



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

June 2019

**Rule Note
NR 266 DT R05 E**

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GENERAL CONDITIONS

1. INDEPENDENCE OF THE SOCIETY AND APPLICABLE TERMS

- 1.1 The Society shall remain at all times an independent contractor and neither the Society nor any of its officers, employees, servants, agents or subcontractors shall be or act as an employee, servant or agent of any other party hereto in the performance of the Services.
- 1.2 The operations of the Society in providing its Services are exclusively conducted by way of random inspections and do not, in any circumstances, involve monitoring or exhaustive verification.
- 1.3 The Society acts as a services provider. This cannot be construed as an obligation bearing on the Society to obtain a result or as a warranty. The Society is not and may not be considered as an underwriter, broker in Unit's sale or chartering, expert in Unit's valuation, consulting engineer, controller, naval architect, designer, manufacturer, shipbuilder, repair or conversion yard, charterer or shipowner; none of them above listed being relieved of any of their expressed or implied obligations as a result of the interventions of the Society.
- 1.4 The Society only is qualified to apply and interpret its Rules.
- 1.5 The Client acknowledges the latest versions of the Conditions and of the applicable Rules applying to the Services' performance.
- 1.6 Unless an express written agreement is made between the Parties on the applicable Rules, the applicable Rules shall be the Rules applicable at the time of entering into the relevant contract for the performance of the Services.
- 1.7 The Services' performance is solely based on the Conditions. No other terms shall apply whether express or implied.

2. DEFINITIONS

- 2.1 "Certificate(s)" means classification or statutory certificates, attestations and reports following the Society's intervention.
- 2.2 "Certification" means the activity of certification in application of national and international regulations or standards, in particular by delegation from different governments that can result in the issuance of a Certificate.
- 2.3 "Classification" means the classification of a Unit that can result or not in the issuance of a classification Certificate with reference to the Rules. Classification is an appraisalment given by the Society to the Client, at a certain date, following surveys by its surveyors on the level of compliance of the Unit to the Society's Rules or to the documents of reference for the Services provided. They cannot be construed as an implied or express warranty of safety, fitness for the purpose, seaworthiness of the Unit or of its value for sale, insurance or chartering.
- 2.4 "Client" means the Party and/or its representative requesting the Services.
- 2.5 "Conditions" means the terms and conditions set out in the present document.
- 2.6 "Industry Practice" means international maritime and/or offshore industry practices.
- 2.7 "Intellectual Property" means all patents, rights to inventions, utility models, copyright and related rights, trade marks, logos, service marks, trade dress, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, database rights, topography rights, moral rights, rights in confidential information (including know-how and trade secrets), methods and protocols for Services, and any other intellectual property rights, in each case whether capable of registration, registered or unregistered and including all applications for and renewals, reversions or extensions of such rights, and all similar or equivalent rights or forms of protection in any part of the world.
- 2.8 "Parties" means the Society and Client together.
- 2.9 "Party" means the Society or the Client.
- 2.10 "Register" means the public electronic register of ships updated regularly by the Society.
- 2.11 "Rules" means the Society's classification rules and other documents. The Society's Rules take into account at the date of their preparation the state of currently available and proven technical minimum requirements but are not a standard or a code of construction neither a guide for maintenance, a safety handbook or a guide of professional practices, all of which are assumed to be known in detail and carefully followed at all times by the Client.
- 2.12 "Services" means the services set out in clauses 2.2 and 2.3 but also other services related to Classification and Certification such as, but not limited to: ship and company safety management certification, ship and port security certification, maritime labour certification, training activities, all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentation, measurements, tests and trials on board. The Services are carried out by the Society according to the applicable referential and to the Bureau Veritas' Code of Ethics. The Society shall perform the Services according to the applicable national and international standards and Industry Practice and always on the assumption that the Client is aware of such standards and Industry Practice.
- 2.13 "Society" means the classification society 'Bureau Veritas Marine & Offshore SAS', a company organized and existing under the laws of France, registered in Nanterre under number 821 131 844, or any other legal entity of Bureau Veritas Group as may be specified in the relevant contract, and whose main activities are Classification and Certification of ships or offshore units.
- 2.14 "Unit" means any ship or vessel or offshore unit or structure of any type or part of it or system whether linked to shore, river bed or sea bed or not, whether operated or located at sea or in inland waters or partly on land, including submarines, hovercrafts, drilling rigs, offshore installations of any type and of any purpose, their related and ancillary equipment, subsea or not, such as well head and pipelines, mooring legs and mooring points or otherwise as decided by the Society.

3. SCOPE AND PERFORMANCE

- 3.1 Subject to the Services requested and always by reference to the Rules, the Society shall:
- review the construction arrangements of the Unit as shown on the documents provided by the Client;
 - conduct the Unit surveys at the place of the Unit construction;
 - class the Unit and enter the Unit's class in the Society's Register;
 - survey the Unit periodically in service to note whether the requirements for the maintenance of class are met.
- The Client shall inform the Society without delay of any circumstances which may cause any changes on the conducted surveys or Services.
- 3.2 The Society will not:
- declare the acceptance or commissioning of a Unit, nor its construction in conformity with its design, such activities remaining under the exclusive responsibility of the Unit's owner or builder;
 - engage in any work relating to the design, construction, production or repair checks, neither in the operation of the Unit or the Unit's trade, neither in any advisory services, and cannot be held liable on those accounts.

