Amendments to Parts A and E of the "Rules for the Classification of Ships" (REP.1 and REP.5): new additional service feature “methanol bunker” for chemical tankers

Effective from 1 April 2025

Reason: introduction of the new additional service feature “methanol bunker” for chemical tankers

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SECTION 2 CLASSIFICATION NOTATIONS

1 General

1.1 Purpose of the classification notations

1.1.1 The classification notations give the scope according to which the class of the ship has been based and refer to the specific rule requirements which are to be complied with for their assignment. In particular, the classification notations are assigned according to the type, service and navigation of the ship and other criteria which have been provided by the Interested Party, when applying for classification.

The Society may change the classification notations at any time, when the information available shows that the requested or already assigned notations are not suitable for the intended service, navigation and any other criteria taken into account for classification.

Note 1: Reference should be made to Sec 1, [1.3] on the limits of classification and its meaning.

1.1.2 The classification notations assigned to a ship are indicated on the Certificate of Classification, as well as in the Register of Ships published by the Society.

1.1.3 *(1/7/2008)*

Ships and units, other than those covered in Parts B, C, D, E and F, are to comply with specific Rules published by the Society, which also stipulate the relevant classification notations.

1.1.4 The classification notations applicable to existing ships conform to the Rules of the Society in force at the date of assignment of class, as indicated in Ch 2, Sec 1. However, the classification notations of existing ships may be updated according to the current Rules, as far as applicable.

1.2 Types of notations assigned

1.2.1 The types of classification notations assigned to a ship are the following:

a) main class symbol

b) construction marks

c) service notations with additional service features, as applicable

d) navigation notations

e) operating area notations (optional)

f) additional class notations (optional)

The different classification notations and their conditions of assignment are listed in [2] to [6] below, according to their types.

1.2.2 As an example, the classification notations assigned to a ship may be as follows (the kind of notation shown in brackets does not form part of the classification notation indicated in the Register of Ships and on the Certificate of Classification):

C ✠ HULL ✠ MACH

(main class symbol, construction marks)

oil tanker-chemical tanker-ESP-Flash point > 60°C

(service notation and additional service features)

Unrestricted navigation

(navigation notation)

✠SYS - NEQ

(additional class notation).

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3.2.3 The mark ● is assigned to the relevant part of the ship, where the procedure for the assignment of classification is other than those detailed in [3.2.1] and [3.2.2], but however deemed acceptable.

4 Service notations

4.1 General

4.1.1 The service notations define the type and/or service of the ship which have been considered for its classification, according to the request for classification signed by the Interested Party. At least one service notation is to be assigned to every classed ship.

Note 1: The service notations applicable to existing ships conform to the Rules of the Society in force at the date of assignment of class. However, the service notations of existing ships may be updated according to the current Rules, as far as applicable, at the request of the Interested Party.

4.1.2 *(1/4/2006)*

The assignment of any service notation to a new ship is subject to compliance with general Rule requirements laid down in Part B, Part C and Part D of the Rules and, for some service notations, the additional requirements laid down in Part E and in the Common Structural Rules for bulk carriers and double hull oil tankers.

4.1.3 A ship may be assigned several different service notations. In such case, the specific rule requirements applicable to each service notation are to be complied with. However, if there is any conflict in the application of the requirements applicable to different service notations, the Society reserves the right to apply the most appropriate requirements or to refuse the assignment of one of the requested service notations.

4.1.4 *(1/7/2013)*

A service notation may be completed by one or more additional service features, giving further precision regarding the type of service of the ship, for which specific rule requirements are applied.

For each service notation, the different service features which may be assigned are indicated in this item [4]. However, at the request of the Interested Parties, an additional service feature may be assigned together with service notations different from those for which the additional service feature is specifically foreseen in this item [4], upon acceptance of the Society, taking into account the service of the ship for which the assignment of the additional service feature is required.

4.1.5 *(1/7/2009)*

The different service notations which may be assigned to a ship are listed in [4.2] to [4.12], according to the category to which they belong. These service notations are also listed in alphabetical order in Tab 1.

As a rule, all notations in [4.2], [4.3], [4.5] and [4.6] are only to be assigned to self-propelled units.

4.1.6 *(1/7/2009)*

The list of the service notations which may be assigned in accordance with separate Rules is indicated in Tab 2.

In addition, for ships engaged in inland navigation the relevant list of service notations is given in the specific "Rules for the classification of inland waterway ships and for conformity to Directive 2016/1629/EU".

4.1.7 *(1/7/2009)*

The assignment of a service notation does not absolve the Interested Party from compliance with any international and national regulations established by the Administrations. Neither does it waive the requirements in Sec 1, [3.3.1].

4.2 Cargo ships

4.2.1 *(1/7/2024)*

The service notations related to self-propelled ships intended for the carriage of cargo are listed in [4.2.2] to [4.2.14] and [4.2.16] to [4.2.17].

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4.4 Additional service features and corresponding design loading conditions for bulk carriers

4.4.1 *(1/1/2021)*

The requirements of item [4.4] are applicable to bulk carriers as defined in [4.3.2]:

a) having length as defined in Note 1 of 150 m or greater and contracted for new construction on or after 1 July 2003 but before 1 July 2020; and

b) having length as defined in Note 2 of 150 m or greater and contracted for new construction on or after 1 July 2020.

For **bulk carriers ESP CSR**, as defined in [4.3.3], having length as defined in Note 1 of 150 m or greater and contracted for new construction on or after 1 April 2006 but before 1 July 2015, the requirements of the "Common Structural Rules for Bulk Carriers", Sec 1, [3] apply instead.

For **bulk carriers ESP CSR**, as defined in [4.3.3], having length as defined in Note 2 of 150 m or greater and contracted for new construction on or after 1 July 2015, the requirements of the "Common Structural Rules for Bulk Carriers", Ch 1, Sec 1, [3] apply instead.

Note 1: The length L is the distance, in m, measured on the summer load waterline, from the forward side of the stem to the after side of the rudder post, or to the centre of the rudder stock where there is no rudder post. L is to be not less than 96% and need not exceed 97% of the extreme length on the summer load waterline.

Note 2: The length L is the distance, in m, measured on the waterline at the scantling draught, from the forward side of the stem to the after side of the rudder post, or to the centre of the rudder stock where there is no rudder post. L is to be not less than 96% and need not exceed 97% of the extreme length on the waterline at the scantling draught.

4.4.2 *(1/7/2003)*

The loading conditions listed in Pt E, Ch 4, Sec 3, [4.1], Pt E, Ch 4, Sec 3, [4.2] and Pt E, Ch 4, Sec 3, [4.3] are to be used for the checking of rule criteria regarding longitudinal strength (as required by Pt B, Ch 6, Sec 2, [3] and Pt E, Ch 4, Sec 3, [5]), local strength, capacity and arrangement of ballast tanks and stability. The loading conditions listed in Pt E, Ch 4, Sec 3, [4.8]) are to be used for the checking of rule criteria regarding local strength.

4.4.3 *(1/1/2021)*

For the purpose of applying the conditions for the assignment of the additional service features in [4.4.4], maximum draught is to be taken as moulded summer load line draught.

4.4.4 *(1/7/2003)*

Bulk carriers are to be assigned one of the following additional service features.

a) **BC-A**: for bulk carriers designed to carry dry bulk cargoes of cargo density 1,0 t/m^3 and greater with specified holds empty at maximum draught in addition to **BC-B** conditions.

b) **BC-B**: for bulk carriers designed to carry dry bulk cargoes of cargo density of 1,0 t/m^3 and greater with all cargo holds loaded in addition to **BC-C** conditions.

c) **BC-C**: for bulk carriers designed to carry dry bulk cargoes of cargo density less than 1,0 t/m^3.

The following additional service features are to be provided giving further detailed description of limitations to be observed during operation as a consequence of the design loading condition applied during the design in the following cases:

- **maximum cargo density** (in t/m^3) for notations **BC-A** and **BC-B**, if the maximum cargo density is less than 3.0 t/m^3
- **no MP** for all notations, when the vessel has not been designed for loading and unloading in multiple ports in accordance with the conditions specified in Pt E, Ch 4, Sec 3, [4.5.4]
- **allowed combination of specified empty holds** for notation **BC-A**.

Note 1: The requirements of this item [4.4] are not intended to prevent any other loading conditions being included in the loading manual, for which calculations are to be submitted as required; nor are they intended to replace in any way the required loading manual/instrument.

Note 2: A bulk carrier in actual operation may be loaded differently from the design loading conditions specified in the loading manual, provided limitations for longitudinal and local strength as defined in the loading manual and loading instrument on board and applicable stability requirements are not exceeded.

