

GOST 11068-81 ELECTRIC WELDED CORROSION-RESISTANT STEEL TUBES

Tube size range and maximum dimensional deviations are listed in Table 1.

Table 1 Tube size range and maximum dimensional deviations.

Диаметр наружный, мм	Толщина стенки, мм	Предельные отклонения для обычной точности изготовления	
		диаметра	толщины стенки
Outside diameter, mm	Wall thickness, mm	Maximum deviation (normal accuracy)	
		diameter	wall thickness
8; 9 10	1.0; 1.2 1.0; 1.2	± 0.3 ± 0.25*	+0.20 for t<2 mm +0.15*
11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 22; 25; 28; 30;	1.0; 1.2; 1.4; 1.5; 1.8 1.0 - 1.8; 2.0; 2.2 1.0 - 2.2; 2.5 1.2 - 3.2	± 0.35 ± 0.30*	+0.25 for t=2√3 mm +0.20*
32; 33; 34; 35 36; 38; 40; 42; 45; 48; 50; 51; 53; 55; 57; 60; 63; 65; 70; 76; 83; 89; 102	1.2 - 3.2 1.4 - 3.2 1.4 - 4.0 1.8 - 4.0	± 1.0% 0.9%*	+10% for t>3mm
* - Повышенной точности		* - Improved accuracy	

Tubes are supplied in random lengths of 1.5 m to 9 m (if agreed between the parties, shipment of tubes over 8m in length is permitted); in specified lengths of 5 m to 9 m; in lengths divisible by specified lengths within random lengths with 5 mm allowance per cut (unless stated otherwise) and maximum overall length deviation of +15mm. Not more than 5% of less than 1.5 m but over 0.5m long tubes are allowed in each random length tube lot.

Curvature of tubes shall not exceed 1.5 mm per 1 m of length. Out-of-roundness and wall thickness variation shall not alter tube dimensions, so that outside diameter and wall thickness come out of permissible deviation limits.

The tubes are shipped heat-treated. If required by the customer, tubes may be supplied without heat treatment.

Steel grades and mechanical properties are given in Table 2.

Table 2 Mechanical properties of tubes

Steel grade	Density, g/cm ³	Heat-treated tubes	
		Tensile strength, MPa	Elongation, %
08X18H10T	7.9	530	37
10X18H10T	7.9	550	35

The tubes are manufactured from corrosion-resistant steels whose chemical composition shall comply with GOST 5632-72.

Composition of steel 10H18N10T is given below, %

Марка стали Steel grade	Массовая доля элементов, % (Elements content, %)									
	C	Mn	Si	Cr	Ni	Ti	Mo	S	P	
10X18H10T	≤0.10	1.0-2.0	≤0.8	17.0-19.0	10.0-11.0	0.5-0.6	-	не более not more	0.020	0.035

Carbon content in steel grades 12H18N10T and 12H18N12T shall not exceed 0.1 % Sulphur content in steel grades 08H22N6T and 12H21N5T shall not exceed 0.02 %.

Steels of grades 10H17N13M2T, 10H17N13M3T, 08H22N6T, 12H21N5T, 06HN28MT, 06HN28MDT are used as agreed between the parties.

Tube ends shall be cropped at right angle and deburred. Inside weld bead height shall not exceed 0.7 mm. On customer's request, tubes with inside diameter ≤ 20 mm are supplied with maximum inside weld bead height = 0.3 mm.

If so ordered, tubes shall be subjected to one or two types of testing mentioned below:

flattening - by the value H equal to 1/2 Ds for heat-treated tubes and to 2/3 Ds for tubes without heat treatment;

flaring test- by 1:10 tapered mandrel for heat-treated tubes till 10%-12% increase of outside diameter;

flanging test- to an angle of 90 degrees for heat-treated tubes $D_s \leq 25\text{mm}$; width of flange starting from inside surface of tube shall make not less than 1.5 t;

bend test - bending radius is set according to GOST 9842-61 as agreed between the parties.

Tubes subjected to flanging test are not to be flare tested.

Tubes shall pass 6MPa hydraulic test. On customer's request, test hydraulic's pressure may be increased, but shall not exceed 20 MPa.

When the weld is 100% inspected by means of physical methods without fracturing tube, hydraulic tests are conducted selectively.

When required by the customer, heat-treated tubes shall pass intergranular-corrosion test.

Tubes of steel grade 10H18N10T are supplied with guaranteed grain size in the range of grain-size number 3 to 7. In this case, they are not tested for intergranular-corrosion.