REAL HYDROFIT & CO.®

FLANGES & PIPES

REAL service comes with sincerity and integrity first, money later

REAL HYDROFIT & CO.®

A leading establishment in Flexible hose assemblies, hydraulic, instrumentation & Tube fittings since 1974

Flanges are added to cover range of fittings/connection in one roof.

Firmly believes in adhering to quality standards, and delivery commitments

Workmanship, performance stands true to our name

Reliable Economical Accountable & Lasting

REAL HYDROFIT & CO.®

FOR YOUR NEEDS OF

FLANGES

a) FORGED/PLATE, CARBON STEEL/STAINLESS STEEL, FLANGES.

TYPE : SLIPON, BLIND, SCREWED, WELD NECK, LAP JOINT, TUNG & GROOVE, SPECTACAL AND AS PER YOUR DRAWINGS.
SIZE : $^1/_2$" to 60"
Specifications : IS 226, IS 2006, IS 2062, SS, 304, 316, ASTM A 105/181, ETC. AND IN TABLE BS 10, D. E. F. G. H. J. K. ASA 150, 300, 600, 900, 1500 lbs; Also IN ND : 6, 10, 20, 40

b) STAINLESS STEEL VALVES & FITTINGS.

TYPE : BALL VALVE, GATE / GLOBE/ CHECK Valves,
Specifications : CAST/FORGED/SOLID BAR STOCK CARBON STEEL, STAINLESS STEEL to AISI 304, 316, 321 ETC,
ALL ABOVE FLANGES WITHOUT/WITH IBR IN FORM III C

FITTINGS

a) FORGED/CARBON STEEL, STAINLESS STEEL, FITTINGS FOR HIGH PRESSURE 3000/6000 LBS.

TYPE : UNION, COUPLING, ELBOW, TEE, NIPPLE, REDUCER, FLANGES
SIZE : $^1/_4$" to 6" Dia.
Specifications : ASTM A 105/182 to ANSI B 16, 11.
ENDS : SCREWED NPT/BSPT, SOCKETWED.

b) BUTTWELD FORGED CARBON STEEL/STAINLESS STEEL

TYPE : ELBOW (R = 1.5D), BEND (R = 3D), TEE, REDUCER.
SIZE : $^1/_2$" to 24" Dia.
Specifications : ASTM A 234, A 403 to ANSI B 16.9.
ENDS : BUTTWELD.

c) WATER & GAS LINE GALVANISE/STEEL FITTINGS.

SIZE : $^1/_2$" to 8"
Specifications : IS 1239 Part II, IS 1879, and With/Without ISI marked.
ENDS : SCREWED BSPT/ NPT
ALL ABOVE ITEMS WITHOUT/WITH I.B.R IN FORM III C

PIPES & TUBES

a) SEAMLESS CARBON STEEL PIPES, HYDRAULIC TUBES AND STAINLESS STEEL PIPES.

SIZE : $^1/_4$" NB to 24" NB in sch. 40, 60, 80, 120, 160 & XXS (Carbon steel)
SIZE : $^1/_4$" NB to 12" NB sch. 5, 10, 40. (Stainless steel)
Specifications :
CARBON STEEL : ASTM A 53, A 106, A 179, A 192, API 5L/5LX, BSS, 3059/182, 806, 3601, 3602, DIN 17175, 2448 etc.
STAINLESS STEEL : ASTM a 312 TP 304, 304 L, 316, 316L and 321 etc.

b) ERW LOW CARBON STEEL BOILER TUBES FOR HIGH TEMPERATURE AND PRESSURE.

SIZE : $^1/_2$" Outside dia to 4" Outside dia. 11, 10, 9, 8, 7, 6 swg
MFGRS : ITC (TATA) T.I.
Specifications : BSS 3059/3 & 4. ISS 1914

c) MILD STEEL BLACK AND GALVANISED PIPES. P.E./S. ENDS.

SIZE : $^1/_4$" NB to 6" NB in LIGHT MEDIUM & HEAVY DUTY.
MFGRS : ITC (TATA), BST, GST, ZENITH, AMBICA KALINGA. etc.
Specifications : ISS 1239, 1161, BSS 1387, ASTMA - 120 API 5 L

d) ERW STEEL LINE PIPES & TUBES FOR MECHANICAL, STRUCTURAL AND CONVEYING OIL

SIZE : 8.5/8" O.D. to 24" O. D. x 5mm to 12 mm thick
MFGRS : SAIL (HSL) ROURKELA, AJANTA, KALINGA, ZENITH, GST
Specifications : API 5L/5 LX ISS 3589
ALL ABOVE PIPES CAN BE OFFERED WITHOUT / WITH I. B. R. IN FORM III A

VALVES

a) CAST CARBON/FORGED STEEL VALVES FOR HIGH TEMPERATURE/PRESSURE, OIL LINE, CHEMICALS.

TYPES : GLOBE, GATE, NON RETURN, PARALLEL SLIDE, PRESSURE REDUCING/ RELEASING ETC.
MFGRS : LEADER, BERMACO, BHEL, SPIREX ETC.
Specifications : AS PER ASTM, BSS & DIN AND IN IBR FORM III C
ENDS : BSPT/NPT, FLANGED, SOCKET/ BUTT WELD.

b) BRONZE, GUN METAL, BRASS, CAST IRON, Sluice Valve, Globe Valve, Gate Valve (Rising & Non Rising stem) check valve, Angle Valve.
MFGRS : LEADER, ELEMS, G.G. SANT, NETA, SPIREX, KIRLOSKAR, GEETA, AUDCO, FOUNTAIN, M. B. PARUE,, DIVINE ETC.
Specifications : IS 778, IS 780, Class I & II, NON ISI, IS 2906, IS 5312 ETC.
ENDS : BSPT SCREWED/FLANGED.
ALL ABOVE ITEMS WITHOUT / WITH IBR IN FORM III C

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PIPE FLANGES TO BRITISH STANDARD

Tables - D, E, F, H,

DIMENSION OF PIPE FLANGES AS PER TABLE BS-10

Table D :
For Working Steam Pressure upto 50 lbs per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	27/32"	3.3/4"	2.5/8"	4	1/2"	3/16"
3/4"	1.1/16"	4"	2.7/8"	4	1/2"	3/16"
1"	1.11/32"	4.1/2"	3.1/4"	4	1/2"	3/16"
1.1/4"	1.11/16"	4.3/4"	3.7/16"	4	1/2"	1/4"
1.1/2"	1.29/32"	5.1/4"	3.7/8"	4	1/2"	1/4"
2"	2.3/8"	6"	4.1/2"	4	5/8"	5/16"
2.1/2"	3"	6.1/2"	5"	4	5/8"	5/16"
3"	3.1/2"	7.1/4"	5.3/4"	4	5/8"	3/8"
3.1/2"	4"	8"	6.1/2"	4	5/8"	3/8"
4"	4.1/2"	8.1/2"	7"	4	5/8"	3/8"
5"	5.1/2"	10"	8.1/4"	8	5/8"	1/2"
6"	6.1/2"	11"	9.1/4"	8	5/8"	1/2"
7"	7.1/2"	12"	10.1/4"	8	5/8"	1/2"
8"	8.5/8"	13.1/4"	11.1/2"	8	5/8"	1/2"
9"	9.5/8"	14.1/2"	12.3/4"	8	5/8"	5/8"
10"	10.3/4"	16"	14"	8	3/4"	5/8"
12"	12.3/4"	18"	16"	12	3/4"	5/8"
14"	14"	20.3/4"	18.1/2"	12	7/8"	3/4"
16"	16"	22.3/4"	20.1/2"	12	7/8"	3/4"
18"	18"	25.1/4"	23"	12	7/8"	7/8"
20"	20"	27.3/4"	25.1/4"	16	7/8"	1"
24"	24"	32.1/2"	29.3/4"	16	1"	1.1/18"

