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Requirements for Survey of Materials and Equipment for the Classification of Ships and Offshore Units

NR 266

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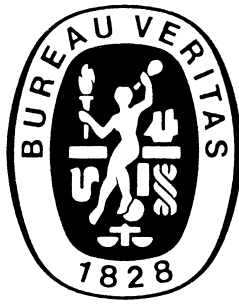
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The following published documents are the reference text for classification:

*NR 266 DT Amd 001 E
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*Amendments
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RULE NOTE NR 266

NR 266
**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 the Rules for the Classification of Steel Ships (NR467)
- Offshore units surveyed by the Society during construction in accordance with the Rules for the Classification of Offshore Units (NR445).
- Naval submarines surveyed by the Society during construction in accordance with the Rules for the Classification of Naval Submarines (NR535), unless otherwise specified therein.
- Naval ships surveyed by the Society during construction in accordance with the Rules for the Classification of Naval Ships (NR483), 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 the Rules for the Classification of Steel Ships (NR467) or Offshore Units (NR445), 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 (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose.

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

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

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

2.2 Explanatory notes, symbols and abbreviations

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

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

“W” indicates that a manufacturer's document is required, stating the results of the tests performed and/or stating compliance with the approved type (as applicable).

“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.

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 the Rules for the Classification of Steel Ships (NR467) and Offshore Units (NR445).

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 Sections of the Rules for the Classification of Steel Ships (NR467) and Offshore Units (NR445).

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

1- 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.

2.a- Equipment for **secondary 'essential services'** (services which need not necessarily be in continuous operation):

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

2.b- Equipment for **secondary 'essential services'** (services for maintaining conditions of habitability for people on board):

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

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

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

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 T), 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
Item A	Raw Materials and Components for Hull
Item B	Hull Outfittings
Item C	Fire Protection, Detection and Extinction Systems
Item D	Cargo Environmental Control, IG (Inert Gas) Systems
Item E	Main Diesel Engines and their Auxiliaries
Item F	Main Turbines, Main Boilers, and their Auxiliaries
Item G	Auxiliary Machinery
Item H	Cargo Handling and Containment Systems of Liquefied Gas Carriers
Item I	Cargo Handling and Containment Systems of Oil / FLS Tankers or Chemical Tankers
Item J	Fire Fighting Ships
Item K	Electrical Equipment
Item L	Specific Equipment for Offshore Units
Item M	Refrigerating Installation covered by Additional Class Notation REF (REF-CARGO, REF-CONT, REF-STORE)
Item N	Automation Systems covered by Additional Class Notation AUT (AUT-UMS, AUT-CCS, AUT-PORT, AUT-IMS)
Item O	Lifting Appliances for Ships with Additional Class Notations ALP or ALM
Item P	Container Lashing Equipment for Ships with Additional Class Notation LASHING
Item Q	Installations covered by Additional Class Notation SPM (Single Point Mooring)
Item R	Installations covered by Additional Class Notation DYNAPOS (Dynamic Positioning)
Item S	Pollution Prevention Installation covered by Additional Class Notation CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations)
Item T	Availability of Machinery covered by Additional Class Notation AVM (AVM-APS, AVM-DPS, AVP-IPS)

Table 1 : Raw Materials and Components for Hull - item A

RAW MATERIALS AND COMPONENTS FOR HULL - ITEM A						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
A1	Steel plates, profiles, bars and pipes for main structure		C (1)		(2)	(1) Approval as per NR216 and NR480 (2) See raw material certification
A2	Aluminium alloy plates, profiles, bars and pipes for main structure		C (1)		(2)	(1) Approval as per NR216 and NR480 (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		C (1)		(2)	(1) Approval as per NR216 (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 NI 590
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; see provisions of NR546 - Hull in Composite Materials and Plywood (2) A representative sample of the structural assembly is to be tested and qualified as per agreed program; relevant tests to be carried out by a testing laboratory accepted by the Society (3) Document type according to the agreed survey scheme - as per conditions set in the DA (4) Type approval or case-by-case approval by the Society; see provisions of NR546, Sec 10
	• 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		C (1)		(2)	(1) Approval as per NR216 (2) See raw material certification
A10	Steel castings		C (1)		(2)	(1) Approval as per NR216 (2) See raw material certification
A11	Steel forgings		C (1)		(2)	(1) Approval as per NR216 (2) See raw material certification

RAW MATERIALS AND COMPONENTS FOR HULL - ITEM A						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
A12	Pod housing for azipod steering system	DA	C	X ndt	C	
A13	Thruster tunnel for transverse tunnel thruster system	DA	C	X ndt	C	

Table 2 : Hull Outfittings - item B

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) For hydraulic pump casings (2) Pumps belonging to class I piping system. See item G31 (3) Proof loading of steering chains and rods (4) To comply with class I piping system. See item G26 (5) Type tests of hydraulic pumps, as per NR467 (6) See also items G30 (Pressure vessels) and G42 (Hydraulic systems) Note: Running tests - under load on board
	1- Pumps (hydraulic pumps)	TA or DA (2) (5)	C (1)	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 (3)	C	
	5- Piping system and components (4) (6)					
B2	Rudder (2)	DA				(1) For streamlined rudder blade of watertight construction (2) Rudders in composite materials: also see provisions of NI 590
	1- Rudder stock, rudder shaft, pintles, coupling bolts		C	X ndt	C	
	2- Rudder blade		C	X h (1)	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	C	(1) Approval as per NR216 and NR480 (2) Approval as per NR216 and NR480 for round bars in grades Q2 or Q3
B5	Anchor chain cable accessories (shackles, kenter shackles and swivels)	(1)	C	X ndt	C	(1) Approval as per NR216 and NR480

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B6	Motorized windlasses	DA (1)		X (4)	C	(1) Or assessment by the mean of type tests according to special conditions. Ref. NR626 - Rule Note for Anchor windlass (2) See item G26 (Piping) and G42 (Hydraulic systems) (3) For electric systems (motors, switchboards, starter cabinets, alarm panels, etc.), refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266, of NR626, and of NR467 (4) Refer to relevant provisions of NR626, Section1, as amended Note: Alternative test methods subject to Society's acceptance / Anchoring tests / load tests on board, as per agreed program -Refer to NR626
	1- Main shaft	DA	C	X ndt	C	
	2- Casing or body, drum / gipsy-wheel, and main load-bearing structures	DA	C	X ndt	C	
	3- Hydraulic systems, Electric systems (2) (3)	DA		X h	C	
	4- Guide roller, Chain stopper (wire stopper), Guide pins	DA	C	X ndt	C	
B7	Fibre ropes (1) (2)			X ndt	C	(1) Include the fibre ropes intended for towing and mooring lines, 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
B8	Sea inlets and outlets distance pieces or pad		C		C (1)	(1) For valves more than 100 mm in diameter
B9	Transducer compartment	DA	C	X h	C	
B10	Hawse pipes (1)		C	X	C	(1) Cast piece
B11	Side scuttles and windows	DA	C	X	C	Note: Hose test on board
B12	Shell doors	DA	C	X ndt	C	Note: Hose test on board
B13	Hatch covers	DA	C	X ndt	C	Note: Hose test on board, for watertight covers
B14	Watertight doors	DA	C	X h ndt	C	Note: Watertight compartments testing on board
B15	External ramp	DA	C	X ndt (1)	C	(1) Watertightness, as applicable: see item B14
B16	Movable deck and inner ramp	DA	C	X ndt	C	

HULL OUTFITTINGS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B17	Hydraulic power station for handling items B11 to B16	DA		X	C	(1) For 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 (2) - Material certificate C for class 1 pressure vessels; see item G30 - Material certificate W for class 2 or 3 pressure vessels; see item G30 (3) For pump housing, material certificates (C / W) according to the piping class. See item G31 (4) See item G28 Note: Other hydraulic power installations: see item G42
	1- Pumps (hydraulic pumps)		C / W (3)	X h	C	
	2- Electrical motors (1)	(1)		X	C / W	
	3- Flexible hose assembly (4)	TA	W	X h	C	
	4- Hydraulic jacks, hydraulic cylinders and accumulators	DA	C / W (2)	X h ndt	C	
B18	Mast and king posts for cargo derricks, derricks posts, crane columns welded to the ship structure (1)	DA	C	X ndt	C	(1) See items O1 and O2
B19	Shrouds for item B18	DA		X (1)	C	(1) Breaking test on specimen
B20	Loading instrument or calculator (1)	TA or DA (2) (3)		X (2) (3)	C / W (3)	(1) Concerns only ships for which the Rules require a loading calculator (2) Ship specific onboard equipment. Requirements as per NR467, Pt B, Ch 10, Sec 2, [4] and NR467, Pt C, Ch 3, Sec 6. Also see relevant provisions of NR266 item K26/N (Automation systems) (3) Loading instrument approval consists of: approval of hardware (unless two computers are available on board for loading calculations only), approval of basic software, approval of application software, and installation testing - as per NR467, Part C, Chapter 3 (Automation systems) Note: Following installation on board with reference to the approved manual; on board tests as per NR467, Pt C, Ch 3, Sec 6

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

HULL 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 (1a) Anchor handling equipment - within the scope of service notation Anchor handling vessel (1b)	DA (2)		X (5) (6)	C	(1a) 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)
	1- Hook		W	X ndt	C	(1b) Intended for towing vessels and/or supply vessels equipped with winches for anchor handling operations - within the scope of service notation Anchor handling vessel (see NR467, Part E, Chapter 1)
	2- Main shaft		C	X ndt	C	(2) Or assessment by the mean of type tests according to special conditions
	3- Casing or body, winch drum / gipsy-wheel if any, and main load-bearing structures		C	X ndt	C	(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 and of NR467
	4- Hydraulic systems, Electric systems (3) (4)	DA		X h	C	(5) Tugs, Salvage tugs, Escort tugs: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 1
	5- Stern roller, Wire stopper, Guide pins	DA	C	X ndt (5)	C	(6) Anchor handling vessels: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 2 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

Table 3 : Fire Protection, Detection and Extinction Systems - item C

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C1	Fire-resisting and fire-retarding divisions and associated doors: Class A, B, H ...					(1) In the case of a discrepancy between the provisions of the applicable International and National statutory regulations and those of the Society's Rules, normally the former take precedence. A valid certification to MED 2014/90/EU (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose
	- fire-resisting and fire-retarding divisions (bulkheads or decks)	TA (1)		X	C / W (2)	(2) As per survey scheme set in the TA
	- associated doors	TA (1)			C / W (2)	
C2	Upholstered furniture, excluding the frame	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C3	Materials for pipes penetrating A or B class divisions (where they are not of steel or other equivalent material)	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C4	Materials other than steel for pipes conveying oil or fuel oil: pipes and fittings, valves, flexible pipe assemblies	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C5	Materials for electrical cables penetrations through A or B class divisions	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C6	Materials with low flame spread characteristic including paints, varnishes and similar, when they are required to have such characteristic	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C7	Non-combustible materials	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C8	Vertically supported textiles	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C9	Primary deck coverings	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C10	Fixed foam fire-extinguishing systems and associated foam-forming liquids	TA (1)		X h ndt	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C11	Fixed powder fire-extinguishing systems, including powder	TA (1)		X h ndt	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C12	Flexible pipes and expansion bellows of non-conventional material for any type of fluid	TA (1)	W	X h ndt	C / W (2)	(1) See also items G28 and G38 (2) As per conditions set in the TA
C13	Sprinkler heads for automatic sprinkler systems	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C14	Nozzles for fixed pressure water-spraying fire-extinguishing systems for machinery spaces, boiler rooms and spaces intended for the carriage of vehicles	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C15	Sensing heads for automatic fire alarm and fire detection systems	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C16	Fixed fire detection and fire alarm systems (3)	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA (3) See item N4
C17	Explosive mixture detecting systems (2)	TA (HBV) (1)			W	(1) See item C1 , remark (1) (2) See item N4
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)
C23	Equivalent water-mist fire-extinguishing systems	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C24	Equivalent fixed gas fire-extinguishing systems	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C25	Fixed local application fire-extinguishing systems	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA

FIRE PROTECTION, DETECTION AND EXTINCTION SYSTEMS - ITEM C						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
C26	Equivalent water-mist automatic sprinkler systems	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C27	Fire extinguishers	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C28	Surface linings (of bulkheads and ceilings) (2)	TA (HBV) (1)			W	(1) See item C1 , remark (1) (2) See item C6
C29	Floor coverings (2)	TA (HBV) (1)			W	(1) See item C1 , remark (1) (2) See item C6
C30	Fire windows	TA (HBV) (1)			W	(1) See item C1 , remark (1)
C31	Prefabricated fire resisting elements (sanitary blocks for example)	TA (1)		X	C / W (2)	(1) See item C1 , remark (1) (2) As per conditions set in the TA
C32	Fire pumps and their prime movers	DA		X (2)	C	(1) 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 (2) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See item G31
	1- Fire pumps		W	X h ndt	C	
	2- Prime movers	(1)	(1)	X (1)	C	
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	DA			C	(1) Vessels: see item G30 (2) Piping: as per relevant provisions of items G26 and G27
	1- Gas bottles (1)	DA	C	X h ndt	C	
	2- Distribution systems (2)	DA	C / W	X h ndt	C	
C37	Low pressure CO ₂ fire smothering storage systems	DA	C	X h ndt	C	

Table 4 : Cargo Environmental Control, IG (Inert Gas) Systems - item D

CARGO ENVIRONMENTAL CONTROL, IG (INERT GAS) SYSTEMS - ITEM D						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
D1	Inert gas generator system: boiler flue gas or oil fired inert gas generators (1)	DA	C	X h ndt	C	(1) See item G15
D2	Burning units for item D1 (1)	DA	(1)	X	C	(1) See item G16 (and item F16)
D3	Uptake valves of main boilers (1)	DA	C / W (1)	X h	C	(1) Considered as class 1 piping accessory: see item G27
D4	Expansion bellows (1)	TA	W	X h ndt	C	(1) See item G38
D5	Inert gas scrubber	DA	C	X h ndt (1)	C	(1) See item G30 for pressure vessels
D6	Blowers	DA		X	C	
D7	Deck water seal	DA		X h	C	
D8	Non return devices supplementing the deck water seal	DA		X	C	
D9	Discharge pipe from scrubber to overboard		C	X h	C	
D10	Isolating valves from IG system and cargo tanks (1)	TA or DA	C / W (1)	X h ndt	C	(1) See item H17 or I14 according to the case
D11	Regulating valves	DA	(1)	X h	C	(1) See item G27 for accessories of pipes (valves and fittings)
D12	Control and monitoring systems and components (gauge, sensors, oxygen analyser, etc...) (1)	TA		X	C / W (2)	(1) See item N5 (2) As per survey scheme set in the TA
D13	Breathing valves or devices	TA		X (1)	C	(1) Setting verification
D14	Inert gas coolers	DA	(1)	X h	C	(1) See item G30 for pressure vessels

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	
D15	Other IG Systems / Nitrogen generator system or N2 gas generator system where inert gas is produced by separation of the air into its component gases: i.e. compressed air processed through a bundle of hollow fibres, semi-permeable membranes or adsorber materials (1)	DA	C	X h ndt	C	(1) The requirements for inert gas systems given in item D1 , applicable to vessels, piping arrangements, alarms and instrumentation downstream of the generator, etc., are to be complied with, as far as applicable
D16	Feed air compressors for item D15 and their prime movers	DA				(1) For electrical motors, refer to item K ; for other systems, refer to relevant provisions of this NR266 and of NR467
	1- Feed air compressors	DA	W	X h (2)	C	(2) Together with dryers if any
	2- Prime movers (1)	(1)	(1)	X (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



