GOST 632-80 CASING AND COUPLINGS

Casing to this standard shall be seamless, with round and buttress-type threads (OTTM-type casing), with high-seal thread connection (OTTG-type casing) and respective couplings; casing type TBO shall be upset-end and without couplings. Depending on the quality level required, casing shall be grades A and B.

Casing grade A. Size range for casing grade A is given in Table 1; casing with short and long round thread, buttress-type thread (OTTM) and upset-end is included. Other wall thicknesses are available on agreement. Casing shall have the length 9.5 to 13 meters.

Technical requirements.

The outside surfaces of casing and couplings shall be free of cracks, laps, discontinuities, inclusions and other visible defects. Repair of defects by grinding shall leave the wall thickness within the minimum permissible values. Defects of production origin such as indentations, scratches or scale are permissible if they leave wall thickness within the tolerances.

Table 1 Size range for casing grades A and B

Dусл, мм	Dн, мм	S, мм	M, кг	Grades for different types of connections				
				Round thread		OTTM	OTTG	TBO
				Short	Long			
1	2	3	4	5	6	7	8	9
114	114.3	5.2*	14.0	Д	–	–	–	–
		5.7*	15.2	Д	–	–	–	–
		6.4	16.9	Д(Е)	ДЕЛМ	ДЕЛМ	–	–
		7.4	19.4	(ДЕ)	ДЕЛМР	ДЕЛМР	–	–
		8.6	22.3	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		10.2*	26.7	–	ЛМРТ	ЛМРТ	ЛМРТ	–
127	127.9	5.6*	16.7	Д	–	–	–	–

		6.4	19.1	Д(Е)	ДЕЛМ	ДЕЛМ	–	–
		7.5	22.1	Д(ЕЛ)	ДЕЛМРТ	ДЕЛМРТ	–	–
		9.2	26.7	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.7*	30.7	–	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
140	139.7	6.2	20.4	Д(Е)	–	Д*	–	–
		7.0	22.9	Д(Е)	ДЕЛМ	ДЕЛМ	–	–
		7.7	25.1	Д(ЕЛ)	ДЕЛМРТ	ДЕЛМРТ	–	–
		9.2	29.5	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.5	33.6	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
146	146.1	6.5	22.3	Д(Е)	–	Д*	–	–
		7.0	24.0	Д(Е)	ДЕЛМ	Д	–	–
		7.7	26.2	Д(Е)	ДЕЛМ	ДЕЛМ(РТ)	–	–
		8.5	28.8	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		9.5	32.0	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.7	35.7	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
168	168.3	7.3	29.0	Д(ЕЛ)	ДЕ	ДЕ	–	–
		8.9	35.1	Д(ЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.6	41.2	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		12.1	46.5	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
178	177.8	5.9*	24.9	Д	–	–	–	–
		6.9	29.1	Д(Е)	–	Д*	–	–
		8.1	33.7	Д(ЕЛ)	ДЕЛ	ДЕЛ	–	–
		9.2	38.2	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.4	42.8	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		11.5	47.2	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		12.7	51.5	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		13.7*	55.5	–	ЕЛМРТ	ЕЛМРТ	ЕЛМРТ	ЕЛМРТ
		15.0	60.8	–	ЛМРТ	ЛМРТ	ЛМРТ	ЛМРТ

Продолжение табл. 1. Table 1 (contd.)

