

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part N

Ships Carrying Liquefied Gases in Bulk

Guidance for the Survey and Construction of Steel Ships

Part N

2009

AMENDMENT NO.2

Notice No.62 30th October 2009

Resolved by Technical Committee on 24th June 2009

ClassNK
NIPPON KAIJI KYOKAI

AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Guidance for the survey and construction of steel ships” has been partly amended as follows:

Part N SHIPS CARRYING LIQUEFIED GASES IN BULK

Annex 1 GUIDANCE FOR EQUIPMENT AND FITTINGS OF SHIPS CARRYING LIQUEFIED GASES IN BULK

Chapter 3 CARGO PUMPS

3.6 Tests and Inspection

Paragraph 3.6.1 has been amended as follows.

~~**3.6.1 Tests and Inspection During Manufacture**~~

~~1 The pressure bearing parts of the pumps are to be subjected to a hydrostatic test or a pressure test by air or suitable other fluid. The test pressure is to be 1.5 times the design pressure.~~

~~2 The pumps are, after completion of manufacture, to be subjected to operational test by using a suitable liquid as deemed appropriate by the Society before being placed on board the ship depending on the design temperature.~~

~~3 The pumps are to be subjected to service tests specified in 5.5.4, Part N of the Rules.~~

3.6.1 Type Tests

1 Each size and type of pump are to be subjected to design assessments and type testing.

2 Regarding the tests specified in -1. above, the tests and inspections specified in the following (1) through (5) are to be conducted:

(1) Material tests:

As per the requirements given in the relevant Chapters of Part K of the Rules and Table N6.4, Part N of the Rules.

(2) Hydraulic tests or hydrostatic tests:

The pressure bearing parts of pumps are to be subjected to a hydrostatic test or a pressure test by air or other suitable fluid. The test pressure is to be 1.5 times design pressure.

(3) Operating tests:

Pumps are to be subjected to design temperature operational tests. In cases where pumps are intended to be used at working temperatures below -55°C, they are to be subjected to operational tests at their minimum working temperature by using a suitable liquid as deemed appropriate by the Society.

(4) Open up inspections:

After the completion of the tests specified in (3) above, pumps are to be opened up and inspected for abnormalities.

(5) Other tests and inspection as deemed necessary by the Society depending on the type of pumps.

Paragraph 3.6.2 has been added as follows.

3.6.2 Product Inspections

1 After manufacture, pumps are to be subjected to the tests and inspections specified in the following (1) through (3):

(1) Material tests:

As per the requirements given in the relevant Chapters of **Part K of the Rules** and **Table N6.4, Part N of the Rules.**

(2) Hydraulic tests or hydrostatic tests:

The pressure bearing parts of pumps are to be subjected to a hydrostatic test or a pressure test by air or other suitable fluid. The test pressure is to be 1.5 times design pressure.

(3) Operating tests:

Pumps are to be subjected to design temperature operational tests. In cases where pumps are intended to be used at working temperatures below -55°C , they are to be subjected to operational tests at their minimum working temperature by using a suitable liquid as deemed appropriate by the Society.

2 After being installed onboard ships, pumps are to be subjected to the service tests specified in **5.5.4, Part N of the Rules.**

Chapter 5 has been amended as follows.

Chapter 5 VALVES FOR LOW TEMPERATURE SERVICES

5.1 General

5.1.1 Application

The requirements in this Chapter apply to valves directly fitted on cargo tanks or interbarrier spaces and valves for cargo and process piping ~~of which design temperature is below 0°C~~ in accordance with the requirements in ~~N5.3.1 of the Guidance~~ **Chapter 5, Part N of the Rules.**

5.2 Materials, Construction and Strength

1 The materials of principal pressure bearing parts of valves ~~with the design temperature not exceeding 0°C~~ are to conform to the requirements in ~~the relevant Chapters of **Part K of the Rules** and **Table N6.4, Part N of the Rules**~~ **N5.2.6 of the Guidance** ~~irrespective of the design pressure and nominal diameter. However, those of piping not exceeding 25mm in outside diameter may not conform to.~~