Table E :
For Working Steam Pressure 50 lb and upto 100 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	3.3/4"	2.5/8"	4	1/2"	1/4"
3/4"	4"	2.7/8"	4	1/2"	1/4"
1"	4.1/2"	3.1/4"	4	1/2"	9/32"
1.1/4"	4.3/4"	3.7/16"	4	1/2"	5/16"
1.1/2"	5.1/4"	3.7/8"	4	1/2"	11/32"
2"	6"	4.1/2"	4	5/8"	3/8"
2.1/2"	6.1/2"	5"	4	5/8"	13/32"
3"	7.1/4"	5.3/4"	4	5/8"	7/16"
3.1/2"	8"	6.1/2"	8	5/8"	15/32"
4"	8.1/2"	7"	8	5/8"	1/2"
5"	10"	8.1/4"	8	5/8"	9/16"
6"	11"	9.1/4"	8	3/4"	11.16"
7"	12"	10.1/4"	8	3/4"	3/4"
8"	13.1/4"	11.1/2"	8	3/4"	3/4"
9"	14.1/2"	12.3/4"	12	3/4"	13/16"
10"	16"	14"	12	3/4"	7/8"
12"	18"	16"	12	7/8"	1"
14"	20.3/4"	18.1/2"	12	7/8"	1"
16"	22.3/4"	20.1/2"	12	7/8"	1"
18"	25.1/4"	23"	16	7/8"	1.1/8"
20"	27.3/4"	25.1/4"	16	7/8"	1.1/4"
24"	32.1/2"	29.3/4"	16	1"	1.1/2"

Table F :
For Working Pressure above 100 lb and upto 150 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	3.3/4"	2.5/8"	4	1/2"	3/8"
3/4"	4"	2.7/8"	4	1/2"	3/8"
1"	4.3/4"	3.7/16"	4	5/8"	3/8"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	1/2"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	1/2"
2"	6.1/2"	5"	4	5/8"	5/8"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	5/8"
3"	8"	6.1/2"	8	5/8"	5/8"
3.1/2"	8.1/2"	7"	8	5/8"	3/4"
4"	9"	7.1/2"	8	5/8"	3/4"
5"	11"	9.1/4"	8	3/4"	7/8"
6"	12"	10.1/4"	12	3/4"	7/8"
7"	13.1/4"	11.1/2"	12	3/4"	7/8"
8"	14.1/2"	12.3/4"	12	3/4"	1"
9"	16"	14"	12	7/8"	1"
10"	17"	15"	12	7/8"	1"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/8"
14"	21.3/4"	19.1/2"	16	1"	1.1/4"
16"	24"	21.3/4"	20	1"	1.1/4"
18"	26.1/2"	24"	20	1.1/8"	1.3/8"
20"	29"	26.1/2"	24	1.1/8"	1.1/2"
24"	33.1/2"	30.3/4"	24	1.1/4"	1.5/8"

Table H :
For Working Pressure above 150 lb and upto 250 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	1/2"
3/4"	4.1/2"	3.1/4"	4	5/8"	1/2"
1"	4.3/4"	3.7/16"	4	5/8"	9/16"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	11/16"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	11/16"
2"	6.1/2"	5"	4	5/8"	3/4"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	3/4"
3"	8"	6.1/2"	8	5/8"	7/8"
3.1/2"	8.1/2"	7"	8	5/8"	7/8"
4"	9"	7.1/2"	8	5/8"	1"
5"	11"	9.1/4"	8	3/4"	1.1/8"
6"	12"	10.1/4"	12	3/4"	1.1/8"
7"	13.1/4"	11.1/2"	12	3/4"	1.1/4"
8"	14.1/2"	12.3/4"	12	3/4"	1.1/4"
9"	16"	14"	12	7/8"	1.3/8"
10"	17"	15"	12	7/8"	1.3/8"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/2"
14"	21.3/4"	19.1/2"	16	1"	1.5/8"
16"	24"	21.3/4"	20	1"	1.3/4"
18"	26.1/2"	24"	20	1.1/8"	1.7/8"
20"	29"	26.1/2"	24	1.1/8"	2"
24"	33.1/2"	30.3/4"	24	1.1/4"	2.1/4"

PIPE FLANGES TO BRITISH STANDARD

Tables - J. K

DIMENSION OF PIPE FLANGES AS PER TABLE BS-10

Table J :
For working pressure above 250 lb and upto 350 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Flange Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	5/8"
3/4"	4.1/2"	3.1/4"	4	5/8"	5/8"
1"	4.3/4"	3.7/16"	4	5/8"	3/4"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	3/4"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	7/8"
2"	6.1/2"	5"	4	3/4"	1"
2.1/2"	7.1/4"	5.3/4"	8	3/4"	1"
3"	8"	6.1/2"	8	3/4"	1.1/4"
3.1/2"	8.1/2"	7"	8	3/4"	1.1/4"
4"	9"	7.1/2"	8	3/4"	1.3/8"
5"	11"	9.1/4"	8	7/8"	1.1/2"
6"	12"	10.1/4"	12	7/8"	1.1/2"
7"	13.1/4"	11.1/2"	12	7/8"	1.5/8"
8"	14.1/2"	12.3/4"	12	7/8"	1.5/8"
9"	16"	14"	12	1"	1.3/4"
10"	17"	15"	12	1"	1.7/8"
12"	19.1/4"	17.1/4"	16	1"	2"
14"	21.3/4"	19.1/2"	16	1.1/8"	2.1/8"
16"	24"	21.3/4"	20	1.1/8"	2.1/4"
18"	26.1/2"	24"	20	1.1/4"	2.3/8"
20"	29"	26.1/2"	24	1.1/4"	2.1/2"
24"	33.1/2"	30.3/4"	24	1.3/8"	2.3/4"

Table K :
For working pressure above 350 lb and upto 450 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	3/4"
3/4"	4.1/2"	3.1/4"	4	5/8"	3/4"
1"	5"	3.3/4"	4	5/8"	7/8"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	7/8"
1.1/2"	6"	4.1/2"	4	3/4"	1"
2"	6.1/2"	5"	8	5/8"	1"
2.1/2"	7.1/4"	5.3/4"	8	3/4"	1.1/8"
3"	8"	6.1/2"	8	3/4"	1.1/4"
3.1/2"	9"	7.1/4"	8	7/8"	1.1/4"
4"	9.1/2"	7.3/4"	8	7/8"	1.3/8"
5"	11"	9.1/4"	12	7/8"	1.5/8"
6"	12"	10.1/4"	12	7/8"	1.5/8"
7"	13.1/2"	11.1/2"	12	1"	1.3/4"
8"	14.1/2"	12.1/2"	12	1"	1.7/8"
9"	16"	14"	16	1"	2"
10"	17"	15"	16	1"	2"
12"	19.1/4"	17"	16	1.1/8"	2.1/4"
14"	22.1/2"	20"	16	1.1/4"	2.3/8"
16"	24.3/4"	22.1/4"	20	1.1/4"	2.5/8"
18"	28.1/4"	25.3/4"	20	1.3/8"	3"
20"	31"	284"	20	1.1/2"	3.1/4"

For 1/2" and 5/8" Bolts the diameters of the holes 1/16" in Larger than the bolts.
For 3/4" bolts and sizes above, the diameter shall be 1/8" in Larger than the bolts.

