



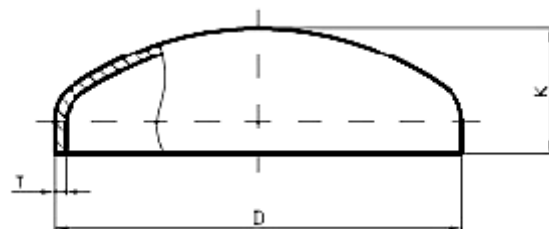
GOST STANDARD



CAPS

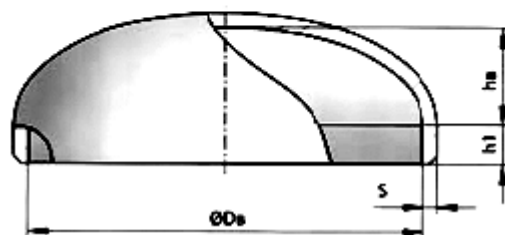
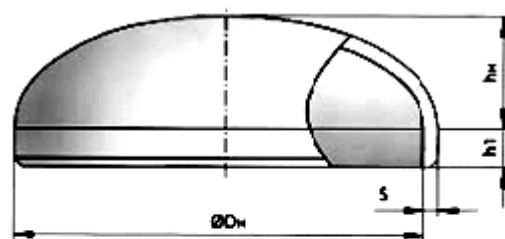
Elliptic stamped seamless cap by GOST17379- 01

Pressure nominal, PN	up to 10 MPa
Outside diameter, DH	32 - 530 mm
Temperature, t°C	from - 70 to + 450°
Material	steel 20, 09Г2С, 12Х18Н10Т
Wall thickness, S	from 2,0 to 20,0 mm



Elliptic cap by GOST 6533-78

Pressure nominal, PN	up to 6,3 MPa
Diameter, DH, Db	133-1420 mm – outside base
	250-2000 - inside base
Temperature, t°C	from -70 to +600
Material	09Г2С, 12Х18Н10Т
Wall thickness	From 4,0 to 50,0mm



Flanged seal (blind flange) by ATK 24.200.02-90

Pressure nominal, PN	From 0,6 to 16 MPa
Outside diameter, D	95 - 1485 mm
Temperature, t°C	from - 70 to + 600°
Material	steel 20, 09Г2С, 12Х18Н10Т, 15Х5М

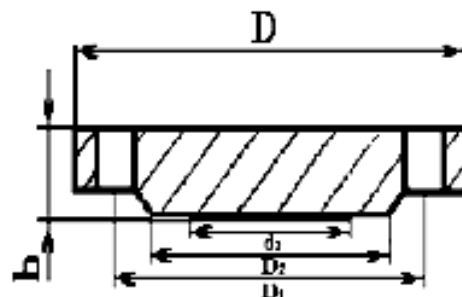




Table 1. Specification of caps

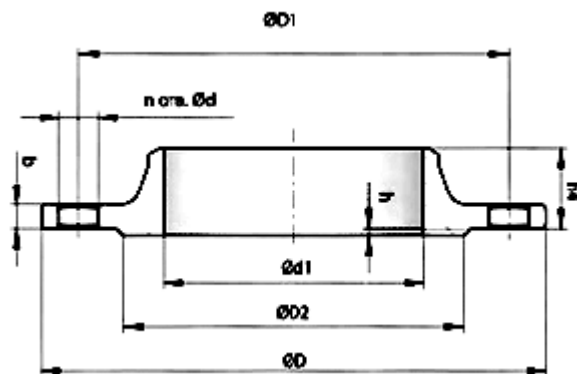
Specification		OST 34.42.66 6(7)- 84	TY 102- 488-95 (05)	TY 26- 18-38-90	ATK 24.200.02- 90	GOST 6533- 78 (pipe dimension)	GOST 17379 -01	TY 51- 467-89 (TY 1469- 007- 04606975- 00)	OST 108.504- 82
Pressure, MPa		0,6÷4,0	1,6÷10,0	до 10,0	0,6÷16,0	1,6÷16,0	1,6÷16,0	на 16,0	4,0÷38,0
Diameter- outside base (wall thickness - max+min), mm	32 (2,0÷4,0)				+		+	+	+
	45(2,5÷5,0)				+		+	—	+
	57(2,5÷5,0)				+		+	+	+
	76(3,0÷6,0)			+	+		+	—	+
	89(3,5÷8,0)			+	+		+	+	+
	108 (4,0÷10,0)			+	+		+	—	+
	114 (4,0÷10,0)			+	+		+	+	+
	133 (4,0÷12,0)			+	+	+	+	—	+
	159 (4,0÷16,0)			+	+	+	+	—	+
	168 (4,0÷16,0)			+	+	+	+	+	+
	219 (4,0÷20,0)		+	+	+	+	+	+	+
	273 (4,0÷22,0)		+	+	+	+	+	+	+
	325 (4,0÷28,0)	+	+	+	+	+	+	+	+
	377 (4,0÷25,0)	+	+	+	+	+	+	+	+
	426 (4,0÷34,0)	+	+	+	+	+	+	+	+
	530 (6,0÷36,0)	+	+		+	+	+	+	+
	630 (6,0÷40,0)	+	+		+	+			
	720 (8,0÷40,0)	+	+		+	+			
	820 (8,0÷50,0)	+	+		+	+			
	1020 (10,0÷80,0)	+	+		+	+			
1220 (10,0 ÷100,0)	+	+		+	+				
1420 (10,0 ÷100,0)	+	+			+				
min	Working temp.Co	-30	-40	-70	-70	-70	-70	-70	-30
max		+425	+150	+600	+600	+600	+450	+450	+560
Steel mark		3сп, 20, 09Г2С, 17ГС, 17Г1С	09Г2С, 10ХСН Д, 15ХСН Д, 10Г2ФБ Ю, 17ГС	15Х5М, 12Х1М Ф, 12Х18Н 10Т 08Х22Н 6Т	20, 09Г2С, 16ГС, 17ГС, 17Г1С, 15Х5М, 12Х18Н1 0Т	09Г2С, 12Х18Н10 Т 10Г2ФБЮ	20, 09Г2С, 12Х18Н10 Т(dimen- sion and constructio nacc.to GOST)	09Г2С	20, 15ГС, 12Х1МФ, 15Х1М1Ф
Media		Steam and hot water	Middle aggressi ve	Middle aggressi ve	Middle aggressive	Middle aggressive	universal	Middle aggressive	Steam and hot water
Manufacturing type		Butt- welded	Die- stamped	Die- stamped	flanged	elliptic	die-stamped	die- stamped- welded	forged



FLANGES

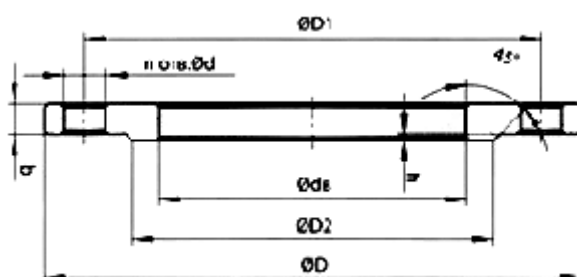
Steel butt-welded flanges by GOST 12821-80

Pressure, PN MPa	0,1-0,6	1,0-6,3	10	16	20
Diameter nominal DN, mm	10-1600	10-1200	10-400	15-300	15-200
Media temperature	From - 253 to + 600°				
Material	steel 3cn, 20, 25, 09Г2С, 10Г2, 15Х5М, 12Х18Н10Т				
Types and connecting dimension	Types 1-9 by GOST 12815-80				



Steel plate welded flanges by GOST 12820-80

Pressure, PN MPa	0,1; 0,25	0,6; 1,0	1,6	2,5
Diameter nominal, DN, mm	10-2400	10-1600	10-1200	10-800
Temperature °C	From - 70 to + 300			
Material	steel 3 cn, 20, 25, 09Г2С, 10Г2, 15Х5М, 12Х18Н10Т			

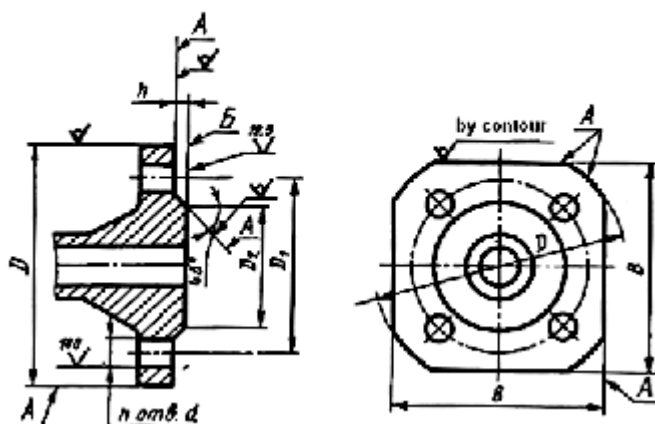




Types, connecting dimensions and dimensions of sealing surfaces by GOST 12815-80

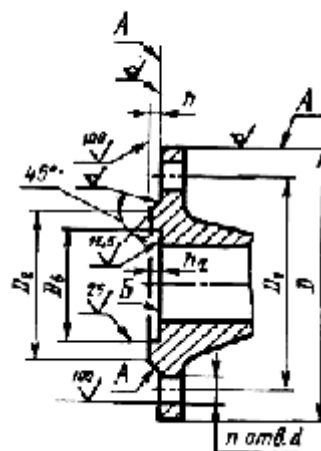
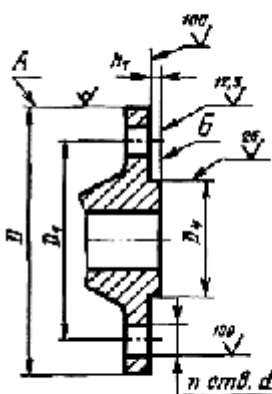
Type 1

Version of square flange



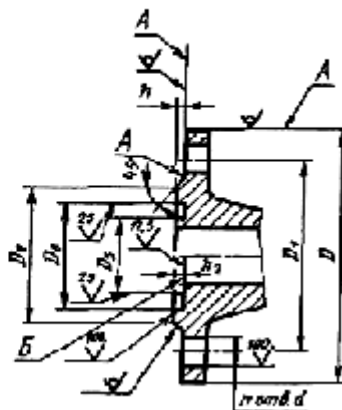
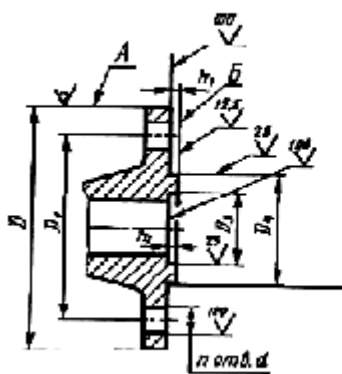
Type 2