Table 5 : Main Diesel Engines and their Auxiliaries - item E

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	Main and auxiliary diesel engines: <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), and (18) (19) (20) (21)	TA (15)		X ndt (16) (17)	C	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 (1) For turbochargers: see item E12 and provisions of NR467, Pt C, Ch 1, Sec 14 (2) Crankcase safety 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] (3) 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] (4) For speed governor and overspeed protective devices, see NR467, Pt C, Ch 1, Sec 2, [2.7] (5) 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) (6) Non-destructive examination means
	1- Welded bedplate		W(Chem+Mech) (5)	W(UT+CD) (6) fit-up + post-welding (11)	C	
	2- Bearing transverse girders GS		W(Chem+Mech) (5)	W(UT+CD) (6) X	C	
	3- Welded frame box		W(Chem+Mech) (5)	W(UT+CD) (6) fit-up + post-welding (11)	C	
	4- Cylinder block GJL (applicable to crosshead engines)			W (7) (8)		
	5- Cylinder block GJS (applicable to crosshead engines)			W (7) (8)		
	6- Welded cylinder frames (applicable to crosshead engines)		W(Chem+Mech) (5)	W(UT+CD) (6) fit-up + post-welding (11)	C	
	7- Engine block GJL (applicable to engines > 400 kW/Cyl.)			W (7) (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	
E1	8- Engine block GJS (applicable to engines > 400 kW/Cyl.)		W(Mech) (5)	W (7) (8)		<p>(7) 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</p> <p>(8) 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</p> <p>(9) Charge air coolers need only be tested on the water side</p> <p>(10) Dimensional inspection, including surface condition</p> <p>(11) Visual inspection by the Surveyor</p> <p>(12) Applicable to engines with D > 300 mm</p> <p>(13) Applicable to engines with D ≤ 300 mm</p> <p>(14) Applicable to all engines with accumulators with a capacity of > 0,5 l</p> <p>(15) Type test: stages A, B and C as per NR467, Pt C, Ch 1, Sec 2</p> <p>(16) NDT as per NR467, Pt C, Ch 1, Sec 2</p> <p>(17) Works trials (factory acceptance tests), as per NR467, Pt C, Ch 1, Sec 2</p> <p>(18) 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 Materials and Welding, Ch 1, Sec 1, [4.2.3])</p> <p>(19) Engines intended for propulsion of lifeboats and compression ignition engines intended for propulsion of rescue boats are to comply with the relevant rule requirements</p>
	9- Cylinder liner (applicable to engines with D > 300 mm)		W(Chem+Mech) (5)	W (7) (8)		
	10- Cylinder head GJL (applicable to engines with D > 300 mm)			W (7)		
	11- Cylinder head GJS (applicable to engines with D > 300 mm)			W (7)		
	12- Cylinder head GS (applicable to engines with D > 300 mm)		W(Chem+Mech) (5)	W(UT+CD) (6) W (7) X	C	
	13- Forged cylinder head (applicable to engines with D > 300 mm)		W(Chem+Mech) (5)	W(UT+CD) (6) W (7) X	C	
	14- Piston crown GS (applicable to engines with D > 400 mm)		W(Chem+Mech) (5)	W(UT+CD) (6) X	C	
	15- Forged piston crown (applicable to engines with D > 400 mm)		W(Chem+Mech) (5)	W(UT+CD) (6) X	C	
	16- Crankshaft: made in one piece		C (Chem+Mech) (5)	W(UT+CD) (6) W (10), Random of fillets and oil bores (11)	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	17- Semi-built crankshaft		See item 18	See item 18	C	(20) Additional requirements for control and safety systems for dual fuel engines are given in NR467, Pt C, Ch 1, App 2 (21) In addition to the requirements of NR467, Pt C, Ch 1, Sec 2, those given in NR467, Pt C, Ch 1, Sec 1 apply
	18- Crank throw		C (Chem+ Mech) (5)	W(UT+CD) (6) W (10), Random of fillets and shrink fittings (11)		
	19- Forged main journal and journals with flange		C (Chem+ Mech) (5)	W(UT+CD) (6) W (10), Random of shrink fittings (11)		
	20- Exhaust gas valve cage (applicable to crosshead engines)			W (7)		
	21- Piston rod, if applicable (applicable to engines with D > 400 mm)		C (Chem+ Mech) (5)	W(UT+CD) (6) CD again after final machining (grinding), Random (11)	C	
	22- Cross head (applicable to crosshead engines)		C (Chem+ Mech) (5)	W(UT+CD) (6) CD again after final machining (grinding), Random (11)	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	 23- Connecting rod with cap		C (Chem+ Mech) (5)	W(UT+CD) (6) W (10), Random of all surfaces, in particular those shot peened (11)	C	
	24- Coupling bolts for crankshaft		C (Chem+ Mech) (5)	W(UT+CD) (6) W (10), Random of interference fit (11)	C	
	25- Bolts and studs for main bearings (applicable to engines with D > 300 mm)		W(Chem +Mech) (5)	W(UT+CD) (6)		
	26- Bolts and studs for cylinder heads (applicable to engines with D > 300 mm)		W(Chem +Mech) (5)	W(UT+CD) (6)		
	27- Bolts and studs for connecting rods (applicable to engines with D > 300 mm)		W(Chem +Mech) (5)	W(UT+CD) (6), TR of thread making (10)		
	28- Tie rod (applicable to crosshead engines)		W(Chem +Mech) (5)	W(UT+CD) (6), TR of thread making (10), Random (11)	C	
	29- High pressure fuel injection pump body			W (7) (12) TR (7) (13)		
	 30- High pressure fuel injection valves (only for those not autofretted)			W (7) (12) TR (7) (13)		

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- High pressure fuel injection pipes including common fuel rail (for those that are not autofretted)		W(Chem +Mech) (5)	W (7) (12) TR (7) (13)		
	32- High pressure common servo oil system		W(Chem +Mech) (5)	W (7) (12) TR (7) (13)		
	33- Cooler, both sides (applicable to engines with D > 300 mm)		W(Chem +Mech) (5)	W (7) (9)		
	34- Accumulator of common rail fuel or servo oil system		W(Chem +Mech) (5) (14)	W (7) (14)		
	35- Piping, pumps, actuators, etc. for hydraulic drive of valves, if applicable (applicable to engines > 800 kW/Cyl.)		W(Chem +Mech) (5)	W (7)		
	36- Engine driven pumps (oil, water, fuel, bilge) (applicable to engines > 800 kW/Cyl.)			W (7)		
	37- Bearings for main, crosshead, and crankpin (applicable to engines > 800 kW/Cyl.)		TR(C) (5), TR(UT for full contact between basic material and bearing metal) (6)	W (10)		
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
	1- Cooling pumps, lubricating oil pumps, independent of E1		C / W (1)	X h	C	(2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	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)

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E4	Exhaust gas-boilers (1)	DA	C	X h ndt	C	(1) See item G15
E5	Starting air receivers of item E1 (1)	DA or TA	C	X h ndt (2)	C	(1) See item G30 for pressure vessels (2) 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) Including coolers, if any (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Air compressors for filling of item E5			X h (1)	C	Note: Under load, on board (capacity)
	2- Prime movers (2)			X h	C	
E7	Turning gears of item E1			X	W	Note: Running test - on board
E8	Scavenging and supercharging compressors or blowers (1)					(1) For turbochargers, refer to provisions of item E12 (2) As per NR467. 'Scavenging air auxiliary compressors or blowers' are considered as equipment for primary 'essential services' (services which need to be maintained in continuous operation)
	1- Auxiliary compressors or blowers (2) (3)	DA or TA (7)	C (4)	X h ndt (5)	C / W (5)	(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) 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 $D \leq 300$ mm
	2- Electrical motors (6)	DA or TA	W (6)	X (6)	C / W (6)	(5) Examination, testing and certification: as per relevant provisions of item E12 (turbochargers) (6) Electrical motors: refer to relevant provisions of item K5 (7) TA as per NR467, Pt C, Ch 1, Sec 14. Type tests as per agreed program
E9	Regulation and safety devices	DA		X (1)	C	(1) During running, load tests

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E10	Pressure pipes (water, lubricating oil, fuel oil, and compressed air pipes), valves and other fittings	(1)	C / W (1)	X h	C	(1) See items G26 and G27
E11	Mass-produced diesel engines (1)	TA (3)	W (2)	X ndt (2) (4)	C (5)	<p>(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</p> <p>(2) The provisions of item E1 regarding survey of engine components and evaluation of test results are to be complied with</p> <p>(3) Type tests as per NR467, Pt C, Ch 1, Sec 2 and program accepted by the Society</p> <p>(4) Works trials as per NR467, Pt C, Ch 1, Sec 2</p> <p>(5) Society certificate, as defined in item E1</p>

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) (11)	DA or 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	DA or TA (3)	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) Categories B and C turbochargers: documentation for approval and type tests as per NR467, Pt C, Ch 1, Sec 14 (4) Category A turbochargers: documentation for approval as per NR467, Pt C, Ch 1, Sec 14
	2- Category B: Turbochargers having served power by cylinder groups > 1000 kW and ≤ 2500 kW	DA or TA (3) HBV	W (5)	X h ndt (6) (7) (8) (9) (10)	W	(5) Chemical composition of material for the rotating parts; mechanical properties of the material of a representative specimen for the rotating parts and the casing (6) Works' inspection and testing as per NR467, Pt C, Ch 1, Sec 14 (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
	3- Category A: Turbochargers having served power by cylinder groups ≤ 1000 kW	DA (4)	W	X h ndt (4)	W	(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 (11) Scavenging/auxiliary compressors or blowers: refer to item E8

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E

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

Table 6 : Main Turbines, Main Boilers, and their Auxiliaries - item F

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

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

MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F11	Main boilers (1) and their accessories	DA		X h	C	(1) See item G30 for pressure vessels
	1- Drums and headers		C	X ndt h	C	(2) If forming or welding
	2- Tubes		C	X h ndt (2)	C	(3) For cylindrical boilers only (internal test)
	3- Furnaces (e.g. cylindrical and vertical boilers)		C	X ndt h (3)	C	(4) For tubes and headers of steam heaters only
	4- Longitudinal stays and screwstays		C	X	C	(5) And accessories, see item G27
	5- Superheaters (heaters, tubes)		C	X ndt h (2)	C	(6) See item G27
	6- Economizers		C	X ndt h	C	(7) Capacity test on prototype
	7- Air heaters (4)		C	X ndt h	C	(8) Setting and accumulation tests
	8- Valves (5)	(5)	C / W (5)	X h	C	(9) See items G26 and G27
	9- Safety valves (6)	DA	C	X h (7) (8)	C	(10) For pressure pipes
	10- Miscellaneous pipes and flanges connecting various parts (headers, superheaters, etc.)		C (9)	X h (10)	C	(11) Accuracy to be checked
	11- Automatic burning system			X h	C	(12) As per conditions set in TA
	12- Level indicator pillars	TA		X h	C	Note: Running tests - on board under load, during sea trials
	13- Remote level indicators	TA		X h	C / W (12)	
14- Pressure gauges and thermometers			X h (11)	C		
F12	Feed pumps of item F11 and their prime movers	DA		X	C	(1) Casing and assembling bolts (centrifugal pumps)
	1- Feed pumps (3)		C (1)	X h (2) (4)	C	(2) Main parts before assembling
	2- Prime movers (5)			X h	C	(3) See item G31 (4) Rotor balancing (centrifugal pumps) (5) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
F13	Feed water heaters (1)	DA	C (2)	X h	C	(1) And steam traps. See item G30 for pressure vessels (2) Casing only (material certificate W, if vessel class 2 or 3) Note: Running tests - on board, during sea trials

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	
F14	Forced circulation pumps of item F11 and their prime movers	DA			C	(1) Casing and assembling bolts (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 (3) See item G31 Note: Running tests - on board during boiler tests
	1- Forced circulation pumps (3)		C (1)	X h	C	
	2- Prime movers (2)			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 (4)			C	(1) See items G26 and G27 (2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 (3) Calibration to be checked (4) DA not required when the burning unit is already design approved as part of F11 / G15 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 (1)		C	X h	W	
	5- Prime movers of 1- (2)			X h	W	
	6- Pressure gauges			X h (3)	W	

MAIN TURBINES, MAIN BOILERS, AND THEIR AUXILIARIES - ITEM F						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
F17	Gas turbines including propulsion gas turbines, gas turbines intended for auxiliary services essential for safety and navigation Item F17 does not apply to mass-produced gas turbines (1)	TA (2)		X (3)	C	(1) 'Mass-produced' gas turbines are to be tested in accordance with agreed programme. The selection of the turbine to be tested from the production line is to be agreed upon with the Surveyor
	1- Rotating parts (compressors and turbine rotors, shafts, stiff and flexible couplings, bolts for couplings and other dynamically stressed parts, integral pinions and gears)		C (6)	X ndt (4) (5)	C	(2) Type tests: stages A, B and C as per NR467 (3) Works trials: shop tests are to be performed as per NR467 (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)
	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	(5) Balancing and overspeed test of rotors
	3- Blades		C (8)	X ndt	C	(6) Material tests (all) and NDT: magnetic particle or liquid penetrant (all) and Ultrasonic or X Ray examination (sample)
	4- Piping, valves and associated fittings	(9)	C / W (9) (10)	X h ndt	C	(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 (10) Material tests and NDT: as required in the relevant Sections of the Rules
	7- Measuring instruments (13)	TA		X (14)	C	(11) Including overspeed tripping device test (12) See item G1
	8- Turbine and nozzle casings		W (6)	X h ndt	C	(13) Such as pressure gauges, thermometers, speed indicators, vibration detectors
	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

Table 7 : Auxiliary Machinery - item G

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 (4)				(1) See item G5 regarding main propulsion shafting components (2) For metallic parts, i.e. shafts, flanges, power transmitting parts: material certificate C. Welds if any to be documented according to agreed specification (3) For hydraulic or pneumatic equipment (4) As a general: when index DA is required, this may be done for a specific unit or using the type approval procedure (TA). Flexible couplings of non-standard type are to be considered on case-by-case basis with the Society
	1- when torque ≥ 1 kNm		C (2)	X h (3)	C	(5) In case of mass-produced items manufactured in series according to a defined type, document type required as stated at the type approval stage - As per conditions set in the TA
	2- when torque < 1 kNm	(5)	W	X h (3)	C / W (5)	
G2	Reduction gears, reverse reduction gears, and multipliers	DA	(1)	X (4)		(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) 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
	1- Reduction and/or reverse gears intended for propulsion plants:					(3) Verification of cutting accuracy, meshing test, hydrostatic tests (hydraulic or pneumatic clutches, pressure piping, pumps casings, valves and other fittings) (4) Survey of shafts and their connections (flange couplings, hubs, bolts pins) as per relevant provisions of item G5
	• with a transmitted power $P \geq 220$ kW		C	X h ndt (2) (3)	C	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 15 for Machinery systems
	• with a transmitted power $P < 220$ kW		W		W	
	2- Other reduction and step-up gears:					
	• with a transmitted power $P \geq 110$ kW		C	X h ndt (2) (3)	C	
• with a transmitted power $P < 110$ kW		W		W		
G3	Main thrust blocks (4)	DA	C (1)	X ndt (2) (3)	C	(1) For frame only (2) If of welded construction (3) Examination after running test (4) See item G5 regarding main propulsion shafting components Note: Running tests under load on board

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G4	Thrust shafts, intermediate shafts, shaft couplings and rigid shaft couplings (dismountable type) (2)	DA	C	X ndt (1)	C	(1) If welded construction or shrunk elements (2) See item G5 regarding main propulsion shafting components Note: a- on board: contact on bearing to be examined b- checking of fitting
	Cardan shafts (flanges, crosses, shafts, yokes) (2)	DA	C	X ndt	C	
G5	Main propulsion shafting (1) (shafts, couplings, clutches and other shafting components transmitting power for main propulsion)	DA		X h ndt (4)	C	(1) For shafting components in diesel engines, turbines, gears and thrusters, refer to relevant items of this NR266 (2) 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) (3) Material tests (all); NDT not required (4) Parts of hydraulic couplings, clutches of hydraulic reverse gears and control units, hubs and hydraulic cylinders of controllable pitch propellers, including piping systems and associated fittings, are to be hydrostatically tested to 1,5 times the maximum working pressure. Works' certificates W required (5) Alignment to be checked on board (6) Sterntubes, when machine-finished, and propeller shaft liners, when machine-finished on the inside and with an overthickness not exceeding 3 mm on the outside, are to be hydrostatically tested to 0,2 N/mm ² . Works' certificates W required (7) For metallic parts, i.e. shafts, flanges, power transmitting parts: material certificate C or W depending on the agreed survey scheme. Welds if any to be documented according to agreed specification (8) See item G1 (9) Stern tube sealing glands: see item G40 (10) Also see relevant provisions of items A10 and A11 (for Steel castings and Steel forgings) (11) For special bolts (i.e. expansion type), product certificate C is required (12) For shafting component completely built under control together with the propulsion shaft and data fully addressed in the main manufacturer's file Note: During sea trials, the lubricant consumption is to be recorded
	1- Coupling (separate from shafts)	DA	C (2)	X ndt	C	
	2- Propeller shafts	DA	C (2)	X ndt	C	
	3- Intermediate shafts	DA	C (2)	X ndt	C	
	4- Thrust shafts	DA	C (2)	X ndt	C	
	5- Cardan shafts (flanges, crosses, shafts, yokes)	DA	C (2)	X ndt	C	
	6- Sterntubes (9)	DA	W (3)(10)	X h ndt (6)	W	
	7- Sterntube bushes and other shaft bearings	DA	W (3)	X	W (12)	
	8- Propeller shaft liners	DA	W (3)	X h (6)	W	
	9- Coupling bolts or studs	DA	W (3)	X	W / C (11)	
	10- Flexible couplings	DA	C / W (3) (7)	X	C / W (8)	
11- Thrust sliding-blocks (frame)	DA	W (3)	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) (4)	X	W / C (1) (3)	(1) Case-by-case individual design appraisal and survey may be required, i.e. when the data of Shaft Bearings are not available in manufacturer's file and are therefore addressed separately by the bearings supplier (2) Material tests (all); NDT not required (3) Product certificate C covers the test performed in the bearings supplier's workshop only, and witnessed by the Surveyor (4) See also provisions of item G5 regarding main propulsion shafting components (sub-item 7- Sterntube bushes and other shaft bearings) Note: Checking of the alignment on board
G7	Coupling bolts for items G1 , G2 , G4 and G5	DA	W (1)	X	W / C (2)	(1) See also provisions of item G5 regarding main propulsion shafting components (2) 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) Sterntubes, 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