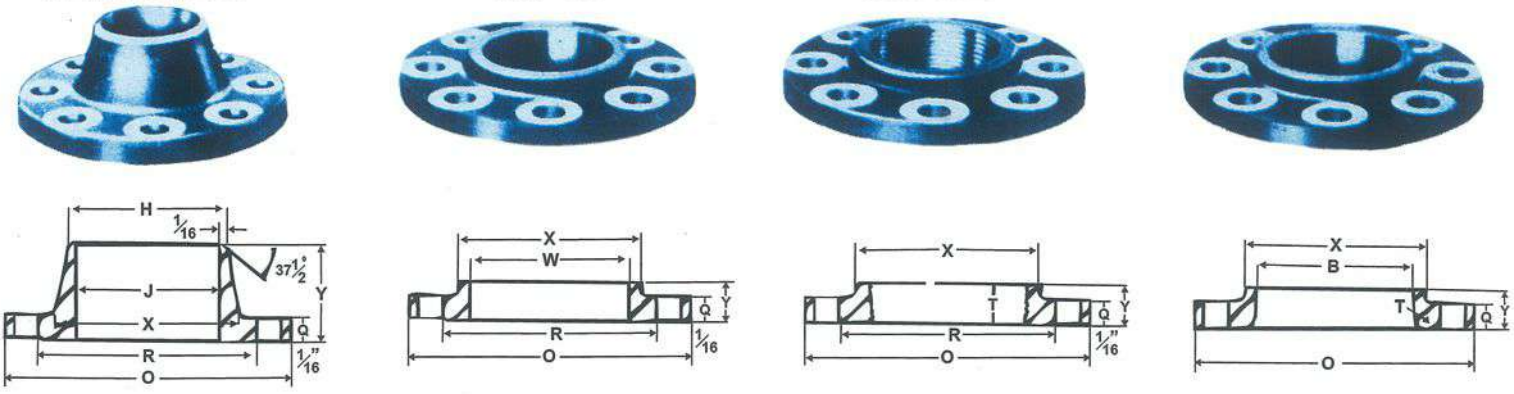
PRESSURE-TEMPERATURE RATINGS FOR CARBON STEEL FLANGES

TEMPERATURE

Table	°F0-450 °C -17.8 to 232.2	500 260.0	550 287.8	600 315.6	650 343.3	700 371.1	750 399	800 427	825 441	850 454	875 468	900 482	Max. Hydraulic Test Pressure
D	100	95	85	80	70	65	55	50	–	–	–	–	115
E	200	185	170	155	140	130	115	100	–	–	–	–	300
F	300	280	255	235	215	195	170	150	–	–	–	–	450
H	500	465	430	395	355	320	285	250	215	180	150	115	750
J	700	650	600	550	500	450	400	350	300	255	210	160	1050
K	900	835	770	705	645	580	515	450	390	325	265	205	1350
R	1200	1115	1030	945	855	770	685	600	520	435	355	275	1800
S	1800	1670	1545	1415	1285	1155	1030	900	780	655	535	415	2700
T	2800	2600	2400	2200	2000	1800	1600	1400	1210	1025	835	645	4200

PIPE FLANGES TO AMERICAN STANDARD

WELDING NECK[1] | SLIP-ON[1] | THREADED[1] | LAP JOINT[1]



150 LB. FLANGES

Nominal Pipe Size	Outside dia. of flange	Minimum thickness of flange	Overall Length			Bolt Circle	No. and Size of Holes		O. D. of raised face
			Welding neck	Slip-on & socket welding	Lap Joint				
Inch.	O	Q	Y			Diam.	No.	dia.	R
1/2	89	11.2	47.6	15.9	15.9	60.5	4	15	35
3/4	98	12.7	52.4	15.9	15.9	70.0	4	15	43
1	108	14.3	55.6	17.5	17.5	79.5	4	15	51
1-1/4	117	15.9	57.2	20.6	20.6	89.0	4	15	64
1-1/2	127	17.5	61.9	22.2	22.2	98.5	4	15	73
2	152	19.1	63.5	25.4	25.4	120.5	4	19	92
2-1/2	178	22.3	69.8	28.6	28.6	139.5	4	19	105
3	190	23.9	69.8	30.2	30.2	152.5	4	19	127
3-1/2	216	23.9	71.4	31.8	31.8	178.0	8	19	140
4	229	23.9	76.2	33.3	33.3	190.5	8	19	157
5	254	23.9	88.9	36.5	36.5	216.0	8	22	186
6	279	25.4	88.9	39.7	39.7	241.5	8	22	216
8	343	28.6	101.6	44.4	44.4	298.5	8	22	270
10	406	30.2	101.6	49.2	49.2	362.0	12	25	324
12	483	31.8	114.3	55.6	55.6	432.0	12	25	381
14	533	35.0	127.0	57.2	79.4	476.0	12	29	413
16	597	36.6	127.0	63.5	87.3	539.5	16	29	470
18	635	39.7	139.7	68.3	96.8	578.0	16	32	533
20	698	42.9	144.5	73.0	103.2	635.0	20	32	584
24	813	47.7	152.4	82.6	111.1	749.5	20	35	692

300 LB. FLANGES

Nominal Pipe Size	Outside dia. of flange	Minimum thickness of flange	Overall length			Bolt Circle	No. and Size of Holes		O. D. of raised face
			Welding neck	Slip-on & socket welding	Lap Joint				
Inch.	O	Q	Y			Diam.	No.	dia.	R
1/2	95	14.3	52.4	22.2	22.2	66.5	4	15	35
3/4	117	15.9	57.2	25.4	25.4	82.5	4	19	43
1	124	17.5	61.9	27.0	27.0	89.0	4	19	51
1-1/4	133	19.1	65.1	27.0	27.0	98.5	4	19	64
1-1/2	156	20.7	68.3	30.2	30.2	114.5	4	22	73
2	165	22.3	69.8	33.3	33.3	127.0	8	19	92
2-1/2	190	25.4	76.2	38.1	38.1	149.0	8	22	105
3	210	28.6	79.4	42.9	42.9	168.0	8	22	127
3-1/2	229	30.2	81.0	44.5	44.5	184.0	8	22	140
4	254	31.8	85.7	47.6	47.6	200.0	8	22	157
5	279	35.0	98.4	50.8	50.8	235.0	8	22	186
6	318	36.6	98.4	52.4	52.4	270.0	12	22	216
8	381	41.3	111.1	61.9	61.9	330.0	12	25	270
10	444	47.7	117.5	66.7	95.3	387.5	16	29	324
12	521	50.8	130.2	73.0	101.6	451.0	16	32	381
14	584	54.0	142.9	76.2	111.1	514.5	20	32	413
16	648	57.2	146.0	82.6	120.7	571.5	20	35	470
18	711	60.4	158.8	88.9	130.2	628.5	24	35	533
20	775	63.5	161.9	95.2	139.7	686.0	24	35	584
24	914	69.9	168.3	106.4	152.4	843.0	24	41	692

