

Shapes of Specimens for Tensile Tests and Bend Tests for the Butt Welds of Pipes

Amended Rules and Guidance

Rules for the Survey and Construction of Steel Ships Part M
Guidance for the Survey and Construction of Steel Ships Part N

Reason for Amendment

Requirements related to the test specimens and test methods to be used for various tests such as welding procedure qualification tests are specified in Chapter 3 of Part M of the Rules for the Survey and Construction of Steel Ships.

The above-mentioned requirements specify that test specimens 2C and 2D used for the tensile tests of butt welds of pipes with outside diameters of less than 50 mm are required to be prepared so that the width of the parallel part of the specimen is 6 mm. In addition, the requirements also specify that test specimen B-4 used for the butt weld bend tests of tubes are required to be prepared by cutting the tube into four pieces and then flattening these pieces in cases where tube thickness is less than 10 mm and tube outside diameter is less than 34 mm.

Since there are some cases where the above-mentioned preparation for test specimens may be difficult (e.g. in the case of small diameter pipes), the Society has, up until now, allowed the handling of the test specimens of such pipes to be in accordance with JIS Z 3121 and JIS Z 3122 for operational purposes even though this was not clearly specified in the relevant requirements. In recent years, however, sufficient results have been obtained regarding the use of such test specimens to indicate that said handling is not problematic; therefore, relevant requirements were revised to clarify them and formally incorporate this unwritten practice into the Rules.

In addition, as a part of a comprehensive review of the NK Rules, relevant provisions were amended with reference to ISO 15614-1 with regard to the standards of pipe thickness for which side bend test specimens are allowed to be used instead of face bend or root bend test specimens.

Outline of Amendment

The main details of the amendment are as follows:

- (1) Regarding tensile test specimens for butt welds of pipes, test specimen 2E was to be added so that tensile tests can be carried out on tubes without changing the pipe shape when the outside diameter is less than 50 mm.
- (2) Regarding the test specimen B-4 used for the bend tests of butt welds of pipes, it was specified that flattening is not required for pipes with an outside diameter of 34 mm or less.
- (3) In the provisions of N6.5.5, Part N of the Guidance for the Survey and Construction of Steel Ships, the criterion for the thickness of a pipe for which a side bending test piece was permitted to be used instead of a face bend or a root bend test specimens is revised to not less than 12 mm.

Amended Requirements

Rules for the Survey and Construction of Steel Ships

Part M: Table M3.1, Table M3.2, 4.2.5

Guidance for the Survey and Construction of Steel Ships

Part N: N6.5.5