1	2	3	4	5	6	7	8	9
194	193.7	7.6	45.0	Д(Е)	Д*	–	–	–
		8.3	38.1	Д(Е)	ДЕЛМРТ	ДЕЛМРТ	–	–
		8.5	43.3	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		10.9	49.2	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		12.7	56.7	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ
		15.1*	66.5	–	ЛМРТ	ЛМРТ	ЛМРТ	ДЕЛМРТ
219	219.1	6.7*	35.1	Д	–	–	–	–
		7.7	40.2	Д(Е)	–	Д*	–	–

		8.9	46.3	Д(ЕЛМ)	ДЕЛМ	ДЕЛМ	ДЕЛМ	–
		10.2	52.3	Д(ЕЛМРТ)	ДЕЛМР	ДЕЛМР	ДЕЛМР	–
		11.4	58.5	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		12.7	64.6	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		14.2*	71.5	–	ЕЛМРТ	ЕЛМРТ	ЕЛМРТ	–
245	244.5	7.9	46.2	Д(Е)	–	Д	–	–
		8.9	51.9	Д(ЕЛМ)	ДЕЛМ	ДЕЛМ	ДЕЛМ	–
		10.0	58.0	Д(ЕЛМРТ)	ДЕЛМР(Т)	ДЕЛМР(Т)	ДЕЛМР(Т)	–
		11.1	63.6	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		12.0	68.7	(ДЕЛМРТ)	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		13.8*	78.7	–	ДЕЛМРТ	ДЕЛМРТ	ДЕЛМРТ	–
		15.9	89.5	–	ЛМРТ	ЛМРТ	ЛМРТ	–
273	273.1	7.1	46.5	Д(Е)	–	–	–	–
		8.9	57.9	ДЕЛМ	–	ДЕЛМ	ДЕЛМ*	–
		10.2	65.9	ДЕЛМР(Т)	9 –	ДЕЛМР(Т)	ДЕЛМР*	–
		11.4	73.7	ДЕЛМР(Т)	–	ДЕЛМР(Т)	ДЕЛМР*	–
		12.6	80.8	ДЕЛМРТ	–	ДЕЛМРТ	ДЕЛМР*	–
		13.8	88.5	ДЕЛМРТ	–	ДЕЛМРТ	ДЕЛМРТ*	–
		15.1*	96.1	ЕЛМРТ	–	ЕЛМРТ	ЕЛМРТ*	–
		16.5	104.5	ЛМРТ	–	ЛМРТ	ЛМРТ*	–
299	298.5	8.5	60.5	Д(Е)	–	–	–	–
		9.5	67.9	Д(ЕЛМРТ)	–	Д(ЕЛМ)	–	–
		11.1	78.3	ДЕЛМ(РТ)	–	ДЕЛМ	–	–
		12.4	87.6	ДЕЛМРТ	–	ДЕЛМРТ	–	–
		14.8	103.5	(Д)ЕЛМРТ	–	(Д)ЕЛМРТ	–	–
324	323.9	8.5*	66.1	Д	–	–	–	–
		9.5	73.6	ДЕЛ	–	ДЕЛ	–	–
		11.0	74.8	ДЕЛМ(РТ)	–	ДЕЛМ	–	–
		12.4	95.2	ДЕЛМРТ	–	ДЕЛМРТ	–	–
		14.0	106.9	ДЕЛМРТ	–	ДЕЛМРТ	–	–
340	339.7	8.4*	68.5	Д(Е)	–	–	–	–
		9.7	78.6	ДЕЛ	–	ДЕЛ	–	–
		10.9	88.6	ДЕЛ	–	ДЕЛ	–	–
		12.2	98.5	ДЕЛМ	–	ДЕЛМ	–	–
		13.1	105.2	ДЕЛМРТ	–	ДЕЛМРТ	–	–
		14.0	112.2	ДЕЛМРТ	–	ДЕЛМРТ	–	–
		15.4*	123.5	ЛМРТ	–	ЛМРТ	–	–
351	351.0	9.0	75.9	Д	–	–	–	–
		10.0	84.1	ДЕЛ	–	–	–	–
		11.0	92.2	ДЕЛМ	–	–	–	–
		12.0	100.3	ДЕЛМ	–	–	–	–

Продолжение табл. 1. Table 1 (contd.)

