

GOST 8731-74, GOST 8732-78

Seamless hot-rolled steel tubes

Chemical composition

Steel Grade	Elements content, %				S, P	Cu	Mo	Ni	Al
	C, %	Si, %	Mn, %	Cr, % not more than					
10	0.07-0.14	0.17-0.37	0.35-0.65	0.15					
20	0.17-0.24	0.17-0.37	0.35-0.65	0.25					
35	0.32-0.40	0.17-0.37	0.50-0.80	0.25					
45	0.42-0.50	0.17-0.37	0.50-0.80	0.25					
10G2	0.07-0.15	0.17-0.37	1.20-1.60	-					
20G	0.17-0.24	0.17-0.37	0.70-1.00	-					
50G	0.48-0.56	0.17-0.37	0.70-1.00	-					
20H	0.17-0.23	0.17-0.37	0.50-0.80	0.70-1.00					
40H	0.36-0.44	0.17-0.37	0.50-0.80	0.80-1.10					
30HGSA	0.28-0.34	0.90-1.20	0.80-1.10	0.80-1.10					
15HM	0.11-0.18	0.17-0.37	0.40-0.70	0.80-1.10					
30HMA	0.26-0.34	0.17-0.37	0.40-0.70	0.80-1.10			0.15-0.25		
12HN2	0.09-0.16	0.17-0.37	0.30-0.60	0.60-0.90				1.50-1.90	
09G2S	≤0.12	0.50-0.80	1.30-1.70	≤0.30					
32HA	0.32- 0.35	0.17- 0.37	0.55-0.85	1.00-1.10	≤0.025	≤0.20		≤0.20	≥ 0.02

Mechanical properties

Grade designation	Tensile strength, σ_{t} kgs/mm ² (MPa)	Yield strength, σ_{y} kgs/mm ² (MPa)	Elongation, δ_5 , %	Brinell hardness (wall thickness 10 mm)	
	Not less than			Imprint diameter, mm, not less than	Hardness number HB, not more than
10	36 (353)	22 (216)	24	5,1	137
20	42 (412)	25 (245)	21	4,8	156
35	52 (510)	30 (294)	17	4,4	187
45	60 (588)	33 (323)	14	4,2	207
10G2	48 (470)	27 (265)	21	4,3	197
20G	46 (450)	28 (275)	24	4,5	179
50G	66 (650)	40 (390)	13	4,0	229
20H	44 (431)	29(284)	16	4,5	179
40H	67 (657)	36 (352)	9	3,7	269
30HGSA	70 (686)	41 (402)	11	4,0	229
15HM	44 (431)	23 (226)	21	4,5	179
30HMA	60 (588)	40 (392)	13	4,0	229
12HN2	55 (539)	40 (392)	14	4,2	207



Grade designation	Tensile strength, σ_b , MPa	Yield strength, σ_r , MPa	Percent elongation, δ_5 , %	Impact work, KCU, J/sm ²			
				Longitudinal direction			
				t=20°C	t=-40°C	t=-70°C	t=-60°C
Not less than							
09Г2С	450	325	21	59	39	29	29

Grade designation	Tensile strength, σ_b , MPa	Yield strength, σ_r , MPa	Percent elongation, δ_5 , %	Necking, ψ , %	Impact work, KV, J, t=-20°C	Hardness, HB
	Not less than					
32ХА*	830	730	12	40	27	269-311

Note:

* - Mechanical properties after quenching and tempering. Quenched and tempered pipes with outside diameter ≥ 100 mm and wall thickness ≤ 28 mm can be produced. Mechanical properties of pipes with other dimensions are defined on heat-treated samples.

Outside diameter, mm	Wall thickness																								
	3	3,2	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10	11	12	13	14	15	16	17	18	
32,0																									
33,7																									
38,0																									
42,0																									
42,4																									
45,0																									
48,3																									
50,0																									
51,0																									
57,0																									
60,0																									
60,3																									
63,5																									
70,0																									
73																									
76																									
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146																									
152																									
159																									
168																									
180																									
194																									
203																									
219																									
245																									
273																									
299																									
325																									
351																									
356																									
377																									

Outside diameter, mm	Wall thickness																							
	19	20	22	24	25	26	28	30	32	34	35	36	38	40	42	45	48	50	56	60	63	65	70	
32,0																								
33,7																								
38,0																								
42,0																								
42,4																								
45,0																								
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20H	0.17-0.23	0.17-0.37	0.50-0.80	0.70-1.00					
40H	0.36-0.44	0.17-0.37	0.50-0.80	0.80-1.10					
09G2S	≤0,12	0,50-0,80	1,30-1,70	≤0,30					

Dimensional tolerances

Outside diameter, mm	Permissible deviation of outside diameter	
	Enhanced accuracy	Usual accuracy
Less than 50	± 5 mm	± 5 mm
50 – 219	± 0,8 %	± 1,0 %
More than 219	± 1,0 %	± 1,25 %

Outside diameter, mm	Wall thickness, mm	Permissible deviation for wall thickness	
		Enhanced accuracy	Usual accuracy
Less than 219	$S \leq 15$	± 12,5 %	+12,5/-15 %
	$15 < S \leq 30$	+10/-12,5 %	±12,5%
	$S > 30$	± 10	+10/-12,5 %
More than 219	$S \leq 15$		+12,5/-15,0 %
	$15 < S \leq 30$		±12,5 %
	$S > 30$		+10,0/-12,5%

Lengths

Pipes are supplied with lengths according to standard requirements.

Any lengths different from the standard ones are subject to additional negotiations.

Protection

Pipes are supplied:

- black and bare
- external varnished with black or clear lacquer
- oiled

Upon request pipes ends are protected with plastic caps.

Marking

Pipes are supplied with marking according to standards and customer requests.

Marking is painted and/or hard stenciled on pipe ends. The same data, as well as additional information according to customer's request, are indicated on the bundle tags.

Certification

Pipes are supplied with 3.1. inspection certificate, in conformity with EN 10204.