2 Valves with the design temperature below -55°C are to be approved for use as specified in the **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.**

3 The construction and strength of valves are to be in accordance with the requirements in recognized standards.

4 For valves not conforming to the requirements in the preceding -3., detailed data on the construction and strength are to be submitted to the Society for type approval specified in **Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.**

5.3 Tests and Inspection

5.3.1 Type Test

In the tests specified in the preceding 5.2-2., the test and inspection specified in the following (1) through (7) are to be conducted in addition to the requirements of 5.3.1(1), Part N of the Rules:

- (1) Material test:
As per the requirements in the relevant Chapters of **Part K of the Rules** and **Table N6.4, Part N of the Rules**
- (2) Hydraulic test:
Test is to be conducted at a pressure 1.5 times the design pressure at room temperature.
- (3) Airtightness test:
Test is to be conducted after assembly at 1.1 times the design pressure at room temperature.
- (4) Leakage verification test:
Test is to be conducted at room temperature and the temperature not higher than the design temperature at 1.1 times the design pressure. For valves having a tendency of greater leakage at low pressure, additional leakage test is to be conducted at a temperature not higher than the design pressure which is designated by the Society. At the test at room temperature, there is, as a rule, to be no leakage. At the test at low temperature, there is to be no leakage exceeding the rate of leakage as deemed appropriate by the Society.
- (5) Operating test at low temperature:
Operating test of valves at a temperature not more than the lowest design temperature with the design pressure imposed is to be conducted for 5×10^2 times. In this case, test for rate of leakage is to be conducted at the intermediate point and final point of repetitions whereby it is to be verified that there is no significant difference between the result of this verification test and that of the test given in the preceding (4). After completion of this test, the leakage test at room temperature in (4) is to be conducted once again to verify that there is no leakage.
- (6) Open up inspection:
After completion of the test specified in the preceding (5), valves are to be opened up and inspected for abnormality.
- (7) Other tests and inspection as deemed necessary by the Society depending on the type of valve.

5.3.2 Product Inspection

1 After manufacture, valves are to be subjected to the tests and inspection specified in the following (1) through (4):

- (1) Material test:
As per the requirements in the relevant Chapters of **Part K of the Rules** and **Table N6.4, Part N of the Rules**.
- (2) Hydraulic test:
Test is to be conducted at room temperature at a test pressure of 1.5 times the design pressure. However, for those to be fitted directly on type C independent tanks, the test is to be conducted at a pressure of 2 times the design pressure. Where test is conducted by a medium other than water, the requirements in 5.5.2, Part N of the Rules are to be complied with.
- (3) Airtightness test:
Test is to be conducted at ~~the maximum service~~ 1.1 times the design pressure at room temperature.
- (4) Leakage verification test for valve seat:
Leakage verification test for valve seat is to be conducted at room temperature at ~~the maximum service pressure~~ 1.1 times the design pressure for all the number of valves. Further, in case where the design temperature is below -55°C ~~and nominal diameter is not less than~~

~~1004~~, at least 10% of the total number of valves are to be tested at the temperature not more than the minimum design temperature and the pressure not less than ~~the maximum design pressure~~ 1.1 times the design pressure for each size and type of valves. When part of this sampling test failed, test for part or the whole of the valves not sampled at the temperature not more than the minimum design temperature will be requested.

2 After assembled in the ship, valves are to be subjected to service test specified in **5.5.3** and **5.5.4, Part N of the Rules**.

3 With respect to the tests and surveys specified in -1., except in the case of leakage verification tests for valve seats, are to be conducted at a temperature not more than the minimum design temperature specified in -1.(4), in cases where manufactures have been assessed in accordance with the “Rules for Approval of Manufacturers and Service Suppliers”, the items requiring testing in the presence of Surveyors attendance may be reduced by the submission of test results.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 January 2010.
2. Notwithstanding the amendments to the Guidance, the current requirements may apply to materials other than those for which the application for survey is submitted to the Society before the effective date and piping components and pumps which are installed on ships for which the date of contract for construction* is before the effective date.

* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.