

ROUND HOT-ROLLED PRODUCTS

General features

Round hot-rolled steel products from commercial quality carbon steel	GOST 535-88
Rolled products from quality carbon structural steel	GOST 1050-88
Rolled products from alloy structural steel	GOST 4543-71
Rolled products from spring carbon and alloy steel	GOST 14959-79
Rolled products from higher strength steel	GOST 19281-89
Rolled products from quality structural carbon and alloy steel	GOST 10702-78
Round rolled products in coils for telegraph wire	TU 14-1-5284-94
Round rolled products in coils	TU 14-1-3991-85, TU 14-105-470-87 TU 14-1-1700-91 TU 14-105-546-92

Range of products

Standard (Specifications)	Steel grades	Dimensions (mm)		Feasible bar cross-sectional tolerances, Group V
		In coils	in bars	
GOST 19281-89	09G2, 09G2S, 14HGS	5.5-23.0	-	±4.0
GOST 1050-88	08, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60	5.5-23.0	12-19	+0.3 -0.5
GOST 10702-78	08-50, 15H-45H, 15G-45G, 40HN, 30HGSA		20-25	+0.4 -0.5
TU 14-105-470-87	15FYuA	5.5-23.0	26, 34, 38	+0.3 -0.7
GOST 4543-71	15H-50H, 15G-50G, 18HGT, 25HGT, 30HGT	5.5-23.0	28, 30	+0.3 -0.7
			32, 34, 35, 36, 38, 40, 42, 45, 47, 48	+0.4 -0.7
			50, 52, 56, 58	+0.4 -1.0
			60, 62, 65, 67	+0.5 -1.1
			80, 90	+0.5 -1.3
			100	+0.6 -1.7
GOST 535-88	St0, St3ps, St3sp, St4ps, St4sp, St5ps, St5sp, St6sp, St6ps	10.0-23.0	20-25	+0.4 -0.5
GOST 14959-79	65-85, 65G, 60S2G, 60S2A		28, 30	+0.3 -0.7
GOST 11036-75	11895		32, 34, 35, 36, 38, 40, 42, 45, 47, 48	+0.4 -0.7
TY 14-105-703-02 (orders are accepted according to TS 105-170-2002)	ShH15-V, ShH15SG-V	6.5-11.0	6.5-65.0	GOST 2590-88
		12.0-19.0	12-19	+0.3 -0.5
		20.0-23.0	20-23	+0.4 -0.5
		10.0-23.0	50, 52, 56, 58	+0.4 -1.0
			60, 62, 65, 67, 70	+0.5 -1.1
			80, 90	+0.5 -1.3
			100	+0.6 -1.7
TU 14-105-695-02	20G2P	6.5-23.0	-	GOST 2590-88
TU 14-105-546-92	28HG	5.5-14.0	-	+0.3 -0.5
TU 14 14-1-3991-85	35 «Select»	6.5-12.0	-	+0.3 -0.5
DIN 17100	St37-2, St44-2, RSt52-3	5.5-23.0	14-52	GOST 2590-88
ASTM A36/A36M-94	A-36	12.0-23.0	16-65	Acc. to DIN 1013

Range of round hot-rolled products according to GOST 2590-88.

Round hot-rolled steel products are manufactured to the following length:

- 12 m to 14 m long from commercial quality carbon steel and low alloy steel
- 4 m to 6 m long from quality carbon and alloy steel,
- 4 m to 6 m long from for high alloy steel in case of nonstandard length,
- standard,
- multiple to the standard length,
- nonstandard.

Length tolerances for rolled products of standard length or length multiple to the standard one should not exceed:

- +30 mm at length of up to 4 m, inclusive,
- +50 mm at length of over 4 m to 6 m, inclusive,
- +70 mm at length of over 6 m.

Bar flexure:

- for diameter of up to 25 mm, inclusive, should not exceed 0.5% of length,
- for diameter over 25 mm should not exceed 0.4% of length.

Rolled products are manufactured to class V: conventional accuracy.

Coil out-of-roundness does not exceed 50% of the sum of diameter tolerances.

Coil dimensions:

Technical data	Mill 250	Mill 150
Outside diameter, mm	1350	1350
Inside diameter, mm	880	850
Coil height, mm	650	800
Coil mass, kg	750-900	

