



RUSSIAN MARITIME REGISTER OF SHIPPING

HEAD OFFICE

CIRCULAR LETTER

№ 314-53-710 c

dated 27.12.2013.

Re: IACS Unified Requirement (UR) W30 (Feb 2013)

“Normal and higher strength corrosion resistant steels for cargo oil tanks”.

Item of technical supervision:

Normal and higher strength corrosion resistant steels for cargo oil tanks

Implementation since 01.01.2014

Valid: until ND re-publication

Validity period extended till

Cancels/amends/adds Circular Letter №

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dated -

Number of pages: 1+7

Appendices: Amendments to the Rules – 7 pages

Director of Classification Directorate

V.I. Evenko

Amends

Rules for the Classification and Construction of Sea-Going Ships, ND No. 2-020101-077

We hereby inform you that IACS Unified Requirement (UR) W30 (Feb 2013) “Normal and higher strength corrosion resistant steels for cargo oil tanks” comes into force since 1 January 2014. UR specifies requirements for use of normal and higher strength corrosion resistant steels for cargo oil tanks.

In view of the above, the amendments given in the Appendix to the Circular Letter shall be introduced into the Rules for the Classification and Construction of Sea-Going Ships, ND No. 2-020101-077.

It is necessary to do the following:

1. Apply the amendments to the RS Rules given in the Appendix to the Circular Letter.
2. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.

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charge:

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Amendments to be introduced to the Rules for the Classification and Construction of Sea-Going Ships (2014)

Part XIII. MATERIALS

Section 3 shall be supplemented with the following text:

“3.18 NORMAL AND HIGHER STRENGTH CORROSION RESISTANT STEELS FOR CARGO OIL TANKS

3.18.1 Scope of application.

3.18.1.1 These requirements apply to normal and higher strength corrosion-resistant steels when such steel is used as the alternative means of corrosion protection for cargo oil tanks as specified in regulation II-1/3-11 of SOLAS-74 (resolution MSC.289 (87) “Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers”).

3.18.1.2 The requirements are primarily intended to apply to steel products of the following types and thickness:

steel plates and wide flats:

all grades: up to 50 mm in thickness;

sections and bars:

all grades: up to 50 mm in thickness.

3.18.1.3 Normal and higher strength corrosion-resistant steels as defined within these requirements are steels whose corrosion resistance performance in the bottom or top of the internal cargo oil tank is tested and approved to satisfy the requirements in resolution MSC.289(87) in addition to other relevant requirements for structural steel, strength and construction. It is not intended that such steels be used for corrosion-resistant applications in other ship areas that are outside of those specified Regulation II-1/3-11 of SOLAS-74 (resolution MSC.289 (87)).

3.18.1.4 Since corrosion-resistant steels described in the present Chapter are similar to the ship steels as specified in 3.2, the basic requirements of 3.2 apply to these steels except where modified by this Chapter.

3.18.1.5 The weldability of corrosion-resistant steels is similar to those given in 3.2, therefore welding requirements specified in Sections 4 and 6, Part XIV "Welding" of the Rules as well as of Sections 5 and 6, Part III “Technical Supervision during Manufacture of Materials” of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships also apply except as modified by the requirements of the present Chapter.

3.18.2 Approval

3.18.2.1 All materials shall be manufactured at works recognised by the Register (having Recognition Certificate for Manufacturer in accordance with 1.3 of the Rules and Section 2, Part III “Technical Supervision during Manufacture of Materials” of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships).

3.18.2.2 In addition to the tests carried out for Recognition Certificate for Manufacturer as specified in 2.1, corrosion tests shall be carried out in accordance with 3.18.17. In the Certificate a special mark may be entered for application in one of the following areas of a cargo oil tank:

- .1 lower surface of strength deck and surrounding structures;
- .2 upper surface of inner bottom plating and surrounding structures;
- .3 both strength deck and inner bottom plating.