600 LB. FLANGES

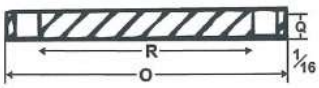
Nominal Pipe Size	Outside dia. of flange	Minimum thickness of flange	Overall length			Bolt Circle	No. and Size of Holes		O. D. of raised face
			Welding neck	Slip-on & socket welding	Lap Joint				
Inch.	O	Q	Y				Dia.	m	No. dia.
1/2	95	14.3	52.4	22.2	22.2	66.5	4	15	35
3/4	117	15.9	57.2	25.4	25.4	82.5	4	19	43
1	124	17.5	61.9	27.0	27.0	89.0	4	19	51
1-1/4	133	20.7	66.7	28.6	28.6	98.5	4	19	64
1-1/2	156	22.3	69.8	31.8	31.8	114.5	4	22	73
2	165	25.4	73.0	36.5	36.5	127.0	8	19	92
2-1/2	190	28.6	79.4	41.3	41.3	149.0	8	22	105
3	210	31.8	82.6	46.0	46.0	168.0	8	22	127
3-1/2	229	35.0	85.7	49.2	49.2	184.0	8	25	140
4	273	38.1	101.6	54.0	54.0	216.0	8	25	157
5	330	44.5	114.3	60.3	60.3	266.5	8	29	186
6	356	47.7	117.5	66.7	66.7	292.0	12	29	216
8	419	55.6	133.4	76.2	76.2	349.0	12	32	270
10	508	63.5	152.4	85.7	115.1	432.0	16	85	324
12	559	66.7	155.6	92.1	111.1	489.0	20	35	381
14	603	69.9	165.1	93.7	117.5	527.0	20	38	413
16	686	76.2	177.8	106.4	127.0	603.0	20	41	470
18	743	82.6	184.2	117.6	139.7	654.0	20	45	533
20	813	88.9	190.5	127.0	165.1	724.0	24	45	584
24	940	101.6	203.2	139.7	184.2	838.0	24	51	692

900 LB. FLANGES

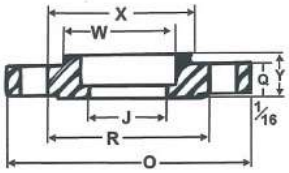
Nominal Pipe Size	Outside dia. of flange	Minimum thickness of flange	Overall length			Bolt Circle	No. and Size of Holes		O. D. of raised face
			Welding neck	Slip-on & socket welding	Lap Joint				
Inch.	O	Q	Y			Diam	No.	dia.	R
1/2	121	22.3	60.3	31.8	31.8	82.5	4	22	35
3/4	130	25.4	69.8	34.9	34.9	89.0	4	22	43
1	149	28.6	78.0	41.3	41.3	101.5	4	25	51
1-1/4	159	28.6	78.0	41.3	41.3	111.0	4	25	64
1-1/2	178	31.8	82.6	44.4	44.4	124.0	4	29	78
2	216	38.1	101.6	57.2	57.2	165.0	8	25	92
2-1/2	244	41.3	104.8	63.5	63.5	190.5	8	29	105
3	241	38.1	101.6	54.0	54.0	190.5	8	25	127
3-1/2									
4	292	44.5	114.3	69.8	69.8	235.0	8	32	157
5	349	50.8	127.0	79.4	79.4	279.5	8	35	186
6	381	55.6	189.7	85.7	85.7	317.5	12	32	216
8	470	68.5	161.9	101.8	114.3	393.5	12	38	270
10	546	69.9	184.2	108.0	127.0	470.0	16	38	324
12	610	79.4	200.0	117.5	142.9	533.5	20	38	381
14	641	85.8	212.7	130.2	165.6	559.0	20	41	413
16	705	88.9	215.8	133.4	185.1	616.0	20	45	470
18	787	101.6	228.6	152.4	190.5	686.0	20	51	588
20	857	108.0	247.6	158.8	209.6	749.5	20	54	584
24	1041	139.7	292.1	203.2	266.7	901.5	20	67	692

1500, 2500 & WELDING NECK FLANGE BORES 13

BLIND[1]



SOCKET TYPE[3]



REDUCING[4]

Internal Weld
Bevel Optional

ASA B 16.5 ASTM A 181 - Grade I

1500 LB. FLANGES

Nominal Pipe Size	Outside diam. of flange	Minimum thickness of flange	Overall length			Bolt Circle	No. and Size of Holes	O. D. of raised face
			Welding neck	Slip-on & socket welding	Lapped Joint			
Inch.	O	Q	Y			Dia.	No. dia.	R
1/2	121	22.3	60.3	31.8	31.8	82.5	4 22	35
3/4	130	25.4	69.8	34.9	34.9	89.0	4 22	43
1	149	28.6	73.0	41.3	41.3	101.5	4 25	51
1-1/4	159	28.6	73.0	41.3	41.3	111.0	4 25	64
1-1/2	178	31.8	82.6	44.4	44.4	124.0	4 29	73
2	216	38.1	101.6	57.2	57.2	165.0	8 25	92
2-1/2	244	41.3	104.8	63.5	63.5	190.5	8 29	105
3	267	47.7	117.5	73.0	73.0	203.0	8 32	127
3-1/2								
4	311	54.0	123.8	90.5	90.5	241.5	8 35	157
5	375	73.1	155.5	104.8	104.8	292.0	8 41	186
6	394	82.6	171.4	119.1	119.1	317.5	12 38	216
8	483	92.1	212.7	142.9	142.9	393.5	12 45	270
10	584	108.0	254.0	158.8	177.8	482.5	12 51	324
12	673	123.9	282.9	181.0	219.1	571.5	16 54	381
14	749	133.4	298.4	---	241.3	635.0	16 60	413
16	826	146.1	311.2	---	260.4	705.0	16 51	470
18	914	162.0	327.0	---	276.2	474.5	16 73	538
20	984	177.8	355.4	---	292.1	832.0	16 80	584
24	1168	203.2	406.4	---	330.2	990.5	16 92	692

