials (14) Proof load as per NR206 (15) 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	(3)	C (3)		(4)	
	- Aluminum alloy plates, profiles, bars for mast structure	(3)	C (3)		(4)	
	- Aluminum alloy rivets for mast structure	(3)	C (3)		(4)	
	- Transition joints steel / aluminum alloy	TA (3)	C		C	
	- Steel castings/forgings	(3)	C (3)	X ndt	(4)	
	- Aluminum alloy castings	(3)	C (3)	X ndt	(4)	
	- Filler products for welding (welding consumables)	TA (5)			W	
	2- Laminate composite materials (Raw materials: Composite)	DA (6)		X (7)	C / W (8)	
	- Adhesives assembly	TA HBV		X (7)	W	
	- Reinforcement fibres	TA HBV			W	
	- Resin systems	TA HBV			W	
	- Core materials for sandwiches	TA HBV			W	
	- Adhesives	TA HBV (9)			W	
	- Prepreg	TA HBV			W	
	3- Safety rigging parts (10)					
	- Mast	DA /TA (11)	(13)	X (12)	C	
	- Shrouds intended for safety rigging parts (Steel and fiber ropes and Terminal accessories)	DA (11)	W	X (12)	C	
	- Deck eyeplates, chain plate for safety rigging parts	DA (11)	(11)	X (12) (14)	C	
- Wind propulsion system accessories	DA (11)	W	X (12) (18)	W		
- Coupling bolts	DA (11)	C	X	C / W (15)		
- Bearings	DA	W	X (12)	W		
- Pedestal (not permanently connected to the hull)	DA	C	X ndt	C		

AUXILIARY MACHINERY - ITEM G

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G45	4- Operating rigging parts					(16) Breaking test on specimen as per NR206
	- Ropes intended for operating rigging parts (steel and fiber ropes and terminal accessories)	DA (11)	W	X (16)	W	(17) 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 operating rigging parts	DA (11)	W	X (14) (17)	W	(18) Tests as per NR206
	- Sheaves	DA (11)	W	X (17) (18)	W	(19) Material as per NR216
	- Clutch, travelers and other operating rigging accessories	DA (11)	W	X (17) (18)	W	(20) Running test as per agreed program
	- Wind propulsion system accessories	DA (11)	W	X (17) (18)	W	(21) Electrical motors and equipment to be considered as intended 'for essential services'. Survey requirements as per item K
	- Winches and their accessories for operating rigging parts	DA (11)	W	X (18)	W	(22) As per Society's agreement.
	- Slewing ring	DA	C	X ndt	C	(23) 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
	5- Drive unit - Mechanical system					(24) Material certificate of small pumps or valve required depending on the type of wind propulsion system.
	- Reduction gears with transmitted power ≥ 110 kW	DA / TA	W / C	X h ndt	C	
	- Reduction gears with transmitted power < 110 kW	DA / TA	W		W	
	- Winches for rotating and release systems	DA (11)	(19)	X (17) (20)	C	
	- 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 (21)			X	C	
	- Auxiliary machinery items essential for the function of the wind propulsion system	(22) (23)				
	- 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 (24)	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					(25) As per NR467, Pt C, Ch 3 (26) As per condition set in TA
	- Electric motors for essential functions of the wind propulsion system (21)	DA / TA		X	C / W	
	- Cables, Circuit breakers, Contactors	DA / TA			W	
	- Convertors	DA / TA			C	
	- Switchboard	DA		X	C	
	- Other electrical equipment (21)	DA	(21)	(21)	(21)	
	- Control and Monitoring System	DA/TA (25)		X	C / W (26)	
G46	Overridable power limitation systems (EPL and ShaPoLi)	DA / TA (HBV) (1)			W	(1) DA or TA. As per NR467, Pt C, Ch 1, Sec 2, [2.7.7]
G47	Carbon capture and storage system covered by additional class notation OCC	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 4
	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- CO ₂ system	TA	C / W (1)	X h ndt (2)	C	
G48	Level gauges					(1) As per NR467, Pt C, Ch 1, Sec 10 [9.2.1] (2) As per conditions set in the TA (3) As per NR467, Pt C, Ch 1, Sec 10 [2.9.2]
	1- Level gauges used for compartments intended to contain liquids (1)	TA		X h	C / W (2)	
	2- Level gauges used in flammable oil systems (3)	TA		X h	C / W (2)	



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)	(2)	C (2)	X	C	(1) Alternative metallic materials are subject to specific approval programme (2) 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)	(2) TA (3)	C (2)	X	C	(1) Alternative metallic materials are subject to specific approval programme (2) As per provisions of NR467, Part D, Chapter 9 (3) As per NR216 and NR480
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	Independent cargo tank systems	TA / DA (1)	C / W (1)	X ndt	C	(1) As per provisions of NR467, IGC Code and IGF Code
H6	Insulation materials	(7)				(1) Test to be witnessed by attending surveyors unless otherwise agreed (2) DA for glue not used in secondary barrier (SB) or insulation panels (IP) bonding DA for Plywood cleat (3) Tensile tests for TA (4) C for Polyurethane Foam, W for Polystyrene
	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 / Plywood cleat	TA (2)			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		

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	
H6	11 - Aluminium for reinforced elements	TA		X	C	(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 (7) In case of combination of items, the highest design assessment scheme TA>DA applies (8) C for raw material of components (e.g stainless steel sheets)
	12 - Aluminium wedges	TA	C		W	
	13 -Secondary Barrier (rigid and flexible material)	TA		X	C	
	14 - Insulating Panels (incl. Top bridge pads and Corner panels)	TA	C	X (5)	C	
	15 - Expansion Rivets (15 mm)	TA	W		W	
	16 - Stainless Steel corners and Anchor Strips	TA	C	X	C	
	17 - Primary barrier component (e.g. membrane sheets and elements)	DA	C (8)	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)		
H7	Cargo gas compressors and their prime movers					(1) As per provisions of NR467, Part D, Chapter 9 (2) Tests for compressor materials need not be witnessed by the Surveyor except for the boundary components, which are in direct contact with the medium and for a design temperature below -55 °C in accordance with Ch 9, Sec 6, [2.1.2] (3) See provisions of NR467, Pt D, Ch 9, Sec 5, [13.2] (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
	1- Cargo gas compressors	TA or DA (1)	C (1) (2)	X h (3)	C	
	2- Prime movers (4)	(4)	(4)	X (4)	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	
H8	Cargo pumps and their prime movers					(1) As per provisions of NR467, Part D, Chapter 9 (2) Tests for pump materials need not be witnessed by the Surveyor except for the boundary components, which are in direct contact with the medium and for a design temperature below -55 °C in accordance with Ch 9, Sec 6, [2.1.2] (3) See provisions of NR467, Pt D, Ch 9, Sec 5 [13.2] (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
	1- Cargo pumps	TA or DA (1)	C (1) (2)	X h (3)	C	
	2- Prime movers (4)	(4)	(4)	X (4)	C	
H9	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
H10	Fans for enclosed spaces located within the cargo area, and their prime movers					(1) Concerns the anti sparking fans (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
	1- Fans	TA (1)		X	W	
	2- Prime movers (2)	(2)		X (2)	C	
H11	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
H12	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		W	X h ndt	C	
	• nominal diameter ND < 50mm		W	X h ndt	W	
H13	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		W	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	
H14	Cargo pipe fittings (1)	DA (2)	W	X h ndt (3)	C	(1) Such as elbows, reducers, flanges and bolts: same remarks as for items H12 or H13 , as appropriate (2) If not already addressed within the scope of the system approval (3) When the fittings are of welded type, the welding procedures are to be examined
H15	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
H16	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
H17	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
H18	Bunkering hoses of LNG and Ammonia-Bunkering ship (1)	TA (2)	C	X h ndt	C	(1) Specific requirements as per NR529, Chapter 8 (2) Refer also to NR620

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	
H19	Cargo valves (1) (2)					(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 (2) See NR467 Pt D, Ch 9, Sec 21, [13] for valves intended for Liquefied Hydrogen (LH2) (3) TA for service temperature < -55°C DA for service temperature ≥ -55°C (4) Prototype testing as per NR467, Pt D, Ch 9, Sec 5 (5) 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") (6) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined (7) Unit production testing: all valves are to be tested as per NR467, Pt D, Ch 9, Sec 5
	<ul style="list-style-type: none"> nominal diameter ND ≥ 50mm 	TA or DA (3) (4)	C (5)	X h ndt (6) (7)	C	
	<ul style="list-style-type: none"> nominal diameter ND < 50mm 	TA or DA (3) (4)	W (5)	X h ndt (6) (7)	C	
H20	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
H21	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
H22	Cargo process and containment instrumentation	TA (1)	W	X	C / W (2)	(1) For some equipment, DA is applicable on a case-by-case basis; see item K and relevant provisions of NR467, Pt D, Ch 9, Sec 13 (2) As per conditions set in the TA.
H23	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

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	
H24	Emergency release system for bunkering ship (1)					(1) Refer to NR620 (2) Performance test / Pressure and leak test (3) Power system and PERC
	1- QCDC (Quick connect disconnect coupler) including dry disconnect-connect coupling (DD/CC)	TA	C	X h (2)	C	
	2- ERC (Emergency release coupling)	TA	C	X h (2)	C	
	3- PERC (Powered emergency release coupling)	TA (3)	C	X h (2)	C	
H25	Inert gas generation systems (1)					(1) See item D
H26	Fire prevention materials and arrangements (1)					(1) See item C
H27	Fire fighting systems (1)					(1) See item C
H28	Gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N
H29	Boil-Off Gas (BOG) Handling and subcooling system (1) Boil-Off Gas (BOG) Handling and subcooling system, as part of Refrigeration / Reliquefaction systems (2)	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) 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) (6) Heat exchangers (Class 1 vessel) (7) Automation systems: see relevant provisions of items K and N (8) 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
	1- Compressor	TA or DA	C (5)	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 (6)	X h ndt	C	
	5- Sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric Cables	TA (7)		X	C / W (8)	
	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	
H30	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	TA	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		



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	
H30	19 - Heating media pipes and fittings:					
	• of Class I and II		C	X	C	
	• 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	
H31	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
H32	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 H12 to H16 (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
H33	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
H34	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 H12 to H16
H35	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
H36	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

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 (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 (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
	1- Cargo pumps	DA or TA (1)	C / W (2)	X h (3)	C	
	2- Prime movers	(4)	(4)	X (4)	C / W (4)	
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) 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
	1- Fans	TA (1)		X	W	
	2- Prime movers (2)	(2)		X (2)	C / W (2)	
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 (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		C	X h ndt	C	
	• 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
	<ul style="list-style-type: none"> nominal diameter ND ≥ 100mm 		C	X h ndt	C	
	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> nominal diameter ND ≥ 100mm 		C	X h ndt	C	
	<ul style="list-style-type: none"> 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 I6 , I7 and I8)
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 I6 , I7 or I8 , 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 I6 , I7 (chemical tankers) and I8 (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)
	<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	(3) As per NR216, Ch 5, Sec 7, [1.8]: Mechanical tests As per NR216, Ch 5, Sec 7, [1.9]: Non-destructive examination by both MPI and UT methods are to be carried out on all Class I drumforgings having thickness > 10 mm, intended for Class I piping systems (4) Chemical tankers: <ul style="list-style-type: none"> material as per NR216, Ch 5, Sec 7, [1.8] and [1.9] 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
I14	<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)	W	X	C / W (3)	(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 (3) As per conditions set in TA. See provisions of NR467 Pt D, Ch 7, Sec 4, [4.4.1] (4) See provisions of NR467 Pt D, Ch 7, Sec 4, [4.5.2]
	1 - Gauging devices and their remote reading systems	TA	W	X	C / W (3)	
	2 - High level alarms (4)	TA	W	X	W	
I20	Inert gas generation systems (1)					
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
I28	Bunkering hoses of methanol-bunkering ship (1)	TA	C	X h ndt	C	(1) Specific requirements as per NR620, Chapter 4

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	
129	Emergency release system for methanol-bunkering ship (1)		(4)			(1) Refer to NR620 (2) Performance test / Pressure and leak test (3) Power system and PERC (4) All materials are to be compatible with each other and with the fluid conveyed (methanol and methanol vapours). Materials are to be in accordance with IBC Code and NR467, Part D, Chapter 8
	1- QCDC (Quick connect disconnect coupler) (including dry disconnect-connect coupling (DD/CC))	TA	C	X h (2)	C	
	2- ERC (Emergency release coupling)	TA	C	X h (2)	C	
	3- PERC (Powered emergency release coupling)	TA (3)	C	X h (2)	C	



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 (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) 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	
K0	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	1- Generators and motors for electric propulsion of steel ships / naval ships / offshore units (1) (2)					(1) Considered as essential service: see Sec 1, [2.4] of this NR266 (2) Also applicable to all azimuth thrusters integrating electric propulsion motors (3) For steel ships, see NR467, Pt C, Ch 2, Sec 4, [3], for offshore units, see NR445, Pt C, Ch 2, Sec 4, [3] and for naval ships, see NR483, Pt C, Ch 2, Sec 4, [3] (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 (5) Material certificates for shafts (6) 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 (7) 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] (8) 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 (9) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply (on a case-by-case basis) (10) 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 (11) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
	• Power $P \geq 100$ kW (3)	DA or TA	C (4) (5) (6)	X (7) (8) (9) (10)	C	
	• Power $P < 100$ kW (3)	DA or TA (HBV)	W (4) (5) (6)	X (7) (8) (9) (10)	W (11)	



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 ships / naval ships / offshore units (1) (2)					(1) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266
	<ul style="list-style-type: none"> Power $P \geq 100$ kVA (3) 	DA or TA	W (4) (5)	X (6) (7) (8)	C	(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 (3) 'For steel ships, see NR467, Pt C, Ch 2, Sec 4, [3], for offshore units, see NR445, Pt C, Ch 2, Sec 4, [3] and for naval ships, see NR483, Pt C, Ch 2, Sec 4, [3] (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 (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 (6) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3] (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
	<ul style="list-style-type: none"> Power $P < 100$ kVA (3) 	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	

ELECTRICAL EQUIPMENT - ITEM K

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K3	Emergency generators of steel ships / naval ships / offshore unit (1) (2)					(1) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266
	<ul style="list-style-type: none"> Power $P \geq 100$ kW (3) 	DA or TA	W (4)	X (5) (6) (7)	C	(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 (3) 'For steel ships, see NR467, Pt C, Ch 2, Sec 4, [3], for offshore units, see NR445, Pt C, Ch 2, Sec 4, [3] and for naval ships, see NR483, Pt C, Ch 2, Sec 4, [3]' (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
	<ul style="list-style-type: none"> Power $P < 100$ kW (3) 	DA or TA (HBV)	W (4)	X (5) (6) (7)	W (8)	(5) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3] (6) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 12 apply (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	(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 (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 (3) 'For steel ships, see NR467, Pt C, Ch 2, Sec 4, [3], for offshore units, see NR445, Pt C, Ch 2, Sec 4, [3] and for naval ships, see NR483, Pt C, Ch 2, Sec 4, [3] (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 (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 (6) Testing of electrical motors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3] (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. Where the test procedure is not specified, the requirements of IEC 60034-1 apply (9) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
	<ul style="list-style-type: none"> Power $P \geq 100$ kW (3) 	DA or TA	W (4) (5)	X (6) (7) (8)	C	
	<ul style="list-style-type: none"> Power $P < 100$ kW (3) 	DA or TA (HBV)	W (4) (5)	X (6) (7) (8)	W (9)	
K6	Transformers intended for essential services					(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. Where the test procedure is not specified, the requirements of IEC 60076 apply (3) Temperature rise test may be omitted for starting transformers
	1- Power $P \geq 100$ kVA (or 60 kVA when single phase)	DA or TA		X (1) (2) (3)	C	
	2- Power $P < 100$ kVA (or 60 kVA when single phase)	DA or TA (HBV)		X (1) (2) (3)	W	

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
	1- Power $P \geq 50$ kVA	DA or TA		X (4)	C	(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 (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
	2- Power $P < 50$ kVA	DA or TA (HBV)		X (4) (5)	W (6)	(4) Testing of semiconductor convertors or static convertors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 6, [3] (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 class notation BATTERY SYSTEM in NR467, Part C, Ch 2, Sec 7 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 NR596 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
	1- Medium or high voltage	TA		X (1) (2)	C / W (3)	(2) Running test at no load
	2- Low voltage	TA (HBV)			W	(3) As per technology and conditions set in the TA Note: Running test under load (on board)
K16	Contactors					(1) Dielectric strength test is to be carried out
	1- Medium or high voltage	TA		X (1) (2)	C / W (3)	(2) Running test at no load
	2- Low voltage	TA (HBV)			W	(3) As per technology and conditions set in the TA Note: Running test under load (on board)

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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 60332-1-2:2004 + AMD1:2015, IEC 60332-3-22:2018 Category A, IEC 60331-1, IEC 60331-2, and IEC 60331-21 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
K21	Fixed electric radiators (1)	DA		X (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	Accumulator lamps for the supplementary electric lighting, alarm systems for closing devices of openings and water leakage detection systems of an electronic type, and television surveillance systems (1)	TA		X (2) (3)	C	(1) For passenger ship with ro-ro cargo spaces or special category spaces (2) Dielectric strength test is to be carried out (3) Insulation measurements are to be carried out
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 flame proof material, the hydraulic test that may be made under the responsibility of the manufacturer

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
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 C, Ch 2, Sec 7. 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 C, Ch 2, Sec 7: 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 C, Ch 2, Sec 7 Note: On-board tests as per NR467, Part C, Ch 2, Sec 15
	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) (2) When < 100 kW and type approved by the Society, work certificate (W) will be accepted (3) In compliance with national or international standard (e.g IEC 62282-2 or equivalent) (4) For anti-sparking fans (5) As per conditions set in the TA (6) For electrical motors, refer to NR266, item K
	1- Fuel cell power system	TA (1)			C or W (2)	
	• Fuel cell module	TA (3)			C or W (2)	
	• Fuel cell monitoring and control system	TA (1)			C or W (2)	
	2- Fans for hazardous enclosed spaces, and their prime movers					
	• Fans	TA (4)		X	C or W (5)	
• 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
	4- Gas fuel valve (8)	DA	C or W (9) (10)	X h ndt (11) (12)	C	(8) Class of piping as per provisions of NR547, Section 3 (9) C: ND ≥ 50mm W: ND < 50 mm
	5- Safety relief valves	TA or DA (13)	C	X h ndt (14) (15)	C	(10) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined
	6- Fuel pipes for gaseous gas fuel with design pressure equal or lower than 10 bar (Class I or Class II):					(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
	• Class I: single wall pipes, and ND ≥ 50 mm		C	X h ndt (16) (17)	C	(12) Unit production testing: all valves are to be tested as per NR547, Section 9
	• Class II: double wall pipes, and ND ≥ 100 mm					(13) TA, or case-by-case DA
	• Class I: single wall pipes, and ND < 50 mm		W	X h ndt (16) (17)	CW (18)	(14) Checking of the setting
	• Class II: double wall pipes, and ND < 100 mm					(15) When the valves have welded elements, the welding procedures are to be examined
	7- Fuel pipes for gaseous gas fuel with design pressure higher than 10 bar (Class I) (19)					(16) As per provisions of NR547 and NR467, Pt C, Ch 1, Sec 10
	• ND ≥ 50mm		C	X h ndt (20) (21)	C	(17) Non-destructive testing to be carried out as required by NR547, Section 9
• ND < 50mm		W	X h ndt (20) (21)	CW (22)	(18) W for Seamless pipes, C for longitudinally welded steel pipes	
8- Outer pipe of double wall fuel pipes (Class II) (24-23)					(19) For both single and double wall configuration	
• ND ≥ 100mm		C	X h ndt	C	(20) As per provisions of NR547 and NR467, Pt C, Ch 1, Sec 10	
• ND < 100mm		W	X h ndt	CW (24)	(21) Non-destructive testing to be carried out as required by NR547, Section 9	
9- Expansion bellows	TA (25)	C (26)	X h ndt	C	(22) W for Seamless pipes, C for longitudinally welded steel pipes	
10- Fuel cells fitted in a container	TA or DA	C (27)	X h ndt	C	(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 (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 (27) For each component as per Items 1 to 9	

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K28	Onshore Power Supply (OPS) (1)					(1) 'The additional class notation OPS() or OPS()-PREPARED is assigned in accordance with NR467, Part F, Chapter 14
	1- OPS system components	TA		X (2)	C	(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
	2- Power connection plugs, high-voltage (HV) plugs and socket-outlets	TA		X	W	(3) As per conditions set in the TA
	3- Cables	TA		X	C/W (3)	(4) See relevant provisions of items K
	4- Electrical equipment of DC onshore power supply systems	TA				
	5- Low-voltage electrical shore connection equipment	TA (4)				
K29	Braking resistors (1)	DA / TA (1)	(1)	X (2)(3)	C	(1) As per Rules NR467 (2) For Braking resistors, the following tests are to be carried out: - 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. (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 .
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	
K31	Cable trays/protective casings made of plastics materials	TA (HBV) / DA			W	



