TÜRK LOYDU RULE CHANGE SUMMARY

TL NUMBER: 03/2024 DECEMBER 2024

Latest editions of TL Rules incorporate all rule changes. The latest rule revisions of a published rule are shown with a vertical line. Changes after the publication of the rule are written in red colour.

Please note that within this document added items are written in red and for deleted items strikethrough is applied. After the publication of relevant rule, those revisions are to be indicated with a vertical line. Following Rule Changes presented in English are also implemented into Turkish Version of Rules.

RULE CHANGE SUMMARY

CLASSIFICATION AND SURVEYS

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CHAPTER 37 – TENTATIVE RULES FOR THE CLASSIFICATION OF PASSENGER CRAFT

No	**Item**
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CHAPTER 63 - OFFSHORE UNITS AND INSTALLATION – MACHINERY

No	**Item**

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No	Item
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CHAPTER 101 - NAVAL SHIP TECHNOLOGY, CLASSIFICATION AND SURVEYS

No	Item
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CHAPTER 104 - NAVAL SHIP TECHNOLOGY, PROPULSION PLANTS

No	Item
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CHAPTER 105 - NAVAL SHIP TECHNOLOGY, ELECTRICAL INSTALLATIONS

No	Item
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ADDITIONAL RULES - REQUIREMENTS CONCERNING USE OF CRUDE OIL OR SLOPS AS FUEL FOR TANKER BOILER

No	Item

01	**General**

GUIDELINES - GUIDELINES FOR POWER PLANT SHIPS

No	**Item**
01	**Section 1**

CLASSIFICATION AND SURVEYS

01. Section 2 – Classification

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Items A.1.11 and 1.12 were revised according to PR 1B Rev.7 as below:

1.11 "Double class vessel" is a vessel which is classed by **TL** and another Society and where each works as if it is the only Society classing the vessel, and ~~does~~ performs all surveys in accordance with its own ~~requirements~~ Rules and schedule.

1.12 "Dual class vessel" is a vessel which is classed by **TL** and another Society. **TL** and the Society have ~~between which there is~~ a written bilateral agreement that outlines sharing of work, including a working plan, and procedures and, in case of newbuilding, a written trilateral agreement with the shipyard.

Indicated addition was made into Item 2.2.4 , based on PR 1B Rev.7, as below;

2.2.4 In statutory matters, when authorized by the flag state concerned and acting on its behalf, the Society applies the IMO Circulars, Resolutions and **TL** Interpretations (TL- Is) applicable to a vessel, its machinery and equipment, in accordance with the implementation dates and provisions stated in the IMO Circulars, Resolutions and TL- I unless the flag state provides a different interpretation with written instruction to apply or decides otherwise.

Based on IACS PR 42, Item 2.1.6 was added;

2.1.6 Requirements pertaining to assigning class for a newbuilding project when the design is already approved by an Initial Society (Based on the Classification Rules and a Memorandum of Understanding (MoU) adopted between **TL**, a Shipyard and, if applicable, a Ship Owner) are to be in accordance with IACS PR42.

Based on PR 1B Rev.7 and PR 42, Item 2.2.8, titled 'Documents' and relevant sub-items were added as indicated below;

2.2.8 Documents

For a newbuilding project when the design is already approved by an Initial Society (Based on the Classification Rules and a Memorandum of Understanding (MoU) adopted between **TL**, a Shipyard and, if applicable, a Ship Owner), and a dual class ships under construction, the following documentation is to be submitted to **TL**:

2.2.8.1 Main plans

- General Arrangement
- Capacity Plan
- Hydrostatic Curves
- Loading Manual, where required.
- Damage Stability calculation, where required.

2.2.8.2 Steel plans

- Midship Section
- Scantling Plan- Decks
- Shell Expansion
- Transverse Bulkheads

- Rudder and Rudder Stock
- Hatch Covers
- For CSR vessels, plans showing, for each structural element, both as-built and renewal thicknesses and any thickness for “voluntary addition”.
- Plan of tank testing

2.2.8.3 Machinery and Electrical plans

- Machinery Arrangement
- Intermediate, Thrust- and Screw Shafts
- Propeller
- Couplings and shaft alignment calculation
- Main Engines, Propulsion Gears and Clutch Systems (or Manufacturer make, model and rating information)
- For Steam Turbine Vessels, Main Boilers, Superheaters and Economisers (or Manufacturer make, model and rating information) and Steam Piping
- Bilge and Ballast Piping Diagram
- Wiring Diagram
- Steering Gear Systems Piping and Arrangements and Steering Gear Manufacturer make and model information
- Diagram of the air, sounding and overflow systems
- Diagram of cooling systems (sea water and fresh water)
- Diagram of fuel oil system
- Diagram of the lubricating oil system
- Diagram of the hydraulic systems intended for essential services or located in machinery spaces
- Diagrams of sea water and / or freshwater piping systems
- Electrical power balance (main and emergency supply)
- General specification for the automation of the ship
- Detailed specification of the essential service systems
- List of components used in the automation circuits, and references (Manufacturer, type, etc.)
- General diagram showing the monitoring and/or control positions for the various installations, with an indication of the means of access and the means of communication between the positions as well as with the engineers.
- Diagrams of the supply circuits of automation systems, identifying the power source
- List of monitored parameters for alarm/monitoring and safety systems
- Diagram of compressed air system

2.2.8.4 Torsional vibration calculations

Torsional vibration calculations.

2.2.8.5 Additional requirements for vessels with ice class notation

Plans for flexible couplings and/or torque limiting shafting devices in the propulsion line shafting (or manufacturer make, model and rating information).

2.2.8.6 Additional plans required for oil tankers

Pumping arrangement at the forward and after ends and drainage of cofferdams and pump rooms.

2.2.8.7 Additional plans required for unattended machinery space notation

- Instrument and Alarm List
- Fire Alarm System
- List of Automatic Safety Functions (e.g. slowdowns, shutdowns, etc.)
- Function Testing Plan.

2.2.8.8 Additional Documents required for approval of Alternative Design and Arrangements

Document(s) of Approval of Alternative Design and Arrangements, if any.

2.2.8.9 Expansion of the list of plans

This list shall be expanded depending on the type of ship under the responsibility of **TL**.

Table 2.12 regarding "ship type notations for special service vessels" was updated with below indicated additions/alterations.

HOPPER BARGE	Self-unloading barges with design capability to facilitate rotation around the longitudinal axis when the bottom opens	Hopper Barges	Part A Chapter 1 Section 33	Classification and Surveys Section 3
POWER PLANT SHIP/BARGE	Ships/Barges specially equipped for power generation	Power plant ship/barge	Guidelines for Power Plant Ships	Case by case

Following addition 'AF Ready' was made into item 3.13, Table 2.52.

AF Ready	For ships ready for future operation with alternative fuels. (i.e. **AF Ready Methanol**)	Methanol fueled ships	**TL** Guidelines for the Safety of Ships Using Methyl/Ethyl Alcohol as Fuel	**TL** Guidelines for the Safety of Ships Using Methyl/Ethyl Alcohol as Fuel

Requirements regarding material certification was added into Section 2 E as item 1.3 below;

1.3 Unless a classification notation for special operations was assigned for a ship, working gear e.g., fishing gear and plants/installations for industrial purposes, e.g. dredging equipment, will not be part of the certification or classification. **TL** will survey in respect of their influence on the safety of the ship only. However, this does not absolve The Owner, building yard or other subcontractor from compliance with any requirements issued by Administrations.

PART A – CHAPTER 1 - HULL

01. Section 1 – General, Definitions

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item E.1 was revised according to UR L2 Rev.2 as below:

1. General

Ships with a length of 24 m. and above will be assigned class only after it has been demonstrated that their intact stability is adequate for the service intended.

Adequate intact stability means compliance with standards laid down by the Administration. **TL** reserve the rights deviate there from, if required for special reasons, taking into account the ships' size and type. The level of intact stability for ships with a length of 24 m and above in any case should not be less than that provided by Part A of IMO Resolution MSC.267 (85), as amended, (the International Code on Intact Stability, 2008) as applicable to the type of ship being considered, unless special operational restrictions reflected in the class notation render this possible.

02. Section 3 – Design Principles

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Footnote (6) of table 3.35 was revised according to MSC.1/Circ.1572/Rev.2 as below:

(6) *Where water tightness of a watertight door has not been confirmed by prototype test, testing by filling watertight spaces with water is to be carried out. See SOLAS regulation II-1/16.2 and MSC.1/Circular.1572/Rev.2.*

03. Section 16 – Hull Outfitting

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Footnote (7) was revised according to MSC.1/Circ.1572/Rev.2 as below:

(7) *This sub-section is applicable to oil tankers ≥ 500 GT, bulk carriers ≥ 20.000 GT and bulk carriers having a length of 150 m or above irrespective of their gross tonnage. IACS UI SC190 and UI SC191 (MSC.1/Circ.1572/Rev.2) are also to be applied*

04. Section 22 – Corrosion Protection

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Notes under item A.7.1.1 and A.7.2 were revised according to UI SC259 Rev.1 Corr.2 as below:

~~On June 11, 2009~~ IMO has been released a circular numbered MSC.1/Circ.1330/Rev.1 to arrange guidelines for maintenance and repair of protective coatings. This requirement has to be fulfilled for maintenance and repair.

~~On June 10, 2011~~ IMO has been released a circular numbered MSC.1/Circ.1399/Rev.1 to arrange guidelines for maintenance and repair of protective coatings of cargo oil tanks of crude oil tankers. This requirement has to be fulfilled for maintenance and repair.

05. Section 23 – Bow, Stern and Side Doors

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Below addition regarding ramps was made into section 23, under sub-section A, General as item 1.4.

1.4 For movable decks and ramps on ships with L1, L2, K6 notation, the requirements provided in Chapter 19, Section 9, F may be used.

PART A – CHAPTER 2 - MATERIALS

01. Section 06

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Items 9.2.1.1, 9.2.1.2, 9.2.1.3, 9.2.1.5, 9.2.1.6 were revised according to UR W8 Rev.4 as indicated below; figures 6.1 & 6.2 have been removed:

9.2.1.1 At least one test block is to be provided for each casting or batch of castings. Unless otherwise agreed these test blocks are to be either attached to the castings, cast integrally on the castings or cast separately.

9.2.1.2 The preferred test block arrangement, where practical, is for the manufacturer to provide at least one 30mm test block by either attached to the castings or cast integrally on the castings.

Note 1: The test results represent the material from which the castings have been poured and the subsequent heat treatment process and may not necessarily represent the properties of the castings. These properties can be affected by solidification conditions and the rate of cooling during heat treatment, which are in turn influenced by casting thickness, size, complexity and shape. The purpose of the test block is to provide a qualitative check to demonstrate the effective control of existing heat treatment processes and procedures.

9.2.1.3 For castings where it is required that the mechanical properties need to be demonstrated for specific section thicknesses and when agreed upon between the manufacturer and the purchaser, then proposals for alternative test block arrangements (in terms of size and type) are to be submitted for approval by **TL**.

Note 2: The size of the test blocks for mechanical testing may be determined by the ruling section of the casting that they are representative of the casting's heat treatment and microstructure. Also see ISO 4885:2018; ISO 683-1:2016 and ISO 683-2:2016.

~~*Note 2: The size of the test blocks for mechanical testing is to be such that the* heat treatment and microstructure *is representative for the section of the casting with the ruling section, i.e. the section for which the specified mechanical properties apply*~~, *see* ~~*also ISO 683-1:2018 and ISO 683-2:2018, respectively.*~~

Alternatively, determination of test block size and type may be supported by historical and statistical test data, production of a representative test block or a component, simulation software, or a combination of all these items.

~~For C, C-Mn steel castings this is in general to be achieved as follows:~~

~~The test block shall have a thickness (tS) of not less than the ruling section of the casting, or 30 mm, whichever is larger.~~

~~For large thickness castings other than stern tube, stern frame, anchor and rudder horn, tS normally need not to exceed 150 mm. Length and width of the test block is normally to be at least three times tS, unless otherwise agreed with TL, as shown in Figure 6.1. (Note that longer or wider test blocks may be necessary in order to accommodate the required test specimens.)~~

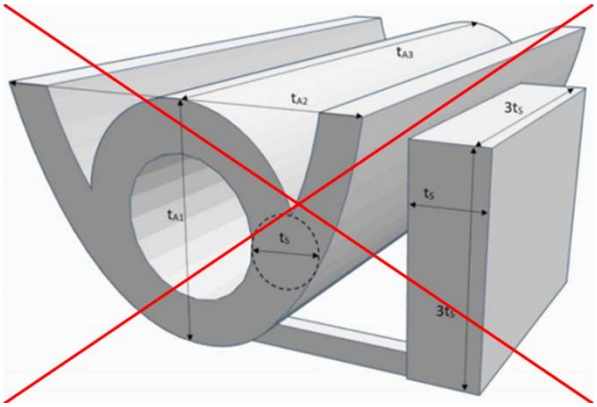
~~For castings for stern tube, stern frame, anchor and rudder horn the test block thickness tS shall represent the ruling section.~~

~~***Guidance:***~~

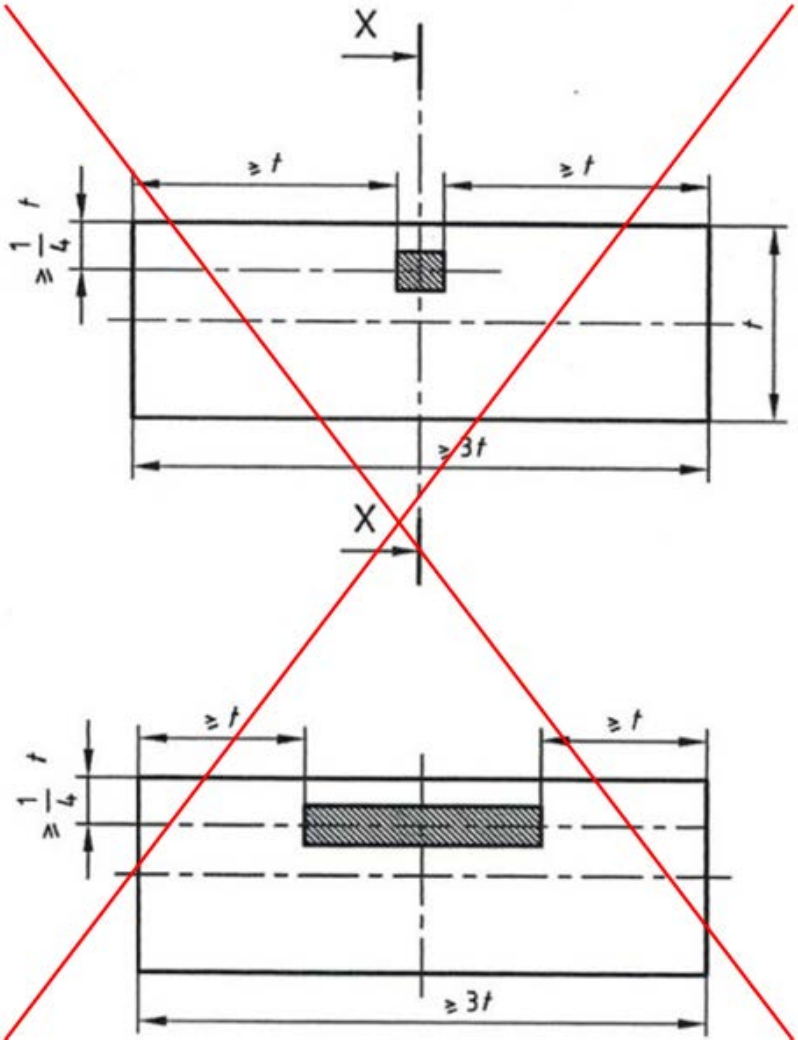
~~*Shorter width or length may be accepted for test blocks where actual casting width or length (t_A) is in the range between t_S and $3t_S$.*~~

~~***Example 1:** For a general casting with dimensions 140 x 160 x 1250 mm the required test block size would typically be 140 x 160 x 420 mm (that is: t_S x t_A x $3t_S$).*~~

~~***Example 2:*** *For a stern tube = 170 mm and = 1000/600/1800 mm, the typically be 170 x 510 x 510 Figure 6.2.*~~



~~*casting with ruling section t_S width/height/length $t_{A1}/t_{A2}/t_{A3}$ required test block size would mm (that is: t_S x $3t_S$ x $3t_S$) see*~~



~~**Fig. 6.1: positions block in ISO 4990**~~

~~**Specimen relative to the test accordance with**~~

~~**Fig. 6.2: Example 2: test block gated to stern tube casting**~~

~~For alloy steel castings the manufacturer shall propose dimensions for the test block and demonstrate the representative nature of it.~~

~~**9.2.1.3** For test blocks with thickness ≤ 56 mm, the longitudinal axis of the test specimens is to be located at ≥ 14 mm from the surface in the thickness direction. For test blocks with thickness > 56 mm, the longitudinal axis of the test specimens is to be located at ≥ ¼ t_S from the surface. Test specimens shall be taken in such a way that no part of the gauge length is machined from material closer than t_S to any of the other surfaces. For impact testing, this requirement shall apply to the complete test specimen - refer to Figure 6.1 for location of test specimens in relation to the test block.~~

9.2.1.5 Where the casting is of complex design or where the finished mass exceeds 10 tonnes, two cast on test blocks are to be provided ~~from the heaviest section~~, located as far as practicable from each other.

9.2.1.6 Where large castings are made from two or more casts, which are not mixed in a ladle prior to pouring, two or more test blocks are to be provided corresponding to the number of casts involved. These are to be attached to the casting or castintegrally castings at locations as widely separated as possible.

02. Section 10

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Part E has been provided with the references to the recognized standards through a general revision as indicated below and the subsequent table, which previously was 10.27 renumbered as 10.25;

3. Manufacture

3.1 The type, material and structure of the ropes are to conform to a national or international standard recognized by TL ~~and should, wherever possible, comply with Table 10.24.~~ Ropes of a different type may be approved on application provided that they are suitable for the proposed application.

4. Required Properties

The properties of fibre ropes are to fulfill the requirements specified in the standards recognized by TL. These include for example:

EN ISO 9554 and the complementary DIN and ISO standards mentioned therein~~, see Table 10.25~~.

