Amendments for Guidance for Approval of Manufacturing Process and Type Approval, Etc.

- Main Amendments -

(1) Effective Date : 1 October 2018 (Date of which application for survey is submitted)

◉ Establishment of the type approval guidelines for the sound insulation performance of sound insulating materials in relation to the sound insulation performance between the bulkheads of accommodation spaces as specified in Chapter 6 of IMO Resolution MSC.337 (91).

(1) Effective date : 1 Jul. 2019 (Date of the application for certification or Date of which contracts for construction are signed)

◉ The wording 'mass production methods' had been deleted in accordance with IACS UR M73.

◉ Changed to KS M ISO 6603-1 as KS M 3074 was abolished in duplication with KS M ISO 6603-1.

◉ The type test items for flexible couplings have been clarified.

◉ Additional information for test specimen relating to surface flammability test and smoke and toxicity test.

◉ Preparation for basis of Type Approval of thermal insulation material of fuel containment system.

Present	Amendment
CHAPTER 3 TYPE APPROVAL	**CHAPTER 3 TYPE APPROVAL**
Section 11 Exhaust Gas Turbochargers	**Section 11 Exhaust Gas Turbochargers**
1101. Application	**1101. Application**
The requirements in this Section, in principle, apply to the Type Approval of exhaust gas turbo-chargers (hereinafter referred to as the turbo-chargers in this Section) manufactured at the same manufacturing plant by mass production methods. Turbo-chargers are to be type approved, either separately or as a part of an engine. The requirements are written for exhaust gas driven turbo-chargers, but apply in principle also for engine driven chargers.	The requirements in this Section~~, in principle~~, apply to the Type Approval of exhaust gas turbo-chargers (hereinafter referred to as the turbo-chargers in this Section) in accordance with the requirements in **Pt 5, Ch 2 211. 1** (1) of the Rules. Turbo-chargers are to be type approved, either separately or as a part of an engine. The requirements are written for exhaust gas driven turbo-chargers, but apply in principle also for engine driven chargers. *(2019)*
(hereafter, omitted)	(hereafter, same as the present)

Present

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <omitted>

1503. Type tests

1. ~ 2. <omitted>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<omitted>	
Kind 1 propeller shafts with corrosion resisting	(B) In the type tests of kind 1 propeller shafts with synthetic resin sleeve, following items are to be included. (a) ~ (c) <omitted> (d) Falling ball impact test at the portion of synthetic resins correspondingly in accordance with **KS M 3074** (hereafter, omitted)

(hereafter, omitted)

Amendment

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <same as the present>

1503. Type tests

1. ~ 2. <same as the present>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<same as the present>	
Kind 1 propeller shafts with corrosion resisting	(B) In the type tests of kind 1 propeller shafts with synthetic resin sleeve, following items are to be included. (a) ~ (c) <same as the present> (d) Falling ball impact test at the portion of synthetic resins correspondingly in accordance with **(KS M) ISO 6603-1** *(2019)* (hereafter, same as the present)

(hereafter, same as the present)

Present

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <omitted>

1503. Type tests

1. ~ 2. <omitted>

Table 3.15.1 Type test item of machinery and equipment of ship ***(2018)***

Kinds	Type test item
<omitted>	
flexible couplings	In the type tests of flexible couplings, the following items (a) through (e) are to be included. For systems intended to control a deflection as well as a torsion, the tests in (a) through (e) are to be carried out under the condition of imposing the maximum allowable deflection. (a) Test to confirm the allowable mean torque (b) Test to confirm the maximum allowable transient torque (c) Test to confirm the allowable alternating torque (imposing the mean torque) (d) Test to confirm the value of torsional rigidity (e) Other tests as deemed necessary by the Society due to the own construction
<omitted>	