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	<p>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:</p> <ul style="list-style-type: none"> - 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. <p>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.</p>					
L1	Castings (1)	DA	C (2)	X ndt (3)	C	(1) Especially: <ul style="list-style-type: none"> - 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 (e.g. items G26 and G30 for piping and pressure vessels, item K for electrical equipment) (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
L6	Lifting appliances (1)	DA	C (2)	X	C	(1) As per NR526. See items O2 regarding additional class notations ALM (2) As per NR216 and NR480

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L7	Riser, umbilical or power cable systems (1)					(1) As per provisions of NR445, Part D, Ch 1, Sec 21, when additional class notation SUR2SUB is requested (2) C for metallic parts and resins W for elastomers and other plastic parts (3) See item G26 (pipe) and item K19 (cables) (4) W if TA (HBV), C if TA (5) As per provisions of NI685 (6) As per provisions of NR216
	1- Flexible unbonded (including end fittings)	DA or TA	C / W (2)	X h	C	
	2- Flexible bonded (including end fittings)	DA or TA	C / W (2)	X h	C	
	3 - Umbilicals	DA	C (3)	X h	C	
	• Steel tube	DA	C	X h ndt	C	
	• Electrical cable	TA (HBV) or TA		X	C / W (4)	
	• Termination	DA		X	C	
	4 - Power cable	TA (HBV) or TA	C (5)	X	C / W (4)	
	• Power core	DA		X	C	
	• Termination	DA		X	C	
	5 - Rigid pipe	DA	C (6)	X	C	
	• Line pipe	DA	C	X	C	
	• Flexible joint	DA		X	C	
6 - Composite riser	DA		X h	C		
7 - Ancillary items	DA		X	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

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
L13	Cargo piping (1)		C / W (1)	X h ndt (1)	C / W (1)	(1) See provisions of NR445, Pt D, Ch 1, Sec 18 [3.3.1]
L14	Fibre ropes for deep-water offshore services (1)	TA	C (2)	X ndt	C	(1) As per NR432 Certification of Fibre Ropes for Offshore Services (2) As per NR658 Type Approval of fibre and yarns
L15	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 NR432, NR658 and OCIMF Guidelines for the purchasing and testing of single point mooring hawsers (3) As per NR658 Type Approval of fibre and yarns
L16	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
L17	Life-saving appliance (LSA) equipment (1)					(1) See item W2

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L18	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, Section 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	
L19	Mooring (stationkeeping) system (1): <ul style="list-style-type: none"> mooring line components (chains, steel wire ropes, fibre ropes and accessories) hull mounted equipment (fairleads, stoppers,...) anchors 	TA or DA (2) (3)	C (2) (4)	X (2) (3)	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 jetty mooring lines made of fibre ropes: type approval may be performed according to the requirements of OCIMF Mooring Equipment Guidelines 4 th edition (MEG4) - Appendix B. (4) For mooring accessories: forges and foundries are to be approved
L20	Process systems on board offshore units (1) <ul style="list-style-type: none"> 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"> f-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

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L20	2- A2 Rating: <ul style="list-style-type: none"> • Small pressure vessels • Internal combustion engines below 370 kW • Pipes, valves and fittings with diameter $\geq 4"$ 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	(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 (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) 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 review the type approval certificates The Society will rreview the routine test inspection certificates issued by recognised independent inspection body (8) To be certified or equivalent. 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	
L21	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) Manufacturing/testing of materials should be in accordance with either: Relevant provisions of NR445 / NR216 (marine practices); 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 to address the scope of survey and certification (Requirements complementary to those of 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	
L22	Offshore handling systems such as winches, strand jacks, chain jacks, sheaves and their foundations used for lifting/pulling of a load. In particular: 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 assigned 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 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	
L23	<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, pipings, bearings and structural bolts - 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)" - 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 recognized standards</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 notation 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	
L24	Diving systems and equipment (1)	DA (1)	(1)	X (1)	(1)	(1) Survey as per relevant provisions of NR610 for diving systems and equipment
	1- Pressure vessel for human occupancy (2):	DA	C (3)	X h ndt	C (3)	(2) Including supports and lifting padeyes
	- Viewports (4)		W (3)	X h	C (3)	The overpressure test report is to indicate whether the viewports are in place during testing
	- Piping penetrations		W	X h ndt	W	The welding procedures are to be examined
	- Electrical penetrations		W	X h ndt	W	(3) Product certificate issued by an other recognized inspection body may be submitted in lieu of a certificate issued by the Society, on a case-by-case basis. In any case, the documents listed in NR610, Section 3 are to be submitted
	- Valves (5)		W	X h	C (3)	(4) Certificates according to ASME PVHO
	- Pressure relief valve (5)		W	X h	C (3)	(5) When the valves are of welded type, the welding procedures are to be examined
	- Overpressure alarm			X	W	(6) Depending on item, refer to item G
	- Doors and mating device		C	X h	W	(7) In case of welded construction, the welding procedures are to be examined
	- Clamp and mating device		C	X h	W	(8) When the valves and fittings are of welded type, the welding procedures are to be examined
	2- Communication system:					(9) Refer to item C
	- Wired communication equipment			X	C / W (3)	
	- Wireless communication equipment			X	C / W (3)	
	- CCTV				W	
	- Emergency through water communication system			X	C / W	
	- Diving bell emergency location system	DA or TA		X	C / W	
3- Deck decompression chamber fixed fire fighting system:	DA		X	C		
- Pressure vessel and piping (6) (7)	DA	W	X	C / W		
- Sprinkler and nozzle		W	X h	W		
- Valves and fittings (8)		W	X h	W		
4- Deck decompression chamber fire safety equipment:						
- Portable hyperbaric fire extinguisher	DA or TA		X	C (3)		
- Fire detection and alarm (9)	TA _{HBV}		X	C / W		



SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	5- Instrumentation: - Pressure gauges (10) - High-Low oxygen alarm (in enclosed space) - Oxygen analyzers - CO ₂ analyzers - Temperature and humidity gauges - Other electronic instruments	TA _{H_{IBV}}		X X X X	W C/W W W W W	(10) Calibration certificate to be provided (11) As per class 1 defined in NR467 (12) NDT to be performed if of welded construction (13) When the manifolds are of welded type, the welding procedures are to be examined (14) Depending on installed power (15) Refer to Electrical Installations (16) Refer to item 6- Breathing gas distribution
	6- Breathing gas distribution panel: - Oxygen piping (11) - Oxygen valves, regulators and fitting (8) - Other gas piping (11) - Flexible hoses and couplings - Other valves, regulators and fittings (11) - Gas mixing equipment - Pressure relief valve (8) - Manifold (13) - Filters - Built-In Breathing System	DA TA	W W W W X	X h X h ndt X h (12) X h ndt X h X h (12) X X h X X X	C C C/W C/W C (3) C/W C/W C/W W W	
	7- Breathing gas compressor (11) (14) - Compressor or blower - Prime mover (15) - Electrical switchboard (15) - Filter - Cracked plate detector - Piping and fitting (7) - Safety valve (7)	DA		X X	C C/W C/W C/W W W W W	
	- Hoses (16)			X	C/W	

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	8- Breathing gas storage					(17) In case of welded construction, the welding procedures are to be examined and NDT is to be performed (18) Refer to item 7- Breathing gas compressor (19) Refer to item K (20) Refer to item K for safety electrical equipment (21) As per conditions set in the Type Approval (22) Refer to NR467, Part C, Chapter 3 (23) Refer to item 1- Pressure vessel for human occupancy (24) Depending on class of pressure vessel as per NR467, Part C, Chapter 1
	- Gas cylinders (V ≥ 0,5L)	DA	C / W	X h ndt	C (3)	
	- Master valve (11) (17)		W	X h ndt	C	
	9- Gas regeneration and reclaim systems	DA		X	C	
	- Compressors (18)			X	C / W	
	- CO ₂ scrubbers			X h	C / W	
	- Filters				W	
	- Gas bag (P ≤ 1 bar)				W	
	10- Electrical installations	DA		X	C	
	- Switchboards (19)	DA / TA	C	X	C	
	- Electrical motors and generators ≥ 100 kW (19)	TA _{HBV}	W	X	W	
	- Electrical motors and generators < 100 kW (19)			X	C	
	- Batteries (19)	TA		X	C	
	- Safety lighting in spaces containing breathing gas (20)			X	C / W	
- Programmable Logic Controller (PLC) and computers used for tasks essential to safety, all components related to safety functions (21) (22)			X	C / W		
- Control, protective and connecting devices (21) (22)	TA / TA _{HBV}		X	C / W		
- Electric cable (21) (22)	TA / TA _{HBV}		X	C / W		
- Electrical penetrators for PVHO	(23)	(23)	(23)	(23)		
11- Diver hot water unit	DA		X h	C		
- Manifolds			X h	W		
- Pressure vessel (7)			X h	W		
- Thermostat				W		
- Pump				W		
- Flexible hoses	TA		X	C (3)		
- Piping, valves and fittings (7) (24)			X h	W		

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	12- Environmental control unit (Hyperbaric heating / cooling system) (24)	DA		X h	C	(25) Each hose to be certified (26) Refer to item 15- Diving main umbilical
	- Boiler			X	C / W	
	- Cooling system / chiller			X	C / W	
	- Pressure vessel (7)			X h	W	
	- Heat exchanger			X	W	
	- Thermostat				W	
	- Pumps				W	
	- Piping, valves and fittings (7) (24)			X	W	
	13- Deck decompression chamber fresh / potable water unit	DA		X h ndt	C	
	- Pumps				W	
	- Pressure vessel (7)		W	X h	W	
	- Piping and fittings (7) (23)			X	W / C	
14- Deck decompression chamber sewage system	DA		X h ndt	C		
- Sewage tank (24)			X h	C / W		
- Piping and fittings (7) (24)			X	C / W		
15- Diving main umbilical			X h	C		
- Breathing gas hose	TA		X h	C		
- Communication and instrumentation cable	TA _{HBV}			W		
- Electrical cable	TA _{HBV}		X	W		
- Hot water hose	TA _{HBV}			W		
16- Diving bell						
- Bell ballast release			X	C / W		
- Excursion umbilical (25) (26)			X h	C		
- CCTV				W		

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	17- Launch and recovery system (LARS)					(27) As applicable to lifting appliances with class notation ALM-SUBSEA-MR as per NR526 (28) Refer to item L23 as applicable to NR595 Classification of Offshore Handling Systems (OHS)
	- Closed bell	(27)	(27)	(27)	(27)	
	- Wet bell and diving basket	(27)	(27)	(27)	(27)	
	18- Umbilical winch - closed bell (28)	DA	W	X	C	
	- Swivel			X	C / W	
L25	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 O2 for ropes (9) Proof load as per NR526. See also item O2 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		



SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L26	Gas production or liquefaction components for Floating gas units (1) (2) (3) (4) (5) (6) (7) Boil-Off Gas (BOG) Handling and subcooling system (8) Boil-Off Gas (BOG) Handling and subcooling system, as part of Refrigeration / Reliquefaction systems (9)	TA (10)		X (11)	C	(1) As per NR542 Classification of Floating Gas Units. See also item L21 for Rating principles (NR459 Process Systems Onboard Offshore Units and Installations) (2) Only applicable for units assigned a service notations defined in NR542. These requirements are complementary to the provisions of NR445 which remain applicable, except where otherwise specified (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
	1- Compressor	TA or DA	C	X h ndt	C	(4) All the gas production system components covered by the notation PROC-GP are to comply with the relevant requirements of NR459 regarding design, certification, construction survey and testing (5) All the gas liquefaction system components covered by the notation PROC-GL are to comply with the relevant requirements of NR459 regarding design, certification, construction survey and testing
	2- Turbine	TA or DA	C / W	X h ndt	C	(6) Systems and components covered by the notation PROC are to comply with the requirements of NR459 (7) For notations PROC , PROC-GL or PROC-GP - Also see item L21
	3- Electric motor	TA or DA	C / W	X	C	(8) See relevant provisions of NR467, Pt D, Ch 9, Sec 7, [2] and NR542, Section 13. Also see item H26
	4- Heat exchangers (12)	DA	C	X h ndt	C	(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)
	5- Sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric Cables	TA (13)		X	C / W (14)	(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)
	6- Cryogenic piping systems, cryogenic valves, cryogenic flexible hoses assembly	TA or DA	C	X h ndt	C	(13) Automation systems: see relevant provisions of items K and N5 (14) As per conditions set in the TA
	7- Other piping systems, valves, flexible hoses assembly and expansion bellows	TA or DA	C / W	X h ndt	C	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	
M0	<p>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</p> <ul style="list-style-type: none"> - 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 <p>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</p>					
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 $\leq -40^{\circ}\text{C}$
	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) Authorized refrigerants list as per NR467 Pt C, Ch 1, Sec 16 [2.2]. See also NR467 Pt F, Ch 7 for REF notations and Pt F, Ch 9 for CLEANSHIP and/or CLEANSHIP SUPER additional class notations. 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 an Additional Class Notation

AUTOMATION SYSTEMS COVERED BY AN ADDITIONAL CLASS NOTATION - 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 3 and Tab 4. 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: 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: Control console (BCC) and engine control console (ECC): 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>					
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

AUTOMATION SYSTEMS COVERED BY AN ADDITIONAL CLASS NOTATION - ITEM N

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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
N6	Integrated computer-based system (1)	TA or DA (2)		X (3)	C / W (4)	(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) (2) 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 (3) According to a program to be agreed with the Society (4) As per conditions set in the TA
N7	Condition Monitoring Systems (CMS) and Computerized Maintenance Management Systems (CMMS)	TA / DA (1)		X (2)	C / W (3)	(1) Approval of hardware and software as per NR674 and NI684 for additional service feature [CBM] or [CBM-P] , and as per NR496 for computerized maintenance management systems (CMMS) (2) According to a program to be agreed with the Society (3) As per conditions set in the TA / DA

AUTOMATION SYSTEMS COVERED BY AN ADDITIONAL CLASS NOTATION - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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)	(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 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA
N9	Expert system (1)	TA (HBV) or DA (2) (3)		X (4)	W (5)	(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 (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 (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 (4) According to a program to be agreed with the Society (5) As per conditions set in the TA (HBV)
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	
O0	<p>The following notes apply to items:</p> <ul style="list-style-type: none"> - O1 and O2 for lifting appliances - O3 for SAS (supply at sea) components - O4 for winches not covered by items O1, O2 or O3 - O5 and O6 for lifting platforms <p>Note 1: NR526 'Lifting appliances onboard ships and offshore units' is applicable to lifting appliances fitted on ships or offshore units and used: at harbour, in offshore conditions, for lifting of personnel or in applications defined in SOLAS Convention Chapter II-1 and Chapter II-2. In addition, provisions of NR526 may also be used for the certification of other lifting accessories and the verification of lifting pad eyes.</p> <p>Note 2: The applicable requirements for lifting appliances 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:</p> <ul style="list-style-type: none"> • Certification in the context of ILO Convention: ILO 32 /ILO 152 / ILO 160 (disregarding any specific Flag Authority regulations): Voluntary request to the Society. • Certification in the context of ILO 32 / ILO 152 / ILO 160 and/or Statutory certification as per SOLAS regulations as transposed in Flag State national regulations: Mandatory as per Ship's flag requirements. • Classification Rules requirements, as per additional class notation (i.e. ALP, ALM): Mandatory as per Classification requirements. <p>Therefore, a case-by-case examination enables to identify which of the three previous options should be applied to a particular equipment (lifting appliances) for a given ship or offshore unit entitled to fly the Flag of a given State.</p> <p>Note 3: Scope of classification for cranes and derricks (as per NR526):</p> <ul style="list-style-type: none"> • The additional class notations ALP, (ALP), ALM, (ALM) may be assigned to the supporting ship or offshore units.. • The notation ALM may be completed by -EN when, in addition, the cranes used in offshore conditions comply with the requirements of NR526, Ch 3, Sec 1 including additional safety requirements defined in Ch 3, Sec 1, [5]. • The notation ALM may be completed by -SUBSEA when, in addition, the cranes intended to be used for lifting of subsea equipment comply with the requirements of NR526, Ch 3, Sec 2. • The notations ALP and ALM (completed or not by -EN or -SUBSEA) may be completed by -MR when the lifting appliances are intended to be used for lifting of personnel in compliance with the requirements of NR526, Ch 3, Sec 3. <p>Note 4: Scope of classification for lifting platforms (as per NR526):</p> <ul style="list-style-type: none"> • The additional class notations ALP and ALM may be granted to the supporting ship or offshore units. • The notation ALP and ALM may be completed by -MR when the lifting platform is intended to be used for lifting of personnel in compliance with the requirements of NR526, Ch 4, Sec 6. <p>Note 5: 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 O1.</p> <p>The materials are to be identified by certificate W (Works') or C (Class certificate), according to relevant table, 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.</p>					

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	
O0	<p>Note 6: 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 O2. 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 above 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.</p> <p>Note 7: For Supply at Sea (SAS) components: the additional class notation SAS is assigned in accordance with NR467, Pt A, Ch 1, Sec 2 and NR467, Pt F, Ch 12, Sec 3 to ships having the service notation supply and fitted with installations for underway ship-to-ship supply at sea of liquid and solid supplies. See item O3.</p> <p>Note 8: Programmable logic controllers (PLC) and computers used for tasks essential to safety, all components related to safety functions: see relevant provisions of item N8</p>					
	Lifting appliances within the scope of statutory regulations of ships or offshore units (lifting platforms excluded)	DA		X (1)	C (2)	<p>(1) Refer to NR526, Ch 5, Sec 1, [6] and [11]</p> <p>(2) Product certificate is issued when all tests required by NR526 are performed at manufacturer premises, in particular:</p> <ul style="list-style-type: none"> - overload test - functional test <p>(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</p> <p>(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 5, Sec 1, [3]</p> <p>(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</p> <p>(6) Refer to NR467</p>
	1 - Main structure					
• Slewing/flange rings	DA	W (3)	X ndt (4)	W		
• Jib, boom, crane body	DA	W (5)	X ndt (4)	W		
• Pedestal (not welded to the hull)	DA	W (3)	X ndt (4)	W		
• Load bearing pins	DA	W (5)	X ndt (4)	W		
• Mast and booms support	DA	W (3)	X ndt (4)	W		
• Derrick boom	DA	W (3)	X ndt (4)	W		
• Other load carrying structural elements	DA	W (5)	X ndt (4)	W		
• Fixed parts of lifting appliances and elements connecting them with the ship structure (6)	DA	C	X	C		
2 - Mechanical elements						
• Slewing ring bearing	DA	W	X	C		
• Screws and nuts		W	X ndt	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	
O1	3 - Machinery components and hydraulic systems (7)					(7) Refer to NR526, Ch 5, Sec 1, [3] (8) Refer to NR526, Ch 2, Sec 6, [6] (9) Refer to item G30 (10) Refer to items G26 / G27 (11) As per Society's agreement
	• Winches	DA / TA	W	X (8)	C (8)	
	• Reduction gears with a transmitted power $P \geq 110$ kW	DA / TA	W	X	W	
	• Reduction gears with a transmitted power $P < 110$ kW		W	X	W	
	• Hydraulic accumulator (9)	DA / TA	W	X	W / C	
	• Hydraulic motors / pumps		W	X	W	
	• Hydraulic luffing cylinders class I	DA / TA	W	X h ndt	C	
	• Flexible hoses	TA	W	X h	W	
	• Piping system (10)		W	X h ndt	W / C	
	• Other auxiliary machinery items essential for the function of the lifting appliance	(11)	(11)	(11)	(11)	
	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	
O1	5 - Loose gear					(12) DA for element not complying with a Standard
	<ul style="list-style-type: none"> Blocks, hooks, shackles, swivels, chains, rings, rigging screws, slings, hand-operated tackles (used with pitched chains, rings, hooks, shackles and swivels permanently attached) and other loose gear having similar use 	DA (12) / TA	W (13)	X ndt (14) (15)	C	(13) Refer to NR526, Ch 5, Sec 1, [3] (14) Depending on SWL as per NR526, Ch 5, Sec 1, [7] (15) For welded construction, the extent and the nature of the non-destructive examinations are subject to the Society's agreement
	<ul style="list-style-type: none"> Lifting beams 	DA (12)	W (13)	X ndt (14) (15)	C	(16) 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 5, Sec 1, [5]
	6 - Ropes					(17) As per NR216. Refer to NR526, Ch 5, Sec 1, [5]
	<ul style="list-style-type: none"> Steel wire ropes 		W	X (16)	C	
	<ul style="list-style-type: none"> Fibre ropes 		W	X (17)	C	
	7 - Secondary structure (cabins, accesses, etc.)		W		W	
O2	Lifting appliances within the scope of classification of ships or offshore units (lifting platforms excluded)	DA		X (1) (2) (3)	C (4)	(1) Refer to NR526, Ch 5, Sec 1, [6] and [11] (2) For offshore cranes refer to NR526, Ch 5, Sec 1, [8]
	1 - Main structure					(3) For lifting of personnel refer to NR526, Ch 5, Sec 1, [9]
	<ul style="list-style-type: none"> Slewing/flange rings 	DA	C	X ndt (5)	C	(4) Product certificate is issued when all tests required by NR526, Ch 5, Sec 1 are performed at manufacturer premises, in particular: - overload test - functional test
	<ul style="list-style-type: none"> Jib, boom, crane body 	DA	C	X ndt (5)	C	
	<ul style="list-style-type: none"> Pedestal (not welded to the hull) 	DA	C	X ndt (5)	C	
	<ul style="list-style-type: none"> Load bearing pins 	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 5, Sec 1, [3] and NR526, Ch 5, Sec 1, [4]
	<ul style="list-style-type: none"> Mast and booms supports 	DA	C	X ndt (5)	C	
	<ul style="list-style-type: none"> Derrick booms 	DA	C	X ndt (5)	C	(6) Refer to NR467
	<ul style="list-style-type: none"> Other load carrying structural elements 	DA	C	X ndt (5)	C	
	<ul style="list-style-type: none"> Fixed parts of lifting appliances and elements connecting them with the ship structure (6) 	DA	C	X	C	
	2 - Mechanical elements					
	<ul style="list-style-type: none"> Slewing ring bearing 	DA	C	X	C	
	<ul style="list-style-type: none"> Screw and nuts 		W	X ndt	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	3 - Machinery components and hydraulic systems (7)					(7) Refer to NR526, Ch 5, Sec 1, [3] and NR526, Ch 5, Sec 1, [4]
	• Winches	DA / TA	C	X (8)	C (8)	(8) Refer to NR526, Ch 2, Sec 6, [6]
	• Reduction gears (transmitted power P ≥ 110 kW)	DA / TA	C	X h ndt	C	(9) Refer to item G30
	• Reduction gears (transmitted power P < 110 kW)		W	X	W	(10) Same considerations as for Pumps. See item G31 (material certificates according to the piping class)
	• Hydraulic accumulator (9)	DA / TA	W / C	X h ndt	W / C	(11) Refer to item G28
	• Hydraulic cylinders class I	DA / TA	C	X h ndt	C	(12) Refer to items G26 / G27
	• Hydraulic motors / pumps belonging to class I and II	DA / TA (10)	W	X h ndt	C	(13) 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 motors / pumps belonging to class III			X h	W	(14) Electrical motors and equipment to be considered as intended 'for essential services'. Survey requirements as per item K
	• Flexible hoses (11)	TA	W	X h	C	(15) Refer to item K5
	• Piping system and fittings (12)		W / C	X h ndt	W / C	(16) Refer to item K14
	• Other auxiliary machinery items essential for the function of the lifting appliance	(13)	(13)	(13)	(13)	(17) As per Society's agreement
	4 - Electrical equipment (14)					
	• Electric motors for essential functions of the lifting appliance (15)	DA / TA		X	C / W	
	• Cables	DA / TA			W	
	• Circuit breakers	DA / TA			W	
	• Contactors	DA / TA			W	
	• Convertors	DA / TA		X	C	
• Switchboard (16)	DA		X	C		
• Slip rings	DA / TA		X	C		
• Other electrical equipment essential for the function of the lifting appliance	(17)	(17)	(17)	(17)		