4.5 Ships carrying liquid cargo in bulk

4.5.1 *(1/5/2013)*

The service notations related to self-propelled ships (see Note 1) intended for the carriage of liquid cargo in bulk are listed in [4.5.2] to [4.5.10] below.

Note 1: Self-propelled ships are ships with mechanical means of propulsion not requiring assistance from another ship during normal operation.

The service notations related to assisted propulsion units (see [4.9.4]) intended for the carriage of liquid cargo in bulk are listed in [4.5.11] and [4.5.12] below.

4.5.2 *(1/7/2024)*

oil tanker, for self-propelled ships which are intended primarily to carry crude oil or other oil products having any flash point, liquid at atmospheric pressure and ambient temperature (or thus maintained by heating) in bulk in cargo tanks forming an integral part of the ship's hull, including ship types such as combination carriers (Ore/Oil ships etc.) but excluding ships carrying oil in independent tanks not part of the ship's hull such as asphalt carriers.

This notation is to be assigned to tankers of both single and double hull construction, as well as tankers with alternative structural arrangements, provided they are deemed equivalent by the Society.

For oil tankers with integral cargo tanks, the service notation **oil tanker** is always completed by the additional service feature **ESP** (i.e. **oil tanker ESP**), which means that these ships are submitted to the Enhanced Survey Program as laid down in Ch 4, Sec 3 or Ch 4, Sec 4, as applicable.

Note 1: Oil tankers that do not comply with MARPOL I/19 may be subject to international and/or national regulations requiring phase out under MARPOL I/20 and/or MARPOL I/21.

The service notation may be completed by the following additional service features, as applicable:

- **flash point > 60°C**, where the ship is intended to carry only such type of products, under certain conditions
- **double hull**, when the ship is constructed in accordance with the definition given in Ch 2, Sec 2, [2.2.18]
- **double hull (heavy grades)**, when the ship is constructed in accordance with the definition given in Ch 2, Sec 2, [2.2.20]
- **double hull (independent tanks)**, when the ship is constructed in accordance with the definition given in Ch 2, Sec 2, [2.2.19]
- **product**, where the ship is intended to carry only products other than crude oil.

The additional requirements of Part E, Chapter 7 are applicable to these ships.

4.5.3 *(1/7/2016)*

The service notation **oil tanker ESP** is always completed by the additional service feature **CSR** for oil tankers built in accordance with:

- the "Common Structural Rules for Double Hull Oil Tankers" (i.e double hull oil tankers, having length L of 150 m or greater, contracted for construction on or after 1 April 2006 but before 1 July 2015), or
- the "Common Structural Rules for Bulk Carriers and Oil Tankers" (i.e. double hull oil tankers, self-propelled with unrestricted navigation, having length L of 150 m or greater, contracted for construction on or after 1 July 2015).

Example: **oil tanker ESP CSR**

The additional requirements of Part E, Chapter 7 are applicable to these ships with the limitations indicated therein.

4.5.4 *(1/4/2025)*

chemical tanker, for self-propelled ships which intended primarily to carry in bulk chemical products presenting safety and/or pollution hazards. This notation is to be assigned to tankers of both single and double hull construction, as well as tankers with alternative structural arrangements, provided they are deemed equivalent by the Society.

For chemical tankers with integral cargo tanks, the service notation **chemical tanker** is always completed by the additional service feature **ESP** (i.e. **chemical tanker ESP**), which means that these ships are submitted to the Enhanced Survey Program as laid down in Ch 4, Sec 5.

The additional requirements of Part E, Chapter 8 are applicable to these ships.

The list of products the ship is allowed to carry is attached to the Certificate of Classification or the Certificate of Fitness, where issued by the Society, including, where necessary, the maximum allowable specific gravity and/or temperature.

The service notation may be completed by the additional service feature **IMO 1**, **IMO 2** or **IMO 3**, when the ship complies with the requirements for the assignment of type 1, type 2 or type 3, respectively, in accordance with Chapter 2 of the IBC Code.

Ships assigned with the service notation **chemical tanker** and the additional service feature **IMO 2** or **IMO 3** may be completed by the additional service feature **IMO 1 (tank name)**, when the ship complies with the requirements for the assignment of type 1, according to Chapter 2 paragraphs 2.5, 2.7, 2.8 and 2.9 of the IBC Code, and the location of the named tank complies with the requirements for a type 1 ship in paragraph 2.6 of the IBC Code.

Ships assigned with the service notation **chemical tanker** and the additional service feature **IMO 3** may be completed by the additional service feature **IMO 2 (tank name)**, when the ship complies with the requirements for the assignment of type 2, according to Chapter 2 paragraphs 2.5, 2.7, 2.8 and 2.9 of the IBC Code, and the location of the named tank complies with the requirements for a type 2 ship in paragraph 2.6 of the IBC Code.

The service notation may be completed by the additional service feature **methanol bunker** when the ship is in compliance with the requirements in Pt E, Ch 8, App 1.

4.5.5 *(1/1/2021)*

liquefied gas carrier, for ships specially intended to carry liquefied gases or other substances listed in Pt E, Ch 9, Sec 1. The additional requirements of Part E, Chapter 9 are applicable to these ships.

The list of products the ship is allowed to carry is attached to the Certificate of Classification or the Certificate of Fitness, where issued by the Society, including, where necessary, the conditions of transportation (pressure, temperature, filling limits).

The service notation may be completed by the following additional service features:

a) **LNG BUNKER** when the ship is in compliance with the requirements in Pt E, Ch 9, App 1; and

b) **REGASIFICATION SYSTEM** when the ship is fitted with a regasification system in compliance with the requirements in Pt E, Ch 9, App 2.

4.5.6 *(1/4/2006)*

FLS tanker, for ships specially intended to carry in bulk flammable liquid products other than those covered by the service notations **oil tanker ESP, oil tanker ESP CSR**, **chemical tanker ESP** or **liquefied gas carrier**

The list of products the ship is allowed to carry may be attached to the Certificate of Classification, including, where necessary, the maximum allowable specific gravity and/or temperature.

The service notation may be completed by the additional service feature **flash point > 60°C**, where the ship is intended to carry only such type of products, under certain conditions.

For ships intended to carry only one type of cargo, the service notation may be completed by the additional service feature indicating the type of product carried, e.g. **FLS tanker-acetone**.

The additional requirements of Part E, Chapter 7 are applicable to these ships.

4.5.7 **tanker**, for ships intended to carry non-flammable liquid cargoes in bulk other than those covered by the service notations in [4.5.2] to [4.5.6] above, such as wine or water.

The list of cargoes the ship is allowed to carry may be attached to the Certificate of Classification.

For ships intended to carry only one type of cargo, the service notation may be completed by the additional service feature indicating the type of product carried, e.g. **tanker-potable water**.

The additional requirements of Part E, Chapter 10 are applicable to these ships.

4.5.8 *(1/7/2018)*

asphalt tanker, for self-propelled ships which are constructed with independent, non-integral cargo tanks, intended to only carry such type of products, under certain conditions. The maximum cargo temperature will be indicated on the Certificate of Classification.

The additional requirements of Part E, Chapter 7 are applicable to these ships.

For asphalt tankers assigned with other service notations, **asphalt carrier** may be used at the request of the Interested Party in lieu of asphalt tanker provided that all the requirements applicable to asphalt tankers are applicable to these ships.

4.5.9 *(1/7/2011)*

For asphalt tankers intended to only carry such type of products under certain conditions, but with integral cargo tanks, the service notation **asphalt tanker** is always completed by the additional service feature **ESP** (i.e. **asphalt tanker ESP**), which means that these ships are submitted to the Enhanced Survey Program as laid down in Ch 4, Sec 3. The maximum cargo temperature will be indicated on the Certificate of Classification.

The additional requirements of Part E, Chapter 7 are applicable to these ships.

4.5.10 Refer also to [4.3.6] and [4.3.7] for **combination carrier** intended to carry alternatively oil products and dry cargo in bulk in cargo holds/tanks.

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SECTION 5 CHEMICAL TANKERS

1 General

1.1 Application

1.1.1 *(1/7/2011)*

The requirements of this Section apply to all self-propelled ships which have been assigned the service notation **chemical tanker ESP**.

Self-propelled ships which have been assigned the service notation c**hemical tanker**, without integral cargo tanks and having independent cargo tanks within the hull, are to be surveyed, as far as applicable, according to the provisions given for ships having the service notation **liquefied gas carrier**, as far as hull surveys are concerned, as laid down in Sec 6.

