Secondary Legislation

DCE - MTI 3E-1/1

Maritime Transport (Machinery and Ancillary Equipment) Instrument [year]

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Table of Contents

Section 1 Preliminary provisions

1.1 Title

This MTI is the *Maritime Transport (Machinery and Ancillary Equipment) Instrument* [year].

1.2 Commencement

This MTI comes into force on [same date as Part 3E].

1.3 What this MTI does

This MTI specifies, for the purposes of *Part 1A: Maritime (Design, Construction, and Equipment- Survey and Certification) Rules* and *Part 3E: Maritime (Design, Construction, and Equipment- Machinery and Ancillary Equipment) Rules,* standards and requirements for design and construction of New Zealand ships that are also commercial ships, and their on-board machinery and ancillary equipment.

1.4 Application of MTI provisions

(1) This MTI specifies—

(a) requirements with which a ship, described in rule 3E: A1.3(1), must comply; and

(b) standards that are, for the purposes of rule 3E: C1.1, the relevant design, construction, equipment, and installation standards.

(2) If there is a conflict between this MTI and a maritime rule, the maritime rule applies.

(3) If there is a conflict between this MTI and material incorporated by reference in this MTI, the provision of the MTI applies.

1.5 Interpretation

(1) All terms used in this MTI that are defined in *Part 3E* have the same meaning as in those rules.

(2) In this MTI, unless the context otherwise requires—

accredited test facility means a facility accredited by a national accreditation body

In this MTI, codes and official standards (such as *AS/* and *ISO)* are referred to as standards and by the abbreviations listed in the Appendix.

Section 2 Arrangements for ascertaining liquid quantity in tanks and watertight compartments [reserved]

Section 3 Fuel systems and fuel tanks

3.1 Application of requirements for fuel systems and fuel tanks

This Section specifies requirements for the type, design, and location of fuel systems and fuel tanks on a ship, for the purposes of rule 3E: C3.2.

3.2 Type, design, and location of fuel systems and fuel tanks

Portable fuel tanks

(1) For the purposes of rule 3E: C3.2(10), a flexible fuel pipe must be manufactured in accordance with 1 of the following standards:

(a) *ISO 7840*:

(b) *SAE J1527.*

(2) For the purposes of rule 3E: C3.2(15), *a* portable tank in which fuel for an outboard engine is stowed must be manufactured in accordance with 1 of the following standards–

(a) *AS/NZS 2906*:

(b) *ISO 13591.*

Non-portable fuel tanks

(3) For the purposes of rule 3E: C3.2(22), a fixed-in-place fuel tank constructed of thermoplastic must be constructed in accordance with 1 of the following standards:

(a) *ISO 21487*:

(b) *ISO 10088.*

Section 4 Steering gear [reserved]

Section 5 Main and auxiliary machinery

5.1 Application of requirements for main and auxiliary machinery

This Section specifies requirements for the type and design of main and auxiliary machinery on a ship, for the purposes of rule 3E: C5.2.

5.2 Type and design of inboard petrol engines

For the purposes of rule 3E: C5.3(2),—

(a) the engine space must be ventilated with a powered ventilation system in accordance with *ISO 11105*; and

(b) electrical devices within the engine and tank compartments must have protection against ignition of surrounding flammable gases in accordance with *ISO 8846*; and

(c) a flexible hose used between the engine and a solidly mounted metallic line to eliminate vibration failure must be made of fire-resistant fuel hose in accordance with *ISO 7840.*

Section 6 Inlets, discharges and sea water piping

6.1 Application of requirements for inlets, discharges, and sea water piping

This Section specifies requirements for the type and design of plastic piping and fittings on a ship, for the purposes of rule 3E: C6.2.

6.2 Type and design of plastic piping and fittings

(1) For the purposes of rule 3E: C6.2(4)(c), plastic seawater piping and fittings must comply with subclauses (2) to (6) as applicable.

Plastic seawater piping on ships of less than 24 metres in LLL

(2) Plastic seawater piping and fittings on a ship of less than 24 metres in LLL must be—

(a) type approved or otherwise tested and verified by a recognised classification society, notified body or accredited test facility as being suitable for the intended application and the range of service temperatures and conditions they will experience in service; or

(b) designed in accordance with *IMO Resolution A.753(18),* excluding the fire endurance test; or

(c) designed and manufactured in accordance with *AS/NZS 3518*.

(3) A seawater system that uses plastic piping must be provided with a ship-side valve that, if the valve is located such that it is near or below the waterline during an operating condition of the ship, is capable of being closed from a safe position above the bulkhead deck.

(4) The manufacturer of a plastic seawater piping must provide a manufacturer's test certificate confirming that the pipe complies with the design strength requirements specified in subclause (2)(b) or (c).

(5) A recognised classification society means any of the following:

(a) American Bureau of Shipping:

(b) Bureau Veritas:

(c) Det Norske Veritas (DNV):

(d) Lloyd's Register of Shipping:

(e) Nippon Kaiji Kyokai.

Plastic seawater piping on ships of 24 metres or more in LLL

(6) Plastic seawater piping, arrangements and fittings on a ship of 24 metres or more in LLL must comply with the rules of a recognised classification society.