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...)					(18) DA for element not complying with a Standard (19) Depending on SWL as per NR526, Ch 5, Sec 1, [3] (20) For welded construction, the extent and the nature of the non-destructive examinations are subject to the Society's agreement. Refer to NR526, Ch 5, Sec 1, [4]
	• Blocks, hooks, shackles, swivels, chains, rings, rigging screws, slings, hand-operated tackles (used with pitched chains, rings, hooks, shackles and swivels permanently attached) and other loose gears having similar use	DA (18) / TA	W / C (19)	X ndt (20) (21)	C	(21) Proof load as per NR526, Ch 5, Sec 1, [7]. Loose gear used for personnel lifting are to be designed with at least twice the personnel handling SWL and tested with at least twice the proof load specified in NR526, Ch 5, Sec 1, [7].
	• Lifting beams	DA	W / C (19)	X ndt (20) (21)	C	(22) 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 5, Sec 1, [5]
	6 - Ropes					(23) As per NR216. Refer to NR526, Ch 4, Sec 1, [5]
	• Steel wire ropes		W	X (22)	C	
	• Fibre ropes		W	X (23)	C	
	7- Secondary structure (cabins, accesses, etc.)		W		W	
O3	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
	2- Winches, anti-slack devices, Ram tensioner	(4)	C (2)	X	C	(3) As per relevant provisions of NR526
	3- Electric motors and electrical equipment used for SAS operations (5)	DA or TA	W	X (6)	C / W (5)	(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
	4- Hydraulic cylinders, piping of class I and equipment essential for SAS operation (winches, Ram tensioner)	(7)	C	X h ndt	C	(5) Considered as intended for secondary essential services. Also see relevant provisions of item K5
	5- Control systems of winches and essential systems for SAS operation (Ram tensioner)	DA (8)		X	C	(6) Testing of electric motors includes type tests and routine tests as per Pt C, Ch 2, Sec 4, [3]
	6- Cargo transfer hoses and pipes couplings, including break-away couplings	TA	C (9)	X h ndt (10) (11)	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)
	7- Loose gear and accessories, including blocks, hooks, shackles, swivels ...	DA (12)	W	X (13)	C	
	8- Steel wire ropes (14)	(7)	W	X (15)	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	
O3						(8) Control and monitoring system, refer to the relevant provisions of items K and N (Automation systems) (9) Only for metallic pieces and couplings (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 (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 O2 , as applicable (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]
O4	Winches intended for lifting appliances (not documented with O1 , O2 and O3), 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 (2) Materials as per NR216 (3) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement (4) Shop tests and running tests, as per agreed program (5) See the corresponding requirements of items O1 or O2 , 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 O1 or O2 , as applicable (7) Loose gear (if any), as per items O1 or O2 as applicable
	1- Main load carrying structural elements: drum, flanges, supports or baseplate, shaft, etc.		C	X	C	
	2- Ropes		W	X (5)	C	
	3- Hydraulic systems and other component essential for the function of the winch		C	X (6)	C	
	4- Loose gear and accessories		C	X (7)	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	
O5	Lifting platforms within the scope of statutory regulations of ships or offshore units	DA		X (1) (2)	C (3)	(1) Refer to NR526, Ch 5, Sec 1, [6] and [12] (2) For lifting of personnel refer to NR526, Ch 5, Sec 1, [9] (3) Product certificate is issued when all tests required by NR526, Ch 5, Sec 1 are performed at manufacturer premises, in particular: <ul style="list-style-type: none"> • overload test • functional test. (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 5, Sec 1, [3] (5) Refer to applicable Rules. (6) Refer to item O1 for machinery components and hydraulic systems (7) Refer to item O1 for electrical equipment (8) Refer to item O1 for loose gears (9) Refer to item O1 for ropes
	1- Main structure					
	• Platform deck structure	DA	W	X ndt (4)	W	
	• Guide rails	DA	W	X ndt (4)	W	
	• Other load carrying structural elements	DA	W	X ndt (4)	W	
	• Fixed parts and elements connecting the equipment with the ship structure (5)	DA	C	X	C	
	2- Mechanical elements					
	• Locking devices		W	X	W	
	• Safety gear		W	X	W	
	• Screws and nuts		W	X ndt	W	
	3- Machinery components and hydraulic systems	(6)	(6)	(6)	(6)	
	4- Electrical equipment	(7)	(7)	(7)	(7)	
	5- Lifting accessories	(8)	(8)	(8)	(8)	
6- Ropes	(9)	(9)	(9)	(9)		

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	
O6	Lifting platforms intended to be under the scope of classification of the supporting ship or offshore unit	DA		X (1) (2)	C (3)	(1) Refer to NR526, Ch 5, Sec 1, [6] and [12] (2) For lifting of personnel refer to NR526, Ch 5, Sec 1, [9] (3) Product certificate is issued when all tests required by NR526, Ch 5, Sec 1 are performed at manufacturer premises, in particular: <ul style="list-style-type: none"> • overload test • functional test. (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 5, Sec 1, [3] (5) Refer to applicable Rules. (6) Refer to item O2 for machinery components and hydraulic systems (7) Refer to item O2 for electrical equipment (8) Refer to item O2 for loose gears (9) Refer to item O2 for ropes
	1- Main structure					
	• Platform deck structure	DA	C	X ndt (4)	C	
	• Guide rails	DA	C	X ndt (4)	C	
	• Other load carrying structural elements	DA	C	X ndt (4)	C	
	• Fixed parts and elements connecting the equipment with the ship structure (5)	DA	C	X	C	
	2- Mechanical elements					
	• Locking devices		C	X	C	
	• Safety gear		C	X	C	
	• Screws and nuts		W	X ndt	W	
	3- Machinery components and hydraulic systems	(6)	(6)	(6)	(6)	
	4- Electrical equipment	(7)	(7)	(7)	(7)	
	5- Lifting accessories	(8)	(8)	(8)	(8)	
6- Ropes	(9)	(9)	(9)	(9)		



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	Fixed and portable container securing fittings (1)	TA (1) (2)	C (3)	X (1) (2)	C	(1) As per NR467, Pt F, Ch 12, Sec 5 (2) As per agreed procedures (3) As per NR216 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
P2	Lashing Software (1)	DA		X	C	(1) As per NR467, Pt F, Ch 12, Sec 5, [7]



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	
Q0	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) or SUSTAINABILITY

POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations) or SUSTAINABILITY- ITEM S						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S0	Note: 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 take precedence. A valid certification to MED 2014/90/EU (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) is to be recognised for classification purpose					
S1	15 ppm oil filtering equipment, oily water separators (1)	TA (2) (3)		X	C	(1) Applicable in case of a notation CLEANSHIP or OWS (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). For granting OWS-x-ppm notation, the test results are to comply with NR467, Pt F, Ch 9, Sec 5, [4]
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	TA (1) (2) (3)		(1) (2)	C (1) (2) (3)	(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. For granting AWT-A Notation, the test results are to comply with NR467, Pt F, Ch 9, Sec 3, Tab 4 (3) Applicable in case of CLEANSHIP or SUSTAINABILITY-1 or SUSTAINABILITY-2 additional class notation
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) or SUSTAINABILITY- 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 11, Tab 5 (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) or SUSTAINABILITY- 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	C	(1) For equipment covered by additional class notations GWT, GWT-B or SUSTAINABILITY-1 or SUSTAINABILITY-2 (2) Statutory equipment: certification as per Flag State requirements (3) As required in other relevant items of this NR266
S10	Anti-fouling paints (1)	TA (2)				(1) Applicable in case of CLEANSHIP or SUSTAINABILITY-1 or SUSTAINABILITY-2 additional class notation (2) Manufacturing works are not required to be recognised by the Society



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)	(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)	(4) When electrical motor is used as alternative propulsion system, characteristics are to be appropriate for electrical propulsion
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
	- Propulsion auxiliary systems, and electrical generation and electrical distribution equipment	DA (2)	C or W (1)	X (1)	C or W (1)	(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



Item U - LNG, LPG or ammonia fuel handling and containment systems of gas fuelled ships

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED 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)	(2)	C (2)	X	C	(1) Alternative metallic materials are subject to specific approval programme (2) As per provisions of NR529, Chapter 4 and NR529, Ch 9, Sec 1
U2	Aluminium alloy plates and profiles for independent liquefied gas fuel tanks	(1)	C (1)	X	C	(1) As per provisions of NR529, Chapter 4 and NR529, Ch 9, Sec 1
U3	Stainless or high alloy steel for membrane fuel containment system (1)	TA (2)	C (2)	X	C	(1) Alternative metallic materials are subject to specific approval programme (2) As per provisions of NR529, Chapter 4; NR529, Ch 9, Sec 1; NR216 and NR480
U4	Independent fuel tank supporting materials	TA (1)	C (1)	X	C	(1) As per provisions of NR529, Ch 3, Sec 13 and relevant provisions of NR216 and NR480
U5	Independent gas fuel tank systems	DA (1)	C / W (1) (2)	X ndt	C	(1) As per provisions of NR467 and NR529 (2) For LPG, as per provisions of NR529, IGF Code, MSC.1/Circ.1666 and NR647
U6	Insulation materials (1)	(2)				(1) Refer to NR529, Ch 3, Sec 2, [14.3] (2) In case of combination of items, the highest design assessment scheme TA>DA applies (3) Test to be witnessed by attending surveyors unless otherwise agreed (4) DA for glue not used in secondary barrier (SB) or insulation panels (IP) bonding (5) Tensile tests for TA (6) C for polyurethane foam, W for polystyrene
	1 - Paint for inner hull protection	TA			W	
	2 - Studs, nuts, washers, coupler sockets, staples and screws		W		W	
	3 - Load bearing mastic	TA (3)		X	W	
	4 - Adhesives and Glue	TA (4) (5)			W	
	5 - Foam panel	TA			C/W (6)	
	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		

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U

No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U6	11 - Aluminium for reinforced elements	TA		X	C	(7) Review of bonders operators qualifications Review of bonding and other fabrication or testing qualifications including Flat, Corner and Tri-way panels (8) In the case of shipbuilder's own manufacturing, no certificate would be issued after inspection unless explicitly required
	12 - Aluminium wedges	TA	C		W	
	13 - Secondary Barrier (composite material)	TA		X	C	
	14 - Insulating Panels	TA	C	X (7)	C	
	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 (8)		
U7	Gas fuel compressors and their prime movers					(1) As per provisions of NR529, Ch 5, Sec 2 (2) Cryogenic compressors - Product certificate (C) required for materials in contact with the gas fuel, both the pressure containing parts, and non-pressure containing components (shaft and impellers) (3) According to an agreed program (4) For electrical motors, refer to item K
	• Gas fuel compressors	TA or DA (1)	C (1) (2)	X h (3)	C	
	• Prime movers (4)	(4)		X (4)	C	

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U

No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U8	Gas fuel pumps and their prime movers					(1) As per provisions of NR529, Ch 5, Sec 2 (2) Cryogenic pumps - Product certificate (C) required for materials in contact with the gas fuel, both the pressure containing parts, and non-pressure containing components (shaft and impellers) (3) According to an agreed program (4) For electrical motors, refer to item K
	• Gas fuel pumps	TA or DA (1)	C (1) (2)	X h (3)	C	
	• Prime movers (4)	(4)	(4)	(4)	C	
U9	Bulkhead seal and gastight shaft bulkhead penetration devices	DA or TA (1)		X h	C (2)	(1) As per NR529, Ch 5, Sec 2, [1.4] (2) As per conditions set in the TA
U10	Fans for hazardous enclosed spaces, and their prime movers					(1) Concerns the anti-sparking fans (2) For electrical motors, refer to item K
	• Fans	TA (1)		X	W	
	• Prime movers (2)	(2)		X (2)	C	
U11	Condensers, gasifiers or vaporizers, separators, heat exchangers, 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 4. 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
U12	Fuel pipes for liquefied gas fuel					(1) As per provisions of NR529, Ch 9, Sec 1; NR529, Chapter 5 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, Ch 9, Sec 1, [6.3] (3) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
	• nominal diameter ND ≥ 50mm		W	X h ndt (1) (2)	C	
	• nominal diameter ND < 50mm		W	X h ndt (1) (2)	C / W (3)	

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U13	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, Ch 9, Sec 1; NR529, Chapter 5 and NR467, Pt C, Ch 1, Sec 10
	<ul style="list-style-type: none"> • Class I: pipes in single wall configuration, and nominal diameter ND ≥ 50mm • Class II: pipes in double wall configuration, and nominal diameter ND ≥ 100mm 		W	X h ndt (1) (2)	C	(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, Ch 9, Sec 1, [6.3]
	<ul style="list-style-type: none"> • Class I: pipes in single wall configuration, and nominal diameter ND < 50mm • Class II: pipes in double wall configuration, and nominal diameter ND < 100mm 		W	X h ndt (1) (2)	W / C (3)	(3) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
U14	Fuel pipes for gaseous gas fuel with design pressure higher than 10 bar (Class I) (1)					(1) For both single and double wall configuration
	<ul style="list-style-type: none"> • nominal diameter ND ≥ 50mm 		W	X h ndt (2) (3)	C	(2) As per provisions of NR529, Ch 9, Sec 1 and NR467, Pt C, Ch 1, Sec 10
	<ul style="list-style-type: none"> • nominal diameter ND < 50mm 		W	X h ndt (2) (3)	W / C (4)	(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, Ch 9, Sec 1, [6.3]
U15	Outer pipe of double wall fuel pipes (Class II) (1) (2)					(1) As per provisions of NR529, Ch 9, Sec 1; NR529, Chapter 5 and NR467, Pt C, Ch 1, Sec 10
	<ul style="list-style-type: none"> • nominal diameter ND ≥ 100mm 		W	X h ndt (3)	C	(2) Includes the gas valve enclosure
	<ul style="list-style-type: none"> • nominal diameter ND < 100mm 		W	X h ndt (3)	W / C (4)	(3) Pressure test is at the maximum working pressure of the inner pipe (4) W for Seamless steel or stainless steel, C for longitudinally welded stainless steel pipes
U16	Gas fuel pipe fittings (1)	DA (2)	W	X h ndt (3)	C	(1) Such as elbows, reducers, flanges: same remarks as for items U12 , U13 , U14 or U15 , as appropriate (2) If not already addressed within the scope of the system approval (3) When the fittings are of welded type, the welding procedures are to be examined

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U

No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U17	Expansion joints (1)	TA	W	X h ndt	C	(1) Specific requirements as per NR529, Ch 9, Sec 1, [7.2]
U18	Expansion bellows (1)	TA (2)	W	X h ndt	C	(1) Specific requirements as per NR529, Ch 9, Sec 1, [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
U19	Liquefied gas bunkering hoses (1)	TA	C	X h ndt	C	(1) Specific requirements as per NR620, Chapter 4 and NR529, Chapter 6
U20	Gas fuel valves (1)					(1) Class of piping as per provisions of NR529, Chapter 4 (2) TA for service temperature < -55°C 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, Ch 9, Sec 1, [7.1.2] (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, Ch 9, Sec 1
U21	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 NR529, IGF Code and/or standards recognized by the Society
U22	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
U23	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

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U						
No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U24	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 (2) As per conditions set in the TA
U25	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
U26	Vent lines on high pressure gas fuel system (1)	DA	W	X h ndt (2)	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) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined
U27	Double-wall flexible hose assembly (1)	TA(2)	W	X h(3)(4)	C	(1) Short length of metallic hose with end fittings ready for installation (2) Prototype testing: see NR 467, Pt C, Ch 1, Sec 10 [2.6] & [20.2] with a bursting test performed at 5 times the design pressure (3) Inner & Outer pipes are to be tested (4) Hydraulic test for the inner pipe is to be carried out at 1,5 time the maximum service pressure without pressure in the outer pipe. Pressure test for the outer pipe as per NR 529, Ch 5, Sec 2, [4]
U28	Emergency release system for bunkering ship (1)					(1) Refer to NR620
	1- QCDC (Quick connect disconnect coupler) including DD/CC (Dry disconnect/connect coupling)	TA	C	X h (2)	C	(2) Performance test / Pressure and leak test
	2- ERC (Emergency release coupling)	TA	C	X h (2)	C	(3) Power system and PERC
	3- PERC (Powered emergency release coupling)	TA (3)	C	X h (2)	C	
U29	Inert gas generation systems (1)					(1) See item D
U30	Fire prevention materials and arrangements (1)					(1) See item C and relevant provisions of NR529, Chapter 7
U31	Fire fighting systems (1)					(1) See item C and relevant provisions of NR529, Chapter 7
U32	Gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N

LNG, LPG OR AMMONIA FUEL HANDLING AND CONTAINMENT SYSTEMS OF GAS FUELLED SHIPS - ITEM U

No.	Item	Product certification				Remarks
		Design assessment/ approval	Raw material certificate	Examination and testing	Product certificate	
U33	Integrated gas fuel supply system (1)	DA		X (2) (3)	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 (3) For LPG, as per agreed program, based on NR647, MSC.1/Circ.1666 and/or standards recognized by the Society
U34	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, Ch 3, Sec 7 (2) As per agreed program, based on the requirements of NR529, IGF Code and/or standards recognized by the Society
U35	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 NR467, Part C, Chapter 1, NR529, IGF Code and/or standards recognized by the Society
U36	Pump tower (fuel piping and supporting structure)	DA	W	X h (1) ndt (2)	C (1)	(1) For cargo piping, See U12 to U16 (2) 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	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
U38	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 U12 to U16
U39	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
U40	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