Tolerances

Diameter, mm	Cross-sectional area, cm ²	Mass per 1 running meter, kg	Tolerances, mm at rolling accuracy class V
In coils			
5.5	0.2376	0.186	+0.3 -0.5
6.0	0.2827	0.222	
6.5	0.3318	0.260	
8.0	0.5027	0.395	
9.0	0.6362	0.499	
10.0	0.7854	0.616	
11.0	0.9503	0.746	
In bars			
12.0	1.131	0.888	+0.3 -0.5
13.0	1.327	1.04	
14.0	1.539	1.21	
15.0	1.767	1.39	
16.0	2.011	1.58	
17.0	2.270	1.78	
18.0	2.545	2.00	
19.0	2.835	2.23	+0.4 -0.5
20.0	3.142	2.47	
21.0	3.464	2.72	
22.0	3.801	2.98	+0.3 -0.7
23.0	4.155	3.26	
24.0	4.524	3.55	
25.0	4.909	3.85	
26.0	5.307	4.17	
28.0	6.158	4.83	
30.0	7.069	5.55	
32.0	8.042	6.31	+0.4 -0.7
34.0	9.079	7.13	
35.0	9.621	7.55	
36.0	10.18	7.99	
38.0	11.34	8.90	
40.0	12.57	9.86	
42.0	13.85	10.86	
45.0	15.90	12.48	+0.4 -1.0
50.0	19.64	15.42	
52.0	21.24	16.67	
56.0	24.63	19.33	
60.0	28.27	22.19	
65.0	33.18	26.05	
67.0	35.26	27.68	
70.0	38.48	30.21	+0.4 -1.0
80.0	50.27	39.46	
90.0	63.62	49.94	
100.0	78.54	61.55	+0.5 -1.3

Cold upset according to GOST 10702-78

Steel grade	Group	Upset group	Deformation at cold upset	Method of manufacture	Heat condition
08, 08ps, 10, 10ps, 15, 15ps, 20, 20ps, 25, 30, 35, 40, 45, 50, 15H, 20H, 30H, 35H, 40H, 38HA, 15G, 20G, 40HN, 30HGSA	1	50	to 1/2 of the original height of specimen	Hot rolling	Without heat treatment
08ps, 10, 10ps, 15, 15ps, 20, 20ps, 15G		60	To 1/3 of the original height of specimen		
20, 25, 30, 35, 40, 45, 50, 15H, 20H, 30H, 35H, 40H, 45H, 20G, 40G, 40HN, 30HGSA		66T			

Various-purpose hot-rolled round products

Hot-rolled product from magnet soft steel grade 08 according to TU 14-105-628-99

This TU covers hot-rolled bars for manufacturing electric equipment components of AvtoVAZ motor cars.

Hot-rolled product, sized and turned in a lathe, from carbon and alloy structural steel according to

TU 14-1-2252-90

It is designed for manufacturing motor vehicle components by hot forming. Production of steel grade 20HGNM is brought to a commercial level. Same is applicable to other steel grades when agreed upon with a customer.

Hot-rolled product from spring steel grade 60S2G according to TU 14-105-613-98

It is designed for manufacturing springs used in motor vehicle components.

Hot-rolled bars from spring steel grade 60S2HFA according to TU 14-1-4343-89

Hot-rolled bars, turned in a lathe, from structural steel with rated hardenability according to TU 14-105-547-92

They are intended for manufacturing machine components by hot forming method or by hot stamping methods: upsetting/heading. The bars are to be made from steel grades 20-45, 15H-40H, 45H, 18HGT, 30HGT, 47GT. Production of steel grades 47GT, 47TNP is brought to a commercial level. Same is applicable to other steel grades when agreed upon with a customer.

Hot-rolled bars, turned in a lathe, according to TU 14-1-2846-79

Hot rolled shapes – workpieces for tumbling balls according to TU 14-1-5236-93

The workpieces are made from steel grades Sh1, Sh2 and Sh3. It is permissible to make the workpieces from low alloy and alloy steel with rated carbon equivalent.

Heat-hardenable steel according to DIN 17200

This standard covers:

- Blanks and workpieces,
- Hot-rolled wire,
- Hot-rolled or forged steel shapes,
- Hot-rolled wide-strip universal shaped steel,
- Hot-rolled and cold-rolled steel sheets and bands,
- Forgings made from heat-hardenable steel by hammer forging in dies.

Production of hot-rolled round shapes from steel grades S35, S45 is brought to a commercial level. Same is applicable to other steel grades when agreed upon with a customer.

Carburized steels according to DIN 17210

This standard covers:

- Semi-finished products (blooms, slabs, billets),
- Hot-rolled wire,
- Hot-rolled or forged large steel billets,
- Hot-rolled wide-strip products,
- Hot-rolled or cold-rolled plates, sheets and strips,
- Hammer forgings and die-forged articles made by drop forging method.

Hot-rolled round bar production from steel grade C15 is brought to a commercial level. Same is applicable to other steel grades and types of products when agreed upon with a customer.

Bars from plain steel for drawing and/or cold rolling according to EN 10016-2-94.

Special requirements are imposed on the bars used for general purposes. Production of hot-rolled round shapes from steel grade S62D is brought to a commercial level. Same is applicable to other steel grades and types of products when agreed upon with a customer.

Steel rods from hardened and tempered steel grades according to EN 10083-1, 2, 3-91+A1-96

Special requirements concerning sulphur content: 0.02- 0.035. Production of steel grade C35R is brought to a commercial level.