~~**Table 10.25 Construction of customary rope types approved by TL**~~

~~**Rope standards**~~	~~**Material**~~	~~**Rope construction (DIN 83307)**~~	
		~~**Form**~~	~~**Construction**~~
~~EN ISO 1181~~	~~Manila~~	~~A, B~~	~~Hawser laid~~
~~EN ISO 1181~~	~~Sisal~~	~~A, B~~	~~Hawser laid~~
~~DIN EN 1261~~	~~Hemp~~	~~A, B, C~~	~~Hawser laid~~ ~~Cable laid~~
~~EN ISO 1140~~	~~Polyamide~~	~~A~~	~~Hawser laid~~
~~EN ISO 1141~~	~~Polyester~~	~~A~~	~~Hawser laid~~
~~EN ISO 1346 (1)~~	~~Polypropylene~~	~~A,B~~	~~Hawser laid~~
~~(1) *Data only for "3-strand hawser laid" with the same values.*~~			

5. Testing the Breaking Load of Ropes

5.1 Test method

The breaking load of ropes is to normally be determined by applying a tensile test to destruction to entire test sections of the rope in accordance with 3. If such a test is impossible for technical reasons, the breaking load of the rope may be calculated from the tensile values established in testing the individual yarns in accordance with 4. ~~This applies, however, only to those ropes whose maximum loading capacity exceeds 30000 daN and for which reduction factors are given in Table. 10.26.~~

~~**Table 10.26 Reduction factors**~~

Nominal diameter of rope [mm]	Reduction factors r for ropes					
	Of natural fibres			Of synthetic fibres		
	Manila, sisal or hemp rope acc. to EN ISO 1181 or DIN EN 1261 Form			Polyamide rope acc. to EN ISO 1140 Form	Polyester rope acc.to EN ISO 1141 Form	Polypropylene rope acc. to EN ISO 1346 Form
	A	B	C	A	A	A
44	-	-	-	0.68	-	-
48	-	-	-	0.68	0.51	0.82
52	-	-	-	0.68	0.51	0.82
56	-	-	-	0.68	0.50	0.82
60	-	-	-	0.68	0.49	0.82
64	-	-	-	0.67	0.48	0.81
72	0.58		-	0.67	0.48	0.81
80	0.58		-	0.66	0.48	0.80
88	0.57		-	0.66	0.48	0.80
96	0.57			0.65	0.47	0.80

5.2 Sampling

For the purpose of sampling, ropes of the same construction, the same material and the same nominal diameter which have been manufactured in an uninterrupted production run and subject to the same control procedure are to be grouped into test lengths. Sample size and selection of samples shall be in accordance with recognized standard by **TL**.

The following number of test sections measuring about 2500 mm in length are to be taken from the test lengths:

- Test lengths up to 2200 m (or 10 ropes up to 220 m long): 1 test section
- Excess test lengths up to 30000 m: 1 additional test section per 5500 m
- Excess test lengths over 30000 m: 1 additional test section per 11000 m *Note: In accordance with ISO 2307, Number of samples for a batch is 0,4 $\sqrt{N}$ where N is the batch size, expressed as the number of continuous lengths or coils.*

5.4 Calculation of the breaking load

5.4.1 In order to determine the breaking load by calculation, a number of yarns are to be tested in accordance with the recognized ~~standard~~~~aken from the test sections specified in 5.2. which are to be equal to half the numerical value of the rope diameter in mm, and these are to be subjected to a tensile test.~~ In taking the test specimens, ~~attention is to be paid to the following:~~

~~The yarns are to be taken evenly from the outside, middle and inside positions of the strands of the rope.~~

~~When taking the yarns~~, care is to be taken not to alter the twist of the yarns before testing.

5.4.2 The yarns are to be tested individually ~~by the tensile test in accordance with ISO 2062~~.

5.4.3 The breaking load of the rope is then to be determined from the results of the tests performed on the individual yarns in accordance with the the recognized standard (See EN ISO 2307). ~~by applying the formula:~~

~~$F_{SR} = F_G \cdot n \cdot r$~~

~~F_G = Average breaking load of yarn [daN]~~

~~n = Number of rope yarns in specimen~~

~~r = Reduction factor in accordance with Table 10.26.~~

.....

7. Marking

7.1 A tape indicating the rope standard designation and the manufacturer's, mark is to be worked into the rope~~s, each ~ 1m apart~~ according to the relevant standard (See e.g. EN ISO 9884). Where companies have been approved for the independent performance of tests, this tape is additionally to bear the identification number allocated to the company by **TL**. In addition, a coloured distinguishing thread denoting the yarn material in accordance with Table 10.~~27~~25 is should also to be worked into the rope.

The table number has been renumbered as 10.25.

03. Section 11 - Materials for Propeller

Revision Date: November 2024

Entry into Force Date: 01 January 2024

Item A.9 was revised according to UR W24 Rev.5 as below:

For qualification of personnel refer to Chapter 3 – Welding, Section 10 item~~s J.2.3, 2.4 and, 2.5~~.

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Revision Date: November 2024

Entry into Force Date: 01 January 2024

Item A.10.1 was revised according to UR W24 Rev.5 as below:

Non-linear indication: ~~an~~ indication ~~with a largest dimension~~ having a length less than or equal to three times its ~~smallest dimension~~ width (i.e. l ~~<~~≤ 3 w).

Linear indication: ~~an~~ indication ~~with a largest dimension~~ having a length greater than three ~~or more~~ times its ~~smallest dimension~~ width (i.e. l ~~≥~~ > 3 w).

Table 11.3 was revised according to UR W24 Rev.5 as below:

Severity zones	Maximum number of indications	Type of indication	Maximum number for each type of indicaiton (1) (2)	Maximum permitted dimension “a” or “l” of indications [mm]
A	7	non-linear	5	4
		linear	2	3
		aligned	2	3
B	14	non-linear	10	6
		linear	4	6
		aligned	4	6
C	20	non-linear	14	8
		linear	6	6
		aligned	6	6

(1) *Individual, non-linear indications with a diameter of less than 2 mm in Zone "A" and with a diameter of less than 3 mm in the other Zones are not considered relevant..*

(2) *~~All or some of t~~The total number of non-linear indications may be increased to the maximum ~~permitted~~ total number, or part thereof, represented by the absence of ~~all indications where there are no~~ linear~~/~~or aligned indications.*

Item A.11.3 & A.11.4 were revised according to UR W24 Rev.5 as below:

11.3 Repair of defects in Zone "A"

Repairs by welding in Zone "A" are generally not permitted unless specially approved by **TL**

~~In some cases the propeller designer may submit technical documentation to propose a modified zone A based on detailed hydrodynamic load and stress analysis for consideration by **TL**.~~

11.4 Repair of defects in Zone "B"

Defects with a depth d_B no more than d_B (depth in zone B) = t/40 mm ~~(t = local minimum thickness as specified in the Rules)~~ or ~~not deeper than~~ 2 mm. (whichever is greatest) ~~below the local thickness as specified in the Rules~~ are to be removed by grinding.

Note: t = min. local thickness in mm according to the **TL** Rules.

Item 12.2 was revised as below;

12.2 Preparation of welding sites

Based on UR W24, Table 11.5 has been altered as indicated below;

Table 11.5 ~~Holding~~ Soaking times [h] for the stress-relieving heat treatment of copper alloy propellers

Stress relieving heat treatment temperature [°C]	Alloy grade CU1 and CU2		Alloy grade CU3 and CU4	
	Hours for each 25 mm. of thickness [h]	Maximum recommended total hours[h]	Hours for each 25 mm. of thickness [h]	Maximum recommended total hours[h]
350	5	15	-	-
400	1	5	-	-
450	1/2	2	5	15
500	1/4	1	1	5
550 ~~(1)~~	1/4 **(1)**	1/2 **(1)**	1/2 **(2)**	2 **(2)**
600 ~~(1)~~	-	-	1/4 **(2)**	1 **(2)**

(1) *550°C only applicable for CU 2 alloys.*

(2) *Temperatures within the range 550 °C and 600°C shall only be employed for CU4 alloys.*

- Heat number, casting number or another ~~mark~~ identification enabling the manufacturing process to be traced back

Item B.21 was revised according to UR W27 Rev.3 as below:

2.1 General

All propellers, blades and bosses are to be manufactured by foundries approved by **TL** or an IACS Member Classification Society. The castings are to be manufactured and tested in accordance with the requirements of these rules.

9.1 Qualification of personnel involved in NDT

For the qualification of personnel refer to Chapter 3 – Welding, Section 10 items ~~J.2.3, 2.4 and, 2.5~~.

Item B.10.1 was revised according to UR W27 Rev.3 as below:

10.1 Definitions of liquid penetrant indications

Non-linear indication: ~~an~~ indication ~~with a largest dimension~~ having a length less than or equal to three times its ~~smallest dimension~~ width (i.e. l ~~<~~≤ 3 w).

Linear indication: ~~an~~ indication ~~with a largest dimension~~ having a length greater than three ~~or more~~ times its ~~smallest dimension~~ width (i.e. l ≥ > 3 w).

Item B.11.5 was revised according to UR W27 Rev.3 as below:

……..

~~In some cases the propeller designer may submit technical documentation to propose a modified zone A based on detailed hydrodynamic load and stress analysis for consideration by **TL**.~~

Item B.12.7 was revised according to UR W27 Rev.3 as below:

12.7 On completion of heat treatment of martensitic steels the weld repairs and adjacent material are to be ground smooth. All weld repairs are to be liquid penetrant tested.

PART A – CHAPTER 3 - WELDING

01. Section 10 – Non-Destructive Testing of Welds

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item J was revised according to UR W35 Rev.1 as indicated with each related item below:

1.1 Scope

Firms providing ~~NDT (~~Non-Destructive Testing (NDT) and Advanced Non-Destructive Testing (ANDT1) services on the new construction of ship and offshore structures/~~components~~ subject to classification, need to fulfil the requirements set out in this subsection. In this subsection, such firms will be referred to as the NDT Service Supplier.

Note: for the remainder of this subsection, wherever there is a reference to NDT, it also includes ANDT

1.1.2 This subsection applies to:

- Independent NDT companies, and;
- Internal departments of fabricators, e.g., shipyards, hull block/section fabricators performing NDT

The NDT service specified in this subsection covers the service application to the following hull structure and associated items at the fabrication stage during new construction:

- The welding of components that are integrated into the ship or offshore structure
- The fabrication of independent fuel or cargo tanks (including those intended for low flashpoint fuels, e.g. type A, B and C independent tanks as described in IMO IGC and IGF Codes).
- Items listed within the definition of hull structure, as defined in UR Z23 section 2.1
- Rudders of welded construction

1.1.3 NDT Service Suppliers in the context of this subsection are not included as part of the scope of UR Z17. **TL** shall verify the NDT Service Supplier in order to determine compliance with the requirements of this subsection. The method of verification is to be decided **TL**.

1.2 Objective

The objective of this rule is to ensure that the NDT Service Supplier is using appropriate procedures, has qualified

and certified personnel and has implemented written procedures for training, experience, education, examination, certification, performance, application, control, verification and reporting of NDT. In addition, the NDT Service Supplier shall furnish appropriate equipment and facilities commensurate with providing a professional service.

1.3 Terms and definitions

NDT — Non-destructive testing the development and application of technical methods to examine materials or components in ways that do not impair their future usefulness and Serviceability, in order to measure geometrical characteristics and to detect, locate, measure and evaluate flaws. NDT is also known as non-destructive examination (NDE), non-destructive inspection (NDI) and non-destructive evaluation (NDE). Comprising, but not limited to the methods and techniques MT, PT, RT, ~~RT-D,~~ VT, UT, ~~PAUT, TOFD,~~ and ET ~~and/or ACFM~~

NDT Service Supplier — Independent NDT company or NDT department/section that forms a part of a company providing NDT services on the new construction of ships and offshore structures, as applicable to the bodies performing NDT on the items as listed in paragraph 1.1.2 of this subsection.

…

AUT — Automated Ultrasonic Testing. A technique by which an object is tested by ultrasound using probes operating under mechanical control and where ultrasonic data is collected automatically

Industrial Sector — Section of industry or technology where sector specialised NDT practices are used, requiring specific product-related knowledge, skill, equipment and/or training.

Product Sector — A category of component that may be defined by type of manufacturing, fabrication, and/or shape, which may have unique, and/or general manufacturing/fabrication defect characteristics. Product sector examples include (but not limited to): castings, wrought products (forgings), rolled products, extruded products, and welds.

NDT personnel may hold certification in a method which is related to a product sector.

Based on UR W35 Rev.1, following references were added into Item 1.4.

1.4 References

….

- SNT-TC-1A; Personnel Qualification and Certification in Nondestructive Testing
- ANSI/ASNT CP-189; ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel

Terms ‘NDT Service’ and ‘NDT’ were added as it required, besides following additions.

2. Requirements for the NDT Service Supplier

The NDT Service Supplier shall document, as required in 2.2 to 2.9, that it has the competence and control needed to perform the specified NDT services.

2.1 Requirements for documents

The following documents shall be available for TL upon request:

- an outline of NDT Service Supplier's organisation and management structure, including any subsidiaries
- information on the structure of the NDT Service Supplier's Quality Management System
- for companies with in-house certification of personnel scheme; a written practice developed in accordance with a recognised standard or recommended practice (i.e. ASNT's SNT-TC-1A, ANSI/ASNT CP-189 or similar).
- written statement issued by the employer, based upon the scope of certification, authorising the operator to carry out specified tasks
- experience of the NDT Service Supplier in the specific service area,
- for companies which obtain certification from an accredited certification body; a list of documented training and experience for NDT operators within the relevant service area, including qualifications and third party certification per ISO 9712 based certification schemes.
- description of equipment(s) used for the services performed by the NDT Service Supplier.
- information on other activities which may present a Conflict of interest, if applicable
- record of customer claims and corrective actions, where applicable
- any legal proceedings against the company in the past/currently in the courts of law, where applicable

Term 'NDT Service' was added to relevant sentences in items 2.2 & 2.3 & 2.4 & 2.6 & 2.7 & 2.8 & 2.9 as well as other clarification as indicated below;

2.2 Quality management system

The NDT Service Supplier shall have a documented quality management system, covering at least:

- work procedures for all tasks and operations, including the various NDT methods and NDT techniques for which the NDT Service Supplier is involved.
- code of conduct for the NDT Service Supplier's activities; especially the NDT activities.

A documented quality system complying with the most current version of ISO/IEC 17020 and including the above would be considered acceptable. The NDT Service Supplier should satisfy the requirements of Type A or Type B or Type C inspection body, as described in ISO/IEC 17020. In all cases, production staff shall not be allowed to inspect their own work in the case of Type C inspection body.

2.3 Qualification and certification of NDT personnel

The NDT Service Supplier is responsible for the qualification and preferably 3rd party certification of its supervisors and operators to a recognised certification scheme based on ISO 9712.
Personnel qualification to an employer based qualification scheme as e.g. SNT-TC-1A or ANSI/ASNT CP-189 may

be accepted if the NDT Service Supplier's written practice is reviewed and found acceptable by **TL.** The NDT Service Supplier's written practice shall as a minimum, except for the impartiality requirements of a certification body and/or authorised body, generally comply with the requirements of ISO 9712.

For NDT operators holding certificates issued via an employer based scheme, the employer's certification shall be deemed revoked when employment is terminated by either party.

The supervisors' and operators' certificates and competence shall comprise all industrial and product sectors and techniques being applied by the NDT Service Supplier.

Level 3 personnel shall be certified by ~~an accredited certification body~~ one of the following means:

- obtain certification from an accredited certification body.
- obtain certification from an employer based scheme via the examination method, as detailed in the written practice. It is not permissible to directly appoint a level 3 without examination if the intended certification route is from an employer based scheme.

2.4 Supervisor

The NDT Service Supplier shall have a supervisor or supervisors, responsible for the following: ~~appropriate execution of NDT operations and for the professional standard of the operators and their equipment, including the professional administration of the working procedures. The supplier shall employ, on a full-time basis, at least one supervisor independently certified to Level 3 in the method(s) concerned as per the requirements of item 2.3. It is not permissible to appoint Level 3 personnel; they must be certified by an accredited certification body. It is recognised that a Supplier may not directly employ a Level 3 in all the stated methods practiced. In such cases, it is permissible to employ an external, independently certified, Level 3 in those methods not held by the full-time Level 3(s) of the Supplier.~~

~~The supervisor shall be directly involved in review and acceptance of NDT Procedures, NDT reports, calibration of NDT equipment and tools. The supervisor shall on behalf of the Supplier re-evaluate the qualification of the operators annually.~~

a) validate NDT instructions and procedures established and reviewed by level 3 personnel;

b) review of NDT reporting;

c) supervise all tasks and NDT operations at all levels;

d) inspection of NDT equipment, tools and calibration;

e) re-evaluate the qualification of the operators annually on behalf of the NDT Service Supplier.

Normally, the NDT Service Supplier shall employ (on a full-time basis) a level 3 supervisor, certified to level 3 in the applicable method(s) as per the requirements of this subsection.

It is recognised that an NDT Service Supplier may not directly employ a Level 3 in all the stated methods practiced. In such cases, it is permissible to employ an external Level 3 who is certified by an accredited certification body in those methods not held by the full-time Level 3(s) of the NDT Service Supplier.

Alternatively, and by agreement with **TL**, the NDT Service Supplier may appoint an internal (full-time employed) supervisor of NDT activities, who does not hold level 3 certification. In this case, the supervisor shall be certified to a

minimum of level 2.

2.6 Equipment

The NDT Service Supplier shall maintain records of the NDT equipment used and detail information related to maintenance, calibration and verification activities. If the Supplier hires equipment, such equipment shall have updated calibration records, and the operators shall be familiar with the specific equipment type prior to using it. Under any circumstance, the NDT Service Supplier shall possess sufficient equipment to carry out the services being a part of the NDT scope required by **TL**. Where the equipment is of unique nature, the NDT operators shall be trained by competent personnel in the operation and use of the equipment before carrying out NDT using this equipment.

2.7 Work instructions and procedures

The NDT Service Supplier shall produce written procedures for the NDT being applied. These procedures are to be written, verified or approved by the NDT Service Supplier's Level 3 (either internal, or external, as described in item 2.4). Procedures shall define all relevant information relating to the inspection including defect evaluation against acceptance criteria in accordance with **TL** Rules. All NDT procedures and instructions shall be properly documented in such a way that the performed testing can be easily retraced and/or repeated at a later stage. All NDT procedures are to be acceptable to **TL**.

2.8 Sub-contractors

The NDT Service Supplier shall give information of agreements and arrangements if any part(s) of the services provided are subcontracted, included level 3 NDT Services (as described in item 2.4). The NDT Service Supplier, in the following-up of subcontracts shall give emphasis to the quality management system of the subcontractor. Subcontractors shall meet the same requirements placed on NDT Service Suppliers for any NDT performed.