1	2	3	4	5	6	7	8	9
377	377.0	9.0	81.7	Д	-	-	-	-
		10.0	90.5	ДЕ	-	-	-	-
		11.0	99.3	ДЕЛ	-	-	-	-
		12.0	108.0	ДЕЛ	-	-	-	-
406	406.9	9.5	93.2	Д	-	-	-	-
		11.1	108.3	ДЕ	-	-	-	-
		12.6	122.1	ДЕ	-	-	-	-
		16.7	160.1	ДЕ	-	-	-	-
426	426.6	10.0	102.7	Д	-	-	-	-
		11.0	112.6	ДЕ	-	-	-	-
		12.0	122.5	ДЕ	-	-	-	-
473	473.1	11.1	125.9	Д	-	-	-	-
508	508.0	11.1	136.3	Д	-	-	-	-
		12.7	155.1	Д	-	-	-	-
		16.1	195.6	Д	-	-	-	-

Notes.

1. Grades E and L of 354 to 426 mm OD are made as grade A.
2. Grade K is made as B only.
3. Grades in parenthesis are made as B only.
4. * - grade A only.

Symbols for table 1

Dусл - условный диаметр (nominal bore);
Dн - наружный диаметр (outside diameter);
S - толщина стенки (wall thickness);
M - масса 1 м гладкой трубы (mass per metre length).

Limit size tolerances for casing and couplings are given below:

Outside diameter, %	± 0.75
Wall thickness, %	-12.5
OD of couplings, %	± 1.0
OD upset parts of pup joints, mm	± 0.5

Mechanical properties of casing and couplings metal are given in Table 2.

Table 2 Mechanical properties of casing and couplings grade A

Grade	Yield limit, MPa	Tensile strength, MPa	Elonganion, %
		not lower	
Д	379-552	655	14.3
E	552-758	689	13.0
Л	655-862	758	12.3
M	758-965	862	10.8
P	930-1137	1000	9.5
T	1034-1241	1103	8.5

The upset pipe of casing grade, TBO no defects are permissible; the run-out part shall be a smooth transition from the pipe body to the upset part. Wall thickness of the run-out part shall be at least equal to that of the pipe body.

Mass fraction of sulphur and phosphorus in pipe metal shall not be higher than 0.045 % each.

Casing and couplings grades higher than D shall be heat treated.

Casing undergoes the following tests:

- flattening;
- hydraulic pressure;
- non destructive (heat treated only).

Fig. 1. Profile of round thread for casing.

Profile of thread for casing and couplings is given in Figure 1:

Tread pitch P, mm	3.175
Profile height H, mm	2.750
Profile height h1, mm	1.810
Working profile height h, mm	1.734
Angle of profile , deg	60
Angle of profile /2, deg	30
Radius of rounding R, mm	0.508
Radius of rounding R1, mm	0.432
Gap z, mm	0.076
Angle	1°47'24"
Taper 2tg	1:16

For dimensions of short round tread connections, see Table 3.