Type 3



Type 4

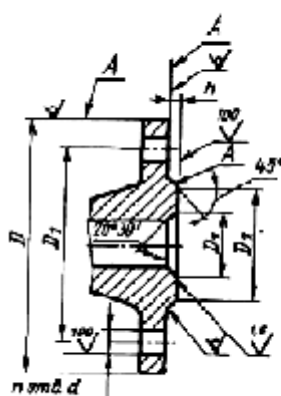
Type 5



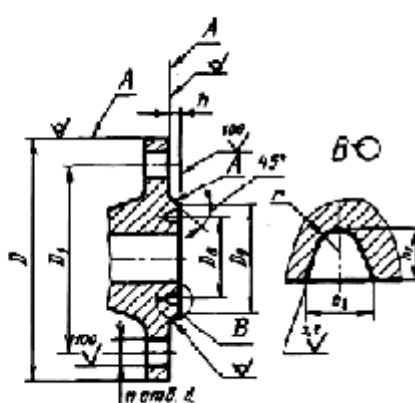


Types, connecting dimensions and dimensions of sealing surfaces by GOST 12815-80

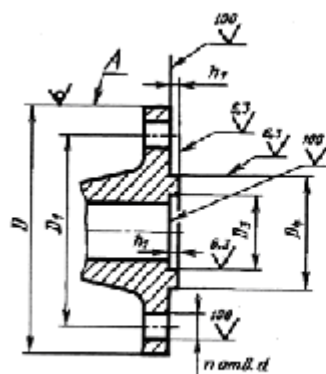
Type 6



Type 7



Type 8



Type 9

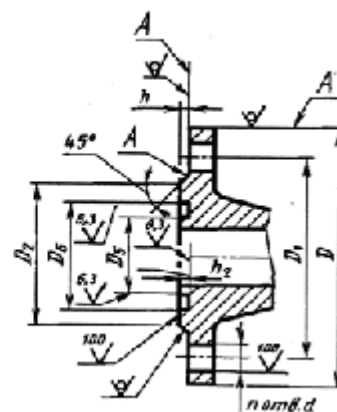




Table 2. Specification of flanges

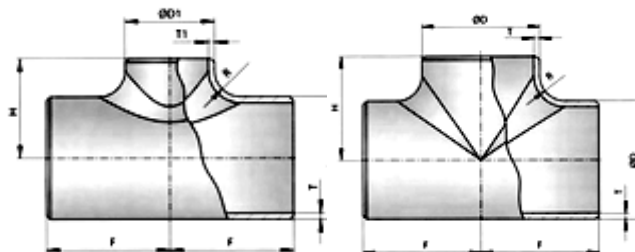
Specification		GOST 12821-80 (butt-welded)	GOST 12820-80* (plate, butt-welded)	GOST 12822-80 (loose flange with welded ring)	GOST 25660-83 (sealing flanges for underwater pipeline)	GOST 28759.3-90 (butt-welded for vessels and apparatus)	GOST 28759.4-90** (butt welded with gaskets of octangular sections)	EN 1092-1:2002 (DIN)**	ASME B16.5	ASME B16.47	GOST 9399-81 (threaded)
Steel marks		20, 09Г2С, 15Х5М, 12Х1МФ, 08Х18Н10Т, 12Х18Н10Т, 10Х17Н13М2Т									
Pressure, MPa		1,0÷20,0	1,0÷2,5	1,0÷2,5	на 10,0	1,0÷6,3	6,3÷16,0	0,1÷40,0	1,6÷40,0	1,6-÷16,0	20,0÷100,0
D I A M E T E R m	15	+	+	+	+			+	+		+
	20	+	+	+	+			+	+		+
	25	+	+	+	+			+	+		+
	32	+	+	+	+			+	+		+
	40	+	+	+	+			+	+		+
	50	+	+	+	+			+	+		+
	65	+	+	+	+			+	+		+
	80	+	+	+	+			+	+		+
	100	+	+	+	+			+	+		+
	125	+	+	+	+			+	+		+
	150	+	+	+	+			+	+		+
	175	+	+	+	+			+	+		+
	200	+	+	+	+			+	+		+
	225	+	+	+	+			+	+		
	250	+	+	+	+			+	+		
	300	+	+	+	+			+	+		
	350	+	+	+	+			+	+		
	400	+	+	+	+	+	+	+	+		
	450	+	+	+	+	+	+	+	+		
	500	+	+	+	+	+	+	+	+		
	600	+	+		+	+	+	+	+		
	700	+			+	+	+	+		+	
	800	+	+		+	+	+	+		+	
	900	+			+	+	+	+		+	
	1000	+	+		+	+	+	+		+	
	1100	+	+		+	+	+	+		+	
	1200	+	+		+	+	+	+		+	
	1400	+	+		+	+	+	+			
	1600	+	+		+	+	+	+			
	1800		+				+	+			
	2000		+				+	+			



TEES

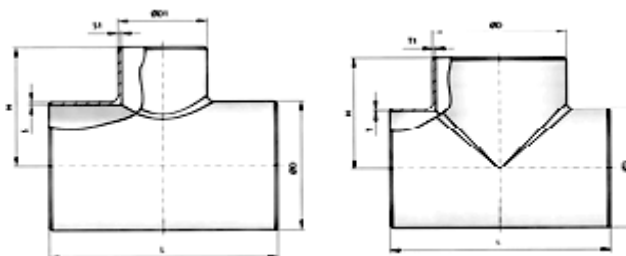
Tees seamless die-stamped by GOST 17376-2001

Pressure nominal, PN	up to 16 MPa
Outside diameter, D	45 - 426 mm
Temperature, t°C	From - 70 to + 450°
Material	steel 20, 17Г1С, 09Г2С
Type	Equal or reducing



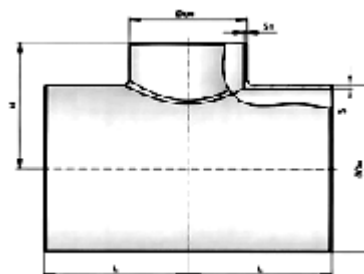
Tees by OST 34 10.762(4)-97 welded

Pressure nominal, PN	up to 4,0 MPa
Outside diameter, D	325- 1620 mm
Temperature, t °C	up to + 425°
Material	Ст3сп, 20, 09Г2С
Type	Equal or reducing



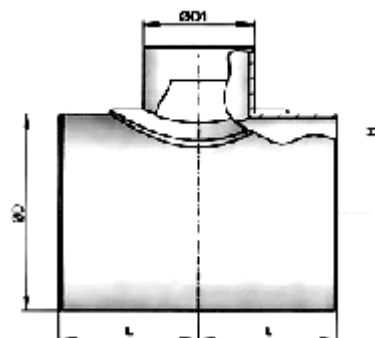
Tees by OST 36-24-77 welded

Pressure nominal, PN	up to 2,5 MPa
Outside diameter, D _H	325 - 1620 mm
Temperature, t°	From - 30°C to + 300°C
Material	Ст3сп, 20, 09Г2С, 17ПС
Type	Equal or reducing



Tees welded with straps by TY 102-488-95

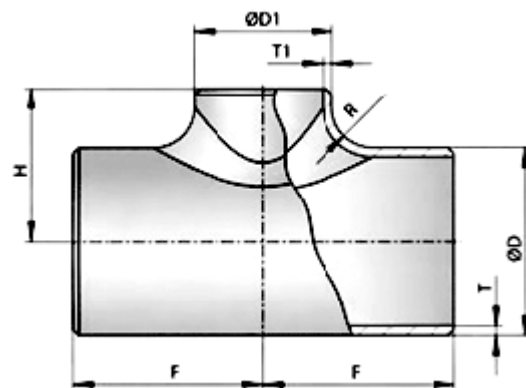
Pressure nominal, PN	up to 1020	from 1020 and more
	<= 10,0 MPa	<= 4,0 MPa
Outside diameter	from 530x219 to 1420x325 mm	
Temperature, t°C	by installation up to -60°C	by using up to -40°C
	20, 17Г1С, 09Г2С	





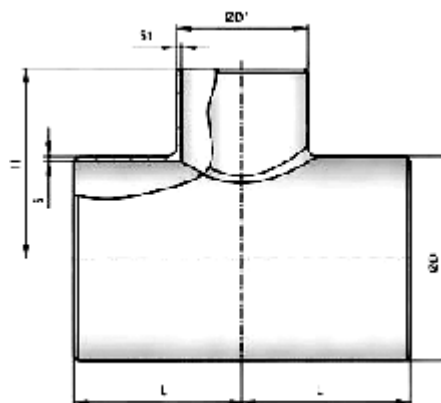
Tees die-stamped – welded by TY 102-488-95

Working pressure, (Pp)	up to 530	up to 1020 and more
	$\leq 10,0$ MPa	$\leq 4,0$ MPa
Outside diameter, D x D1	from 530x219 to 1420x1420 mm	
Temperature, t°C	by installation	by using
	up to -60°C	up to -40°C
Material	20, 09Г2С	
Type	Equal or reducing	



Tees welded without straps by TY 51-29-81

Pressure nominal, PN	from 5,5 MPa to 10,0 MPa
Outside diameter, D	325 - 720 mm
Temperature, t°C	up to -60°C
Material	20, 17Г1С, 09Г2С
Type	Equal or reducing



Tees welded with strap by TY 51-29-81

Pressure nominal, PN	from 5,5 MPa to 10,0 MPa
Outside diameter, D	from 530x273 to 1420x325 mm
Temperature, t°C	up to -60°C
Material	20, 17Г1С, 09Г2С