Amendment

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <same as the present>

1503. Type tests

1. ~ 2. <same as the present>

Table 3.15.1 Type test item of machinery and equipment of ship ***(2018)***

Kinds	Type test item
<same as the present>	
flexible couplings	In the type tests of flexible couplings, the followings are to be included. For systems intended to control a deflection as well as a torsion, the tests in the followings are to be carried out under the condition of imposing the maximum allowable deflection. *(2019)* (A) Test to confirm the value of torsional rigidity (B) Test to confirm the permissible nominal torque (C) Test to confirm the permissible maximum torque and permissible maximum torque range (D) Test to confirm the permissible vibratory torque (imposing the mean torque) (E) Other tests as deemed necessary by the Society due to the own construction
<same as the present>	

Present	Amendment
CHAPTER 3 TYPE APPROVAL	**CHAPTER 3 TYPE APPROVAL**
Section 15 Machinery and Equipment for Ships	**Section 15 Machinery and Equipment for Ships**
1503. Type tests	**1503. Type tests**
1. <omitted>	**1. <same as the present>**
2. Details of Tests	**2. Details of Tests**
<omitted>	**<same as the present>**

Table 3.15.1 Type test item of machinery and equipment of ship (continued) ***(2018)***

Kinds	Type test item
Cargo pipings, pumps and cargo hoses of ships carrying liquefied gases in bulk	Type tests specified in **Pt 7, Ch 5, 503.** and **507.** are to be carried out in accordance with following requirements. Type tests of other systems and equipment which the Society deems necessary are to be considered by the Society in each case. (A) **Valve** : <omitted> (a) <omitted> (b) The flow or capacity shall be certified to a recognized standard for each size and type of valve. (c) <omitted> (d) For emergency shutdown valves, with materials having melting temperatures lower than 925 ℃, the type testing shall include a fire test to a standard acceptable to the Society.

Table 3.15.1 Type test item of machinery and equipment of ship (continued) ***(2018)***

Kinds	Type test item
Cargo pipings, pumps and cargo hoses of ships carrying liquefied gases in bulk	Type tests specified in **Pt 7, Ch 5, 503.** and **507.** are to be carried out in accordance with following requirements. Type tests of other systems and equipment which the Society deems necessary are to be considered by the Society in each case. (A) **Valve** : <same as the present> (a) <same as the present> (b) The flow or capacity shall be certified to a recognized standard for each size and type of valve. In applying this requirement, for pressrue relief valves (PRV), the flow or capacity are to be certified by the Society and for other types of valves, the manufacturer is to certify the flow properties of the valves based on tests carried out according to recognized standards. (c) <same as the present> (d) For emergency shutdown valves, with materials having melting temperatures lower than 925 ℃, the type testing shall include a fire test to a standard acceptable to the Society. In applying this requirement, emergency shutdown valves, with materials having melting temperatures lower than 925 ℃ does not include emergency shutdown valves which use materials having melting temperatures lower than 925 ℃ in components such as rubber handle covers where failure would not cause deterioration of shell or seat tightness intrinsically.

Present	Amendment
CHAPTER 3. TYPE APPROVAL	**CHAPTER 3. TYPE APPROVAL**
Section 26 Fire Protection Materials	**Section 26 Fire Protection Materials**
2601. ~ 2603. <oimitted>	**2601. ~ 2603. <same as the present>**
2604. Test methods	**2604. Test methods**
1. ~ 2. <omitted>	**1. ~ 2. <same as the present>**
3. Test for surface flammability Test for surface flammability are to comply with the requirements specified in **Table 3.26.7.** (refer to **FTP Code, Annex 1, Part 5** and **IMO Res. MSC. 307(88)**)	**3. Test for surface flammability** Test for surface flammability are to comply with the requirements specified in **Table 3.26.7.** (refer to **FTP Code, Annex 1, Part 5** and **IMO Res. MSC. 307(88)**)
Table 3.26.7 Surface flammability test(present)	**Table 3.26.7 Surface flammability test(amendment)**
4. Smoke and toxicity test Smoke and toxicity test are to comply with the requirements specified in **Table 3.26.8.** (refer to **FTP Code, Annex 1, Part 2** and **Part 5, Annex 4**)	**4. Smoke and toxicity test** Smoke and toxicity test are to comply with the requirements specified in **Table 3.26.8.** (refer to **FTP Code, Annex 1, Part 2** and **Part 5, Annex 4**)
Table 3.26.8 Smoke and toxicity test(present)	**Table 3.26.8 Smoke and toxicity test(amendment)**
5. ~ 8. <omitted>	**5. ~ 8. <same as the present>**