4. RESERVATION CLAUSE

- 4.1 The Client shall always: (i) maintain the Unit in good condition after surveys; (ii) present the Unit for surveys; and (iii) inform the Society in due time of any circumstances that may affect the given appraisalment of the Unit or cause to modify the scope of the Services.
- 4.2 Certificates are only valid if issued by the Society.
- 4.3 The Society has entire control over the Certificates issued and may at any time withdraw a Certificate at its entire discretion including, but not limited to, in the following situations: where the Client fails to comply in due time with instructions of the Society or where the Client fails to pay in accordance with clause 6.2 hereunder.
- 4.4 The Society may at times and at its sole discretion give an opinion on a design or any technical element that would 'in principle' be acceptable to the Society. This opinion shall not presume on the final issuance of any Certificate or on its content in the event of the actual issuance of a Certificate. This opinion shall only be an appraisal made by the Society which shall not be held liable for it.

5. ACCESS AND SAFETY

- 5.1 The Client shall give to the Society all access and information necessary for the efficient performance of the requested Services. The Client shall be the sole responsible for the conditions of presentation of the Unit for tests, trials and surveys and the conditions under which tests and trials are carried out. Any information, drawing, etc. required for the performance of the Services must be made available in due time.
- 5.2 The Client shall notify the Society of any relevant safety issue and shall take all necessary safety-related measures to ensure a safe work environment for the Society or any of its officers, employees, servants, agents or subcontractors and shall comply with all applicable safety regulations.

6. PAYMENT OF INVOICES

- 6.1 The provision of the Services by the Society, whether complete or not, involve, for the part carried out, the payment of fees thirty (30) days upon issuance of the invoice.

6.2 Without prejudice to any other rights hereunder, in case of Client's payment default, the Society shall be entitled to charge, in addition to the amount not properly paid, interests equal to twelve (12) months LIBOR plus two (2) per cent as of due date calculated on the number of days such payment is delinquent. The Society shall also have the right to withhold Certificates and other documents and/or to suspend or revoke the validity of Certificates.

- 6.3 In case of dispute on the invoice amount, the undisputed portion of the invoice shall be paid and an explanation on the dispute shall accompany payment so that action can be taken to solve the dispute.

7. LIABILITY

- 7.1 The Society bears no liability for consequential loss. For the purpose of this clause consequential loss shall include, without limitation:
- Indirect or consequential loss;
 - Any loss and/or deferral of production, loss of product, loss of use, loss of bargain, loss of revenue, loss of profit or anticipated profit, loss of business and business interruption, in each case whether direct or indirect.
- The Client shall defend, release, save, indemnify, defend and hold harmless the Society from the Client's own consequential loss regardless of cause.
- 7.2 Except in case of wilful misconduct of the Society, death or bodily injury caused by the Society's negligence and any other liability that could not be, by law, limited, the Society's maximum liability towards the Client is limited to one hundred and fifty per-cents (150%) of the price paid by the Client to the Society for the Services having caused the damage. This limit applies to any liability of whatsoever nature and howsoever arising, including fault by the Society, breach of contract, breach of warranty, tort, strict liability, breach of statute.
- 7.3 All claims shall be presented to the Society in writing within three (3) months of the completion of Services' performance or (if later) the date when the events which are relied on were first discovered by the Client. Any claim not so presented as defined above shall be deemed waived and absolutely time barred.

8. INDEMNITY CLAUSE

- 8.1 The Client shall defend, release, save, indemnify and hold harmless the Society from and against any and all claims, demands, lawsuits or actions for damages, including legal fees, for harm or loss to persons and/or property tangible, intangible or otherwise which may be brought against the Society, incidental to, arising out of or in connection with the performance of the Services (including for damages arising out of or in connection with opinions delivered according to clause 4.4 above) except for those claims caused solely and completely by the gross negligence of the Society, its officers, employees, servants, agents or subcontractors.

9. TERMINATION

- 9.1 The Parties shall have the right to terminate the Services (and the relevant contract) for convenience after giving the other Party thirty (30) days' written notice, and without prejudice to clause 6 above.
- 9.2 In such a case, the Classification granted to the concerned Unit and the previously issued Certificates shall remain valid until the date of effect of the termination notice issued, subject to compliance with clause 4.1 and 6 above.
- 9.3 In the event where, in the reasonable opinion of the Society, the Client is in breach, or is suspected to be in breach of clause 16 of the Conditions, the Society shall have the right to terminate the Services (and the relevant contracts associated) with immediate effect.

10. FORCE MAJEURE

- 10.1 Neither Party shall be responsible or liable for any failure to fulfil any term or provision of the Conditions if and to the extent that fulfilment has been delayed or temporarily prevented by a force majeure occurrence without the fault or negligence of the Party affected and which, by the exercise of reasonable diligence, the said Party is unable to provide against.
- 10.2 For the purpose of this clause, force majeure shall mean any circumstance not being within a Party's reasonable control including, but not limited to: acts of God, natural disasters, epidemics or pandemics, wars, terrorist attacks, riots, sabotages, impositions of sanctions, embargoes, nuclear, chemical or biological contaminations, laws or action taken by a government or public authority, quotas or prohibition, expropriations, destructions of the worksite, explosions, fires, accidents, any labour or trade disputes, strikes or lockouts.