Table 3 Dimensions of short round tread connections grade A, mm

Тело трубы / Pipe body		Муфта / Coupling				Резьба / Thread				
D усл	S	Dн	Lм	dO	B min	dcp	L	l	A	Ат
114	5.2	127.0	158	116.7	3.0	112.566	51.0	35.125	9.5	18.5
	5.7-8.6					112.566	66.5	50.625	9.4	3.2
127	5.6	141.3	165	129.4	4.0	125.266	63.5	47.625	9.5	9.7
	6.4-9.2	146.0	165	129.4	6.0	125.566	70.0	54.125	9.5	3.2
140	6.2-10.5	153.7	171	142.1	3.5	137.966	73.0	57.125	9.5	3.2
146	6.5-10.7	166.0	177	148.4	6.5	144.316	76.0	60.125	9.5	3.2
168	6.5-12.1	187.7	184	170.7	6.0	166.541	79.5	63.625	9.5	3.2
178	5.9	194.5	184	180.2	4.5	176.066	60.5	44.625	9.5	22.2
	6.9-13.7	198.0	184	180.2	6.5	176.066	79.5	63.625	9.5	3.2
194	7.6-12.7	215.9	190	196.1	7.5	191.941	82.5	66.625	11.0	3.2
219	6.7	244.5	196	221.5	8.5	217.341	76.0	60.125	11.0	12.7
	7.7-14.2	244.5	196	221.5	8.5	217.341	85.5	69.625	11.0	3.2
245	7.9-13.8	269.9	196	246.9	8.5	242.741	85.5	69.625	11.0	3.2
273	7.1	298.5	203	275.5	8.5	271.316	70.0	54.125	11.0	22.2
	8.9-16.5	298.5	203	275.5	8.5	271.316	89.0	73.125	11.0	3.2
299	8.5-14.8	323.9	203	300.9	8.5	296.716	89.0	73.125	11.0	3.2
324	8.5-14.0	351.0	203	326.3	9.0	322.116	89.0	73.125	11.0	3.2
340	8.4-15.4	365.0	203	342.1	8.5	387.991	89.0	73.125	11.0	3.2
351	-	376.0	229	-	-	-	-	-	-	-
377	-	402.0	229	-	-	-	-	-	-	-
406	9.5-16.7	431.8	228	408.8	8.5	404.666	101.5	85.625	11.0	3.2
426	-	451.0	229	-	-	-	-	-	-	-
473	11.1	508.0	228	475.1	3.0	471.341	101.5	85.625	11.0	3.2
508	11.1-16.1	533.4	228	510.4	8.5	505.260	101.5	85.625	11.0	3.2

Symbols for table 3

Dусл - условный диаметр (nominal bore);
S - толщина стенки (wall thickness);
Dн - наружный диаметр (outside diameter);
Lм - длина (length);
d0 - диаметр расточки (diameter of recess);
Bmin - ширина торцовой плоскости (end ring width);
dcp - средний диаметр в основной плоскости (average diameter in the main plane);
L - общая длина до сбега (total length to run-out);
l - длина до основной плоскости с полным профилем (full-profile thread length);
A - расстояние от торца муфты до конца сбега резьбы при ручном свинчивании (distance from coupling end to run out for manual make-up);
Ат - натяг резьбы трубы (tube thread interference).

Dimensions of long round threads are the same, except length.

Buttress-type thread connections (OTTM). Thread profile is shown in Figure 2 and sizes are given in Table 4.

Table 4 Buttress-type thread connections (OTTM) grade A, mm

D	Муфта (coupling)					Резьба (thread)				
					B					
усл	Dн	Dc	Lм	d0	min	dвн	L	l	d3	L1min
114	127.0	123.8	170	116.5	3.0	111.100	74	42	112.225	76
127	141.3	136.5	174	129.2	4.0	123.800	76	44	124.925	78
140	153.7	149.2	182	141.9	3.5	136.500	80	48	137.625	82
146	166.0	156.0	182	148.3	6.5	142.850	80	48	143.975	82
168	187.7	177.8	190	170.5	6.0	165.075	84	52	166.200	86
178	194.5	187.3	198	180.0	4.5	174.600	88	56	175.725	90
194	215.9	206.4	206	195.9	7.5	190.475	92	60	191.600	94
219	244.5	231.8	218	221.3	9.0	215.875	98	66	217.000	100
245	269.9	257.2	218	246.7	9.0	241.275	98	66	242.400	100
273	298.5	285.8	218	275.3	8.5	269.850	98	66	270.975	100
299	323.9	-	218	300.7	8.5	295.250	98	66	296.375	100
324	351.0	-	218	326.1	9.5	320.650	98	66	321.775	100
340	365.1	-	218	342.0	8.5	336.525	98	66	337.650	100

Symbols for table 4

Dусл - условный диаметр (nominal bore);
Dн - наружный диаметр (outside diameter);
Dc - специальный диаметр (spesial diameter);
Lм - длина (length);
d0 - диаметр фаски в плоскости торца муфты (bevel diameter at the end of coupling);
Bmin - ширина торцовой плоскости (end ring width);
dвн - Внутренний диаметр в основной плоскости (inside diameter in the main plane);
L - общая длина до сбега (total length to run-out);
l - длина до основной плоскости с полным профилем (full-profile thread length);
d3 - Внутренний диаметр в плоскости торца муфты (inside diameter in the plane of coupling end);
Lmin - Длина резьбы муфты с полным профилем (full profile thread length in the coupling).