2.9 Reporting

All NDT shall be properly documented in such a way that the performed testing and examination can be easily retraced and/or repeated at a later stage. The reports shall identify the defects present in the tested area, and a conclusive statement as to whether the material, weld, component or structure satisfies the acceptance criteria or not. The report shall include a reference to the applicable standard, NDT procedure and acceptance criteria applied in the applicable NDT method/technique. In general, the acceptance criteria shall comply with **TL** Rules. Reports shall be signed by the personnel with the appropriate level of certification, and the appropriate signatory status as defined in the Quality Management System.

PART B – CHAPTER 4 MACHINERY

01. Section 1 – General Rules and Instructions

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item C was revised according to UR M46 Rev.3 as below:

C. Ambient Conditions

1. Operating conditions, general

1.1 The selection, layout and arrangements of all shipboard machinery, equipment and appliances shall ensure faultless continuous operation under the ambient conditions specified in Tables 1.1-1.4.

1.2 Account is to be taken of the effects on the machinery installation of distortions of the ship's hull.

2. Shipboard accelerations

2.1 Main propulsion and steering machinery and auxiliary machinery that is essential to the propulsion and steering, and the safety of the ship shall be capable of operation under the effects of acceleration and motions.

2.2 The requirements in C.3 to C.5 apply where documented evidence of equipment suitability is specifically required by other relevant TL Rules for such equipment or requested by TL.

3. Documentation

3.1 For ships subject to the SOLAS Convention, ship builders are to identify and document the ship accelerations and motions periods to which machinery and equipment might be subjected to. The expected accelerations and ship motions periods are to be within machinery and equipment manufacturers requirements. The estimations are to consider vessel type, machinery or equipment location and expected service conditions.

4. Evaluation of equipment suitability

4.1 Machinery and equipment manufacturers are to submit evidence to TL that their machinery or equipment can operate under the required static and dynamic conditions stated in Table 1.1 and at least at the levels of shipboard accelerations as stated in C.3 and/or specified in the relevant TL Rules. Documentation of satisfactory performance shall take the form of:

4.1.1 Report of testing under representative conditions; or

4.1.2 Report of theoretical verification using recognised computational techniques accompanied by detailed and relevant validation data: or

4.1.3 Historical data which provides relevant demonstration of satisfactory experience in service.

5. Installation and operation

5.1 Machinery and equipment manufacturers are to submit details of the requirements/recommendations for

installation of the machinery and equipment onboard to ensure satisfactory operation in service under the required static and dynamic conditions as described in Table 1.1 and at least at the levels of shipboard accelerations as stated in C.3 and/or specified in the relevant TL Rules.

Note: *Consideration should be given for positioning machinery in order to minimize the dynamic load on bearings due to ship motion.*

5.2 Shipbuilders are to submit details demonstrating that the installation of the machinery and equipment onboard is in accordance with manufacturer's requirements/recommendations.

02. Section 2 – Internal Combustion Engines and Air Compressors

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Item F.1.1.3 was revised according to UR M3 Rev.7 as below:

……

F. Safety Devices

1. Speed Control and Engine Protection Against Over speed

……

1.1.3 When electronic speed governors of main internal combustion engines form part of a remote control system, they are to comply with ~~TL Rules, Chapter 4-1, Section 5, A and namely with~~ the following conditions:

- if lack of power to the governor may cause major and sudden changes in the present speed and direction of thrust of the propeller, back up power supply is to be provided

- local control of the engines is always to be possible, ~~as required by Chapter 4-1, Section 5, A,~~ and~~,~~ to this purpose, from the local control position it is to be possible to disconnect the remote signal, bearing in mind that the speed control according to subparagraph 1.1.1, is not available unless an additional separate governor is provided for such local mode of control.

Item H.2.1 was revised according to UR M61 Rev.2 as below:

2.1 Where the main engine is arranged for starting by compressed air, two or more air compressors are to be fitted. At least one of the compressors is to be driven independent of the main propulsion unit. ~~and is to have~~ The capacity of one of the said independently driven compressors or the combined capacity of independently driven compressors shall not be less than 50 % of the total required.

Revision Date: November 2024

Entry into Force Date: 1 January 2025

Item O was revised according to UR M78 Rev.2 as below:

O. Reciprocating Internal Combustion Engines Fuelled by Natural Gas~~Safety of Internal Combustion Engines Supplied with Low Pressure Gas (up to 10 bar)~~

1. General

1.1 Scope

1.1.1 Type of engines

This subsection addresses the requirements for ~~trunk piston~~ marine reciprocating internal combustion engines supplied with ~~low pressure~~ natural gas as fuel.

The scope of the subsection is intended for natural gas fuelled engines. It may also be referred for engines using similar fuels with main component methane such as bio-methane or synthetic methane.

It shall be ensured by the gas supply system that the gas supplied to the engine is always in gaseous state. This subsection does not cover requirements for liquid or cryogenic gas.

The engines can be dual fuel engines (hereinafter referred to as DF engines), gas fuel only engines (hereinafter referred to as GF engines), or any variations thereof including fuel sharing capability.

DF engines and GF engines may not be permitted for emergency applications.

This subsection is to be applied in association with other relevant **TL** internal combustion engine requirements, as far as found applicable to the specific ~~natural gas burning~~ engine design.

The mandatory international codes for gas carriers (IGC Code) and for other ships burning low flashpoint fuels (IGF Code) must also be considered, as applicable.

Specific requirements of the IGF Code as referenced in this subsection shall be applied to engine types covered by this subsection installed on any ship, regardless of type, size and trading area, as long as the IGC Code is not referenced or explicitly specified otherwise. ~~Engines can be either dual fuel engines (hereinafter referred to as DF engines) or gas fuel only engines (hereinafter referred to as GF engines).~~

~~Gas can be introduced as follows:~~

~~- into the air inlet manifold, scavenge space, or cylinder air inlet channel port; or~~

~~- mixed with air before the turbo-charger ("pre-mixed engines").~~

~~The gas / air mixture in the cylinder can be ignited by the combustion of a certain amount of fuel (pilot injection) or by extraneous ignition (sparking plug).~~

~~The scope of the subsection is limited to natural gas fuelled engines~~

~~1.1.2 Applications~~

~~This subsection covers the following applications, but is not limited to:~~

~~- Mechanical propulsion~~

~~- Generating sets intended for main propulsion and auxiliary applications.~~

~~- Single engine or multi-engine installations.~~

1.2 Definitions

1.2.1 Certified safe equipment is equipment certified by an independent national test institution or competent body to be in accordance with a recognised standard for electrical apparatus in hazardous areas.~~ Certified safe type means electrical equipment that is certified in accordance with the recommendation published by the International Electrotechnical Commission (IEC), in particular publication IEC 60092-502, or with recognized standards at least equivalent. The certification of electrical equipment is to correspond to the category and group for methane gas.~~

Note:
Refer to IEC 60079 series, Explosive atmospheres and IEC 60092-502:1999 Electrical Installations in Ships – Tankers – Special Features

1.2.2 Double block and bleed valves means the set of valves referred to in:

- Chapter 10 - Liquefied Gas Carriers, Section 16, Item 16.4.5 (IGC Code, 16.4.5)
- Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Item 2.2.9 and Items 9.4.4 to 9.4.6 (IGF Code, 2.2.9 and 9.4.4 to 9.4.6)

1.2.3 Dual fuel engine (“DF engine”) means an engine that can burn natural gas as fuel simultaneously with liquid fuel, either as pilot oil or bigger amount of liquid fuel (gas mode), and also has the capability of running on liquid diesel fuel oil only (Diesel mode).

~~**1.2.4** Engine room is a machinery space or enclosure containing gas fuelled engine(s).~~

1.2.4 Explosion relief device means a device to protect personnel and component against a determined overpressure in the event of a gas explosion. The device may be a valve, a rupture disc or other, as applicable.

1.2.5 Gas means natural gas used as fuel consisting primarily of methane.~~ a fluid having a vapour pressure exceeding 2.8 bar absolute at a temperature of 37.8°C.~~

Note:
Gas may also be bio-methane or synthetic methane etc. with methane as main component.

1.2.6 Gas admission valve is a valve or injector on the engine, which controls gas supply to the cylinder(s) according to the engine’s ~~cylinder(s) actual~~ gas demand.

1.2.7 Gas engine means ~~either~~ a DF engine, ~~or~~ a GF engine, or any variations thereof.

1.2.8 Gas fuel only engine (“GF engine”) means an engine capable of operating on gas fuel only and not able to switch over to oil fuel operation.

1.2.9 Gas piping means piping containing gas or air / gas mixtures~~, including venting pipes~~.

~~**1.2.10** Gas Valve Unit (GVU) is a set of manual shutoff valves, actuated shut-off and venting valves, gas pressure sensors and transmitters, gas temperature sensors and transmitters, gas pressure control valve and gas filter used to control the gas supply to each gas consumer. It also includes a connection for inert gas purging.~~

1.2.10 High pressure gas means gas with a maximum working pressure greater than 10 bar gauge.

1.2.11 IGC Code means the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, ~~(~~as amended ~~by IMO Resolutions MSC.370(93)), MSC.411(97) and MSC.441(99))~~.

1.2.12 IMO means the International Maritime Organisation

1.2.13 IGF Code means the International Code of Safety for Ships Using Gases or other Low-Flashpoint Fuels (IMO Resolution MSC.391(95)), as amended ~~by Resolution MSC.422(98))~~.

1.2.14 Low pressure gas means gas with a maximum working pressure lower or equal ~~up~~ to 10 bar gauge.

……

1.2.18 Pre-mixed engine means an engine where gas is supplied in a mixture with air through a common manifold for all cylinders, e.g. mixed before or after the turbocharger.

1.2.19 Recognized standards means applicable international or national standards acceptable to **TL** or standards laid down and maintained by an organisation which complies with the standards adopted by IMO and which are recognized by **TL** .

1.2.20 Safety Concept is a document describing the safety philosophy with regard to gas as fuel. It describes how risks associated with this type of fuel are controlled under reasonably foreseeable abnormal conditions as well as possible failure scenarios and their control measures. The results of the risk analysis, see 1.4, shall be reflected in the safety concept.

Note:
A detailed evaluation regarding the hazard potential of injury from a possible explosion is to be carried out and reflected in the safety concept of the engine.

1.3 Documents and drawings to be submitted

1.3.1 Documents and drawings to be submitted for the approval of DF and GF engines

The following documents are to be submitted for the approval of DF and GF engines, in addition to those required in Table 2.1, 2.2 and 2.3.

No.	Item
1	Schematic layout or other equivalent documents of gas system on the engine
2	Gas piping system (including double-walled arrangement where applicable) **(3)**
3	Parts for gas admission system **(3)**
4	Arrangement of explosion relief valves (crankcase **(1)**, charge air manifold, exhaust gas manifold and exhaust gas system on the engine) as applicable

5	List of certified safe equipment and ~~evidence~~ of relevant certification
6	Safety concept (for information)
7	Report of the risk analysis **(2)** (for information)
8	Gas used as fuel specification (for information)
(1) *If required by Table 2.2 and 2.3, see also 2.2.5.1.* **(2)** *See 1.4.* **(3)** *The documentation to contain specification of design pressures, working pressure, pipe dimensions and materials.*	

1.3.2 Documents and drawings to be submitted for the approval of DF engine

No.	Item
9	Schematic layout or other equivalent documents of ~~fuel oil system (main and~~ pilot fuel systems~~) on the engine~~
10	Shielding of high pressure fuel pipes for pilot fuel system, assembly
11	High pressure parts for pilot fuel oil injection system **(3)**
(3) *The documentation to contain specification of design pressures, working pressure, pipe dimensions and materials.*	

1.3.3 Documents and drawings to be submitted for the approval of GF engine

No.	Item
12	Schematic layout or other equivalent documents of the ~~I~~ignition system

1.3.4 Where considered necessary, **TL** may request further documents to be submitted.

1.4 Risk analysis

1.4.1 Scope of the risk analysis

The risk analysis is to address:

- a failure or malfunction of any system or component involved in the gas operation of the engine
- a gas leakage downstream of the double block and bleed valves ~~gas valve unit~~

……

1.4.2 Form of the risk analysis

The risk analysis is to be carried out in accordance with international standard ~~ISO~~ IEC 31010 Risk management - Risk assessment techniques, or other recognized standards.

……

b) Evaluate the consequences (see also 2.1.2)

……

1.4.4 Equipment and systems to be analysed

The risk analysis required for engines is to cover at least the following aspects:

a) failure of the gas-related systems or components, in particular:

- gas piping and its enclosure, where provided

- gas admission valves ~~cylinder gas supply valves~~

Note:
Failures of the gas supply components not located directly on the engine, such as block-and-bleed valves and other components of the gas supply system ~~Gas Valve Unit (GVU)~~, are not to be considered in the analysis.

b) failure of the ignition system (oil fuel pilot injection, ~~or~~ sparking plugs, glow plugs)

c) failure of the air to fuel ratio control system (charge air by-pass, gas pressure control valve, etc.)

d) for engines where gas is supplied ~~injected~~ upstream of the turbocharger compressor, failure of a component likely to result in a source of ignition (hot spots)

……

g) ~~abnormal~~ presence of gas in engine components (e.g. air inlet manifold or scavenge space and exhaust manifold ~~of DF or GF engines~~) and in the external systems connected to the engines (e.g. exhaust duct, cooling water system, hydraulic oil system, etc.).

h) changes of operating modes for DF engines

i) hazard potential for crankcase fuel gas accumulation, for ~~engines where the space below the piston is in direct communication with the crankcase~~ trunk-piston engines, refer to Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Item 10.3.1.2 (IGF Code 10.3.1.2) and IACS UR M10.

j) risk of crankcase explosion in connection with active crankcase ventilation which produces a flow of external air into the crankcase, (see IACS UR M10).

2. Design Requirements

2.1 General Principles

2.1.1 The manufacturer is to declare the allowable gas composition limits for the engine and the minimum and (if applicable) maximum methane number.

2.1.2 Components containing or likely to contain gas are to be designed to:

a) minimise the risk of fire and explosion so as to demonstrate an appropriate level of safety commensurate with that of an oil-fuelled engine;

b) mitigate the consequences of a possible explosion to a level providing a tolerable degree of residual risk, due to the strength of the component(s) or the fitting of suitable explosion ~~pressure~~ relief devices of an approved type.

The strength of the component(s) of arrangement of explosion relief devices shall be documented (e.g., as part of risk analysis) or otherwise demonstrated to be sufficient for a worst-case explosion.

Also refer to the Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Item 10.2 and 10.3 (IGF Code 10.2 and 10.3).

~~*Note:*~~

2.1.3 Discharge from explosion ~~pressure~~ relief devices shall prevent the passage of flame to the machinery space and be arranged such that the discharge does not endanger personnel or damage other engine components or systems”

2.1.4 Explosion ~~R~~relief devices shall be fitted with a flame arrester.

2.2 Design Requirements

2.2.1 Gas piping

2.2.1.1 General

The requirements of this section apply to engine-mounted gas piping. The piping shall be designed in accordance with the criteria for gas piping (design pressure, wall thickness, materials, piping fabrication and joining details etc.) as given in the Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Section 7 (IGF Code chapter 7)~~. For gas carriers~~, or Chapter 10 - Liquefied Gas Carriers, Section 5, Item 5.1 to 5.9 and Section 16 (IGC Code chapter 5.1 to 5.9 and 16) ~~applies~~ as applicable.

Other connections as mentioned in Chapter 78, 7.3.6.4.4 (IGF Code 7.3.6.4.4) may be accepted subject to type approval in accordance with the requirements of IACS UR P2.7 and P2.11.

All single walled or high-pressure gas pipes should be considered as Class I.
Low pressure double walled gas pipes should be considered as Class II.
All secondary enclosures for gas pipes should be considered as Class II.

Single walled gas vent pipes, if permitted, should be considered as Class I, except it is justified that the maximum built up pressure is less than 5 bar gauge, in which case it should be considered as Class II.

Gas vent pipes protected by a secondary enclosure should be considered as Class II.

Secondary enclosure for vent pipes should be considered as Class III.

Table 2.13 Design pressure for gas pipes

	Design pressure	
Gas pipe, low pressure	see Chapter 78 (IGF Code), 7.3.3.1	see Chapter 10 (IGC Code), 5.4.1
Gas pipe, high pressure	see Chapter 78 (IGF Code), 7.3.3.1	see Chapter 10 (IGC Code), 5.4.1
outer pipe, low pressure	see Chapter 78 (IGF Code), 9.8.1	see Chapter 10 (IGC Code), 5.4.4
outer pipe, high pressure	see Chapter 78 (IGF Code), 9.8.2	see Chapter 10 (IGC Code), 5.4.4
Open ended pipe	see Chapter 78 (IGF Code), 7.3.3.2	see Chapter 10 (IGC Code), 5.4.1

Flexible bellows used in the fuel gas system on the engine shall be approved based on the requirements of Chapter 78, item 16.7.2 (IGF Code 16.7.2), and Chapter 10, item 5.13.1.2 (IGC Code 5.13.1.2), as applicable.

The number of cycles, pressure, temperature, axial movement, rotational movement and transverse movement which the bellow will encounter in actual service on the engine should be specified by the engine designer.

Endurance against high cycle fatigue due to vibration loads shall be verified by testing or alternatively be documented by the Expansion Joint Manufacturers Association, Inc. (EJMA) calculation or equivalent (i.e., more than 10^7 cycles).

Note:
The fatigue test due to ship deformations in Chapter 78, item 16.7.2.4 (IGF 16.7.2.4) is considered not relevant for bellows which are an integral part of the engine.

……

2.2.2.1 Normal “double wall” arrangement

……

The pipe or duct is to be pressure tested at 1.5 x design pressure ~~in accordance with B.4.2.1 of Section 16~~ to ensure gas tight integrity and to show that it can withstand the expected maximum pressure at gas pipe rupture.

2.2.2.2 Alternative arrangement

Single walled gas piping is only acceptable

a) for engines supplied with low pressure gas and installed in ESD protected machinery spaces, as defined in Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Item 5.4.1.2 (IGF Code 5.4.1.2) and in compliance with other relevant parts of the Chapter 78 (e.g. 5.6) (IGF Code (e.g. 5.6));

……

2.2.3 Charge air system and exhaust gas system on the engine

The charge air system and the exhaust gas system on the engine are ~~is~~ to be designed in accordance with 2.1.2 above. In case of a single engine installation, the engine is to be capable of operating at sufficient load to maintain power to essential consumers after opening of the explosion ~~pressure~~ relief devices caused by an explosion event. Sufficient power for propulsion capability is to be maintained.

Note:
Load reduction is to be considered on a case by case basis, depending on engine configuration (single or multiple) and relief mechanism (self-closing valve or rupture ~~bursting~~ disk).