1.1.2 The requirements for hull surveys apply to the surveys of the hull structure and piping systems in way of cargo tanks, pump rooms, cofferdams, pipe tunnels and void spaces within the cargo area and all salt water ballast tanks. These requirements, however, do not apply to independent tanks on deck. They are additional to the requirements applicable to the remainder of the ship, given in Chapter 3 according to the relevant surveys.

1.1.3 The requirements contain the minimum extent of examination, thickness measurements and tank testing. When substantial corrosion, as defined in Ch 2, Sec 2, [2.2.9], and/or structural defects are found, the survey is to be extended and is to include additional close-up surveys when necessary.

1.1.4 *(1/1/2019)*

When, in any survey, thickness measurements are required :

- the procedure detailed in Ch 2, Sec 2, [2.3] is to be applied
- the thickness measurement firm is to be part of the survey planning meeting held prior to commencing the survey.

1.1.5 *(1/1/2019)*

When close-up surveys are required, consideration maybe given by the Surveyor to allow the use of Remote Inspection Techniques (RIT), according to the provisions of Ch 2, Sec 2, [2.3.3] and Ch 2, Sec 2, [2.6].

1.1.6 The requirements for machinery surveys apply to surveys of the machinery and equipment in the cargo area or dedicated to cargo service systems and are additional to those given in Chapter 3 for all ships.

1.2 Documentation on board

1.2.1 General *(1/1/2010)*

The Owner is to obtain, supply and maintain documentation on board as specified in [1.2.2] and [1.2.3], which is to be readily available for examination by the Surveyor. The documentation is to be kept on board for the lifetime of the ship.

1.2.2 Survey Report File

A survey report file is to be a part of the documentation on board consisting of:

- reports of structural surveys
- hull condition evaluation report (summarising the results of class renewal surveys)
- thickness measurement reports.

The survey report file is also to be available in the Owner's management office.

1.2.3 Supporting documents *(1/7/2024)*

The following additional supporting documentation is to be available on board:

- survey program, as required in [6.1], until such time as the class renewal survey or the intermediate survey, as applicable, has been completed
- main structural plans of cargo and ballast tanks
- previous repair history

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2.4 Ballast tanks

2.4.1 *(1/7/2010)*

Ballast tanks are to be internally examined when required as a consequence of the results of the class renewal survey or the intermediate survey (see Note 1), in cases where:

a) a hard protective coating has not been applied since the time of construction, or

b) a soft or semi-hard coating has been applied, or

c) substantial corrosion is found within the tank, or

d) the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor.

Note 1: The requirements related to the protective coating condition are to apply to ballast tanks whose coating condition will be assessed at the forthcoming class renewal survey and intermediate survey on or after 1 July 2006. For the assessment of the coating condition, reference is to be made to IACS Recommendation No.87 "Guidelines for Coating Maintenance & Repairs for Ballast Tanks and Combined Cargo / Ballast Tanks on Oil Tankers".

2.4.2 *(1/7/2006)*

When considered necessary by the Surveyor, or where extensive corrosion exists, thickness measurements are to be carried out and if the results indicate that substantial corrosion is present, the extent of the measurements is to be increased in accordance with Tab 5 to Tab 8.

These extended thickness measurements are to be carried out before the survey is credited as completed.

Suspect areas identified at previous surveys are to be examined. Areas of substantial corrosion identified at previous surveys are to have thickness measurements taken.

2.5 Emergency towing arrangement

2.5.1 The Owner or his representative is to declare to the attending Surveyor that no significant alterations have been made, without prior approval from the Society, to the equipment and arrangements fitted on board in accordance with the provisions given in Pt B, Ch 10, Sec 4, [4].

2.5.2 The survey is to include:

- an examination, as far as practicable, of the emergency towing arrangement
- confirmation that the aft towing arrangement is pre-rigged and forward chafing gear is secured to the strong-point
- confirmation of the proper functioning of the light, where it is provided, on the pick-up gear marker buoy.

2.6 Safe access to bow

2.6.1 *(1/7/2011)*

The access to bow arrangement is to be examined, as applicable.

3 Annual survey - Cargo machinery items

3.1 Cargo area and cargo pump rooms

3.1.1 *(1/7/2011)*

The Owner or his representative is to declare to the attending Surveyor that no modifications or alterations which might impair safety have been made to the various installations in dangerous zones without prior approval from the Society.

The survey is to include:

- confirmation that potential sources of ignition in or near the cargo pump rooms, such as loose gear, excessive product in bilge, excessive vapours, combustible materials, etc., are eliminated and that access ladders are in satisfactory condition
- examination, as far as practicable, of cargo, bilge, ballast and stripping pumps for excessive gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of the pump room bilge system, and checking that pump foundations are intact
- confirmation that the ventilation system, including portable equipment, if any, of all spaces in the cargo area (including cargo pump rooms) is operational, ducting is intact and screens are clean
- confirmation that electrical equipment in dangerous zones, cargo pump rooms and other spaces is in satisfactory condition and has been properly maintained

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3.5 Ballast Water Management Systems (BWMS)

3.5.1 *(1/7/2022)*

The survey is to include the examinations indicated in Sec 3, [3.5].

3.6 Chemical tankers with additional service feature methanol bunker

3.6.1 Annual survey *(1/4/2025)*

For ships assigned with the additional service feature **methanol bunker** in compliance with Pt E, Ch 8, App 1, the annual survey is to additionally include the verification of availability and efficient condition of the following items:

a) type approval and test certificate or test punch mark for cargo hoses, emergency release coupling (ERC), quick connecting disconnecting coupling (QCDC) and pressure swivel

b) methanol bunkering station including isolating valves and the emergency shut-down valves pressure gauge, pressure transmitter, temperature gauge, temperature transmitter, sampling point for gas detection, drip trays, coamings, draining arrangement and other arrangements intended for the containment of methanol leakages

c) bunkering connections for hoses and piping used for liquid and vapour return line

d) the firefighting installations in the bunker station area

e) methanol bunker monitoring systems

f) quick connect disconnect coupling (QCDC) of the methanol transfer system

g) emergency release coupling (ERC) of the methanol transfer system with associated self-closing shut-off valves and manual or automatic control, including automatic stop of bunkering operation in case of loss of power supply to ERC

h) equipment and apparatus within the hazardous area associated with the operating area of transfer arm, if fitted

i) bunkering control station including indication of overfilling alarm and automatic and manual shutdown

j) unobstructed direct or camera view of the methanol bunkering station from the bunkering control station

k) transfer arm, if fitted, with associated safety devices

l) permanently installed CCTV fitted in the bunkering station and bunkering process systems when located on open areas

m) at least one local manual activation position for the ESD at disposal of the methanol fueled ship being bunkered, e.g. a pendant with sufficient length of cable

n) a two-way communication system between the methanol bunker ship and the receiving ship to be used during the bunkering operation

o) examination of ship-ship link (SSL)

p) mooring and fendering equipment

q) lighting system at the bunker station.

3.6.2 Annual survey in case of additional features *(1/4/2025)*

For ships assigned with further additional features in compliance with Pt E, Ch 8, App 1, the annual survey is to additionally include the verification of the following items:

a) **IG-Bunker** (Inert Gas Bunker)
   - confirmation that the lines used for the inert gas are independent from the methanol liquid and vapour lines used for normal operation
   - confirmation that procedure for supplying inert gas to the receiving ship are available on board

b) **BT** (Bunker Trust)
   - review of methanol analyzer approval/certificate and calibration status
   - review of the approval of the Custody transfer Measuring System
   - availability and review of sampling procedure
   - examination of sampling connection and relevant fittings

c) **VCS-Bunker** (Vapour Control System Bunker)
   - fittings and equipment to handle vapour return such as gas combustion unit, dual-fuel engines and or boilers
   - examination of the instruction manual to verify the layout of the complete system and confirm the correspondence to the actual system fitted on board

- general examination of components of the system such as vapour piping (including manifold and hoses), cargo tank gauging equipment, cargo tank level alarms, vapour pressure alarms and vapour balancing, if any, as applicable.

4 Intermediate survey - Hull items

4.1 Weather decks

4.1.1 The survey is to include:

- examination, as far as applicable, of cargo, stripping, cargo washing, bunker, ballast, steam and vent piping systems as well as vent masts and headers. If upon examination there is any doubt as to the condition of the piping, pressure testing, thickness measurement or both may be required
- confirmation that the pipelines and independent cargo tanks, where applicable, are electrically bonded to the hull
- examination of vent line drainage arrangements.

4.2 General

4.2.1 *(1/7/2006)*

The survey extent is dependent on the age of the ship as specified in [4.3] to [4.5].