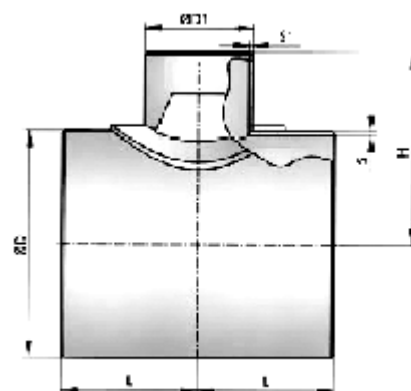




Table 3. Specification of tees

Specification				TY 51-29-81	TY 51-467-89 (TY 1469-007-04606975-00)	GOST 17376-01	OST 108.104-82	TY 26-18-38-90
Pressure, MPa				1,6÷10,0	for 16,0	1,6÷10,0	4,0÷38,0	up to 10,0
B O D Y D I A M E T E R m m	45	U N I O N D I A M E T E R m m	45			+		
	57		45			+	+	+
	76		45, 57			+	+	+
	89		57, 76			+	+	+
	108		76, 89			+	+	+
	114		76, 89		+	+	+	
	133		89, 108		+	+	+	
	159		89, 108, 133		+	+	+	
	168		114, 140		+	+		
	194		133, 159		+		+	
	219		89, 108, 133, 159, 194		+	+	+	
	273		89, 108, 133, 159, 194, 219, 245		+	+	+	
	325		89, 108, 133, 219, 273		+	+	+	
	377		89, 108, 159, 273, 325		+	+	+	
	426		89, 108, 159, 325, 377		+	+	+	
	465		219, 273, 325, 377		+			
	530		219, 273, 377, 426	+	+		+	
	630		219, 273, 325, 377, 426, 465, 530	+			+	
	720		159, 273, 325, 377, 426, 530, 630	+			+	
	820		325, 377, 426, 530, 630, 720	+				
	1020		325, 377, 426, 530, 630, 720, 820	+				
	1220		325, 377, 426, 530, 630, 720, 820, 1020	+				
	1420		325, 377, 426, 530, 630, 720, 820, 1020, 1220	+				
	1620		1620					
min	Working temperature, ° C			-70	-70	-70	-30	- 70
max				+150	+450	+450	+560	+ 450
Steel mark				09Г2С	09Г2С	20, 09Г2С, 12Х18Н10Т (dimension and construction by GOST)	20, 15ГС, 12Х1МФ, 15Х1М1Ф	15Х5М, 12Х1МФ, 12Х18Н10Т
Medium				middle aggressive	middle aggressive	universal	Steam and hot water	middle aggressive
Manufacturing type				welded	welded	Die-stamped	welded, die-stamped, turned	Die-stamped



Table 4. Specifications of tees

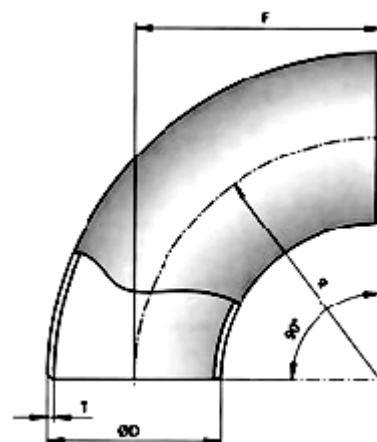
Specification				TY 26-08-693-81	OST 36-24-77	OST 34.10-762(4)-97	TY 26-18-38-90	TY 102-488-95 (05)		
Pressure, MPa				0,25÷1,6	1,0÷2,5	1,0÷4,0	up to 10,0	1,6÷10,0	1,6÷10,0	1,6÷10,0
B O D Y D I A M E T E R m m	45	U N I O N D I A M E T E R m m	45							
	57		45				+			
	76		45, 57				+			+
	89		57, 76			+	+			+
	108		76, 89			+	+			+
	114		76, 89							+
	133		89, 108	+		+				+
	159		89, 108, 133	+		+				+
	168		114, 140	+						+
	194		133, 159	+						+
	219		89, 108, 133, 159, 194	+		+				+
	273		89, 108, 133, 159, 194, 219, 245	+		+				+
	325		89, 108, 133, 219, 273	+		+				+
	377		89, 108, 159, 273, 325	+		+				+
	426		89, 108, 159, 325, 377	+		+				+
	465		219, 273, 325, 377	+						+
	530		219, 273, 377, 426	+	+	+		+	+	
	630		219, 273, 325, 377, 426, 465, 530	+	+	+		+	+	
	720		159, 273, 325, 377, 426, 530, 630	+	+	+		+	+	
	820		325, 377, 426, 530, 630, 720	+	+	+		+	+	
	1020		325, 377, 426, 530, 630, 720, 820	+	+	+		+	+	
	1220		325, 377, 426, 530, 630, 720, 820, 1020	+	+	+		+	+	
	1420		325, 377, 426, 530, 630, 720, 820, 1020, 1220	+	+	+		+	+	
	1620		1620	+		+				
min	Working temperature, °C			-30	-30	-30	- 70	-40		
max				+450	+350	+425	+ 450	+150		
Steel mark				20, 09Г2С, 12Х18Н10Т, 10Х17Н13М 2Т и др.	3сп, 20, 09Г2С, 17ГС,	3сп, 20, 09Г2С, 16ГС, 17ГС, 17Г1С	15Х5М, 12Х1МФ, 12Х18Н10Т, 08Х22Н6Т	09Г2С, 10ХСНД, 15ХСНД, 10Г2ФБЮ,17ГС		
Media				Chemical mixture and suspension	aggressive	Steam and hot water	Middle aggressive	Middle aggressive		
Manufacturing type				welded	welded	welded	Die-stamped	Die-stamped	welded	die-stamped



ELBOWS

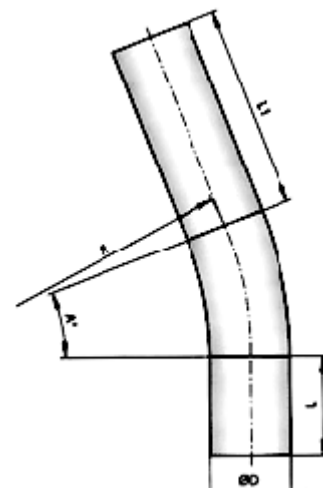
Sharply curved elbows GOST 17375-2001

Pressure nominal, PN	Up to 10,0 MPa	
Outside diameter, D	325- 1420 mm	
Temperature, t°C	by installation to -60°C	by using to -40°C
	to 426 mm	530 mm and more
Angle ,Degrees.	60°C	45°C
Radius, R	1,5; 2,0; 2,5; 3,5; 5,0 and 10,0 DN	



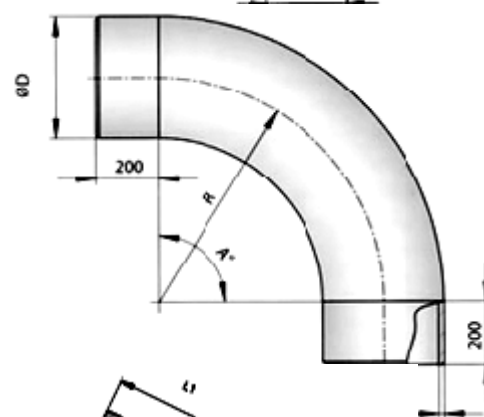
Curved elbow TY 102-488-95

Pressure nominal, PN	until 16 Mpa
Outside diameter, D	32 - 820 mm
Temperature, t°C	from - 70° to + 450°
Angle, degrees	45, 60, 90
Material	20, 17Г1С, 09Г2С



Curved elbow TY 51-515-91

Working pressure	to 32,0 MPa
Outside Diameter, D	89- 530 mm
Temperature, t°C	from -70° to +650°
Angle, degrees	15,30,45,60,90°
Bend angle	from 15° to 90°
Radius	from 2 to 5 DN
Wall Thickness, S	from 6,0 - 40,0 mm
Material	20, 12 ГС, 09Г2С



Curved elbow GOST 24950-81

Working pressure	calculated
Outside diameter	219 - 1420 mm
Angle, degrees	3 - 27°, by step of 3°
Radius	15 - 60 m
Wall thickness, S	4,0 - 23,0 mm

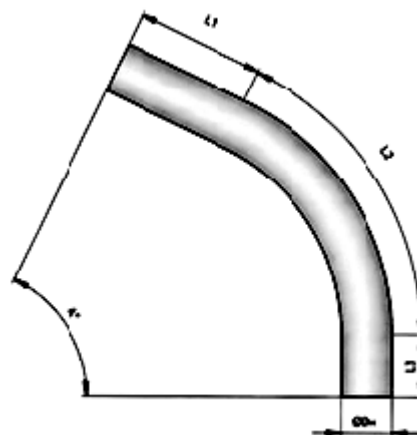




Table 5. Specification of elbows

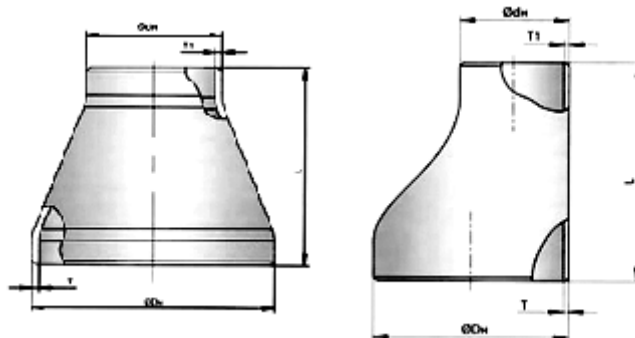
Specification		TY 26-18-32-89	GOST 17375-01	GOST 30753-01	TY 51-467-89 (TY 1469-007-04606975-00)	TY 51-515-91	GOST 108.321-82	GOST 22793-83
Pressure, MPa		up to 16,0	1,6÷16,0	1,6÷16,0	16,0	up to 32,0	4,0÷38,0	up to 100
	32 (2,0÷3,5)		+				+	+
	38 (2,0÷4,0)		+				+	+
	45 (2,5÷5,0)		+				+	+
	57 (2,5÷12,0)		+	+	+		+	+
	76 (3,0÷13,0)		+	+	+		+	+
	89 (3,5÷22,0)		+	+	+	+	+	+
	108 (3,5÷28,0)		+	+	+	+	+	+
	114 (3,5÷28,0)		+	+	+	+	+	+
	133 (3,5÷32,0)		+	+	+	+	+	+
	159 (4,0÷32,0)		+	+	+	+	+	+
	168 (4,0÷32,0)		+	+	+	+	+	+
	219 (5,0÷40,0)	+	+	+	+	+	+	+
	273 (6,0÷40,0)	+	+	+	+	+	+	+
	325 (7,0÷42,0)	+	+	+	+	+	+	
	377 (9,0÷50,0)	+	+	+	+	+	+	
	426 (8,0÷40,0)	+	+	+	+	+	+	
	530 (9,0÷65,0)	+	+	+		+	+	
	630 (9,0÷40,0)		+	+				
R (Radius)		2-4 DN	1,5 DN	1 DN	1,5 DN	2-4 DN	4-7,5 DN	5-9 DN
min	Working Temperature, °C	- 70	-70		-70	-70	-30	-50
max		+ 560	+450		+450	+650	+560	+510
Steel marks		20, 10Г2, 15Х5М, 09Г2С	20, 09Г2С, 12Х18Н10Т(dimension and construction acc. to GOST)		09Г2С	20, 09Г2С, 17ГС, 12ХМФ, 15ХМ1Ф, 15ХМ	20, 15ГС, 12Х1МФ, 15Х1М1Ф	20, 15ХМ, 10Г2, 09Г2С, 12Х18Н10Т
Media		Middle aggressive	Universal		Middle aggressive	Non-aggressive	steam and hot water	High aggressive
Manufacturing type		curved	sharply curved		Sharply curved (seamless)	curved	curved	curved