~~2.2.4 Exhaust system on the engine~~

~~The exhaust gas system on the engine is to be designed in accordance with 2.1.2 above. In case of a single engine installation, the engine is to be capable of operating at sufficient load to maintain power to essential consumers after opening of the pressure relief devices caused by an explosion event. Sufficient power for propulsion capability is to be maintained.~~

2.2.4 Continuous relief of exhaust gas (through open rupture disc) into the engine room or other enclosed spaces is not acceptable.

Suitable explosion relief system for air inlet manifolds, scavenge spaces and exhaust system should be provided unless designed to accommodate the worst-case overpressure due to ignited gas leaks or justified by the safety concept of the engine. A detailed evaluation regarding the hazard potential of overpressure in air inlet manifolds, scavenge spaces and exhaust system should be carried out and reflected in the safety concept of the engine.

Explosion relief devices for air inlet and exhaust manifold shall be type approved according to IACS UR M82.

The necessary total relief area and the arrangement of the explosion relief devices shall be determined taking into account:
- The worst-case explosion pressure depending on initial pressure and gas concentration,
- the volume and geometry of the component, and
- the strength of the component.

The arrangement shall be determined in the risk analysis (see item 1.4.4.g) and reflected in the safety concept.

2.2.5 Engine crankcase

2.2.5.1 Crankcase explosion relief valves

Crankcase explosion relief valves are to be installed in accordance with F.4. Refer also to Chapter 78 – Rules for Classification of Ships Using Gases or Other Low-Flashpoint Fuels, Item 10.3.1.2 (IGF Code 10.3.1.2).

For engines not covered by IACS UR M9, the detailed evaluation as required in 1.4.4.i is to determine if crankcase explosion relief valves are necessary.

2.2.5.2 Inerting

For maintenance purposes, a connection, or other means, are to be provided for crankcase inerting and ventilating and gas concentration measuring.

2.2.5.3 Crankcase ventilation

Ventilation of crankcase (either supply or extraction), if arranged, is to comply with IACS UR M10. Relevant evidence is to be documented in Safety Concept.

The ventilation systems for crankcase, sump and other similar engine spaces are to be independent from the systems on the other engines.

……

The gas admission ~~supply~~ valves are to be controlled by the engine control system or by the engine gas demand.

Combustion is to be monitored on an individual cylinder basis.

……

Unless the risk analysis required by 1.4 of this subsection proves otherwise, the monitoring and safety system functions for DF or GF engines are to be provided in accordance with Table 2.14 of this subsection in addition to the general monitoring and safety system functions given by TL.

Note:
For DF engines, Table 2.14 applies only to the gas mode.

Table ~~2.13~~ 2.14 Monitoring and Safety System Functions for DF and GF Engines

Parameter	**Alarm**	**Alarm Automatic activation of the double block-andbleed valves**	**Automatic switching over to oil fuel mode (1)**	**Engine shutdown**
Abnormal pressures in the gas fuel supply line	X	X	X	X **(5)**

……

Oil mist concentration in crankcase or bearing temperature **(6)** - high	X	X		X **(9)**
Pressure in the crankcase – high ~~**(4)**~~**(8)**	X	X	X	
Engine stops - any cause	X	X		
Failure of the control-actuating medium of the block and bleed valves	X	X	X	
Failure of crankcase ventilation system, if applicable	X	X **(7)**	X **(7)**	
Footnotes:				

(1) *DF engine only, when running in gas mode*
(2) *For GF engines, the double block-and-bleed valves and the engine shutdown may not be activated in case of specific failures affecting only one cylinder, provided that the concerned cylinder can be individually shutoff and the safe operation of the engine in such conditions is demonstrated by the risk analysis.*
(3) *Required only if necessary for the detection of misfiring*
(4) *In the case where the failure can be corrected by an automatic mitigation action, only the alarm may be activated. If the failure persists after a given time, the safety actions are to be activated.*
(5) *GF engine only*
(6) *Where required by IACS UR M10*
(7) *Automatic safety actions to be activated as specified by the engine manufacturer, see IACS UR M10*
(8) *Only for trunk piston engines. This pressure sensor cannot replace or substitute a gas detector.*
(9) *Only for trunk piston engines. For crosshead engines slow down shall apply (see IACS UR M35 Tab.1)*

2.2.8 Gas admission valves

Electrically operated g~~G~~as admission valves shall be certified safe as follows:

……

However, if they are not rated for the zone they are intended for, it shall be documented that they are suitable for that zone. Documentation and analysis ~~is~~ are to be based on IEC 60079-10- 1:2015 or IEC 60092-502:1999.

Gas admission valves operated by hydraulic oil system are to be provided with sealing arrangement to prevent gas from entering the hydraulic oil system.

3. Specific Design Requirements

3.1 DF Engines

3.1.1 General

The maximum continuous power that a DF engine can develop in gas mode may be lower than the approved MCR of the engine (i.e. in oil fuel mode), depending in particular on the gas composition and its quality or the engine design.

This maximum continuous power available in gas mode and the corresponding conditions shall be stated by the engine manufacturer ~~and demonstrated during the type test~~.

~~For the application of 4.1.4, 4.2.1 and 4.3 referring to E.3.5, E.4.3.3 and E.4.4.4, the 110% load tests are not required in the gas mode for DF engines.~~

3.1.2 Starting, changeover and stopping

DF engines are to be arranged to be started using ~~use~~ either oil fuel or gas fuel ~~for the main fuel charge and~~ with pilot oil fuel for ignition. The engines are to be arranged for rapid changeover from gas use to fuel oil use. In the case of changeover to either fuel supply, the engines are to be capable of continuous operation using the alternative fuel supply without interruption to the power supply.

……..

The changeover process itself from and to gas operation is to be automatic but manual interruption is to be possible in all cases.

If the power level or other conditions do not allow safe and reliable gas operation, changeover to oil fuel mode shall be automatically performed.

In case of shut-off of the gas supply, the engines are to be capable of continuous operation by oil fuel only.

……

3.4 Two-stroke engines

3.4.1 Scavenge air system

The risk analysis required in 1.4 is to cover the possible gas accumulation in a scavenge space.

3.4.2 Crankcase

The risk analysis required in 1.4 is to cover the possible failure of a piston rod stuffing box.

4. Type Testing, Factory Acceptance Tests and Shipboard Trials

4.1 Type Testing

……..

- gas admission method (~~direct~~ cylinder injection after compression stroke, cylinderindividual injection before compression stroke, ~~charge air space~~ or pre-mixed)

- gas admission ~~supply~~ valve operation (mechanical or electronically controlled)

- ignition system (pilot injection, spark ignition, glow plug or gas self-ignition)

- ignition system (mechanical or electronically controlled)

Note:

Cylinder-individual injection before compression stroke may be port injection into the air inlet channel before the cylinder inlet valve, injection into the cylinder before or during compression stroke, or similar arrangements.

……..

4.1.4 Test programme

The type testing of the engine is to be carried out in accordance with E.3.5, taking into account the additional requirements of this subsection.

~~For DF engines, the load tests referred to in E.3.5 are to be carried out in gas mode at the different percentages of the maximum power available in gas mode (see 3.1.1).~~

……..

4.1.5 Measurements and records

In addition to the measurements and records required in E.3.6, the following engine data are to be measured and recorded:

- Each fuel index for gas and diesel as applicable (or equivalent reading)
- Gas pressure and temperature at the inlet of the gas manifold
- Pilot fuel temperature and pressure (supply or common rail as appropriate)
- Gas concentration in the crankcase

Note:
The gas concentration in the crankcase should normally be measured inside the crankcase or at the crankcase outlet (crankcase vent pipe).
Gas concentration measurements may be carried out as part of Stage A if the method and the results are properly documented.

Additional measurements may be required in connection with the design assessment.

4.1.6 Stage A – internal tests

……..

- For DF engines, switch over between gas and diesel modes are to be tested at different loads.
- The influence of the methane number and LHV of the fuel gas on the engine's maximum continuous power available in gas mode is to be verified.

4.1.7 Stage B – witnessed tests

4.1.7.1 General

Gas engines are to undergo the different tests required in E.3.8.

In case of DF engine,

- all load points must be run in both gas and diesel modes that apply for the engine type as defined by the engine designer ~~(see 4.1.4)~~. The independent ~~This also applies to the~~ overspeed protection device has to be tested both in gas and diesel mode (E.3.8.2).
- ~~In case of DF~~ For engines with variable liquid / gas ratio, selected ~~the~~ load tests are to be carried out at different ratios between the minimum and the maximum allowable value~~s~~ (most relevant and critical loads and ratios should be selected for the test).

- The maximum continuous power available in gas mode (see 3.1.1) is to be demonstrated.

- Overload testing is not required in gas mode for DF engines, provided that changeover to oil fuel mode is automatically performed in case of overload.

- The load tests are to be carried out in diesel mode and in gas mode at the different percentages of the engine's MCR.

4.1.7.2 Functional tests

……

- For DF engines, verification of automatic changeover to diesel mode when the load demand exceeds the maximum continuous power available in gas mode (see 3.1.1 and 3.1.2)

- The efficiency of the ventilation arrangement or other approved principal of the double walled gas piping system is to be verified.

- ~~Simulation of a gas leakage in way of a cylinder gas supply valve.~~

Engines intended to produce electrical power are to be tested as follows:

- Capability to take sudden load and loss of load in accordance with the provisions of IACS UR M3.2~~.3~~

- For GF and premixed engines, the influences of LHV, methane number and ambient conditions on the dynamic load response test results are to be theoretically determined and specified in the test report. Referring to the limitations as specified in 2.1.1~~2~~, the margin for satisfying dynamic load response is to be determined.

Notes:
1. For DF engines, switchover to oil fuel during the test is acceptable.

2. Application of electrical load in more than 2 load steps can be permitted in the conditions stated in IACS UR M3.2.3.

4.1.7.3 Integration Tests

GF and DF engines are to undergo integration tests to verify that the response of the complete mechanical, hydraulic and electronic engine system is as predicted for all intended operational modes. The scope of these tests is to be agreed with TL for selected cases based on the risk analysis required in 1.4 of this subsection, and shall at least include the following incidents:

- Failure of ignition (spark ignition or pilot injection systems), both for one cylinder unit and common system failure

- Failure of a ~~cylinder~~ gas admission ~~supply~~ valve

……

4.1.8 Stage C – Component inspection

Component inspection is to be carried out in accordance with the provisions of E.3.9.

The components to be inspected after the test run are to include also:

- gas admission ~~supply~~ valve including pre-chamber as found applicable

……..

4.1.9 Engine type approval certificate

For DF engines, the maximum continuous power available in gas mode should be specified on the type approval certificate in addition to the maximum continuous rating in diesel mode if differing.

4.2 Factory Acceptance Test

4.2.1 General

Factory acceptance tests of DF and GF engines are to be carried out in accordance with E.4, taking into account the additional requirements below.

For DF engines, the load tests referred to in E.4.3.3 are to be carried out in diesel mode and in gas mode at the different percentages of the engine's MCR. M~~m~~aximum continuous power available in gas mode is to be demonstrated (see 3.1.1).

……

- Gas pressure and temperature

- Pilot fuel temperature and pressure (supply or common rail as appropriate)

……..

- Failure of a ~~cylinder~~ gas admission ~~supply~~ valve

……..

4.3 Shipboard Trials

A leak test is to be carried out for the gas piping system (Chapter 78, item 16.7.3.3(IGF Code 16.7.3.3)) after assembly on board.

Shipboard trials are to be carried out in accordance with the provisions of E.4.4, considering the additional requirements below.

For DF engines, the test loads required in E.4.4.4 are to be carried out in all operating modes (gas mode, diesel mode, etc.) as applicable (see 3.1.1).

The maximum continuous power available in gas mode is to be demonstrated.

Note:

If a test load is performed in all applicable operation modes without interruption (direct changeover at same power and speed), the duration as required in E.4.4.4 may be considered as the total duration demonstrated in all fuel modes. However, demonstration at each mode shall not be less than one hour.

The starting maneuvers required in E.4.4.2 are to be carried out in diesel mode and gas mode, if applicable.

For DF engines, automatic switching over to oil fuel mode is to be tested.
Further, manual change over from diesel to gas mode and vice versa is to be tested.

~~For DF engines, the load tests referred to in E.4.4.4 are to be carried out in gas mode at the different percentages of the maximum power available in gas mode (see 3.1.1).~~

The efficiency of the ventilation arrangement, or other approved principle, of the double walled gas piping system is to be verified.

5. Certification of Engine Components

The principals, definitions, and general requirements of E.2 apply.
In addition to those components specified in E.2, the engine components listed in Table 2.15 shall be documented as listed in the table.

Table 2.15: Required documentation for engine components

Part	Material properties	Non-destructive examination	Pressure testing	Visual inspection of welds	Component certificate
Gas Pipe Low-pressure double walled	W(C+M)	W 2), 6)	W 4)	X	
Single walled Gas pipes	W(C+M)	W 1)	W 4)	X	SC
High-pressure gas pipes	W(C+M)	W 1)	W 4)	X	SC
Secondary enclosure for gas pipes	W(C+M)	W 2)	W 3)	X	
Gas pipe Low-pressure, Flanges*	W(C+M)	W 2), 6)		X	
Gas pipe High-pressure, Flanges*	W(C+M)	W 1)		X	SC
Gas pipe Low-pressure, Fittings and other components	W(C+M)		W 4)	X	
Gas pipe High-pressure, Fittings and other components	W(C+M)		W 4)	X	SC
Gas pipe Low-pressure Bodies of valves, 7)	W(C+M)		W 4)		

Gas pipe High-pressure Bodies of valves	W(C+M)		W 4)		SC
Gas venting pipes and flanges*, build up pressure less than 5.0bar	TR(C+M)	W 2)	W 4)	X	
Gas venting pipes and flanges*, build up pressure at 5.0bar or more with secondary enclosure	TR(C+M)	W 2)	W 4)	X	
Gas venting pipes and flanges*, build up pressure at 5.0bar or more	W(C+M)	W 1)	W 4)	X	SC
Gas venting pipes Secondary enclosure			W 5)	X	

Footnotes:
1) 100 % radiographic or ultrasonic inspection of all butt-welded joints (IGF Code 16.6.3.1)
2) 10 % radiographic or ultrasonic inspection of butt-welded joints (IGF Code 16.6.3.4)
3) Pressure test at 1.5 x design pressure to ensure gas tight integrity, not less than the expected maximum pressure at gas pipe rupture (as per IGF 16.7.3.4, and 9.8.4)
4) Pressure test at 1.5 x design pressure
5) Leak test.
6) If inside diameter > 75 mm or wall thickness > 10 mm: 100 % radiographic or ultrasonic inspection of all butt-welded joints (IGF Code 16.6.3.1)
7) If nominal diameter > 25 mm
(*) "Flanges" limited to the final connection to the engine.

03. Section 8 – Propellers

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item A.1 was revised according to UR M83 New as below:

1. Scope

These requirements apply to propellers intended for propulsion. It covers fixed pitch and controllable pitch propeller. Performance of propellers, intending to improve the designed output, is to be demonstrated during sea trials in accordance with item F.3. Additional requirements dealing with the technical and material properties for propellers intended for ships strengthened for navigation in ice are provided in Section 19.

Item F.3 was added according to UR M83 New as below:

3. Shipboard Testing

3.1 Purpose

The purpose of the tests is to ascertain that the pitch control system of CP propellers for main propulsion is working correctly.

3.2 Application

The requirements in this item apply to all new buildings and to all replacements, modifications, repairs, or re-adjustments that may affect the pitch control or response characteristics for main propulsion.

3.3 Scope of the tests

3.3.1 Pitch response test

A full range of tests is to be carried out to get the pitch response and verify that it coincides with the combinator curve of the propeller1. The tests are to be carried out for at least three positions of the control lever in ahead and astern directions (e.g., dead slow ahead / astern, half ahead / astern, full ahead / astern).

The tests are to be carried out in normal and emergency operating conditions.

Tests that are not affected by the control position may be carried out from one control position only.

Note: The combinator curve is the relationship between the propeller pitch setting and the propeller speed.

3.3.2 Test of the fail-to-safe characteristics

A test of the fail-to-safe characteristics of the propeller pitch control system is to be carried out to demonstrate that failures in the pitch command and control or feedback signals are alarmed and do not cause any change of thrust. Such failures are to be clearly identified and included in the test procedure.

3.3.3 Test procedure

Test procedure is to be prepared and proposed by the pitch control system manufacturer or integrator and agreed with **TL**.

3.4 Parameters to be recorded

The list of the parameters to be recorded during the pitch response test within this requirements is to be established by the pitch control system manufacturer or integrator and agreed with **TL**. This should include at least the following parameters:

- Position of the control handle,
- Actual pitch indication (local indication, remote indications),
- Rotational speed of the propeller,
- Response time between the pitch change order (modification of the lever position) and the instant when the pitch and propeller speed have reached their final position,
- Propelling thrust variation during the transfer of the control from one location to another one.

3.5 Test Result

Tests are to demonstrate:

- that the propelling thrust is not significantly altered when transferring control from one location to another and in case of failures in the pitch command and control or feedback signals.
- that the pitch response times measured during the test do not exceed the maximum value to be defined by the pitch control system manufacturer or integrator.

03. Section 16 – Pipe Lines, Valves, Fittings and Pumps

Revision Date: December 2024

Entry into Force Date: 1 January 2025

A.1 was revised according to UR P2.1 Rev.3 as below:

A. General

1. Scope

……

~~Chemical cargo and process piping are excluded from the scope of the present requirement.~~

The requirements of this section do not apply to the following piping systems:

- Chemical cargo piping systems of ships subject to the IBC Code and shipboard hydrocarbon/chemical process piping system.
- Gas cargo/fuel and process piping systems of ships, subject to the IGC Code and gas fuel piping systems of ships subject to the IGF Code.
- Piping systems for other low flashpoint fuels defined in SOLAS II-1/2.29.