3.18.2.3 It is the manufacturer's responsibility to assure that effective process and production controls in operation are adhered to within the manufacturing specifications agreed upon with the Register. If the process or production controls are changed in any way, or any product fails to meet specifications, the manufacturer shall issue a report explaining the reasons, and, in the instance of product which fails to meet specifications, the measures to prevent recurrence. The complete report shall be submitted to the surveyor to the Register along with such additional information as the Surveyor may require. Each affected piece shall be tested to the satisfaction of the surveyor to the Register. The frequency of testing for subsequent products is at the discretion of the Register with regard to development and performance of the particular arrangements by manufacturer.

3.18.3 Methods of manufacture.

3.18.3.1 Methods of manufacture, deoxidation practice and rolling practice shall be in accordance with 3.2.

3.18.4 Chemical composition.

3.18.4.1 The chemical composition of samples taken from each ladle of each cast shall be determined by the manufacturer in an adequately equipped and competently staffed laboratory and shall be in accordance with the requirements of 3.2. Additionally, as required by the Register, chemical analysis of finished steel is performed to meet the documents agreed with the Register.

3.18.4.2 The manufacturer will establish a relationship of all the chemical elements which affect the corrosion resistance. The chemical elements added or controlled to achieve this shall be specifically verified for acceptance. Verification shall be based on the ladle analysis of the steel.

3.18.4.3 The manufacturer's declared analysis will be accepted subject to periodic random checks as required by the RS Surveyor.

3.18.4.4 The carbon equivalent shall be in accordance with 3.2.

3.18.5 Condition of supply.

3.18.5.1 All materials shall be supplied in one of the supply conditions specified in 3.2.

3.18.6 Mechanical properties.

3.18.6.1 Tensile testing and Charpy V-notch impact testing shall be carried out in accordance with 3.2.

3.18.7 Freedom from defects.

3.18.7.1 The steel shall be reasonably free from segregations and non-metallic inclusions. The finished material shall have a workmanlike finish and shall be free from internal and surface defects prejudicial to the use of the material for the intended application.

3.18.7.2 The acceptance criteria for surface finish and procedures for the repair of defects, as de-

tailed in 3.2 , shall be observed.

3.18.8 Tolerances.

3.18.8.1 Unless otherwise specified, the thickness tolerances in 3.2 are applicable.

3.18.9 Identification of materials.

3.18.9.1 The steelmaker shall adopt a system for the identification of ingots, slabs and finished products which will enable the material to be traced to its original cast.

3.18.9.2 The RS Surveyor shall be given full facilities for so tracing the material when required.

3.18. Testing and inspection.

3.18.10.1 Facilities for inspection.

3.18.10.1.1 The manufacturer shall afford the surveyor to the Register all necessary facilities and access to all relevant parts of the works to enable him to verify that the approved process is adhered to, for the selection of test materials, and the witnessing of tests, as required by the Rules, and for verifying the accuracy of the testing equipment.

3.18.10.2 Testing procedures.

3.18.10.2.1 The prescribed tests and inspections shall be carried out at the place of manufacture before dispatch. The test specimens and procedures shall be in accordance with Section 2. All the test specimens shall be selected, stamped and marked by the surveyor to the Register and tested in his presence, unless otherwise specified.

3.18.10.3 Through thickness tensile tests.

3.18.10.3.1 If plates and wide flats with thickness of 15 mm and over are ordered with through thickness properties, the through thickness tensile test in accordance with 2.2.2.7 shall be carried out.

3.18.10.4 Ultrasonic testing.

3.18.10.4.1 If plates and wide flats are ordered with ultrasonic testing, this shall be made in accordance with an accepted standard at the discretion of the Register.

3.18.10.5 Surface inspection and dimensions.

3.18.10.5.1 Surface inspection and verification of dimensions are the responsibility of the steel maker. The acceptance by the surveyor to the Register shall not absolve the steel maker from this responsibility.

3.18.11 Test material.

3.18.11.1 Sampling and preparation of test specimens shall be in accordance with 3.2.

3.18.12 Test specimens.

3.18.12.1 Mechanical test specimens.

3.18.12.1.1 The dimensions, orientation and location of the tensile and Charpy V-notch test specimens within the test samples shall be in accordance with Section 2 and 3.2.