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 notations ASYNC-COM or SYNC-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 for the ship-shore communication system	TA or DA (1)			C (2)	
V3	Software of CII ODS and CII SDS covered by additional class notation REALTIME					(1) See NR467, Pt F, Ch 5, Sec 3. A Type Approval (TA) is required for CII ODS and for CII SDS
	1- ODS software	TA (1)				
	2- SDS software	TA (1)				
V4	Data infrastructures covered by additional class notation DATA-INFRA or DATA-INFRA-STAND					(1) As per NR467 Pt F, Ch 4, Sec 4
	1- Acquisition LAN device	TA (1)				
	2- Data logger	TA (1)				



INTEGRATED COMMUNICATION, MONITORING AND DIGITAL SYSTEMS - ITEM V						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
V5	Smart systems covered by additional class notations SMART (1)					(1) See NR675 for the definition of SMART functions H , N , EnE and L or SMART groups 2 and 3
	1- with SMART function H hardware (MON-HULL notation)	TA (2)				(2) As per NR467 Pt C, Ch 3, Sec 6
	2 - with SMART function M					(3) As per NR467, Pt C, Ch 3, Sec 3
	• hardware (AUT-IMS notation)	TA (2)				
	• software (AUT-IMS notation)	TA (3)				
	• hardware (CLEANSHIP-CEMS and CLEANSHIP SUPER ()-CEMS notations)	TA (2)				
	• software (CLEANSHIP-CEMS and CLEANSHIP SUPER ()-CEMS notations)	TA (3)				
	• hardware (CBM notation)	TA (2)				
	• software (CBM notation)	TA (3)				
	• hardware (ELECTRIC HYBRID () notation)	TA (2)				
	• software (ELECTRIC HYBRID () notation)	TA (3)				
	3 - with SMART function N					
	• hardware (DYNAPOS notation)	TA (2)				
	• software (DYNAPOS notation)	TA (3)				
	• hardware (SYS-IBS notation)	TA (2)				
	• software (SYS-IBS notation)	TA (3)				
	4 - with SMART function EnE completed by -CII REALTIME notation software	TA (3)				
	5 - with SMART function EnE completed by -Em , -T , -LIT , -S or -W Software	TA (3)				

INTEGRATED COMMUNICATION, MONITORING AND DIGITAL SYSTEMS - ITEM V

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
V5	6 - with SMART function L					(4) Type approval certificate as per MEPC.312(74), MEPC.372(80), ISO 21745:2019, NR496
	• Software	TA (3)				
	• Electronic logbook	TA (4)				
	7 - with SMART group 2					
	• Computerized Based System hardware (DATA-INFRA or DATA-INFRA-STAND notations)	TA (2)				
	• Computerized Based System software (DATA-INFRA or DATA-INFRA-STAND notations)	TA (3)				
	• Computerized Based System hardware (ASYNC-COM or ASYNC-COM-R or SYNC-COM9 or SYNC-COM-R notations)	TA (2)				
	8 - with SMART group 3					
	• Computerized Based System software	TA (3)				
• Shore Digital Solution (SDS) software	TA (3)					
V6	Network Cybersecurity Gateway	TA (1)		X (2)	C	(1) As per NR659, Chapter 5 (2) Attendance to test plans
V7	ICT Cybersecurity Infrastructure	TA (1)		X (2)	C	(1) As per NR659, Chapter 5 (2) Attendance to test plans
V8	Cybersecurity Alarm and Monitoring System	TA (1)		X (2)	C	(1) As per NR659, Chapter 5 (2) Attendance to test plans
V9	Cyber Data Diode	TA (1)				(1) As per NR659, Chapter 5
V10	Data sharing system	TA (1)		X (2)	C	(1) As per NR659, Chapter 5 (2) Attendance to test plans
V11	Connected equipment, other than items to V6 to V10, covered by notations CYBER RESILIENT or CYBER SECURE	TA / DA (1)		(2)	C (3)	(1) Case by case depending on the equipment, as per NR659, Chapter 5 (2) Attendance to test plans if deemed necessary (3) Only in case of attendance to test plans



INTEGRATED COMMUNICATION, MONITORING AND DIGITAL SYSTEMS - ITEM V						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
V12	Digital solution covered by additional class notation DATA-CENTRIC					(1) as per NR659
	1- Onboard computer based system (Data-centric Evaluation Onboard Digital Solution DE ODS)	TA		X	C	
	2- Shore digital solution (Data-centric Evaluation Shore digital solution DE SDS)	TA		X	C	
	3- Hardware of DE ODS	TA (1)				
	4- Software of DE ODS and DE SDS	TA (1)				
	5- Standalone device	TA				
	6- Inspection and Decontamination Gate (IDG)	TA (1)				

Item W - Life Saving Appliances (LSA notations)

LIFE SAVING APPLIANCES (LSA NOTATIONS) - ITEM W						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
W1	Life saving appliances for naval ships or offshore units with LSA additional notation (1)					(1) See NR483, Pt E, Ch 10, Sec 1 or NR445, Pt C, Ch 4, Sec 12 as applicable (2) Fixed parts of davits and elements connecting them with the ship structure are to be reviewed for each application
	1- Davit	TA (2)	C	Xndt	C	
	2- Lifeboat	TA (2)	W	X	C	
	3- Rescue boat	TA (2)	W	X	C	
	4- Life raft	TA (2)	W	X	C	
W2	LSA equipment: lifebuoys, life jackets, immersion suits, marine evacuation systems, visual signals, distress flares and other life-saving appliances	(1)		(1)	(1)	(1) Certification of life-saving appliances is outside the scope of classification For naval ships and 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



Item X - Installations for Ships operating in Atmospheres Contaminated by Chemical, Biological, Radiological or Nuclear Hazards, covered by Notation CBRN

INSTALLATION FOR SHIPS OPERATING IN ATMOSPHERES CONTAMINATED BY CHEMICAL, BIOLOGICAL, RADIOLOGICAL OR NUCLEAR HAZARDS, COVERED BY NOTATION CBRN - ITEM X						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
X0	Note: The additional class notation CBRN is assigned to ships where a citadel with a collective protection system can be established, in order to effectively protect people inside from contamination. <ul style="list-style-type: none"> • For commercial ships, CBRN additional class notation may be completed by -WASH DOWN for ships which are provided with a wash-down system that will give increased protection during CBRN operations and will also allow immediate primary decontamination of the superstructures • For commercial and naval ships, CBRN additional class notation may be completed by -AIR BLAST RESISTANCE for ships having their collective protection systems designed to withstand an air blast 					
X1	Airblast protective device (1)	DA		X	W	(1) Applicable to commercial ships or naval ships for airblast protection system covered by notation CBRN -AIR BLAST RESISTANCE (see NR467, Pt F, Ch 10, Sec 3 or NR483, Pt E, Ch 8, Sec 3)
X2	Fixed CBRN detection system (1) (2)	TA (HBV)				(1) For naval ships refer to NR483, Part E, Chapter 8 (2) For steel ships refer to NR467, Part F, Chapter 10
X3	Portable CBRN detection system (1) (2)	TA (HBV)				(1) For naval ships refer to NR483, Part E, Chapter 8 (2) For steel ships refer to NR467, Part F, Chapter 10



Item Y - Hydrogen Handling and Containment Systems of Hydrogen Fuelled Ship

HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y1	Compressed hydrogen tank	DA (1)	C	X h ndt	C	(1) As per provisions of NR678, Ch 1, Sec 5, and NR678, Ch 1, Sec 7, [4]. Compressed hydrogen tanks 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 trials of the ship
Y2	Type 1 cylinder	TA (1)	C	X h ndt	C	(1) As per NR467, Pt C, Ch 1, Sec 3
Y3	Type 2 cylinder:	TA (1)		X h ndt	C	(1) In compliance with national or international standard (e.g ISO 11119 series or equivalent). Approval includes salt mist testing (e.g. ISO 21746 or equivalent)
	• resin system	TA(HBV)	W			
	• reinforcement fibre	TA(HBV)	W			
	• metallic liner	TA	C	X ndt		
Y4	Type 3 cylinder:	TA (1)		X h ndt	C	(1) In compliance with national or international standard (e.g ISO 11119 series, EN 17339:2020 or equivalent). Approval includes salt mist testing (e.g. ISO 21746 or equivalent)
	• resin system	TA(HBV)	W			
	• reinforcement fibre	TA(HBV)	W			
	• metallic liner	TA	C	X ndt		
Y5	Type 4 cylinder:	TA (1)	W	X h ndt	C	(1) In compliance with national or international standard (e.g ISO 11119 series, EN 17339:2020 or equivalent). Approval includes salt mist testing (e.g. ISO 21746 or equivalent)
	• resin system	TA(HBV)	W			
	• reinforcement fibre	TA(HBV)	W			
	• non metallic liner	TA(HBV)	W	X		
Y6	Multiple-element gas containers (MEGC) (1)	TA (2)		X h (2) (3)	C	(1) Components of the MEGC are to be certified as per relevant items in this table: cylinders, piping, fittings, valves, process equipment, etc. (2) Structure of the container is to be reviewed and surveyed as per requirements in NR678, Ch 1, Sec 7, [3] (3) As per provisions of NR678, Ch 1, Sec 13, [10.2]
Y7	Cryogenic hydrogen tank	DA (1)	C (1)	X h ndt	C	(1) As per provisions of NR678, Ch 1, Sec 5 and NR678, Ch 1, Sec 7, [5] Note: Running tests - during trials of the ship
Y8	Plates and profiles for hydrogen fuel tanks	(1)	C (1)	X	C	(1) As per provisions of NR678, Ch 1, Sec 5

HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y9	Flexibles hoses assembly (1)					(1) Short length of metallic hose with end fittings ready for installation (2) See NR678, Ch 1, Sec 9, [10] for type approval and NR678, Ch 1, Sec 13, [3] for type tests
	• single wall flexible hose assembly	TA (2)	W	X h (3) (5)	C	(3) All hoses are to be tested as per NR678, Ch 1, Sec 13, [3]: hydraulic test & pneumatic leak test (4) Inner & Outer pipes are to be tested
	• double wall flexible hose assembly	TA (2)	W	X h (3) (4) (5)	C	(5) Hydraulic test for the inner pipe is to be carried out at 1,5 time the maximum service pressure without pressure in the outer pipe. Pressure test for the outer pipe as per NR 678, Ch 1, Sec 9
Y10	Fans for hazardous enclosed spaces, and their prime movers:					(1) For anti-sparking fans (2) For electrical motors, refer to item K
	• fans	TA (1)		X	W	
	• prime movers	(2)		X (2)	C	
Y11	Fire and gas detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions of item N
Y12	Gaseous hydrogen valve, incl. non-return valves (1):					(1) Class of piping as per provisions of NR678, Ch 1, Sec 5 (2) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined
	• ND ≥ 50 mm	TA	C	X h ndt (2) (3)	C	(3) Unit production testing: all valves shall be tested in accordance with NR678, Ch 1, Sec 13, [4.2]
	• ND < 50 mm	TA	W	X h ndt (2) (3)	C	
Y13	Pressure relief valves for piping	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
Y14	Pressure relief valve for tank	TA	C	X h ndt (1) (2)	C	(1) As per provisions given in NR678, Ch 1, Sec 13, [6] (2) When the valves have welded elements, the welding procedures are to be examined
Y15	Thermally activated pressure relief device	TA	C	X h ndt (1) (2)	C	(1) As per provisions given in NR678, Ch 1, Sec 13, [7] (2) When the devices have welded elements, the welding procedures are to be examined
Y16	Bursting disc	TA (HBV)				

HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y17	Fuel pipes for gaseous hydrogen fuel with design pressure equal or lower than 10 bar (Class I or Class II), including elbows, reducers and flanges					(1) As per provisions of NR678 and NR467, Pt C, Ch 1, Sec 10 (2) W for Seamless pipes, C for longitudinally welded steel pipes (3) Non-destructive testing to be carried out as required by NR678, Ch 1, Sec 12, [1.1.6]
	Class I: single wall pipes, and ND ≥ 50 mm		C	X h ndt (1) (3)	C	
	Class II: double wall pipes, and ND ≥ 100 mm		C	X h ndt (1) (3)	C	
	Class I: single wall pipes, and ND < 50 mm		W	X h ndt (1) (3)	C/W (2)	
	Class II: double wall pipes, and ND < 100 mm		W	X h ndt (1) (3)	C/W (2)	
Y18	Fuel pipes for gaseous hydrogen with design pressure higher than 10 bar (Class I), including elbows, reducers and flanges (1)					(1) For both single and double wall configuration (2) As per provisions of NR678 and NR467, Pt C, Ch 1, Sec 10 (3) W for Seamless pipes, C for longitudinally welded steel pipes (4) Non-destructive testing to be carried out as required by NR678, Ch 1, Sec 12, [1.1.6]
	• ND ≥ 50 mm		C	X h ndt (2) (4)	C	
	• ND < 50 mm		W	X h ndt (2) (4)	C/W (3)	
Y19	Outer pipe of double wall fuel pipes (Class II) (1), including elbows, reducers and flanges.					(1) As per provisions of NR678 and NR467, Pt C, Ch 1, Sec 10 (2) W for Seamless pipes, C for longitudinally welded steel pipes
	• ND ≥ 100 mm		C	X h ndt	C	
	• ND < 100 mm		W	X h ndt	C/W (2)	
Y20	Piping for liquefied hydrogen	DA (1)	C	X h ndt	C	(1) If not already addressed within scope of the system approval
Y21	Pipe fittings for liquefied hydrogen (1)	DA (2)	C	X h ndt (3)	C	(1) Such as elbows, reducers, flanges and bolts: same remarks as for items H12 or H13 , as appropriate (2) If not already addressed within scope of the system approval (3) When the fittings are of welded type, the welding procedures are to be examined
Y22	Expansion bellows	TA (1)	C (2)	X h ndt	C	(1) Prototype tests to be performed on each type of expansion bellows intended for use on gas fuel piping (2) Refer to items Y17 , Y18 and Y19 , as appropriate
Y23	Liquefied hydrogen bunker hose	TA		X h ndt	C	



HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y24	Boil-off gas handling system (1)	TA or DA		X (2)	C	(1) See NR678, Ch 1, Sec 7, [5.3] (2) As per agreed program, based on the requirements of NR678 and/or standards recognized by the Society
Y25	Inert gas generation system (1)					(1) See item D and relevant provisions of NR678, Ch 1, Sec 4, [2]
Y26	Fire fighting system (1)					(1) See item C and relevant provisions of NR678
Y27	Gas valve unit (GVU) (1)	TA or DA		X (2)	C	(1) See NR678, Ch 1, Sec 3, [1.8] (2) As per agreed program, based on the requirements of NR678 and/or standards recognized by the Society
Y28	Gas combustion unit (GCU) (1)	TA or DA		X (2)	C	(1) See NR678, Ch 1, Sec 7, [5.3] (2) As per agreed program, based on the requirements of NR678 and/or standards recognized by the Society
Y29	Condensers, gasifiers or vaporizers, separators, heat exchangers, receivers, process pressure vessels, or other similar apparatus of hydrogen supply system	DA (1)	C (1)	X h ndt	C	(1) As per provisions of NR678, Ch 1, Sec 5. Process pressure vessels handling hydrogen 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 trials of the ship
Y30	Pressure regulator	TA				

HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y31	Mechanical joints (1) and other pipes fittings	TA(HBV) (2)	W (3)	X h ndt (4)	W	(1) Mechanical 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) (2) See NR467, Pt C, Ch 1, Sec 10 and NR678. Mechanical joints are to be approved based on type approval procedure defined in NR467, Pt C, Ch 1, App 5. Prototype tests are to be carried out in accordance with a program agreed by the Society (3) The materials used for mechanical joints are to comply with the requirements of NR467, Pt C, Ch 1, Sec 10, [2.4.5] and NR678. The manufacturer has to submit evidence to substantiate that all components are adequately resistant to the media at design pressure and temperature specified (4) If of welded construction 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
Y32	Gaseous hydrogen 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; refer to item K and item N (2) As per conditions set in the Type Approval (TA)
Y33	Vent lines (1)	DA	C/W (2)	X h ndt (3)	C	(1) The design pressure of the vent pipe is to be in accordance with NR678, Ch 1, Sec 8, [3.1.2] and NR678, Ch 1, Sec 9 (2) Depending on the class of piping as per NR678, Ch 1, Sec 5 (3) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined

HYDROGEN HANDLING AND CONTAINMENT SYSTEMS OF HYDROGEN FUELLED SHIPS - ITEM Y

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Y34	Fire damper	TA (1)		X ndt	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 (MED Modules B+D for HBV products or MED Modules B+F or G for IBV products) is to be recognised for classification purpose (2) As per conditions set in the Type Approval (TA)
Y35	Hydrogen engines (1) (2) For ships with hydrogen fuelled engines, the service notation hydrogenfuel is completed by one of the following additional service features: - dualfuel for engines using both hydrogen and fuel oil as fuel - singlefuel for engines using only hydrogen as fuel	TA (3) (4)	C / W (3) (4) (5)	X (3) (4) (5)	C	(1) Hydrogen may be either compressed or liquefied hydrogen (2) Refer to specific requirements in NR678 (3) The provisions of NR467 and this NR266 regarding survey of main and auxiliary diesel engines 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

Item Z - Methanol and ethanol fuel handling and containment systems of methanol and ethanol fuelled ships

METHANOL AND ETHANOL FUEL HANDLING AND CONTAINMENT SYSTEMS OF METHANOL AND ETHANOL FUELLED SHIPS - ITEM Z						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Z1	Plates and profiles for methyl/ethyl alcohol fuel tanks	(1)	C (1)	X	C	(1) As per provisions of NR670, Sec 5
Z2	Independent methyl/ethyl alcohol tank supporting materials	TA (1)	C (1)	X	C	(1) As per provisions of NR670, Sec 4 and relevant provisions of NR216 and NR480
Z3	Methyl/ethyl alcohol fuel pumps and their prime movers					(1) As per provisions of NR670, Sec 7 (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Methyl/ethyl alcohol fuel pumps	TA or DA (1)	C (1)	X h	C	
	2- Prime movers	(2)	(2)	(2)	C	
Z4	Fans for hazardous enclosed spaces, and their prime movers					(1) For anti-sparking fans (2) For electrical motors, refer to item K5
	1- Fans	TA (1)		X	W	
	2- Prime movers	(2)	(2)	X (2)	C	
Z5	Fuel pipes for liquid methyl/ethyl alcohol					(1) As per provisions of NR670, Sec 5 and NR467, Pt C, Ch 1, Sec 10 (2) W for Seamless steel, C for longitudinally welded steel pipes
	1- nominal diameter ND ≥ 50mm		W	X h ndt (1)	C	
	2- nominal diameter ND < 50mm		W	X h ndt (1)	C / W (2)	
Z6	Outer pipe of double wall fuel pipes (1), including elbows, reducers and flanges					(1) As per provisions of NR670, Sec 5 and NR467, Pt C, Ch 1, Sec 10 (2) Pressure test is at the maximum working pressure of the inner pipe (3) W for Seamless steel, C for longitudinally welded steel pipes
	1- nominal diameter ND ≥ 100mm		W	X h ndt (2)	C	
	2- nominal diameter ND < 100mm		W	X h ndt (2)	C / W (3)	
Z7	Methyl/ethyl alcohol fuel pipe fittings (1)	DA (2)	W	X h ndt (3)	C	(1) Such as elbows, reducers, flanges: same remarks as for item Z5 , as appropriate (2) If not already addressed within the scope of the system approval (3) When the fittings are of welded type, the welding procedures are to be examined

METHANOL AND ETHANOL FUEL HANDLING AND CONTAINMENT SYSTEMS OF METHANOL AND ETHANOL FUELLED SHIPS - ITEM Z						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Z8	Methyl/ethyl alcohol fuel valves (1)					(1) Class of piping as per provisions of NR670, Sec 5 (2) In case of welded construction. When the valves have welded elements, the welding procedures are to be examined
	1- nominal diameter ND ≥ 50mm	TA	C	X h ndt (2)	C	
	2- nominal diameter ND < 50mm	TA	W	X h ndt (2)	C	
Z9	Pressure relief valves for tank	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
Z10	Pressure relief valves for piping	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
Z11	Methyl/ethyl alcohol 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; refer to general rules for approval (2) As per conditions set in the Type Approval
Z12	Vent lines (1)	DA	W	X h ndt (2)	C	(1) The design pressure of the vent pipe is to be in accordance with NR670, Sec 5, Tab 2 (2) In case of welded construction. When the vent lines have welded elements, the welding procedures are to be examined
Z13	Methyl/ethyl alcohol bunkering hoses (1)	TA	C	X h ndt	C	(1) See NR670, Sec 6
Z14	Single or double wall flexible hoses assembly (1) (2)	TA	W (3)	X h (4)	C	(1) See NR670, Sec 3, [1.4] and NR467 Pt C, Ch 1, Sec 10 (2) Short length of metallic hose with end fittings ready for installation (3) All materials are to be compatible with each other and with methyl/ethyl alcohol (4) Inner and outer pipes are to be tested. Bursting test to be performed at minimum 5 times the maximum working pressure. Hydraulic test for the inner pipe is to be carried out at 1,5 time the maximum service pressure without pressure in the outer pipe. Pressure test for the outer pipe is to be carried out at 1,5 time the design pressure