2500 LB. FLANGES

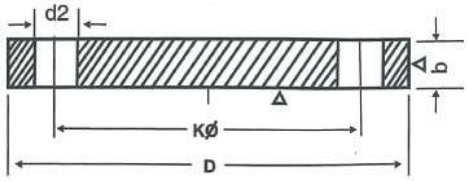
Nominal Pipe Size	Outside daim. of flange	Minimum Welding of flange	Overall length			Size of Circle	No. and rasied of Holes	O. D. of face
			& socket neck	Slip-on Lapped welding	Bolt			
Inch.	O	Q	Y			Dia.	No. dia.	R
1/2	133.4	30.2	73.0	39.7	39.7	88.9	4 22	34.9
3/4	139.7	31.8	79.4	42.9	42.9	95.3	4 22	42.9
1	158.8	34.9	88.9	47.6	47.6	108.0	4 25	50.8
1-1/4	184.2	38.1	95.3	52.4	52.4	130.2	4 29	63.5
1-1/2	203.2	44.5	111.1	60.3	60.3	146.0	4 32	73.0
2	235.0	50.8	127.0	69.9	69.9	171.5	8 29	92.1
2-1/2	266.7	57.2	142.9	79.4	79.4	196.9	8 32	104.8
3	304.8	66.7	168.3	92.1	92.1	228.6	8 35	127.0
3-1/2								
4	355.6	76.2	190.5	108.0	108.0	273.0	8 41	157.2
5	419.1	92.1	228.6	130.2	130.2	323.9	8 48	185.7
6	482.6	108.0	273.1	152.4	152.4	368.3	8 54	215.9
8	552.5	127.0	317.5	177.8	177.8	438.2	12 54	269.9
10	673.1	165.1	419.1	228.6	228.6	539.8	12 67	323.9
12	762.0	184.2	463.6	254.0	254.0	619.1	12 73	381.03
14	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---

WELDING NECK FLANGE BORES 13

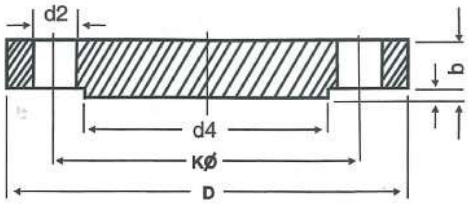
Nom. Pipe Size	Outside Diam.	Light Wall 6"	Sched. 20	Sched. 30	Std. Wall	Sched. 40	Sched. 60	Extra Strong	Sched. 80	Sched. 100	Sched. 120	Sched. 140	Sched. 160	Double Extra Strong
1/2	0.840	.674	---	---	0.622	0.622	---	0.546	0.546	---	---	---	0.464	0.252
3/4	1.050	.884	---	---	0.824	0.824	---	0.742	0.742	---	---	---	0.612	0.434
1	1.315	1.097	---	---	1.049	1.049	---	0.957	0.957	---	---	---	0.815	0.599
1-1/4	1.660	1.442	---	---	1.380	1.380	---	1.278	1.278	---	---	---	1.160	0.896
1-1/2	1.900	1.682	---	---	1.610	1.610	---	1.500	1.500	---	---	---	1.338	1.100
2	2.375	2.157	---	---	2.067	2.067	---	1.939	1.939	---	---	---	1.687	1.503
2-1/2	2.875	2.635	---	---	2.469	2.469	---	2.323	2.323	---	---	---	2.125	1.771
3	3.500	3.260	---	---	3.068	3.068	---	2.900	2.900	---	---	---	2.624	2.300
3-1/2	4.000	3.760	---	---	3.548	3.548	---	3.364	3.364	---	---	---	---	2.728
4	4.500	4.260	---	---	4.026	4.026	---	3.826	3.826	---	3.624	---	3.438	3.152
5	5.563	5.295	---	---	5.047	5.047	---	4.813	4.813	---	4.563	---	4.313	4.063
6	6.625	6.357	---	---	6.065	6.065	---	5.761	5.761	---	5.501	---	5.187	4.897
8	8.625	8.329	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
10	10.750	10.420	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	0.062	8.750	8.500	8.750
12	12.750	12.390	12.250	12.090	12.000	11.938	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
14	14.000	13.500	13.376	13.250	13.250	13.124	12.812	13.000	12.500	12.124	11.814	11.500	11.188	---
16	16.000	15.500	15.376	15.250	15.250	15.000	14.688	15.000	14.312	13.938	13.564	13.124	12.812	---
18	18.000	17.500	17.376	17.124	17.250	16.876	16.500	17.000	16.124	15.688	15.250	14.876	14.438	---
20	20.000	19.500	19.250	19.000	19.250	18.812	18.376	19.000	17.938	17.438	17.000	16.500	16.062	---
24	24.000	23.500	23.250	22.876	23.250	22.624	22.062	23.000	21.562	20.938	20.376	19.876	19.312	---
30	30.000	29.376	29.000	28.750	29.250	---	---	29.000	---	---	---	---	---	---
36	36.000	35.376	35.000	34.750	35.250	34.500	---	35.000	---	---	---	---	---	---
42	42.000				41.250	---	---	41.000	---	---	---	---	---	---