REDUCERS

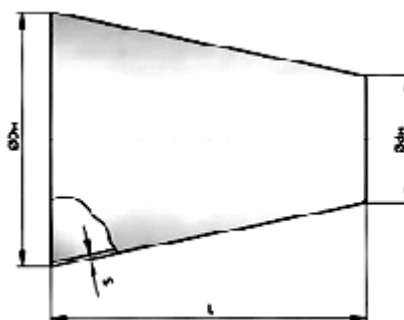
Concentric and eccentric die-stamped reducers by GOST 17378-2001

Pressure nominal, PN	up to 16 MPa
Outside diameter, D _H	38 - 530 mm
Temperature, t°C	From - 70 to + 450°
Material	steel 20, 17ΠС, 09Г2С



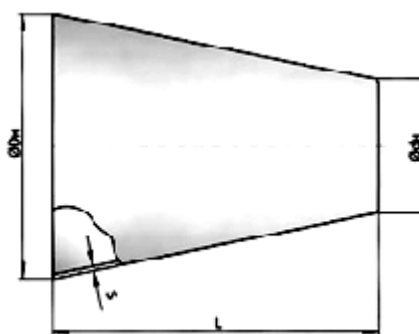
Die-stamped (welded) reducers by TY 102-488-95

Pressure nominal, PN	<= 10,0 MPa	
Outside diameter, D _H	from 530-1420 mm	
Temperature, t°C	by installation	by using
	up to -60°C	up to -40°C
Material	Steel 20, 17Г1С, 09Г2С	



Welded reducers by OST 36-22-77

Pressure nominal, PN	<= 2, 5 MPa
Outside diameter, D _H	from 530-1620 mm
Temperature, t°C	from- 30°C to + 300°C
Material	20, Ст3сп, 09Г2С



Reducer by OST 34 10.753-97 welded

Pressure nominal, PN	1,6; 2,5 MPa
Outside diameter, D _H	530- 1620 mm
Temperature, t°C	up to + 350°
Material	Ст3сп, 20, 09Г2С

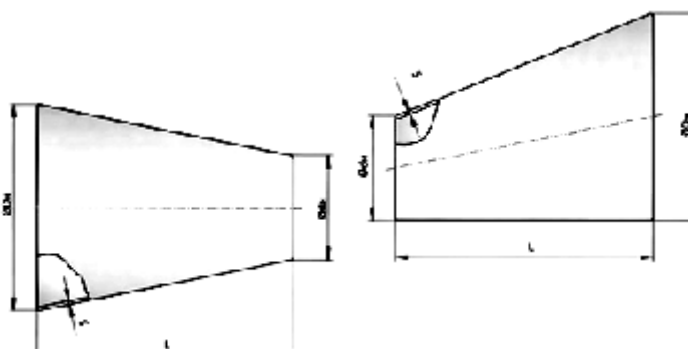




Table 6. Specification of reducers

Specification				TY 26-08-693-81	OST 36-22-77	OST 34.10-753-97	TY 26-18-38-90
Pressure, MPa				0,25÷1,6	1,0÷2,5	1,0÷4,0	up to 10,0
O U T S I D E D I A M E T E R m m	38	R E D U C E R F O R D I A M E T E R m m	25, 32				
	45		25, 32, 38				
	57		32, 38, 45				
	76		38, 45, 57				+
	89		45, 57, 76			+	+
	108		57, 76, 89			+	+
	114		57, 76, 89	+			+
	133		38, 45, 57, 76, 89, 108	+		+	+
	159		57, 76, 89, 108, 133	+		+	+
	168		114, 140	+			+
	194		133, 159	+			+
	219		76, 89, 108, 133, 159, 194	+		+	+
	273		76, 89, 108, 133, 159, 194, 219, 245	+		+	+
	325		57, 76, 89, 108, 133, 159, 219, 273	+		+	+
	377		57, 76, 89, 108, 133, 159, 219, 273, 325	+		+	+
	426		38, 45, 57, 76, 89, 108, 133, 159, 219, 273, 325, 377	+		+	
	530		133, 159, 219, 273, 325, 377, 426	+	+	+	
	630		219, 273, 325, 377, 426, 530	+	+	+	
	720		108, 133, 159, 219, 273, 325, 377, 426, 530, 630	+	+	+	
	820		219, 273, 325, 377, 426, 530, 630, 720	+	+	+	
	1020		219, 273, 325, 377, 426, 530, 630, 720, 820	+	+	+	
	1220		219, 273, 325, 377, 426, 530, 630, 720, 820, 1020	+	+	+	
	1420		219, 273, 325, 377, 426, 530, 630, 720, 820, 1020, 1220	+	+	+	
	1620		219, 273, 325, 377, 426, 530, 630, 720, 820, 1020, 1220, 1420	+		+	
Type: concentric (K)/eccentric (E)				K	K, E	K, E	K
min		Working temperature, ° C	-30	-30	-30	- 70	
max			+450	+350	+425	+ 450	
Steel mark				20, 09Г2С, 12Х18Н10Т, 10Х17Н13М2Т	3сн, 20, 09Г2С, 17ГС,	3сн, 20, 09Г2С, 16ГС, 17ГС, 17Г1С	15Х5М, 12Х1МФ, 12Х18Н10Т
Media				chemical mixtures and suspensions	aggressive	steam and hot water	middle aggressive
Manufacturing type				welded	welded	welded	Die-stamped



Table 7. Specification of reducers

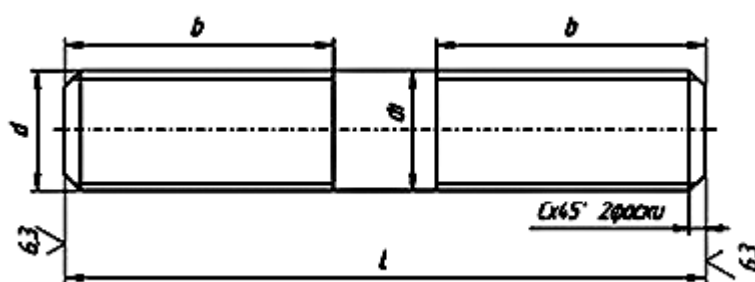
Specification				TY 102-488-95 (05)	OST 36-44-81	TY 51-467-89 (TY 1469-007-04606975-00)	GOST 17378-01	OST 108.318-82
Pressure, MPa				1,6÷10,0	1,6÷10,0	for 16,0	1,6÷16,0	4,0÷38,0
O U T S I D E D I A M E T E R m m	38	R E D U C E R F O R D I A M E T E R m m	25, 32		+		+	+
	45		25, 32, 38		+	+	+	+
	57		32, 38, 45		+	+	+	+
	76		38, 45, 57		+	+	+	+
	89		45, 57, 76		+	+	+	+
	108		57, 76, 89		+	+	+	+
	114		57, 76, 89		+	+	+	+
	133		38, 45, 57, 76, 89, 108		+	+	+	+
	159		57, 76, 89, 108, 133		+	+	+	+
	168		114, 140		+	+	+	
	194		133, 159		+	+	+	+
	219		76, 89, 108, 133, 159, 194		+	+	+	+
	273		76, 89, 108, 133, 159, 194, 219, 245		+	+	+	+
	325		57, 76, 89, 108, 133, 159, 219, 273		+	+	+	+
	377		57, 76, 89, 108, 133, 159, 219, 273, 325		+	+	+	+
	426		38, 45, 57, 76, 89, 108, 133, 159, 219, 273, 325, 377		+	+	+	+
	530		133, 159, 219, 273, 325, 377, 426	+	+			+
	630		219, 273, 325, 377, 426, 530	+				+
	720		108, 133, 159, 219, 273, 325, 377, 426, 530, 630	+				+
	820		219, 273, 325, 377, 426, 530, 630, 720	+				
1020	219, 273, 325, 377, 426, 530, 630, 720, 820	+						
1220	219, 273, 325, 377, 426, 530, 630, 720, 820, 1020	+						
1420	219, 273, 325, 377, 426, 530, 630, 720, 820, 1020, 1220	+						
1620	219, 273, 325, 377, 426, 530, 630, 720, 820, 1020, 1220, 1420							
Type: concentric(K)/eccentric (E)				K	K	K	K, E	K
min	Working temperature, °C			-40	-30	-70	-70	-30
max				+150	+350	+450	+450	+560
Steel mark				09Г2С, 10ХСНД, 15ХСНД, 10Г2ФБЮ, 17ГС	В3сн	09Г2С	20, 09Г2С, 12Х18Н10Т (dimension and construction by GOST)	20, 15ГС, 12Х1МФ, 15Х1М1Ф
Media				Middle aggressive	Low aggressive	Middle aggressive	universal	Steam and hot water
Manufacturing type				Die-stamped - welded	welded	Die-stamped - welded	Die-stamped	Die stamped and Die-stamped – welded, turned



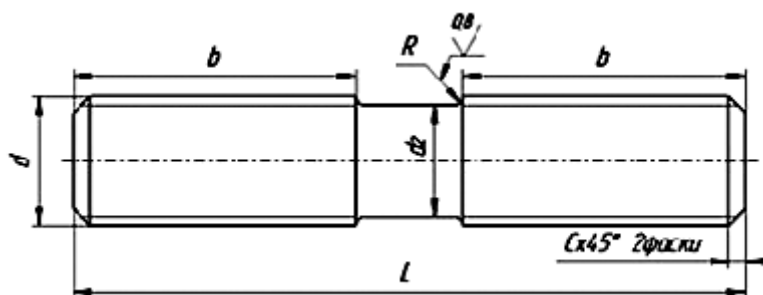
FASTENING ITEMS

**Studs for flanged connections with medium temperature from 0° to +650°C.
Design and dimension by GOST 9066-75**

Type A, version 1



Type B, version 1



Working temperature:

Steel mark 35 – from 0° to +400°C;

Steel mark 40X – from 0° to +425°C;

Pressure nominal:

Category of steel III (steel marks 35,45) - up to 10,0 MPa, class of product quality: 2,3,4,5.

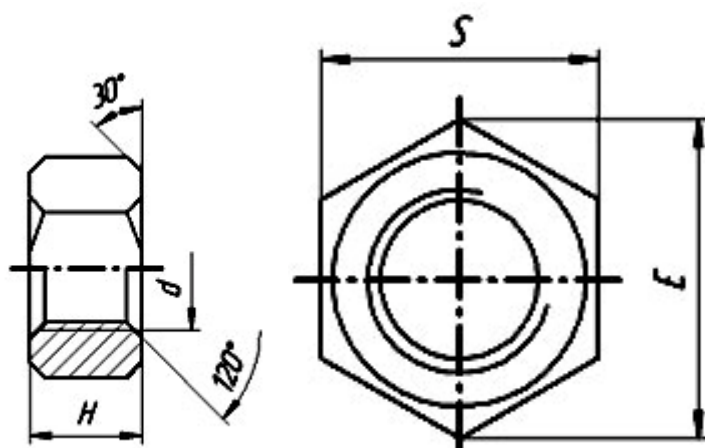
Category of steel IV (steel marks 35X, 40X,30XMA,25X1MF)– up to 20,0 MPa, class of product quality: 2,3,4,5.