Section 7 Bilge management

7.1 Application of requirements for bilge management

This Section specifies requirements for the type and design of bilge system arrangements, and the number, type, design, and capacity and location of bilge pumps and bilge alarms, for the purposes of rules 3E: C7.2 and 3E: C7.3.

7.2 Type and design of bilge system arrangements

Diameter of bilge suction pipes

(1) For the purposes of rule 3E: C7.2(18), the diameter of bilge suction pipes in a ship of—

(a) less than 15 metres in LOA must not be less than 25 millimetres; and

(b) 15 metres or more in LOA must be the greater of the following—

(i) not less than

$dm = 25 + 1.68 \sqrt{L(B+D)}$

$db = 12.5 + 2.15 \sqrt{C(B+D)}$:

where:

dm = internal diameter of the main bilge suction in mm

db = internal diameter of branch bilge suction pipes in mm

L = ship LOA in metres

B = breadth of single hull ship or breadth of hull for multi-hull ship, in metres

D = depth of ship in metres

- *one or other would be C = length of compartment in metres;* or

(ii) 32 millimetres.

(2) For the purposes of rules 3E: C7.2 (17) and (21), a spiral reinforced flexible suction hose that is made of PVC and a flexible suction hose must—

(a) be of sufficient strength not to kink or collapse under suction; and

(b) comply with *ISO 3994.*

7.3 Number, type, and capacity of bilge pumps

(1) *Subclause (2)* applies to a ship other than a ship arranged with electrically driven submersible pumps.

(2) For the purposes of rule 3E: C7.3(1), a ship must have the number, type and capacity of bilge pumps for the operating limits specified in Table 7.1.

Table 7.1 Number, capacity and type of bilge pumps

Limits	Ship length (LOA)	Manual pump		Powered pump	
		Quantity	Capacity kL/hr #	Quantity	Capacity kL/hr
Enclosed	Less than 15 m	1	5.5	-	-
	15 m or more and less than 24 m	1	5.5	1 [a]	11
	24 m or more and less than 45 m	-	-	2 [b]	11
Inshore & Inshore Fishing	Less than 15 m	1	5.5	1 [a]	11
	15 m or more and less than 24 m	1	5.5	1 [a]	11
	24 m or more and less than 45 m	-	-	2 [b]	11
Coastal & Offshore	Less than 15 m	1	5.5	1 [a]	11
	15 m or more and less than 24 m	-	-	2 [b]	11
	24 m or more and less than 45 m	-	-	2 [c]	15

Notes
a: independent power pump or pump driven from main engine.
b: both independent power pumps or one pump driven from main engine.
c: both independent power pumps.
Capacity shown in Table 7.1 is the discharge capacity, as installed, in kilo-litres per hour

Capacity of fixed submersible bilge pumps

(3) For the purposes of rule 3E: C7.3(12), the capacity of a fixed electrically driven submersible bilge pump must be as follows:

(a) the total capacity of multiple submersible bilge pumps (Qt) must be not less than—

$$Q_t = 0.0138\ dm^2\ kL/hour$$

where *dm = internal diameter of branch bilge suction pipes in millimetres*; and

(b) the capacity of each submersible bilge pump (Qn) must be not less than—

$$Q_n = \frac{Q_t}{(N-1)}\ kL/hour;$$

where *N = number of fixed submersible bilge pumps;* and

(c) the combined capacity of the fitted submersible bilge pumps in any 1 compartment must be at least 8 kL/hour.

Electrical requirements applying to fixed and portable submersible bilge pumps

(4) For the purposes of rule 3E: C7.3(16), an electrically driven submersible bilge pump must comply with—

(a) *ISO 8849* and

(b) together with related wiring, an IP67 rating, in accordance with *AS/NZS 3000*.

Appendix

Codes of practice and official standards

AS/NZS means **joint *Australian and New Zealand Standard*** in the following:

AS/NZS 2906:2001 Fuel containers – Portable-plastic and metal:

AS/NZS 3518:2013 Acrylonitrile butadiene styrene (ABS) compounds, pipes and fittings for pressure applications:

AS/NZS 3000:2018 Electrical Installations.

IMO means ***International Maritime Organization*** in the following:

Resolution A.753(18) adopted on 4 November 1993 Guidelines For the Application Of Plastic Pipes On Ships.

ISO means ***International Organization for Standardization*** in the following:

ISO 7840:2021 Small craft – Fire-resistant fuel hoses:

ISO 13591:1997 Small Craft – Portable Fuel Systems for outboard motors:

ISO 21487:2022 Small craft -- Permanently installed petrol and diesel fuel tanks:

ISO 10088:2022 Small craft -- Permanently installed fuel systems:

ISO 11105:2020 Small Craft – Ventilation of petrol engine and/or petrol tank compartments:

ISO 8846:1990 Small Craft – Electrical devices — Protection against ignition of surrounding flammable gases or an equivalent standard:

ISO 7840:2021 Small Craft – Fire resistant fuel hoses or an equivalent standard:

ISO 8849:2020 Small Craft – Electrically operated bilge pumps:

ISO 3994:2014 Plastics hoses - Helical-thermoplastic-reinforced thermoplastics hoses for suction and discharge of aqueous materials – Specification.

SAE means ***SAE International*** in the following:

SAE J1527: Marine Fuel Hoses.