Table 3.26.7 Surface flammability test(present)

Item		Test method
Application		<omitted>
Test specimens		(A) Number required <omitted> (B) Dimension (a) <omitted> (b) Specimen thickness: materials and composites of normal thickness 50 mm or less are to be tested using their full thickness. For materials and composites of normal thickness greater than 50 mm, the required specimens are to be obtained by cutting away the unexposed face to reduce the thickness to 50^{+3}_{-0} mm. (C) ~ (G) <omitted> <newly added>
Duration of test		<omitted>
Conditions of retest		<omitted>
Observations during the test		<omitted>
Derived fire characteristics	General	<omitted>
	Heat for ignition	<omitted>
	Heat for sustained burning	<omitted>
	Average heat for sustained burning	<omitted>
	Critical flux at extinguishment	<omitted>
	Heat release of the specimen	<omitted>
Classification		<omitted>
Other reference		Surface materials are to comply with 4 below.
Others		<omitted>

Table 3.26.7 Surface flammability test(amendment)

Item		Test method
Application		<same as the present>
Test specimens		(A) Number required <same as the present> (B) Dimension (a) <same as the present> (b) Specimen thickness: materials and composites of normal thickness 50 mm or less are to be tested using their full thickness. For materials and composites of normal thickness greater than 50 mm, the required specimens are to be obtained by cutting away the unexposed face to reduce the thickness to 50^{+0}_{-3}mm. (C) ~ (G) <same as the present> (H) Colour variation and organic contents of specimen Usually the influence of the colour and organic content of the specimen have a significant effect on the result of a fire test. The organic content of the specimen is a key factor of the combustion characteristic of the product. Therefore the specimen should be selected to have the dark colour the maximum organic content within the production variation.
Duration of test		<same as the present>
Conditions of retest		<same as the present>
Observations during the test		<same as the present>
Derived fire characteristics	General	<same as the present>
	Heat for ignition	<same as the present>
	Heat for sustained burning	<same as the present>
	Average heat for sustained burning	<same as the present>
	Critical flux at extinguishment	<same as the present>
	Heat release of the specimen	<same as the present>
Classification		<same as the present>
Other reference		(A) Surface materials and primary deck coverings. are to comply with 4 below. (B) However, surface materials and primary deck coverings with both the total heat release (Q_t) of not more than 0.2 MJ and the peak heat release rate (Q_p) of not more than 1.0 kW are considered to comply with the requirements of **4** with out further testing.
Others		<same as the present>

Table 3.26.8 Smoke and toxicity test(present)

Item		Test method
Application		<omitted>
Test specimen		~~Preparation of test specimen is to be in accordance with the practice outlined in~~ **IMO FTPC, Annex 1, Part 5, Appendix 4.**
Test conditions		<omitted>
Duration of tests	Smoke	<omitted>
	Toxicity	<omitted>
Classifi-ca tion criteria	Smoke	An average (D_m) of the maximum of specific optical density of smoke ($D_{s\max}$) of three tests at each test condition is to be calculated. - for materials used as surface of bulkheads, linings or ceilings, the D_m is not to exceed 200 in any test condition; - for materials used as primary deck covering, the D_m is not to exceed 400 in any test condition; - for materials used as floor covering, the D_m is not to exceed 500 in any test condition; and - for plastic pipes and electric cables, the D_m is not to exceed 400 in any test condition. <newly added>
	Toxicity	<omitted>
Additional requirements		<omitted>
Others		<omitted>

Table 3.26.8 Smoke and toxicity test(amendment)