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Table 16.1 was revised according to UR P2.2 Rev.5 as below:

Table 16.1 Classification of piping systems

Type of piping system	PR (Design pressure, bars), t (Design temperature,°C)		
	Pipe class - I	Pipe class – II	Pipe class – III
Toxic media	all	-	-
Corrosive media	all	**(1)**	-
Inflammable media with service temperature above the flash point	all	**(1)**	-

Inflammable media with a flash point below 60°C or less	all	**(1)**	-
~~Liquefied gases (LG)~~	~~all~~	~~**(1)**~~	~~-~~
Steam	PR > 16 or t > 300	7 < PR ≤ 16 170 < t ≤ 300	PR ≤ 7 and t ≤ 170
Thermal oil	PR > 16 or t > 300	7 < PR ≤ 16 150 < t ≤ 300	PR ≤ 7 and t ≤ 150
Liquid fuels, lubricating oil, inflammable hydraulic fluid	PR > 16 or t > 150	7 < PR ≤ 16 60 < t ≤ 150	PR ≤ 7 and t ≤ 60
Air, gas Non-flammable hydraulic fluid Boiler feedwater, condensate Seawater and fresh water for cooling Brine in refrigerating plant Urea for SCR systems*	PR > 40 or t > 300	16 < PR ≤ 40 200 < t ≤ 300	PR ≤ 16 and t ≤ 200
Cargo pipelines for oil tankers	-	-	all
Cargo and venting lines for gas and chemical tankers	all	-	-
Refrigerants	-	all	-
Open-ended pipelines (without shut-off), e.g. drains, venting pipes, overflow lines and boiler blowdown lines	-	-	all

(1) Classification in Pipe Class II is possible if special safety arrangements are available and structural safety precautions are arranged.

** When piping materials selected according to ISO 18611-3:2014 for Urea in SCR systems.*

Revision Date: December 2024

Entry into Force Date: 1 January 2025

B.4.3.1 was revised according to UR P2.9 Rev.3 as below:

4.3 Test after installation on board

4.3.1 After assembly on board, all pipelines covered by these requirements are to be subjected to a tightness test in the presence of a **TL** Surveyor.

All piping systems are to be tested for leakage under working conditions after installation in the presence of the **TL** Surveyor. Where necessary, other techniques of tightness test in lieu of a working pressure test may be considered.

~~Gas and l~~Liquid fuel systems and heating coils in tanks are to be hydrostatically tested in the presence of the Surveyor after installation to $1.5p_c$, but not less than 4 bars.

Pneumatic leak testing may be carried out on water sensitive systems, in lieu of hydrostatic testing. In certain circumstances, a combined hydrostatic – pneumatic strength test may also be applied, where the system is partially filled with water and the free space above is pressurized with a test gas (typically air or nitrogen). When pneumatic tests cannot be avoided, the safety precautions in IACS Rec. 140, Part F, are to be observed.

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item D.2.3 was revised according to UR P2.7.3 Rev.3 as below:

2.3 Screwed socket connections (Slip-on threaded joints)

2.3.1 Screwed socket connections with parallel and tapered threads shall comply with requirements of recognized national and/or international standard~~s~~*.

Screwed socket connections ~~are not permitted~~ may be used for outside diameters as stated below except for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.

Screwed socket connections may be used for connecting small bore instrumentation equipment (e.g., pressure/temperature sensors) to piping systems conveying flammable media if such connections comply with a recognized national and/or international standard*. The use of such threaded joints shall be limited to outside diameters of maximum 25mm.

2.3.2 Screwed socket connections with parallel threads are permitted for pipes in class III with an outside diameter ≤ 60.3 mm. as well as for subordinate systems (e.g. sanitary and hot water heating systems).

2.3.3 Screwed socket connections with tapered threads are permitted for the following:

- Class I, outside diameter ≤ 33.7 mm.
- Class II and III, outside diameter ≤ 60.3 mm.

Screwed connections having tapered pipe threads complying with a recognized standard are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495°C.

**Note: Standards such as ASME B31.1 and ASME B31.3 may be referenced for the purpose.*

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item D.2.4.6 and Table 16.21 were revised according to UR P2.7.4 Rev.11 as below:

2.4.6 Requested convenient test by **TL** for the mechanical joints are:

- Tightness test,

- Vibration (fatigue) test (where necessary),
- Pressure pulsation test (for Class I and II mandatory, for Class III where necessary),
- Burst pressure test,
- Pull out test (where necessary),

……

Table 16.2 Application of mechanical joints depending upon the class of piping

Types of joints	**Class I**	**Class II**	**Class III**
Pipe Unions			
Welded and brazed type	+ **(OD ⩽ 60.3mm)**	+ **(OD ⩽ 60.3mm)**	+
Compression Couplings			
Swage type	+	+	+
Press type	-	-	+
Typical compression type	+ ~~**(OD ⩽ 60.3mm)**~~	+ ~~**(OD ⩽ 60.3mm)**~~	+
Bite type	+ ~~**(OD ⩽ 60.3mm)**~~	+ ~~**(OD ⩽ 60.3mm)**~~	+
Flared type	+ ~~**(OD ⩽ 60.3mm)**~~	+ ~~**(OD ⩽ 60.3mm)**~~	+
Slip-on Joints			
Machine grooved type	+	+	+
Grip type	-	+	+
Slip type	-	+	+
(OD) *Outer pipe diameter*	+ *Application is allowed*	- *Application is not allowed*	

04. Section 18 – Fire Protection and Fire Fighting Equipment

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Table 18.11 was revised according to Res. MSC.539(107) as below:

		Requirements														
Bulk Cargo Shipping Name (BCSN)	**Class**	**Fire-extinguishing system**	**Water supplies**	**Sources of ignition**	**Temperature measurement**	**Gas detection**	**Acidity of bilge water**	**Ventilation**	**Additional provisions on ventilation**	**Bilge pumping**	**Personnel protection**	**No smoking signs**	**Machinery space boundaries**	**Other boundaries**	**Gas sampling points**	**Weathertightness**	**Fuel tanks**
DIRECT REDUCED IRON (B) Lumps, pellets, cold-moulded briquettes **(1)**	MHB	Q.2.1		Q.4 IIC T2	Q.5.1.2	Q.5.2.3 Q.5.2.5					Q.8.1.1	Q.9		Q.11		Q.13	
DIRECT REDUCED IRON (C) (Byproduct fines) **(1)**	MHB	Q.2.1		Q.4 IIC T2	Q.5.1.2	Q.5.2.3 Q.5.2.5					Q.8.1.1	Q.9		Q.11		Q.13	
DIRECT REDUCED IRON (D) (By-product fines with moisture content of at least 2%)	MHB (SH and/or WF)	Q.2.1		Q.4 IIC T2	Q.5.1.2	Q.5.2.3 Q.5.2.5		Q.6.1 Q.6.3			Q.8.2.1	Q.9		Q.11		Q.13	
ELECTRIC ARC FURNACE DUST, PELLETIZED*	MHB (TX and CR)	Q.2.2.1									Q.8.1.1 Q.8.2.1						
FISHMEAL (FISHSCRAP), STABILIZED ~~UN 2216~~	~~9~~ MHB (SH)	Q.2.1	Q.3		Q.5.1.2	Q.5.2.5		Q.6.1 Q.6.2 Q.6.3			Q.8.1.2 Q.8.2.2						

Item 6.7.2 was revised according to UI SC89 Rev.5 as below:

Continuous ventilation or ventilation at all times, this does not prohibit ventilators from being fitted with a means of closure as required for fire protection purposes under SOLAS II-2/5.2.1.1.

04. Section 20 – Tankers

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Item B.4.3.4.1 was revised according to UR F15 Rev.7 as below:

4.3.4.1 The pipes are to be of heavy gauge steel of minimum wall thickness according to the table hereunder with welded or heavy flanged joints **(1)** the number of which is to be kept to a minimum.

Expansion bends **(2)** only ~~(not glands)~~ are permitted in these lines within cargo tanks for serving the ballast tanks and within the ballast tanks for serving the cargo tanks.

……

(1) *Heavy flanges joints means welded flange joints rated at least PN10 or one pressure rating higher than required design pressure, whichever is greater.*

(2) *Expansion bends means expansion loops such as an omega bend (' Ω ') in piping system to counteract excessive stresses or displacement caused by thermal expansion or hull deformation which could be fabricated from straight lengths of pipe.*

PART B – CHAPTER 4-1 - AUTOMATION

01. Section 5 – Main Propulsion Plant

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Items A and C were revised according to UR M43 Rev.1 as below:

A. Machinery Controls

1. General

.....

1.3 **R** notation may be assigned when requirements given in items 2.3~~,~~ ÷ 2.5, 3.1, 3.2, 4.1 ÷ 4.~~9~~12 and C.2 are complied with.

.....

2.4 Remote starting of the propulsion machinery shall be automatically inhibited if conditions exist which may hazard the machinery, e.g. turning gear engaged, drop of lubricating oil pressure.
.....

4.2 The remote control shall be performed by a single control device for each independent propeller, with automatic performance of all associated services, including, where necessary, means of preventing overload and prolonged running in critical speed ranges of the propulsion machinery.

.....

4.10 The bridge control system is to be independent from the other transmission system; however, one control lever for both system may be accepted.

4.11 Operations following any setting of the bridge control device including reversing from the maximum ahead service speed in case of emergency are to take place in an automatic sequence and with time intervals acceptable to the machinery.

4.12 For SOLAS Convention ships, Regulation II-1/49.5 applies. For ships not covered by the SOLAS Convention, the design of the bridge control system is to be such that in case of its failure an alarm is given. In this case the speed and direction of the propeller thrust is to be maintained until local control is in operation, unless this is considered impracticable. In particular, lack of power (electric, pneumatic, hydraulic) will not lead to major and sudden change in propulsion power or direction of propeller rotation.

.....

C. Main Steam Plants

.....

2. ~~The operational turbine plant is to be protected against damage by means of devices to permit automatic turning using steam. Facilities are to be provided on the bridge to stop turning.~~ For steam turbines a slow-turning device is to be provided which operates automatically if the turbine is stopped longer than admissible. Discontinuation of this automatic turning from the bridge must be possible.

Note: For attended machinery spaces, the slow turning device may be arranged to be operated manually.

It is necessary to ensure an adequate supply of lubricating oil to the turbine plant.

PART B – CHAPTER 5 ELECTRICAL INSTALLATION

01. Section 2 – Installation of Electrical Equipment

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item C.4.1 was revised as below:

4. Ventilation of Spaces Containing Batteries

4.1 General requirements

All battery-installations, ~~except for gastight batteries,~~ in rooms, cabinets and containers shall be constructed and ventilated in such a way as to prevent the accumulation of ignitable gas mixtures.

02. Section 18 – Additional Rules for Bulk Carriers and Single and Multiple Hold Cargo Ships Other Than Bulk Carriers

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item A.2 was revised as below:

2. References to Other Rules

The requirements in this section are based on the following rules/regulations and they are also to be referred for further guidance (e.g. MSC 188(79)/Rev.2, Appendix and related interpretations provided in IACS UI SC180 and MSC.1/Circ.1572/Rev.2)

……

- IACS UI SC 180
- MSC.1/Circ.1572/Rev.2

Chapter 1 – Hull, Section 27.

PART C – CHAPTER 10 – LIQUEFIED GAS TANKERS

01. Section 17 – SPECIAL REQUIREMENTS

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item 17.11.4 was added according to UR G3 Rev.8 as below:

17.11.4 Cargo Pumps and Gas/Reliquefication/Refrigeration Compressors

Compressors and pumps are to be suitable for their intended purpose. All equipment and machinery are to be adequately designed to ensure suitability within a marine environment with due consideration to IACS UR E10 and UR M46. Such items to be considered would include, but not be limited to:

a) environmental;
b) shipboard vibrations and accelerations;
c) effects of pitch, heave and roll motions, etc.; and
d) physical and chemical properties of product

The manufacturer is to submit documentation indicating the equipment has been designed to comply with the above criteria.

17.11.4.1 Cargo Pumps

Each size and type of pump is to be approved through design assessment and prototype testing. Prototype testing is to be witnessed in the presence of the **TL** surveyor.

For the design assessment of the pumps, ISO 13709 and ISO 24490, as applicable, can be used. Other applicable recognized standards acceptable to **TL** may be considered.

a) Material Testing: Tests for pump materials need not be witnessed by the **TL** surveyor except for the boundary components, which are in direct contact with the medium and for a design temperature below – 55ºC in accordance with 6.2.2.

Note: The following pump components can, for example, be considered boundary components:

For centrifugal type pump: impeller, inducer, guide vane, casing, shaft and coupling.

For reciprocating type pump: cylinder cover, valve cover, cylinder liner, piston and piston rod, crankshaft, crank case.

b) Prototype Testing: Prototype testing is to include hydrostatic test of the pump body equal to 1.5 times the design pressure and a capacity test. For submerged electric motor driven pumps, the capacity test is to be carried out with the design medium or with a medium below the minimum working temperature. For shaft driven deep well pumps, the capacity test may be carried out with water. In addition, for shaft driven deep well pumps, a spin test to demonstrate satisfactory operation of bearing clearances, wear rings and sealing arrangements is to be carried out at the minimum design temperature. The full length of shafting is not required for the spin test but must be of sufficient length to include at least one bearing and sealing arrangements. After completion of tests, the pump is to be opened out for examination.

The vibration criteria of machinery and equipment are to be provided by the pump manufacturer. These are to be compared against an applicable internationally recognised standard*, as applied to the design, and are to be accepted by **TL**.

c) Unit Production Testing

All pumps are to be tested at the plant of manufacturer in the presence of the **TL** surveyor. Testing is to include hydrostatic test of the pump body equal to 1.5 times the design pressure and a capacity test. For submerged electric motor driven pumps, the capacity test is to be carried out with the design medium or with a medium below the minimum working temperature. For shaft driven deep well pumps, the capacity test may be carried out with water.

As an alternative to the above, if so, requested by the relevant Manufacturer, the certification of a pump may be issued subject to the following:

- The pump has been approved as required by 17.11.4.1(a) and (b), and
- The manufacturer has a recognised quality system that has been assessed and certified by **TL** subject to periodic audits, and
- The quality control plan contains a provision to subject each pump to a hydrostatic test of the pump body equal to 1.5 times the design pressure and a capacity test. The manufacturer is to maintain records of such tests.

17.11.4.2 Gas Cargo and Reliquefication/Refrigeration Compressors

Each size and type of compressor is to be approved through design assessment and prototype testing. Prototype testing is to be witnessed in the presence of the **TL** surveyor.

For the design assessment of the gas compressors, API standards. 617:2014 (w. Errata 1:2016), 618:2016 or 619:2010, as applicable, can be used. Other applicable recognized standards acceptable to **TL** may be considered.

a) Material Testing: Tests for compressor materials need not be witnessed by the **TL** surveyor except for the boundary components, which are in direct contact with the medium and for a design temperature below – 55 ^{o}C in accordance with 6.2.2.

Note: The following compressor components can, for example, be considered boundary components:

For centrifugal type compressor: impeller, inducer, guide vane, casing, shaft and coupling.

For reciprocating type compressor: cylinder cover, valve cover, cylinder liner, piston and piston rod, crankshaft, crank case.

b) Prototype Testing: Prototype testing is to be consistent with the applicable standard as applied for design assessment and is to include hydrostatic test of the compressor pressure boundary components, mechanical running test and a performance test. The hydrostatic test is to be carried out at a pressure equal to 1.5 times the design pressure (or 1.25 times the design pressure where the test fluid is compressible) and for, at least, 30 minutes. The mechanical running test and performance tests should include recording of the gas used, temperatures, pressures, testing of alarms and shut down, pressure relief devices and vibration measurements to ensure that the limits do not exceed those proposed by the manufacturer and that other features relating to the performance of the equipment are in accordance with the specification. Similarly, during the performance test, power consumption and the gas loads are to be recorded.

The vibration criteria of machinery and equipment are to be provided by manufacturers, consistent with the applicable recognized standard* as applied to the design. Otherwise, when the data on the vibration criteria are not available, justification is to be submitted for criteria used as reference in terms of overall Root Mean Square (RMS) vibrational velocity value for normal operation conditions.

Alternative limits, demonstrated by fatigue calculations, may be accepted by **TL**.

c) Unit Production Testing: Each compressor is to be tested at the plant of manufacture in the presence of the **TL** surveyor. Testing is to include hydrostatic test of the compressor pressure boundary components. The hydrostatic test is to be carried out at a pressure equal to 1.5 times the design pressure (or 1.25 times the design pressure where the test fluid is compressible) and for, at least, 30 minutes.

As an alternative to the above, if so, requested by the relevant Manufacturer, the certification of a compressor may be issued subject to the following:

- The compressor has been approved as required by 17.11.4.2(a) and (b), and
- The manufacturer has a recognised quality system that has been assessed and certified by **TL** subject to periodic audits, and
- The quality control plan contains a provision to subject each compressor to the hydrostatic test of the compressor body equal to 1.5 times the design pressure (or 1.25 times the design pressure where the test fluid is compressible) for, at least, 30 minutes, and a mechanical running and performance test. The manufacturer is to maintain records of such tests.

d) Installation: The complete compressor assembly connected to the vessel systems is to be subjected to a leak test using air or other suitable medium, to a pressure depending on the leak detection method applied. The test is to be performed in presence of the **TL** surveyor and considered satisfactory when no joint leaks are observed.

** The following standards can be used as guidance:*

• ISO 7919-3, Mechanical vibration - Evaluation of machine vibration by measurements on rotating shafts – Part3 Coupled industrial machines

• ISO 10816-3, Evaluation of machine vibration by measurements on non-rotating parts — Part 3: Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15 000 r/min when measured in situ.

• ISO 10816, Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 7: Rotodynamic pumps for industrial applications, including measurements on rotating shafts

• ISO 10816-8, Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 8: Reciprocating compressor systems

• ISO 20816-1, Mechanical vibration - Measurement and evaluation of machine vibration – Part 1: General Guidelines

• ISO 20816-8, Mechanical vibration - Measurement and evaluation of machine vibration - Part 8: Reciprocating compressor systems.

PART C – CHAPTER 28 - VENTILATION

01. Section 1 – Ventilation

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item E.9.1 was revised as below:

9. Spaces Containing Batteries

9.1 General requirements

All battery-installations, except for gastight batteries, in rooms, cabinets and containers shall be constructed and ventilated in such a way as to prevent the accumulation of ignitable gas mixtures.

PART C – CHAPTER 29 - CARRIAGE of REFRIGERATED CONTAINERS on SHIPS JANUARY 2025

Formerly available only Turkish Chapter was provided in English.