Fig. 1. Profile of round thread for casing.

Fig. 2. Profile of round thread for casing (type OTTM).

High-seal connections OTTG.

Thread profile is shown in Figure 3 and sizes are given in Table 5 and Figure 4.

Table 5 Dimensions of OTTG and TBO thread connections grade A & B, mm

Тело трубы		Муфты ОТТГ и раструб ТБО								Резьба				
		муфта		раструб						трубы			муфты и раструба	
Pipe body		OTTG couplings and TBO upset								Thread				
		coupling			upset part					pipe body			coupling, upset part	
D усл	S	Dн	Dc	Lм	Dв	lв min	d0	B min	dвн	L	l	l1	d3	l3 min
114	8.6-10.2	127.0	123.8	205	-	-	116.5	3.0	111.10	98	66	37	112.47	72
127	9.2-10.7	141.3	136.5	210	136	104	129.2	4.0	123.80	100	68	39	125.17	74
140	9.2-10.5	153.7	149.2	218	149	108	141.9	3.5	136.50	104	72	43	137.87	78
146	8.5-10.7	166.0	156.0	218	156	108	148.3	6.5	142.85	104	72	43	144.22	78
168	8.9-12.1	187.7	177.8	225	178	112	170.5	6.0	165.07	108	76	47	166.45	82
178	9.2-15.0	194.5	187.3	234	187	116	180.0	4.5	174.60	112	80	51	175.97	86
194	9.5-15.1	215.9	206.4	242	206	120	195.9	7.5	190.47	116	84	55	191.85	90
219	8.9-14.2	244.5	231.8	254	-	-	221.3	9.0	215.87	122	90	61	217.25	96
245	8.9-15.9	269.9	257.2	254	-	-	246.7	9.0	241.27	122	90	61	242.65	96
273	8.9-16.5	298.5	285.5	254	-	-	275.3	8.5	269.85	122	90	61	271.22	96

Symbols for table 5

D усл - условный диаметр (nominal bore);
S - толщина стенки (wall thickness);
Lм - длина (length);
Dн - диаметр наружный (outside diameter);
Dc - диаметр специальный (special diameter);
lвmin - длина высаженной части (length of upset part);
d0 - диаметр фаски в плоскости торца муфты, раструба (bevel diameter at end plane);
Bmin - ширина торцовой плоскости муфты, раструба (width of end ring);
dвн - внутренний диаметр в основной плоскости (inside diameter at main plane);
L - расстояние от торца до конца сбега резьбы (distance from the end to run-out);
l - расстояние от торца до основной плоскости (distance from the end to main plane);
l1 - длина резьбы с полным профилем (full-profile thread length);
d3 - внутренний диаметр резьбы в плоскости торца (thread inside diameter at end plane);
l3min - длина резьбы с полным профилем (full-profile thread length).

Fig. 3. Profile of round thread for casing (types OTTG and TBO)

Fig. 4. Profile of coupling thread for casing (types OTTG and TBO)

Upset pup-joints TBO.

Configuration and thread sizes of the ends of the connections are shown in Figure 3, 4 and Table 5.

Acceptance. A lot of casing shall consist of pipe lengths of the same diameter and wall thickness, grade and thread type. A lot shall have a certificate identifying the manufacturer's trademark, nominal bore, wall thickness, length, mass, thread type, grade, heat number, phosphorus and sulphur contents in the heat, length number, results of tests, reference to this standard.

Threads on pipe ends and couplings shall have thread protectors and anticorrosion grease applied.