Basic dimensions: M10x26...250mm, M12x45...500mm, M14x45...5200mm, M16x45...500mm, M18x50...50mm, M20x50...500mm, M22x60...500mm, M24x60...500mm, M27x70...500mm, M30x70...500mm, M33x80...500mm, M36x100...500mm, M42x120...500mm, M48x120...500mm, M56x180...500mm.



**Nuts for flange connections with medium temperature from 0° to +650°C.
Design and dimension by GOST 9064-75**

Type A



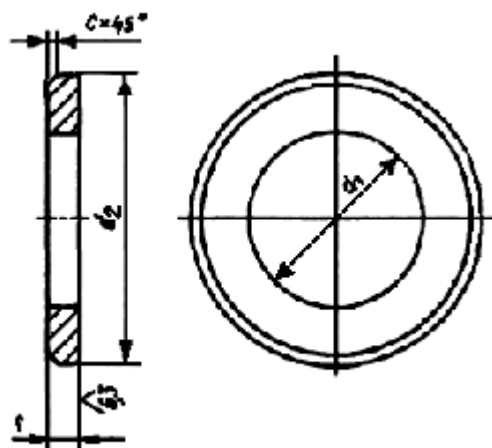
Basic parameters

Thread diameter, d		M10	M12	M16	M20	M22	M24	M27	M30	M36	M42	M48	M52	M56	M64	M72
Pitch	big	1,5	1,75	2,0	2,5		3,0		3,5	4,0	4,5	5,0		5,5	6,0	
	small	1,25		1,5			2,0			3,0				4,0		
Dimension, mm	S	17	19	24	30	32	36	41	46	55	65	75	80	85	95	105
	H	10	12	16	20	22	24	27	30	36	42	48	52	56	64	72
	Emin	18,8	21,0	26,7	33,5	35,6	40,3	45,9	51,4	61,7	73,1	84,5	90,4	96,0	107,5	118,0

Steel marks	Standard	Ultimate parameters of application	
		Temperature, °C	Pressure nominal, MPa (kgs/cm ²)
25, 35	GOST 1050	From 0 to +400	up to 10 (100)
30X	GOST 4543	From - 50 to + 200	up to 63(630)
35X		From - 50 to + 400	up to 80(800)
38XA			
40X			
30XMA		From - 50 to + 510	up to 100(1000)
35XM			
25X1MΦ	GOST 20072		



**Washers for flanged connections with medium temperature from 0° to +650°C.
Design and dimension by GOST 9065-75**



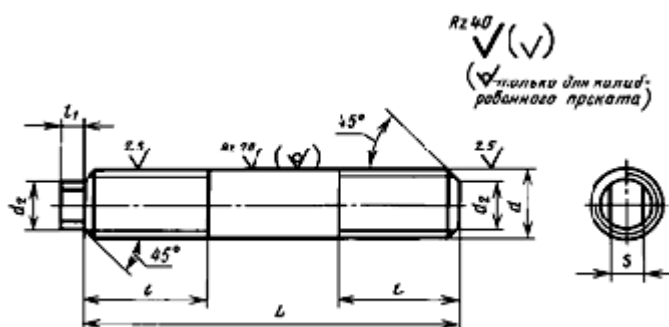
Nominal diameter of stud thread d	10	12	16	20	(22)	24	(27)	30	36	42	48
Inside diameter d_1 (tolerance by $H12$)	11	13	17	21	23	25	28	31	37	43	50
Outside diameter d_2 (tolerance by $h14$)	18	24	30	37	34	44	50	56	66	78	90
Thickness of washer s (tolerance by $h14$)	2,5			4			5		6		10
Bevel, c	0,5			1,0			1,6				2,0
Allowable displacement of hole axis	0,5	0,6				0,7					

Nominal diameter of stud thread d	(52)	56	(60)	64	(68)	72	(76)	80	90	100	110	(120)	125	140	160	
Inside diameter d_1 (tolerance by $H12$)	54	58	62	66	70	74	78	82	92	102	112	122	127	142	162	
Outside diameter d_2 (tolerance by $h14$)	95		100	110	115	120	126	132	138	155	174	190	208	215	242	276
Thickness of washer s (tolerance by $h14$)	10						12			14				16		
Bevel, c	2,0						3,0				4,0					
Allowable displacement of hole axis	0,8						0,9				1,0				1,2	

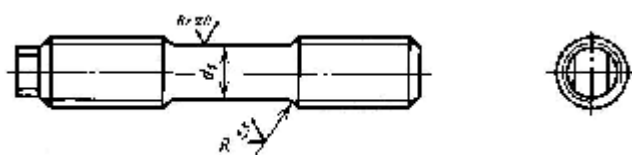


Studs for flanged connections with lens-shaped seals for PN 10-100 MPa. Design and dimension by GOST 10494-80

Type A

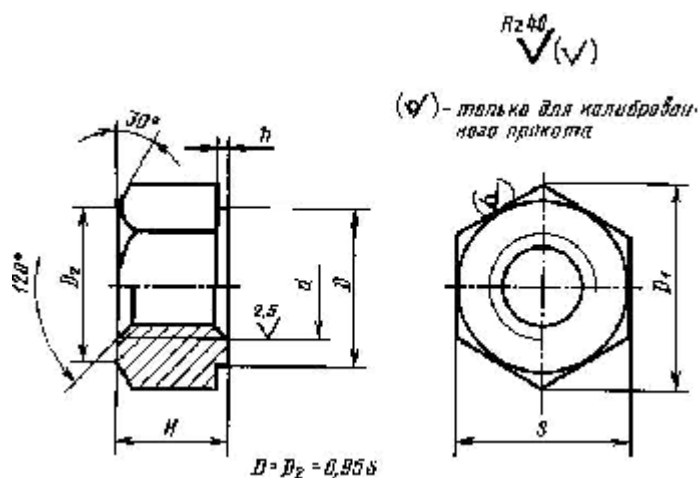


Type B



Dimensions of studs		
Nominal diameter of thread, d	Length of stud tail, l1	Limit of length, L
12	8	60-130
14		70-150
16		80-180
20		110-190
22		120-210
24		130-210
27		160-250
30		190-290
33		210-340
36	10	230-360
39	12	260-380
42	14	280-440
45		300-460
48	15	320-510
52	18	360-530
56		400-560

Hexagonal nuts for flanged connections for Pn 10-100 MPa. Design and dimension by GOST 10495-80



Basic dimensions:

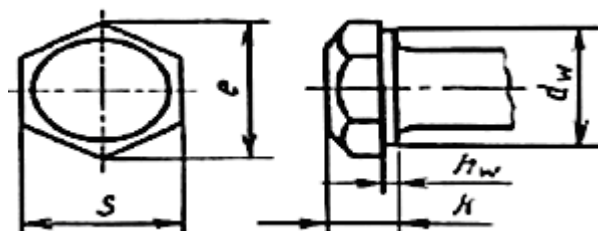
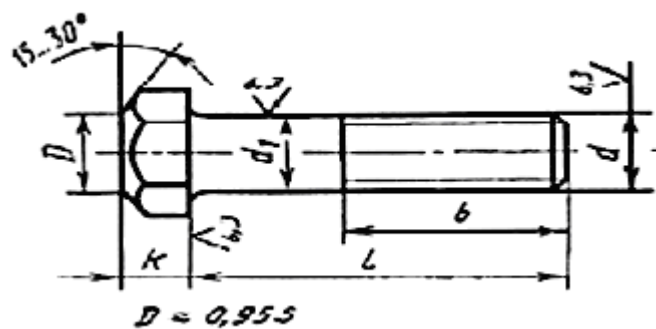
M10, M12, M14, M16, M18, M20, M22, M24, M27, M30, M33, M36, M42, M48, M56.



Hexagon bolts, product grade B .
Design and dimension by GOST 7798-70

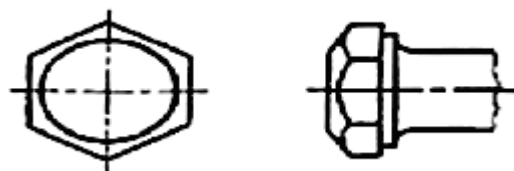
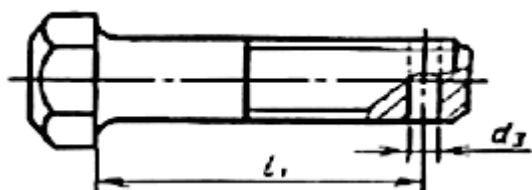
Type 1

Version of head



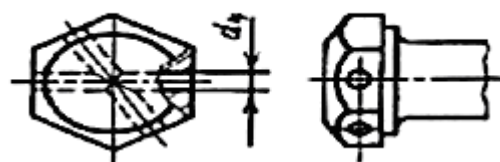
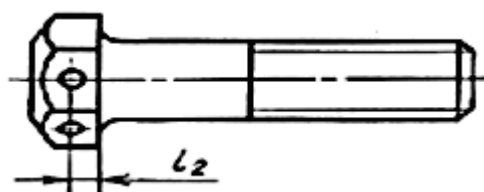
Type 2

Version of head



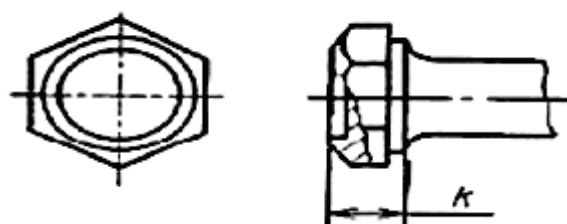
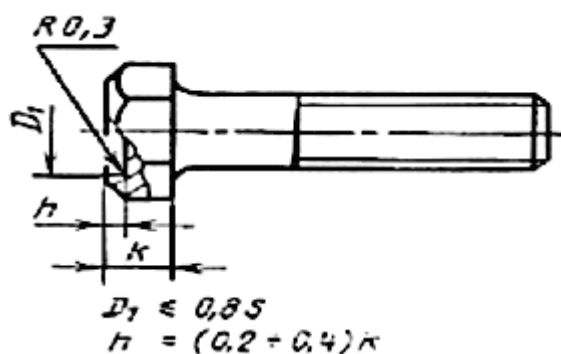
Type 3

Version of head



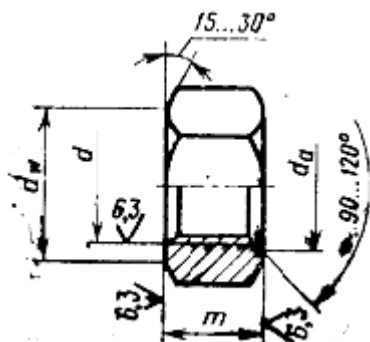
Type 4

Version of head

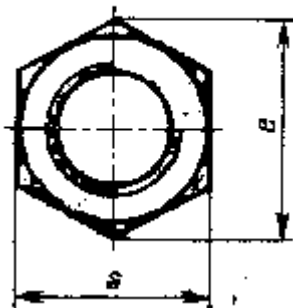




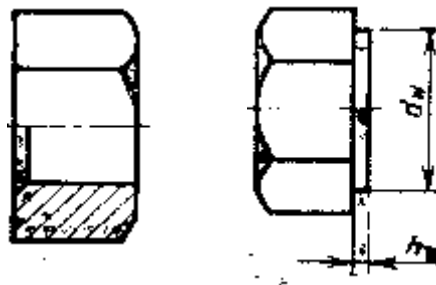
Version 1



Version 2



Version 3



Available materials of studs, nuts, bolts: steel 25, 35, 35X, 40X, 09Г2С, 14Х17Н2, 15ХМ, 20Х13, 20ХН3А, 38ХС, 40ХМФА, 30ХМА, 25Х1МФ, 25Х2М1Ф, 12Х18Н10Т, 10Х17Н13М2Т, 10Х11Н23Т3МР, 18Х12ВМБФР, 20Х1М1Ф1ТР, 45Х14Н14В2М

Other available manufacturing standards of studs: GOST 22032-76, GOST 22034-76, GOST 22036-76, GOST 11447-80, GOST 22042-76, GOST 22043-76.