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G9	Propellers (1) (10) (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 (6)		X h ndt (4) (5)	C	(1) 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 12); or to propellers for ships with ice strengthening (which are covered in NR467, Pt F, Ch 8, Sec 3) (2) Materials tests and non-destructive examination as per NR216 (3) 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 (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 Materials and Welding, Ch 3, Sec 1, [3.8.4] b- contact of the propellers shaft cone to be checked
	1- Solid propeller	DA	C (2)	X ndt	C	(5) Running test: for controllable pitch propellers (CPP) (6) 'Mass produced' propellers: type approval as per NR467 and program accepted by the Society
	2- Built-up propeller, and controllable pitch propellers (CPP) with hydraulic system. (8) (9)	DA	C (2) (3)	X ndt (7)	C	(7) 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 (8) Actuating systems of CPP are considered as primary 'essential services' (services which need to be maintained in continuous operation) (9) See items G42 (Hydraulic systems) (10) 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
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


AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G12	Lubricating oil pumps and their prime movers (1)					(1) Lube oil pumps for the propulsive plant
	1- Lubricating oil pumps		C / W (2)	X h	C	(2) Pump housing: material certificates (C / W) according to the piping class. See item G31
	2- Prime movers (3)			X h	C	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
G13	Starting air receivers of item G11 (1)	DA or TA	C	X h ndt (2)	C	(1) See item G30 for pressure vessels (2) Including calibration of safety devices
G14	Air compressors for filling of item G13 and their prime movers (1)	DA				(1) Together with coolers, if any
	1- Air compressors		W (2)	X h	C	(2) Compressor housing: material certificates (C / W) according to the piping class. See item G31
	2- Prime movers (3)			X h	C	(3) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
G15	Auxiliary boilers (1)	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) If forming or welding operations (3) For cylindrical boilers only (internal test) (4) See item G27 (5) Capacity test on prototype (6) Setting and accumulation test (7) Calibration to be checked Note: Running tests - on board
	1- Boilers and drums		C	X h ndt (2)	C	
	2- Tubes		C	X h	C	
	3- Furnaces (cylindrical and vertical boilers for instance)		C	X h ndt (3)	C	
	4- Screw stays and longitudinal stays		C	X h	C	
	5- Valves and miscellaneous accessories	(4)	C / W (4)	X h	C	
	6- Safety valves	(4)	C	X h (5) (6)	C	
	7- Level indicators	TA		X	C	
8- Pressure gauges and thermometers			X (7)	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) 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 Note: Running tests on board
	1- Pumps		W (1)	X h	C	
	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) 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- Feed pumps		W (1)	X h	C	
	2- Prime movers (2)			X h	C	
G20	Evaporators, fresh water generators, their auxiliaries and accessories	DA				(1) As per criteria of item G30 Note: Running tests on board; general examination
	1- Distillation bodies and heating coils	DA (1)		X h	C	
	2- Pumps			X h	C	
	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) Pump housing material certificates W: see item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, refer to item K5 (3) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See item G31
	1- Bilge pumps		W (1)	X h (3)	C	
	2- Prime movers (2)			X h	C	
G23	Ballast pumps and their prime movers (1)					(1) Class III piping systems. See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, refer to item K5
	1- Ballast pumps		W	X h	W	
	2- Prime movers (2)			X h	W	
G24	Fuel transfer pumps and their prime movers					(1) Pump housing: material certificates (C / W) according to the piping class. See also item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, refer to item K5
	1- Fuel transfer pumps		C / W (1)	X h	C	
	2- Prime movers (2)			X h	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G25	Fuel oil purifying unit; Centrifugal separator (oil and fuel)	DA or TA		X (1)	C	(1) Running test, possibly with a fuel water mixture
	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) P : Design pressure, in MPa T : Design temperature, in °C ND : Nominal diameter of the pipe, valve or fitting, in mm					(1) General Notes:
	1- Toxic media					<ul style="list-style-type: none"> Piping systems are subdivided into three classes, denoted as class I, class II and class III. Definitions of the classes of piping systems as per NR467, Pt C, Ch 1, Sec 10, Tab 3 (systems not covered by this Tab 3: cargo piping for oil tankers, gas tankers and chemical tankers, and fluids for refrigerating plants) For cargo pipings of specialized ships, see item H for liquefied gas carriers and item I for oil/FLS tankers and chemical tankers. See item G35 for refrigerating installations Valves under static pressure on oil fuel tanks or lubricating oil tanks belong to class II Valves and fittings fitted on the ship side and collision bulkhead belong to class II. See NR467, Pt C, Ch 1, Sec 10, [20.4.3], item b) The open ended pipes, irrespective of T, generally belong to class III (as drains, overflows, vents, exhaust gas lines, boiler escape pipes, etc.) Metallic materials are to be used in accordance with NR467, Pt C, Ch 1, Sec 10, Tab 5 Materials for class I and class II piping systems are to be manufactured and tested in accordance with the appropriate requirements of NR216 (materials for class III piping systems are to be manufactured and tested in accordance with the requirements of acceptable National or International standards or specifications) As general, survey during fabrication is required for all piping systems of welded construction
	Class I: without special safeguards (2), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (2), ND < 50		W	X h ndt (4)	W(4)	
	Class II: not applicable					
	Class III: not applicable					
	2- Corrosive media					
	Class I: without special safeguards (2), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (2), ND < 50		W	X h ndt (4)	W(4)	
	Class II: with special safeguards (2), ND ≥ 100		C	X h ndt (4)	C	
Class II: with special safeguards (2), ND < 100		W	X h ndt (4)	W(4)		
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 (3) heated above flashpoint, or having flashpoint < 60°C Liquefied gas					(2) 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.
	Class I: without special safeguards (2), ND ≥ 50		C	X h ndt (4)	C	
	Class I: without special safeguards (2), ND < 50		W	X h ndt (4)	W(4)	(3) Flammable media generally include the flammable liquids as oil fuel, lubricating oil, thermal oil and flammable hydraulic oil
	Class II: with special safeguards (2), ND ≥ 100		C	X h ndt (4)	C	(4) If of welded construction: raw pipes of class 1 and 2 are to be surveyed during fabrication and after construction by the Surveyor; BV Product certificate C
	Class II: with special safeguards (2), ND < 100		W	X h ndt (4)	W(4)	(5) Pressure and temperature conditions other than those required for class I and class III
	Class III: not applicable					(6) Design pressure for fuel oil systems is to be determined in accordance with NR467, Pt C, Ch 1, Sec 10, Tab 4
	4- Oxyacetylene					(7) Steering gear hydraulic piping system belongs to class I irrespective of p and T
	Class I: irrespective of p, ND ≥ 50		C	X h ndt (4)	C	(8) Including water, air, gases, non-flammable hydraulic oil
	Class I: irrespective of p, ND < 50		W	X h ndt (4)	W(4)	(9) 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: not applicable					
	Class III: not applicable					(10) As per conditions set in the TA
	5- Steam					
	Class I: p > 1,6 or T > 300, ND ≥ 50		C	X h ndt (4)	C	
	Class I: p > 1,6 or T > 300, ND < 50		W	X h ndt (4)	W(4)	
	Class II: other (5), ND ≥ 100		C	X h ndt (4)	C	
	Class II: other (5), ND < 100		W	X h ndt (4)	W(4)	
	Class III: p ≤ 0,7 and T ≤ 170			X h	W	
	6- Thermal oil					
	Class I: p > 1,6 or T > 300, ND ≥ 50		C	X h ndt (4)	C	
	Class I: p > 1,6 or T > 300, ND < 50		W	X h ndt (4)	W(4)	
Class II: other (5), ND ≥ 100		C	X h ndt (4)	C		
Class II: other (5), ND < 100		W	X h ndt (4)	W(4)		
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 (6), lubricating oil, flammable hydraulic oil (7)					
	Class I: $p > 1,6$ or $T > 150$, $ND \geq 50$		C	X h ndt (4)	C	
	Class I: $p > 1,6$ or $T > 150$, $ND < 50$		W	X h ndt (4)	W(4)	
	Class II: other (5), $ND \geq 100$		C	X h ndt (4)	C	
	Class II: other (5), $ND < 100$		W	X h ndt (4)	W(4)	
	Class III: $p \leq 0,7$ and $T \leq 60$			X h	W	
	8- Other media (7) (8)					
	Class I: $p > 4,0$ or $T > 300$, $ND \geq 50$		C	X h ndt (4)	C	
	Class I: $p > 4,0$ or $T > 300$, $ND < 50$		W	X h ndt (4)	W(4)	
	Class II: other (5), $ND \geq 100$		C	X h ndt (4)	C	
	Class II: other (5), $ND < 100$		W	X h ndt (4)	W(4)	
	Class III: $p \leq 1,6$ and $T \leq 200$			X h	W	
	9- Pipes between fuel pumps and diesel engine injectors	TA	C	X h	C	
10- Plastic pipes (9)	TA (9)	C/W (10)	X h (9)	C/W (10)		
G27	Accessories of pipes Valves and fittings (1) (4) ND: Nominal diameter of the pipe, valve or fitting, in mm					(1) Such as valves, steam traps, relief valves, safety devices, etc. (2) DA not required. Valves and accessories are normally to be built in accordance with a recognised standard. Otherwise, they are subject to special consideration for approval by the Society (on a case-by-case basis)
	Class I: $ND \geq 50$ Class II: $ND \geq 100$	(2)	C	X h ndt (3)	C	(3) If of welded construction
	Class I: $ND < 50$ Class II: $ND < 100$	(2)	W	X h ndt (3)	C	(4) For cargo valves : refer to relevant provisions of items H17 and I14 (Cargo handling and containment systems)
	Class III			X h	W	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G28	Flexible hose assembly (1)	TA (3) (6)	W	X h (4)	C (2) (5)	(1) Short length of metallic or non-metallic hose with end fittings ready for installation (2) As per conditions set in the TA (3) Prototype testing: see NR467, Pt C, Ch 1, Sec 10, [2.6] (type approval) and [20.2] (type tests) (4) Each flexible hose together with its connections, is to undergo a hydraulic test under a pressure at least equal to twice the maximum service pressure. (during the test, the flexible hose assembly is to be repeatedly deformed from its geometrical axis) (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 (6) 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)
G29	Pipes, valves and fittings connected to: <ul style="list-style-type: none"> • the ship side • the collision bulkhead • fuel oil and lubricating oil tanks and under static pressure 	DA (2)	C (1)	X h ndt (3)	C	(1) If nominal diameter $ND \geq 100$ mm: material certificate C (class). If nominal diameter $ND < 100$ mm: material certificate W (works') (2) Index DA for nominal diameter ≥ 100 mm (3) If of welded construction
G30	Pressure vessels (1) (5) p : Design pressure, in MPa V : Volume, in litres T : Design temperature, in °C t_A : Actual thickness of the vessel, in mm		(2) (4)		(3)	(1) Item G30 applies to all fired or unfired pressures vessels of metallic construction, all boilers and other steam generators, including the associated fittings and mountings with maximum allowable pressure greater than 0,5 bar above atmospheric pressure; with the exception of those indicated in NR467, Pt C, Ch 1, Sec 3, [1.2.2] which are to be considered on a case-by-case basis. The acceptance of national and international standards as an alternative to the requirements of the Rules may be considered by the Society on a case-by-case basis. Pressure vessels are subdivided into three classes, denoted as class I, class II and class III. Definitions of the classes as per NR467, Pt C, Ch 1, Sec 3, Tab 2 (whenever the class is defined by more than one characteristic, the equipment is to be considered belonging to the highest class of its characteristics, independently of the values of the other characteristics)
	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: $p V \leq 5$ or $V \leq 2$		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	2- Pressure vessels for toxic substances					(2) 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.) (3) 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 (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 (5) For starting air receivers and liquefied gas cargo tanks, see also items E5 and H1
	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: ($V \leq 10$ and $p > 100$) or ($1 < p \leq 50$ 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: $p \leq 0,7$ and $T \leq 150$		W (4)	X h ndt	C	
	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		

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G31	Pumps and compressors within piping systems covered by Sections of NR467, Part C, Chapter 1	(8)				(1) If of welded construction (2) 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
	1- When belonging to a class I piping system	DA (6) (7)	C	X h	C	(3) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10. See items G22 , C32 and J1
	2- When belonging to a class II piping system		W	X h	C	(4) See item F12
	3- Bilge and fire pump (3)	DA (9)	W	X h (3)	C	(5) See item F14
	4- Feed pumps for main boilers (4)	DA (6)	C	X h ndt (1) (2)	C	(6) If not already addressed within the scope of the piping system approval
	5- Forced circulation pumps for main boilers (5)	DA (6)	C	X h	C	(7) Type tests of hydraulic pumps for Steering gears as per NR467. See provisions of item B1
	6- When belonging to one of the following class III piping systems if design pressure exceeds 0,35 MPa: - boiler feed water or forced circulating - fuel oil or other flammable oil - compressed air		W	X h	C	(8) For other pumps and compressors, see additional Rules relevant for related system
	7- When belonging to other class III piping systems			X h	W	(9) DA not applicable to bilge pumps. DA is required for fire pumps. Also see provisions of item C32
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)
G33	Prefabricated pipe lines (1) ND: Nominal diameter of the pipe, valve or fitting, in mm	(3)				(1) Item G33 applies to prefabricated pipes and associated fittings (2) If of welded construction
	• class I and class II with ND ≥ 65 or t ≥ 10	DA	W	X h ndt (2)	C	(3) Valves and accessories are normally to be built in accordance with a recognised standard. Otherwise, they are subject to special consideration for approval by the Society (on a case-by-case basis)
	• class I and class II with ND < 65 and t < 10		W	X h ndt (2)	W	
	• class III where P > 0,35 MPa, as follows: - steam pipes and feed water pipes - compressed air pipes - fuel oil or other flammable oil pipes			X h	W	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G34	<p>Thrusters (1) (9) and their prime movers (6)</p> <p>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)</p> <p>The requirements given in item G34 apply to the following types of thrusters developing a power $P \geq 110$ kW (2):</p>	DA or TA (4)		X h ndt (5)	C	(1) Thrusters: as per NR467 Pt C, Ch 1, Sec 12. 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)
	1- Transverse thrusters intended for manoeuvring	DA	W (7)(8)	X ndt	C	(2) 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 (3) 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 (4) 'Mass produced' propellers may be accepted within the framework of the type approval program of the Society
	2- Thrusters intended for propulsion and steering	DA	C (3)(8)	X ndt	C	(5) 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 (6) 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 (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 (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 (9) 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

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G35	Refrigerating installations on all ships; minimum requirements (1)	DA				(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
	1- Pressure vessels and heat exchangers (2)	DA (3) (4) (7) (8) (11)	C / W (3) (4)	X h ndt	C	(2) See item G30 . Vessels intended to contain ammonia or toxic substances are to be considered as class 1 pressure vessels
	2- Piping systems, refrigerant pipes are to be considered as belonging to the following classes : (5)		(5)			(3) Where ammonia is the refrigerant, copper, bronze, brass and other copper alloys are not to be used)
	- class I: where they are intended for ammonia (NH3) or toxic substances		C (7) (8)	X h ndt (6)	C	(4) Notch toughness of steels used in low temperature plants is to be suitable for the thickness and the lowest design temperature
	- class II: for other refrigerants		C (7) (8)	X h ndt (6)	C	(5) See also item G26
	- class III: for brine		W	X h	W	(6) If of welded construction
	- plastic pipes (9)	TA (9)	W (9)	X h (9)	C (9)	(7) 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)
	3- Refrigerants (10)					(8) Notch toughness of the steels used is to be suitable for the application concerned
- toxic or flammable refrigerants: subject to special consideration by the Society					(9) Use of plastic pipes to be considered by the Society on a case-by-case basis. See item G39	
- ammonia (R717): subject to specific requirements		W		W	(10) <i>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</i>	
- prohibited refrigerants: Methyl chloride, R11-Trichloromonofluoromethane (C Cl3 F), Ethane, Ethylene, and other substances with lower explosion limit in air of more than 3,5%					(11) If not already addressed within the scope of the system drawing approval	