11. CONFIDENTIALITY

- 11.1 The documents and data provided to or prepared by the Society in performing the Services, and the information made available to the Society, are treated as confidential except where the information:
- is properly and lawfully in the possession of the Society;
 - is already in possession of the public or has entered the public domain, otherwise than through a breach of this obligation;
 - is acquired or received independently from a third party that has the right to disseminate such information;
 - is required to be disclosed under applicable law or by a governmental order, decree, regulation or rule or by a stock exchange authority (provided that the receiving Party shall make all reasonable efforts to give prompt written notice to the disclosing Party prior to such disclosure).
- 11.2 The Parties shall use the confidential information exclusively within the framework of their activity underlying these Conditions.
- 11.3 Confidential information shall only be provided to third parties with the prior written consent of the other Party. However, such prior consent shall not be required when the Society provides the confidential information to a subsidiary.
- 11.4 Without prejudice to sub-clause 11.1, the Society shall have the right to disclose the confidential information if required to do so under regulations of the International Association of Classifications Societies (IACS) or any statutory obligations.

12. INTELLECTUAL PROPERTY

- 12.1 Each Party exclusively owns all rights to its Intellectual Property created before or after the commencement date of the Conditions and whether or not associated with any contract between the Parties.
- 12.2 The Intellectual Property developed by the Society for the performance of the Services including, but not limited to drawings, calculations, and reports shall remain the exclusive property of the Society.

13. ASSIGNMENT

- 13.1 The contract resulting from to these Conditions cannot be assigned or transferred by any means by a Party to any third party without the prior written consent of the other Party.
- 13.2 The Society shall however have the right to assign or transfer by any means the said contract to a subsidiary of the Bureau Veritas Group.

14. SEVERABILITY

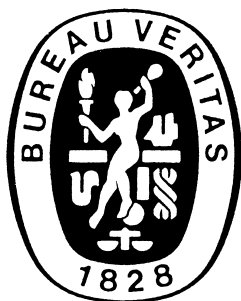
- 14.1 Invalidity of one or more provisions does not affect the remaining provisions.
- 14.2 Definitions herein take precedence over other definitions which may appear in other documents issued by the Society.
- 14.3 In case of doubt as to the interpretation of the Conditions, the English text shall prevail.

15. GOVERNING LAW AND DISPUTE RESOLUTION

- 15.1 These Conditions shall be construed and governed by the laws of England and Wales.
- 15.2 The Parties shall make every effort to settle any dispute amicably and in good faith by way of negotiation within thirty (30) days from the date of receipt by either one of the Parties of a written notice of such a dispute.
- 15.3 Failing that, the dispute shall finally be settled under the Rules of Arbitration of the Maritime Arbitration Chamber of Paris ("CAMP"), which rules are deemed to be incorporated by reference into this clause. The number of arbitrators shall be three (3). The place of arbitration shall be Paris (France). The Parties agree to keep the arbitration proceedings confidential.

16. PROFESSIONAL ETHICS

- 16.1 Each Party shall conduct all activities in compliance with all laws, statutes, rules, economic and trade sanctions (including but not limited to UN sanctions and EU sanctions) and regulations applicable to such Party including but not limited to: child labour, forced labour, collective bargaining, discrimination, abuse, working hours and minimum wages, anti-bribery, anti-corruption, copyright and trademark protection, personal data protection (<https://personal.dataprotection.bureauveritas.com/privacypolicy>).
- Each of the Parties warrants that neither it, nor its affiliates, has made or will make, with respect to the matters provided for hereunder, any offer, payment, gift or authorization of the payment of any money, directly or indirectly, to or for the use or benefit of any official or employee of the government, political party, official or candidate.
- 16.2 In addition, the Client shall act consistently with the Bureau Veritas' Code of Ethics. <https://group.bureauveritas.com/group/corporate-social-responsibility>



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).

2.1.8 General instructions for ships in service as per TNS_0001, Sec 1, [1.1.5]. For ships surveyed by the Society during the construction and for repairs of ships classed with the Society, Bureau Veritas inspects the materials used for the hull construction. Likewise, for both new buildings and Class maintenance repairs, the propelling machinery, electrical equipment, all essential auxiliaries, boilers and pressure vessels as defined by the Rules are normally inspected and certified by the Society at the manufacturer works. Equivalent procedures can be accepted to the Surveyor's satisfaction.

2.2 Explanatory notes, symbols and abbreviations

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

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

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

“X” indicates that examinations and tests are required.

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

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

2.2.2 Column 1 (item code)

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

2.2.3 Column 2 (item name)

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

2.2.4 Column 3 (design assessment/approval index)

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

- TA : Type Approval is required
- TA (HBV): Type Approval is required with work's recognition (HBV scheme as per NR320)
- DA : Design assessment / Appraisal of the product is required; this one may be carried out as applicable:
- either for a specific unit, or
 - using the Type Approval procedure.