Other available manufacturing standards of bolts :GOST 7805-70, GOST 7796-70, GOST 7786-81.

Other available manufacturing standards of nuts: GOST 5918-73, GOST 5916-70, GOST 5927-70, GOST 10605-94.

Other available manufacturing standards of washers: GOST 11371-78, GOST 9649-78, GOST 6958-78, GOST 6402-70, GOST 13463-77, GOST 10450-78.



VALVES

Butterfly valves



TYPES: CONTROL, CHECK, SWING CHECK, WICKET

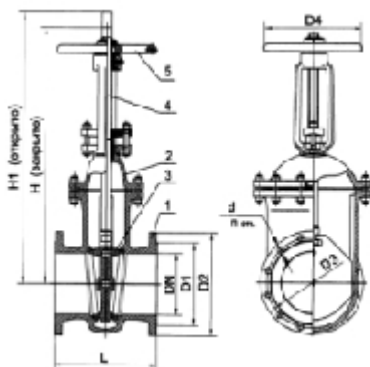
Description of technical parameters	Branch of industry		
	Valves for general industrial usage	Valves for gas	Valves for chemistry
Diameter nominal (DN), mm	32-600 and more	32-300	50-300
Temperature, °C	from - 10 to + 200	from - 25 to + 60	from - 100 to + 600
Pressure, (P)	DN 32 - 200 mm - 16 bar DN 250 - 600 mm - 10 bar	up to 6 bar	DN 50 - 100 - 50 bar DN 125 - 300 - 20 bar
Media	Water, steam, for hydrocarbons, air with content oil, light corrosive solutions	Gaseous	Aggressive media, vacuum, asphalt, petroleum products, nutritional solutions (storage and transferring)
Connection	- between the flanges (through holes or threaded holes)		
Control	- hand lever; - hand reducer; - electrical drive; - pneumatic actuator (general and double action); - composite (electrical drive + reducer, pneumatic drive + reducer)		
Design	-dismountable or all-in-one	dismountable	dismountable
Gasketing	Ethylene-Propylene-dien-rubber; fluorine-rubber;	Special for gaseous and low temperatures media	- Sealing metal/metal - polymeric - polymeric safe flameproof
Body	Cast- iron		Carbon, stainless steel
Outside coating of body	Single or double epoxy		Nylon
Additional characteristics	Availability of providing dielectrical protection of discontinuos current		

General standards of butterfly valves:

GOST 22445-88 Swing check valves;
GOST 13252-91 Swing check valves for $P_{nom} \leq 25\text{MPa}$;
GOST 25923-89 Butterfly control valves;
GOST 12521-89 Butterfly valves. Basic parameters;
GOST 13547-79 Butterfly wicket valves fo P_{nom} up to 2,5 MPa;



Gate valves



Connection variants		Flanged, butt-welded												Socket
Working temperature, °C		from -60 to +565												
General specifications and basic parameters		acc. to GOST 5762-74, GOST 9698-86												
Body material		Carbon, alloy, stainless, molybdenum and high-temperature steel marks												
Nominal pressure, MPa		0,4	0,6	1	1,6	2,5	4	6,3	8	10	16	25	35-42	16
Diameter nominal (DN), mm	15				+	+	+	+	+	+	+			+
	20				+	+	+	+	+	+	+			+
	25				+	+	+	+	+	+	+			+
	32				+	+	+	+	+	+	+	+		+
	40				+	+	+	+	+	+	+	+		+
	50				+	+	+	+	+	+	+	+	+	+
	80				+	+	+	+	+	+	+	+	+	
	100				+	+	+	+	+	+	+	+	+	
	150			+	+	+	+	+	+	+	+	+	+	
	200			+	+	+	+	+	+	+	+	+	+	
	250			+	+	+	+	+	+	+	+	+	+	
	300			+	+	+	+	+	+	+	+	+	+	
	350				+	+	+	+	+	+	+	+	+	
	400		+	+	+	+	+	+	+	+	+	+	+	
	500		+	+	+	+	+	+	+	+	+	+	+	
	600		+	+	+	+	+		+		+	+	+	
	700				+	+	+		+		+	+		
	800	+		+	+	+	+		+		+			
	1000	+		+	+	+	+		+					
	1200	+		+	+	+	+	+	+					

General standards of gate valves:

GOST 3706-93 Gate valves. End-to-end lengths;

GOST 9698-86 Gate valves. Basic parameters;



Ball valves



Connection types		Butt-welded								Flanged							
Working temperature, °C		from -46 to +200								from -46 to +200							
Way of connecting		Weld seam								Flanges acc. to GOST 12815-80							
Body material		Carbon, alloy, stainless, molybdenum steel marks								Carbon, alloy, stainless, molybdenum steel marks							
Nominal pressure, MPa		1,6	2,5-4,0	6,3	8,0-10,0	16	20	25	42	1,6	2,5-4,0	6,3	8,0-10,0	16	20	25	42
Nominal diameter (DN), mm	10	+	+	+	+	+	+	+		+	+	+	+	+	+	+	
	15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	25	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	32	+	+	+	+	+	+	+		+	+	+	+	+	+	+	
	40	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	50	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	65	+	+	+	+	+		+	+	+	+	+	+	+		+	+
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	100	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+
	150	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+
	200	+	+	+	+	+		+	+	+	+	+	+	+		+	+
	250	+	+	+	+	+		+	+	+	+	+	+	+		+	+
	300	+	+	+	+	+		+	+	+	+	+	+	+		+	+
	350	+	+	+	+	+		+		+	+	+	+	+		+	
	400	+	+	+	+	+		+		+	+	+	+	+		+	
	500	+	+	+	+	+		+		+	+	+	+	+		+	
	600	+	+	+	+	+		+		+	+	+	+	+		+	
	700	+	+	+	+	+				+	+	+	+	+			
	800	+	+	+	+	+				+	+	+	+	+			
	1000	+	+	+	+					+	+	+	+				
	1200	+	+	+	+					+	+	+	+				
	1400	+	+	+	+					+	+	+	+				



Ball valves (continuation)

Connection types		Socket							Weld ends						
Working temperature, °C		from -46 to +200							from -46 to +200						
Media		Liquid and gaseous products, natural gas, acid, alkali, water													
Way of connection		Conical or cylindrical pipe thread acc. to GOST 6211-81													
Body material		Carbon, alloy, stainless, molybdenum steel marks							Carbon, alloy, stainless, molybdenum steel marks						
Nominal		1,6	2,5-4,0	6,3	8,0-10,0	16	20	25	1,6	2,5-4,0	6,3	8,0-10,0	16	20	25
pressure, MPa															
Nominal diameter (DN), mm	10	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	15	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	25	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	32	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	40	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	50	+	+	+	+	+	+	+	+	+	+	+	+		
	65	+	+	+	+	+									
	80	+	+												

General standards of ball valves:

GOST 28343-89 Flanged steel ball valves. Technical requirements

GOST 9702-87 Conical and ball valves. Basic parameters.

GOST 21345-78 Conical, ball and cylindrical valves for P_{nom} to ≈16 MPa . General specification

GOST 28908-91 Ball and butterfly valves. End-to-end, face-to-face dimension.

GOST 14187-84 Conical valves. End-to-end, face-to-face dimension.



Globe valves



TYPES: CONTROL, STOP

Purpose		Stop valves						Control valves		
Specification		GOST						GOST, TU		
Working temperature, °C		-100 ÷ +600						-70 ÷ +530		
Body material		Carbon, alloy, stainless steel marks								
Nominal pressure, up to.... MPa		1,6	4,0	10,0	16,0	25,0	42,0	1,6	4,0	10,0
Nominal diameter (DN), mm	6	+	+		+	+	+			
	10	+	+	+	+	+	+	+	+	+
	15	+	+	+	+	+	+	+	+	+
	20	+	+	+	+	+	+	+	+	+
	25	+	+	+	+	+	+	+	+	+
	32	+	+	+	+	+	+	+	+	+
	40	+	+	+	+	+	+	+	+	+
	50	+	+	+	+	+	+	+	+	+
	65	+	+	+	+	+	+	+	+	+
	80	+	+	+	+	+	+	+	+	+
	100	+	+	+	+	+	+	+	+	+
	125	+	+	+						
	150	+	+	+	+	+	+	+	+	+
	200	+	+	+	+	+	+	+	+	+
	250	+	+	+	+	+	+	+	+	+
	300	+	+	+	+	+	+			
	350	+	+	+	+	+				
	400	+	+	+	+					
	500	+	+							
	600	+								
	700									
	800									
	1000									
	1200									



Lift check and safety valves



Purpose		Lift check valves						Safety valves			
Specification		GOST						GOST, TY			
Working temperature, °C		-60 ÷ +600						+110 ÷ +600			
Body material		Carbon, alloy, stainless steel marks									
Nominal pressure, up to.... MPa		1,6	4,0	10,0	16,0	25,0	42,0	1,6	4,0	6,3	16,0
Nominal diameter(DN), mm	6										
	10										
	15	+	+	+	+	+	+				
	20	+	+	+	+	+	+		+		
	25	+	+	+	+	+	+	+	+		+
	32	+	+	+	+	+	+	+			
	40	+	+	+	+	+	+				
	50	+	+	+	+	+	+	+	+	+	+
	65	+	+	+	+	+	+				
	80	+	+	+	+	+	+	+	+	+	+
	100	+	+	+	+	+	+	+	+	+	+
	125	+	+	+							
	150	+	+	+	+	+	+	+	+		
	200	+	+	+	+	+	+	+	+		
	250	+	+	+	+	+	+				
	300	+	+	+	+	+	+				
	350	+	+	+	+	+	+				
	400	+	+	+	+	+	+				
	500	+	+	+	+	+	+				
	600	+	+	+	+	+	+				
	700	+	+	+	+	+					
	800	+	+	+	+						
	1000	+	+	+							
	1200	+	+	+							