Item		Test method
Application		<same as the present>
Test specimen		(A) Number of specimens (a) The test sample shall comprise a minimum of nine specimens if all three test conditions are to be tested. (b) If the product has two faces and either face is likely to be exposed to a fire condition when in use, then both faces shall be evaluated. An additional number of specimens specified in (a) above shall be used for each face. (c) An additional set of three specimens per test conditions shall be held in reserve, where repeat test is required. (d) In case of intumescent materials, it is necessary to make a preliminary test with the cone heater at 50 mm from the specimen. Therefore, at least two additional specimens are required. (B) Size of specimens (a) The specimens shall be square, with sides measuring 75 ± 1 mm. (b) Materials of nominal thickness 25 mm or less shall be evaluated at their full thickness. For comparative testing, materials shall be evaluated at a thickness of 1 ± 0.1 mm. As far as possible, materials shall be tested in their end-use thickness. (c) Materials with a thickness greater than 25 mm shall be cut to give a specimen thickness between 25^{+0}_{-1} mm. (d) Specimens of multi-layer materials with a thickness greater than 25 mm, consisting of core material(s) with facings of different materials, shall be prepared as specified in (c). (C) Requirements other than those specified in test specimen of **4** may refer to the requirements of **3.**
Test conditions		<same as the present>
Duration of tests	Smoke	<same as the present>
	Toxicity	<same as the present>
Classification criteria	Smoke	(A) An average (D_m) of the maximum of specific optical density of smoke ($D_{s\max}$) of three tests at each test condition is to be calculated. - for materials used as surface of bulkheads, linings or ceilings, the D_m is not to exceed 200 in any test condition; - for materials used as primary deck covering, the D_m is not to exceed 400 in any test condition; - for materials used as floor covering, the D_m is not to exceed 500 in any test condition; and - for plastic pipes and electric cables, the D_m is not to exceed 400 in any test condition. (B) If the value of Ds max for any individual specimen differs from the average value for the set of three specimens of which it is part by more than 50% of that average for no apparent reason, test an additional set of three specimens from the same sample in the same mode and record the average of all six results obtained.
	Toxicity	<same as the present>
Additional requirements		<same as the present>
Others		<same as the present>

Present	Amendment
Section 27 Materials for Refrigerated Chambers and Oil-impervious Composition	**Section 27 Materials for Refrigerated Chambers and Oil-impervious Composition**
2701. Application	**2701. Application**
1. ~ 2. <omitted>	**1. ~ 2. <same as the present>**
<newly added>	**3.** For insulation materials for liquefied gas fuel containment system in accordance with the requirements in **Ch 6, Sec 4** of the **Guidance Relating to the Rules for the Classification of Ships Using Low-flashpoint Fuels**, the requirements of this Section are correspondingly applied.
2702. Data to be submitted	**2702. Data to be submitted**
<omitted>	**<same as the present>**
2703. Type tests	**2703. Type tests**
1. General	**1. General**
(1) ~ (6) <omitted>	(1) ~ (6) <same as the present>
2. Insulation materials	**2. Insulation materials**
(1) ~ (3) <omitted>	(1) ~ (3) <same as the present>
<newly added>	(4) Test items and test methods of insulation materials for liquefied gas fuel containment system are to be in accordance with the requirements in **Ch 6, Sec 4** of the **Guidance Relating to the Rules for the Classification of Ships Using Low-flashpoint Fuels**.
3. <omitted>	**3. <same as the present>**