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

2.2.5 Column 4 (raw material certificate)

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

2.2.6 Column 5 (examination and testing)

Column 5 indicates that examination and/or testing are required, and are to be carried out by the manufacturer. For the type of examination and/or testing required, reference is to be made to the relevant provisions of 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
A	Raw Materials and Components for Hull
B	Hull Outfittings
C	Fire Protection, Detection and Extinction Systems
D	Cargo Environmental Control, IG (Inert Gas) Systems
E	Main Diesel Engines and their Auxiliaries
F	Main Turbines, Main Boilers, and their Auxiliaries
G	Auxiliary Machinery
H	Cargo Handling and Containment Systems of Liquefied Gas Carriers
I	Cargo Handling and Containment Systems of Oil / FLS Tankers or Chemical Tankers
J	Fire Fighting Ships
K	Electrical Equipment
L	Specific Equipment for Offshore Units
M	Refrigerating Installation covered by Additional Class Notation REF (REF-CARGO , REF-CONT , REF-STORE)
N	Automation Systems covered by NR467, Pt C, Ch 3; or Additional Class Notation AUT (AUT-UMS , AUT-CCS , AUT-PORT , AUT-IMS)
O	Lifting Appliances for Ships and Offshore Units
P	Container Lashing Equipment for Ships with Additional Class Notation LASHING
Q	Installations covered by Additional Class Notation SPM (Single Point Mooring)
R	Installations covered by Additional Class Notation DYNAPOS (Dynamic Positioning)
S	Pollution Prevention Installation covered by Additional Class Notation CLEANSHIP (CLEANSHIP , CLEANSHIP SUPER and other notations)
T	Availability of Machinery covered by Additional Class Notation AVM (AVM-APS , AVM-DPS , AVP-IPS)
U	Gas Fuel Handling and Containment Systems of Gas Fuelled Ships

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	(1)	C (1)		(2)	(1) Approval as per NR216 and NR480, as applicable (2) See raw material certification
A2	Aluminium alloy plates, profiles, bars and pipes for main structure	(1)	C (1)		(2)	(1) Approval as per NR216 and NR480, as applicable (2) See raw material certification
A3	Filler products for welding (welding consumables)	TA (1)			W	(1) Type approval as per NR216
A4	Aluminium alloy rivets for main structure and fixation of aluminium alloy superstructures on steel hull	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (2) See raw material certification
A5	Transition joints steel / aluminium alloy for fixation of superstructures on steel hull	TA (1)	C		C	(1) Approval as per NR216 and NR480
A6	Stem, stern post, rudder horn skegs and solid rudder pieces in forged or cast steel (1)	DA	C	X ndt	C	(1) Rudders in composite materials: also see provisions of 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
	• Adhesives intended for marine structural applications	TA (HBV) (4)			W	(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
	• Reinforcement fibres	TA (HBV) (4)			W	(3) Document type according to the agreed survey scheme - as per conditions set in the DA
	• Resin systems	TA (HBV) (4)			W	(4) Type approval or case-by-case approval by the Society; see provisions of NR546, Section 11
	• Core materials for sandwiches	TA (HBV) (4)			W	
A9	Aluminium alloy castings	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (2) See raw material certification
A10	Steel castings for hull structure	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (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	
A11	Steel forgings for hull structure	(1)	C (1)		(2)	(1) Approval as per NR216, as applicable (2) See raw material certification
A12	Pod housing for azipod steering system	DA	C	X ndt	C	
A13	Thruster tunnel for transverse tunnel thruster system	DA	C	X ndt	C	

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 (3) Hydraulic nut/piston to be considered on a case-by-case basis, as per technology (not a structural part for the integrity of the Rudder, except in case the connection blade/stock is a key connection without self keeping cone; in this configuration, the nut holds the full weight of the blade and the force is transmitted through the thread to the stock)
	1- Rudder stock, rudder shaft, pintles, coupling bolts, hydraulic nut/piston (3)		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 (3)	C	(1) Approval as per NR216 and NR480 (2) Approval as per NR216 and NR480 for round bars in grades Q2 or Q3 (3) Marking of chain cables as per NR216, Ch 4, Sec 1, [2]. Chain cables which meet the requirements are to be stamped at both ends of each length at least with the following marks: chain cable grade, certificate number, Society's stamp.
B5	Anchor chain cable accessories (shackles, kenter shackles and swivels)	(1)	C	X ndt	C	(1) Approval as per NR216 and NR480

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B6	Motorized windlasses	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, Section 1, 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)		W	X ndt	C	(1) Include the fibre ropes intended for emergency towing arrangement, cargo handling gear or similar applications. Exclude the fibre ropes specific for offshore units which are covered in items L15 and L16 (2) Requirements as per NR216 Note: As per NR467, Pt B, Ch 9, Sec 4 - The towing and mooring arrangement as defined in NR467, Pt B, Ch 9, App 2, [1] and the towing and mooring lines as defined in NR467, Pt B, Ch 9, App 2, [2] are given as a guidance but are not required as a condition of classification. <i>Survey of steel wires and fibre ropes for towing and mooring lines, when requested by the Owner, is to be done as per requirements of NR216, Chapitre 4, Section 1</i>
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