PART C – CHAPTER 34 – RULES FOR THE CLASSIFICATION OF SPECIAL CRAFTS, PATROL BOAT

01. Section 3 – Hull Structures and Ship Equipment

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Items A.1.3, A.1.4 were revised and A.1.5 was added as below:

1.3 Special Crafts with L ≥ 24 m and TL HSC Rules to be applied

The **TL** Rules for High Speed Craft (Chapter 7), Section 2 have to be applied and for Special Crafts the following requirements are to be considered:

……

Following relaxations in requirements for those crafts should be applied:

- For machinery space ventilation openings:
  - For **K20, K50, Y** Notations: Minimum height shall be 2400 mm from load water line or minimum 1 meter above bulkhead deck whichever is higher with weathertight closure.
  - For **L1, L2, K6** Notations: Minimum height shall be 1200 mm from load water line or minimum 900 mm above bulkhead deck whichever is higher with weathertight closure.
- For other space ventilation:
  - For **K20, K50, Y** Notations: 760 mm from bulkhead deck with weathertight closure. Other decks 450 mm with weathertight closure.
  - For **L1, L2, K6** Notations: 450 mm from bulkhead deck with weathertight closure. Other decks 380 mm with weathertight closure.
- For doors and hatches sill height:
  - For **K20, K50, Y** Notations: Sill heights on bulkhead deck shall be 600 mm for protecting openings leading below, other decks openings leading below sill heights shall be 380mm (Open deck to accommodation enterance at bulkhead deck 100 mm, above decks 50 mm).
  - For **L1, L2, K6** Notations: Sill heights on bulkhead deck shall be 380 mm for protecting openings leading below, other decks openings leading below sill heights shall be 100mm (Open deck to accommodation enterance at bulkhead deck 100 mm, above decks 50 mm).
- For air pipe height:
  - For **K20, K50, Y** Notations: 600 mm from bulkhead deck, 380 mm from other decks.
  - For **L1, L2, K6** Notations: 450 mm from bulkhead deck, 280 mm from other decks.
- For side scuttles and windows:
  - No side scuttle shall be fitted in a position so that its sill shall be below a line drawn parallel to and 1 meter above the design waterline.
  - ISO 1751 and ISO 3903 standards shall be applied, For **L1, L2, K6** notations ISO 12216 shall be applied

1.4 Special Crafts with L ≥ 24 m and International Convention of Load Lines 1966/88 to be applied

The **TL** Rules Hull (Chapter 1), Sections 11 to 26 are to be applied and for Special Crafts the following requirements are to be considered:

……

Following relaxations in requirements for crafts L > 24 m with K20, K50 and Y notations should be applied:

- For machinery space ventilation openings:
  - Minimum height of the opening shall be 1800 mm from bulkhead deck with weathertight closure. **TL** will consider lower opening heights with regard to their specific suitability for the case in question.

- For other space ventilation:
  - 760 mm from bulkhead deck with weathertight closure. Other decks 450 mm with weathertight closure.

- For doors and hatches sill height:
  - Sill heights on bulkhead deck shall be 600 mm for protecting openings leading below, other openings sill heights shall be 380mm.

- For air pipe height:
  - 600 mm from bulkhead deck, 350 mm from other decks.

- For side scuttles and windows:

  - ISO 1751 and ISO 3903 shall be applied.

*Note: For Ships **L1,L2,K6** : Reduced weathertight opening heights will be specially considered based on a craft's service area restriction notation by **TL** with regard to their special suitability for the case in question. ISO 1226 might be applicable.*

1.5 Special Crafts with L < 24 m

- For machinery space ventilation openings:

  - For **K20, K50, Y** Notations: Minimum height of the opening is to be 1200 mm from load water line or this opening shall be at least 450 mm on the bulkhead deck which is higher with weathertight closure.

  - For **L1, L2, K6** Notations: 380 mm on the weather deck or 100 mm on other decks which is higher with weathertight closure.

Note: Machinery space openings are unprotected openings. For minimum requirements of ventilation ISO 12217 shall be applied.

- For other space ventilation:

  - For **K20, K50, Y** Notations: 450mm from the bulkhead deck with weathertight closure. Other decks 380 mm.

  - For **L1, L2, K6** Notations: 380mm from the bulkhead deck with weathertight closure. Other decks 100 mm.

- For doors and hatches sill height:

- For **K20, K50, Y** Notations: Sill heights on bulkhead deck is 250 mm for protecting openings leading below, other decks openings leading below sill heights 100mm (Open deck to accommodation enterance 50 mm).

- For **L1, L2, K6** Notations: Sill heights on bulkhead deck shall be 150 mm for protecting openings leading below, other decks openings leading below sill heights 75mm (Open deck to accommodation enterance 50 mm) .For other details ISO 12216 shall be applied.

- For air pipe height:

  - For **K20, K50, Y** Notations: 380 mm from bulkhead deck, 150 mm from other decks.

  - For **L1, L2, K6** Notations: 300 mm from bulkhead deck, 150 mm from other decks.

- For side scuttles and windows:

  - ISO 12216 shall be applied.

02. Section 7 – Ship Operation Installations and Auxiliary Systems

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Items A.6.2 and 6.3.1 were revised as below:

6.2 Special Crafts with L up to 24 m and TL HSC Rules not to be applied

Special Crafts shall meet the requirements of the **TL** Rules for Construction and Classification of Yachts (Chapter 9), Section 7, E. and Appendix and additional requirements defined case by case. For L<12 m rules for L<24 m in Chapter 9 Section 7 E shall be applied. For 12 m < L < 24 m rules for L>24 m in Chapter 9 Section 7 E shall be applied.

6.3 Special Crafts with 24 m ≤ L ≤ 50 m and TL HSC Rules not to be applied

6.3.1 On principle Special Crafts shall meet the requirements of the **TL** Rules for Machinery (Chapter 4), Section 16 for "cargo ships" as far as applicable. Relaxation of requirements shall be specially considered with craft's service area restriction and will be defined to **TL** in early design stages for approval.

03. Section 8 – Patrol Boat

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

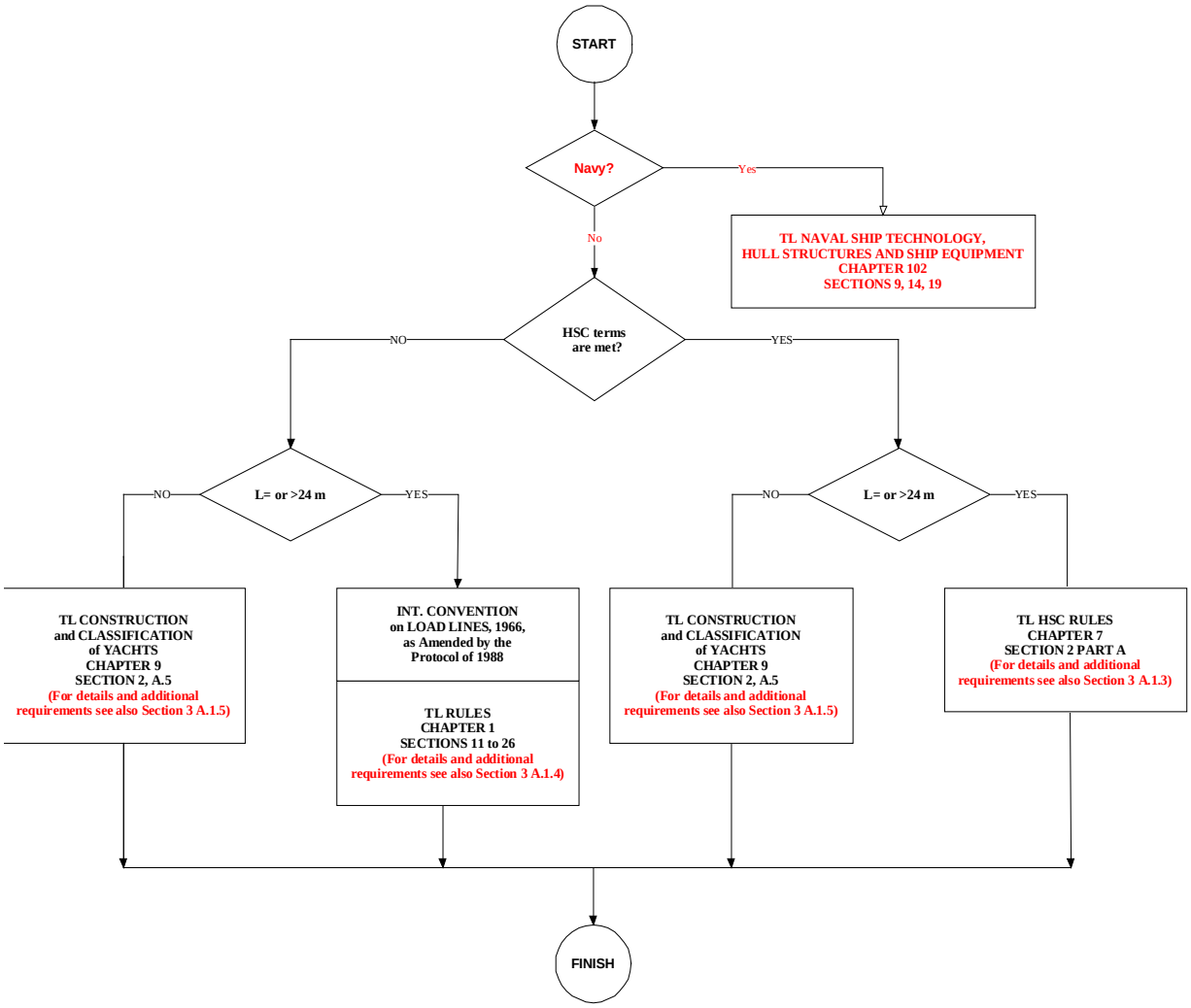
Items A.1.1 and A.6.1 were revised as below:

1. Watertight/Weathertight Integrity

1.1 Flow-chart

Following flow-chart is to be applied for patrol boats.

Selection of rules and regulations for the watertight/weathertight integrity



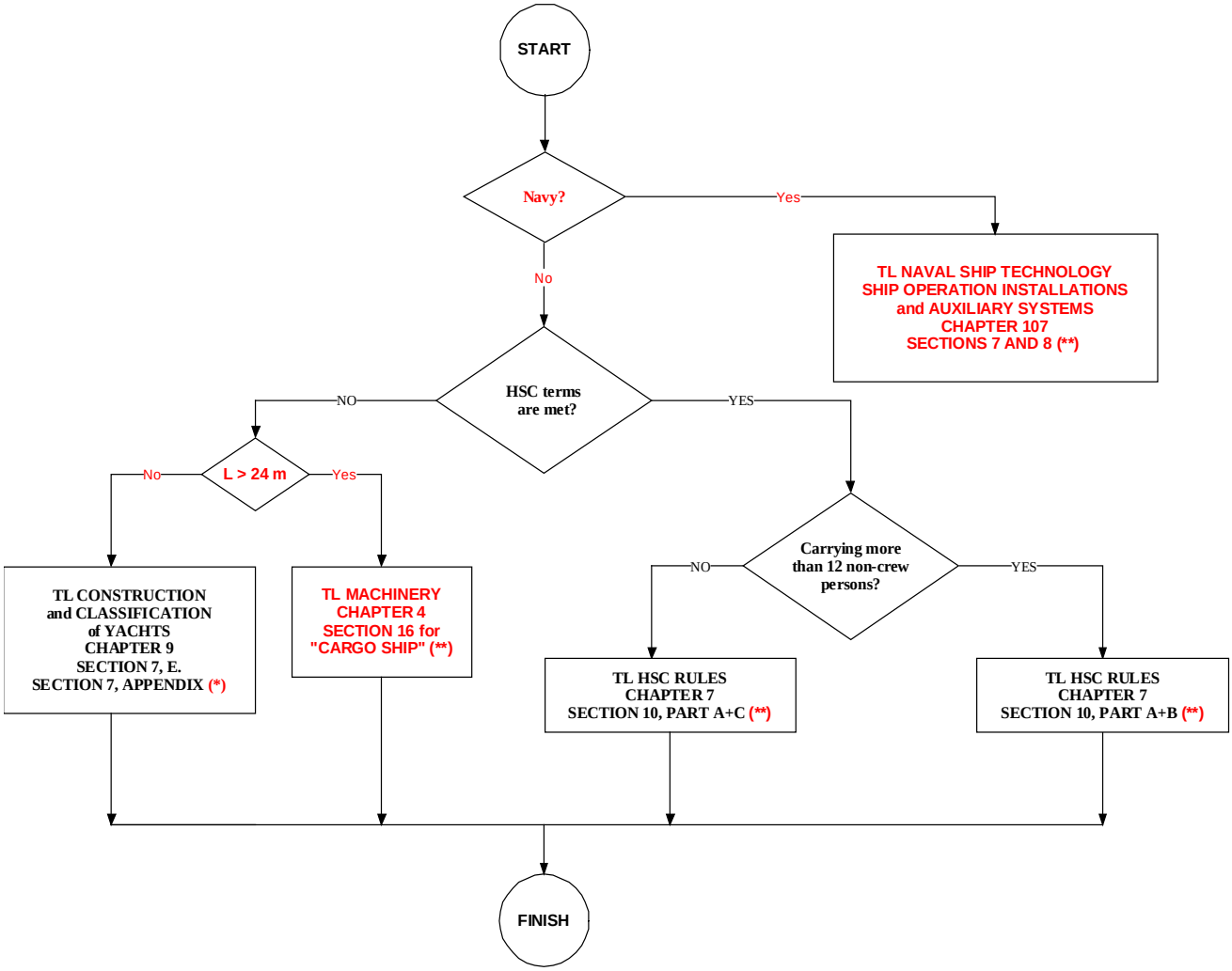
6.

Tanks, Piping Systems and Pumps

6.1 Flow-chart

Following flow-chart is to be applied for patrol boats.

Selection of rules and regulations for tanks, piping systems and pumps



* For L < 12 m rules for L < 24 m in Chapter 9 Section 7 E shall be applied. For 12 m < L < 24 m rules for L > 24 m in Chapter 9 Section 7 E shall be applied.

** Relaxation of requirements shall be specially considered with craft's service area restriction and will be defined to **TL** in early design stages for approval.

PART C – CHAPTER 35 – TENTATIVE RULES FOR SHIPS LESS THAN 500 GT

01. Section 2 – General Requirements & Definitions

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item B.2.17 concerning the definition of bulkhead has been enriched with an additional clarification as can be viewed below;

B. Definitions

...

2.17. Bulkhead deck

Bulkhead deck is the deck up to which the watertight bulkheads are carried. In a cargo ship the freeboard deck may be taken as the bulkhead deck.

02. Section 5 – Fore and Aft Body

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Sub-section "C" concerning ramps was added.

C. Ramps

1. For movable decks and ramps on ships with **L1, L2, K6** notation, refer to Chapter 19.

PART C – CHAPTER 37 - TENTATIVE RULES FOR THE CLASSIFICATION OF PASSENGER CRAFT

01. Section 3 – Hull Structure and Stability

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Sub-section "F" has been added.

F. Ramps

1. Unless otherwise decided by TL, For the requirements of ramps, refer to Chapter 19, Section 9, F.

Items A.2, A.2.5 and Table 3.1 were revised as below:

2. Double Bottom Requirements for L1/L2 Passenger/Ro-Ro Passenger Craft ~~(See also Table 3.1)~~

.....

2.5. Notwithstanding paragraph 2.1, if **TL** satisfied that the fitting of a double bottom in that part would not be compatible with the design and proper working of the ship.

- For **L2** Passenger Craft/Ro-Ro Passenger Craft, **TL** may permit a double bottom to be dispensed with in any part of the ship which is subdivided according to Table 3.1 and Chapter 1, Section 11, A. 3.2 (Table 11.1) ~~by a factor not exceeding 0.5, if satisfied that the fitting of a double bottom in that part would not be compatible with the design and proper working of the ship.~~

- For **L1** Passenger Craft/Ro-Ro Passenger Craft of 24 meters and upwards in length, **TL** may permit a double bottom to be dispensed with in any part of the ship which is subdivided according to Table 3.1 or subdivided in accordance with Chapter 1, Section 11, A. 3.2 (Table 11.1) ~~by a factor 1.0, if satisfied that the fitting of a double bottom in that part would not be compatible with the design and proper working of the ship~~.

Table 3.1. Damage Stability Requirements for L1/L2 Passenger Craft/Ro-Ro Passenger Craft

Notation	Number of passengers	~~Sbd.~~Subdivision factor
L1	>12	1.0
L2	<400	1.0
	>=400	0.5

Item B.7 was added as below:

7. Doors on Watertight Bulkheads

Openings in watertight bulkheads, are to be according to rules referenced from the flowchart in Figure 3.3. With the approval of Administration, TL may also approve hinged doors other than stipulated in referenced rules provided that following additional requirements to the referenced rules are complied with:

1. a warning notice requiring the doors to be kept closed at sea is to be fitted at the doors,
2. door indicators, show whether the doors are open or shut, are to be placed on the bridge. Remote control of the hinged doors are not required.