DIN 2527

Type B

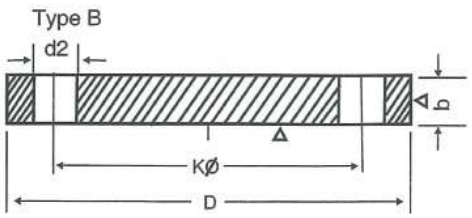


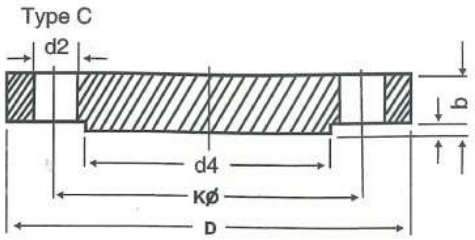
Type C



DIN 2527	NW	D	Flange b	k	Raised Face d_4	f	Number	Bolts		Dia of Bolt Hole d_2	Weight of One Flange (7.85 kg/dm3) Type -B kg	Type-C kg
ND - 6	10	75	12	50	35	2	4	M 10	–	11.5	0.38	0.33
	15	80	12	55	40	2	4	M 10	–	11.5	0.44	0.38
	20	90	14	65	50	2	4	M 10	–	11.5	0.65	0.59
	25	100	14	75	60	2	4	M 10	–	11.5	0.82	0.74
	32	120	14	90	70	2	4	M 12	(1/2")	14.	1.17	1.07
	40	130	14	100	80	3	4	M 12	(1/2")	14	1.39	1.21
	50	140	14	110	90	3	4	M 12	(1/2")	14	1.62	1.43
	65	160	14	130	110	3	4	M 12	(1/2")	14	2.44	2.21
	80	190	16	150	128	3	4	M 16	(3/8")	18	3.43	3.09
	100	210	16	170	148	3	4	M 16	(5/8")	18	4.76	4.37
	125	240	18	200	178	3	8	M 16	(5/8")	18	6.11	5.68
	150	265	18	225	202	3	8	M 16	(5/8")	18	7.51	7.02
	(175)	295	20	255	232	3	8	M 16	(5/8")	18	10.4	9.85
	200	320	20	280	258	3	8	M 16	(5/8")	18	12.3	11.7
	250	375	22	335	312	3	12	M 16	(5/8")	18	18.3	17.6
	300	440	22	395	365	4	12	M 20	(3/4")	23	25.3	24.0
	350	490	22	445	415	4	12	M 20	(3/4")	23	31.6	30.1
	400	540	22	495	465	4	16	M 20	(3/4")	23	38.4	36.4
	500	645	24	600	570	4	20	M 20	(3/4")	23	60.4	58.1
ND - 10 Note from 10 mm to 175 mm see ND-16	200	340	24	295	268	3	8	M 20	(3/4")	23	16.5	15.6
	250	395	26	350	320	3	12	M 20	(3/4")	23	24.0	23.1
	300	445	26	400	370	4	12	M 20	(3/4")	23	30.9	29.4
	350	505	26	460	430	4	16	M 20	(3/4")	23	40.6	38.0
	400	565	26	515	482	4	16	M 24	(7/8")	27	49.4	47.5
	500	670	28	620	585	4	20	M 24	(7/8")	27	75.0	72.7
ND - 16 Note : For DIN 2527 ND-10-4 Holes	10	90	14	60	40	2	4	M 12	(1/2")	14	0.63	0.56
	15	95	14	65	45	2	4	M 12	(1/2")	14	0.72	0.64
	20	105	16	75	58	2	4	M 12	(1/2")	14	1.01	0.93
	25	115	16	85	68	2	4	M 12	(1/2")	14	1.23	1.13
	32	140	16	100	78	2	4	M 16	(5/8")	18	1.80	1.66
	40	150	16	110	88	3	4	M 16	(5/8")	18	2.09	1.85
	50	165	18	125	102	3	4	M 16	(5/8")	18	2.88	2.59
	65	185	18	145	122	3	4	M 16	(5/8")	18	3.66	3.33
	80	200	20	160	138	3	4*/8	M 16	(5/8")	18	4.77	4.34
	100	220	20	180	158	3	8	M 16	(5/8")	18	5.65	5.26
	125	250	22	210	188	3	8	M 16	(5/8")	18	8.42	7.67
	150	285	22	240	212	3	8	M 20	(3/4")	23	10.4	9.85
	(175)	315	24	270	242	3	8	M 20	(3/4")	23	14.0	13.5
	200	340	24	295	268	3	12	M 20	(3/4")	23	16.1	15.6
	250	405	26	355	320	3	12	M 24	(7/8")	27	24.9	23.9
	300	460	28	410	378	4	12	M 24	(7/8")	27	35.1	33.6
	350	520	30	470	438	4	16	M 24	(7/8")	27	47.8	46.2
	400	580	32	525	490	4	16	M 27	(1")	30	63.5	61.5
	500	715	34	650	610	4	20	M 30	(1 1/8")	33	102	99.5

DIN 2527 & DIN 2512





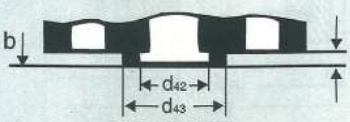
DIN 2527

	NW	D	Flange b	k	Raised Face d_4	1	Number	Bolts	d_2	Dia Bolt Hole Kg	Weight of One Flange (7.85 kg/dm³) TYPE -B kg	TYPE-C kg
ND - 25 Note : From 10 mm to 150 mm see ND-40	(175)	330	28	280	248	3	12	M 24	(7/8")	27	17.3	16.5
	200	360	30	310	278	3	12	M 24	(7/8")	27	22.3	21.5
	250	425	32	370	335	3	12	M 27	(1")	30	33.5	32.5
	300	485	34	430	395	4	16	M 27	(1")	30	46.3	44.7
	350	555	38	490	450	4	16	M 30	(1 1/8")	33	68.0	65.9
	400	620	40	550	505	4	16	M 33	(1 1/4")	36	89.7	87.0
	500	730	44	660	615	4	20	M 33	(1 1/4")	36	138	134
ND - 40	10	90	16	60	40	2	4	M 12	(1/2")	14	0.72	0.62
	15	95	16	65	45	2	4	M 12	(1/2")	14	0.81	0.74
	20	105	18	75	58	2	4	M 12	(1/2")	14	1.24	1.05
	25	115	18	85	68	2	4	M 12	(1/2")	14	1.38	1.31
	32	140	18	100	78	2	4	M 16	(5/8")	18	2.03	1.82
	40	150	18	110	88	3	4	M 16	(5/8")	18	2.35	2.11
	50	165	20	125	102	3	4	M 16	(5/8")	18	3.20	2.91
	65	185	22	145	122	3	8	M 16	(5/8")	18	4.29	4.13
	80	200	24	160	138	3	8	M 16	(5/8")	18	5.88	5.21
	100	235	24	190	162	3	8	M 20	(3/4")	23	7.54	7.08
	125	270	26	220	188	3	8	M 24	(7/8")	27	10.8	10.4
	150	300	28	250	218	3	8	M 24	(7/8")	27	14.5	13.9
	175	350	32	295	260	3	12	M 27	(1")	30	22.1	21.3
	200	375	34	320	285	3	12	M 27	(1")	30	27.2	26.2
	250	450	38	385	345	3	12	M 30	(1 1/8")	33	43.8	43.1
	300	515	42	450	410	4	16	M 30	(1 1/8")	33	63.3	62.2
	350	580	46	510	465	4	16	M 33	(1 1/4")	36	89.5	87.2
	400	660	50	585	535	4	16	M 36	(1 3/8")	39	127	124
	500	755	52	670	615	4	20	M 39	(1 1/2")	42	172	168

DIN 2512

Nominal Pipe Size	Tongue d_{42} +0.5	Groove d_{43} -0.5	f_1 +0.5	d_{41} -0.5	d_{44} +0.5	f_2 -0.5	Nominal Pipe Size	Tongue d_{42} +0.5	Groove d_{43} -0.5	f_1 +0.5	d_{41} -0.5	d_{44} +0.5	f_2 -0.5
10	24	34	4	23	35	3	175	213	233	4.5	212	234	2.5
15	29	39	4	28	40	3	200	239	259	4.5	238	260	3.5
20	36	50	4	35	51	3	250	292	312	4.5	291	313	3.5
25	43	57	4	42	58	3	300	343	363	4.5	342	364	3.5
32	51	65	4	50	66	3	350	395	421	5	394	422	4
40	61	75	4	60	76	3	400	447	473	5	446	474	4
50	73	87	4	72	88	3	500	549	575	5	548	576	4
65	95	109	4	94	110	3	600	649	675	5	648	676	4
80	106	120	4	105	121	3	700	751	777	5	750	778	4
100	129	149	4.5	128	150	3.5	800	856	882	5	855	883	4
125	155	175	4.5	154	176	3.5	900	961	987	5	960	988	4
150	183	203	4.5	182	204	3.5	1000	1061	1091	6	1060	1092	5

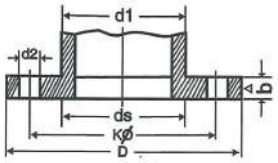
FLANGE FACINGS TONGUE AND GROOVE, NOMINAL PRESSURE 10 TO 100 ACCORDING TO DIN 2512

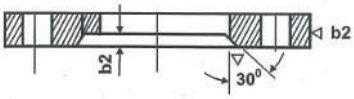


TONGUE

GROOVE

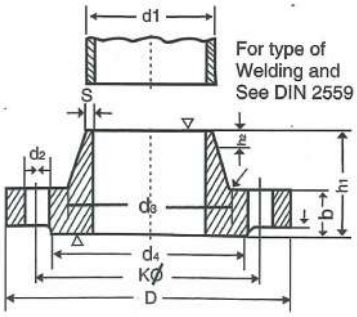
DIN 2576
Flanges, Slip-on type for British or Welding nominal pressure 10





