

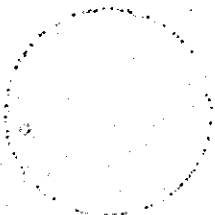
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TY 14-1-2982-80

HOT-ROLLED RINGS FROM STEEL
OF GRADES 45 x H and 45 x HM
FOR TURRET RINGS
TECHNICAL SPECIFICATIONS
TY 14-1-2982-80



51

Alt sheet	No. OF DOCUMENT	SIGNATURE	DATE	SHEET	No. OF SHEET
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TECHNICAL REQUIREMENTS

2.1 Marks, chemical composition of steel and the allowed tolerances of ladle sample should comply with table 2:

TABLE-2

Grade of steel	Content of elements %							
	Carbon	Manganese	Silicon	Phosphorous	Sulphur	Chromium	Nickel	Molybdenum
				Maximum				
45XH	0.41	0.50	0.17	0.035	0.035	0.45	1.00	-
	to 0.49	to 0.80	to 0.37					
45XHM	0.42	0.50	0.17	0.035	0.035	0.45	1.00	0.15
	to 0.50	to 0.80	to 0.37					

Note: 1. Tolerances allowed are :

- ± 0.01% for carbon
- ± 0.02% for chromium
- 0.05% for nickel

2. The content of residual copper may be maximum 0.4%

3. Providing the user's consent, there is allowed some deviation in content of phosphorous, sulphur, manganese, silicon and molybdenum

APP	SHEET	No. OF DOCUMENT	SIGNATURE	DATE	PAGE 3
-----	-------	-----------------	-----------	------	-----------

2.2 Rings are delivered in heat treated condition (after hardening and tempering). The conditions of heat treatment are worked out by the factory supplying the rings.

2.3 Mechanical properties of the heat treated rings should comply with the norms given in Table 3.

TABLE-3

Grade of Steel	Ultimate Strength Kgf/mm ²	Yield limit T Kgf/mm ²	Relative elongation 5 %	Relative Contraction %	Impact Strength KCV Kgf/cm ²	Hardness all over the section Diameter mm
	at least					
45XH	80.0	60.0	12.0	45.0	7.0	3.5 to 3.9
45XHM	80.0	60.0	12.0	45.0	7.0	3.4 to 3.8

2.4 Macro-structure of steel should not possess flakes and tarnishes of any class. Segregation of porosities allows upto 3rd degree, inclusive. Bubbles under tarnishes and other rare-found defects located to a depth within the ranges of allowance for machining are not the basis for rejection.

2.5 Defects (laps, skins, rolled bubbles and dirt etc) are allowed on surface of the rings as well as unevenness on the faces having depth of occurrence of maximum 75% of the actual onside allowance for machining.

Fins are allowed on inner diameter of the rings.

3. ACCEPTANCE RULES AND TEST PROCEDURES

3.1 Checking the production and quality as well as acceptance of the rings are carried out by QID of the supplying factory in compliance with requirements of the present technical specifications and with the specification-charts or drawings, agreed upon.

3.2 Rings to be accepted are presented in batches. The batch includes rings of the same melt of steel in one or several standard sizes.

3.3 In order to check the surface hardness in delivery condition, three rings-upper, middle and lower along height of the charge (stack) from each charge (stack) are tested. Measurement of Brinell hardness is carried out in compliance with Gost 9012-59 at one point on the side surface of the ring by means of ball of diameter 10mm at a load of 300 Kgf. Hardness number (diameter of imprint) is marked near the place of measurement.

APP	SHEET	NO. OF DOCUMENT	SIGNATURE	DATE					SHEET 5

3.9 In case, the melt is rolled in several steps (2-3 or more), checking for flakes is carried out independently after each rolling.

3.10 Cutting diagram and sizes of that specimens are set up by the supplying factory.

3.11 Tensile test is carried out according to Gost 1497-73 on 5 times longer in length circular specimens. Diameter of specimen is 10mm (Short).

3.12 Test for impact strength is carried out according to Gost 9454-78 on specimens of 1st Type.

3.13 Hardenability is determined by measuring the hardness at the surface and in the middle of section of the transverse template (before its etching). Brinell hardness is measured according to Gost 9012-59 by means of 10mm ball at a load of 3000 Kgf.

3.14 Macrostructure and flakes are determined by deep etching in hot 50% solution of hydro-chloric acid.

Defects of micro-structure are assessed by means of a scale agreed between the supplier and the customer of rings.

3.15 If results of some type of tests (except flakes) are unsatisfactory, the double number of samples are subjected to the same kind of test only.

The supplying factory is provided with the right to subject the batch rejected on the basis

					PAGE	
					7	
APP	SHEET	NO. OF DOCUMENT	SIGNATURE	DATE		

on the defective half and the marking 'reject' is written with paint. Such rings are noted as '50%' in the certificate. The defective half is delivered at the price of scrap.

4.3 The rings to be shipped are accompanied with certificate in which specified are:
Melt number, grade of steel, chemical analysis of melt, ordinal number of the rings, code, hardness on the surface and in the cross-section, mechanical properties and the macro-structure

Drawn up basing on the condition on 01.09.83

It is correct:

NO.	SHEET	NO. OF DOCUMENT	SIGNATURE	DATE