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B13	Hatch covers	DA	C	X ndt	C	Note: Hose test on board, for watertight covers
B14	Watertight and weathertight doors (1) (2)	DA or TA (1)	C	X h ndt (3) (4)	C	(1) As per NR467, Pt B, Ch 8, Sec 12 (2) Type of tightness (watertight, weathertight , semi-watertight or unprotected) and various degrees of watertightness are defined in NR467, Pt B, Ch 3, Sec 3, [3.3.2] (3) Inspection and testing: hydrostatic pressure testing, leakage criteria for watertight doors, leakage criteria for semi-watertight doors -as per NR467, Pt B, Ch 8, Sec 12, [5] (4) All watertight, semi-watertight and weathertight doors shall be subject to a hose test after installation in a ship. Hose testing on board is to be carried out as per NR467, Pt B, Ch 8, Sec 12, [5] Note: Watertight compartments testing on board: also see provisions of NR467, Pt B, Ch 11, Sec 3 (testing procedures of watertight compartments)
B15	External ramp	DA	C	X ndt (1)	C	(1) Watertightness, as applicable: see item B14
B16	Movable deck and inner ramp	DA	C	X ndt	C	
B17	Hydraulic power station for handling items B11 to B16	DA		X	C	(1) For 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

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
B20	Loading instrument or calculator / Stability computer (1)	TA or DA (2) (3)		X (2) (3)	C / W (4)	(1) Concerns only ships for which the Rules require a loading calculator (2) Ship specific onboard equipment. Requirements as per NR467, Pt B, Ch 10, Sec 2 and NR467, Pt C, Ch 3, Sec 6. Also see relevant provisions of NR266 item N (Automation systems) (3) Loading instrument approval consists of: - approval of hardware according to NR467, Pt C, Ch 3, Sec 6, [2.2], unless two computers are available on board for loading calculations only - approval of basic software according to NR467, Pt C, Ch 3, Sec 6, [2.3] - approval of application software, consisting in data verification which results in the Endorsed Test Condition according to NR467, Part B - installation testing according to NR467, Pt C, Ch 3, Sec 6, [4] (4) As per conditions set in the TA Note: Following installation on board with reference to the approved manual; on board tests as per NR467, Pt C, Ch 3, Sec 6
B21	Articulations and hydraulic cylinders of split hopper dredger and split hopper units	DA		X h	C	(1) For welded construction (2) See item B17
	1- Cylinder housing		C	X ndt (1)	C	
	2- Covers		C	X ndt	C	
	3- Piston rods, pins of hinges and eyes		C	X ndt	C	
	4- Main bolting		C	X ndt	C	
	5- Hinge eyes and pins (dock houses and main hinges)		C	X ndt	C	
	6- Hydraulic power station for handling hydraulic cylinders	(2)	(2)	(2)	C	

HULL OUTFITTERS - ITEM B						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
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) - 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- Hydraulic systems, Electric systems (3) (4)	DA		X h	C	(4) For electric systems (motors, switchboards, starter cabinets, alarm panels, etc.), refer to the relevant provisions of item K ; for the other systems, refer to the relevant provisions of this NR266 and of NR467
	5- Stern roller, Wire stopper, Guide pins	DA	C	X ndt (5)	C	(5) Tugs, Salvage tugs, Escort tugs: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 1 (6) Anchor handling vessels: testing as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 2
B25	Bollards and bitts (1)					Note: On board tests as per agreed program; refer to the relevant provisions of NR467, Part E, Chapter 1 and NR467, Part E, Chapter 2 (1) As per provisions of NR467, Pt B, Ch 9, Sec 4, [4].
	1- As per recognised standards		W		W	
	2- Other cases	DA	C	X	C	

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 (2) As per survey scheme set in the TA
	- fire-resisting and fire-retarding divisions (bulkheads or decks)	TA (1)		X	C / W (2)	
	- 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 EXTINGUISHION 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 (2) Together with dryers if any
	1- Feed air compressors	DA	W	X h (2)	C	
	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	Diesel engines listed bellow: - 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- 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	(1) For turbochargers: see item E12 and provisions of NR467, Pt C, Ch 1, Sec 14
	4- Cylinder block GJL (applicable to crosshead engines)			W (7) (8)		(2) Crankcase safety valves are to be type tested in accordance with NR467, Pt C, Ch 1, App 4 and documented according to Pt C, Ch 1, Sec 2, [2.3.4]. Also see item E9
	5- Cylinder block GJS (applicable to crosshead engines)			W (7) (8)		(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]. Also see item E9
	6- Welded cylinder frames (applicable to crosshead engines)		W(Chem +Mech) (5)	W(UT+CD) (6) fit-up + post-welding (11)	C	(4) For speed governor and overspeed protective devices, see Pt C, Ch 1, Sec 2, [2.7]. Also see item E9
	7- Engine block GJL (applicable to engines > 400 kW/Cyl.)			W (7) (8)		(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