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 (3)	W (2)	X h ndt (4)	W (5)	<p>(1) Mechanical joints, i.e. pipe unions, compression couplings, slip-on joints or similar joints (as per NR467, application of mechanical joints and their acceptable use for each service is depending on the class of piping, pipe dimensions, working pressure and temperature)</p> <p>(2) 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>(3) 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>(4) If of welded construction</p> <p>(5) As per conditions set in the TA</p> <p>Note: The installation of mechanical joints is to be in accordance with the manufacturer's assembly instructions. Where special tools and gauges are required for installation of the joints, they are to be supplied by the manufacturer</p>

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G37	Expansion joints (1)	TA (2) (3) (5) (6)	W	X h ndt (4)	C (5)	<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) Each expansion joint, together with its connections, is to undergo a hydraulic test under a pressure at least equal to twice the maximum service pressure (during the test, the joint is to be repeatedly deformed from its geometrical axis)</p> <p>(5) As per conditions set in the TA. Where an expansion joint is made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing</p> <p>(6) 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>
G38	Expansion bellows (1)	TA	W	X h ndt	C	(1) See relevant provisions of item G37 (Expansion joints)
G39	Plastic pipes (1) (2)	TA (3)	C / W (4)	X h (3)	C / W (4)	<p>(1) Plastics may be used for piping systems belonging to class III in accordance with NR467, Pt C, Ch 1, App 3. The use of plastics for other systems or in other conditions will be given special consideration</p> <p>(2) Plastic includes both thermoplastic and thermosetting plastic materials with or without reinforcement, such as PVC and FRP (reinforced plastics pipes)</p> <p>(3) Type approval of plastic pipes: as per NR467, Pt C, Ch 1, App 3. See item G26</p> <p>(4) As per conditions set in the TA</p>

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G40	Stern tube sealing glands (5) <ul style="list-style-type: none"> • Stern tube seals • Sealing glands • Oil sealing glands 	DA or TA (1) (2) (3)	C / W (4)	X	C / W (4)	(1) Based on the type of shaft and its design, the tailshafts (propeller shafts and tube shafts) may be eligible for modified periodicity of complete survey in service; see NR467, Pt A, Ch 2, Sec 2, [5.5]. Suitable sealing glands are glands which are type-approved by the Society with regard to protection of the sterntube against ingress of water (2) The additional class notation Shaft Monitoring (MON-SHAFT) is assigned only to ships having tailshafts arranged with oil lubricated stern bearing and with approved oil sealing glands; see 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] (3) 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) (4) As per conditions set in the TA (5) See also item G5
G41	Hydraulic motors, hydraulic pumps (1)	DA (2)	C / W (2)	X h	C / W (3)	(1) Within piping systems covered by Sections of 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) For pump housing, material certificates (C / W) according to the piping class. See item G31 (4) For electrical motors, refer to item K5 ; for other electrical systems, refer to relevant provisions of this NR266 and of NR467 (5) See item G28 (6) 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 (7) Specific requirements for Steering gears systems. See item B1 (type tests as per NR467) (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
	1- Pumps (hydraulic pumps)	(7)	C / W (3)	X h	C	
	2- Electrical motors (4)	(4)		X	C / W	
	3- Flexible hose assembly (5)	TA	W	X h	C	
	4- Piping, valves and fittings (6)		C / W (6)	X h ndt	C	
	5- Hydraulic jacks, hydraulic cylinders and accumulators	DA	C / W (8)	X h ndt	C	
G43	Automatic closing devices (air pipe)	TA (HBV)			W	

Table 8 : Cargo Handling and Containment Systems of Liquefied Gas Carriers - item H

CARGO HANDLING AND CONTAINMENT SYSTEMS OF LIQUEFIED GAS CARRIERS - ITEM H						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
H1	Steel plates and profiles for independent cargo tanks	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H2	Aluminium alloy plates and profiles for independent cargo tanks	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H3	Stainless or high alloy steel for membrane cargo containment system	(1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9
H4	Independent cargo tank supporting materials	TA (1)	C (1)	X	C	(1) As per provisions of NR467, Part D, Chapter 9 and relevant provisions of NR216 and NR480 Note: Contacts of cargo tanks to supporting blocks to be checked on board
H5	Insulation materials	TA (1)		X (2)	C / W (3)	(1) In addition the approval of bonding materials, sealing materials, lining constituting a vapour barrier or mechanical protection is to be considered by the Society on a case-by-case basis (2) Where applicable, the insulation system is to be suitable to be visually examined at least on one side (3) As per conditions set in the TA
H6	Cargo gas compressors and their prime movers					(1) As per provisions of NR467, Part D, Chapter 9 (2) According to an agreed program
	1- Cargo gas compressors	TA or DA (1)	C (1) (4)	X h (2)	C	(3) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
	2- Prime movers (3)	(3)	(3)	X (3)	C	(4) Cryogenic pumps & 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)

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

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

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

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

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	
H22	Inert gas generation systems (1)					(1) See item D
H23	Fire prevention materials and arrangements (1)					(1) See item C
H24	Fire fighting systems (1)					(1) See item C
H25	Gas detection system	TA		X	C	
H26	Boil-Off Gas (BOG) Handling system (1) Boil-Off Gas (BOG) Handling system, as part of Refrigeration / Reliquefaction systems	TA (2)		X (3)	C	(1) See relevant provisions of NR467, Pt D, Ch 9, Sec 7, [2] and NR542, Section 13 (2) TA, or DA (on a case-by-case basis) (3) As per agreed program, based on the requirements of IGC Code and/or standards recognized by the Society (4) Heat exchangers (Class 1 vessel) (5) As per conditions set in the TA
	1- Compressor	TA or DA	C	X h ndt	C	
	2- Turbine	TA or DA	C / W	X h ndt	C	
	3- Electric motor	TA or DA	C / W	X	C	
	4- Heat exchangers	DA	C (4)	X h ndt	C	
	5- Sensors, transmitters, flow meters, PT100 and PLC, Circuit breakers, Electric Cables	TA		X	C / W (5)	
	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 belows	TA or DA	C / W	X h ndt	C		

Table 9 : Cargo Handling and Containment Systems of Oil / FLS Tankers or Chemical Tankers - item I

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	
11	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
12	Coating systems of cargo tanks	(1) (2)	W (1)(2)	X (1) (2)	W (1) (2)	(1) Also see item B23 (Corrosion protective coatings) (2) As per relevant provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8
13	Cargo pumps and their prime movers					(1) As per provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8
	1- Cargo pumps	DA or TA (1)	C / W (4)	X h (2)	C	(2) According to an agreed program (3) For electrical motors, refer to item K ; for other prime movers (i.e. steam, hydraulic systems), refer to relevant provisions of this NR266 and of NR467
	2- Prime movers	(3)	(3)	X (3)	C	(4) Cargo pumps (material certificate C or W): • C : for Cast body • W : for Welded construction
14	Gastight shaft bulkhead penetration devices	DA		X h	C	
15	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	C / W (3)	
	2- Prime movers (2)	(2)		X (2)	C	(3) As per conditions set in the TA
16	Seamless steel or stainless steel cargo pipes of class I, for chemical tankers (1) (2)					(1) As per NR467, Pt D, Ch 8, Sec 5, cargo pipes and associated accessories are considered as: • class I, when the design pressure is above 1,5 MPa, or the pipe is intended for toxic substances • class II, when the design pressure is equal to or less than 1,5 MPa, or • class III, when they are open ended or placed inside cargo tanks
	• nominal diameter ND ≥ 25mm		C	X h ndt	C	
	• nominal diameter ND < 25mm		W	X h ndt	C	(2) The provisions given in NR467, Part D, Chapter 8, related to cargo piping, supplement those given in NR467, Pt C, Ch 1, Sec 10, [20] for piping systems

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 16 , 17 and 18)
110	Cargo pipe fittings (1)	DA (4)	C / W (2)	X h ndt (3)	C	(1) Such as elbows, reducers, flanges: same remarks as for items 16 , 17 or 18 , as appropriate (2) - Fittings of class I: material certificate C for ND ≥ 25mm, W for ND < 25 mm - Fittings of class II: material certificate C for ND ≥ 100 mm, W for ND < 100 mm For the definition of class I/class II, refer to relevant provisions of items 16 , 17 (chemical tankers) and 18 (oil/FLS tankers) (3) When the fittings are of welded type, welding procedures are to be examined (4) If not already addressed within the scope of the system approval

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	
I11	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
I12	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
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) (5)					(1) As per NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8 (2) In case of welded construction; when the valves have welded elements, the welding procedures are to be examined (3) 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 1 drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24") (4) Chemical tankers: <ul style="list-style-type: none"> material as per NR216, Ch 2, Sec 4, [7.8.1] for castings, corrosion tests ASTM A262 Practice E (copper-copper sulphate sulphuric) or Practice C (nitric acid), as appropriate, may be required to be carried out on 1 piece per batch; tests in accordance with other recognised standards are subject to agreement by the Society
	<ul style="list-style-type: none"> valves of class I: nominal diameter ND ≥ 25 mm valves of class II: nominal diameter ND ≥ 100 mm 	DA or TA	C (3) (4)	X h ndt (2)	C	
	<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 (2)	C	(5) For definition of class I/class II, refer to relevant provisions of items 16 , 17 (chemical tankers) and 18 (oil/FLS tankers)
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

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	
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
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)	C	X	C	(1) For some equipment, DA is applicable on a case-by-case basis; see item K and relevant provisions of NR467, Part D, Chapter 7 and NR467, Part D, Chapter 8
I20	Inert gas generation systems (1)					(1) See item D
I21	Fire prevention materials and arrangements (1)					(1) See item C
I22	Fire fighting systems (1)					(1) See item C
I23	Gas detection system	TA		X	C	
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)		X	C	(1) For oil / FLS tankers (2) As per NR467, Part D, Chapter 7
I27	Oil-water interface detectors (1)	TA (2)		X	C	(1) For oil / FLS tankers (2) As per NR467, Part D, Chapter 7

Table 10 : Fire Fighting Ships - item J

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 (2)	C	(1) 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) Performance test for bilge and fire pumps according to NR467, Pt C, Ch 1, Sec 10, [20.5.1]. See item G31
	2- Prime movers	(1)	(1)	X (1)	C	
J2	Fire water main, fire foam main, water spray piping systems and their accessories	(1)		X h	C (1)	(1) Requirements according to relevant class of piping. See items G26 and G27
J3	Foam generation systems	DA		X	C	
J4	Water and foam monitors, and their seatings					
	1- Water and foam monitors	TA		X	C	
	2- Seatings	DA		X	C	
J5	Powder generation systems	DA		X	C	
J6	Foam concentrates	TA (HBV)			W	
J7	Water spray nozzles, dual-purpose nozzles	TA (1)			C / W (2)	(1) In the case of a discrepancy between the provisions of the applicable International and National statutory regulations and those of the Society's Rules, normally the former take precedence. A valid certification to MED 2014/90/EU (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose (2) As per conditions set in the TA

Table 11 : Electrical Equipment and Automation Systems- item K

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

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K2	Engine driven generators for the general network of the ship (3) (4)					(1) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	1- power P ≥ 100 kW	DA or TA	W (2) (7)	X (1) (6) (8)	C	(2) Shafts are to be made of material complying with NR216, Ch 2, Sec 3 or, where rolled products are allowed in place of forgings, with NR216, Ch 2, Sec 1 (3) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266 (4) 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 (5) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society (6) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 5 apply
	2- power P < 100 kW	DA or TA (HBV)	W (2) (7)	X (1) (6) (8)	W (5)	(7) 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 (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

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K3	Emergency generators (3) (4)					(1) Testing of electrical generators includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	1- power $P \geq 100$ kW	DA or TA	W (2)	X (1) (6) (7)	C	(2) Shafts are to be made of material complying with NR216, Ch 2, Sec 3 or, where rolled products are allowed in place of forgings, with NR216, Ch 2, Sec 1 (3) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266 (4) 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
	2- power $P < 100$ kW	DA or TA (HBV)	W (2)	X (1) (6) (7)	W (5)	(5) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society (6) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 5 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
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 (3) (4)					(1) Testing of electrical motors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 4, [3]
	1- power $P \geq 100$ kW	DA or TA	W (2) (7)	X (1) (6) (8)	C	(2) Shafts are to be made of material complying with NR216, Ch 2, Sec 3 or, where rolled products are allowed in place of forgings, with NR216, Ch 2, Sec 1 (3) Driving auxiliaries considered as essential. See typical list in Sec 1, [2.4] of this NR266 (4) 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 (5) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society
	2- power $P < 100$ kW	DA or TA (HBV)	W (2) (7)	X (1) (6) (8)	W (5)	(6) If appropriate; where welded parts are foreseen on shafts and rotors, the provisions of NR216, Chapter 5 apply (7) 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 (8) Type tests are to be carried out on a prototype machine or on the first of a batch of machines, and routine tests carried out on the subsequent machines
K6	Transformers intended for essential services					(1) Testing of transformers includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 5, [2]
	1- power $P \geq 100$ kVA (or 60 kVA when single phase)	DA or TA		X (1) (2)	C	(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
	2- power $P < 100$ kVA (or 60 kVA when single phase)	DA or TA (HBV)		X (1) (2)	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 (2) (4) (6)					(1) Testing of semiconductor convertors or static convertors includes Type tests and Routine tests as per NR467, Pt C, Ch 2, Sec 6, [3]
	1- power $P \geq 50$ kW	DA or TA		X (1)	C	(2) Convertors units intended for essential services and UPS units used as alternative and/or transitional source (3) Individual works' certificate is to be issued by the manufacturer and test report submitted to the Society (4) 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
	2- power $P < 50$ kW	DA or TA (HBV)		X (1) (5)	W (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) 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
K8	Batteries used as emergency / or transitional source (1)			X (2)	C	(1) As per NR467, Pt C, Ch 2, Sec 7 (2) 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)			X	C	(1) For propulsion engines, main and emergency generating sets (2) See also item K8 Note: The capacity, autonomy, arrangement and starting sequence are to be verified on board in accordance with the operating conditions
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)

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K11	Electromagnetic couplings (3)	DA		X (1) (2)	C	(1) Dielectric strength test is to be carried out (2) Insulation measurements are to be carried out (3) Intended for propulsive or auxiliary units mentioned in items K2 and K3
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	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
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
	1- Medium or High voltage	TA		X (1) (2)	C / W (3)	(2) Running test at no load (3) As per technology and conditions set in the TA
	2- Low voltage	TA (HBV)			W	Note: Running test under load (on board)
K18	Fuses and fuses carriers, overcurrent protective devices	TA		X (1)	C / W (1)	(1) As per technology and conditions set in the TA
K19	Cables and insulated cabling wires (1)	TA		X (2) (3)	C / W (4)	(1) As per NR467, Pt C, Ch 2, Sec 9 (2) Type tests in accordance with the relevant IEC 60092-3 Series Publications and IEC 60332-1, IEC 60332-3 Category A and IEC 60331 where applicable (3) Routine tests including: visual examination, check of conductor cross-sectional area by measuring electrical resistance, high voltage test, insulation resistance measurement, dimensional checks (as necessary), according to the Rules (4) Product certificate - As per conditions set in the TA (IBV or HBV)
K20	Heaters, electric (3) (4)	DA		X (1) (2)	C	(1) Dielectric strength test is to be carried out (2) Insulation measurements are to be carried out (3) For heating plants of liquid fuel and for water heaters $P \geq 5000$ W (4) See item E3
K21	Fixed electric radiators (3)	DA		X c (1) (2)	C	(1) Dielectric strength test is to be carried out (2) Insulation measurements are to be carried out (3) For passengers ships
K22	Lighting fittings, fluorescent lamps (3)	TA		X c (1) (2) (4)	C	(1) Dielectric strength test is to be carried out (2) Insulation measurements are to be carried out (3) For passengers ships. See item K23 for liquefied gas carriers or tankers safety fittings (4) Tests to be carried out on 1 equipment out of 100 of each type, with a minimum of 5

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

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K25	Generators, Generator set, Generator package (1) (2) (8)	DA		X (3)	C (5)	(1) See relevant provisions of items K1, K2, K3 (Generators), item F17 (Gas turbines), items E1 and E11 (Diesel engines)
	1- Diesel engine or Gas turbine (driver)	(1) (2)	(1) (2)	(1) (2)	C (1) (2)	(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
	2- Generator (electrical generator)	(1) (2)	(1) (2)	(1) (2)	C (1) (2)	(3) As per agreed program (4) Testing and/or document review, as applicable
	3- ECMs, Sensors, Electrical Harnesses, Flexible hoses, Coolers/heaters/filters, Insulation materials, Fuel/lube oil spraying protections, Crankcase relief valves, Turbochargers, Couplings, Local control panels, Voltage regulators, TVA, Enclosure, etc., as applicable (7)	TA or DA (6)	C / W (4)	X (3)	C / W (4)	(5) Final certification for the genset package prior to installation onboard (6) For equipment and components not covered by the individual certifications of the engine and generator (7) See also item G26 (for Piping), G30 (for Vessels), G42 (for Hydraulic systems), and other relevant items of this NR266 (8) The general approach described here may be applied for a Compressor package

ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
K26 	Automation systems (1) (2)	DA / TA (3) (9)		X (3) (9) (12)		(1) As per NR467, Pt C, Ch 3, Sec 1. The requirements apply to automation systems, installed on all ships, intended for essential services as defined in NR467, Ch 2, Sec 1. They also apply to systems required in NR467, Part C, Chapter 1 and NR467, Part C, Chapter 2, installed on all ships. Navigation systems required by SOLAS Chapter V, Radio-communication systems required by SOLAS Chapter IV are not in the scope of these requirements
	1- Automation system components: electrical cables; transformers; rotating machines; electrical converters for primary essential services; switching devices (circuit-breakers, contactors, disconnectors, etc.) and overcurrent protective devices; sensors, alarm panels, electronic protective devices, automatic and remote control equipment, actuators, safety devices for installations intended for essential services (steering, controllable pitch propellers, propulsion machinery, etc.), electronic speed regulators for main or auxiliary engines; computers used for tasks essential to safety; cable trays or protective casings made of plastics materials (thermoplastic or thermosetting plastic materials)	TA (4) (5)	C / W (6) (7)	X (6)	C / W (7)	(2) Requirements for unattended machinery spaces and for additional notations are specified in NR467, Part F. Also see provisions of item N - Automation Systems, additional class notation (AUT) (3) Automation systems intended for essential services are to be tested for type approval, at works and on board, when required. The details of these tests are defined, in each case, after having studied the concept of the automated installations and their construction. A complete test program is to be submitted for approval
	2- Software of computer based systems (computerized systems) - Category III	TA (8) (9)		X (9)	C	(4) Type approved components as per NR467, Ch 2, Sec 15 (5) TA or case-by-case DA based on submission of adequate documentation and execution of tests may also be granted at the discretion of the Society
	3- Software of computer based systems (computerized systems) - Category II	TA (8) (9)		X (9)	C	(6) Fabrication/testing as per relevant provisions of NR467 (7) As per conditions set in the TA
	4- Software of computer based systems (computerized systems) - Category I	TA (HBV) (8) (9) (10)		X (9)	W	(8) System categories I, II and III: NR467, Pt C, Ch 3, Sec 3 [2.3] and Tab 1 shows how to assign system categories based on their effects on system functionality (the exact category being dependent on the risk assessment for all operational scenarios):
	5- Hardware elements included in computer based systems (computerized systems)	TA (9) (11)		X (9)	C	<ul style="list-style-type: none"> Category III: Those systems, failure of which could immediately lead to dangerous situations for human safety, safety of the vessel and/or threat to the environment Category II: Those systems, failure of which could eventually lead to dangerous situations for human safety, safety of the vessel and/or threat to the environment Category I: Those systems, failure of which will not lead to dangerous situations for human safety, safety of the vessel and/or threat to the environment
	6- Loading instruments/stability computer	TA or DA (13) (14)		X (9) (14)	C / W (7) (14)	


ELECTRICAL EQUIPMENT - ITEM K						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
 K26						<p>(9) Design assessment, acceptance tests and surveys requirements as per provisions of NR467, Pt C, Ch 3, Sec 3 and Sec 6</p> <p>(10) Type tests/approval TA (HBV) : if the concerned system is in the scope of Class requirement (BV)</p> <p>(11) Evidence of environmental type testing according to NR467, Pt C, Ch 3, Sec 6, [2.2] regarding hardware elements included in the system and sub-systems shall be submitted to the Society for Category I, II and III computer based systems. This requirement is not mandatory for Category I computer based systems not considered by Class (BV)</p> <p>(12) The construction of systems is to comply with the requirements of NR467, Pt C, Ch 3, Sec 4</p> <p>(13) For loading instrument/stability computer, see NR467, Pt B, Ch 10, Sec 2, [4]. See item B20</p> <p>(14) Loading instrument approval consists of:</p> <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] <p>Note: On board testing according to NR467, Pt C, Ch 3, Sec 6</p>

Table 12 : Specific Equipment for Offshore Units - item L

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L1	Castings (1)	DA	C (2)	X ndt (3)	C	(1) Especially: - cast nodes - connection and articulation parts (2) As per NR216 and NR480 (3) If repairs are to be done, the repair procedure shall be submitted for preliminary examination
L2	Self elevating mechanisms (1) (2)	DA	C (3)	X h ndt (4) (5)	C	(1) Including jacking systems and locking systems for jack-up units; refer to NR445, Offshore Rules (2) Survey of system components to be done as per relevant requirements of NR445, and relevant provisions of this NR266 (i.e. items G26 and G30 for piping and pressure vessels, item K for electrical equipment, etc.) (3) As per NR216 and NR480 (4) For welded construction (5) Proof tests and running as per agreed program
L3	Instrumentation for remote gauging of ballast systems (1)	DA		X (2)	C	(1) Concerning other parts of the ballast systems, refer to NR467 (2) Pressure test for hydraulic systems. As for instrumentation systems, refer to item N5
L4	Cathodic protection systems with sacrificial anodes (1)	DA or TA	W	X (1)	C / W (2)	(1) As per NR445 and NI 423, 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 NI 423, Corrosion Protection of Steel Offshore Units and Installations (2) As per conditions set in the TA
L6	Lifting appliances (1)	DA (3)	C (2)	X	C	(1) As per NR526. See items O2 to O7 concerning additional class notations ALM (2) As per NR216 and NR480 (3) The use of lifting appliance for personnel transfer operations is excluded from the Class approval scope. The use of lifting appliance for personnel transfer is subject to authorization of the relevant Flag administration or relevant offshore regulatory Authorities

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L7	Flexible pipes (non-bonded) for production risers (RIPRO notation) or for drilling units:	(3)				(1) Mechanical tests on end fittings (2) As per an agreed procedure; see NI 364, Non-bonded Flexible Steel Pipes used as Flow-lines (3) See API 17J "Specification for Unbonded Flexible Pipe" and ISO 13628-2 "Subsea flexible pipe systems"
	• Risers	TA	C (1)	X (2)	C	
	• Drilling lines	TA	C (1)	X (2)	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	C	X h ndt	C	(1) See relevant provisions of items H and I 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 1 drum-forgings having thickness > 10 mm, intended for Class I piping systems, typically: all valves of large size (having nominal diameter ≥ 24")
L11	Hydraulic power unit for subsea valves:	DA			C	(1) For electrical motors, refer to item K5 ; for other systems, refer to relevant provisions of this NR266 and of NR445. Piping, valves and fittings as per items G26 and G27
	• Pumps		C / W (4)	X h	C	(2) See item G28
	• Electrical motor (1)	(1)		X	C / W	(3) See item G30
	• Flexible hose assembly (2)	TA	W	X h	C	(4) Pump housing: material certificates (C / W) according to the piping class. See item G31
L12	• Hydraulic jack-accumulator (3)	DA	C / W	X h ndt	C	
	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 lines (1)	DA	C	X h ndt	C	(1) Class 1 piping system; see relevant provisions of items H and I
L14	Bonded flexible pipes and marine hoses	TA or DA	C (1)	X (2)	C	(1) Mechanical tests on end fittings (2) As per an agreed procedure; refer to OCIMF, Guide to Purchasing, Manufacturing and Testing of Loading and Discharge Hoses for Offshore Moorings, within 100 m waterdepth

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L15	Fibre ropes for deep-water offshore services (1)	TA	C	X ndt	C	(1) As per NI 432, Certification of Fibre Ropes for Deepwater Off-shore Services
L16	Fibre ropes for Single Point Mooring hawsers (1) (2)	TA	C	X ndt	C	(1) For offloading buoys and FP(S)O tandem offloading (2) As per NR216, Ch 4, Sec 1, [5.1.2]; see NI 432, Annex 4 and OCIMF, Guidelines for the purchasing and testing of single point mooring hawsers
L17	Fibre ropes other than L15 and L16 , i.e. intended for towing and mooring lines, emergency towing arrangement, cargo handling gear or similar applications (1)					(1) See item B7
L18	<i>LSA equipment: survival crafts, rescue boats, lifebuoys, life jackets, immersion suits, visual signals and other life-saving appliances</i>	(1)		(1)	(1)	(1) <i>Certification of Life-saving appliances is outside the scope of classification. For offshore units intended to be granted the applicable additional class notation LSA, type approval certificates showing compliance with SOLAS requirements are required as well as the associated individual or batch production documents</i>
L19	Pull-in systems (risers and mooring pull-in systems) (1)	DA (1)		X (4)	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) See item G26 (for Piping) and G42 (for Hydraulic systems) (3) 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 (4) Shop tests, as per agreed program. See relevant provisions of NR595, Sec 3 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 (2) (3)	(2)	(2)	X h	C	
	4- Guide roller, Wire stopper, Guide pins	DA	C	X ndt	C	

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L20	Mooring (station keeping) system (1): <ul style="list-style-type: none"> mooring line components (chains, steel wire ropes and accessories) hull mounted equipment (fairleads, stoppers, ...) anchors 	TA or DA (3)	C (2) (3)	X (3)	C	(1) For offshore units intended to be granted the additional class notations POSA, POSA-HR, POSA MU, or POSA JETTY (2) For mooring accessories: forges and foundries are to be approved (3) As per provisions of NR216, NR480 and NR493 - Classification of Mooring Systems for Permanent and Mobile Offshore Units
L21	Process systems on board offshore units (1)	DA or TA (2)	C / W (2) (3)	X (2) (4)	C / W (5)	(1) Only for offshore units intended to be granted the additional class notation PROC (2) As per NR459 (3) The manufacturing/testing of materials should be in accordance with either the relevant provisions of NR445 / NR216 (marine practices), or the provisions of accepted specifications and codes/standards (offshore industry practices) as quoted in NR459. 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 (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 (5) NR459 provides principles and specific requirements for the survey and certification of process systems and equipment; for the purpose, survey ratings (A1, A2, A3) are defined in order to address the scope of survey and certification (these requirements are complementary to those of this NR266)

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

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

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L24	<p>Offshore oil offloading - Transfer arms (1):</p> <ul style="list-style-type: none"> • transfer arms applied in a side-by-side configuration • transfer arms applied in a tandem configuration <p>As a rule, the classification covers the following items:</p> <ul style="list-style-type: none"> - foundations and connections of the transfer system with unit's hull - supporting structures - transfer line and associated equipment including swivels and bearings, when relevant - emergency release system - control/detection systems - equipment for energy supply - mooring and fendering equipment 	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 NI 525, Risk Based Qualification of New Technology. Documentation containing a list of components of the transfer system categorized as new technology and requiring a qualification process is to be submitted</p> <p>(3) As per the relevant provisions of NR216, NR480, NR588, and when deemed necessary, the applicable requirements of:</p> <ul style="list-style-type: none"> - OCIMF "Design and Construction Specification for Marine Loading Arms (Third Edition 1999)" - European Standards EN 1474-1 "Design and testing of marine transfer systems", Part 1 (Design and testing of transfer arms) - EN 1474-3 "Design and testing of marine transfer systems", Part 1 (Offshore transfer systems) <p>Note: Site acceptance tests are to be performed in accordance with the requirements of EN 1474-1, [8.4.8]</p>
L25	Diving systems and equipment (1)	DA (1)	(1)	X (1)	(1)	(1) Survey as per relevant provisions of NR610 for diving systems and equipment

SPECIFIC EQUIPMENT FOR OFFSHORE UNITS - ITEM L						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
L26	Offshore access systems (OAS) materials and components (1)	DA (1)		X (1)	C (1)	(1) NI 629 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 NI 629 are applicable to active and passive offshore access systems (OAS), as defined in NI 629, 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
	1- Main load bearing structure		C	X ndt	C	(2) As per relevant requirements of NR467 and NR445 - See items G26 (Piping) and G42 (Hydraulic systems)
	2- Mechanical gears		C	X	C	(3) Cylinder shell and piston rod only
	3- Bearings		W	X	W	(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
	4- Slewing ring		C	X	C	(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
	5- Connection/disconnection device		W	X	W	(6) Calibration test report, in accordance with an agreed program
	6- Bolts and nuts				W	(7) Product certificate required for active OAS
	7- Hydraulic system components of class I		C (2)	X h ndt	C (2)	(8) As per relevant provisions of this NR266 or in compliance with an international standard. See also item O6
	8- Hydraulic cylinders		C (3)	X h ndt	C	(9) Proof load as per NR526. See also item O
	9- Winches		C	X	C	Note: On board load tests, as per agreed program
	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)			X (8)	C	
14- Loose gear and accessories (9)			X (9)	C		

Table 13 : Refrigerating Installation covered by Additional Class Notation REF (REF-CARGO, REF-CONT, REF-STORE) - item M

REFRIGERATING INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION REF (REF-CARGO, REF-CONT, REF-STORE) - ITEM M						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
M	<ul style="list-style-type: none"> 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 13 (addressed in item G35) which are the minimum requirements mandatory for all ships with refrigerating installations Individual pieces of equipment: shop tests are to be carried out on pumps, fans, electric motors and internal combustion engines forming parts of refrigerating installations, following procedures in accordance with the requirements applicable to each type of machinery. The relevant running data (capacity, pressure head, power and rotational speed, etc.) are to be recorded for each item Pressure tests of components at the workshop include hydrostatic test (strength) and leak test (tightness) as per NR467, Part F, Chapter 7 At least one refrigerating unit of each type installed on board is to be subjected to shop tests in order to ascertain its refrigerating capacity in the most unfavourable temperature conditions expected, or in other temperature conditions agreed by the Society Where the complete unit cannot be shop tested (for instance, in the case of direct expansion installations), alternative test procedures are to be agreed with the Society 					
M1	Refrigerating compressors, and their prime movers	DA				(1) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5 ; diesel engines as per item E1
	1- Refrigerating compressors		C (2)	X h (3)	C	(2) Compressor crankshaft or rotor, couplings, connecting rods and piston rods; compressor liners, cylinder heads and other parts subjected to pressure
	2- Prime movers (1)			X h	C	(3) Including, for refrigerated container ships, checking at works of the performances as per Rules
M2	Condenser circulating pumps, and their prime movers	DA				(1) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Condenser circulating pumps		C / W (3)	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 (1)			X h	C	(3) Pump housing: material certificates (C / W) according to the piping class. See item G31
M3	Brine and refrigerant pumps, and their prime movers	DA				(1) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	1- Brine and refrigerant pumps		C (2)	X h (3)	C	(2) Casing if temperatures ≤ - 40°C
	2- Prime movers (1)			X h	C	(3) Including, for refrigerated container ships, checking at works of the performances as per Rules, where the prime movers have an output exceeding 50 kW
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 (5) (6)	DA		X h ndt (1)	C	(1) Pressure tests as per Rules (2) See items G30 and G35 (3) Except for water side
	1- Body or shell (2)		C	X ndt	C	(4) Individual hydraulic test and non-destructive examination by approved method
	2- Covers		C (3)	X ndt	C	(5) Brine (coolant): requirements as per Pressure vessels criteria. See item G30 (-5, for liquid substances)
	3- Tubes or plates		C	X h (4)	C	(6) Particular attention is drawn to provisions of NR467 Pt F, Ch 7, Sec 1, [7.5] regarding air coolers arrangement
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) Calibration by the manufacturer. The Society reserves the right to require random checks of the calibration
	1- Air ducts and couplings	DA		X h	C	Note: For less important installations, running tests could be made on board
	2- Circulating pumps (1)	DA			C	
	3- Compressors (2)	DA			C	
	4- Temperature monitoring system	DA		X h	C	
5- Temperature sensors (detectors and thermometer)	TA		X (3)	C / W		
M12	Instrumentation (level detector, thermometers, pressure detector, ...)	TA		X (1)	C / W (2)	(1) Calibration by the manufacturer. The Society reserves the right to require random checks of the calibration (2) As per conditions set in the TA

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	
M13	Refrigerants (1)	(2)(3)	W	X	W	(1) For direct refrigerating systems: R12, R21, R22, R113, R114, R134a, R500, R502. The use of refrigerants other than those listed may be authorized by the Society on a case-by-case basis, provided that the physical properties and chemical analysis are clearly stated and the appropriate safety measures are foreseen in the installation design (2) Ammonia (R717) may be used only in indirect system refrigerating plants (3) Restrictions on the selection of refrigerants: see also item G35

Table 14 : Automation Systems covered by Additional Class Notation AUT (AUT-UMS, AUT-CCS, AUT-PORT, AUT-IMS) - item N

AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATION AUT (AUT-UMS, AUT-CCS, AUT-PORT, AUT-IMS) - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N0	Testing of Automation systems as per NR467, Pt F, Ch 3 - Tests of automated installations are to be carried out according to NR467, Pt C, Ch 3, Sec 6 to determine their operating conditions. The details of these tests are defined, in each case, after having studied the concept of the automated installations and their construction. A complete test program is to be submitted for approval. Automation systems are to be tested for type approval, at works and on board, when required. Tests are to be carried out under the supervision of a Surveyor of the Society. Also see provisions of item K26					
N1	Machinery monitoring and alarm systems	TA (1)		X (2)	C / W (3)	(1) As per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 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 (1)		X (2)	C / W (3)	(1) As per NR467, Pt F, Ch 3 and relevant requirements of NR 467, Pt C, Ch 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 (1)		X (2)	C / W (3)	(1) As per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3 (2) According to a program to be agreed with the Society (3) As per conditions set in the TA
N4	Fire or gas detection systems: detectors, control cabinet, ...	TA (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 (or MED96/98/EC as amended for its Annex A1 items) is to be recognised for classification purpose (2) As per conditions set in the TA
N5	Sensors and control equipment and/or monitoring devices such as: pressure or temperature sensors, shut-down electric valves, level sensors, automatic pressure, temperature or level controllers, ...	TA (1)		X (1)	C / W (2)	(1) As per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3 (2) As per conditions set in the TA

AUTOMATION SYSTEMS COVERED BY ADDITIONAL CLASS NOTATION AUT (AUT-UMS, AUT-CCS, AUT-PORT, AUT-IMS) - ITEM N						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
N6	Integrated computer-based system (1)	TA (2)		X (3)	C / W (4)	<p>(1) Integrated system is a system consisting of two or more subsystems having independent functions connected by a data transmission network and operated from one or more workstations (data communication link includes point to point links, instrument net and local area networks, normally used for inter-computer communication on board units. The software and hardware which support the data communication are also included)</p> <p>(2) As per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3</p> <p>(3) According to a program to be agreed with the Society</p> <p>(4) As per conditions set in the TA</p>
N7	Sensors, 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 (1)		X (1)	C / W (2)	<p>(1) As per per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3</p> <p>(2) As per conditions set in the TA</p>
N8	Programmable logic controllers (PLC's) and computers used for tasks essential to safety, all components related to safety functions	TA (1)		X (1) (2)	C / W (3)	<p>(1) Hardware and software type approval and testing as per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3</p> <p>(2) According to a program to be agreed with the Society</p> <p>(3) As per conditions set in the TA</p>
N9	Expert system (1)	DA (2) (3)		X (4)	W	<p>(1) Expert system is an intelligent knowledge-based system that is designed to solve a problem with information that has been compiled using some form of human expertise</p> <p>(2) As per NR467, Pt F, Ch 3 and relevant requirements of NR467, Pt C, Ch 3</p> <p>(3) The expert system software is not to be implemented on a computer linked with essential functions. Expert system software is not to be used for direct control or operation, and needs human validation by personnel on watch</p> <p>(4) According to a program to be agreed with the Society</p>
N10	Automation systems (1)	(1)	(1)	(1)	(1)	(1) General requirements: see item K26

Table 15 : Lifting Appliances for Ships with Additional Class Notations ALP or ALM - item O

LIFTING APPLIANCES FOR SHIPS WITH ADDITIONAL CLASS NOTATIONS ALP or ALM - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O	<p>The following notes apply to all items from O1 to O7:</p> <p>1- Scope and limitation: lifting appliances fitted on ships, floating supports, fixed or mobile offshore platforms, and used at harbour or in offshore conditions (for loading or unloading cargoes, equipment, spare parts or consumables). The use of lifting appliance for personnel transfer operations is excluded from the Class approval scope; the use of lifting appliance for personnel transfer is subject to regulations of the relevant Flag administration.</p> <p>2- For lifting appliances intended for ships <u>with</u> additional class notation ALP, or ALM assigned with construction mark ⚡: the requirements given in item O apply.</p> <p>a) 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.</p> <p>b) The BV product certificate mentioned in a) is required in addition to any other Manufacturer's documents (i.e. material inspection certificates type EN 10204 - 3.1) included in the Manufacturer Record Book.</p> <p>3- For lifting appliances intended for ships <u>without</u> additional class notation ALP or ALM: the requirements given in item O apply, except the following two points:</p> <p>a) The materials are to be identified by certificate "W" (Works') issued by the Manufacturer, and submitted to the Surveyor for review (materials to be in compliance with NR216 or accepted specifications). The Works' certificate issued by the Manufacturer shall indicate the guaranteed chemical and mechanical properties (i.e. may be material inspection certificates type EN 10204-3.1) as well as the results of the tests performed.</p> <p>b) Loose gear (item O4) are to be documented by the Manufacturer with relevant product certificates in accordance with ILO regulations.</p> <p>4- General notes: The applicable requirements for this particular equipment (Cranes) depend on the actual context, which is a mix of Statutory/International regulations and National & Flag Authority regulations for the given ship/marine unit. In this respect, three cases may be found:</p> <p>a) ILO 152 / ILO 160 (disregarding any specific Flag Authority regulations). Voluntary request to Bureau Veritas.</p> <p>b) ILO 152 / ILO 160 + specific National or Flag Authority regulations (i.e. typically: the French Maritime Regulations "Réglementation de la Sécurité des Navires", Division 214). Mandatory as per Ship's flag requirements.</p> <p>c) Classification Rules requirements, as per additional class notation (i.e. ALP, ALM, ...). Mandatory as per Classification requirements.</p> <p>Therefore, a case-by-case examination enables to identify which of the three previous options should be applied to a particular equipment (Crane) for a given ship or offshore unit entitled to fly the Flag of a given State.</p>					

LIFTING APPLIANCES FOR SHIPS WITH ADDITIONAL CLASS NOTATIONS ALP or ALM - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O1	Derricks (1)	DA	(2)	X (3)	C	(1) As per NR526 (2) Materials as per NR216 (3) Shop tests as per agreed program (4) See item B17 (5) For welded construction; the extent and the nature of the non-destructive examinations are subject to the Society's agreement (6) See item O6 (7) May be submitted to individual assessment in separate scope as per item O4 (8) No individual design assessment of winches; the main load carrying structural elements of winches (drum, flanges, supports or baseplate, shaft, etc.) are reviewed as part of item O1 structures (9) Survey of other equipment to be done as per relevant requirements of Rules: i.e. see items G26 and G30 for piping and pressure vessels, item O5 for electrical equipment, etc. Note: Running tests on board as per agreed program
	1- Masts and boom supports (4)		C	X	C	
	2- Derrick booms		C	X ndt (5)	C	
	3- Gooseneck		C	X	C	
	4- Span block trunnions		C	X	C	
	5- Ropes for lifting, span and slewing			X (6)	C	
	6- Loose gear: blocks, hooks, shackles, ...	(7)	C	X ndt	C	
	7- Other component essential for the function of the lifting appliance, or structural items, i.e. winches (if any)	(8) (9)	C	X	C	
O2	Cranes, hoists, gantry cranes, and travelling cranes (1)	DA	(2)	X (3)	C	(1) As per NR526 (2) Materials as per NR216 (3) Shop tests as per agreed program (4) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement (5) See item O6 (6) May be submitted to individual assessment in separate scope as per item O4 (7) No individual design assessment of winches. The main load carrying structural elements of winches (drum, flanges, supports or baseplate, shaft, etc.) are reviewed as part of item O2 structures (8) Survey of other equipment is to be done as per relevant requirements of the Rules: see items G26 and G30 for piping and pressure vessels, item O5 for electrical equipment, etc. (9) Concerning notations ALM , particular attention is to be paid in case where the brake does not operate directly on the winch drum Note: Running tests on board as per agreed program.
	1- Main structure, load carrying structural elements, crane slewing rings, locking devices required for stability of the lifting appliance		C	X ndt (4)	C	
	2- Ropes for lifting and luffing			X (5)	C	
	3- Hydraulic cylinders, piping system of class I		C	X h ndt (4)	C	
	4- Loose gear: blocks, hooks, shackles, ...	(6)	C	X	C	
	5- Other component essential for the function of the lifting appliance, or structural items, i.e. winches (if any)	(7) (8)	C	X (9)	C	

LIFTING APPLIANCES FOR SHIPS WITH ADDITIONAL CLASS NOTATIONS ALP or ALM - ITEM O

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O3	Winches intended for lifting appliances (not documented with O1 and O2), and subject to individual assessment	(2)	(1)	X ndt (3) (4)	C	(1) Materials as per NR216 (2) 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 (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 item O6 (6) Survey to be done as per relevant requirements of the Rules: see items G26 and G30 for piping and pressure vessels, item O5 for electrical equipment, etc. (7) Loose gear (if any), as per item O4
	1- Main load carrying structural elements: drum, flanges, supports or baseplate, shaft, etc.		C	X	C	
	2- Ropes			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	
O4	Loose gear (1)	DA (2)				(1) Includes all items not permanently attached to the structure of the lifting appliances and which are to be tested separately in compliance with NR526 (2) For elements not complying with a Standard (3) Materials as per NR216 (4) For welded construction. The extent and the nature of the non-destructive examinations are subject to the Society's agreement (5) Proof load as per NR526
	1- Blocks, hooks, shackles, swivels, chains, rings, rigging screws, slings, lifting beams, spreader beams		C (3)	X ndt (4) (5)	C	
	2- Hand operated tackles with pitched chains, rings, hooks, shackles and swivels permanently attached to		C (3)	X ndt (4) (5)	C	
	3- Other movable items having similar use that items listed in 1- and 2-		C (3)	X ndt (4) (5)	C	
O5	Motors and electrical equipment used for lifting, topping, slewing or translation of lifting appliance (1) (2)	(1)(2)	(1)(2)	X (1)(2)	C (1)(2)	(1) Electrical motors and equipment to be considered as intended 'for essential services'. Survey requirements as per item K (2) 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

LIFTING APPLIANCES FOR SHIPS WITH ADDITIONAL CLASS NOTATIONS ALP or ALM - ITEM O						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
O6	Ropes intended for lifting appliance					(1) As per NR216. As alternative, tests and checkings 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")
	1- Steel wire ropes		W	X (1)	C	(2) As per NR216
	2- Fibre ropes		W	X (2)	C	
O7	Fixed parts of lifting appliances (crane pedestals, winch foundations, etc.) and elements connecting them with the unit/ship structure		C (1)	X (1)	C (1)	(1) As per relevant provisions of NR467, NR445 and NR216: to be surveyed at the yard during construction by the Surveyors of the Society within the scope of unit/ship classification. Elements to be built in compliance with approved drawings

Table 16 : Container Lashing Equipment for Ships with Additional Class Notation LASHING - item P

CONTAINER LASHING EQUIPMENT FOR SHIPS WITH ADDITIONAL CLASS NOTATION LASHING - ITEM P						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
P1	Cargo fixed lashing equipment (cell-guides, corner locking devices, steel wire ropes or chain lashing, steel rods ...) and mobile lashing/securing equipment (1)					(1) As per NR467, Pt F, Ch 11, Sec 5 (2) As per NR216 (3) As per agreed procedures
	1- Fixed lashing equipment (cell-guides, corner locking devices, steel wire ropes or chain lashing, steel rods, ...)	DA	C (2)	X	W	Note: On board. Running tests of mounting of mobile lashing equipment in accordance with the conditions of operation and the lashing plan arrangement are to be carried out
	2- Mobile lashing/securing equipment	TA (3)	C (2)	X (3)	C	

Table 17 : Installations covered by Additional Class Notation SPM (SINGLE POINT MOORING) - item Q

INSTALLATIONS COVERED BY ADDITIONAL CLASS NOTATION SPM (SINGLE POINT MOORING) - ITEM Q						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
Q	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 previous 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 B21 , provided that the provisions of NR467, Pt F, Ch 11, Sec 4 are complied with (2) As per NR216 (3) Testing as per agreed procedure
Q2	Bow fairleads	DA (2)	C (1)			(1) As per NR216 (2) May be type approved
Q3	Pedestal roller fairleads	DA (1)	W	X	C	(1) May be type approved

Table 18 : Installations covered by Additional Class Notation DYNAPOS (Dynamic Positioning) - item R

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, ...	DA (1)		X (2)	C	(1) As per NR467, Pt F, Ch 11, Sec 6 (2) 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)		X (2)	C	(1) DA as per NR467, Pt F, Ch 11, Sec 6 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) According to an agreed program
R3	Vessel sensors (heading and motion, wind speed and direction)			X (1)	C	(1) 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	(1) See item K and relevant provisions of items E, F and G (i.e. for diesel engines, turbines, etc.)

**Table 19 : Pollution Prevention Installation covered by Additional Class Notation CLEANSHIP
(CLEANSHIP, CLEANSHIP SUPER and other notations) - item S**

POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP (CLEANSHIP, CLEANSHIP SUPER and other notations) - ITEM S						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S1	15 ppm oil filtering equipment, oily water separators	(1) (2)			(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S2	Oil content meter	(1) (2)			(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S3	Sewage treatment plants	(1) (2)			(1) (2)	(1) Statutory equipment. Certification as per Flag State requirements for the concerned vessel applies and is to be submitted to the Society for vessels with additional class notations (2) Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant
S4	Shipboard incinerators	(1) (2)			(1) (2)	(1) 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
S5	EGCS, Exhaust gas cleaning systems (3)	(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 (3) For SO _x , i.e. Sulfur oxides

**POLLUTION PREVENTION INSTALLATION COVERED BY ADDITIONAL CLASS NOTATION CLEANSHIP
(CLEANSHIP, CLEANSHIP SUPER and other notations) - ITEM S**

No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
S6	<i>SCR, Selective catalytic reduction systems</i>	(1) (2)			(1) (2)	(1) <i>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</i> (2) <i>Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant</i>
S7	<i>BWT, Ballast water treatment systems</i>	(1) (2)			(1) (2)	(1) <i>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</i> (2) <i>Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant</i>
S8	<i>Onboard NOx monitoring systems (3)</i>	(1) (2)			(1) (2)	(1) <i>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</i> (2) <i>Additional requirements as per Classification Rules are to be verified using Type approval (TA) or case-by-case Design assessment (DA). Surveys, as relevant</i> (3) <i>For NOx, i.e. nitrogen oxides</i>

Table 20 : Availability of Machinery covered by Additional Class Notation AVM (AVM-APS, AVM-DPS, AVM-IPS) - item T

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) (4)	DA or TA (1) (3)	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 (2) In addition, in the event of fire or flooding casualty in the machinery spaces, the propulsion, steering and power generation capabilities are to remain sufficient to operate the ship in safe conditions. Where a propulsion system becomes inoperative due to a fire or flooding casualty, other propulsion systems are not to be affected by the casualty
	- Propulsion auxiliary systems, and electrical generation and electrical distribution equipment	DA (2)	C or W (1)	X (1)	C or W (1)	

SECTION 3

GENERAL INDEX

1 Key-words and labels (from A to Z)

1.1 Index

1.1.1

Table 1 : General index

Key-words and labels (from A to Z)	Item ref. No.
15 ppm oil filtering equipment - CLEANSHIP notation	S1
Access systems (OAS) materials and components (Offshore)	L26
Accessories (for brine pipes)	M10
Accessories (for refrigerant pipes)	M8
Accessories of pipes	G27
Accessories, cargo pipe fittings, liquefied gas	H13
Accessories, cargo pipes and accessories of class III, for oil / FLS tankers	I9
Accessories, Loose gear and accessories for offshore access systems (OAS)	L26
Accumulator of common rail fuel or servo oil system	E1
Actuators, piping, pumps, etc. for hydraulic drive of valves, if applicable	E1
Additional class notation (AUT), Automated systems	K26, N
Additional class notation ICE CLASS - (Thrusters)	G34
Additional class notation POLAR CLASS , Polar Waters, Icebreakers - (Propellers)	G9
Additives, resin systems (composite materials)	A8
Adhesives for marine structural applications (composite materials)	A8
Air compressors (for filling of item G13), auxiliary engines	G14
Air compressors (for filling of starting air receivers), diesel engines	E6
Air ejectors	F8
Air ejectors (for auxiliary machinery), Auxiliary condensers and theirs tubes	G18
Air ejectors (for auxiliary machinery), Evaporators, Fresh water generators	G20
Air ejectors (for main turbines, main boilers and their auxiliaries)	F8
Air pipe automatic closing devices	G43
Air receivers and process tanks (for item D15), inert gas	D17
Air-cooler fans	M4
Alarm and monitoring systems (AUT notation)	N1
Alternative propulsion system - AVM notation	T1
Alternators (electric generators) for electric propulsion	K1
Alternators (electric generators) for the general network	K2
Alternators, electric generators (emergency)	K3
Aluminium alloy (castings)	A9
Aluminium alloy (plates and profiles for independent cargo tanks), liquefied gas	H2
Aluminium alloy (plates, profiles, bars and pipes for main structure)	A2
Anchor chain cable	B4
Anchor handling equipment (within the scope of service notation Anchor handling vessel)	B24