METHANOL AND ETHANOL FUEL HANDLING AND CONTAINMENT SYSTEMS OF METHANOL AND ETHANOL FUELLED SHIPS - ITEM Z

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Z15	Emergency release system (1)		(2)			(1) See NR670, Sec 6
	1- QCDC (Quick Connect Disconnect Coupler) including DD/CC (Dry disconnect/connect coupling)	TA	C	X h (3)	C	(2) All materials are to be compatible with each other and with the fluid conveyed (methyl/ethyl alcohol and vapours)
	2- ERC (Emergency Release Coupling)		C	X h (3)	C	(3) Performance test / Pressure and leak test
	3- PERC (Powered Emergency Release Coupling)	TA (4)	C	X h (3)	C	(4) Power system and PERC
Z16	Inert gas generation system (1)	DA	C	X h ndt	C	(1) See item D
Z17	Fire fighting system (1)					(1) See NR670, Sec 9, [4] and the relevant provisions of item C
Z18	Fire and vapour detection system	TA (1)		X	C	(1) Automation systems: see relevant provisions item N
Z19	Flame arresting devices	TA (1)		X	C	(1) See NR670, Sec 4, [3.1.5]
Z20	Engines using methyl/ethyl alcohol as fuel (1)	TA (2)	C / W	X	C	(1) See NR670, Sec 8 (2) The provisions of NR467 and this NR266 for main and auxiliary diesel engines regarding survey of engine components and evaluation of test results are to be complied with, as far as applicable



Section 3 General Index

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Bower anchor B3	11
Bracket (cast steel shaft-bracket) A7	7
Braking resistor K29	89
Breakaway coupling (supply at sea system) O3	118
Breathing system	
Breathing valve or device (inert gas system) D13	25
Diving system	
Breathing gas compressor L24	100
Breathing gas distribution panel L24	100
Breathing gas storage L24	101
Bridge communication and navigation system (Integrated bridge system - notation SYS-IBS) V1	143
Brine (refrigerating installation)	
Accessories of brine pipe (additional class notation REF) M10	106
Brine pipe (additional class notation REF) M9	106
Brine pipe (auxiliary machinery) G35	54
Condensers, heat exchangers, evaporators of shell type (additional class notation REF) M5	106
Pump (additional class notation REF) M3	105
Bulkhead	
Bulkhead seal / gastight shaft bulkhead penetration device	
Gas fuelled ship U9	137
Liquefied gas carrier H9	65
Oil / FLS or chemical tanker I4	71
Fire-resisting and fire-retarding bulkhead C1	19
Surface lining C28	21
Watertight shaft bulkhead penetration B28	18
Bunkering hose	
Gas fuelled ship U19	139
Liquefied gas bunkering ship H18	66
Liquefied hydrogen fuelled ship Y23	153
Methanol and ethanol fuelled ship Z13	158
Methanol bunkering ship (chemical tanker) I28	74
Buoy (pick-up gear - emergency towing arrangement) B22	16
Burning system and unit	
Automatic burning system (main boiler) F11	39
Auxiliary boiler G16	45
Burning system (main boiler) F16	39
Inert gas generator system D2	25
BWMS (ballast water management system)	
Additional class notation CLEANSHIP S7	130
Auxiliary machinery G44	58

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Cable	
Anchor chain B4	11
Cable and insulated cabling wire K19	85
Cable assembly (charging station) K30	89
Cable tray K31	89
Riser, umbilical or power cable (offshore units) L7	92
Calculator - Loading instrument (stability computer)	
Automation system N10	111
Hull outfitings B20	15
Carbon capture and storage system G47	61
Carbon dioxide (CO ₂) fire smothering system	
High pressure C36	22
Low pressure C37	22
Carbon intensity indicator (notation CII-REALTIME) V3	143
Cardan shaft (flange, crosse, shaft, yoke)	
Main propulsion shafting G5	42
Thrust shaft, intermediate shaft G4	41
Cargo	
Lashing/securing equipment (fixed or mobile) P1	123
Liquefied gas carrier	
Aluminium alloy for independent cargo tank H2	63
Cargo hose H17	66
Cargo pipe fitting H14	66
Cargo pipe of class I (longitudinally welded stainless steel) H13	65
Cargo pipe of class I (seamless steel or stainless steel) H12	65
Cargo Pump H8	65
Cargo valve (including liquefied hydrogen) H19	67
Gas compressor H7	64
Independent cargo tank H5	63
Process and containment instrumentation H22	67
Steel for independent cargo tank H1	63
Vent line on cargo tank H23	67
Offshore unit	
Cargo piping L13	93
Offloading pump L12	93
Oil / FLS or chemical tanker	
Cargo hose I13	73
Cargo pipe fitting I10	72
Cargo pipe of class I (seamless steel or stainless) for chemical tanker I6	71
Cargo pipe of class II for chemical tanker I7	72
Cargo pipe of class II for oil / FLS tanker I8	72
Cargo pipe of class III and accessory I9	72
Cargo pump I3	71
Cargo valve I14	73
Plastic pipe (used as cargo pipe) I15	73
Pressure/vacuum (P/V) safety relief valve for cargo tank I17	73
Process and containment instrumentation I19	74
Transfer hose and pipe coupling (supply at sea system) O3	118
Casing	
Gas turbine F17	40
Pull-in system (riser and mooring pull-in system) L18	94
Steam turbine (stationary part) F1	37
Towing and handling equipment B24	17
Windlass (motorized) B6	12
Window casing (prefabricated fire resisting element) C31	21
Casting	
Aluminium alloy casting A9	7
Cast iron (grey cast iron or spheroidal graphite cast iron)	
Cylinder block E1	27
Cylinder head E1	28
Engine block E1	28

Cast steel	
Bearing transverse girder E1	27
Cylinder head E1	28
Piston crown E1	28
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
Copper alloy casting A18	9
Hull structure A10	8
Iron casting A17	9
Machinery and cargo equipment A15	8
Offshore unit (especially cast node, connection and articulation part) L1	91
Propeller G9	43
Catalyser (composite material) A8	7
Catalytic reduction system (selective catalytic reduction - SCR) S6	130
Cathodic protection system (offshore unit)	
Impressed current L5	91
Sacrificial anode L4	91
CBRN detection system	
Fixed CBRN detection system X2	149
Portable CBRN detection system X3	149
Ceiling (surface lining) C28	21
Cell	
Battery cell (propulsion and/or electric power supply purpose) K26	87
Cell-guide (fixed and portable container securing fitting) P1	123
Fuel cell system K27	87
Centrifugal separator	
Auxiliary machinery G32	52
Oil and fuel centrifugal separator G25	47
Chafing gear (emergency towing arrangement) B22	16
Chain	
anchor chain cable (towing and anchor handling equipment) B24	17
Anchor chain cable B4	11
Chafing gear (emergency towing arrangement) B22	16
Chain jack (offshore handling system) L22	97
Chain lashing (fixed and portable container securing fitting) P1	123
Chain stopper (bow chain stopper - single point mooring) Q1	125
Chain stopper (motorized windlass) B6	12
Chain stopper (towing and anchor handling equipment) B24	17
Loose gear	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Mooring line component (offshore unit) L19	94
Steering chain (steering gear) B1	11
Charger (battery charger) K24	86
Charging (electric charging station - EVOG notation) K30	89
Chocking system (resin and device) E14	36
Circuit breaker K15	84
Circulation pump	
Forced circulation pump within piping system for main boiler G31	52
Main boiler F14	39
Refrigerating installation	
Brine and refrigerant pump M3	105
Condenser circulating pump M2	105
Equipment of refrigerated container ship M11	106
Steam turbine F5	38
Classification of equipment and system	
Pressure vessel (class 1, 2, 3) G30	51
Process and piping system (offshore unit - survey rating level A1, A2, A3) L20	94
Raw pipe and piping system (class I, II, III) G26	47
Closing device (air pipe automatic closing device) G43	58
Clutch	
Propulsion plant remote control system N2	109
Propulsive and auxiliary plant G1	41

Coating	
Coating system of cargo tank (oil / FLS or chemical tanker) I2	71
Corrosion protective coating (epoxy or equivalent) B23	16
Cofferdam heating system (liquefied gas carrier) H31	70
Coil	
Heating coil (evaporator or fresh water generator) G20	46
Pipe for condenser coil (refrigerating installation) M7	106
Combustible (non-combustible material - fire protection) C7	19
Combustion (gas combustion unit)	
Gas fuelled ship U35	141
Hydrogen fuelled ship Y28	154
Common fuel rail and servo oil system (diesel engine)	
Accumulator of common rail fuel or servo oil system E1	31
High pressure fuel injection pipe E1	30
High pressure servo oil system E1	30
Communication	
Communication system (diving system) L24	99
Data infrastructure (notation DATA-INFRA) V4	143
Integrated bridge system (notation SYS-IBS) V1	143
Ship-shore communication system V2	143
Compartment	
Transducer compartment B9	12
Watertight compartment B14	13
Composite material	
Composite riser (offshore unit) L7	92
Raw material for hull A8	7
Wind propulsion system (raw material) G45	59
Compressed hydrogen cylinder (hydrogen fuelled ship)	
Multiple-element gas container (MEGC) Y6	151
Type 1 cylinder Y2	151
Type 2 cylinder Y3	151
Type 3 cylinder Y4	151
Type 4 cylinder Y5	151
Compressed hydrogen tank Y1	151
Compressor	
Air compressor (filling of starting air receiver)	
Diesel engine driving electric generator G14	45
Main diesel engine E6	32
Boil-off gas handling system	
Liquefied gas carrier H29	68
Offshore unit L26	104
Cargo gas compressor (liquefied gas carrier) H7	64
Compressor within piping system G31	52
Equipment of refrigerated container ship M11	106
Feed air compressor (nitrogen generator system) D16	26
Gas fuel compressor (gas fuelled ship) U7	136
Gas turbine F17	40
Generating set, generator set and generator package (electrical equipment) K25	86
Refrigerating compressor M1	105
Regasification component (FSRU and FSU) H30	69
Scavenging and supercharging compressor E8	32
Computer	
Computer based system (notation CII-REALTIME) V3	143
Computer used for task essential to safety function N8	111
Computerized maintenance management systems N7	110
Integrated computer-based system N6	110
Loading instrument (stability computer) N10	111
Computer based systems for data-centric evaluation V12	146
Condenser	
Auxiliary condenser G17	45
Cargo reliquefaction plant (liquefied gas carrier) H11	65
Gas fuel supply system (gas fuelled ship) U11	137

Refrigerating installation	
Circulation pump M2	105
Condenser M5	106
Refrigerant pipe M7	106
Steam turbine F3	37
Condition monitoring system N7	110
Connected equipment (cyber security equipment and system) V11	145
Connecting rod with cap (diesel engine) E1	29
Connection and articulation part (casting - offshore unit) L1	91
Connection/disconnection device (offshore access system component) L25	103
Consumable for welding (filler product) A3	7
Contactors K16	84
Container	
Fuel cell fitted in a container K27	88
Container (portable fire-fighting device for stacked container) C41	22
Control equipment and system	
Automation system	
Auxiliary equipment (generating set, boiler) N3	109
Control cabinet (fire or gas detection system) N4	110
Hardware and software N0	109
Installation intended for essential service (automation system - AUT notation) N5	110
Sensor and control equipment (automation system - AUT notation) N5	110
Cargo environmental control - inert gas system D12	25
Control device starter K10	84
Dynamic positioning system R1	127
Environmental control unit (hyperbaric heating / cooling system - diving system) L24	102
Fire door control system C1	19
Supply at sea system O3	118
Wind propulsion system (drive unit) G45	61
Controlgear (switchboard) K14	84
Convertor (semiconductor or static convertor) K7	83
Coolant (brine for refrigerating installation) M5	106
Cooling equipment and system	
Air-cooler fan (refrigerating installation) M4	105
Cooler	
Diesel engine E1	31
Liquefied gas carrier H29	68
Cooling pump (independent of diesel engine) E2	31
Gas turbine (intermediate cooler) F17	40
Heat exchanger (lubricating oil or fresh water cooler, fuel heater) E3	31
Inert gas cooler (inert gas system) D14	25
Steam turbine	
Drain cooler (steam turbine) F10	38
Intermediate cooler F1	37
Lubricating oil cooler F9	38
Copper alloy casting A18	9
Copper tubing (refrigerant pipe) M7	106
Core material for sandwich (composite material) A8	7
Core material for sandwich (wind propulsion system - raw material) G45	59
Corner locking device (fixed and portable container securing fitting) P1	123
Corrosion protective coating (epoxy or equivalent) B23	16
Corrosive substance	
Pressure vessel G30	51
Raw pipe and piping system G26	47
Coupling	
Auxiliary machinery	
Coupling bolt (shaft coupling) G7	43
Coupling bolt or stud (main propulsion shafting) G5	42
Flexible coupling (main propulsion shafting) G5	42
Flexible coupling (propulsive and auxiliary plant) G1	41
Shaft coupling G4	41
Coupling bolt (crankshaft - main diesel engine) E1	30
Coupling bolt (rudder) B2	11
Electromagnetic coupling K11	84
Pipe coupling for supply at sea system (including breakaway coupling system) O3	118

Cover		
Articulation and hydraulic cylinder (split hopper dredging vessel) B21	.....	15
Refrigerating installation M5	.....	106
Covering (fire protection)		
Floor covering C29	.....	21
Non-readily igniting material for deck covering C9	.....	19
Crane		
Crane pedestal		
Hull outfitting B18	.....	14
Lifting appliance (certification) O1	.....	114
Lifting appliance (classification) O2	.....	116
Offshore unit (lifting appliance) L6	.....	91
Supply at sea system O3	.....	118
Crankshaft		
Crank throw E1	.....	29
Crankcase explosion relief valve (diesel engine) E9	.....	33
Crankcase safety valve (diesel engine) E1	.....	27
Crankshaft made in one piece E1	.....	28
Semi-built crankshaft E1	.....	29
Crosshead (crosshead engine) E1	.....	29
Crude oil washing system (tank washing machine)		
FLS tanker and oil tanker of 20 000 tons deadweight and above I24	.....	74
Oil tanker of less than 20 000 tons deadweight I25	.....	74
Cryogenic		
Cryogenic hydrogen tank Y7	.....	151
Cryogenic valve (regasification component - FSRU and FSU) H30	.....	69
Flexible hoses assembly (boil-off gas handling system)		
Liquefied gas carrier H29	.....	68
Offshore unit L26	.....	104
Piping system		
Liquefied gas carrier H29	.....	68
Offshore unit L26	.....	104
Protection material (regasification component - FSRU and FSU) H30	.....	69
Valve (boil-off gas handling system)		
Liquefied gas carrier H29	.....	68
Offshore unit L26	.....	104
Curtain (fire protection system) C8	.....	19
Cybersecurity equipment and system		
Alarm and monitoring system V8	.....	145
Connected equipment V11	.....	145
Cyber data diode V9	145
Data sharing system V10	145
ICT cybersecurity infrastructure V7	145
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Cylinder		
Diesel engine		
Cylinder block		
Grey cast iron E1	27
Spheroidal graphite cast iron E1	27
Cylinder frame (welded) E1	.....	27
Cylinder head		
Cast steel E1	.....	28
Forged cylinder head E1	.....	28
Grey cast iron E1	.....	28
Spheroidal graphite cast iron E1	.....	28
Cylinder liner E1	.....	28
Hydraulic cylinder		
Handling of ramp or opening/closing appliance B17	.....	14
Housing (split hopper dredger and split hopper units) B21	.....	15
Hydraulic power installation G42	.....	58
Lifting appliance (certification) O1	.....	115
Lifting appliance (classification) O2	117
Shell (steering gear) B1	11
Supply at sea system O3	118

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Daggerboard trunk (welded structure fitted on ship structure) A16	8
Damper	
Fire damper (hydrogen fuelled ship Y34	156
Fire damper C21	20
Data	
Cyber data diode (cyber security equipment and system) V9	145
Data communication link (integrated computer-based system) N6	110
Data infrastructure / Data logger (notation DATA-INFRA) V4	143
Data sharing system (cyber security equipment and system) V10	145
Data-centric evaluation V12	146
Davit (life-saving appliance) W1	147
Deck	
Fire-resisting and fire-retarding deck (A, B or H class divisions) C1	19
Movable deck and inner ramp B16	14
Platform deck structure	
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Primary deck covering (non-readily igniting material - fire protection) C9	19
Deck decompression chamber (diving system)	
Fire safety equipment L24	99
Fixed fire fighting system L24	99
Fresh / potable water unit L24	102
Sewage system L24	102
Deck water seal (inert gas system) D7	25
Derrick	
Derrick heel seating (hull outfitting) B18	14
Derrick system	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Supply at sea system O3	118
Detection equipment and system	
CBRN detection system	
Fixed CBRN detection system X2	149
Portable CBRN detection system X3	149
Detector and thermometer (equipment of refrigerated container ship) M11	106
Fire or gas detection system (detector, control cabinet) N4	110
Flammable gas detection system C42	22
Installation intended for essential service (automation system - AUT notation) N5	110
Oil mist detection E9	33
Oil-water interface detector (oil and FLS tanker) I27	74
Sensor and control equipment and/or monitoring device (automation system - AUT notation) N5	110
Diesel engine	
Driving electric generator G11	44
Main diesel engine and their auxiliaries E1	27
Mass-produced diesel engine E11	33
Propulsion plant remote control system N2	109
Diode (cyber data diode - cyber security equipment and system) V9	145
Disconnecting device/disconnector (switch, fuse holder) K17	85
Distillation body (evaporator - fresh water generator) G20	46
Distress flare (equipment - life-saving appliance) W2	147
Distribution	
Distribution switchboard K14	84
Distribution system for high pressure CO2 fire smothering system C36	22
Distribution valve (steam turbine) F2	37
Diver hot water unit (diving system) L24	101
Diving bell (diving system) L24	102
Diving main umbilical (diving system) L24	102
Diving system and equipment L24	99
Dome	
Dome cover	
Gas fuelled ship U38	141
Liquefied gas carrier H34	70

Dome seat	
Gas fuelled ship U39	141
Liquefied gas carrier H35	70
Door	
Fire-resisting and fire-retarding door (divisions, A, B or H class) C1	19
Semi-watertight door B14	13
Shell door B12	13
Watertight door B14	13
Weathertight door B14	13
Doppler system (position reference system) R2	127
Double wall fuel pipe (outer pipe of double wall fuel pipe - fuel cell system) K27	88
Double wall fuel pipes (outer pipe of double wall fuel pipes - gas fuelled ship) U15	138
Drain cooler (steam turbine) F10	38
Dredger (articulations and hydraulic cylinders of split hopper dredger and split hopper units) B21	15
Drilling system and equipment (offshore unit) L21	96
Driver	
Diesel engine or gas turbine (generator package, generating set, compressor package) K25	86
Drive unit (wind propulsion system)	
Electrical system G45	61
Mechanical system G45	60
Prime mover	
Cooling pump, lubricating oil pump, independent of main diesel engine E2	31
Electrical motor K5	82
Gas engine E13	35
Gas turbine F17	40
Main diesel engine E1	27
Non electrical, i.e. hydraulic motor G41	57
Steam turbine F1	37
Turbine driving electric generator G10	44
Drum	
Auxiliary boiler G15	45
Header (main boiler) F11	38
Winch (winch subject to individual assessment) O4	119
Winch drum (towing and handling equipment) B24	17
Windlass (motorized) B6	12
Dual fuel engine E13	35
Dual-purpose nozzle	
Fire protection, detection and extinction systems C35	22
Dual-purpose nozzles	
Fire fighting ship J7	77
Dynamic braking resistor K29	89
Dynamic positioning system	
Control system and controller R1	127
Power system and electrical installation R5	127

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Economizer (main boiler) F11	38
Eductor (steam turbine) F8	38
Ejector (air ejector)	
Auxiliary condenser G18	46
Distillation body and heating coil G20	46
Steam turbine F8	38
Electrical equipment and system	
Battery used for electric power supply purpose K26	87
Battery used for propulsion K26	87
Boil-off gas handling system (liquefied gas carrier) H29	68
Boil-off gas handling system (offshore unit - FLNG) L26	104
Cable and wire	
Cable and insulated cabling wire K19	85
Material for electrical cable penetration through H, A or B class division (fire protection) C5	19
Umbilical (offshore unit) L7	92
Dynamic positioning system R5	127
Electric braking K29	89