02. Section 4 – Structural Fire Protection

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Figure 4.1 was revised as below:

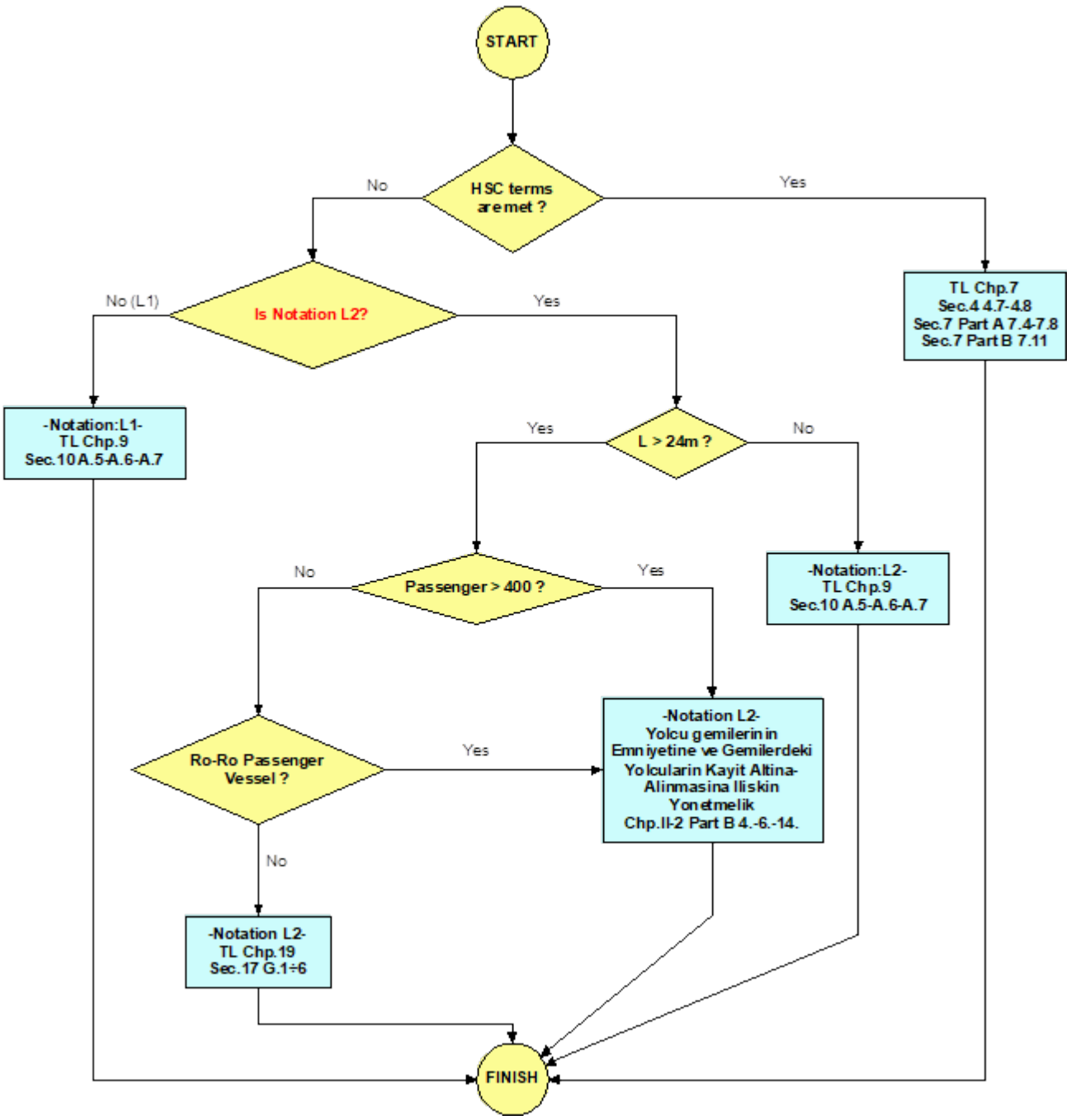


Figure 4.1 Selection of rules and regulations for structural fire protection and means of escape

03. Section 5 – Propulsion Plants

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Figure 5.1 was revised as below:

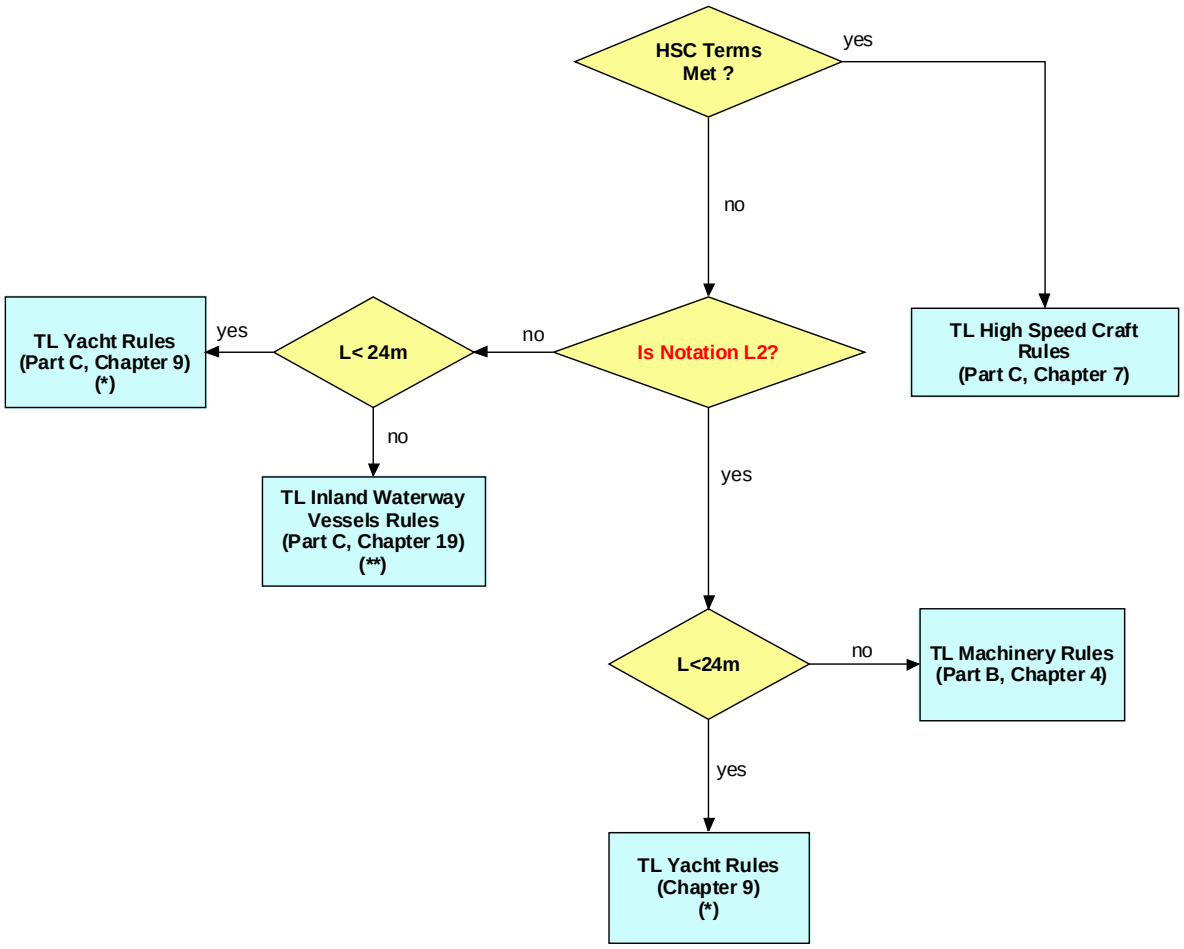


Figure 5.1 Selection of rules and regulations for the Internal Combustion Engines, Steering Gears, Thrusters, and Gearings

04. Section 7 – Craft Operation Installations and Auxiliary Systems

Revision Date: Nov 2024

Entry into Force Date: 1 January 2025

Figures 7.1 and 7.2 were revised as below:

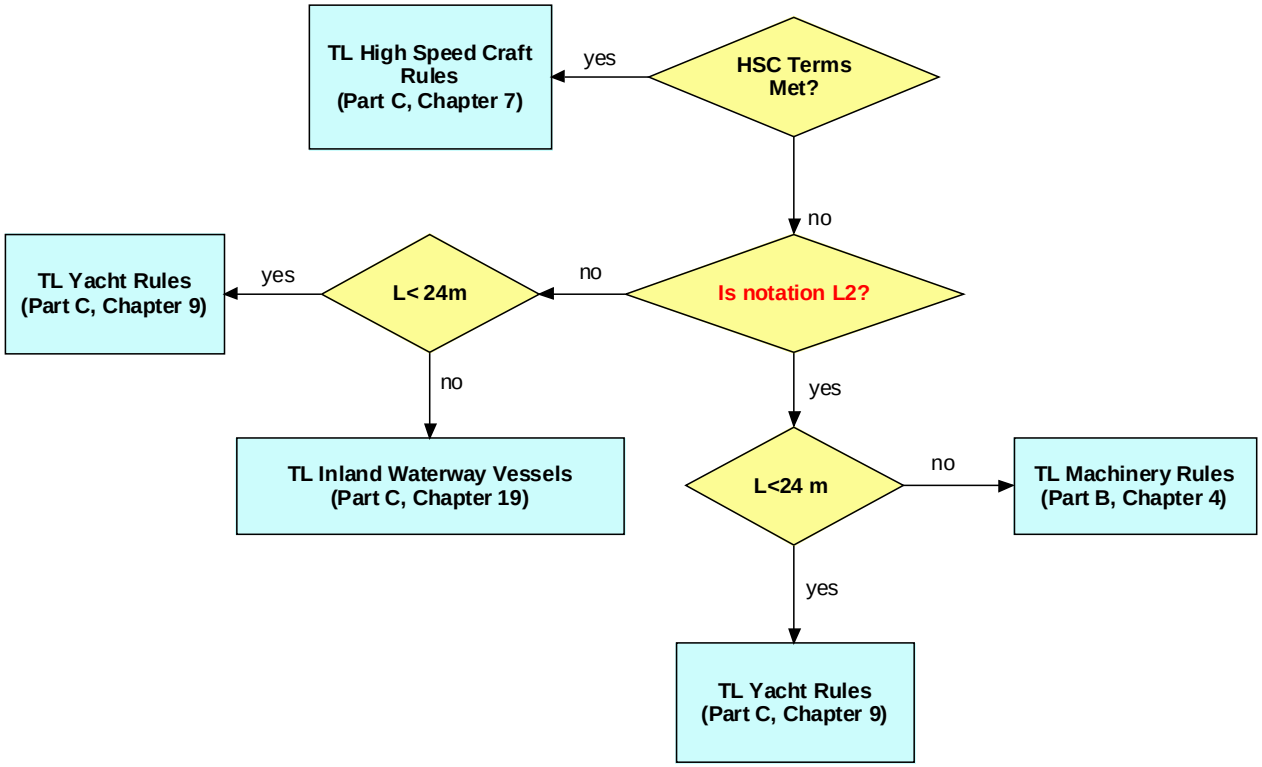


Figure 7.1 Selection of rules and regulations for pipes, valves, fittings and pumps

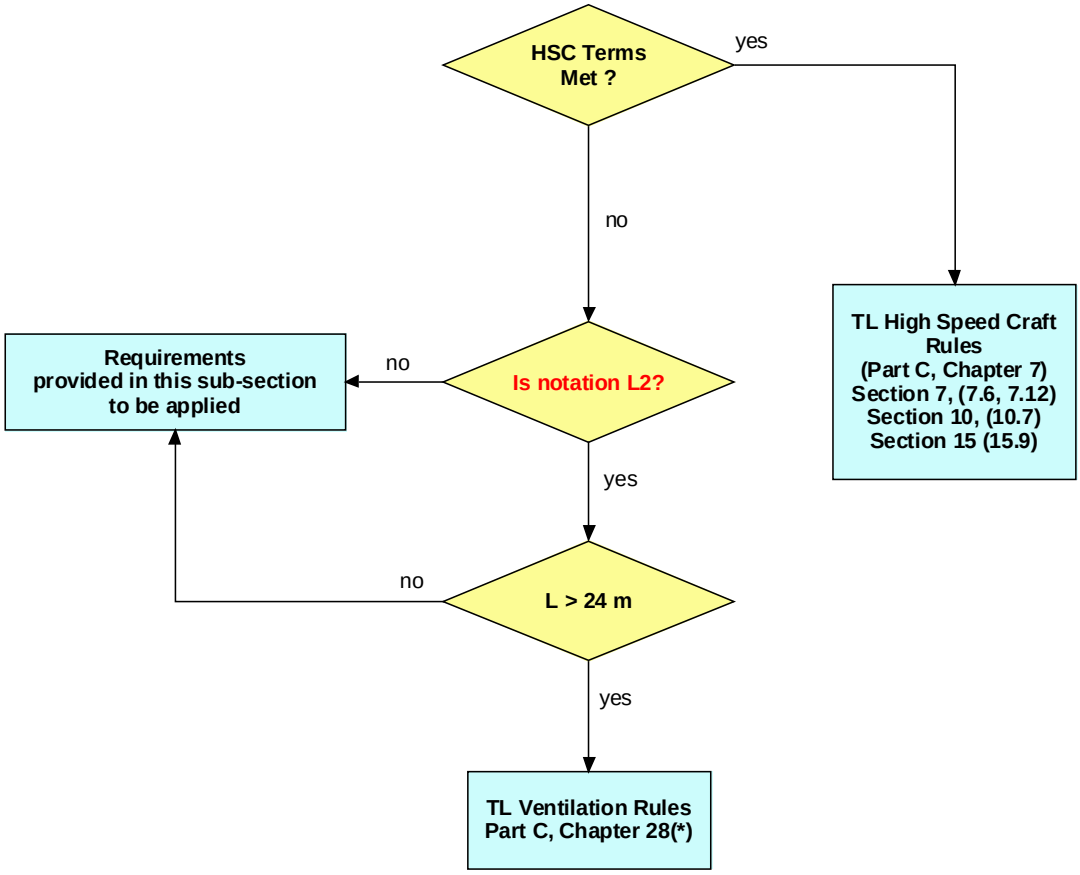


Figure 7.2 Selection of rules and regulations for ventilation

PART D – CHAPTER 63 - OFFSHORE UNITS AND INSTALLATION – MACHINERY

01. Section 1 – General Requirements and Instructions

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item C.1.1 was revised according to UR M46 Rev.3 as below:

1.1 The selection, layout and arrangement of all machinery, equipment and appliances shall be such as to ensure faultless continuous operation under the ambient and operating conditions specified in Tables 1.1 – 1.4 where applicable. Therefore the manufacturer/supplier shall be informed by the Owner/Operator about the expected environmental conditions. For ship-shaped units, requirements defined in Chapter 4, Section 1, C related to shipboard accelerations, documentation, evaluation of equipment suitability, and installation and operation are also to be observed.

02. Section 3 – Internal Combustion Engines and Air Compressors

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item F.1.1.3 was revised according to UR M3 Rev.7 as below:

……

F. Safety Devices

1. Speed Control and Engine Protection Against Over speed

……

1.1.3 When electronic speed governors of main internal combustion engines form part of a remote control system, they are to comply with ~~TL Rules, Chapter 4-1, Section 5, A and namely with~~ the following conditions:

- if lack of power to the governor may cause major and sudden changes in the present speed and direction of thrust of the propeller, back up power supply is to be provided

- local control of the engines is always to be possible, ~~as required by Chapter 4-1, Section 5, A,~~ and~~,~~ to this purpose, from the local control position it is to be possible to disconnect the remote signal, bearing in mind that the speed control according to subparagraph 1.1.1, is not available unless an additional separate governor is provided for such local mode of control.

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item H.2.1 was revised according to UR M61 Rev.2 as below:

2.1 Where the main engine is arranged for starting by compressed air, two or more air compressors are to be fitted. At least one of the compressors is to be driven independent of the main propulsion unit. ~~and is to have~~ The capacity of one of the said independently driven compressors or the combined capacity of independently driven compressors shall not be less than 50 % of the total required.

PART D – CHAPTER 64 - OFFSHORE UNITS AND INSTALLATION – ELECTRIC

01. Section 1 –General Requirements and Instructions

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item E.1.1 was revised according to UR M46 Rev.3 as below:

1.1 The selection, layout and arrangement of all shipboard machinery, equipment and appliances shall be such as to ensure faultless continuous operation. Therefore the manufacturer/supplier shall be informed by the user about the expected environmental conditions. The requirements are specified in Tables 1.2 to 1.5. For ship-shaped units, requirements defined in Chapter 4, Section 1, C related to shipboard accelerations, documentation, evaluation of equipment suitability, and installation and operation are also to be observed.

PART E – CHAPTER 101 – CLASSIFICATION AND SURVEYS

01. Section 2 – Class Designation

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Tables 2.13 and 2.14 were revised as below:

Table 2.13 Notations for special military requirements

Notation	Characteristics	Underlying rules
LA	The ship is equipped with lifting appliances, other than those needed in connection with the equipment described under RAS, such as cranes or lifts which have been included in the Classification procedure. The class notation **LA** will, in general, be assigned for a classed ship as a mandatory class notation where the lifting appliance is considered to be an essential feature.	**TL** Rules, Chapter 107, Ship Operation Installations and Auxiliary Systems, Section 3, A.
.....		
RAS (Replenishment at Sea)	Equipped with installations for the transfer of liquids, such as fuel, oil, water, stores and persons while operating at sea. This Notation may be assigned to the supplying ship as well as to the receiving ship.	**TL** Rules, Chapter 107, Ship Operation Installations and Auxiliary Systems Section 4.
NBC or NBC Basic (Nuclear, Biological and Chemical Warfare)	Designed and equipped to meet the requirements for protection within a citadel or shelter against the fall-out of nuclear, as well as biological and chemical weapons.	**TL** Rules, Chapter 107, Ship Operation Installations and Auxiliary Systems Section 11.
DEG (Degaussing)	Equipped with an active system for degaussing (magnetic self-protection) by means of amplified cable windings in the ship which reduce the magnetic signature.	**TL** Rules, Chapter 105, Electrical Installations, Section 12,F.

Chapter 101 Classification and Surveys	Chapter 102 Hull Structures and Ship Equipment	Chapter 104 Propulsion Plants	Chapter 105/106 Electrical Installations / Automation	Chapter 107 Ship Operation, Installations and Auxiliary Systems
Ship type: **CORVETTE** **FRIGATE** **DESTROYER** **CRUISER** **MINE WARFARE VESSEL** **AMPHIBIOUS WARFARE SHIP** **AIRCRAFT CARRIER** **PATROL** **PATROL BOAT** **ATTACK BOAT** **OFFSHORE PATROL VESSEL** **SUPPLY VESSEL** **RESEARCH VESSEL** **CADET TRAINING SHIP** **ACİL MÜDAHALE VE DALIŞ EĞİTİM BOTU** **MOSHIP** Submarine Rescue Mother Ship **RATSHIP** Rescue and Towing Ship **LCT** Landing Craft Tank **LCM** Landing Craft Mechanized **…….**	Ambient conditions: **AC1** **ACS** Material: **(HIGHER STRENGTH HULL STRUCTURAL STEEL)** **ALUMINIUM** **FRP** Residual strength after military effects: **RSM** Rational ship design: **RSD (F25)** **RSD (F30)** **RSD (ACM)** In-water survey: **IWS** Structural fire protection: **SFP** ……	Redundant propulsion: **RP1** x % **RP2** x % **RP3** x % Dynamic positioning: **DK1** **DK2** **DK3** Fuel Cell Systems: **FC-xxx** **with FC** Novel design: **EXP**	Automation: **AUT-N** **AUT-Nnh** **AUT-N-C** Remote control: **RC** Degaussing: **DEG** Electromagnetic Compatibility: **EMC** Dangerous goods: **DG** Quality of Electrical Power Supplies: **ELS** Integrated Computer Control: **ICC**	Flight operation: **FO** **FO (HELIW)** **FO (HELIL)** **FO (HELILF)** **FO (DRONE)** Lifting appliances: **LA** **LA (CRANE)** **LA (CL)** **LA (CR)** **LA (PL)** Replenishment at sea: **RAS** NBC protection: **NBC** **NBC Basic** Diving systems: **DI** ……..

