
RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part K

Materials

2011 AMENDMENT NO.2

Rule No.82 1st November 2011

Resolved by Technical Committee on 7th July 2011

Approved by Board of Directors on 27th September 2011

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

Part K MATERIALS

Chapter 3 ROLLED STEELS

3.1 Rolled Steels for Hull

3.1.8 Surface Inspection and Verification of Dimensions

Sub-paragraph -5 has been amended as follows.

- 1** Surface inspection and verification of dimensions are the responsibility of the steel manufacturer.
- 2** The minus tolerance in the nominal thickness of plates is to be in compliance with the requirements specified in **Table K3.7**. The average thickness of plates is not to be less than the nominal thickness.
- 3** The procedure and the records of measurements are to be made available to the Surveyor and copies provided on request.
- 4** Any requirements regarding the minus tolerance except for the minus tolerance in the nominal thickness is left to the discretion of the Society.
- 5** The above **-2** and **-3** may be disregarded, when deemed appropriate by the Society.

EFFECTIVE DATE AND APPLICATION

- 1.** The effective date of the amendments is 1 November 2011.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part K

Materials

GUIDANCE

2011 AMENDMENT NO.2

Notice No.90 1st November 2011

Resolved by Technical Committee on 7th July 2011

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 K MATERIALS

Amendment 2-1

K3 ROLLED STEELS

K3.1 Rolled Steels for Hull

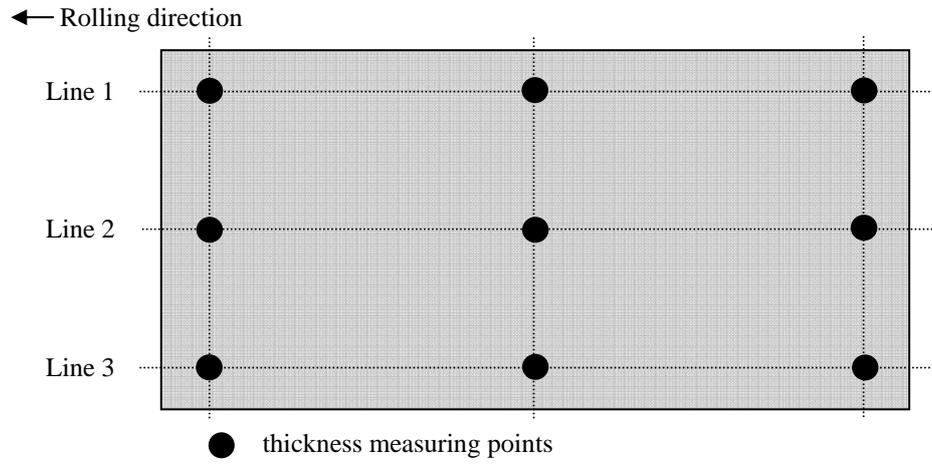
K3.1.8 Surface Inspection and Verification of Dimensions

Sub-paragraph (1) has been amended as follows.

The treatment of the requirements in **3.1.8, Part K of the Rules** is to be as followings:

- (1) In the application of **3.1.8-2, Part K of the Rules**, thickness measuring may be conducted for each steel plate rolled directly from a steel slab or steel ingot, and thickness measuring locations are to comply with the following:
 - (a) At least two lines among Line 1, Line 2 or Line 3 as shown in **Fig. K3.1.8-1**, are to be selected for the thickness measurements and at least three points on each selected line as shown in **Fig. K3.1.8-1**, are to be selected for thickness measurement. If more than three points are taken on each line the number of points shall be equal on each line.
 - (b) For automated methods, the measuring points at sides are to be located not less than 10 *mm* but not greater than 300 *mm* from the transverse or longitudinal edges of the product.
 - (c) For manual methods, the measuring points at sides are to be located not less than 10 *mm* but not greater than 100 *mm* from the transverse or longitudinal edges of the product.
- (2) The average thickness of plates specified in **3.1.8-2, Part K of the Rules** is defined as the arithmetic mean of the measurements made in accordance with the requirements of (1) above.
- (3) “When deemed appropriate by the Society” specified in **3.1.8-5, Part K of the Rules**, means that plates comply with requirements for Class C of the *ISO 7452*.