General standards of globe valves:

GOST 3326-86 Stop valves, lift check and swing check valves. Overall dimension;

GOST 9697-87 Stop valves. Main parameters;

GOST 11823-91 Lift check valves for $P_{nom} \leq 25$ MPa. General specification;

GOST 16587-71 Safety valves, control valves and pressure regulators. End-to-end lengths;

GOST 12893-83 Single - and double - seated control valves. General technical requirements;

GOST 27477-87 Check valves. Basic parameters;

GOST 5761-74 Globe valves for $P_{nom} \leq 25$ MPa. General specification;

GOST 9789-75 Safety full-lifted flanged steel valves for $P_{nom} \approx 1,6$ and $4,0$ MPa;

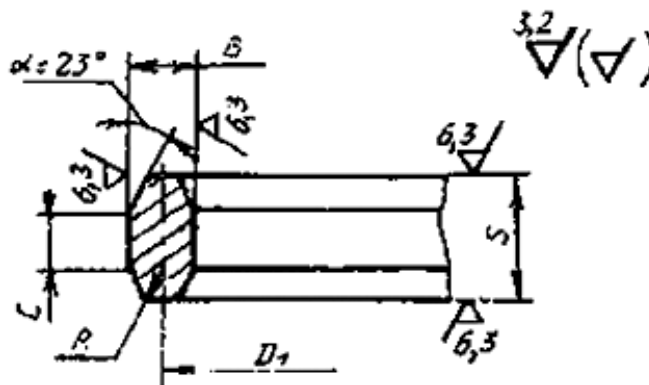
GOST 12532-88 Directacting safety valves. Basic parameters;

GOST 23866-87 Single - seated, double - seated and cage control valves. Basic parameters.



GASKETS

Steel and metal gaskets . Ring-type joint „Armko“



Steel and metal gaskets is available of oval and octangular section. They are produced according to the following specifications:

- **OST 26.260.461-99** «Steel gaskets of oval and octangular section for flanges of valves
- **OST 26-845-73** «Design and dimension. Technical requirements»
- **ATK 26-18-6-93** «Steel gaskets of oval and octangular section»
- **GOST 28759.8-90** «Metal gaskets of octangular section for flanges of vessels and apparatus»
- **GOST 10493-81** «Rigin and compensating lens-shaped seals for Pn 20-100 MPa»

Ring-type joints „Armko“ are designed for sealing of flanged connections of valves , pipeline, vessels, apparatus, pumps and other oil, gas and refinery equipments with connecting surfaces of type 7 by GOST 128215 -80. Ring Joint Gaskets are metallic sealing rings, suitable for high pressure and high temperature duties - for Pn from 6,3 to 16 MPa and for temperature from -70 to +600°C. Gaskets can be manufactured from carbon structural steel (08KП by GOST1577), stainless steel (08X13, 08X18H10T by GOST 7350 or GOST 5949). For more highly specialized applications, Ring type Joints can be maschined from other materials.



Table 8. Ring-type joints „Armko“. Technical data sheet

Inside diameter of apparatus, D	D ₁	B	S	C	R	Nominal pressure, MPa
400	430	12	16	7	1,6	6,3
	475					8,0
		20	25	9		10,0
450	510	12	16	7		16,0
	525	14	18	8		6,3
		22	26	10		8,0
500	560	12	16	7		10,0
	575	16	20	8		16,0
		24	30	12	24	6,3
600	685	14	18	8	1,6	8,0
	675	18	23			10,0
		26	32	13	2,4	16,0
700	785	14	18	8	1,6	6,3
	775	20	25	9		8,0
	790	32	38	16	2,4	10,0
800	890	18	23	8	1,6	16,0
	875	22	26	10		6,3
	910	36	42	16	2,4	8,0
900	1025	18	23	8	1,6	10,0
	990	26	32	13	2,4	6,3
	1015	40	48	18		8,0
1000	1070	22	26	10	1,6	16,0
	1090	28	34	14	2,4	6,3
	1120	42	50	18		8,0
1100	1170	22	26	10	2,4	10,0
	11,90	30	36	15		16,0
	1235	46	54	18		6,3
1200	1280	24	30	12		8,0
	1290	32	38	16		10,0
	1350	50	58	20		16,0
1300	1365	24	30	12		6,3
	1400	36	42	16		8,0
1400	1460	27	34	14		10,0
	1500	38	44	16		6,3
1500	1600	30	36	15		8,0
	1610	42	50	18		10,0
1600	1705	30	36	15	6,3	
	1710	42	50	18	8,0	
						10,0



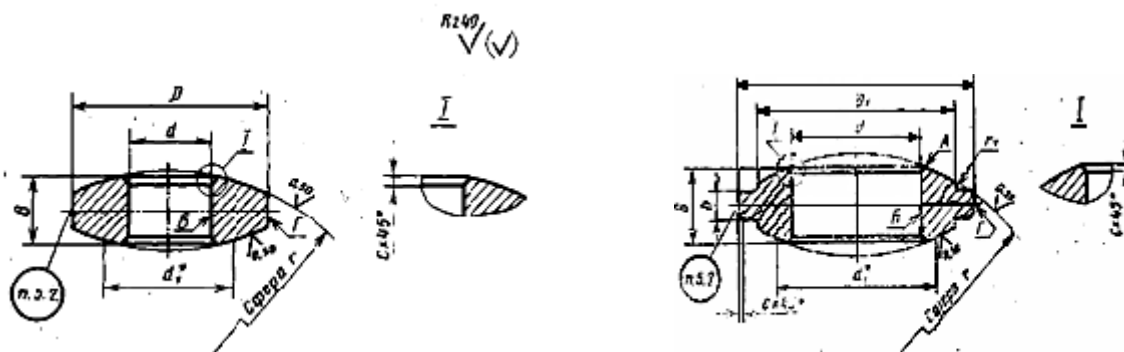
Lens – shaped seals

Lens – shaped seals are designed for using in chemical and petrochemical industry for systems with high-security requirements for sealing of flanged connections of valves, fittings and pipeline for Pn from 2,0 to 100 MPa and for temperature of media from -50 to +510°C. Construction and technical requirements according to GOST 10493-81.

Types of lens:

R- rigid – version 1 – without bead, version 2 –with bead

C – compensating – version 1 for Pn up to 50,0 MPa, version 2 for Pn from 63 to 100 MPa



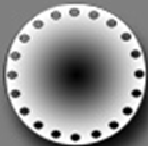
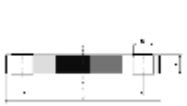
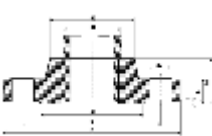
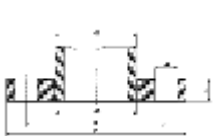
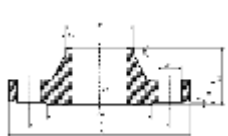
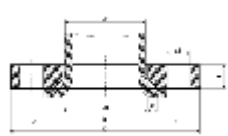
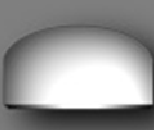
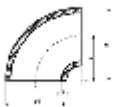
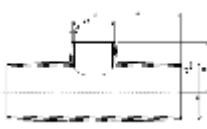
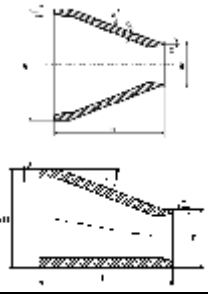
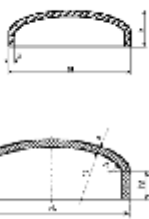
Type and version of lens for nominal diameter Dn		Steel mark of lens	Ultimate parameters of application		Steel mark of pipes and fittings
6-32	40-200		Temperature, °C	Pressure nominal Pn , MPa	
R1	R1	steel 20 by GOST 1050—74	from - 40 to + 200	20-32	steel 20
	R2	14XГC by GOST 19282—73	From - 50 to + 200	40—63	15ГC 14XГC
	R1	12X18H10T 10X17H13M3T		20—32	12X18H10T 10X17H13M2T 10X17H13M3T 08X17H15M3T
	R2	08X18H15M3T by GOST 5632—72		40	
	C1		From - 50 to + 400	20—40	18IX3MB 20X2M 30XMA 22X3M
	R2	15XM by GOST 4543—71		50—80	
	R2	30XMA by GOST 4543—71			
	R1 for T<400 °C C1 for T>400 °C	118X3MB 20X3MBΦ by GOST 20072—74	From - 50 to + 510	20—50	20X3MBΦ
	R2 for T<400 °C C1 for T>400 °C			63—100	



DIN STANDARD



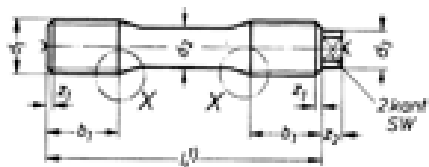
FLANGES AND BUTT WELDING FITTINGS

Steel flanges				
				
				
blind flanges DIN 2527 nominal size DN10-500 nominal pressure PN6-40	screwed flanges DIN 2565 and 2566 nominal size DN10-150 nominal pressure PN6-16	flanges for soldering and welding DIN 2573 and 2576 nominal size DN10-500 nominal pressure PN6-16	welding neck flanges DIN 2631-35 nominal size DN10-1000 nominal pressure PN6-40	lapped flanges DIN 2642 nominal size DN10-800 nominal pressure PN10-16
Butt welding fittings				
				
				
elbows, bends 90° 45° 180° DIN 2605-1/2 nominal size DN10-500 type 3+5	tees DIN 2615-1/2 nominal size DN10-500 equal and reduced	reducers DIN 2616-1/2 nominal size DN10-500 excentric and concentric	caps and torispherical heads DIN 2617 and 28011 nominal size DN10-1000 in several heights of construction	saddle previously DIN 2618 nominal size DN10-500
Material				
St37.0	St35.8l	C22.8	15Mo3	13CrMo44
H11	RSt37-2	1.4541	1.4571	...