Electric charging station K30	89
Electrical installation (diving system) L24	101
Gas fuel process and containment (gas fuelled ship) U24	140
Generating system K25	86
Generator	
Diesel engine driving electric generator G11	44
Electric generator K25	86
Electric propulsion K1	79
Emergency generator K3	81
Engine driven generator K2	80
Turbine driving electric generator G10	44
Heater	
Electric system K20	85
Lifting appliance (certification) O2	115
Lifting appliance (classification) O2	117
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Methyl/ethyl alcohol fuel process and containment (methanol and ethanol fuelled ship) Z11	158
Motor	
Electric motor K5	82
Electric propulsion K1	79
Hydraulic power station for handling of ramp or opening/closing appliance B17	14
Hydraulic system and hydraulic power installation G42	58
Radiator (fixed electric radiator) K21	85
Regasification component (FSRU and FSU) H30	69
Safety electrical equipment K23	85
Supply at sea system O3	118
Switchboard (electric propulsion) K12	84
Swivel (Electrical swivel - offshore unit) L9	92
Towing and anchor handling equipment B24	17
Windlass (motorized windlass) B6	12
Electromagnetic coupling K11	84
Electronic system	
Hardware and Software N0	109
Protective device for installation intended for essential service (automation system - AUT notation) N5	110
Speed regulator (automation system - AUT notation) N5	110
Emergency system	
Battery K8	83
Emergency release system	
Gas fuelled ship U28	140
Liquefied gas bunkering ship H24	68
Methanol and ethanol fuelled ship Z15	159
Methanol bunkering ship I29	75
Offshore unit (oil offloading, transfer arm and line) L23	98
Generator K3	81
Switchboard (main and emergency switchboard) K13	84
Emergency towing arrangement (ETA) B22	16
Energy storage (batteries used for propulsion and/or electric power supply purpose) K26	87
Engine	
Engine block	
Grey cast iron E1	28
Spheroidal graphite cast iron E1	28
Engine chocking E14	36
Engine driven generator (general network) K2	80
Engine driven pump (oil, water, fuel, bilge) E1	31
Engine power limitation systems (EPL) G46	61
Engine using methyl/ethyl alcohol (methanol and ethanol fuelled ship) Z20	159
Hydrogen engine (Hydrogen fuelled ship) Y35	156
Main diesel engine E1	27
Speed regulator (automation system - AUT notation) N5	110
Environmental control unit (diving system) L24	102
Epoxy (corrosion protective coating, epoxy or equivalent) B23	16
Equipment of refrigerated container ship M11	106
Equivalent fire-extinguishing system	
Water-mist automatic sprinkler system C26	21

Escort tug (towing equipment) B24	17
ESD Valve (offshore unit) L10	92
Evaporator	
Auxiliary machinery G20	46
Shell type (tube or welded plate, for refrigerating installation) M5	106
Exchanger (heat exchanger)	
Boil-off gas handling system	
Liquefied gas carrier H29	68
Offshore unit L26	104
Cargo reliquefaction plant H11	65
Gas fuel supply system U11	137
Lubricating oil or fresh water cooler, fuel heater E3	31
Pressure vessel for liquid substance G30	51
Refrigerating installation (auxiliary machinery) G35	54
Refrigerating installation M5	106
Exhaust gas	
Carbon capture and storage system G47	61
Exhaust gas boiler (diesel engine) E4	31
Exhaust gas cleaning system	
Scrubber unit S5	130
Selective catalytic reduction (SCR) S6	130
Tower unit (scrubber) S5	130
Valve cage (crosshead engine) E1	29
Expansion bellow	
Auxiliary machinery G38	56
Boil-off gas handling system	
Liquefied gas carrier H29	68
Offshore unit L26	104
Fuel cell system K27	88
Gas fuelled ship U18	139
Hydrogen fuelled ship Y22	153
Inert gas system D4	25
Liquefied gas carrier H16	66
Non-conventional material C12	20
Oil / FLS tanker or chemical tanker I12	72
Expansion joint	
Auxiliary machinery G37	55
Gas fuel handling and containment systems (gas fuelled ship) U17	139
Liquefied gas carrier H15	66
Oil / FLS tanker or chemical tanker I11	72
Regasification component (FSRU and FSU) H30	69
Expert system N9	111
Explosion relief devices for combustion air inlet and exhaust gas manifolds E15	36
Explosion relief valve (crankcase) E9	33
Explosive mixture detection equipment and system	
Fixed system C17	20
Portable system C18	20
External ramp B15	14
Extinguishing equipment and system	
Equivalent	
Fixed gas fire-extinguishing system C24	21
Water-mist fire-extinguishing system C23	21
Fixed	
Fire-extinguishing systems for protection of galley cooking equipment C25	21
Foam fire-extinguishing system and associated foam-forming liquid C10	19
Powder fire-extinguishing system, including powder C11	20
Water-based local application fire-extinguishing systems C25	21
Nozzle for fixed pressure water-spraying fire-extinguishing system	
Boiler room C14	20
Deep fat cooking equipment fire-extinguishing system C14	20
Machinery space C14	20
Space intended for the carriage of vehicle and for hangar C14	20
Portable, non-portable and transportable extinguisher C27	21
Extraction pump F7	38

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Fairlead	
Bow fairlead (single point mooring) Q2	125
Emergency towing arrangement (ETA) B22	16
Mooring system (offshore unit - stationkeeping) L19	94
Pedestal roller fairlead (single point mooring) Q3	125
Fan	
Air-cooler fan (refrigerating installation) M4	105
Enclosed space located within the cargo area	
Liquefied gas carrier H10	65
Oil /FLS or chemical tanker I5	71
Forced draught fan F15	39
Hazardous enclosed space	
Fuel cell system K27	87
Gas fuelled ship U10	137
Hydrogen fuelled ship Y10	152
Methanol and ethanol fuelled ship Z4	157
Feed air (nitrogen generator system)	
Compressor D16	26
Treatment system D19	26
Feed pump	
Auxiliary boiler G19	46
Main boiler F12	39
Pump within piping system (for main boiler) G31	52
Feed water heater (boiler) F13	39
Fibre	
Fibre reinforced plastic grating C45	23
Fibre reinforced plastic pipe (FRP pipe) G26	49
Hollow fibre (nitrogen generator system) D15	25
Reinforcement fibre	
Composite material A8	7
Wind propulsion system (raw material) G45	59
Fibre rope	
Emergency towing arrangement, cargo handling gear B7	12
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Specific equipment for offshore unit	
Deep-water offshore services L14	93
Emergency towing arrangement, cargo handling gear or similar applications L16	93
Mooring line component L19	94
Single point mooring hawser L15	93
Filler product for welding (consumable) A3	7
Filtering equipment	
15 ppm oil filtering equipment S1	129
Ballast water management system G44	58
Filter of burning unit (main boiler) F16	39
Fire (General requirement for fire protection, detection and extinction system) C0	19
Fire protection, detection and extinction equipment and system	
Alarm and detection system	
Automation system (fire detection system) N4	110
Fire detection system (fuel cell system) K27	88
Fixed fire alarm system C16	20
Fixed fire detection system C16	20
Fixed instrument for measuring the oxygen content for inert gas system C19	20
Flammable gas detection system C42	22
Methanol and ethanol fuelled ship Z18	159
Sensing head for automatic fire alarm and detection system C15	20
Fire fighting ship	
Fire pump J1	77
Fire fighting system	
Equivalent fixed gas fire extinguishing system C24	21
Equivalent water-mist fire extinguishing system C23	21
Extinguisher (portable, non-portable and transportable) C27	21
Fire hydrant, pipe, shore connection, valve and accessory C33	22

Fire pump C32	21
Fire pump within piping system G31	52
Fire smothering system	
High pressure CO2 system C36	22
Low pressure CO2 system C37	22
Fixed fire-extinguishing systems for protection of galley cooking equipment C25	21
Fixed foam fire extinguishing system C10	19
Fixed powder fire-extinguishing system (including powder) C11	20
Fixed water-based local application fire-extinguishing systems C25	21
Hose (fire hose) C34	22
Portable fire-fighting device for stacked container C41	22
Fire protection system	
Damper (fire damper) C21	20
Damper (hydrogen fuelled ship) Y34	156
Fire retarding and resisting division (A, B or H class bulkhead or deck) and associated door C1	19
Floor covering C29	21
Material with low flame spread characteristic including paint and varnish C6	19
Non-combustible material C7	19
Non-readily igniting material for deck covering C9	19
Prefabricated fire resisting element C31	21
Vertically suspended fire protection equipment C8	19
Window (fire window) C30	21
Fire safety equipment (deck decompression chamber - diving system) L24	99
Fixed fire fighting system (diving system) L24	99
Gas fuelled ship	
Fire fighting system U31	140
Fire prevention (material and arrangement) U30	140
Liquefied gas carrier	
Fire fighting system H27	68
Fire prevention (material and arrangement) H26	68
Oil / FLS or chemical tanker	
Fire fighting system I22	74
Fire prevention (material and arrangement) I21	74
Regasification component (FSRU and FSU)	
Active system H30	69
Passive system and material H30	69
Fire protection, detection and extinction equipment and system/Fire protection component/Passive system (Insulation system and component) C46	23
Fire protection, detection and extinction equipment and system/Fire protection system/Insulation system and component (passive fire protection) C46	23
Fixation (on steel hull)	
Aluminium alloy superstructure A4	7
Transition joints steel/aluminium alloy A5	7
Flame	
Flame arresting device (methanol and ethanol fuelled ship) Z19	159
Flame arresting device (oil / FLS or chemical tanker) I18	74
Material with low flame spread characteristic including paint and varnish C6	19
Flammable	
Fuel oil or other flammable oil (pump) G31	52
Hydraulic oil	
Pressure vessel (fuel oil or lubricating oil) G30	52
Raw pipe and piping system G26	49
Media (raw pipe and piping system) G26	48
Refrigerant G35	54
Flange (main boiler) F11	39
Flexible bonded or unbonded (offshore unit) L7	92
Flexible coupling	
Gas turbine F17	40
Main propulsion G5	42
Propulsive and auxiliary plant G1	41
Steam turbine rotor F1	37
Flexible hose system	
Boil off gas handling system (liquefied gas carrier) H29	68
Boil off gas handling system (offshore unit - FLNG) L26	104
Flexible hose assembly (double-wall - gas fuelled ship) U27	140

Flexible hose assembly (hydrogen fuelled ship) Y9	152
Flexible hose assembly (methanol and ethanol fuelled ship) Z14	158
Flexible hose assembly with end fitting ready for installation (auxiliary machinery) G28	50
Flexible hose used for shielding purpose of HP fuel injection pipes G26	49
Fuel oil purifying unit G25	47
Hydraulic power station (handling of ramp or opening/closing appliance) B17	14
Hydraulic system and hydraulic power installation G42	58
Regasification component (FSRU and FSU) H30	69
Flexible mount (for propulsion or auxiliary machinery) E14	36
Flexible pipe	
Flexible pipe and expansion bellows of non-conventional material (fire protection) C12	20
Pipe of material other than steel for pipe conveying oil or fuel oil C4	19
Floating storage regasification units (regasification component) H30	69
Floor covering (fire protection) C29	21
Flue gas (inert gas generator) D1	25
Fluid swivel (offshore unit) L8	92
Fluorescent lamp K22	85
Foam	
Concentrate (fire fighting ship) J6	77
Fire foam main (fire fighting ship) J2	77
Fixed foam fire-extinguishing system and associated foam-forming liquid C10	19
Foam applicator C40	22
Foam generation system (fire fighting ship) J3	77
Foam proportioner / inductor C38	22
Water / foam monitor	
Fire extinction system C39	22
Fire fighting ship J4	77
Forced circulation pump (main boiler)	
Accessories F14	39
Auxiliary machinery G31	52
Forced draught fan F15	39
Forging	
Forged cylinder head E1	28
Forged main journal and journals with flange E1	29
Forged piston crown E1	28
Hull structure A11	8
Steel forging A11	8
Foundation (fixed part of lifting appliance)	
Crane and derrick system (certification) O1	114
Crane and derrick system (classification) O2	116
Winch foundation (lifting appliance - certification) O1	114
Winch foundation (lifting appliance - classification) O2	116
Frame box (welded - diesel engine) E1	27
Frequency convertor (semiconductor convertor or static convertor) K7	83
Fresh water generator (auxiliary machinery) G20	46
FRP grating C45	23
Fuel (diesel engine)	
Fuel heater E3	31
High pressure fuel injection	
pipe (including common fuel rail) E1	30
Pump body E1	30
Valve E1	30
Fuel (engine using low flashpoint liquid or gas as fuel)	
Double walled gas pipe E13	35
gas venting pipe E13	35
High-pressure gas pipe E13	35
Low-pressure gas pipe E13	35
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Fuel (gas fuelled ship)	
Gas fuel compressor U7	136
Gas fuel pipe fitting U16	138
Gas fuel pipe for gaseous gas fuel with design pressure higher than 10 bar U14	138
Gas fuel pipe for gaseous gas fuel with pressure equal or lower than 10 bar U13	138
Gas fuel pipe for liquefied gas fuel U12	137
Gas fuel pump U8	137

Independent gas fuel tank U5	135
Outer pipe of double wall fuel pipe U15	138
Fuel (methanol and ethanol fuelled ship)	
Methyl/ethyl alcohol fuel pipe fitting Z7	157
Methyl/ethyl alcohol fuel pump Z3	157
Fuel cell system K27	87
Fuel oil (auxiliary machinery)	
Fuel transfer pump G24	47
Pressure vessel G30	52
Pump G31	52
Purifying unit G25	47
Raw pipe and piping system G26	49
Fuel pipe (methanol and ethanol fuelled ship)	
Methyl/ethyl alcohol fuel pipe Z5	157
Furnace	
Auxiliary boiler G15	45
Main boiler F11	38
Fuse	
Fuse and fuse carrier (overcurrent protective device) K18	85
Fuse holder (switch, disconnecting device, disconnecter) K17	85

G

Gantry crane	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Gas bottle for high pressure CO2 fire smothering system C36	22
Gas compressor (cargo gas compressor - liquefied gas carrier) H7	64
Gas cooler (inert gas system) D14	25
Gas detection system	
Flammable gas detection system C42	22
Fuel cell system K27	88
Liquefied gas carrier H28	68
Oil / FLS or chemical tanker I23	74
Regasification component (FSRU and FSU) H30	69
Gas engine (gas fuelled ship) E13	35
Gas fuelled ship	
Flexible hose assembly (double-wall - gas fuelled ship) U27	140
Gas combustion unit U35	141
Gas detection system U32	140
Gas fuel compressor (gas fuel handling and containment system) U7	136
Gas fuel pipe fittings U16	138
Gas fuel pump U8	137
Gas fuel tank (material for independent liquefied gas fuel tank) U1	135
Gas fuel tank (vent lines on gas fuel tanks and low pressure gas fuel system) U25	140
Gas fuel valve (fuel cell system) K27	88
Gas fuel valve U20	139
Gas fuelled propulsion E13	35
Gas valve unit U21	139
Process and containment system instrumentation U24	140
Supply (integrated gas fuel supply system) U33	141
System vent lines on	
Gas fuel tanks and low pressure gas fuel system U25	140
High pressure gas fuel system U26	140
Gas metering/analyzer skid (regasification component - FSRU and FSU) H30	70
Gas module (synthesis gas module for nitrogen generator system) D18	26
Gas pipe	
Engine using low flashpoint liquid or gas as fuel E13	35
Gas production or liquefaction components (offshore unit - FLNG) L26	104
Gas regeneration and reclaim system (diving system) L24	101
Gas turbine F17	40
Gaseous substances (pressure vessel) G30	51

Gasifier	
Gas fuelled ship U11	137
Liquefied gas carrier H11	65
Gastight shaft bulkhead penetration device	
Gas fuel handling and containment systems (gas fuelled ship) U9	137
Liquefied gas carrier H9	65
Oil / FLS or chemical tanker I4	71
Gauge	
Gauge control and monitoring system and component (inert gas system) D12	25
Level gauge (flammable oil system - auxiliary machinery) G48	61
Gear	
Gas turbine F17	40
Mechanical gear (offshore access system component) L25	103
Reduction gear	
Auxiliary machinery G2	41
Generator package, generating set, compressor package K25	86
Reverse reduction gear intended for propulsion plant G2	41
Safety gear (lifting platform - certification) O5	120
Safety gear (lifting platform - classification) O6	121
Steam turbine F1	37
Steering gear B1	11
Step-up gear G2	41
Turning gear	
Diesel engine E7	32
Steam turbine F4	38
Generator	
Auxiliary machinery	
Diesel engine driving electric generator G11	44
Steam generator or boiler (pressure vessel) G30	51
Steam heated steam generator G21	46
Turbine driving electric generator G10	44
Electrical equipment	
Emergency generator K3	81
Engine driven generator (general network) K2	80
Generating set K25	86
Generator for electric propulsion K1	79
Gipsy-wheel	
Towing and handling equipment B24	17
Windlass (motorized) B6	12
Gland (stern tube sealing gland) G40	57
Glass for window and side scuttle A14	8
Glycol water heater (liquefied gas carrier) H31	70
GPS (position reference system) R2	127
Graphite cast iron and grey cast iron	
Cylinder block E1	27
Cylinder head E1	28
Engine block E1	28
Grey Water Treatment Plan S9	131
Guide (cell-guide - fixed and portable container securing fitting) P1	123
Guide pin and roller	
Pull-in system (riser and mooring pull-in system) L18	94
Towing equipment and anchor handling equipment B24	17
Windlass (motorized windlass) B6	12
Guide rail	
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Gyrocompass (position reference system) R2	127

H

Handling equipment (hook, main shaft, casing or body, winch drum, gipsy-wheel, etc.) B24	17
Hardware	
Automation system N0	109
Smart system V5	144, 145

Hatch cover (large or small hatch cover) B13	13
Hawse pipe B10	12
Head	
Crosshead engine E1	29
Sensing head for automatic fire alarm and fire detection system C15	20
Sprinkler head C13	20
Heading and motion (vessel sensor, dynamic positioning system) R3	127
Heat exchanger	
Boil-off gas handling system	
Liquefied gas carrier H26	68
Offshore unit L26	104
Cargo reliquefaction plant H11	65
Gas fuel supply system U11	137
Gas turbine F17	40
Lubricating oil or fresh water cooler, fuel heater E3	31
Pressure vessel for liquid substance G30	51
Refrigerating installation	
Additional class notation REF M5	106
Auxiliary machinery G35	54
Steam turbine F1	37
Vaporizer (regasification component - FSRU and FSU) H30	69
Heater	
Electric system K20	85
Glycol water heater (liquefied gas carrier) H31	70
Main boiler	
Air heater F11	38
Feed water heater F13	39
Heater of burning unit F16	39
Superheater (heater, tube) F11	38
Heating coil (distillation body and heating coil) G20	46
Heating media (regasification component - FSRU and FSU)	
Pipes and fittings H30	70
Pump H30	69
Heating system (cofferdam - liquefied gas carrier) H31	70
Helideck B27	18
High alloy steel	
Membrane cargo containment system H3	63
Membrane liquefied gas fuel containment system U3	135
High-voltage shore connection system K28	89
Hinge eye and pin (articulation and hydraulic cylinder of split hopper dredger) B21	15
Hoist	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Hollow fibre (nitrogen generator system) D15	25
Hook	
Emergency towing arrangement B22	16
Loose gear	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Supply at sea system O3	118
Towing equipment and handling equipment B24	17
Hopper unit B21	15
Horn skeg for rudder (in forged or cast steel) A6	7
Hose	
Auxiliary machinery	
Flexible hose assembly (fitting ready for installation) G28	50
Flexible hose assembly for hydraulic power installation G42	58
Flexible hose for fuel oil purifying unit G25	47
Flexible hose used for shielding purpose of HP fuel injection pipes G26	49
Bunkering hose	
Gas fuelled ship U19	139
Liquefied gas bunkering ship H18	66
Liquefied hydrogen fuelled ship Y23	153
Methanol and ethanol fuelled ship Z13	158
Methanol bunkering ship (chemical tanker) I28	74