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)		(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 (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 (9) Charge air coolers need only be tested on the water side (10) Dimensional inspection, including surface condition (11) Visual inspection by the Surveyor (12) Applicable to engines with D > 300 mm (13) Applicable to engines with D ≤ 300 mm (14) Applicable to all engines with accumulators with a capacity of > 0,5 l (15) Type test: stages A, B and C as per NR467, Pt C, Ch 1, Sec 2 (16) NDT as per NR467, Pt C, Ch 1, Sec 2 (17) Works trials (factory acceptance tests), as per NR467, Pt C, Ch 1, Sec 2 (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]) (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
	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- Crosshead (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 (3)	C	X h ndt (2)	C	(1) See item G30 for pressure vessels (2) Including setting of safety devices, if any (3) Air Starters are part of Starting equipment of diesel engines. Equipment for primary ‘essential services’ as per NR467 Pt C, Ch 2, Sec 1. Product certificate required for Air Starters: C/W, as per conditions set in the TA (IBV/HBV) Note: During sea trials of the ship (capacity check)
E6	Air compressors for filling of item E5 , and their prime movers	DA (3)				(1) Including coolers, if any
	1- Air compressors for filling of item E5		W	X h (1)	C	(2) Non electrical (i.e. hydraulic); for electrical motors, refer to item K5
	2- Prime movers (2)			X h	C	(3) Compressed air systems: ref NR467, Ch 1, Sec 10, [17]. Air compressors having a crankcase volume of at least 0,6 m3 are to be fitted with crankcases explosion relief valves satisfying the provisions of NR467, Ch 1, Sec 2, [2.3.4]. Also see item E9 Note: Under load, on board (capacity). Also ref. NR467, Ch 1, Sec 15 (Shipboard tests for machinery)
E7	Turning gears of item E1			X	W	Note: Running test - on board

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E8	Scavenging and supercharging compressors or blowers (1)					(1) For turbochargers, refer to provisions of item E12
	1- Auxiliary compressors or blowers (2) (3)	DA or TA (7)	C (4)	X h n dt (5)	C / W (5)	(2) As per NR467. 'Scavenging air auxiliary compressors or blowers' are considered as equipment for primary 'essential services' (services which need to be maintained in continuous operation) (3) As general, electrically-driven auxiliary blowers are provided to supplement the scavenge air delivery when engines are operating at low loads and speeds (because, at such low engine loads and speeds, the turbochargers cannot deliver the necessary air for the gas flow process)
	2- Electrical motors (6)	DA or TA	W (6)	X (6)	C / W (6)	(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 ≤ 300 mm (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

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E9	Crankcase explosion relief valves, Oil mist detection, Regulation and safety devices (3) (6)	DA or TA (1) (2)	C / W (4)	X (5)	C / W (7)	(1) Diesel engines of a cylinder diameter of 200 mm and above or a crankcase gross volume of 0,6 m3 and above are to be provided with crankcase explosion relief valves in accordance with Rules. Crankcase construction and crankcase doors are to be of sufficient strength to withstand anticipated crankcase pressures that may arise during a crankcase explosion taking into account the installation of explosion relief valves required by NR267, Pt C, Ch 1, Sec 2. Type testing procedure is to comply with NR267, Pt C, Ch 1, App 4. (2) Oil mist detection arrangements are to be of a type approved and tested in accordance with NR267, Pt C, Ch 3, App 1 and comply with relevant provisions of NR267, Pt C, Ch1, Sec 2. Engine bearing temperature monitors or equivalent devices used as safety devices have to be of a type approved by the Society for such purposes. (3) Speed governor and overspeed protective devices: see Pt C, Ch 1, Sec 2, [2.7]. (4) Testing and/or document review, as applicable (5) Testing as per NR467 and program accepted by the Society (6) Also see relevant provisions of items, K25, N, G26, and G27 (7) As per technology and conditions set in the TA Note: During running, load tests, according to agreed program
E10	Pressure pipes (water, lubricating oil, fuel oil, and compressed air pipes), valves and other fittings	(1)	C / W (1)	X h	C	(1) See items G26 and G27
E11	Mass-produced diesel engines (1)	TA (3)	W (2)	X ndt (2) (4)	C (5)	(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 (2) The provisions of item E1 regarding survey of engine components and evaluation of test results are to be complied with (3) Type tests as per NR467, Pt C, Ch 1, Sec 2 and program accepted by the Society (4) Works trials as per NR467, Pt C, Ch 1, Sec 2 (5) Society certificate, as defined in item E1

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 or TA (4) HBV	W	X h ndt (12)	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 (12) According to an agreed program

MAIN DIESEL ENGINES AND THEIR AUXILIARIES - ITEM E						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
E13	Gas engines (1) (2) For ships with gas fuelled propulsion; the service notation is completed by one of the following additional service features: • dualfuel for engines using both gas and fuel oil as fuel • gasfuel for engines using only gas as fuel	TA (3) (4)	C / W (3) (4) (5)	X (3) (4) (5)	C	(1) The gas may be either compressed natural gas or liquefied natural gas (2) Refer to specific requirements of NR529 Gas Fuelled Ships, and relevant provisions of NR467, Pt D, Ch 9, Sec 16 (3) The provisions of item E1 (Main and auxiliary diesel engines) regarding survey of engine components and evaluation of test results are to be complied with, as far as applicable (4) See also relevant provisions of NR467, Part C, Chapter 1, particularly NR467, Pt C, Ch 1, App 2 (5) For piping systems: see also the relevant provisions of NR216 and NR467, Pt C, Ch 1, Sec 10
E14	Chocking systems, chocking resins	TA (1)	W	X	C / W (2)	(1) As per NR467, Pt C, Sec 1 (2) As per conditions set in the TA