Present	Amendment
CHAPTER 3. TYPE APPROVAL	**CHAPTER 3. TYPE APPROVAL**
<Newly added>	**Section 36 Acoustic Insulation Materials**
	3601. Application The requirements of this Section apply to tests and inspection for the type approval of airborne sound insulation properties of acoustic insulation materials in accordance with the requirements in **Pt 13 Sub-Pt 1, Ch 1, Sec 1.** of the Rules upon requests.
	3602. Data to be submitted The following reference data are to be submitted to the Society in addition to those specified in **102.** (1) Product specifications (2) Installation instruction (3) Drawings and supporting documentation (A) Certificates and reports for relevant test previously carried out (B) Details of relevant standards (C) All relevant design drawings, catalogues, data sheets, calculations and functional descriptions (D) Fully detailed sectional assembly drawings (4) Details of Materials (A) Manufacture (B) Density (C) Thickness (D) Composite (5) Packing and marking methods (6) Test procedures of airborne sound insulation properties(including test site and test methods) (7) Service records (8) The outlines of company and data on major manufacturing facilities (9) Data of quality control system

Present	Amendment
	3603. Type test 1. General (1) The type tests specified in **Par 2** are to be carried out in the presence of the Surveyor where the submitted documents are considered acceptable. The witness by the Surveyor may be omitted, however, if the type tests are conducted by any official organizations which the Society considers appropriate. (2) Test samples are to be picked out, in general, from the products by the direction of the Surveyor upon the survey at confirmation survey. (3) Three copies of the test record are to be submitted to the Society. (4) The type tests may be omitted when the test is carried out at a recognized testing organization and the test records are to be submitted to the Society. The Society may require additional tests, however, if it considers necessary. 2. Test method for Airborne sound insulation properties (1) **Preparation of specimens** Detailed test procedures depending on production type is to refer to ISO 10140-1. (2) **Test method** (A) Requirements for test facilities and equipment are given in ISO 10140-5. (B) The average sound pressure levels shall be measured in the source and receiving rooms in fixed microphone positions or a continuously moving microphone. And all quantities shall be measured using 1/3 octave bands filters having at least the frequency range of 100 Hz to 5,000 Hz. For additional measurements at the low frequency up to 50 Hz using 1/3 octave band filters, guidance is given in ISO 10140-4, Annex A. (C) Microphone shall be positioned with the following minimum separation distances: (a) 0.7 m between fixed microphone positions; (b) 0.7 m between any microphone position and room boundaries; (c) 0.7 m between any microphone position and any diffusers; (d) 1.0 m between any microphone position and the test element; (e) 1.0 m between any microphone position and the sound source. (D) If measuring with fixed microphone positions, measurements shall be made for no less than 15 s according to the following procedure. (a) A minimum of five microphone positions shall be used in each room. (b) These shall be distributed within the maximum permitted space throughout each room. No two microphone positions shall lie in the same plane relative to the room boundaries and the positions shall not be in a regular grid. (E) If measuring with a continuously moving microphone, measurements shall be made for more than 30 s according to the following procedure.

Present	Amendment
	(a) At least one measurement with a continuously moving microphone shall be used. (b) The sweep radius shall be at least 1 m. The plane of the traverse shall be inclined in order to cover a large proportion of the permitted room space and shall not lie in any plane that is less than 10° to any room surface (wall, floor or ceiling). The duration of a traverse period shall be not less than 15 s. (F) Measurements of background noise levels shall be made to ensure that the observations in the receiving room are not affected by the background noise. (G) People shall not be present in the source or receiving rooms during measurements to avoid affecting the sound field. (3) **Observations** (A) The background noise level shall be at least 6 dB below the level of signal and background noise combined at each frequency band. Adjusted sound pressure levels in receiving room shall be calculated according to the following equation. $L_R = 10\log\left(10^{L_{sb}/10} - 10^{L_b/10}\right)$ where L_R is the adjusted sound pressure level, in dB L_{sb} s the combined sound pressure level with background noise, in dB L_b is the background noise level, in dB (B) The sound reduction index shall be given as 1/3 octave band levels to one decimal place according to the following equation. $R = L_S - L_R + 10\log\frac{S}{A}$ where R is the sound reduction index, in dB. L_S is the energy average sound pressure level in the source room, in dB. L_R is the energy average sound pressure level in the receiving room, in dB. S is the area of the free test opening in which the test element is installed, in m^2. A is the equivalent sound absorption area in the receiving room, in m^2.