3.18.13 Scope of testing.

3.18.13.1 Number of Tensile and Charpy V-notch Impact test specimens shall be in accordance with Section 2 и 3.2.

3.18.14 Retest procedures.

3.18.14.1 Retest procedures shall be in accordance with 1.3.2.

3.18.15 Marking

3.18.15.1 Every finished product shall be clearly marked by the maker in at least one place with the Register brand and the following particulars:

- .1 unified identification mark for the grade of steel (e.g. A36);
- .2 steel plates that have complied with the requirements of the Rules shall be marked with a designation by adding a corrosion designation to the unified identification mark for the grade of steel. Example of designation: **A36 RCB**;
- .3 the corrosion resistant steel shall be designated according to its area of application as follows:
 - lower surface of strength deck and surrounding structures – **RCU**;
 - upper surface of inner bottom plating and surrounding structures – **RCB**;
 - both strength deck and inner bottom plating – **RCW**;
- .4 steel supplied in the thermomechanically controlled process condition shall have the letters “TM” added after the identification mark but before the corrosion designation (e.g. E36 TM RCU Z35);
- .5 name or initials to identify the steelworks;
- .6 cast or other number to identify the piece;
- .7 if required by the purchaser, his order number or other identification marks.

3.18.15.2 The above particulars, but excluding the manufacturer's name or trade marks, where this is embossed on finished products shall be encircled with paint or otherwise marked so as to be clearly legible.

3.18.15.3 Where a number of light materials are securely fastened together in bundles the manufacturer may, subject to the agreement with the Register, mark only the top piece of each bundle, or alternatively, a firmly fastened durable label containing the brand may be attached to each bundle.

3.18.15.4 In the event that any material bearing the Register marking fails to comply with the test requirements, the marking shall be unmistakably defaced by the manufacturer.

3.18.16 Documentation.

3.18.16.1 The Surveyor shall verify certificates before the material is accepted by RS.

3.18.16.2 The number of copies required shall be specified by the Register.

3.18.16.3 The documents shall be supplied in either electronic or paper format as required by the Register.

3.18.16.4 The Register may require separate documents for each grade of steel.

3.18.16.5 The document (Register or manufacturer certificate) shall contain, in addition to the description, dimensions, etc., of the material, at least the following particulars as a minimum:

- .1 purchaser's order number and if known the hull number for which the material is intended;
- .2 identification of the cast and product, including, where appropriate, the test specimen number;
- .3 identification of the steelworks;
- .4 identification of the grade of steel and the manufacturer's brand name;
- .5 ladle analysis (for chemical elements specified in 3.2);
- .6 if the steel is approved in accordance with 3.4.2, the weight percentage of each chemical element added or intentionally controlled for improving corrosion resistance;
- .7 condition of supply when other than as rolled i.e. normalised, controlled rolled or thermo mechanically rolled;
- .8 results of mechanical tests.

3.18.16.6 Before the test certificates are signed or issued by the surveyor to the Register, the manufacturer is required to furnish the surveyor with a written declaration stating that the material has been made by an approved process and that it has been subjected to and has withstood satisfactorily the required tests in the presence of the surveyor to the Register. The Register name shall appear on the test certificate. The following form of declaration will be accepted if stamped or printed on each test certificate or shipping statement with the name of the steelworks and initialled for the makers by an authorized official:

"We hereby certify that the material has been made by an approved process and has been satisfactorily tested in accordance with the Register Rules".

3.18.16.7 In the case of electronic certification the Register shall agree upon a procedure with the steel mill to ensure release is authorised by the surveyor to the Register.

3.18.17 Additional approval procedure for corrosion-resistant steel.

3.18.17.1 Scope.

3.18.17.1.1 Recognition by the Register (obtaining by manufacturer of Recognition Certificate for Manufacturer) and approval of corrosion-resistant steel shall be carried out in accordance with 1.3 of the Rules and Section 2, Part III "Technical Supervision during Manufacture of Materials" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships together with the additional requirements for corrosion testing specified in this part.

3.18.17.1.2 The corrosion tests and assessment criteria shall be in accordance with the Appendix of the Annex to Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers (resolution MSC.289(87)).