Fig. K3.1.8-1 Locations of Thickness Measuring Points



EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 1 November 2011.

K6 STEEL FORGINGS

K6.1 Steel Forgings

Paragraph K6.1.15 has been amended as follows.

K6.1.15 Additional Requirements for Reduction Gears

1 The test specimens for gears subjected to surface hardening specified in **6.1.15-3, Part K of the Rules** are to be selected as the following.

2 Induction Hardened or Nitridized Gears

(1) Tensile and impact test specimens

The test specimens are to be taken from the product after the final heat treatment and before the surface hardening in accordance with the requirements specified in **6.1.15-1** and **-2, Part K of the Rules**.

(2) Depth of the hardened layer

(a) In case of induction hardening

The depth of the hardened layer of the product is to be measured when the gear is produced for the first time, and tests thereafter may be dispensed with.

(b) In case of nitridization

i) Selection of test samples

Test samples are to be made of the same material as the product having been processed under the same conditions.

ii) Size of test samples

The size of the test samples may be optional.

iii) Heat treatments of test samples

The test samples are to be heat treated and nitridized simultaneously together with the product.

iv) Measurements of depth of hardened layer

The depth of hardened layer is to be measured every lot of same nitridization.

3 Carburized Gears

(1) Tensile and impact test specimens

(a) Selection of test sample

The samples are to be taken from the extended portion of the product before carburizing and after shaped by forging. In the cases specified in **6.1.15-1(4)** and **6.1.15-2(3), Part K of the Rules**, one each test samples are to be taken at least from 2 bodies of the products respectively.

(b) Size of test samples

The diameter of the test samples is to be of the following, corresponding to the diameter of the toothed portion.

Table K6.1.15-1 Diameter of Test Samples

Diameter of toothed portion D (mm)	Diameter of test sample (mm)
$D \leq 240$	$D/4$
$D > 240$	60

Note:

Test samples having square sections is acceptable.

- (c) Heat treatment of test samples
The test samples are to be given the same conditions of heat hysteresis as of the product, but carburizing is not required.
- (d) Selection of test specimens
The test specimens are to be taken from the surface layer of the test samples.
- (2) Depth of the hardened layer
 - (a) Selection of the test samples
The test samples are to be made of the same materials as the product and processed under the same conditions.
 - (b) Size of test samples
The sizes of the test samples may be optional.
 - (c) Heat treatment of test samples
The test samples are to be carburized and heat treated simultaneously with the product.
 - (d) Measurement of depth of hardened layer
The depth of the hardened layer is to be measured every lot of same carturization.

4 In cases where measuring the depth of the hardened layer specified in -2(2)(a), (b) iv) and -3(2)(d) for bevel gears, it is to be confirmed that the measured value of said depth, at Vickers hardness (HV) values of 400 and 550, is not to be less than the value calculated according to the formula specified in D5.3.1(2), Part D of the Guidance..

45 The hardness tests of the surface hardened gears are to be dealt with as follows:

- (1) The requirements for the measurement of hardness after surface hardening processes specified in **6.1.15-4(2), Part K of the Rules** have been required related to the “Power Transmission Systems” in **Chapter 5, Part D of the Rules**, and the measured hardness value is to be approved by the Society in relation to the approval of the manufacturing processes.
- (2) In case where the measurements of hardness for every gear of the products are difficult owing to their sizes and shapes, the hardness may be measured at appropriate locations considered to be representative in respect to the value of hardness resulted from the approval tests for the manufacturing processes referred to in **(1)** above.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

- 1. The effective date of the amendments is 1 November 2011.
- 2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships for which the date of contract for construction is before the effective date.