Key-words and labels (from A to Z)	Item ref. No.
Anchors	B3
Anchors (mooring system)	L20
Articulations (of split units)	B21
Automatic closing devices (air pipe)	G43
Automation system components	K26
Automation systems - System categories I, II and III	K26
Auxiliary compressors or blowers - Scavenging and supercharging, Diesel engines	E8, E12
Auxiliary units of item G17	G18
Azipod steering system (pod housing)	A12
Ballast pumps	G23
Ballast water treatment systems (BWT) - CLEANSHIP notation	S7
Batteries (for emergency or transitional source)	K8
Batteries (for starting purposes)	K9
Battery chargers	K24
Bearing transverse girders GS	E1
Bearings (shafts)	G6
Bearings for main, crosshead, and crankpin	E1
Bearings, for offshore access systems (OAS)	L26
Bedding components	C22
Bedplate, Welded bedplate	E1
Bilge pumps	G22
Blowers (inert gas)	D6
BOG - Boil-Off Gas Handling system, as part of Refrigeration / Reliquefaction systems	H26, H10
Boil-Off Gas (BOG) Handling system	H26, H10
Boilers (auxiliary)	G15
Boilers (main)	F11
Bolts and nuts, for offshore access systems (OAS)	L26
Bolts and studs for connecting rods	E1
Bolts and studs for cylinder heads	E1
Bolts and studs for main bearings	E1
Bolts, Coupling bolts for crankshaft	E1
Bolts, Studs and bolts for diesel engine parts (main and auxiliary)	E1
Bonded flexible pipes, offshore	L14
Bow chain stoppers (SPM notation)	Q1
Bow fairleads (SPM notation)	Q2
Bower anchors	B3
Breathing valves or devices (inert gas)	D13
Brine and refrigerant pumps	M3
Brine pipes	M9
Brine pipes (accessories)	M10
Burners (for auxiliary boilers)	G16
Burners (for IG system)	D2
Burners (of main boilers)	F16
Burning units (for auxiliary boilers)	G16
Burning units (for IG system)	D2
Burning units (of main boilers)	F16

Key-words and labels (from A to Z)	Item ref. No.
BWT, Ballast water treatment systems - CLEANSHIP notation	S7
Cables (electric)	K19
Cabling wires	K19
Calculator / Loading instrument	K26, B20
Cardan shafts	G4
Cargo gas compressors, liquefied gas	H6
Cargo hoses, liquefied gas	H16
Cargo hoses; for chemical, oil / FLS tankers	I13
Cargo lashing equipment	P1
Cargo lines (offshore)	L13
Cargo offloading pumps (offshore)	L12
Cargo pipe fittings, for oil / FLS tankers	I10
Cargo pipe fittings, liquefied gas	H13
Cargo pipes and accessories of class III, for oil / FLS tankers	I9
Cargo pipes of class II, for chemical tankers	I7
Cargo pipes of class II, for oil / FLS tankers	I8
Cargo pumps (for chemical, oil / FLS tankers)	I3
Cargo pumps, liquefied gas	H7
Cargo tanks for liquefied gas (aluminium alloy plates and profiles, materials)	H2
Cargo tanks for liquefied gas (steel plates and profiles, materials)	H1
Cargo valves, liquefied gas	H17
Cargo valves; for chemical, oil / FLS tankers	I14
Castings, offshore (cast nodes, connections ...)	L1
Catalyser (composite materials)	A8
Cathodic protection systems (impressed currents), offshore	L5
Cathodic protection systems (sacrificial anodes), offshore	L4
Centrifugal separator (oil and fuel)	G25
Centrifugal separators	G32
Chain cable (anchor)	B4
Chain stoppers, bow (SPM notation)	Q1
Chains, loose gear (for lifting appliances)	O4
Chargers (battery)	K24
Circuit breakers	K15
Circulating pumps (brine and refrigerant)	M3
Circulating pumps (condenser)	M2
Circulating pumps, main condensers	F5
Clutches (for propulsive and auxiliary plants)	G1
CO ₂ fire smothering storage systems (low pressure)	C37
CO ₂ fire smothering systems (high pressure)	C36
Coating (epoxy or equivalent)	B23
Coating systems (of cargo tanks), for chemical, oil / FLS tankers	I2
Common rail, Accumulator of common rail fuel or servo oil system	E1
Common servo oil system, High pressure common servo oil system	E1
Communication link, Data	N6
Composite materials	A8
Compressor package (also see Generator package)	K25

Key-words and labels (from A to Z)	Item ref. No.
Compressors (refrigerating)	M1
Compressors or blowers (scavenging, supercharging), diesel engines	E8
Compressors, air (auxiliary engines)	G14
Compressors, air (for filling of starting air receivers), diesel engines	E6
Compressors, cargo gas (liquefied gas)	H6
Compressors, within piping systems	G31
Computer based systems (computerized systems - System categories I, II and III)	K26
Computerized systems (computer based systems) - System categories I, II and III	K26
Condensers (auxiliary), and their tubes	G17
Condensers (liquefied gas, cargo reliquefaction plant)	H10
Condensers (main), steam	F3
Condensers (refrigerating)	M5
Connecting rod with cap	E1
Connection/disconnection device, for offshore access systems (OAS)	L26
Contactors	K16
Containers, refrigerated container ships (equipment)	M11
Control and monitoring system, for offshore access systems (OAS)	L26
Control and monitoring systems, components (gauge, sensors, oxygen analyser, etc.), for IG system	D12
Control and monitoring, auxiliaries equipment (AUT notation)	N3
Control system, controllers ... (DYNAPOS notation)	R1
Convertors (semiconductor or static)	K7
Cooler, both side	E1
Coolers (drain)	F10
Coolers, heat exchangers (diesel engines)	E3
Coolers, lubricating oil coolers for turbines	F9
Cooling pumps, diesel engines	E2
Core materials (composite materials)	A8
Corrosion protective coating	B23
Corrosion protective coatings (epoxy or equivalent)	B23
Coupling bolts (for items G1 , G2 , G4 and G5)	G7
Coupling bolts for crankshaft	E1
Coupling, flexible couplings (propulsive, auxiliary plants)	G1
COW systems (for oil / FLS tankers < 20 000 tons deadweight)	I25
COW systems (for oil / FLS tankers ≥ 20 000 tons deadweight)	I24
Crane pedestals, interface with unit/ship structure	O7
Cranes	O2
Crank throw	E1
Crankshaft: made in one piece	E1
Cross head (Crosshead engines)	E1
Cylinder block GJL (Crosshead engines)	E1
Cylinder block GJS (Crosshead engines)	E1
Cylinder frames, Welded (Crosshead engines)	E1
Cylinder head GJL	E1
Cylinder head GJS	E1
Cylinder head GS	E1
Cylinder liner	E1

Key-words and labels (from A to Z)	Item ref. No.
Cylinders, Hydraulic cylinders, for offshore access systems (OAS)	L26
Data communication link	N6
Deck coverings (primary)	C9
Deck water seal	D7
Derricks	O1
Detection and alarm systems (fire)	C16
Detectors, gas detection system	I23
Detectors, gas detection system, liquefied gas	H25
Detectors, instrumentation (refrigerating plants)	M12
Detectors, oil-water interface detectors	I27
Detectors, sensors, control / monitoring devices (AUT notation)	N5
Diesel engines (driving electric generators), auxiliary	G11
Diesel engines (main and auxiliary)	E1
Diesel engines (mass-produced)	E11
Discharge pipe (from scrubber to overboard)	D9
Disconnecting devices, disconnectors	K17
Disconnection/connection device, for offshore access systems (OAS)	L26
Diving systems and equipment	L25
Doppler system, GPS, gyrocompass, acoustic system, taut wire, radio location, inertial system, etc. (DYNAPOS notation)	R2
Drilling lines (non-bonded flexible pipes)	L7
Drilling systems and equipment - additional class notation DRILL	L22
Dual fuel engines, Gas-fuelled engines, Gas engines	E13
Dual-purpose nozzles	C35
Dual-purpose nozzles	J7
Dynamic positioning, control system, controllers ... (DYNAPOS notation)	R1
Eductors (for main turbines, main boilers and their auxiliaries)	F8
EGCS, Exhaust gas cleaning systems - CLEANSHIP notation	S5
Ejectors (for main turbines, main boilers and their auxiliaries)	F8
Ejectors / Air ejectors (for auxiliary machinery), Auxiliary condensers and theirs tubes	G18
Ejectors / Air ejectors (for auxiliary machinery), Evaporators, Fresh water generators	G20
Electric motors, for auxiliaries	K5
Electric motors, for electric propulsion	K1
Electric system components, for offshore access systems (OAS)	L26
Electric transformers	K6
Electrical cables penetrations (through A or B class divisions)	C5
Electrical equipment (safety)	K23
Electromagnetic couplings	K11
Emergency generators	K3
Emergency towing arrangement (ETA notation)	B22
Engine block GJL	E1
Engine block GJS	E1
Engine driven pumps (oil, water, fuel, bilge)	E1
Epoxy or equivalent (coating)	B23
Epoxy or equivalent (Corrosion protective coatings)	B23
Equivalent fixed gas fire-extinguishing systems	C24

Key-words and labels (from A to Z)	Item ref. No.
Equivalent water-mist automatic sprinkler systems	C26
Equivalent water-mist fire-extinguishing systems	C23
ESD valves, offshore	L10
Evaporators (refrigerating)	M5
Evaporators, fresh water generators, their auxiliaries and accessories	G20
Exhaust gas cleaning systems (EGCS) - CLEANSHIP notation	S5
Exhaust gas valve cage (Crosshead engines)	E1
Exhaust gas-boilers	E4
Expansion bellows	G38
Expansion bellows	H15
Expansion bellows	I12
Expansion bellows (of non-conventional material)	C12
Expansion bellows, IG system	D4
Expansion joints	G37
Expansion joints	H14
Expansion joints	I11
Expert system	N9
Explosive mixture detecting apparatus (portable)	C18
Explosive mixture detecting systems	C17
External ramp	B15
Extinguishers (fire)	C27
Extraction pumps	F7
Fairleads, bow (SPM notation)	Q2
Fairleads, stoppers... (mooring system)	L20
Fans (air-cooler)	M4
Fans (forced draught)	F15
Fans for enclosed spaces (chemical, oil / FLS tankers)	I5
Fans for enclosed spaces (liquefied gas)	H9
Feed air compressors (for item D15), inert gas	D16
Feed air treatment system (for item D15), inert gas	D19
Feed pumps (of auxiliary boilers)	G19
Feed pumps (of main boilers)	F12
Feed water heaters	F13
Fibre ropes	B7
Fibre ropes (for deep-water offshore services)	L15
Fibre ropes (for Single Point Mooring hawsers)	L16
Fibre ropes other than L15 and L16 (intended for towing and mooring lines, emergency towing arrangement, cargo handling gear or similar applications)	L17
Filler products for welding	A3
Fire bulkheadings	C1
Fire dampers	C21
Fire detection and alarm systems	C16
Fire doors	C1
Fire extinguishers	C27
Fire fighting systems	H24
Fire fighting systems	I22

Key-words and labels (from A to Z)	Item ref. No.
Fire hoses	C34
Fire hydrants, pipes, shore connections, valves and accessories	C33
Fire or gas detection systems (AUT notation)	N4
Fire prevention materials and arrangements	H23
Fire prevention materials and arrangements	I21
Fire pumps	C32
Fire pumps	J1
Fire water main, and foam main	J2
Fire windows	C30
Fire-resisting and fire-retarding divisions	C1
Fixed foam fire-extinguishing systems (and associated foamforming liquids)	C10
Fixed gas fire-extinguishing systems (equivalent)	C24
Fixed instruments for measuring the oxygen content (for IG systems)	C19
Fixed local application fire-extinguishing systems	C25
Fixed powder fire-extinguishing systems	C11
Flame arresting devices, for oil / FLS tankers	I18
Flexible couplings (for propulsive and auxiliary plants)	G1
Flexible hose assembly	G28
Flexible pipes (bonded), offshore	L14
Flexible pipes (non-bonded), for risers and drilling lines	L7
Flexible pipes (of non-conventional material)	C12
Floor coverings	C29
Fluorescent lamps	K22
Foam concentrates	J6
Foam fire-extinguishing systems (fixed)	C10
Foam generation systems	J3
Forced circulation pumps (of main boilers)	F14
Forced draught fans	F15
Forged cylinder head	E1
Forged main journal and journals with flange	E1
Forged piston crown	E1
Frame box GS (Welded)	E1
Fuel injection pipes, High pressure fuel injection pipes including common fuel rail	E1
Fuel injection, High pressure fuel injection valves (only for those not autofretted)	E1
Fuel oil purifying unit	G25
Fuel transfer pumps	G24
Fuses and fuses carriers, overcurrent protective devices	K18
Fuses holders	K17
Gantry cranes	O2
Gas detection system	I23
Gas detection system, liquefied gas	H25
Gas engines, Dual fuel engines, Gas-fuelled engines	E13
Gas fire-extinguishing systems (equivalent fixed)	C24
Gas Handling system, Boil-Off Gas (BOG), Reliquefaction / Refrigeration systems	H26, H10
Gas turbines, for propulsion and auxiliary services	F17
Gas-fuelled engines, Gas engines, Dual fuel engines	E13

Key-words and labels (from A to Z)	Item ref. No.
Gasifiers or vaporizers (liquefied gas, cargo reliquefaction plant)	H10
Gastight shaft bulkhead penetration devices	H8
Gastight shaft bulkhead penetration devices	I4
Gauging (remote) instrumentation of ballast systems, offshore	L3
Geared propulsor (with or without nozzle), Additional class notation ICE CLASS - (Thrusters)	G34
Gears (steering gears)	B1
Gears, Mechanical gears, for offshore access systems (OAS)	L26
Generation systems (foam)	J3
Generation systems (powder)	J5
Generator package, Generator set	K25
Generator set, Generator package	K25
Generators (emergency)	K3
Generators (fresh water), their auxiliaries and accessories	G20
Generators (steam heated)	G21
Generators, for electric propulsion	K1
Generators, for the general network	K2
Gyrocompass, acoustic system, taut wire, radio location, inertial system, Doppler system, GPS, etc. (DYNAPOS notation)	R2
Handling equipment, Anchor (within the scope of service notation Anchor handling vessel)	B24
Handling systems (offshore) and associated equipment for offshore units intended to be granted with the additional class notation OHS	L23
Hardware elements included in computer based systems (computerized systems) - System categories I, II and III	K26
Hatch covers	B13
Hawse pipes	B10
Heat exchangers (liquefied gas, cargo reliquefaction plant)	H10
Heat exchangers (refrigerating)	M5
Heat exchangers, diesel engines	E3
Heaters (feed water)	F13
Heaters (fuel), burners (of main boilers)	F16
Heaters, electric	K20
High alloy steel (for membrane cargo containment system), liquefied gas	H3
High pressure CO ₂ fire smothering systems	C36
High pressure common servo oil system	E1
High pressure fuel injection pipes including common fuel rail	E1
High pressure fuel injection pump body	E1
High pressure fuel injection valves (only for those not autofretted)	E1
Hoists	O2
Hooks, loose gear (for lifting appliances)	O4
HPU, Hydraulic power unit (HPU)	G42
HPU, Hydraulic power units	G42
Hydraulic accumulators	G42
Hydraulic cylinders	G42
Hydraulic cylinders (of split units)	B21
Hydraulic cylinders, for offshore access systems (OAS)	L26
Hydraulic Jacks	G42
Hydraulic Jacks, hydraulic cylinders and accumulators (for items B11 to B16) - Side scuttles and windows, Shell doors, Hatch covers, Watertight doors, External ramp, Movable deck and inner ramp	B17