Cargo hose	
Liquefied gas carrier H17	66
Oil / FLS and chemical tanker I13	73
Fire hose C34	22
Flexible hose assembly	
Gas fuelled ship (double-wall flexible hose assembly) U27	140
Hydrogen fuelled ship Y9	152
Methanol and ethanol fuelled ship Z14	158
Floating gas unit (FLNG) - Flexible hose assembly for cryogenic, boil-off gas handling system L26	104
Hydraulic power station for handling of ramp or opening/closing device (flexible hose) B17	14
Liquefied gas carrier - Flexible hose assembly for cryogenic, boil-off gas handling system H29	68
Regasification component (FSRU and FSU) - Flexible and loading/offloading hose H30	69
Transfer hose for supply at sea system O3	118
Hull	
Fixation of aluminium alloy superstructure on steel hull A4	7
Fixation of superstructure on steel hull (transition joint steel/aluminium alloy) A5	7
Hydrant (fire hydrant) C33	22
Hydraulic equipment and system	
Articulation and hydraulic cylinder of split hopper dredger and split hopper unit B21	15
Hydraulic motor and hydraulic pump (auxiliary machinery) G41	57
Hydraulic power station for handling of ramp or opening/closing appliance B17	14
Hydraulic power unit for subsea valve L11	93
Hydraulic system and hydraulic power installation (auxiliary machinery) G42	58
Lifting appliance (certification) O1	115
Lifting appliance (classification) O2	117
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Offshore access system (material and component) L25	103
Offshore handling system (lifting/pulling equipment) L22	97
Pressure vessel for flammable hydraulic oil G30	52
Pull-in system (riser and mooring pull-in system - offshore unit) L18	94
Rudder B2	11
Steering gear B1	11
Supply at sea system O3	118
Towing and anchor handling equipment B24	17
Winch (winch subject to individual assessment) O4	119
Windlass (motorized windlasses) B6	12
Hydrogen	
Fuel cell system K27	87
Hydrogen fuelled ship	
Boil-off gas handling system Y24	154
Bursting disc Y16	152
Compressed hydrogen tank Y1	151
Cryogenic hydrogen tank Y7	151
Expansion bellow Y22	153
Fan for hazardous enclosed space Y10	152
Fire and gas detection system Y11	152
Fire damper Y34	156
Fire fighting system Y26	154
Flexible hose assembly Y9	152
Fuel pipes for gaseous hydrogen fuel with design pressure equal or lower than 10 bar Y17	153
Fuel pipes for gaseous hydrogen fuel with design pressure higher than 10 bar Y18	153
Gas combustion unit Y28	154
Gas valve unit Y27	154
Gaseous hydrogen process and containment sensor Y32	155
Gaseous hydrogen valve Y12	152
Hydrogen engine Y35	156
Hydrogen supply system (condenser, gaifier, vaporizer, process pressure vessel) Y29	154
Inert gas generation system Y25	154
Liquefied hydrogen bunker hose Y23	153
Mechanical joint Y31	155
MEGC Y6	151
Outer pipe of double wall fuel pipe Y19	153
Pipe fitting for liquefied hydrogen Y21	153
Plate and profile for hydrogen tank Y8	151

Pressure regulator Y30	154
Pressure relief valves for piping Y13	152
Pressure relief valves for tank Y14	152
Raw pipe for liquefied hydrogen Y20	153
Thermally activated pressure relief device Y15	152
Type 1 compressed hydrogen cylinder Y2	151
Type 2 compressed hydrogen cylinder Y3	151
Type 3 compressed hydrogen cylinder Y4	151
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Vent line Y33	155
Liquefied hydrogen valve (Liquefied gas carrier) H19	67
Hyperbaric heating / cooling system (diving system) L24	102
I	
ICT cybersecurity infrastructure (information communication technology - cybersecurity equipment) V7	145
Immersion suit (equipment - life-saving appliance) W2	147
Impressed current (offshore unit, cathodic protection system) L5	91
Incinerator (shipboard incinerator) S4	129
Independent cargo tank	
Aluminium alloy plate and profile for independent cargo tank (liquefied gas carrier) H2	63
Liquefied gas carrier H5	63
Steel plate and profile for independent cargo tank (liquefied gas carrier) H1	63
Supporting material for independent cargo tank (liquefied gas carrier) H4	63
Independent liquefied gas fuel tank	
Gas fuelled ship U6	135
Material	
Aluminium alloy plate and profile U2	135
Steel plate and profile U1	135
Supporting material U4	135
Independent Methyl/ethyl alcohol fuel tank (Supporting material for) Z2	157
Independent propulsion and steering installations T3	133
Inductor (foam) C38	22
Inert gas system	
Cargo environmental control	
Blower D6	25
Cooler D14	25
Generator system (boiler flue gas or oil fired inert gas generator) D1	25
Scrubber D5	25
Fire detection	
Fixed instruments for measuring the oxygen content for inert gas systems C19	20
Portable instruments for measuring the oxygen content for inert gas systems C20	20
Generation	
Gas fuelled ship U29	140
Hydrogen fuelled ship Y25	154
Liquefied gas carrier H25	68
Methanol and ethanol fuelled ship Z16	159
Oil (FLS and chemical tanker) I20	74
Inertial system (position reference system) R2	127
Injection (high pressure fuel injection - diesel engine)	
Pipe E1	30
Pump E1	30
Valve E1	30
Inlet (sea inlet) B8	12
Inner ramp (movable deck and inner ramp) B16	14
Instrumentation	
Automation system	
Component related to safety function (computer, PLC's) N8	111
Control and monitoring system for auxiliaries equipment (generating sets, boilers, etc.) N3	109
Electronic speed regulator (AUT notation) N5	110
Fire or gas detection system (detector, control cabinet) N4	110
Installation intended for essential service (AUT notation) N5	110
Machinery monitoring and alarm system N1	109
Propulsion plant remote control system (for diesel engine, turbine, clutches, thrusters, etc.) N2	109

Sensor, control equipment and/or monitoring device (AUT notation) N5	110
Boil-off gas handling system	
Liquefied gas carrier H29	68
Offshore unit L26	104
Cargo process and containment instrumentation	
Liquefied gas carrier H22	67
Oil / FLS and chemical tanker I19	74
Diving system L24	100
Fixed instruments for measuring the oxygen content for inert gas systems C19	20
Gas fuel process and containment system (gas fuelled ship) U24	140
Inert gas system D12	25
Loading instrument or calculator (stability computer)	
Automation systems or additional class notation AUT B20	15
Hull outfitting N10	111
Methyl/ethyl alcohol fuel process and containment system (methanol and ethanol fuelled ship) Z11	158
Portable instruments for measuring the oxygen content for inert gas systems C20	20
Refrigerating installations (level detector, thermometers, pressure detector, ...) M12	107
Regasification component (FSRU and FSU) H30	69
Remote gauging of ballast system (offshore unit) L3	91
Insulation material	
Cabling wire K19	85
Gas fuelled ship U6	135, 136
Liquefied gas carrier H6	63, 64
Passive fire protection (against hydrocarbon or jet fire) C46	23
Regasification component (FSRU and FSU) H30	70
Integrated system	
Computer-based system N6	110
Gas fuel supply system (gas fuelled ship) U33	141
Integrated bridge system (notation SYS-IBS) V1	143
Navigation system N6	110
Intelligent knowledge-based system N9	111
Interface detector (oil-water interface detector, oil and FLS tanker) I27	74
Intermediate cooler and heat exchanger	
Gas turbine F17	40
Steam turbine F1	37
Intermediate receiver (pressure vessel - refrigerating installation) M6	106
Intermediate shaft	
Main propulsion G5	42
Thrust shaft, shaft coupling and rigid shaft coupling G4	41
Internal combustion engine	
Diesel engine E1	27
Driving electric generator G11	44
Mass-produced diesel engine E11	33
Iron casting A17	9
Isolating valve (inert gas system and cargo tank) D10	25

J

Jack (hydraulic jack) G42	58
Jacking system and locking system (offshore unit - self elevating unit) L2	91
Joint	
Expansion joint	
Auxiliary machinery G37	55
Gas fuel handling and containment systems (gas fuelled ship) U17	139
Liquefied gas carrier H15	66
Oil / FLS tanker or chemical tanker I11	72
Regasification component (FSRU and FSU) H30	69
Mechanical joint G36	55
Transition joint (aluminium alloy/steel for fixation of superstructure on steel hull) A5	7
Journal (forged journal - diesel engine) E1	29

K

Kenter shackle (anchor chain cable accessory) B5	12
King post	
Lifting appliance B18	14
Shroud for king post B19	14
Knowledge-based system (intelligent) N9	111

L

Lamp (lighting fitting, fluorescent lamp) K22	85
Lashing equipment (fixed and portable container securing fitting) P1	123
Lashing software P2	123
Launch and recovery system (diving system) L24	103
Level gauge (flammable oil system - auxiliary machinery) G48	61
Level indicator	
Auxiliary boiler G15	45
Pillar (main boiler) F11	39
Level sensor or controller (automation system - AUT notation) N5	110
Life-saving appliance	
Davit W1	147
Equipment	
Distress flare W2	147
Immersion suit W2	147
Life jacket W2	147
Lifebuoy W2	147
Visual signal W2	147
Life raft W1	147
Lifeboat W1	147
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Life-saving appliance (offshore unit) L17	93
Lifting appliance	
Crane and derrick system (certification) O1	114
Crane and derrick system (classification) O2	116
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Offshore unit L6	91
Supply at sea system O3	118
Winch (winch subject to individual assessment) O4	119
Lifting beam (loose gear)	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Lifting platform	
Lifting Platforms (certification) O5	120
Lifting Platforms (classification) O6	121
Lighting	
Lighting fitting K22	85
Low location lighting system C43	23
Liner (cylinder liner - diesel engine) E1	28
Line-throwing appliance (emergency towing arrangement) B22	16
Liquefied gas	
Bunkering hose	
Gas fuelled ship U19	139
Liquefied gas bunkering ship H18	66
Raw pipe and piping system G26	48
Transfer system L23	98
Loading instrument or calculator (stability computer)	
Automation system N10	111
Hull outfitting B20	15
Loading/offloading hoses, flexible (regasification component - FSRU and FSU) H30	69
Local area network LAN (acquisition device - notation DATA-INFRA) V4	143

Locking device	
Corner locking device (fixed and portable container securing fitting) P1	123
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Locking system and jacking system (offshore unit - self elevating unit) L2	91
Longitudinal stay	
Auxiliary boiler G15	45
Main boiler F11	38
Loose gear	
Lifting appliance	
Crane or derrick system (lifting appliance - certification) O1	116
Crane or derrick system (lifting appliance - classification) O2	118
Supply at sea operation O3	118
Winch (winch subject to individual assessment) O4	119
Specific equipment for offshore unit	
Offshore access system component L25	103
Offshore handling system, lifting/pulling equipment L22	97
Towing equipment and anchor handling equipment B24	17
Low flame spread, material (paint, varnish and similar) C6	19
Low location lighting system C43	23
Low pressure CO2 fire smothering system C37	22
Low pressure transfer (regasification component - FSRU and FSU) H30	69
Low-voltage shore connection system K28	89
Lubricating oil	
Cooler	
Heat exchanger E3	31
Steam turbine F9	38
Pressure vessel (fuel oil or flammable hydraulic oil) G30	52
Pump	
Auxiliary machinery G12	44
Independent of diesel engine E2	31
Steam turbine F6	38
Raw pipe and piping system G26	49

M

Machinery (availability of machinery)	
Additional class notation AVM-APS T1	133
Additional class notation AVM-DPS T2	133
Additional class notation AVM-IPS T3	133
Machinery monitoring and alarm system N1	109
Main and emergency switchboard K13	84
Main boiler F11	38
Main bolting (articulation and hydraulic cylinder of split hopper dredger and split hopper units) B21	15
Main condenser (steam turbine) F3	37
Main load-bearing structure	
Main load carrying structural element of winch (drum, flanges, supports or baseplate, shaft) O4	119
Offshore access system component L25	103
Offshore handling system (lifting/pulling equipment) L22	97
Pull-in system (riser and mooring pull-in system) L18	94
Towing and handling equipment B24	17
Windlass (motorized) B6	12
Main propulsion engine (diesel engine) E1	27
Main propulsion shafting G5	42
Main thrust block G3	41
Maintenance (computerized maintenance management systems) N7	110
Manoeuvring valve (steam turbine) F2	37
Man-riding or personnel lifting operation (lifting appliance - classification) O2	116
Mass-produced diesel engine E11	33
Mast	
King post for cargo derrick, derrick post, crane column welded to the ship structure B18	14
Shroud for mast and king post (lifting appliance) B19	14
Wind propulsion system (safety rigging) G45	59

Mast (derrick mast and mast support)	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Supply at sea system O3	118
Material (fire protection)	
Material with low flame spread characteristic including paint and varnish C6	19
Non-combustible material C7	19
Non-readily igniting material for deck covering C9	19
Measuring instrument	
Gas turbine F17	40
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Mechanical joint (hydrogen fuelled ship) Y31	155
Mechanical joint G36	55
Membrane	
Cargo containment system (stainless or high alloy steel - liquefied gas carrier) H3	63
Liquefied gas fuel containment system (gas fuelled ship)	
Stainless or high alloy steel U3	135
Nitrogen generator system (other inert gas system) D15	25
Metal hydride hydrogen storage (fuel cell system) K27	87
Meter	
Control equipment and/or monitoring device (automation system - AUT notation) N5	110
Oil content meter S2	129
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Engine using methyl/ethyl alcohol Z20	159
Fire fighting system Z17	159
Flexible hose assembly Z14	158
Methyl/ethyl alcohol fuel pipe fittings Z7	157
Methyl/ethyl alcohol fuel pump Z3	157
Methyl/ethyl alcohol fuel valve Z8	158
Outer pipe of double wall fuel pipe Z6	157
Pressure relief valves for piping Z10	158
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Process and containment system instrumentation Z11	158
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Methanol bunkering ship (bunkering hose) I28	74
Mist detection (oil) E9	33
Monitoring system	
Automation system (AUT notation) N5	110
Auxiliaries equipment (generating sets, boilers, etc.) N3	109
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Condition monitoring system N7	110
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Cybersecurity alarm and monitoring system V8	145
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Machinery monitoring and alarm system N1	109
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Fire extinction system C39	22
Fire fighting ship J4	77
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Mooring line component (chain, steel wire rope and accessory) L19	94
Offshore oil offloading (transfer arm and line) L23	98
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Motor	
Electric motor for boil-off gas handling system (liquefied gas carrier) H29	68
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Electric motor K5	82
Electrical motor (hydraulic power installation) G42	58
Electro motor (regasification component - FSRU and FSU) H30	69
Hydraulic motor G41	57
Lifting appliance (certification) O2	115
Lifting appliance (classification) O2	117
Motor for electric propulsion K1	79
Supply at sea system O3	118

Motorized windlass B6	12
Movable deck and inner ramp B16	14
Multiple-element gas container (MEGC - hydrogen fuelled ship) Y6	151
Multiplier intended for propulsion plant G2	41

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Navigation system (Integrated bridge system - notation SYS-IBS) V1	143
Network	
Local area network LAN (acquisition device - notation DATA-INFRA) V4	143
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Non-combustible material (fire protection) C7	19
Non-readily igniting material for primary deck covering (fire protection) C9	19
NOx monitoring system S8	131
Nozzle	
Dual-purpose nozzle (fire extinction) C35	22
Fire fighting ship J7	77
Nozzle for fixed pressure water-spraying fire-extinguishing system	
Boiler room C14	20
Deep fat cooking equipment fire-extinguishing system C14	20
Machinery space C14	20
Space intended for the carriage of vehicle and for hangar C14	20
Nut (hull outfitting - bolt, nut and stud) B26	17

O

Offshore access system L25	103
Offshore handling system (lifting/pulling equipment) L22	97
Offshore oil offloading/transfer arm L23	98
Offshore process and piping system (survey rating level A1, A2, A3) L20	94
Oil	
Oil content meter S2	129
Oil discharge monitoring and control system (oil and FLS tanker) I26	74
Oil filtering equipment (15 ppm) S1	129
Oil mist detection (diesel engine) E1	27
Oil mist detection E9	33
Oil offloading (offshore unit - transfer arm) L23	98
Oil pump (independent of diesel engine) E2	31
Oil sealing gland G40	57
Oil separator (refrigerating installation) M6	106
Oil-water interface detector (oil and FLS tanker) I27	74
Oily water separator (15 ppm) S1	129
Onshore power supply (OPS) K28	89
Operating rigging (wind propulsion system) G45	60
Overcurrent protective device K18	85
Overridable power limitation system (EPL and SHaPoLi) G46	61
Overspeed protective device	
Crankcase explosion relief valve and oil mist detection E9	33
Diesel engine E1	27
Oxidant (oxygen or hydrogen as oxidant for fuel cell system) K27	87
Oxyacetylene (raw pipe and piping system) G26	48
Oxygen	
Fixed instrument for measuring the oxygen content for inert gas system C19	20
Oxidant for fuel cell system K27	87
Oxygen analyser (inert gas system) D12	25
Portable instrument for measuring the oxygen content for inert gas system C20	20

P

Padeye (hull outfitting) B18	14
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Paint (material with low flame spread) C6	19
Partition (fire-resisting and fire-retarding division) C1	19
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Hull outfitting B18	14
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Pedestal roller fairlead	
Emergency towing arrangement B22	16
Single point mooring or single buoy mooring terminal Q3	125
Wind propulsion system (safety rigging part) G45	59
Penetration	
Bulkhead seal / Gastight shaft bulkhead penetration device	
Gas fuelled ship U9	137
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Liquefied gas carrier H9	65
Oil / FLS or chemical tanker I4	71
Materials for electrical cables penetrations through H, A or B class divisions C5	19
Pipes penetrating H, A or B class divisions (where they are not of steel or other equivalent material) C3	19
Watertight shaft bulkhead penetration B28	18
Pennant (towing pennant - emergency towing arrangement) B22	16
Personnel lifting or man-riding operation (lifting appliance - classification) O2	116
Pick-up gear (emergency towing arrangement) B22	16
Pin (guide pin - motorized windlass) B6	12
Pinion	
Gas turbine F17	40
Steam turbine F1	37
Pintle (rudder) B2	11
Pipe	
Double and single wall gas pipe (engine using low flashpoint liquid or gas as fuel) E13	35
Piping system	
Automatic closing device (air pipe) G43	58
Burning unit (main boiler) F16	39
Diesel engine	
Fuel Injection pipe E1	30
Hydraulic drive of valve E1	31
Pressure pipe E10	33
Discharge pipe from scrubber to overboard (inert gas system) D9	25
Double wall fuel pipe (fuel cell system) K27	88
Fire fighting ship	
Foam main piping system J2	77
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Material other than steel for pipe penetrating H, A or B class division C3	19
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Fuel cell system K27	88
Fuel pipe for liquid methyl/ethyl alcohol (methanol and ethanol fuelled ship) Z5	157
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Gas fuel pipe fitting U16	138
Gaseous gas fuel pipe (pressure equal or less than 10 bar) U13	138
Gaseous gas fuel pipe (pressure higher than 10 bar) U14	138
Liquefied gas fuel pipe U12	137
Outer pipe of double wall fuel pipes U15	138
Gas turbine F17	40
Hawse pipe B10	12
Hydraulic power installation G42	58
Lifting appliance (certification) O1	115
Lifting appliance (classification) O2	117
Liquefied gas carrier	
Boil-off gas handling system H29	68
Cargo pipe fitting H14	66
Cryogenic piping system (boil-off gas handling system) H29	68
Longitudinally welded stainless steel cargo pipe H13	65
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Methanol and ethanol fuelled ship	
Methyl/ethyl alcohol fuel pipe fitting Z7	157
Offshore unit	
Boil-off gas handling system (FLNG) L26	104
Cargo piping L13	93
Cryogenic piping system (boil-off gas handling system - FLNG) L26	104
Flexible unbounded L7	92
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Cargo pipe fitting I10	72
Cargo pipe of class II (chemical tanker) I7	72
Cargo pipe of class II (oil and FLS tanker) I8	72
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Plastic pipe used as cargo pipe I15	73
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Pipe connected to the collision bulkhead G29	50
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Pipe raw material	
Aluminium alloy A2	7
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Plastic pipe G39	56
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Air and non-flammable gas G26	49
Classification (pipe class) G26	47
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Fitting G26	49
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Fuel oil G26	49
Liquefied gas G26	48
Lubricating oil G26	49
Non-flammable hydraulic oil G26	49
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Plastic pipe	
PVC G26	49
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Reinforced plastic pipe (FRP pipe) G26	49
Steam G26	48
Thermal oil G26	48
Toxic media G26	47
Water G26	49
Refrigerating installation	
Accessory of brine pipe M10	106
Accessory of refrigerant pipe M8	106
Brine pipe M9	106
Minimum requirement G35	54
Refrigerant pipe M7	106
Regasification component (FSRU and FSU)	
Heating media pipe H30	70
Pipe and fitting H30	69
Steam turbine F1	37
Steering gear B1	11
Supply at sea system O3	118
Piston	
Piston crown (cast steel - diesel engine) E1	28
Piston crown (forging - diesel engine) E1	28
Piston rod	
Articulations and hydraulic cylinders of split hopper dredger B21	15
Diesel engine E1	29
Steering gear B1	11
Rudder (hydraulic piston) B2	11
Plastic material (cable tray) K31	89