4.3 Ships between 5 and 10 years of age

4.3.1 *(1/7/2006)*

For tanks used for water ballast, an overall survey of representative tanks selected by the Surveyor is to be carried out. If such inspections reveal no visible structural defects, the examination may be limited to verification that the hard protective coating remains in good condition.

4.3.2 *(1/7/2010)*

A ballast tank is to be examined at subsequent annual surveys (see Note 1) where:

a) a hard protective coating has not been applied since the time of construction, or

b) a soft or semi-hard coating has been applied, or

c) substantial corrosion is found within the tank, or

d) the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor.

Note 1: The requirements related to the protective coating condition are to apply to the ballast tanks whose coating condition will be assessed at the forthcoming class renewal survey and intermediate survey on or after 1 July 2006.

For the assessment of the coating condition, reference is to be made to IACS Recommendation No.87 "Guidelines for Coating Maintenance & Repairs for Ballast Tanks and Combined Cargo / Ballast Tanks on Oil Tankers".

4.3.3 *(1/7/2006)*

In addition to the requirements above, suspect areas identified at previous surveys are to be examined.

4.4 Ships between 10 and 15 years of age

4.4.1 *(1/7/2006)*

The requirements of the intermediate survey are to be to the same extent as the previous class renewal survey as required in [6]. However, pressure testing of cargo and ballast tanks is not required unless deemed necessary by the attending Surveyor.

4.4.2 *(1/7/2006)*

In application of [4.4.1], the intermediate survey may be commenced at the second annual survey and be progressed during the succeeding year with a view to completion at the third annual survey in lieu of application of Ch 2, Sec 2, [4.2.1].

4.4.3 *(1/7/2006)*

In application of [4.4.1], an underwater survey may be considered in lieu of the requirements of [6.2.7].

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SECTION 1 GENERAL

1 Scope

1.1 Application

1.1.1 Chemical tankers *(1/4/2025)*

The **chemical tanker** service notation, in accordance with Pt A, Ch 1, Sec 2, [4.5.4], may be granted to ships which are intended for the carriage of products listed in the table in Chapter 17 of the IBC Code. These ships are to comply with the requirements of the latest version of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), as amended. In these Rules reference to this Code and its amendments is made by the wording “IBC Code”.

The **chemical tanker** service notation may be completed by the additional feature **IMO 1**, **IMO 2** or **IMO 3** when the ship complies with the requirements for the assignment of type 1, type 2 or type 3, respectively, according to Chapter 2 of the IBC Code.

Ships assigned with the service notation **chemical tanker** and the additional service feature **IMO 2** or **IMO 3** may be completed by the additional service feature **IMO 1 (tank name)**, when the ship complies with the requirements for the assignment of type 1, according to Chapter 2 paragraphs 2.5, 2.7, 2.8 and 2.9 of the IBC Code, and the location of the named tank complies with the requirements for a type 1 ship in paragraph 2.6 of the IBC Code.

Ships assigned with the service notation **chemical tanker** and the additional service feature **IMO 3** may be completed by the additional service feature **IMO 2 (tank name)**, when the ship complies with the requirements for the assignment of type 2, according to Chapter 2 paragraphs 2.5, 2.7, 2.8 and 2.9 of the IBC Code, and the location of the named tank complies with the requirements for a type 2 ship in paragraph 2.6 of the IBC Code.

The **chemical tanker** service notation may be completed by the additional service feature **methanol bunker** when the ship is in compliance with the requirements in App 1.

1.1.2 IBC Code requirements and the Society’s rules

a) For ships with the service notation **chemical tanker**, the IBC Code requirements are to be considered as rule requirements, with the exception indicated in [1.1.3].

b) The requirements of this Chapter supplement those of the IBC Code. These requirements include additional mandatory class requirements, as well as the Society’s interpretations of the IBC Code, which are also to be considered mandatory for class.

c) In general, this Chapter applies to cargo containment and handling systems and to the interfaces between these systems and the other parts of the ship, which are to comply with the applicable Sections of the hull and machinery Rules.

1.1.3 IBC Code requirements not within the scope of classification *(1/1/2007)*

The following requirements of the IBC Code are not within the scope of classification:

- Chapter 1, Section1.4 - Equivalents
- Chapter 1, Section 1.5 - Surveys and certification
- Chapter 2, Section 2.4 - Condition of loading
- Chapter 2, Section 2.5 - Damage assumption
- Chapter 2, Section 2.7 - Flooding assumption
- Chapter 2, Section 2.8 - Standard of damage
- Chapter 2, Section 2.9 - Survival requirements
- Chapter 11 - Fire protection and fire extinction
- Chapter 14 - Personnel protection
- Chapter 16 - Operating requirements
- Chapter 16A - Additional measures for the protection of the marine environment.

These requirements are applied by the Society when acting on behalf of the flag Administration, within the scope of delegation (see [1.1.8]).

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APPENDIX 1 METHANOL BUNKER SHIPS

1 General

1.1 Application

1.1.1 *(1/4/2025)*

The requirements of this Appendix apply to Chemical Tankers complying with Chapter 8, and intended to load methanol from land based or offshore terminals, chemical tankers or trucks and transfer the methanol to methanol fueled ships.

Ships complying with the requirements of this Appendix will be granted the additional service feature **methanol bunker** which may be complemented by one or more of the following:

- **IG-Bunker** (Inert Gas Bunker) where the methanol bunker ship is designed to also supply inert gas, to ensure gas freeing and aeration, to a methanol fueled ship.
- **BT** (Bunker Trust) where the methanol bunker ship is designed with arrangement for the verification of the methanol quality and quantity delivered to the receiving ship.
- **VCS-Bunker** (Vapour Control System Bunker) where the methanol bunker ship is designed with systems for control of vapour emission from cargo tanks from receiving ship during bunkering.

1.1.2 *(1/4/2025)*

The requirements of this Appendix supplement those in Chapter 8.

In general, this Appendix does not address cargo containment and handling systems and the interfaces between these systems and the other parts of the ship, which are to comply with the applicable Sections of the Rules.

1.2 Scope

1.2.1 *(1/4/2025)*

This Appendix addresses:

- the design and installation of the piping system of the methanol bunker ship intended to transfer methanol from land based or offshore terminals, chemical tanker or trucks and to transfer methanol to the methanol fueled ship and the vapour transfer system to/from these units.
- the safety arrangements.

1.2.2 *(1/4/2025)*

Ships intended to load, carry and transfer ethanol or similar alcohol-based fuels will be considered on a case-by-case basis, and the Society reserves the right to establish additional requirements.

2 Definitions

2.1 Bunker Emergency Shut-down system (ESD)

2.1.1 *(1/4/2025)*

A bunker ESD is a system that safely and effectively stops the transfer of methanol (and vapour as applicable) between the receiving ship and the bunker ship in the event of an emergency during the bunkering operation, and puts the system in a safe condition.

2.2 Bunkering connections

2.2.1 *(1/4/2025)*

Bunkering connections correspond to the end of the fixed piping of the methanol bunker ship (i.e. manifold for a system with flexible hose and before the swivel for a system with transfer arm).

2.3 Custody Transfer Metering system

2.3.1 *(1/4/2025)*

Custody Transfer Metering system in fluid measurement is a measuring point (location) where the fluid is being measured for sale from one party to another.

2.4 Emergency Release Coupling (ERC) or Breakaway Coupling (BRC)

2.4.1 *(1/4/2025)*

A breakaway coupling or Emergency Release Coupling (ERC) is a coupling located in the methanol transfer system (at one end of the transfer system, either the receiving ship end or the methanol bunker ship end, or in the middle of the transfer system), which separates at a predetermined section when required, each separated section containing a self-closing shut-off valve, which seals automatically.

An emergency release coupling can be activated:

- by external forces applied to the predetermined section exceeding a predetermined value, and/or
- by manual, remote or automatic control, in case of emergency.

2.5 ESD link system or Ship-ship link (SSL)

2.5.1 *(1/4/2025)*

ESD link system or Ship-ship or ship-shore link (SSL) is a communication system to transmit ESD signals and other signals between two different ESD systems (ship to shore/ship or vice versa) via compatible system technologies such as pneumatic, electric, fiber-optic or radio transmission.

2.5.2 ESD Bunkering Concept *(1/4/2025)*

ESD bunkering concept is a document describing the safety philosophy of the methanol bunkering arrangement and procedure. 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 [4.1]) shall be reflected in the safety concept.