PART E – CHAPTER 104 - NAVAL SHIP TECHNOLOGY, PROPULSION PLANTS

01. Section 3 – Internal Combustion Engines

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Item F.1.1.3 was revised according to UR M3 Rev.7 as below:

……

F. Safety Devices

1. Speed Control and Engine Protection Against Over speed

……

1.1.3 When electronic speed governors of main internal combustion engines form part of a remote control system, they are to comply with ~~TL Rules, Chapter 4-1, Section 5, A and namely with~~ the following conditions:

- if lack of power to the governor may cause major and sudden changes in the present speed and direction of thrust of the propeller, back up power supply is to be provided

- local control of the engines is always to be possible, ~~as required by Chapter 4-1, Section 5, A,~~ and~~,~~ to this purpose, from the local control position it is to be possible to disconnect the remote signal, bearing in mind that the speed control according to subparagraph 1.1.1, is not available unless an additional separate governor is provided for such local mode of control.

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item M was generally revised according to UR M78 Rev.2.

02. Section 7 – PROPELLER

Revision Date: October 2024

Entry into Force Date: 1 January 2025

According to UR M83 New, 3. Shipboard Testing was added under sub-section "F" .

F. Balancing and Testing

…

3. Shipboard Testing

3.1 Purpose

The purpose of the tests is to ascertain that the pitch control system of CP propellers for main propulsion is working correctly.

3.2 Application

The requirements in this item apply to all new buildings and to all replacements, modifications, repairs, or re-adjustments that may affect the pitch control or response characteristics for main propulsion.

3.3 Scope of the tests

3.3.1 Pitch response test

A full range of tests is to be carried out to get the pitch response and verify that it coincides with the combinator curve of the propeller1. The tests are to be carried out for at least three positions of the control lever in ahead and astern directions (e.g., dead slow ahead / astern, half ahead / astern, full ahead / astern)

The tests are to be carried out in normal and emergency operating conditions.

Tests that are not affected by the control position may be carried out from one control position only.

Note: The combinator curve is the relationship between the propeller pitch setting and the propeller speed.

3.3.2 Test of the fail-to-safe characteristics

A test of the fail-to-safe characteristics of the propeller pitch control system is to be carried out to demonstrate that failures in the pitch command and control or feedback signals are alarmed and do not cause any change of thrust. Such failures are to be clearly identified and included in the test procedure.

3.3.3 Test procedure

Test procedure is to be prepared and proposed by the pitch control system manufacturer or integrator and agreed with TL.

3.4 Parameters to be recorded

The list of the parameters to be recorded during the pitch response test within this requirements is to be established by the pitch control system manufacturer or integrator and agreed with TL. This should include at least the following parameters:

- Position of the control handle,
- Actual pitch indication (local indication, remote indications),
- Rotational speed of the propeller,
- Response time between the pitch change order (modification of the lever position) and the instant when the pitch and propeller speed have reached their final position,
- Propelling thrust variation during the transfer of the control from one location to another one.

3.5 Test Result

Tests are to demonstrate:

- that the propelling thrust is not significantly altered when transferring control from one location to another and in case of failures in the pitch command and control or feedback signals.
- that the pitch response times measured during the test do not exceed the maximum value to be defined by the pitch control system manufacturer or integrator.

"Quality Classes of Propellers" was renumbered as item 4.

PART E – CHAPTER 105 - NAVAL SHIP TECHNOLOGY, ELECTRICAL INSTALLATIONS

01. Section 2 – Installations of Electrical Equipment

Revision Date: December 2024

Entry into Force Date: 1 January 2025

B.5.1 was revised as below:

5. Ventilation of Spaces Containing Batteries

5.1 All battery installations, ~~except for gastight batteries,~~ in rooms, cabinets and containers must be constructed and ventilated in such a way as to prevent the accumulation of ignitable gas mixtures.

02. Section 17 – Tests

Revision Date: December 2024

Entry into Force Date: 1 January 2025

E.5.1.1 was revised according to REC73 Rev.3 as below:

5. Equipment, Apparatuses and Assemblies Subject to Type Approval

5.1 Electrical equipment

5.1.1 Cables and accessories, see Section 14, G. and H.

a) Cables and insulated wires

……

d) Cable trays/protective casings made of plastic materials are to be type tested in accordance with ~~TL- R~~ IACS UR E16, see Section 12, D.6. For guidance on testing, refer to ~~TL- G~~ IACS REC 73.

PART E – CHAPTER 107 - NAVAL SHIP TECHNOLOGY, SHIP OPERATION INSTALLATIONS AND AUXILIARY SYSTEMS

01. Section 8 – Piping Systems, Valves and Pumps

Revision Date: December 2024

Entry into Force Date: 1 January 2025

A.1 was revised according to UR P2.1 Rev.3 as below:

A. General

1. Scope

1.1 These requirements apply to pipes and piping system, including valves, fittings and pumps, which are necessary for the operation of the main propulsion plant together with its auxiliaries and equipment. They also apply to piping systems used in the operation of the ship whose failure could directly or indirectly impair the safety of ship and crew, and to piping systems which are dealt with in other Sections.

The requirements of this section do not apply to the following piping systems:

- Gas fuel piping systems of ships subject to the IGF Code.
- Piping systems for other low flashpoint fuels defined in SOLAS II-1/2.29.

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Table 8.1 was revised according to UR P2.2 Rev.5 as below:

Table 8.1 Classification of pipes into "pipe classes"

Medium/type of pipeline	Design pressure PR [bar] Design temperature t [°C]		
Pipe class	**I**	**II**	**III**
Corrosive media Inflammable liquids heated above flash point Inflammable liquids with a flash point of 60 °C or less Flammable gases	all	**(1)**	-

Steam	PR > 16 or t > 300	7 < PR ≤ 16 and 170 < t ≤ 300	PR ≤ 7 and t ≤ 170
Air, gases (inflammable) Inflammable, hydraulic fluids Boiler feedwater, condensate Seawater and fresh water for cooling Brine in refrigerating plant Urea for SCR systems*	PR > 40 or t > 300	16 < PR ≤ 40 and 200 < t ≤ 300	PR ≤ 16 and t ≤ 200
Liquid fuels, lubricating oil, flammable hydraulic fluid	PR > 16 or t > 150	7 < PR ≤ 16 and 60 < t ≤ 150	PR ≤ 7 and t ≤ 60
Cargo pipelines for supply tankers	-	-	all
Refrigerants	-	all	-
Open-ended pipelines (without shutoff), e.g. drains, venting pipes, overflow lines and boiler blowdown lines	-	-	all
(1) *Classification in Pipe Class II is possible if special safety arrangements are available and structural safety precautions are arranged.* ** When piping materials selected according to ISO 18611-3:2014 for Urea in SCR systems.*			

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Item B.4.3.3 was added according to UR P2.9 Rev.3 as below:

4.3 Test after installation on board

……

4.3.3 Pneumatic leak testing may be carried out on water sensitive systems, in lieu of hydrostatic testing. In certain circumstances, a combined hydrostatic – pneumatic strength test may also be applied, where the system is partially filled with water and the free space above is pressurized with a test gas (typically air or nitrogen). When pneumatic tests cannot be avoided, the safety precautions in IACS Rec. 140, Part F, are to be observed.

Item D.2.4 was revised according to UR P2.7.3 Rev.3 as below:

2.4 Screwed socket connections (Slip-on threaded joints)

2.4.1 Screwed socket connections with parallel and tapered threads shall comply with requirements of recognized national and/or international standard*.

2.4.2 Screwed socket connections with parallel threads are permitted for pipes in class III with an outside diameter ≤ 60,3 mm. as well as for subordinate systems e.g. sanitary and hot water heating systems. They are not permitted for systems for flammable media.

2.4.3 Screwed socket connections with tapered threads are permitted for the following:

- Class I, outside diameter not more than 33,7 mm.

- Class II and class III, outside diameter not more than 60,3 mm.

Screwed socket connections with tapered threads are not permitted for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.

Screwed socket connections may be used for connecting small bore instrumentation equipment (e.g., pressure/temperature sensors) to piping systems conveying flammable media if such connections comply with a recognized national and/or international standard*. The use of such threaded joints shall be limited to outside diameters of maximum 25mm.

**Note: Standards such as ASME B31.1 and ASME B31.3 may be referenced for the purpose.*

Table 8.14 was revised according to UR P2.7.4 Rev.11 as below:

Table 8.14 Application of mechanical joints depending upon the class of piping

Types of joints	Classes of piping systems		
	Class I	**Class II**	**Class III**
Pipe Unions			
Welded and brazed type	+ ($d_a \leqslant$ 60,3 mm)	+ ($d_a \leqslant$ 60,3 mm)	+
Compression Couplings			
Swage-type	+	+	+
Press type	-	-	+
Typical compression type	+ ~~($d_a \leqslant$ 60,3 mm)~~	+ ~~($d_a \leqslant$ 60,3 mm)~~	+
Bite type			
Flared type			
Slip-on Joints			
Machine grooved type	+	+	+
Grip type	-	+	+
Slip type	-	+	+
Abbreviations : *+ Application is allowed - Application is not allowed*			

02. Section 11 – Ventilation Systems and NBC Protection

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Necessary addition pertaining to terms “NBC” and “NBC Basics” were added.

A. General

1. Scope

……

1.2 The requirements of this Section comprise the requirements for air handling plants to ensure NBC protection (NBC ventilation systems).

If the ship is equipped with a NBC protection plant fulfilling the requirements defined in this Section the Notation NBC or NBC Basic will be affixed to the Character of Classification, see Chapter 101 Classification and Surveys Section 2, C.4.2.3.

Depending on the protection level selected, following notations can be assigned:

NBC

A citadel can be established or is permanently installed by providing fresh air through NBC filters, facilitating operations of long duration in a NBC contaminated area with a pressurised citadel.

NBC Basic

A non-citadel naval ship without NBC filter. A NBC shelter providing a degree of protection against ingress of NBC agents can be established by isolating a part of the naval ship from the outside environment and adjoining unprotected compartments.

……

5. Definations

……

5.7 has been added.

5.7 NBC shelter

A compartment or a series of adjoining compartments, gas-tight isolated from the outside environment providing protection against ingress of NBC agents, without provision of fresh air filtered through a NBC filter. A NBC shelter provides protection of short duration due to increasing concentration of CO2 in the NBC shelter.

Headings have been renumbered.

……

B. Scope of NBC Protection

1. General Requirements

1.1 With regard to the protection against the ingress of NBC warfare agents, the ships shall be protected in accordance with the requirements of the Naval Authority.

1.3 The estimation of the required decontaminated air volume depends on following factors ~~the following~~ :

The factors have been explained under new headings.

1.3.1 Technical and design requirements

1.3.1.1 ~~This requirement results~~ Requirements stipulated in this section may cause from possible and calculable losses by leakage in the ship structure such as:

- Losses by leakage through internal installations, units and plants, e.g. cannons, missile launching
- Equipment, vertical launching system, antenna system,
- Losses by leakage from e.g. air locks, NBC air locks, handling rooms
- Allowances for leaky doors/hatches
- Discharge air volumes (mechanical and natural discharge air).

1.3.1.2 For each damage control zone, the decontaminated air volumes shall be determined from ~~the three criteria defined in 1.5, whereby in each case~~ the largest decontaminated air volume must be applied.

The determination of the decontaminated air requirement should be performed as described in F.5. The decontaminated air shall be provided to the spaces by air handling units.

1.3.1.3 The citadels shall be marked for NBC purposes according to the owner's standard for such marking.

1.3.2 ~~Discharge air volumes needed to e~~Eliminate~~ion of~~ foul smelling and/or noxious gases or odorous sub-stances

Foul-smelling air, noxious gases and odorous substances are eliminated by means of discharge air, the quantity of which must be replaced by decontaminated air. In this connection the air change rates men- tioned in F.5. ~~must~~should be observed. Furthermore, the discharge air volumes shall be determined for the galley, for the sound-absorbing capsule of diesel en-gines / turbines, for the garbage storage space, for the hospital, for auxiliary machinery spaces with refrigerating machines, etc

~~For each damage control zone, the decontaminated air volumes shall be determined from the three criteria defined in 1.5, whereby in each case the largest decontaminated air volume must be applied.~~

~~The mandatory determination of the decontaminated air requirement shall be performed as described in F.5. The decontaminated air shall be provided to the spaces by air handling units.~~

1.3.3 Personnel requirements ~~Requirements for personnel~~

The quantity of decontaminated air for the personnel depends on the maximum permissible CO_2 content of the various space categories and on the occupancy factors envisaged for them, see F.5.

…….

2. Elements of NBC Protection

…….

2.2.6 ~~Craft~~Naval ship with notation NBC ~~Limited~~Basic may have cleansing stations, but normally the station will not have fresh air purge facilities.

…….

2.5 **NBC spraying system**

The NBC spraying system for the outside surfaces of the ship has to be installed in accordance with Section 9, P.

A naval ship protected against ingress of NBC agents in accordance with NBC Basic or NBC, shall be provided with a wash-down system.

…….

3. Gastight testing

3.1 Where TL has been requested to witness gastight testing in accordance with a specified standard, the boundaries of citadels and zones defined in C.1.5 and NBC Shelter are to be tested for gas

tightness using a pressure drop test or using a recognised test method accepted by Naval Administration and **TL**. In addition, compartments containing noxious or explosive gases such as Acetone, Dope, Flammable stores, Oxygen, etc. are to be subject to a pressure drop test.

3.8 For **NBC Basic**, the NBC shelter might be pressurised with portable fans. A 100% air tightness of the shelter shall be aimed for.

……

C. Ventilation of Spaces inside the Cidatel

……

D. Ventilation of Spaces outside the Citadel

1. General

Ventilation requirements for spaces outside the citadel are specified in the Chapter 28 Ventilation and are to be applied also for naval ships.

2. Ventilation Requirements for NBC Shelters

2.1 NBC shelters shall be equipped with normal ventilation without NBC filter. The NBC shelter shall be equipped with internal cooling facilities. The NBC shelter ventilation shall be so arranged that it can be switched from supply and extraction of ambient air to re-circulation of air within the NBC shelter via cooling facilities when the NBC shelter is in use.

Since provision of fresh air has been stopped in a NBC situation, the air within the NBC shelter will normally have to be recirculated via coolers or cooled by other means, in order to avoid excessive temperatures inside the NBC shelter.

2.2 Engine room arranged as a NBC shelter

2.2.1 For engine rooms arranged as a NBC shelter, all openings into the engine-room shall be arranged for securely closing.

2.2.2 Combustion engines shall have ducted air supply.

2.2.3 The engine-room shall have facilities for cooling the air within the engine-room in the closed down state.

2.2.4 Access into the engine-room shall be by air lock.

2.2.5 The engine-room shall be gastight constructed.

ADDITIONAL RULES - REQUIREMENTS CONCERNING USE OF CRUDE OIL OR SLOPS AS FUEL FOR TANKER BOILER

01. General

Revision Date: October 2024

Entry into Force Date: 1 January 2025

Item 1 was added and the following item numbers are revized according to UR M24 Rev.2 as below:

Requirements concerning use of crude oil or slops as fuel for tanker boilers

1. This additional rule applies to tankers where crude oil or slops are used as fuel for boilers, except for the requirement(s) in this additional rule which create conflict with the statutory requirements related to alternative design and arrangements required by SOLAS II-1/55 that do not need to be complied with (i.e statutory requirements take precedence over this additional rule).

.....

~~7~~**8.** The piping for crude oil or slops and the draining pipes for the tray defined in item ~~9~~10 are to have a thickness as follows:

d_e : External diameter of pipes

t : Thickness

$d_e \leq$ ~~82,5~~ 82.5 mm	$t \geq$ ~~6,3~~ 6.3 mm
~~88,9~~ 88.9 mm < $d_e \leq$ 108 mm	$t \geq$ ~~7,1~~ 7.1 mm
~~114,3~~ 114.3 mm < $d_e \leq$ ~~139,7~~ 139.7 mm	$t \geq$ 8 mm
~~152,4~~ 152.4 mm $\leq d_e$	$t \geq$ ~~8,8~~ 8.8 mm

.....

In order to detect leakages, level position indicators with relevant alarms are to be fitted on the drainage tank defined in item ~~9~~ 10. Also a vent pipe is to be fitted at the highest part of the duct and is to be led to the open in a safe position. The outlet is to be fitted with a suitable flame proof wire gauze of corrosionresistant material which is to be easily removable for cleaning.

.....

~~8~~**9.** In way of the bulkhead to which the duct defined in item ~~7~~8 is connected, delivery and return oil pipes are to be fitted on the pump room side, with shut-off valves remotely controlled from a position near the boiler fronts or from the machinery control room. The remote control valves should be interlocked with the hood exhaust fans (defined in item ~~10~~11) to ensure that whenever crude oil is circulating the fans are running.

.....

~~13~~**4.** A gas detector plant shall be fitted with intakes in the duct defined in item ~~7~~8, in the hood duct (downstream of the exhaust fans in way of the boilers) and in all zones where ventilation may be reduced. An optical warning device is to be installed near the boiler fronts and in the machinery control room. An acoustical alarm, audible in the machinery space and control room, is to be provided.

.....

~~15~~**6.** Independent of the fire extinguishing plant as required by TL's Rules, an additional fire extinguishing plant is to be fitted in the engine and boiler rooms in such a way that it is possible for an approved fire extinguishing medium to be directed on to the boiler fronts and on to the tray defined in item ~~9~~10. The emission of extinguishing medium should automatically stop the exhaust fan of the boiler hood (see item ~~8~~9).

~~16~~**7.** A warning notice must be fitted in an easily visible position near the boiler front. This notice must specify that when an explosive mixture is signalled by the gas detector plant defined in item ~~13~~14 the watchkeepers are to immediately shut off the remote controlled valves on the crude oil delivery and return pipes in the pump room, stop the relative pumps, inject inert gas into the duct defined in item ~~7~~8 and turn the boilers to normal running on fuel oil.

GUIDELINES - GUIDELINES FOR POWER PLANT SHIPS

01. Section 1

Revision Date: December 2024

Entry into Force Date: 1 January 2025

Addition of below note to the Section 1 was implemented.

Classification and Surveys

For classification and survey requirements **TL** Rules, Classification and Surveys is to be applied in general. In addition, following are also applicable.

Note: The term "ship" in this guideline is used interchangeably to also refer to "barge."

Addition of the term “Barge” was made to the items 3 & 4 as indicated below;

3. Class Designations

The ship type notation **POWER PLANT SHIP/BARGE** is affixed to the characters of classification. For Powerships without self-propulsion **no-propulsion** is also to be added to machinery notation. If requested, different notations subject to case-by-case evaluation by TL may be assigned for power plant ships during international voyage or during anchored or moored on electricity production site.

4. Documents to be Submitted

Documents and drawings to be submitted to TL for granting POWER PLANT SHIP/BARGE class notation are as follows :

Documents	A/I (*) (**)
General arrangement of power plant	I
General arrangement of the support unit including power plant layout	I
Power plant steel structure drawings and details	A

.....

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