Plate	
Cargo tank (oil / FLS or chemical tanker) I1	71
Hydrogen fuel tank (hydrogen fuelled ship) Y8	151
Independent cargo tank (liquefied gas carrier)	
Aluminium alloy H2	63
Steel H1	63
Independent liquefied gas fuel tank (gas fuelled ship)	
Aluminium alloy U2	135
Steel U1	135
Main structure	
Aluminium alloy A2	7
Steel A1	7
Membrane cargo containment system (liquefied gas carrier) H3	63
Methyl/ethyl alcohol fuel tank (methanol and ethanol fuelled ship) Z1	157
Refrigerating installation (condenser, heat exchanger or evaporator) M5	106
Regasification component (FSRU and FSU) H30	69
Pneumatic starter	
Diesel engine driving electric generator G13	45
Diesel engine E5	32
Pod housing for azipod steering system A12	8
Podded propulsor (thruster) G34	53, 54
Portable fire-fighting device for stacked container C41	22
Portable fire-fighting devices for ships covered by additional class notation EVFP-2 or EVFP-3 (ship carrying electrical vehicle as cargo) C44	23
Positioning system (dynamic positioning system)	
Control system R1	127
Position reference system (gyrocompass, acoustic system, taut wire, radio location) R2	127
Power system and electrical installation R5	127
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Vessel sensor (heading and motion, wind speed and direction) R3	127
Pourable compound (engine chocking, stern tube chocking) E14	36
Powder system (fire extinction)	
Fixed powder fire-extinguishing system, including powder C11	20
Powder generation system (fire fighting ship) J5	77
Power cable (offshore unit) L7	92
Power limitation system (EPL and SHaPoLi) G46	61
Power system (fuel cell system) K27	87
Powered emergency release coupling (emergency release system)	
Gas fuelled ship U28	140
Liquefied gas bunkering ship H24	68
Methanol and ethanol fuelled ship Z15	159
Methanol bunkering ship I29	75
Prefabricated fire resisting element C31	21
Prepreg (wind propulsion system - raw material) G45	59
Pressure equipment and system	
Pressure gauge (auxiliary boiler) G15	45
Pressure gauge (main boiler) F11	39
Pressure gauge of burning unit (main boiler) F16	39
Pressure sensor and control equipment (automation system - AUT notation) N5	110
Pressure valve (diesel engine) E10	33
Pressure vessel	
Corrosive substance G30	51
Fuel oil, lubricating oil or flammable hydraulic oil G30	52
Gaseous substances G30	51
Heat exchanger G30	51
Liquid substance G30	51
Process pressure vessel (gas fuel supply system) U11	137
Refrigerating installation (auxiliary machinery) G35	54
Refrigerating installation M6	106
Steam generator or boiler G30	51
Suction drum (regasification components) H30	69
Thermal oil G30	51
Toxic substance G30	51
Pressure vessel for human occupancy (diving system) L24	99
Pressure/vacuum safety relief valve for cargo tank (oil / FLS and chemical tanker) I17	73

Primary deck covering (non-readily igniting material - fire protection) C9	19
Prime mover	
Electrical motor K5	82
Gas engine (gas fuel propulsion) E13	35
Gas turbine (propulsion gas turbine) F17	40
Independent system (cooling pump, lubricating oil pump) E2	31
Main diesel engine E1	27
Non electrical (hydraulic motor) G41	57
Steam turbine F1	37
Turbine driving electric generator G10	44
Process piping and system (offshore unit - survey rating level A1, A2, A3) L20	94
Process valve (offshore unit) L10	92
Profile	
Cargo tank (oil / FLS or chemical tanker) I1	71
Hydrogen fuel tank (hydrogen fuelled ship) Y8	151
Independent cargo tank (liquefied gas carrier)	
Aluminium alloy H2	63
Steel H1	63
Independent liquefied gas fuel tank (gas fuelled ship)	
Aluminium alloy U2	135
Steel U1	135
Main structure	
Aluminium alloy A2	7
Steel A1	7
Methyl/ethyl alcohol fuel tank (methanol and ethanol fuelled ship) Z1	157
Regasification component (FSRU and FSU) H30	69
Programmable logic controller (PLC - used for task essential to safety function) N8	111
Propeller	
Built-up propeller G9	43
Controllable pitch propeller (CPP) G9	43
Propeller intended for propulsion G9	43
Propeller shaft G5	42
Propeller shaft liner G5	42
Solid propeller G9	43
Proportioner (foam) C38	22
Propulsion system	
Alternative propulsion system (additional class notation AVM-APS) T1	133
Battery used for propulsion purpose K26	87
Electric propulsion (generator and motor) K1	79
Gas fuelled propulsion (gas engine) E13	35
Gas propulsion turbine F17	40
Independent propulsion system (additional class notation AVM-IPS) T3	133
Main propulsion engine (diesel engine) E1	27
Main propulsion shafting G5	42
Propulsion plant remote control system N2	109
Propulsion steam turbine F1	37
Reduction gear G2	41
Redundant propulsion system (additional class notation AVM-DPS) T2	133
Switchboard for electric propulsion K12	84
Thruster G34	53, 54
Water-jet G34	53, 54
Wind propulsion system G45	59
Propulsor (thruster) G34	53, 54
Protective device (electronic protective device for essential service - AUT notation) N5	110
Pull-in system (riser and mooring pull-in system) L18	94
Pump	
Auxiliary pump of auxiliary condenser G18	46
Ballast pump G23	46
Bilge pump G22	46
Bilge pump within piping system G31	52
Brine and refrigerant pump M3	105
Burning unit (main boiler) F16	39
Cargo offloading pump (offshore unit) L12	93
Cargo pump (liquefied gas carrier) H8	65
Cargo pump (oil / FLS or chemical tanker) I3	71

Circulating pump	
Condenser (refrigerating installation) M2	105
Equipment of refrigerated container ship M11	106
Steam turbine F5	38
Cooling pump (independent of diesel engine) E2	31
Engine driven pump (diesel engine) E1	31
Evaporator and fresh water generator G20	46
Extraction pump F7	38
Feed pump	
Auxiliary boiler G19	46
Main boiler F12	39
Main boiler within piping system G31	52
Fire pump	
Fire extinction system C32	21
Fire fighting ship J1	77
Within piping system G31	52
Forced circulation pump for main boiler within piping system G31	52
Forced circulation pump of main boiler F14	39
Fuel injection pump body (diesel engine) E1	30
Fuel transfer pump G24	47
Gas fuel pump (gas fuelled ship) U8	137
Hydraulic drive of valve (diesel engine) E1	31
Hydraulic pump	
Handling of ramp or opening/closing appliance B17	14
Hydraulic system and hydraulic power installation G42	58
Steering gear B1	11
Within piping system G41	57
Lubricating oil pump	
Auxiliary machinery G12	44
Independent of diesel engine E2	31
Steam turbine F6	38
Methyl/ethyl alcohol fuel pump (methanol and ethanol fuelled ship) Z3	157
Pump tower	
Base support (gas fuelled ship) U37	141
Base support (liquefied gas carrier) H33	70
Cargo piping and supporting structure (liquefied gas carrier) H32	70
Fuel piping and supporting structure (gas fuelled ship) U36	141
Pump within piping system G31	52
Regasification component (liquefied gas carrier) H30	69
Purifying unit (fuel oil purifying unit) G25	47
PVC (plastic pipe) G26	49

Q

Quadrant (steering gear) B1	11
Quick connect disconnect coupler (emergency release system)	
Gas fuelled ship U28	140
Liquefied gas bunkering ship H24	68
Methanol and ethanol fuelled ship Z15	159
Methanol bunkering ship I29	75

R

Radiator (fixed electric radiator) K21	85
Radio location (position reference system) R2	127
Ram	
Ram tensioner (supply at sea system) O3	118
Steering gear B1	11
Ramp	
External ramp B15	14
Inner ramp B16	14
Rating (survey rating of offshore process piping and systems - level A1, A2, A3) L20	94
Raw pipe and piping system G26	47

Receiver	
Air receiver (nitrogen generator system) D17	26
Cargo reliquefaction plant (liquefied gas carrier) H11	65
Gas fuel supply system (gas fuelled ship) U11	137
Intermediate receiver (refrigerating installation) M6	106
Pressure vessel G30	51
Starting air receiver	
Diesel engine driving electric generator G13	45
Main diesel engine E5	32
Recharging station K30	89
Reduction gear	
Auxiliary machinery G2	41
Generator K25	86
Refrigerant pipe	
Additional class notation REF M7	106
Minimum requirement G35	54
Refrigerant pump M3	105
Refrigerant substance	
Additional class notation REF M13	107
Minimum requirement G35	54
Refrigerated container ship (equipment) M11	106
Refrigerating installation	
Additional class notation REF M1	105
Minimum requirement G35	54
Refrigeration/reliquefaction system (boil-off gas - liquefied gas carrier) H29	68
Regasification component (FSRU and FSU) H30	69
Regulation equipment and system	
Diesel engine E9	33
Electronic speed regulator (automation system - AUT notation) N5	110
Gas turbine F17	40
Regulating valve (inert gas system) D11	25
Regulation and control device starter K10	84
Steam turbine F1	37
Reinforcement fibre	
Wind propulsion system (raw material) G45	59
Reinforcement fibre (composite material) A8	7
Relief valve	
Accessory of pipe G27	50
Crankcase explosion relief valve E9	33
Safety relief valve	
Cargo process piping system (liquefied gas carrier) H20	67
Cargo process piping system (oil / FLS or chemical tanker) I16	73
Cargo tank (liquefied gas carrier) H21	67
Gas fuel piping system (gas fuelled ship) U22	139
Gas fuel tank (gas fuelled ship) U23	139
Reliquefaction/refrigeration system (boil-off gas - liquefied gas carrier) H29	68
Remote control equipment and system	
Installation intended for essential service (automation system - AUT notation) N5	110
Propulsion plant remote control system N2	109
Remote gauging of ballast system (offshore unit) L3	91
Remote level indicator (main boiler) F11	39
Rescue boat (life-saving appliance) W1	147
Resin chock (for machinery) E14	36
Resin system	
Wind propulsion system (raw material) G45	59
Resin system (composite material) A8	7
Reverse reduction gear intended for propulsion plant G2	41
Rigging (wind propulsion system)	
Operating rigging G45	60
Safety rigging G45	59
Rigging screw (loose gear)	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Rigid Pipe (riser, umbilical or power cable - offshore units) L7	92

Ring (loose gear)	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Riser	
Flexible bonded or unbonded (offshore unit) L7	92
Offshore handling system (riser pull-in system) L22	97
Rivet (aluminium alloy rivet) A4	7
Rod	
Piston rod (steering gear) B1	11
Steel rod (fixed and portable container securing fitting) P1	123
Steering rod (steering gear) B1	11
Roller	
Guide roller (motorized windlass) B6	12
Pedestal roller fairlead	
Emergency towing arrangement B22	16
Single point mooring or single buoy mooring terminal Q3	125
Pull-in system (riser and mooring pull-in system) L18	94
Stern roller (towing and anchor handling equipment) B24	17
Rope	
Fibre rope	
Cargo handling gear (offshore unit) L16	93
Cargo handling gear B7	12
Deep-water offshore service L14	93
Emergency towing arrangement (offshore unit) L16	93
Emergency towing arrangement B7	12
Mooring line component L19	94
Single point mooring hawser L15	93
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
Lifting platform (certification) O5	120
Lifting platform (classification) O6	121
Offshore access system (material and component) L25	103
Offshore handling system (lifting/pulling equipment) L22	97
Pick-up gear (emergency towing arrangement) B22	16
Rope constituent of shroud for lifting appliance B19	14
Steel wire rope	
Fixed and portable container securing fitting P1	123
Mooring line component L19	94
Towing and anchor handling equipment B24	17
Supply at sea system O3	118
Winch (winch subject to individual assessment) O4	119
Rotary vane steering gear (rotor and housing) B1	11
Rotor and rotating part	
Gas turbine F17	40
Rotary vane steering gear B1	11
Steam turbine rotor F1	37
Rudder	
Coupling bolt B2	11
Hydraulic piston/nut B2	11
Pintle B2	11
Rudder blade B2	11
Rudder horn skeg in forged or cast steel A6	7
Rudder piece in forged or cast steel A6	7
Rudder shaft B2	11
Rudder stock B2	11
Rudder trunk (welded structure fitted on ship structure) A16	8

S

Sacrificial anode (offshore unit - cathodic protection system with sacrificial anode) L4	91
Safety	
Safety gear (lifting platform - certification) O5	120
Safety gear (lifting platform - classification) O6	121

Safety equipment and system	
Accessory of pipe G27	50
Burning unit (main boiler) F16	39
Diesel engine	
Crankcase explosion relief valve E9	33
Oil mist detection E9	33
Speed governor or overspeed protective device E9	33
Fuel cell system (safety relief valve) K27	88
Gas fuelled ship	
Safety relief valve for gas fuel piping system U22	139
Safety relief valve for gas fuel tank U23	139
Gas turbine F17	40
Liquefied gas carrier	
Safety relief valve for cargo process piping system H20	67
Safety relief valve for cargo tank H21	67
Oil / FLS and chemical tanker	
Pressure/Vacuum safety relief valve for cargo tank I17	73
Safety relief valve for cargo process piping system I16	73
Programmable logic controller and computer used for task essential to safety N8	111
Safety device for essential service installation (automation system - AUT notation) N5	110
Safety electrical equipment K23	85
Safety valve	
Auxiliary boiler G15	45
Main boiler F11	38
Regasification component (FSRU and FSU) H30	69
Steam turbine F1	37
Safety rigging (wind propulsion system) G45	59
Salvage tug (towing equipment) B24	17
Sandwich (core material for sandwich composite material) A8	7
Sanitary unit (prefabricated fire resisting element) C31	21
Scavenging and supercharging compressor or blower E8	32
Screw stay	
Auxiliary boiler G15	45
Main boiler F11	38
Scrubber	
Discharge pipe from scrubber to overboard (inert gas system) D9	25
Exhaust gas cleaning system (scrubber unit) S5	130
Inert gas scrubber D5	25
Scuttle (side scuttle)	
Glass for window and side scuttle A14	8
Hull outfitting B11	13
Sea inlet B8	12
Seal (deck water seal - inert gas system) D7	25
Sealing gland (stern tube sealing gland) G40	57
Securing device	
Fixed and portable container securing fitting P1	123
Hatch cover B13	13
Selective catalytic reduction system (SCR) S6	130
Self elevating mechanism (offshore unit) L2	91
Semi-built crankshaft (diesel engine) E1	29
Semiconductor convertor K7	83
Semi-permeable membrane (nitrogen generator system) D15	25
Semi-watertight door B14	13
Sensor	
Boil-off gas handling system	
Liquefied gas carrier H29	68
Offshore unit (FLNG) L26	104
Control equipment and/or monitoring device (automation system - AUT notation) N5	110
Gas fuelled ship (containment sensor) U24	140
Gaseous hydrogen process and containment sensor (hydrogen fuelled ship) Y32	155
Inert gas system (control and monitoring system and component) D12	25
Installation intended for essential service (automation system - AUT notation) N5	110
Methanol and ethanol fuelled ship (containment sensor) Z11	158
Regasification component H30	69
Sensing head for automatic fire alarm and fire detection system C15	20

Vessel sensor (dynamic positioning system) R3	127
Separator	
Cargo reliquefaction plant (liquefied gas carrier) H11	65
Centrifugal separator	
Auxiliary machinery G32	52
Fuel oil purifying unit G25	47
Gas fuel supply system (gas fuelled ship) U11	137
Oily water separator (15 ppm) S1	129
Servo oil system (diesel engine) E1	30
Sewage	
Deck decompression chamber sewage system (diving system) L24	102
Sewage treatment plant S3	129
Shackle	
Anchor chain cable accessory B5	12
Loose gear	
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
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Cardan shaft (flange, crosse, shaft, yoke) G4	41
Gas turbine shaft F17	40
Gastight shaft bulkhead penetration device	
Gas fuelled ship U9	137
Liquefied gas carrier H9	65
Oil / FLS tanker and chemical tanker I4	71
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Main propulsion shafting G5	42
Motorized windlass shaft B6	12
Rigid shaft coupling G4	41
Riser and mooring pull-in system L18	94
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Shaft bearing G6	43
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Shaft coupling G4	41
Steam turbine shaft F1	37
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Shroud for mast and king post (lifting appliance) B19	14
Shut-down electric valve (automation system - AUT notation) N5	110
Side scuttle	
Glass for window and side scuttle A14	8
Hull outfitting B11	13
Single point mooring equipment	
Bow chain stopper Q1	125
Bow fairlead Q2	125
Fibre rope (single point mooring hawser) L15	93
Pedestal roller fairlead Q3	125
Skeg (rudder horn skeg) A6	7
Slewing ring	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
Offshore access system (material and component) L25	103
Slewing ring bearing	
Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
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Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
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Communication software (ship-shore communication system) V2	143
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Main diesel engine E1	27
Spheroidal graphite cast iron	
Cylinder block E1	27
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Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
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Equivalent water-mist automatic sprinkler system C26	21
Sprinkler head for automatic sprinkler system C13	20
Stability computer (loading instrument or calculator)	
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Gas fuelled ship (membrane liquefied gas fuel containment system) U3	135
Starter and starting equipment and system	
Battery (for starting purpose) K9	83
Regulation and control device starter K10	84
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Static convertor (semiconductor convertor or static convertor) K7	83
Stationary part (casting and plate for casing)	
Gas turbine F17	40
Steam turbine F1	37
Stationkeeping (mooring system) L19	94
Stay (longitudinal or screw stay)	
Auxiliary boiler G15	45
Main boiler F11	38
Steam	
Heated steam generator G21	46
Raw pipe and piping system G26	48
Steam generator or boiler (pressure vessel) G30	51
Steam trap (accessory of pipe) G27	50
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Cast steel	
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Bearing transverse girder E1	27
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Gas fuelled ship	
Stainless or high alloy steel for membrane cargo containment system U3	135
Steel plate and profile for independent liquefied gas fuel tank U1	135
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Longitudinally welded stainless steel cargo pipe H13	65
Seamless steel or stainless steel cargo pipe H12	65
Stainless or high alloy steel for membrane cargo containment system H3	63
Steel plate or profile for independent cargo tank H1	63
Methanol and ethanol fuelled ship (steel plate and profile for methyl/ethyl alcohol fuel tank) Z1	157
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Seamless steel or stainless steel cargo pipe (chemical tanker) I6	71
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Raw material and component	
Steel bar, plate, profile or pipe for hull A1	7
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Steel casting for wind propulsion system G45	59
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Lifting appliance (classification) O2	118
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Pod housing (azipod steering system) A12	8
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Stem (rudder) A6	7
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Stern tube	
Auxiliary machinery G8	43
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Stern tube chocking E14	36
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Stopper	
Bow chain stopper (single point mooring) Q1	125
Hatch cover B13	13
Mooring system (offshore unit - stationkeeping) L19	94
Strongpoint (stopping device - emergency towing arrangement) B22	16
Towing and anchor handling equipment (chain and wire stopper) B24	17
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Motorized windlass B6	12
Riser and mooring pull-in system L18	94
Strand jack (offshore handling system) L22	97
Strongpoint (main framing and stopping device - emergency towing arrangement) B22	16
Stud	
Built-up propeller G9	43
Coupling stud (main propulsion shafting) G5	42
Diesel engine	
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Hull outfitting (bolt, nut and stud) B26	17
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Anchor chain cable accessory B5	12
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Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118
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Tackle (hand operated tackle - loose gear)	
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Lifting appliance (classification) O2	118
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Monitoring system and sensors (equipment of refrigerated container ship) M11	106
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Tensioner (ram tensioner - supply at sea system) O3	118
Tensioning (equipment for tensioning of mooring line - offshore handling system) L22	97
Textile or non-textile curtain (fire protection system) C8	19
Thermal oil	
Pressure vessel G30	51
Raw pipe and piping system G26	48
Thermometer	
Auxiliary boiler G15	45
Main boiler F11	39
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Thrust	
Main thrust block G3	41
Thrust shaft (main propulsion shafting) G5	42
Thrust shaft G4	41
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Thruster	
Propulsion and steering G34	53, 54
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Cargo transfer hose	
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Steel/aluminium alloy for fixation of superstructure on steel hull) A5	7
Wind propulsion system (Raw material) G45	59
Transitional source (battery) K8	83
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Lifting appliance (certification) O1	114
Lifting appliance (classification) O2	116
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Tube	
Auxiliary boiler G15	45
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Main boiler F11	38
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Refrigerating installation (condenser, heat exchanger or evaporator) M5	106
Stern tube (main propulsion shafting) G5	42
Stern tube G8	43
Stern tube sealing gland G40	57
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Steam turbine F1	37
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Fire protection (material other than steel for pipe conveying oil or fuel oil) C4	19
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Gas fuel valve K27	88
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Hydraulic power unit for subsea valve L11	93
Process valve and ESD valve L10	92
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Regasification component (FSRU and FSU)	
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Shut-down electric valve (automation system - AUT notation) N5	110
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Ward-Leonard set K4	81
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FLS tanker and oil tanker of 20 000 tons deadweight and above I24	74
Oil tanker of less than 20 000 tons deadweight I25	74
Water	
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Compartment B14	13
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Door B14	13
Hatch cover B13	13
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Lifting appliance (certification) O1	115
Lifting appliance (classification) O2	117
Lifting appliance (winch subject to individual assessment) O4	119
Offshore access system L25	103
Offshore handling system L22	97
Supply at sea system O3	118
Umbilical winch (diving system) L24	103
Winch foundation	
Hull outfitting B18	14
Wind propulsion system G45	59
Windlass (motorized windlass) B6	12
Window	
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Glass for window and side scuttle A14	8
Hull outfitting B11	13
Window casing (prefabricated fire resisting element) C31	21
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Wire rope	
Fixed and portable container securing fitting P1	123
Lifting appliance (certification) O1	116
Lifting appliance (classification) O2	118

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Offshore access system **L25**103
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