2.6 Methanol bunkering station

2.6.1 *(1/4/2025)*

Methanol bunkering station means the following equipment and the area where they are fitted:

- bunkering connections for hoses and piping used for liquid and vapour return lines
- isolating valves and emergency shut-down valves
- drip trays, draining arrangement and other arrangements such as water curtain intended for the protection of the ship structure from cold leakages
- gas detection system through thermal camera or gas detectors for enclosed space
- bunkering system ESD indication
- inerting and purging system connections
- pressure relieving system for the bunkering manifold.

2.7 Methanol transfer system

2.7.1 *(1/4/2025)*

A methanol transfer system is a system used to connect the methanol bunker ship and the receiving ship in order to transfer methanol or both methanol and its vapours.

The methanol transfer system includes:

- loading arms and transfer hoses, as applicable
- manifold including valves and instrumentation
- QCDC
- Breakaway Coupling (BRC) or Emergency Release Coupling (ERC)
- isolation flanges.

2.8 Measuring Instruments Directive (MID)

2.8.1 *(1/4/2025)*

The Measuring Instruments Directive (MID) for Custody Transfer metering for liquids, is the European Directive that sets down the essential requirements for a wide range of measuring instruments. It provides options for the manufacturer as to how the requirements are met and which organizations to apply to for conformity assessment.

2.9 OIML R117-1

2.9.1 *(1/4/2025)*

OIML R117-1 is a recommendation issued by the ORGANISATION INTERNATIONALE DE METROLOGIE LEGALE (OIML). The International Organization of Legal Metrology (OIML) is a worldwide, intergovernmental organization whose primary aim is to harmonize the regulations and metrological controls applied by the national metrological services, or related organizations, of its Member States. R117-1 addresses the Dynamic measuring systems for liquids other than water.

2.10 Pendant

2.10.1 *(1/4/2025)*

Pendant for ESD system is a portable device provided by one ship to another ship or shore terminal or provided by the shore to the ship for the manual tripping of its ESD system by the other party in the absence of a compatible ship-ship link (SSL).

2.11 Quick Connect and Disconnect Coupling (QCDC)

2.11.1 *(1/4/2025)*

A QCDC is a manual or powered mechanical device used to connect the methanol transfer system to the receiving ship manifold. The coupling consists of a Nozzle (male) and a receptacle (female). The nozzle allows quick connection and disconnection of the fuel supply hose to the receptacle, mounted on the methanol manifold.

2.12 Safety zone

2.12.1 *(1/4/2025)*

The safety zone is a zone around the methanol bunker ship, the bunkering station of the receiving ship and the methanol transfer system, where the only activities to be performed are the bunkering operations and related activities and where safety measures are taken to cope with a possible spill of methanol.

2.13 Transfer arm

2.13.1 *(1/4/2025)*

Transfer arm refers to any system allowing supporting transfer hoses or rigid pipes during bunkering operations.

3 Document to be submitted

3.1 General

3.1.1 *(1/4/2025)*

The drawings and related information to be submitted are listed in Tab 1.

3.1.2 *(1/4/2025)*

The operating manuals and procedures to be submitted are listed in Tab 2.

Table 1 : Documents to be submitted *(1/4/2025)*

No	A/I	Documents
1	A	Arrangement of the ship showing the location of the bunkering station and bunkering control station
2	I	Risk assessment report including operational constraints for the bunkering operation such as minimum visibility, day/night, maximum wind and wave, weather condition.
3	I	List of all bunkering equipment with their technical specification (including hoses)
4	A	Details of methanol transfer system and vapor return line system (including their capacity)
5	A	Details of Purging and Inerting system supplying inert gas to the bunker station and bunkering equipment (including their capacity)
6	I	Details of Custody Transfer Metering system with relevant certificates (if BT feature is applicable)
7	A	ESD Bunkering Concept including cause and effect matrix
8	A	Block diagram of Control, Monitoring and Safety System
9	A	ESD link system (SSL) description and list of communication devices used for the bunkering operation with their specification
10	A	Drip trays coamings and holding tank arrangement for the collection of methanol spills
11	I	Instrumentation list and relevant Safety certificates for electrical equipment located in hazardous areas and concerning the bunkering, where applicable
12	A	Drawings of transfer arm
13	I	Fender and mooring arrangement for bunkering operation with mooring analysis
14	A	Bunkering station manifold specification and drawings, with strength calculation including values of maximum allowable working pressure and allowable loads at manifold flange
15	A	Access and walkway arrangement to bunkering station
Note 1: A = to be submitted for approval I = to be submitted for information		

Table 2 : Operating manuals and procedures to be submitted *(1/4/2025)*

No	A/I	Documents
1	I	Operational manual including bunkering procedure (with details of maximum allowable bunkering flow and maximum allowable working pressure), all information required in MSC.1/Circ.1621 para. 17.4
2	I	Bunkering Safety Checklist according to MSC.1/Circ.1621 para. 17.4.3
3	I	Safety Zones Layout for the bunkering operation
4	I	Maintenance and storage instruction manual for the bunkering equipment
Note 1: A = to be submitted for approval I = to be submitted for information		

4 General design requirements

4.1 Risk Assessment

4.1.1 Methanol transfer system *(1/4/2025)*

A risk assessment shall be conducted according to MSC.1/Circ.1621 paragraphs. 4.2, 5.10.2, 8.3.1.1 and 13.5 as far as applicable.

The goal of the risk assessment is to identify all safety, environmental and asset hazards associated to the methanol transfer system during bunkering operation and their possible mitigation where required. The risk analysis can be of qualitative or semi-quantitative type and shall be based on international recognized standards and Tasneef Guide for Risk Analysis.

4.1.2 *(1/4/2025)*

The risk assessment is to be performed using the most appropriate techniques such HAZID (Hazards Identification), FMEA (Failure Mode and Effect Analysis) or HAZOP (Hazard and Operability study) as far as applicable and at least the following items shall be assessed:

- bunkering station including manifold arrangement and drip tray or coaming
- ESD Bunkering System
- Bunkering Equipment
- ESD Link system (SSL)
- Voice communication System between methanol bunker ship and receiving ship
- Monitoring, Control and Safety System of bunkering operation
- Fender and mooring arrangement

taking into account the following operations:

- arrival, approach and mooring of methanol bunker ship close to the receiving ship
- connection and testing of methanol transfer system including ESD link system (SSL) and bunker ESD system
- methanol bunkering procedure (including hose handling, hose connection, methanol supply)
- methanol bunkering in parallel with other activities (SIMOPs)
- disconnection of the methanol bunker hose in normal and emergency condition (including draining, purging and inerting).

4.1.3 *(1/4/2025)*

The SIMOPs shall be defined with reference to international recognized standards or guidelines such as CWA 17540 “Ships and marine technology - Specification for bunkering of methanol fuelled vessels” and other activities identified by the risk assessment experts considering the expected port operations of the receiving ship.

4.1.4 *(1/4/2025)*

The risk assessment study is to include a vapor/liquid methanol release and toxicity analysis (e.g. gas dis-persion analysis) and is to define safety zones taking into account the concentration limits relevant to fire, explosion and toxic exposure.

4.2 Hazardous area

4.2.1 General *(1/4/2025)*

In general, safety and security zones are to comply with IACS Rec. 142, Section 2 and they are to be addressed during the risk assessment for the methanol bunkering operation taking into account the toxicity of methanol.

4.2.2 *(1/4/2025)*

In addition to the hazardous areas in accordance with Pt E, Ch 7, Sec 6, Tab 1, the following Zone 1 are to be included:

- methanol bunkering station and 3 m beyond these, up to a height of 2,4 m above the deck
- areas on the open deck within spillage coamings surrounding methanol bunkering connections and manifold valves and 3 m beyond these, up to a height of 2,4 m above the deck
- when applicable, transfer arm operating area extended by 3 m on either direction.

4.3 Materials

4.3.1 *(1/4/2025)*

Materials used in methanol transfer systems, piping system for methanol and other systems or components in contact with methanol or gas are to be in accordance with IBC Code, Chapter 6 considering the corrosion hazard of methanol.

4.4 Arrangement of bunkering system

4.4.1 Methanol bunkering station *(1/4/2025)*

The methanol bunkering station is to be located on open deck so that sufficient natural ventilation is provided. Closed or semi-enclosed bunkering stations will be subject to special consideration and are subject to risk assessment as specified in [4.1]. Access to closed or semi-enclosed bunkering station from other non-hazardous closed or semi-enclosed space shall be granted via airlock.

The methanol bunkering station when not located in the cargo area shall be separated from accommodation and control stations through gas tight divisions and the layout is subject to risk assessment.

Methanol bunkering station may be accepted at the ship bow and stern provided that the relevant requirements of IBC Code Para 3.7 are complied with.