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
	2- Stationary parts (castings and plates for casings)		W (6)	X h ndt	C	(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)
	3- Blades		C (7)	X ndt	C	(4) Balancing and overspeed test of rotors
	4- Piping, valves and associated fittings	(8)	C / W (8) (9)	X h ndt	C	(5) Material tests (all) and NDT: magnetic particle or liquid penetrant (all) and Ultrasonic or X Ray examination (sample)
	5- Regulation and safety devices			X (10)	C	(6) Material tests (all) and NDT: magnetic particle or liquid penetrant (spot as agreed between the Manufacturer and the Surveyor)
	6- Flexible coupling (11)	DA	C / W	X	C / W	(7) Material tests (sample) and NDT: magnetic particle or liquid penetrant (sample) and Ultrasonic or X Ray examination (sample)
	7- Measuring instruments (12)	TA		X (13)	C	(8) See items G26 and G27
	8- Turbine and nozzle casings		W (6)	X h ndt	C	(9) Material tests and NDT: as required in the relevant Sections of the Rules
	9- Intermediate coolers and heat exchangers (14)	DA	C	X h ndt	C	(10) Including overspeed tripping device test
F2	Manoeuvring and distribution valves of item F1	DA	C (1)	X	C	(11) See item G1
						(12) Such as pressure gauges, thermometers, speed indicators, vibration detectors. Automation systems: see relevant provisions of item N
						(13) Accuracy (calibration) to be checked
						(14) See item G30 for pressure vessels

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 (13)	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 screw stays		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	(13) Automation systems: see relevant provisions of item N
	13- Remote level indicators	TA		X h	C / W (12)	Note: Running tests - on board under load, during sea trials
	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
F13	Feed water heaters (1)	DA	C (2)	X h	C	(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
	2- Stationary parts (castings for casings intended for a temperature exceeding 230°C and plates for casings intended for a temperature exceeding 370°C or pressure exceeding 4 Mpa)		W (7)	X h ndt	C	(4) Thermal stability test of rotors (solid forged and welded rotors of propulsion turbines are to be subjected to a thermal stability test where the service temperature exceeds 400°C; this test is to be carried out after heat treatment and rough machining or at a later stage of fabrication, in accordance with a procedure agreed by the Society)
	3- Blades		C (8)	X ndt	C	(5) Balancing and overspeed test of rotors (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. Automation systems: see relevant provisions of item N
	9- Intermediate coolers and heat exchangers (15)	DA	C	X h ndt	C	(14) Accuracy (calibration) to be checked (15) See item G30 for pressure vessels

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
	1- when torque ≥ 1 kNm		C (2)	X h (3)	C	(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
	2- when torque < 1 kNm ⁶	(5)	W	X h (3)	C / W (5)	(5) In case of mass-produced items manufactured in series according to a defined type, document type required as stated at the type approval stage - As per conditions set in the TA
G2	Reduction gears, reverse reduction gears, and multipliers	DA	(1)	X (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
	1- Reduction and/or reverse gears intended for propulsion plants:					(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
	• with a transmitted power $P \geq 220$ kW		C	X h ndt (2) (3)	C	(3) Verification of cutting accuracy, meshing test, hydrostatic tests (hydraulic or pneumatic clutches, pressure piping, pumps casings, valves and other fittings)
	• with a transmitted power $P < 220$ kW		W		W	(4) Survey of shafts and their connections (flange couplings, hubs, bolts pins) as per relevant provisions of item G5
	2- Other reduction and step-up gears:					Note: Running tests under load on board: during the sea trials, the performance of reverse and/or reduction gearing is to be verified. Shipboard tests to be carried out as per NR467, Pt C, Ch 1, Sec 15 for Machinery systems
	• 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
	Cardan shafts (flanges, crosses, shafts, yokes) (2)	DA	C	X ndt	C	Note: a- on board: contact on bearing to be examined b- checking of fitting
G5	Main propulsion shafting (1) (shafts, couplings, clutches and other shafting components transmitting power for main propulsion)	DA		X h ndt (4)	C	(1) For shafting components in diesel engines, turbines, gears and thrusters, refer to relevant items of this NR266
	1- Coupling (separate from shafts)	DA	C (2)	X ndt	C	(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)
	2- Propeller shafts	DA	C (2)	X ndt	C	(3) Material tests (all); NDT not required
	3- Intermediate shafts	DA	C (2)	X ndt	C	(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
	4- Thrust shafts	DA	C (2)	X ndt	C	(5) Alignment to be checked on board
	5- Cardan shafts (flanges, crosses, shafts, yokes)	DA	C (2)	X ndt	C	(6) Stern tubes, 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
	6- Stern tubes (9)	DA	W (3)(10)	X h ndt (6)	W	(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
	7- Stern tube bushes and other shaft bearings	DA	W (3)	X	W (12)	(8) See item G1
	8- Propeller shaft liners	DA	W (3)	X h (6)	W	(9) Stern tube sealing glands: see item G40
	9- Coupling bolts or studs	DA	W (3)	X	W / C (11)	(10) Also see relevant provisions of items A10 and A11 (for Steel castings and Steel forgings)
	10- Flexible couplings	DA	C / W (3) (7)	X	C / W (8)	(11) For special bolts (i.e. expansion type), product certificate C is required
	11- Thrust sliding-blocks (frame)	DA	W (3)	X	W	(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