Pipe		Flange				Bolts				Weight of one flange 7.85 kg/ dm³) kg
NW	d1	ds	D	b1	k	Number	Thread		d2	
10	14 17.2*)	14.5 17.7	90	14	60	4	M 12	(1/2")	14	0.613 0.605
15	20 21.3*)	20.5 21.8	95	14	65	4	M 12	(1/2")	14	0.675 0.669
20	25 26.9*)	25.5 27.4)	105	16	75	4	M 12	(1/2")	14	0.947 0.936
25	30 33.7*)	30.5 34.2	115	16	85	4	M 12	(1/2")	14	1.14 1.11
32	38 42.4*)	38.5 42.9	140	16	100	4	M 16	(5/8")	18	1.66 1.62
40	44.5 48.3*)	45 48.8	150	16	110	4	M 16	(5/8")	18	1.89 1.86
50	57 60.3*)	57.5 60.8	165	18	125	4	M 16	(5/8")	18	2.51 2.47
65	76.1*)	76.6	185	18	145	4	M 16	(5/8")	18	3.00
80	88.9*)	89.4	200	20	160	4	M 16	(5/8")	18	379
100	108 114.3*)	108.5 114.8	220	20	180	8	M 16	(5/8")	18	4.20 4.03
125	133 139.7*)	133.5 140.2	250	22	210	8	M 16	(5/8")	18	5.71 546
150	159 168.3*)	159.5 168.8	285	22	240	8	M 20	(3/4")	23	6.72 6.57
175	191 193.7*)	192 194.7	315	24	270	8	M 20	(3/4")	23	8.60 8.45
200	216 219.1*)	217 220.1	340	24	295	8	M 20	(3/4")	23	9.50 9.31
250	267 273*)	268 274	395	26	350	12	M 20	(3/4")	23	12.5 11.9
400	406.4*) 419	407.4 420	565	32	515	16	M 24	(7/8")	27	27.9 25.9
500	508*) 521	509 522	670	38	620	20	M 24	(7/8")	27	37.9 41.1

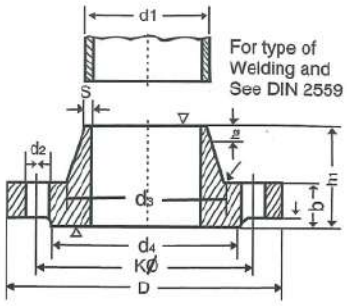
DIN 2632
Welding Neck Flanges for Nominal pressure 10



Pipe		Flange				Neck				Raised face		Bolts			d2	Weight of one flange 7.85 kg/dm³) kg
NW	d_1	D	b	k	h_1	d_3	s	f	h_2	d_4	f	Num-ber	Thread			
200	216 219.1	340	24	295	62	232 235	5.9	10	16	268	3	8				11.3
250	267 273	395	26	350	68	285 295	6.3	12	16	320	3					14.7
300	318 323.9	445	26	400	68	335 344	7.1	12	16	370	4	12	M 20	(3/4")	23	17.6
350	355.6 368	505	26	460	68	385	7.1	12	16	430	4					21.4
400	406.4 419	565	26	515	72	440	7.1	12	16	482	4	16				26.1
500	508 521	670	28	620	75	542	7.1	12	16	585	4		M 24	(3/8")	27	34.7
600	609.6 622	780	28	725	80	642	7.1	12	18	685	5	20	M 27	(1")	30	42.2

Note : For nominal sizes 10 up to 175 see DIN 2633

DIN 2633

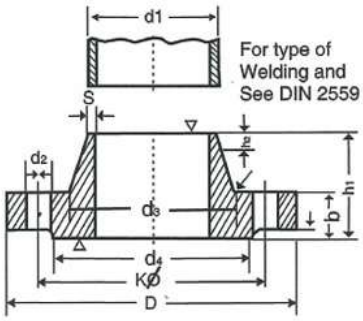


DIN 2633
Welding Neck Flanges for Nominal pressure 40

Pipe		Flange				Neck				Raised face		Bolts				Weight of one flange 7.85 kg/dm³) kg
NW	d_1	D	b	k	h_1	d_3	s	r	h_2	d_4	f	Number	Thread		d_2	
10	14	90	14	60	35	25	1.8	4	6	40	2		M12	(1/2")	14	0.580
	17.2					28										
15	20	95	14	65	35	30	2	4	6	45	2	4				0.648
	21.3					32										
20	25	105	16	75	38	38	2.3	4	6	58	2					0.952
	26.9					40										
25	30	115	16	85	38	42	2.6	4	6	68	2					1.14
	33.7					45										
32	38	140	16	100	40	52	2.6	6	6	78	2					1.69
	42.4					56										
40	44.5	150	16	110	42	60	2.6	6	7	88	3					1.86
	48.3					64										
50	57	165	18	125	45	72	2.9	6	8	102	3					2.53
	60.3					75										
65	76.1	185	18	145	45	90	2.9	6	10	122	3					3.06
80	88.9	200	20	160	50	105	3.2	8	10	138	3	4*/8	M16	(5/8")	18	3.70
100	108	220	20	180	52	125	3.6	8	12	158	3					4.62
	114.3					131										
125	133	250	22	210	55	150	4	8	12	188	3					6.30
	139.7					156						8				
150	159	285	22	240	55	175	4.5	10	12	212	3		M20	(3/4")	23	7.75
	168.3					184										
175	191	315	24	270	60	208	5.4	10	12	242	3	8				10.0
	193.7					210										
200	216	340	24	295	62	232	5.9	10	16	268	3		M20	(3/4")	23	11.0
	219.1					235										
250	267	405	26	355	70	285	6.3	12	16	320	3	12				15.6
	273					292										
300	318	460	28	410	78	344	7.1	12	16	378	4		M24	(7/8")	27	22.0
	323.9					388										
350	355.6	520	30	470	82	390	8	12	16	438	4	16				28.7
	368															
400	406.4	580	32	525	85	445	8	12	16	490	4		M27	(1")	30	36.3
	419															
500	508	715	34	650	90	548	8	12	16	610	4	20	M30	(1 1/8")	33	59.3
	521															
600	609.6	840	36	770	95	652	8.8	12	18	725	5		M33	(1 1/4")	36	73.4
	622															
700	711.2	910	36	840	100	755	8.8	12	18	795	5	24				75.0
	720															
800	812.8	1025	38	950	105	855	10	12	20	900	5		M36	(1 3/8")	39	99.0
	820															
900	914.4	1125	40	1050	110	955	10	12	20	1000	5	28				119
	920															
1000	1016	1255	42	1170	120	1058	10	16	22	1115	5		M39	(1 1/2")	42	159
	1020															

4 bolts for ND 10 (nominal pressure) (the order then reads :
Welding neck flange 80/88.9 ND 10 DIN 2633)

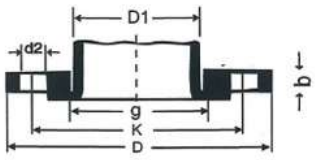
DIN 2634
Welding Neck Flanges Nominal pressure 25