The maximum allowable loads are to be indicated on a warning plate fitted on the manifold or nearby.

The manifold shall be arranged at least with the following instruments and fittings:

- pressure gauge
- pressure transmitter
- temperature gauge
- temperature transmitter
- sampling point for flammable vapor detection
- safety relief valve fitted in between the presentation flange and ESD bunkering valve.

4.4.2 **Drip trays and coamings** *(1/4/2025)*

Arrangements should be made for safe management of the maximum amount of methanol spills and leakages according to the risk assessment as required in [4.1]. Coamings and/or drip trays are to be provided below the bunkering connections together with a means of safely collecting and storing spills. This could be a drain to a dedicated holding tank equipped with a level indicator and alarm. Where coamings or drip trays are subject to rainwater, provision should be made to drain rainwater overboard.

4.4.3 **Bunkering control station** *(1/4/2025)*

Control of the bunkering operation should be possible from a bunkering control station. The bunkering control station may be within the cargo control room. At this location, overfilling alarm and automatic and manual shutdown are to be indicated.

Unobstructed direct or camera view of the methanol bunkering station is to be available from the bunkering control station.

A methanol system schematic/piping and instrumentation diagram (P&ID) shall be reproduced and permanently mounted in the bunkering control station.

4.4.4 **Methanol Transfer Systems** *(1/4/2025)*

The manifold for transfer of methanol fuel shall be fitted with manually operated stop valve and a remotely/automatically operated valve (ESD valve) fitted in series.

The methanol transfer system is to include at least an emergency release coupling (ERC or BRC) and an insulation flange. A Quick Connect Disconnect Coupling (QCDC) may be installed together with above mentioned components.

The ERC or BRC is to be fitted on the receiving ship side, but may be accepted also fitted on methanol transfer system side provided that the relevant scenario is considered during the risk analysis required in [4.1].

The hoses are to be adequately supported and protected to prevent potential damage or sparks in the event of activation of the ERC or BRC.

The manifolds are to be capable to withstand the allowable loads as defined in an international recognized standard or guideline such as SGMF TGN-06-04 "Technical Guidance Manifold" or equivalent.

The bunkering transfer rate is to be capable of being controlled to match with the capabilities and requirements of the receiving ship.

The maximum methanol transfer rate is to be declared and justified, taking into consideration:

- the maximum flow permitted by the ERC or BRC
- the maximum flow permitted by the hose
- the maximum flow permitted by the QCDC
- the maximum allowable working pressure of the receiving ship bunkering station.

The design of the transfer system is to be such that the lines can be drained and purged by nitrogen after a normal or emergency disconnection.

4.4.5 **Methanol Bunkering ESD system** *(1/4/2025)*

A bunkering ESD system is to be installed in addition to the ESD required by IBC Code, if a separate transfer system is provided.

All electrical components of the ESD systems are to be of suitable safe type taking into account the hazard categorization of the area where they are located.

4.4.6 Vapour return handling *(1/4/2025)*

If the methanol bunker ship is requested to be capable of handling all or part of the vapours from the receiving ship generated during the methanol bunkering operation, its vapour handling capacity is to be indicated and justified.

4.4.7 Lighting *(1/4/2025)*

Lighting shall illuminate the bunker station area, and if installed in a hazardous area are to be compliant with applicable hazardous area equipment requirements. Lighting shall adequately illuminate the bunkering operation work area as follows:

- methanol bunker hose(s)
- connection and couplings on both receiving ship and bunkering ship
- ESD system call points
- communication systems
- fire-fighting equipment
- passage ways / gangways intended to be used by the personnel in charge of the bunkering operation
- vent mast(s).

4.5 Mooring and fendering

4.5.1 *(1/4/2025)*

Steel to steel contact between methanol bunker ship and receiving ship e.g. via mooring lines, ladders, gangways, chains for fender support etc. shall be avoided through the use of insulation. Bunker hoses/pipes shall be supported and isolated to prevent electrical contact with the receiving ship.

4.5.2 *(1/4/2025)*

The rubber fenders used for keeping the distance between the methanol bunkering ship and receiving ship shall be built according to an international recognized standard such as ISO 17357-2 or equivalent. The dimensions and arrangement of fenders shall be verified during risk assessment as required in [4.1] taking into consideration the interferences of the hazardous areas of both ships and the minimum bend radius of the bunkering hose.

5 Hoses and pumps

5.1 Hose design requirements

5.1.1 General *(1/4/2025)*

The hoses used for bunkering are to comply with the requirements in IBC Code para. 5.7.

For bunkering hoses the following characteristics are to be defined by the designer and submitted to the Society:

- Minimum/Maximum Allowable Working Temperature
- Maximum Allowable Working Pressure
- Minimum Bend Radius
- Maximum Allowable Crush Load
- Maximum Allowable Axial Load.

5.1.2 Hose maximum working pressure and strength *(1/4/2025)*

The maximum working pressure specified by manufacturer is not to be less than 1 MPa in accordance with IBC Code para. 5.7.3.

The strength of the hoses is to be compatible with the maximum release forces of the ERC or BRC.

5.1.3 Materials *(1/4/2025)*

All materials of hose assembly are to be suitable for marine environment, compatible with each other, with methanol liquids and vapours and with the inerting media.

5.1.4 End connection and coupling *(1/4/2025)*

The end fittings are to be made of corrosion resistant material and in accordance with international recognized standards.

5.2 Type approval, testing and certification of methanol bunkering hoses

5.2.1 *(1/4/2025)*

Bunkering hoses are to be type approved by the Society.

Flexible hoses intended for the handling of methanol are to be in compliance with design and testing requirements standards EN1474-2, or EN21012 or equivalent standards and IBC Code para. 5.7.

5.2.2 *(1/4/2025)*

All hoses are to be individually certified by the Society at satisfactory outcome of testing according to [5.3], carried out by the manufacturer in the presence of a Society Surveyor, unless an alternative certification scheme is agreed with the Society.

5.3 Testing of Hoses at workshop

5.3.1 **Pressure test** *(1/4/2025)*

Each hose assembly is to be subjected to a hydraulic pressure test at ambient temperature to a pressure not less than 1,5 times the maximum operating (nominal) pressure, to demonstrate that the hose assembly is capable of withstanding pressure without leaking.

5.3.2 **Non destructive testing of welding** *(1/4/2025)*

Welds of the hose assembly are to be subjected to non destructive testing (NDT) according to international recognized standards.

5.4 Hoses documentation

5.4.1 *(1/4/2025)*

A hose technical file containing the following information is to be kept on board:

- hose identification number
- type approval certificate issued by Society
- product test certificate issued by Society
- overall weight of the hose and end fittings assembly
- date of entry into service
- inspection intervals and lifetime
- instructions for the handling, storage and installation of hose.

5.5 Marking of products

5.5.1 *(1/4/2025)*

Each hose is to be permanently marked according to a recognized international standard or the following information:

- Manufacturer's name or logo
- hose designation and size
- Maximum Allowable Working Pressure
- maximum and minimum allowable working temperature
- date of manufacture
- marking from Society.

5.6 Transfer pumps

5.6.1 *(1/4/2025)*

The transfer pumps if different from cargo pumps shall comply with requirements specified in Sec 5, [2.4].

All pumps are to be pressure tested in the presence of the Surveyor.

6 Quick Connect Disconnect Coupler (QCDC)

6.1 Type approval, testing and certification of QCDC

6.1.1 *(1/4/2025)*

QCDC are to be type approved by the Society.

6.1.2 *(1/4/2025)*

All QCDC are to be individually certified by the Society at satisfactory outcome of testing according to [6.3] carried out by the manufacturer in the presence of the Surveyor, unless an alternative certification scheme is agreed with the Society.

6.2 Type testing

6.2.1 *(1/4/2025)*

The QCDC is to be subjected to a type test to confirm the release performance according to an international recognized standard such as ISO 21593, ISO 16904 or equivalent.

6.3 Workshop testing

6.3.1 **Pressure test** *(1/4/2025)*

The QCDC is to be subjected to a hydrostatic pressure test, at ambient temperature, to a pressure not less than 1,5 times the Maximum Allowable Working Pressure to demonstrate that the QCDC is capable of withstanding pressure without leakage.

7 Emergency Release Coupling (ERC) and Breakaway Coupling (BRC)

7.1 Type approval, testing and certification of QCDC

7.1.1 **General** *(1/4/2025)*

Transfer arms and hoses shall be fitted with an Emergency Release Coupling (ERC) or Breakaway Coupling (BRC) designed to minimize the release of methanol on emergency disconnection. The emergency release coupling is to be designed as breakaway coupling i.e. with automatic disconnection in case the design loads are exceeded. The design load of the ERC or BRC are not to be greater that the manifold allowable loads as defined in [4.4.4].