Key-words and labels (from A to Z)	Item ref. No.
Hydraulic motors, hydraulic pumps	G41
Hydraulic power installations, Hydraulic systems	G42
Hydraulic power station (for items B11 to B16) - Side scuttles and windows, Shell doors, Hatch covers, Watertight doors, External ramp, Movable deck and inner ramp	B17
Hydraulic power unit (for subsea valves)	L11
Hydraulic power unit (HPU)	G42
Hydraulic pumps, hydraulic motors	G41
Hydraulic system components of class I, for offshore access systems (OAS)	L26
Hydraulic systems, Hydraulic power installations	G42
ICE CLASS , Additional class notation, Propulsors in Ice - (Thrusters)	G34
Ice-infested waters, Additional class notation ICE CLASS - (Thrusters)	G34
Icebreakers, Polar Waters, Additional class notation POLAR CLASS - (Propellers)	G9
Impressed currents (cathodic protection), offshore	L5
Incinerators, shipboard - CLEANSHIP notation	S4
Independent propulsion and steering - AVM notation	T3
Inert gas coolers	D14
Inert gas generation systems	H22
Inert gas generation systems	I20
Inert gas generator system	D1
Inert gas generator system (other IG systems), Nitrogen	D15
Inert gas scrubber	D5
Inner ramp, movable deck, ...	B16
Instrumentation (chemical, oil / FLS tankers)	I19
Instrumentation (for remote gauging of ballast systems), offshore	L3
Instrumentation (gauge, sensors, oxygen analyser, etc.), for inert gas system	D12
Instrumentation (liquefied gas)	H20
Instrumentation (refrigerating plants)	M12
Instruments for measuring the oxygen content, fixed (for IG systems)	C19
Instruments for measuring the oxygen content, portable (for IG systems)	C20
Insulated cabling wires	K19
Insulation materials, liquefied gas	H5
Integrated computer-based system (AUT notation)	N6
Integrated navigation system (AUT notation)	N6
Intelligent knowledge-based system	N9
Intermediate shafts	G4
Internal combustion engines (driving electric generators), auxiliary	G11
Internal combustion engines (main and auxiliary)	E1
Internal combustion engines (mass-produced)	E11
Isolating valves (from IG system and cargo tanks)	D10
Jacking mechanisms, offshore	L2
Journals, Forged main journal and journals with flange	E1
Kenter shackles	B5
King posts	B18
Lashing equipment	P1
Life-saving appliances (offshore)	L18
Lifting appliances, offshore	L6

Key-words and labels (from A to Z)	Item ref. No.
Lighting fittings	K22
Loading instrument or calculator	B20
Loading instruments / stability computer	K26, B20
Local application fire-extinguishing systems (fixed)	C25
Loose gear (for lifting appliances)	O4
Loose gear and accessories, for offshore access systems (OAS)	L26
Low pressure CO ₂ fire smothering storage systems	C37
LSA equipment (offshore)	L18
Lubricating oil pumps, auxiliary engines	G12
Lubricating oil pumps, diesel engines	E2
Lubricating oil pumps, steam turbines	F6
Main load bearing structure, for offshore access systems (OAS)	L26
Manoeuvring and distribution valves (of steam turbines)	F2
Marine hoses	L14
Mass-produced diesel engines	E11
Mast and king posts	B18
Materials other than steel for pipes conveying oil or fuel oil	C4
Materials with low flame spread characteristic (paints, varnishes and similar)	C6
Mechanical gears, for offshore access systems (OAS)	L26
Mechanical joints	G36
Membrane cargo containment system (materials), liquefied gas	H3
Mobile lashing/securing equipment	P1
Monitoring and alarm systems (AUT notation)	N1
Monitoring, Control and monitoring system, for offshore access systems (OAS)	L26
Monitors (water and foam)	J4
Mooring (station keeping) system	L20
Mooring line components (chains, steel wire ropes and accessories)	L20
Motion reference unit, for offshore access systems (OAS)	L26
Motorized windlasses	B6
Motors (electric) for electric propulsion	K1
Motors and electrical equipment (for lifting appliances)	O5
Movable deck and inner ramp	B16
Multipliers, reduction gears	G2
Nitrogen generator system (or N ₂ gas generator system)	D15
Non-bonded flexible pipes, for risers and drilling lines	L7
Non-combustible materials	C7
Non-return devices (supplementing the deck water seal)	D8
NO _x monitoring systems - CLEANSHIP notation	S8
Nozzles (dual-purpose)	C35
Nozzles (for fixed pressure water-spraying fire-extinguishing systems)	C14
Nozzles (water spray, dual-purpose)	J7
Nuts, Bolts and nuts, for offshore access systems (OAS)	L26
Offshore access systems (OAS) materials and components	L26
Offshore handling systems and associated equipment for offshore units intended to be granted with the additional class notation OHS	L23
Offshore oil offloading - Transfer arms - additional class notation Oil offloading (transfer arms)	L24

Key-words and labels (from A to Z)	Item ref. No.
Oil content meter - CLEANSHIP notation	S2
Oil discharge monitoring and control system	I26
Oil offloading, Offshore - Transfer arms - additional class notation Oil offloading (transfer arms)	L24
Oil sealing glands	G40
Oil system, High pressure common servo oil system	E1
Oil-water interface detectors	I27
Oily water separators (15 ppm) - CLEANSHIP notation	S1
Onboard NOx monitoring systems - CLEANSHIP notation	S8
Oxygen content for IG systems (fixed instruments for measuring)	C19
Oxygen content for IG systems (portable instruments for measuring)	C20
Paints, varnishes and similar (with low flame spread characteristic)	C6
Pedestal roller fairleads (SPM notation)	Q3
Penetration of fire bulkheads (materials)	C3
Pipes (seamless steel or stainless steel), liquefied gas	H11
Pipes (welded stainless steel), liquefied gas	H12
Pipes conveying oil or fuel oil (of materials other than steel)	C4
Pipes penetrating A or B class divisions (materials)	C3
Pipes, valves and fittings (connected to ship side, collision bulkhead, fuel oil and lubricating oil tanks)	G29
Piping systems	G26
Piping, pumps, actuators, etc. for hydraulic drive of valves, if applicable	E1
Piston crown GS	E1
Piston rod, if applicable	E1
Plastic pipes	G39
Plastic pipes used as cargo pipes, for oil / FLS tankers	I15
Plates (stainless steel for membrane cargo containment system), liquefied gas	H3
Plates and profiles for cargo tanks (steel or stainless steel), for chemical, oil / FLS tankers	I1
Plates and profiles for independent cargo tanks (aluminium alloy), liquefied gas	H2
Plates and profiles for independent cargo tanks (steel), liquefied gas	H1
Plates, profiles, bars and pipes for main structure (aluminium alloy)	A2
Plates, profiles, bars and pipes for main structure (steel)	A1
PLC's and computers used for tasks essential to safety (AUT notation)	N8
Pod housing, azipod steering system	A12
Podded propulsor (with or without nozzle), Additional class notation ICE CLASS - (Thrusters)	G34
POLAR CLASS , Additional class notation, Polar Waters, Icebreakers (Propellers)	G9
Polar Waters, Icebreakers, Additional class notation POLAR CLASS - (Propellers)	G9
Pollution prevention (equipment) - CLEANSHIP notation	S1
Portable explosive mixture detecting apparatus	C18
Portable instruments for measuring the oxygen content (for IG systems)	C20
Position reference systems (DYNAPOS notation)	R2
Powder fire-extinguishing systems (fixed)	C11
Powder generation systems	J5
Power installations, Hydraulic power installations, Hydraulic systems	G42
Power system, electrical installations (DYNAPOS notation)	R5
Prefabricated fire resisting elements (sanitary blocks for example)	C31
Prefabricated pipe lines	G33
Pressure / vacuum safety relief valves (for cargo tanks); chemical, oil / FLS tankers	I17

Key-words and labels (from A to Z)	Item ref. No.
Pressure pipes, valves and other fittings (diesel engines)	E10
Pressure vessels	G30
Pressure vessels (refrigerating plants)	M6
Primary deck coverings	C9
Process systems, offshore units (PROC notation)	L21
Process valves, offshore	L10
Profiles, plates, bars and pipes for main structure (aluminium alloy)	A2
Profiles, plates, bars and pipes for main structure (steel)	A1
Programmable logic controllers (PLC's) and computers used for tasks essential to safety	N8
Propeller shafts (main propulsion, components)	G5
Propellers (for propulsion)	G9
Propulsion and steering (independent) - AVM notation	T3
Propulsion and steering (redundant) - AVM notation	T2
Propulsion shafting (main propulsion, components)	G5
Propulsion system (alternative) - AVM notation	T1
Propulsors in Ice, Additional class notation ICE CLASS - (Thrusters)	G34
Protective coatings, Corrosion (epoxy or equivalent)	B23
Pull-in systems (risers and mooring pull-in systems), offshore	L19
Pumps, cargo pumps (liquefied gas)	H7
Pumps, Engine driven pumps (oil, water, fuel, bilge)	E1
Pumps, piping, actuators, etc. for hydraulic drive of valves, if applicable	E1
Pumps, within piping systems	G31
Radiators (fixed electric)	K21
Raw pipes and piping systems	G26
Receivers (liquefied gas, cargo reliquefaction plant)	H10
Receivers (pressure vessels)	G30
Receivers (starting air), auxiliary engines	G13
Receivers (starting air), diesel engines	E5
Reduction gears	G2
Redundant propulsion and steering - AVM notation	T2
Reference unit, Motion reference unit for offshore access systems (OAS)	L26
Reference, Position reference systems (DYNAPOS notation)	R2
Refrigerant pipes	M7
Refrigerant pipes (accessories)	M8
Refrigerants	M13
Refrigerated container ships (equipment)	M11
Refrigerating compressors	M1
Refrigerating installations (minimum requirements on all ships)	G35
Refrigeration / Reliquefaction systems, Boil-Off Gas (BOG) Handling system	H26, H10
Regulating valves (inert gas)	D11
Regulation and control devices starters	K10
Regulation and safety devices, diesel engines	E9
Reinforcement fibres (composite materials)	A8
Reliquefaction / Refrigeration systems, Boil-Off Gas (BOG) Handling system	H26, H10
Remote control systems (propulsion, AUT notation)	N2
Remote gauging of ballast systems (instrumentation), offshore	L3

Key-words and labels (from A to Z)	Item ref. No.
Resin systems, additives (composite materials)	A8
Reverse reduction gears	G2
Rigid shaft couplings	G4
Risers (non-bonded flexible pipes)	L7
Rivets, aluminium alloy	A4
Ropes, for lifting appliances	O6
Ropes, Wire ropes for offshore access systems (OAS)	L26
Rudder	B2
Rudder, forged or cast steel	A6
Sacrificial anodes (cathodic protection), offshore	L4
Safety electrical equipment	K23
Safety relief valves for cargo process piping system ; chemical, oil / FLS tankers	I16
Safety relief valves for cargo process piping system ; liquefied gas	H18
Safety relief valves for cargo tanks, liquefied gas	H19
Safety valves (valves and fittings)	G27
Scavenging compressors or blowers, diesel engines	E8
SCR, Selective catalytic reduction systems - CLEANSHIP notation	S6
Scrubber, Inert gas	D5
Scuttles and windows	B11
Sea inlets and outlets	B8
Sealing glands	G40
Seamless steel or stainless steel cargo pipes (liquefied gas)	H11
Seamless steel or stainless steel cargo pipes of class I, for chemical tankers	I6
Securing equipment (lashing)	P1
Selective catalytic reduction systems (SCR) - CLEANSHIP notation	S6
Self-elevating mechanisms, offshore	L2
Semi-built crankshaft	E1
Semiconductor convertors	K7
Sensing heads (for automatic fire alarm and fire detection systems)	C15
Sensors and control equipment and/or monitoring devices (AUT notation)	N5
Sensors, alarm panels, electronic protective devices, automatic and remote control equipment, ... (AUT notation)	N7
Separator, centrifugal (oil and fuel)	G25
Separators (15 ppm), oily water - CLEANSHIP notation	S1
Separators (liquefied gas, cargo reliquefaction plant)	H10
Servo oil system, High pressure common servo oil system	E1
Sewage treatment plants - CLEANSHIP notation	S3
Shackles	B5
Shackles, loose gear (for lifting appliances)	O4
Shaft bearings	G6
Shaft bulkhead penetration devices (gastight)	H8
Shaft bulkhead penetration devices (gastight)	I4
Shaft couplings	G4
Shaft-brackets (cast steel)	A7
Shafting components (main propulsion)	G5
Shafts (intermediate)	G4
Shell doors	B12

Key-words and labels (from A to Z)	Item ref. No.
Ship side pipes, valves and fittings	G29
Shipboard incinerators - CLEANSHIP notation	S4
Shrouds (for king posts)	B19
Side scuttles and windows	B11
Slewing ring, for offshore access systems (OAS)	L26
Slings, loose gear (for lifting appliances)	O4
Software of computer based systems (computerized systems) - System categories I, II and III	K26
Spreader beams, loose gear (for lifting appliances)	O4
Sprinkler heads (for automatic sprinkler systems)	C13
Stability computer / Loading instruments	K26, B20
Stainless steel (for membrane cargo containment system), liquefied gas	H3
Starters (regulation and control devices)	K10
Starting air receivers (auxiliary engines)	G13
Starting air receivers (of diesel engines)	E5
Static convertors	K7
Station keeping (mooring) system	L20
Steam generators (steam heated)	G21
Steam turbines, for propulsion and auxiliary services	F1
Steel (castings)	A10
Steel (forgings)	A11
Steel (plates and profiles for independent cargo tanks), liquefied gas	H1
Steel (plates, profiles, bars and pipes for main structure)	A1
Steel or stainless steel (plates and profiles for cargo tanks), for chemical, oil / FLS tankers	I1
Steering gears	B1
Stem, forged or cast steel	A6
Stern post, forged or cast steel	A6
Stern tube sealing glands	G40
Stern tube seals	G40
Stern tubes	G8
Structure, Main load bearing structure, for offshore access systems (OAS)	L26
Studs and bolts for diesel engine parts (main and auxiliary)	E1
Studs for built-up propellers	G9
Studs, Bolts and studs for connecting rods, cylinder heads, and connecting rods	E1
Supercharging compressors or blowers, diesel engines	E8
Supported textiles (vertically)	C8
Supporting materials (independent cargo tank), liquefied gas	H4
Surface linings (of bulkheads and ceilings)	C28
Switchboards (distribution)	K14
Switchboards (for electric propulsion)	K12
Switchboards (main and emergency)	K13
Switches, electric	K17
Swivels (electrical), offshore	L9
Swivels (fluid), offshore	L8
Swivels (for anchor chain cable)	B5
Swivels, loose gear (for lifting appliances)	O4
Synthesis gas modules (for item D15), inert gas	D18

Key-words and labels (from A to Z)	Item ref. No.
System categories I, II and III - Automation systems	K26
Tank washing machines, COW systems (for oil / FLS tankers < 20 000 tons deadweight)	I25
Tank washing machines, COW systems (for oil / FLS tankers ≥ 20 000 tons deadweight)	I24
Taut wire, gyrocompass, acoustic system, radio location, inertial system, Doppler system, GPS, etc. (DYNAPOS notation)	R2
Throw (Crank)	E1
Thrust blocks (main)	G3
Thrust shafts	G4
Thruster system (DYNAPOS notation)	R4
Thruster tunnel (transverse tunnel thruster system)	A13
Thrusters	G34
Tie rod (Crosshead engines)	E1
Towing equipment (within the scope of service notations Tug, Salvage tug, Escort tug)	B24
Transducer compartment	B9
Transfer arms - Offshore oil offloading - additional class notation Oil offloading (transfer arms)	L24
Transformers (electric)	K6
Transition joints steel / Aluminium alloy (for fixation of superstructures on steel hull)	A5
Transverse girders, Bearing transverse girders GS	E1
Transverse tunnel thruster system (thruster tunnel)	A13
Turbines (driving electric generators), auxiliary	G10
Turbines (gas turbines), main propulsion and auxiliary services	F17
Turbines (steam turbines), main propulsion, and auxiliary services	F1
Turbochargers, diesel engines	E12
Turning gears (of main engines)	E7
Turning gears (of steam turbines)	F4
Upholstered furniture	C2
Uptake valves (of main boilers), IG system	D3
Valves and fittings	G27
Valves, isolating valves (from IG system and cargo tanks)	D10
Valves, uptake valves (of main boilers), IG system	D3
Vaporizers or gasifiers (liquefied gas, cargo reliquefaction plant)	H10
Varnishes, paints and similar (with low flame spread characteristic)	C6
Vent lines (on cargo tanks), liquefied gas	H21
Vertically supported textiles	C8
Vessel sensors: heading and motion, wind speed and direction (DYNAPOS notation)	R3
Ward-Leonard sets	K4
Washing machines, COW systems (for oil / FLS tankers < 20 000 tons deadweight)	I25
Washing machines, COW systems (for oil / FLS tankers ≥ 20 000 tons deadweight)	I24
Water spray nozzles	J7
Water spray piping systems and their accessories	J2
Water-jet	G34
Water-mist automatic sprinkler systems (equivalent)	C26
Water-mist fire-extinguishing systems (equivalent)	C23
Watertight doors	B14
Welded bedplate	E1
Welded cylinder frames (Crosshead engines)	E1

Key-words and labels (from A to Z)	Item ref. No.
Welded frame box	E1
Welded stainless steel cargo pipes (liquefied gas)	H12
Welding consumables	A3
Winch foundations, interface with unit/ship structure	O7
Winches	O3
Winches, for offshore access systems (OAS)	L26
Windlasses (motorized)	B6
Windows	B11
Windows (fire)	C30
Wire ropes, for lifting appliances	O6
Wire ropes, for offshore access systems (OAS)	L26



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