3.18.17.2 Application for approval.

3.18.17.2.1 The manufacturer shall submit to the Register a request for approval, which shall include the following:

- .1 corrosion test plan and details of equipment and test environments;
- .2 technical data related to product assessment criteria for confirming corrosion resistance;
- .3 the technical background explaining how the variation in added and controlled elements improves corrosion resistance;
- .4 the grades, the brand name and maximum thickness of corrosion resistant steel to be approved. Designations for corrosion-resistant steels are given in Table 2.1;
- .5 the welding processes and the brand name of the welding consumables to be used for approval.

3.18.17.3 Approval of test program.

3.18.17.3.1 The test program submitted by the manufacturer shall be reviewed and agreed with the Register. If found satisfactory, it will be approved and returned to the manufacturer for acceptance prior to tests being carried out. Tests that need to be witnessed by the surveyor to the Register shall be identified.

3.18.17.3.2 Method for selection of test samples shall satisfy the following.

3.18.17.3.2.1 The numbers of test samples shall be in accordance with the requirements of the Appendix of the Annex to Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers (MSC.289 (87)).

3.18.17.3.2.2 The number of casts and test samples selected shall be sufficient to make it possible to confirm the validity of interaction effects and/or the control range (upper limit, lower limit) of the elements, which are added or intentionally controlled, for improving the corrosion resistance. Where agreed, this may be supported with data submitted by the manufacturer.

3.18.17.3.2.3 Additional tests may be required by the Register when reviewing the test program in accordance with 3.2.2.

Table 3.18.17.3.2.3

Designations for corrosion-resistant steels

Type of steel	Location where steel is effective	Corrosion-resistance designation
Rolled steel for hull	For strength deck, ullage space	RCU
	For inner bottom	RCB
	For both strength deck and inner bottom plating	RCW

3.18.17.3.3 In addition to 3.2, the Register may require additional tests in the following cases:

.1 when the Register determines that the control range is set by the theoretical analysis of each element based on existing data, the number of corrosion resistance tests conducted in accordance with the Appendix of the Annex to Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers (MSC.289 (87)) is too few to

adequately confirm the validity of the control range of chemical composition;

.2 when the Register determines that the data of the corrosion resistance test result obtained for setting the control range of chemical composition varies too widely;

.3 when the Register determines that the validity of the corrosion resistance test result for setting the control range of chemical composition is insufficient, or has some flaws;

.4 when the surveyor to the Register has not attended the corrosion resistance tests for setting the control range of chemical composition, and the Register determines that additional testing is necessary in order to confirm the validity of the test result data; and

.5 when the Register determines that it is necessary, for reasons other than cases
3.18.17.3.3.1 – 3.18.17.3.3.4..

3.18.17.3.4 The chemical composition of the corrosion-resistant steel shall be within the range specified for rolled steel for hull. Elements to be added for improving the corrosion resistance and for which content is not specified shall be generally within 1 per cent in total.

3.18.17.4 Carrying out the approval test.

3.18.17.4.1 The manufacturer shall carry out the approval test for corrosion-resistant steel and for obtaining a Recognition Certificate for Manufacturer in accordance with the approved test program.

3.18.17.5 Attendance of the surveyor to the Register for test.

3.18.17.5.1 The surveyor to the Register shall be present, as a rule, when the test samples for the approval test are being identified and for approval tests (refer also to 3.1).

3.18.17.6 Test results.

3.18.17.6.1 After completion of the approval test for corrosion resistant steel and for obtaining a Recognition Certificate for Manufacturer, the manufacturer shall produce the report of the approval test and submit it to the Register.

3.18.17.6.2 The Register will give approval for corrosion-resistant steel and issue a Recognition Certificate for Manufacturer where approval tests are considered by the Register to have given satisfactory results based on the data submitted in accordance with this part.

3.18.17.6.3 The Recognition Certificate for Manufacturer shall contain the manufacturer's name, the period of validity of the Certificate, the grades and thickness of the steel approved, welding methods and welding consumables approved.

3.18.17.7 Assessment criteria for results of corrosion resistance tests of welded joint.

3.18.17.7.1 The results shall be assessed by the Register in accordance with the acceptance criteria specified in the Appendix of the Annex to Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers (resolution MSC.289 (87)).