Additionally the emergency release coupling may be designed with manual or remote and automatic activation by the ESD bunkering system.

7.1.2 *(1/4/2025)*

Each separate section is to contain a self-closing shut-off valve, which seals automatically on disconnection.

7.1.3 *(1/4/2025)*

All electrical components of the emergency release coupling are to be certified of a suitable safe type.

When applicable, the availability of power to the ERC is to be monitored and arranged so that bunkering operation is automatically stopped in case of loss of power supply to the ERC.

7.1.4 *(1/4/2025)*

The bunkering line is to be designed and arranged to withstand the surge pressure that may result from the activation of the ERC.

7.2 Type approval, testing and certification of ERC

7.2.1 *(1/4/2025)*

ERC are to be type approved by the Society.

7.2.2 *(1/4/2025)*

All ERCs are to be individually certified by the Society at satisfactory outcome of testing according to [7.4] carried out by the manufacturer in the presence of a Society Surveyor, unless an alternative certification scheme is agreed with the Society.

7.3 Type testing

7.3.1 *(1/4/2025)*

The ERC and BRC are to be subjected to a type test according to an international recognized standard such as ISO 18683 or equivalent to confirm the values of axial and shear forces at which it automatically separates. Additionally the tightness of the self-closing shut-off valves after separation is to be tested.

7.3.2 *(1/4/2025)*

When applicable, the ERC and BRC are to be subjected to a type test to confirm the release in case of remote or automatic activation.

7.4 Workshop testing

7.4.1 **Pressure test** *(1/4/2025)*

The ERC and BRC are to be subjected to a hydrostatic pressure test, at ambient temperature, to a pressure not less than 1,5 times the Maximum operating (nominal) pressure, to demonstrate that the ERC and BRC are capable of withstanding pressure without leaking.

8 Electrical insulation flanges

8.1 General

8.1.1 *(1/4/2025)*

Each insulation flange is to be subjected to a test of electrical resistance in air and the resistance is to be of at least 1000 Ω but less than 1 MΩ.

8.1.2 *(1/4/2025)*

The resistance of each insulation flange is to be measured after installation in the complete methanol transfer system and the resistance is to be not less than 1000 Ω.

9 Hose Supports and transfer arms

9.1 General

9.1.1 *(1/4/2025)*

Arrangements are to be made so that the hoses can be suitably supported in such a way that the minimum allowable bending radius is complied with.

9.1.2 *(1/4/2025)*

Arrangements such as cranes or winches are to be available for the handling of hoses whose size or weight does not allow a safe manual handling.

9.1.3 *(1/4/2025)*

Non electrical equipment located in hazardous area and belonging to items such as cranes, winches, etc. is to be suitable for explosive atmosphere according to international recognized standard (e.g. ISO 80079-36 or equivalent).

9.1.4 *(1/4/2025)*

Electrical equipment located in hazardous area is to comply with IBC Code para 10.

9.2 Transfer arms

9.2.1 *(1/4/2025)*

Transfer arms are to be approved by the Society.

9.2.2 *(1/4/2025)*

Transfer arms are to be designed and constructed in accordance with a recognized national or international standards acceptable to the Society as EN1474-1.

9.2.3 *(1/4/2025)*

The maximum allowable operating amplitude and forces acting on the loading arm during the bunkering operations are to be defined and compatible with the hoses and ERC. The exceeding of loading arm envelope is to activate two stages alarms in bunker control station and on the navigation bridge.

The initiation of the first stage is to activate a visual and audible alarm.

The initiation of the second stage is to activate the ESD and ERC system.

9.2.4 *(1/4/2025)*
All loading arms are to be individually certified by the Society at satisfactory outcome of tests, as required for lifting appliances and operational tests, or per recognized international standards, carried out by the manufacturer in the presence of a Society Surveyor, unless an alternative certification scheme is agreed with the Society.

9.2.5 *(1/4/2025)*
The operational test per [9.2.4] is to give evidence of compliance with the design criteria per [9.2.3].

10 Inert Gas System

10.1 Installation and inerting capacity

10.1.1 *(1/4/2025)*
An inert gas system is to be fitted on board, to enable purging and inerting of the bunkering lines; the system is to be in compliance with IBC Code para. 8.5.

10.1.2 *(1/4/2025)*
The inerting capacity is to be designed according the bunkering operations and when based on inert gas storage on board, the capacity is not to be less than 5 times the volume of the hose and pipes to be purged.

11 Vapour detection

11.1 Vapour detection in enclosed spaces

11.1.1 *(1/4/2025)*
Permanently installed vapour detectors are to be fitted in all hazardous areas including bunkering station if of enclosed or semi-enclosed type, methanol process room and other enclosed spaces containing methanol piping or other equipment not equipped with double walled piping.

11.1.2 *(1/4/2025)*
The number of detectors in each space is to be considered taking into account the size, layout and ventilation of the space. At least two independent detectors are required in each hazardous area.

11.1.3 *(1/4/2025)*
The detection equipment is to be located where vapour may accumulate and in the ventilation outlets. Gas/vapour dispersion analysis or a physical smoke test is to be used to find the best arrangement.

11.1.4 *(1/4/2025)*
An audible and visual alarm is to be activated before the vapour concentration reaches 20% of the lower explosive limit (LEL).

11.1.5 *(1/4/2025)*
Audible and visual alarms from the vapour detection equipment are to be located on the bridge and in the bunkering control station.

11.2 Vapour detection in open spaces

11.2.1 *(1/4/2025)*
The installation of vapour detectors camera is to be evaluated on the basis of the risk assessment as defined in [4.1], for open spaces classed as hazardous areas (e.g. bunkering station, hose handling areas).

12 Control and safety systems

12.1 General

12.1.1 *(1/4/2025)*
Appropriate segregation shall be maintained between control, monitoring/alarm and safety functions to limit the effects of single failures during bunkering.

Failure of one part of the integrated system shall not affect the functionality of other parts, except for those functions directly dependent on the defective part.

Being the bunkering control system combined with the cargo control system all relevant requirements specified in the IBC Code para. 5.6 are to be complied with.

12.2 Emergency Shut-down Systems (ESD)

12.2.1 *(1/4/2025)*

An ESD system is to be fitted to safely and effectively stop the transfer of methanol (and vapour as applicable) between the receiving ship and the bunkering ship in the event of an emergency during the bunkering operation.

The ESD safety system is to be designed so as to limit the consequence of failures. It is to be constructed on the fail-to safety principle.

The ESD system is to be of the self-check type; as a rule, failure within the ESD including the outside connection, is to activate an alarm.

The control systems involved in the ESD, which is a linked system to allow both parties (on board receiving ship and the methanol bunkering ship) to shut down the transfer in an emergency situation, is to be capable of being activated automatically or manually.

The ESD system normally includes two stages:

- ESD-stage 1, a stage in which the methanol transfer process is shut down in a controlled manner
- ESD-stage 2, a stage in which decoupling of the transfer system between the methanol bunker ship and receiving ship is activated.

The ESD-1 and ESD-2 logic shall be verified and agreed among stakeholders during the risk assessment as required in [4.1] also considering applicable international recognized standard or guidelines (e.g. SIGTTO Recommendations for Emergency Shutdown and Related Safety Systems).

Where provided, override command of ESD system has to be clearly indicated in the Bunkering control station.

The ESD-1 and ESD-2 trips are to trigger visual and audible alarms in the navigation bridge, engine control room, cargo and bunkering control room and manifold area.

12.2.2 *(1/4/2025)*

An ESD link system (SSL ship/shore link or ship/ship link) is to be fitted. The SSL may be various type (e.g.: electric, fibre-optic, radio transmission, pneumatic). The SSL is to have an adequate reliability and redundancy level according to a recognized international standard or guideline (e.g.: SIGTTO Recommendations for Emergency Shutdown and Related Safety Systems).

12.2.3 *(1/4/2025)*

At least one local manual activation position for the ESD system is to be fitted in a place that has a clear view of the manifold area (the 'clear view' may be provided via CCTV) but is at a safe distance from the manifold.

12.2.4 *(1/4/2025)*

Any activation of the ESD systems is to be implemented simultaneously on both methanol bunker vessel and receiving ship.

12.2.5 *(1/4/2025)*

At least one local manual activation position for the ESD system is to be made available for the methanol fueled ship being bunkered, this may be in the form of an ESD System pendant with sufficient length of cable.