Present	Amendment
	(C) The weighted sound reduction index(R_W) as the single-number rating shall be derived from sound reduction index of 1/3 octave band levels. (a) Shift the reference values of **Table 3.36.1** in increments of 1 dB towards the measured values until the sum of unfavourable deviations is as large as possible, but not more than 32.0 dB. (b) The value, in decibels of the reference value at 500 Hz, after shifting it in accordance with this procedure, is R_W.

Table 3.36.1 Reference value for airborne sound
(reference: ISO 717-1 table 3, R_W: 52dB)

Center Frequency(Hz)	Reference Values(dB)
100	33
125	36
160	39
200	42
250	45
315	48
400	51
500	**52**
630	53
800	54
1,000	55
1,250	56
1,600	56
2,000	56
2,500	56
3,150	56

(4) **Test report**

The test report shall include at least the following information:

(a) reference standard;
(b) name and address of testing laboratory;
(c) manufacturer's name and product identification;
(d) name and address of the organization or person who order the test;

Present	Amendment
	(e) dates of test(date of test, date of issue of the test report and, if available and relevant, date of construction or mounting of the test element and date on which test element or test material was selected); (f) size, shape and volume of both reverberant rooms, construction and thickness of the walls; (g) air temperature, relative humidity and static pressure in the measuring rooms with measuring uncertainty; (h) brief description of details of measurement procedure and equipment; (i) full description of the test element with sectional drawing, mounting and fixing conditions and details of test opening, including size, thickness, mass per unit area, curing time and conditions of components, together (j) statement as to whether the test element suffered visible damage during the test, for example compaction(if appropriate); (k) sound reduction index of test element as a function of frequency; (l) weighted sound reduction index as a single-number rating ; (m) total loss factor, if measured, at all frequencies of measurement, both in tabular form and in the form of a curve; (n) additional information required by test codes, i.e. ISO 10140-1. <END>.

Amendments for Guidance for Approval of Manufacturing Process and Type Approval, Etc.

- Main Amendments -

(1) Effective date : 1 Jul. 2019 (Date of the application for certification)

◉ The wording 'mass production methods' had been deleted in accordance with IACS UR M73.

◉ Changed to KS M ISO 6603-1 as KS M 3074 was abolished in duplication with KS M ISO 6603-1.

◉ The type test items for flexible couplings have been clarified.

Present	Amendment
CHAPTER 3 TYPE APPROVAL	**CHAPTER 3 TYPE APPROVAL**
Section 11 Exhaust Gas Turbochargers	**Section 11 Exhaust Gas Turbochargers**
1101. Application	**1101. Application**
The requirements in this Section, in principle, apply to the Type Approval of exhaust gas turbo-chargers (hereinafter referred to as the turbo-chargers in this Section) manufactured at the same manufacturing plant by mass production methods. Turbo-chargers are to be type approved, either separately or as a part of an engine. The requirements are written for exhaust gas driven turbo-chargers, but apply in principle also for engine driven chargers.	The requirements in this Section~~, in principle~~, apply to the Type Approval of exhaust gas turbo-chargers (hereinafter referred to as the turbo-chargers in this Section) in accordance with the requirements in **Pt 5, Ch 2 211. 1** (1) of the Rules. Turbo-chargers are to be type approved, either separately or as a part of an engine. The requirements are written for exhaust gas driven turbo-chargers, but apply in principle also for engine driven chargers. *(2019)*
(hereafter, omitted)	(hereafter, same as the present)

Present

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <omitted>

1503. Type tests

1. ~ 2. <omitted>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<omitted>	
Kind 1 propeller shafts with corrosion resisting	(B) In the type tests of kind 1 propeller shafts with synthetic resin sleeve, following items are to be included. (a) ~ (c) <omitted> (d) Falling ball impact test at the portion of synthetic resins correspondingly in accordance with **KS M 3074** (hereafter, omitted)

(hereafter, omitted)