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 examination and 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- Stern tube 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) Stern tubes, when machine-finished, are to be hydrostatically tested to 0,2 N/mm ² . Works' certificates W required (4) Watertightness (for cast steel or cast iron tubes) Note: Checking of fitting on board

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) As per NR467, Pt C, Ch 1, Sec 8. These requirements do not apply to propellers and impellers in rotating or bow and stern thrusters (which are covered in NR467, Pt C, Ch 1, Sec 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
	1- Solid propeller	DA	C (2)	X ndt	C	(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 (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

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G11	Diesel engines driving electric generators (1)	TA	C	X	C	(1) For such diesel engines, the relevant provisions are those of item E1 , as applicable
G12	Lubricating oil pumps and their prime movers (1)					(1) Lube oil pumps for the propulsive plant
	1- Lubricating oil pumps	(2)	(2)	X (2)	(2)	(2) 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) (3)	DA or TA (4)	C	X h ndt (2)	C	(1) See item G30 for pressure vessels (2) Including calibration of safety devices (3) Also see provisions of item E5 , as applicable (4) Air Starters are part of Starting equipment of diesel engines. Equipment for primary 'essential services' as per NR467 Pt C, Ch 2, Sec 1. Product certificate required for Air Starters: C/W, as per conditions set in the TA (IBV/HBV)
G14	Air compressors for filling of item G13 and their prime movers (1) (4)	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 (4) Also see provisions of item E6 , as applicable
G15	Auxiliary boilers (1) (8)	DA		X h ndt	C	(1) Item G15 applies to auxiliary boilers (class 1) which are part of the ship's essential services and/or located in machinery spaces. Vessel classification as per criteria of item G30
	1- Boilers and drums		C	X h ndt (2)	C	(2) If forming or welding operations
	2- Tubes		C	X h	C	(3) For cylindrical boilers only (internal test)
	3- Furnaces (cylindrical and vertical boilers for instance)		C	X h ndt (3)	C	(4) See item G27
	4- Screw stays and longitudinal stays		C	X h	C	(5) Capacity test on prototype
	5- Valves and miscellaneous accessories	(4)	C / W (4)	X h	C	(6) Setting and accumulation test
	6- Safety valves	(4)	C	X h (5) (6)	C	(7) Calibration to be checked
	7- Level indicators	TA		X	C	(8) Automation systems: see relevant provisions of item N
	8- Pressure gauges and thermometers			X (7)	C	Note: Running tests - on board
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
	1- Auxiliary condensers		W	X h	C	Note: Running tests under load on board; general examination
	2- Tubes		W	X h (1)	C	

AUXILIARY MACHINERY - ITEM G						
No.	Item	Product certification				Remarks
		Design assessment / Approval	Raw material certificate	Examination and testing	Product certificate	
G18	Auxiliary units of item G17					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5 Note: Running tests on board
	1- Pumps	(1)	(1)	X (1)	(1)	
	2- Air ejectors			X	W	
	3- Valves and miscellaneous accessories			X h	C	
	4- Prime movers of 1-			X h (2)	C	
G19	Feed pumps of item G15 and their prime movers					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Feed pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	C	
G20	Evaporators, fresh water generators, their auxiliaries and accessories	DA				(1) As per criteria of item G30 (2) See item G31 Note: Running tests on board; general examination
	1- Distillation bodies and heating coils	DA (1)	C / W (1)	X h ndt	C	
	2- Pumps	(2)	(2)	X (2)	(2)	
	3- Air ejectors			X	W	
	4- Valves and miscellaneous accessories			X h	C	
G21	Steam heated steam generators	DA (1)	C (2)	X h ndt	C	(1) Same criteria as for item G15 (2) As per criteria of item G30 Note: Running tests under load, on board
G22	Bilge pumps and their prime movers					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see 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	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	C	
G23	Ballast pumps and their prime movers (1)					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Ballast pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	W	
G24	Fuel transfer pumps and their prime movers					(1) See item G31 (2) Non electrical (i.e. hydraulic). For electrical motors, see item K5
	1- Fuel transfer pumps	(1)	(1)	X (1)	(1)	
	2- Prime movers (2)			X h	C	

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) (11) 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					- 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	
	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	
	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	
	Class III: not applicable					

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

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	
	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	
	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	
	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	
	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) (3) If of welded construction (4) For cargo valves : refer to relevant provisions of items H17 and I14 (Cargo handling and containment systems)
	Class I: $ND \geq 50$ Class II: $ND \geq 100$	(2)	C	X h ndt (3)	C	
	Class I: $ND < 50$ Class II: $ND < 100$	(2)	W	X h ndt (3)	C	
	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 hoses 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 1,5 times the maximum service pressure. (during the test, the flexible hose assembly is to be repeatedly deformed from its geometrical axis) as per NR467, Pt C, Ch 1, Sec 10, [20.4.6], item a) (5) Where a flexible hose assembly is made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing (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: - the ship side - the collision bulkhead - fuel oil and lubricating oil tanks and under static pressure	DA (2)	C (1)	X h (3) ndt (4)	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 $\geq$ 100 mm (3) Examination and testing as per relevant provisions of NR467, Pt C, Ch 1, Sec 10, [20]. (4) If of welded construction