12.2.6 *(1/4/2025)*

The bunkering lines are to be designed and arranged to withstand the surge pressure that may result from the activation of the emergency release coupling and quick closing of ESD valves. If not demonstrated to be required at a higher value due to pressure surge considerations, a default time of 5 seconds from the trigger of the alarm to full closure of the ESD valves is to be arranged.

The timing sequence is to ensure that the involved pumps and vapour compressors (if any) are given a stop command not later than the closing command to the manifold valve.

12.2.7 *(1/4/2025)*

The components of the ESD system located in hazardous and safety zones are to be of a suitable safe type.

12.2.8 *(1/4/2025)*

All electrical components of the emergency release coupling actuator and of the ESD systems that are provided by the methanol bunkering ship are to be approved and certified by the Society.

12.3 Alarms and safety actions

12.3.1 *(1/4/2025)*

The alarms and safety function/actions required for the transfer system are given in Tab 3 and they are additional to those required in the MSC.1/Circ.1621 Table 15.1. The extent of alarms and safety functions may be reconsidered on the basis of outcome from risk assessment.

The receiving ship is expected to be capable of transmitting at least an ESD signal via an hardwired system.

Table 3 : Alarms and safety actions required for the transfer system *(1/4/2025)*

Parameters	Alarm	Activation of the Bunker ESD systems (ESD-1)	Automatic activation of the emergency release coupling (ESD-2) **(1)**
Fire Detection in way of tank domes or manifold area for receiving ship and methanol bunker ship **(1)**	X	X	
Shutdown signal from shore or receiving ship	X	X	
Loss of ESD linked system **(1)**	X	X	
Loss of power supply to methanol bunkering control system	X	X	
ESD logic failure	X	X	
Low Pressure in cargo valve remote control system	X		
Low Low Pressure in cargo valve remote control system	X	X	
Stop of the ventilation of enclosed or semi-enclosed bunkering station	X	X	
Loss of actuating power to the common loading arm maneuvering system or to the ERC of individual loading arms	X	X	
High level in surge drum (where provided)	X		
High High level in surge drum (where provided)	X	X	
Low pressure in the supply cargo tank	X		
Low Low pressure in the supply cargo tank	X	X	
Sudden pressure drop at the transfer pump discharge	X	X	
High level in the methanol storage tank of receiving ship **(1)**	X		
High High level in the methanol storage tank of receiving ship **(1)**	X	X	
High pressure in the methanol storage tank of receiving ship **(1)**	X		
High High pressure in the methanol storage tank of receiving ship **(1)**	X	X	
High pressure in the manifold vapor return system	X		
High high pressure in the manifold vapor return system (if any)	X	X	
High pressure in the manifold of liquid supply system	X		
High High pressure in the manifold of liquid supply system	X	X	
Methanol leakage/spill in the manifold drip tray/coamings	X	X	
Vapour detection in bunkering station of receiv-ing ship **(1)**	X	X	
Vapour detection in bunkering station of bunkering ship	X	X	

(1) when the receiving ship is equipped with an SSL compatible with the methanol bunkering ship SSL

Parameters	Alarm	Activation of the Bunker ESD systems (ESD-1)	Automatic activation of the emergency release coupling (ESD-2) **(1)**
Excessive movement of ship from berth/ship	X	X	X
Disconnection of the ERC	X	X	

(1) when the receiving ship is equipped with an SSL compatible with the methanol bunkering ship SSL

12.4 Communication systems

12.4.1 *(1/4/2025)*

A two-way voice communication system is to be provided between the methanol bunkering ship and the receiving ship.

12.4.2 *(1/4/2025)*

The components of the communication system located in hazardous and safety zones are to be of a suitable safe type.

13 Testing of the methanol transfer system at workshop

13.1 Pressure test

13.1.1 *(1/4/2025)*

All piping and pressure vessels of the methanol transfer system are to be subjected to a hydraulic pressure test in the presence of a Society Surveyor, at ambient temperature, to a pressure not less than 1,5 times the nominal pressure, to demonstrate the capability to withstand pressure without leaking.

13.2 Inspection of welds

13.2.1 *(1/12/2020)*

When applicable, the welds of the methanol transfer system are to be subjected to a non-destructive testing and all butt welds are to be subjected to a 100% radiographic or ultrasonic examination.

14 Testing and trials of the methanol transfer system at yard

14.1 Onboard tests and trials

14.1.1 *(1/4/2025)*

After assembly on board, the following tests and trials are to be carried out in the presence of a Surveyor.

14.2 Piping leak test

14.2.1 *(1/4/2025)*

A leak test, using air or water or other suitable medium, of the completely assembled and equipped methanol transfer and vapour return systems, in steps of 10-20% up to 90% of the operational pressure of the methanol system is to be carried out in the presence of a Society Surveyor.

14.3 Inerting

14.3.1 *(1/4/2025)*

Inerting of the total methanol system following the approved inerting procedure is to be carried out in the presence of a Society Surveyor.

15 Implementation survey

15.1 Survey at the first methanol bunkering

15.1.1 *(1/4/2025)*

Upon issuance of the additional service feature **methanol bunker**, a dedicated survey is to be carried out on occasion of the first methanol bunkering to be carried out according to the approved methanol bunkering procedure.

15.1.2 *(1/4/2025)*

During the survey the following is to be carried out:

a) examination of transfer piping systems including supporting arrangements.

b) verification of satisfactory operation of:

- control and monitoring systems
- connections systems (QCDC)
- ESD system
- piping purging and inerting systems.

16 Additional features

16.1 IG-Bunker (Inert Gas Bunker)

16.1.1 General *(1/4/2025)*

The additional feature **IG-Bunker** (Inert Gas Bunker) is assigned to methanol bunker ship designed to also supply inert gas to a methanol fueled ship to ensure inerting of the receiving ship systems, and complying with the following requirements.

16.1.2 Inert Gas system *(1/4/2025)*

The inert gas system is to comply with Pt C, Ch 4, Sec 1, [9].

16.1.3 Piping system *(1/4/2025)*

The lines used for the inert gas are to be separate from the methanol liquid and vapour lines used for normal operation.

16.1.4 Document to be submitted *(1/4/2025)*

The following documents are to be submitted to the Society for approval in addition to the information required in [3]:

- diagram of the Inert gas system
- procedure for supplying inert gas to the receiving ship.

16.2 BT (Bunker Trust)

16.2.1 General *(1/4/2025)*

The additional feature **BT** (Bunker Trust) is assigned to methanol bunker ship designed with arrangement for the verification of the methanol quality and quantity delivered to the receiving ship according to international recognized standard (e.g. ISO 6583) or equivalent or according to a methanol fuel specification agreed among the stakeholders.

16.2.2 Documents to be submitted *(1/4/2025)*

The following documents are to be submitted to the Society for approval in addition to the information required in [3]:

- diagram of the methanol sampling arrangement
- technical specification of methanol analyzer
- Methanol Sampling procedure
- evidence of approval of the measuring system according to MID or OIML R117-1.

16.2.3 Sampling System *(1/4/2025)*

The ship has to be fitted with a sampling system in accordance with international recognized standard (e.g. IMPCA Methanol Sampling Methods - Procedures for Methanol Cargo Handling on Shore and Ship) or equivalent. Other type of system or piping arrangement are subject to special consideration and they are evaluated case by case.

The sampling procedure shall be included in the risk assessment as required in [4.1.2].

The methanol analyzer is to be type approved.

16.2.4 Custody Transfer Measuring System *(1/4/2025)*

A Custody Transfer Measuring System is to be installed on the methanol bunker ship.

A recognized thirty party should approve the design and instruments against MID or OIML R117-1; evidence of this is required to be supplied to the Society.

16.3 VCS-Bunker (Vapour Control System Bunker)

16.3.1 General *(1/4/2025)*

The additional feature **VCS-Bunker** (Vapour Control System Bunker) is assigned to methanol bunker ship in compliance with Pt F, Ch 13, Sec 7 for the assignment of notation **VCS-TRANSFER**.

16.3.2 Vapour return handling *(1/4/2025)*

The methanol bunker ship is to be capable of handling all or part of the vapours from receiving ship generated during the methanol bunkering operation, in addition to its own Boil-Off Gas (BOG), without release to the atmosphere. The vapour handling capacity of the methanol bunker ship is to be indicated and justified.

Different ways to dispose of the vapours may be considered, such as:

- re-liquefaction
- utilization by the gas consuming equipment of the methanol bunkering ship (e.g. gas or dual-fuel engines or boilers)
- gas combustion unit.

A combination of these means is possible and other solutions may be accepted if they are duly justified to the Society.