Amendment

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <same as the present>

1503. Type tests

1. ~ 2. <same as the present>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<same as the present>	
Kind 1 propeller shafts with corrosion resisting	(B) In the type tests of kind 1 propeller shafts with synthetic resin sleeve, following items are to be included. (a) ~ (c) <same as the present> (d) Falling ball impact test at the portion of synthetic resins correspondingly in accordance with **(KS M) ISO 6603-1** *(2019)* (hereafter, same as the present)

(hereafter, same as the present)

Present

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <omitted>

1503. Type tests

1. ~ 2. <omitted>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<omitted>	
flexible couplings	In the type tests of flexible couplings, the following items (a) through (e) are to be included. For systems intended to control a deflection as well as a torsion, the tests in (a) through (e) are to be carried out under the condition of imposing the maximum allowable deflection. (a) Test to confirm the allowable mean torque (b) Test to confirm the maximum allowable transient torque (c) Test to confirm the allowable alternating torque (imposing the mean torque) (d) Test to confirm the value of torsional rigidity (e) Other tests as deemed necessary by the Society due to the own construction
<omitted>	

Amendment

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1501. ~ 1502. <same as the present>

1503. Type tests

1. ~ 2. <same as the present>

Table 3.15.1 Type test item of machinery and equipment of ship *(2018)*

Kinds	Type test item
<same as the present>	
flexible couplings	In the type tests of flexible couplings, the followings are to be included. For systems intended to control a deflection as well as a torsion, the tests in the followings are to be carried out under the condition of imposing the maximum allowable deflection. *(2019)* (A) Test to confirm the value of torsional rigidity (B) Test to confirm the permissible nominal torque (C) Test to confirm the permissible maximum torque and permissible maximum torque range (D) Test to confirm the permissible vibratory torque (imposing the mean torque) (E) Other tests as deemed necessary by the Society due to the own construction
<same as the present>	

Present

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1503. Type tests

1. <omitted>

2. Details of Tests

<omitted>

Table 3.15.1 Type test item of machinery and equipment of ship (continued) ***(2018)***

Kinds	Type test item
Cargo pipings, pumps and cargo hoses of ships carrying liquefied gases in bulk	Type tests specified in **Pt 7, Ch 5, 503.** and **507.** are to be carried out in accordance with following requirements. Type tests of other systems and equipment which the Society deems necessary are to be considered by the Society in each case. (A) **Valve** : <omitted> (a) <omitted> (b) The flow or capacity shall be certified to a recognized standard for each size and type of valve. (c) <omitted> (d) For emergency shutdown valves, with materials having melting temperatures lower than 925 ℃, the type testing shall include a fire test to a standard acceptable to the Society.

Amendment

CHAPTER 3 TYPE APPROVAL

Section 15 Machinery and Equipment for Ships

1503. Type tests

1. <same as the present>

2. Details of Tests

<same as the present>

Table 3.15.1 Type test item of machinery and equipment of ship (continued) ***(2018)***

Kinds	Type test item
Cargo pipings, pumps and cargo hoses of ships carrying liquefied gases in bulk	Type tests specified in **Pt 7, Ch 5, 503.** and **507.** are to be carried out in accordance with following requirements. Type tests of other systems and equipment which the Society deems necessary are to be considered by the Society in each case. (A) **Valve** : <same as the present> (a) <same as the present> (b) The flow or capacity shall be certified to a recognized standard for each size and type of valve. In applying this requirement, for pressrue relief valves (PRV), the flow or capacity are to be certified by the Society and for other types of valves, the manufacturer is to certify the flow properties of the valves based on tests carried out according to recognized standards. (c) <same as the present> (d) For emergency shutdown valves, with materials having melting temperatures lower than 925 ℃, the type testing shall include a fire test to a standard acceptable to the Society. In applying this requirement, emergency shutdown valves, with materials having melting temperatures lower than 925 ℃ does not include emergency shutdown valves which use materials having melting temperatures lower than 925 ℃ in components such as rubber handle covers where failure would not cause deterioration of shell or seat tightness intrinsically.