FASTENING ITEMS

Screw bolts with anti-fatigue shaft acc.to DIN 2510



Shape L with long thread up to M52

Size: M12-M52

Materials: Heat-resistant - 1.1181, 1.7218, 1.7225, 1.7709, 1.4923, 1.4986, 1.4980

Tough at subzero temperature - 1.7218, 1.5680, 1.7225

Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)

ASTM - A193 size B7, A193 size B16, A320 size L7



Shape Z with long thread up to M56

Size: M12-M56

Materials: Heat-resistant - 1.1181, 1.7218, 1.7225, 1.7709, 1.4923, 1.4986, 1.4980

Tough at subzero temperature - 1.7218, 1.5680, 1.7225

Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)

ASTM - A193 size B7, A193 size B16, A320 size L7

Shape K with short thread up to M56

Size: M12-M56

Materials: Heat-resistant - 1.1181, 1.7218, 1.7225, 1.7709, 1.4923, 1.4986, 1.4980

Tough at subzero temperature - 1.7218, 1.5680, 1.7225

Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)

ASTM - A193 size B7, A193 size B16, A320 size L7



Shape ZU with long thread and spacer stud

Shape KU with short thread and spacer stud (only for pairing with capped nuts at both ends) up to M56

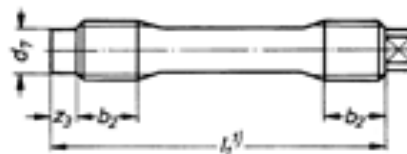
Size: M12-M56

Materials: Heat-resistant - 1.1181, 1.7218, 1.7225, 1.7709, 1.4923, 1.4986, 1.4980

Tough at subzero temperature - 1.7218, 1.5680, 1.7225

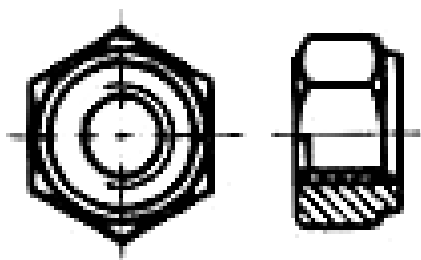
Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)

ASTM - A193 size B7, A193 size B16, A320 size L7





Hexagon nuts acc. to DIN 2510



Shape NF standard shape up to M56

Size: M12-M56

Materials: Heat resistant- 1.1181, 1.7218, 1.7225 (up to M36), 1.7709, 1.4923, 1.4980, 1.4986

Tough at subzero temperature - 1.7218, 1.5680, 1.7225 (up to M36)

Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)

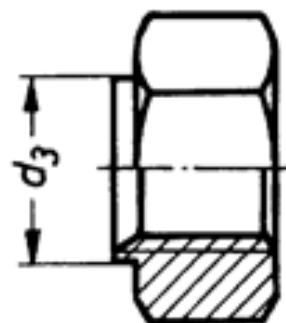
Shape TF for internal centre with resilient sleeve shape D acc. to DIN 2510 sheet 7 up to M56

Size: M12-M56

Materials: Heat resistant- 1.1181, 1.7218, 1.7225 (up to M36), 1.7709, 1.4923, 1.4980, 1.4986

Tough at subzero temperature - 1.7218, 1.7219, 1.5680, 1.7225 (up to M36)

Corrosionfree - 1.4301, 1.4541, 1.4571 (up to M39)



* Other standards – on request.



ANSI STANDARD



FORGED FITTINGS

Specifications

ANSI B16.11, MSS SP-79
MSS SP-83, MSS SP-95, MSS SP-97

Material

Carbon Steel

ASTM105, ASTM350 LF1, LF2, LF3
ASTM A694 F42, F46, F52, F56, F60, F65, F70

Stainless Steel

ASTM A182 F304/304L, F316/316L, F321, F347, F44 (UNS S31254)

Alloy Steel

ASTM A182 F1, F5, F7, F9, F11, F12, F22, F91

Duplex Stainless Steel

ASTM A182 F51/UNS S31803, F53/UNS S32750, F55/UNS S32760

Special Alloy

Inconel 600, Inconel 625, Inconel 718, Inconel X-750, Incoloy 800, Incoloy 800H, Incoloy 825, Hastelloy C276, Monel 400, Monel K-500

Class: 2000LB, 3000LB, 6000LB, 9000LB

Size: 1/8"-6"

Types:

Forged Steel Socket Welding Fittings

Forged Steel Threaded Fittings

Forged Steel Outlet Fittings





FORGED FLANGES

Specifications

ANSI B16.5, ANSI B 16.47, Series A&B, ANSI B16.36, ANSI B16.48, MSS SP44, AP16A

Material

Carbon Steel

ASTM A105, ASTM A350 LF1, LF2CL1/CL2, LF3CL1/CL2
ASTM A694 F42, F46, F52, F56, F60, F65, F70

Stainless Steel

ASTMA182 F304L, F316/316L, F316H, F310, F321 F44 (UNS S31254)

Alloy Steel

ASTM A182 F1, F5a, F9, F11, F12, F22, F91

Duplex & Super Duplex Stainless Steel

ASTM A182 F51/UNS S31803, F53/UNS S32750, F55/UNS S32760

Special Alloy

Inconel 600, Inconel 625, Inconel 718, Inconel X-750, Incoloy 800, Incoloy 800H,, Incoloy 825, Hastelloy C276, Monel 400, Monel K-500

Size: 1/2"- 6"

Face Types:

Flat Face, raised Face, Ring Joint Face, Lap-Joint Face

Large Male-Female, Small Male-Female

Large Tongue&Groove, Small Tongue&Groove

Flange Type

Welding Neck Flange, Long Welding Neck Flange, Lap Joint Flange

Blind Flange, Slip-On Flange, Spectacle Blind, Manhole, Handhole





BUTT WELDING FITTINGS

Specifications

ANSI B16.9, ANSI B16.28, MSS SP-43, MSS SP-75

Material:

Carbon Steel

ASTM A234 WPB, WPC; ASTM A420 WPL9, WPL3, WPL6
WPHY-42, WPHY-46, WPHY-52, WPHY-56, WPHY-60
WPHY-65, WPHY-70

Stainless Steel

ASTM A403 WP304/304L, WP316/316L, WP321, WP347
WPS31254

Alloy Steel

ASTM A234 WP1, WP12, WP11, WP22, WP5, WP9, WP91

Duplex & Super Duplex Stainless Steel

ASTM A815 UNS S31803, UNS S32750, UNS S32760

Special Alloy

Inconel 600, Inconel 625, Inconel 718, Inconel X-750, Incoloy 800
Incoloy 800H, Incoloy 825, Hastelloy C276, Monel 400, Monel K-500



Schedule:

Carbon Steel & Alloy Steel

SchSTD, XS, XXS, Sch10 ~ Sch 160

Stainless Steel

Sch5S, 10S, 40S, 80S

Sizes:

Carbon Steel 1/2" ~ 72"

Stainless Steel

Seamless & ERW: 1/2" ~ 24"

Welded: 26" ~ 72"

Types:

45°/90°/180° Long/Short Radius Elbows, Equal/Reducing Tees
Equal/Reducing Crosses, Concentric/Eccentric Reducers
Caps, Stub Ends

Induction Bend:

Sizes: 3" ~ 56"

Radius: 3D, 4D, 5D, 6D, 8D, 10D

Angles: 22.5°, 30°, 45°, 60°, 90°



FORGED STEEL VALVES

Design and Manufacture:

API 600, API 602, BS5352; ANSI B16.34, MSS SP-117

Connection Type:

Socket Weld Ends: ANSI B16.11

Screwed Ends: ANSI B1.20.1

Butt Welding Ends: ANSI B16.25

Flanged Ends: ANSI B16.5

Face to Face: ANSI B16.10

Test and Inspect: API 598

Material Standard:

ASTM A105, A350 LF2, LF3, A182 F304/304/L, A182 F11, F22, F91

Pressure:

150LB, 300LB, 600LB, 800LB, 900LB, 1500LB, 2500LB, 4500LB

Sizes: 1/2" ~ 4"

Types:

Gate Valve, Globe Valve, Ball Valve, Check Valve,

Integral Flanged Valve

Bellows Sealed Valve, Cryogenic Valve, Pressure Sealed Valve





GASKETS AND GASKETING MATERIALS



Non - asbestos Sheet GS4114

Non – asbestos sheet

Dimension: 1500 mm x 1000 mm x 2mm

Technical data sheet	Measure	Type GS4114
Density	g/cm ³	1.7~1.9
Tensile strength	Mpa	12
Compressibility	≥%	12± 5
Recovery	≥%	50
Stress relaxation rate	≤%	45
Temperature/ T _{max}	°C	350
Pressure/ P _{max}	Mpa	3,5
Resistance to media	Oil fuel, gases, salt solution and many other media	

G4114G gaskets

Oil resisting non-asbestos gasket with both graphite coating

Gasket dimension

DN (inside), mm	50,0	80,0	150,0	200,0	250,0	300,0	350,0	50,0	80,0	100,0	150,0	200,0	250,0	300,0	350,0
DN (outside), mm	102,0	138,0	212,0	268,0	320,0	378,0	438,0	87,0	120,0	149,0	203,0	259,0	312,0	363,0	421,0
Thickness, mm	2,0	2,0	2,0	2,0	3,0	3,0	3,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0



GS 4004 graphite sheet

Graphite sheet reinforced with tanged metal SS304
Dimension: 1500 mm x 1000 mm x 2mm

Technical data sheet	Measure	Type SS304
Insert material	mm	T: 0.1
Compressibility	≥%	15~35
Recovery	≥%	20
Pressure	bar	300
Density	g/cm ³	1.0
Application	PH: 0-14 Made for various gaskets, used in petrochemical, mining, vessels, boilers, piping and duck, pumps and valves, flanges etc.	

Graphite properties

Technical data sheet	Measure	Industrial
Tolerance of density	g/cm ³	±0,06
C	≥ %	98
Tensile strength	Mpa	4
Sulphur content	ppm	<1000
Chlorine content	ppm	< 50
Stress relaxation rate	%	< 10
Ignition loss	%	2,0 ≤
Temperature	°C	-240~450



G4004 IO gasket

Tanged SS304 reinforced graphite gasket with inner & outer eyelets

Gasket dimension

DN (inside), mm	50,0	80,0	100,0	150,0	200,0	250,0	300,0	350,0
DN (outside), mm	87,0	120,0	149,0	203,0	259,0	312,0	363,0	421,0
Thickness, mm	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0

G4004 IO gasket

G4004 IO Tanged SS316 reinforced graphite gasket with inner & outer eyelets

Gasket dimension

DN (inside), mm	50,0	80,0	100,0	150,0	200,0	250,0	300,0	350,0
DN (outside), mm	87,0	120,0	149,0	203,0	259,0	312,0	363,0	421,0
Thickness, mm	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0



TA 7002S expanded graphite tape

Expanded Graphite Tape with adhesive coating

Tape	Thickness	Width	Length
	0,5 mm	16 mm	15 m