Pipe		Flange				Neck				Raised face		Bolts				Weight of one flange 7.85 kg/dm³) kg
NW	d_1	D	b	k	h_1	d_3	s	r	h_2	d_4	f	Number	Thread		d_2	
175	(191)	330	28	280	75	215	5.6	10	15	248	3					13.4
	193.7					218										
200	216	360	30	310	80	240	6.3	10	16	278	3	12	M 24	(7/8")	27	17.0
	219.1					244										
250	267	425	32	370	88	292	7.1	12	18	335	3					24.4
	273					298										
300	318	485	34	430	92	345	8	12	18	395	4		M 27	(1")	30	31.2
	323.9					352										
350	355.6	555	38	490	100	398	8	12	20	450	4	16	M 30	(1 1/8")	33	
	368															45.0
400	406.4	620	40	550	110	452	8.8	12	20	505	4					
	419															58.7
500	508	730	44	660	125	558	10	12	20	615	4		M 33	(1 1/4")	36	
	521															86.1
600	609.6	845	46	770	125	660	11	12	20	720	5	20	M 36	(1 3/8")	39	
	622															101

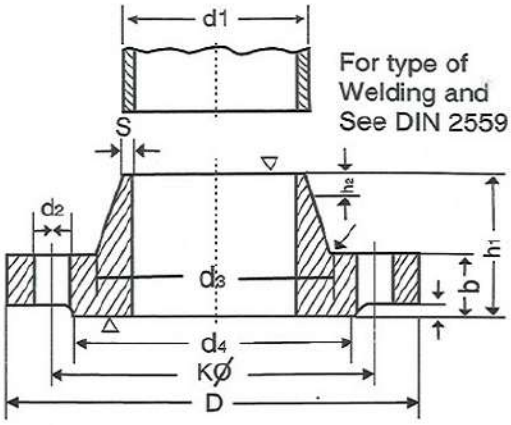
For Nominal sizes 10 up to 150 see DIN 2635

DIN 2642,
Loose Flange for Flange Collar PN 10
(DIN Connections)



Nom Pipe size	Flange D mm	d5 mm	b mm	r mm	k mm	Drilling Number	d2 mm	Weight kg	Collar g mm
10	90	16	16	5	60	4	15	0.23	45
15	95	23	16	5	65	4	15	0.26	50
20	105	28	16	5	75	4	15	0.30	60
25	115	33	16	5	85	4	15	0.37	70
32	140	42	16	5	100	4	18	0.54	82
40	150	50	16	5	110	4	18	0.5	092
50	165	62	18	5	125	4	18	0.80	107
65	185	81	18	5	145	4	18	0.90	127
80	200	94	20	5	160	4	18	1.28	142
100	220	113	20	5	180	8	18	1.37	162
125	250	138	22	6	210	8	18	1.78	192
150	285	164	22	6	240	8	22	2.27	218
175	315	195	24	6	270	8	22	2.90	248
200	340	222	24	7	295	8	22	3.16	273
250	395	273	26	7	350	12	22	4.22	328
300	445	324	26	7	400	12	22	4.80	378
350	505	374	26	8	460	16	22	5.85	438
400	565	426	32	8	515	16	25	8.45	490
450	615	475	32	8	565	20	25	9.45	540
500	670	530	34	8	620	20	25	11.35	595
600	780	630	36	10	725	20	30	15.30	695
700	895	730	40	10	840	24	30	21.40	810
800	1015	832	44	10	950	24	34	30.50	916

DIN 2635



DIN 2635
Welding Neck Flanges Nominal pressure 40

Pipe		Flange				Neck				Raised face		Bolts				Weight of one flange 7.85 kg/dm³) kg
NW	d_1	D	b	k	h_1	d_3	s	r	h_2	d_4	f	Number	Thread		d_2	
10	14	90	16	60	35	25	1.8	4	6	40	2	4	M 12	(1/2")	14	0.661
	17.2					28										
15	20	95	16	65	38	30	2	4	6	45	2					0.746
	21.3					32										
20	25	105	18	75	40	38	2.3	4	6	58	2					106
	26.9					40										
25	30	115	18	85	40	42	2.6	4	6	68	2					1.29
	33.7					46										
32	38	140	18	100	42	52	2.6	6	6	78	2		M 16	(5/8")	18	1.88
	42.4					56										
40	44.5	150	18	110	45	60	2.6	6	7	88	3					2.33
	48.3					64										
50	57	165	20	125	48	72	2.9	6	8	102	3					2.82
	60.3					75										
65	76.1	185	22	145	52	90	2.9	6	10	122	3	8				3.74
80	88.9	200	24	160	58	105	3.2	8	12	138	3					4.75
100	108	235	24	190	65	128	3.6	8	12	162	3		M 20	(3/4")	23	6.52
	114.3					134										
125	133	270	26	220	68	155	4	8	12	188	3	8	M 24	(7/8")	27	9.07
	139.7					162										
150	159	300	28	250	75	182	4.5	10	12	218	3					11.8
	168.3					192										
175	191	350	32	295	82	215	5.6	10	15	260	3	12				18.2
	193.7					218										
200	216	375	34	320	88	240	6.3	10	16	285	3		M 27	(1")	30	21.5
	219.1					244										
250	267	450	38	385	105	298	7.1	12	18	345	3					34.9
	273					306										
300	318	515	42	450	115	352	8	12	18	410	4		M 30	(1 1/8")	33	49.7
	323.9					362										
350	355.6	580	46	510	125	408	8.8	12	20	460	4	16	M 33	(1 1/4")	36	
	368															68.1
400	406.4	660	50	585	135	462	11	12	20	535	4		M 36	(1 3/8")	39	
	419															96.5
500	508	755	52	670	140	562	14.2	12	20	615	4	20	M 39	(1 1/2")	42	
	521															117

WELDABLE FITTINGS

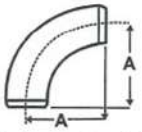
Long, Short Radius, Elbows, Returns & Caps

ASTM A234

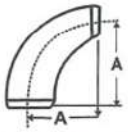
Long Radius

Short Radius

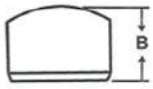
ANSI B 16.9



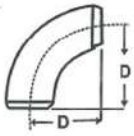
90° Long Radius Elbow



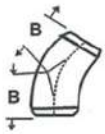
90° Reducing long Radius Elbow



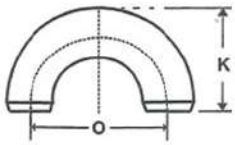
Cap



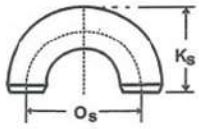
90° Short Radius Elbow



45° Long Radius Elbow



180° Extra Long Radius Return

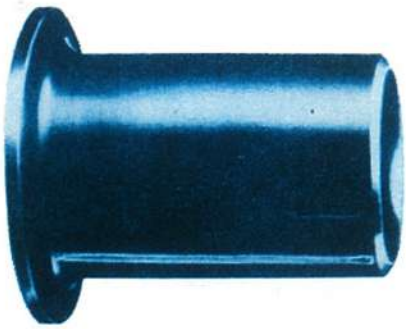


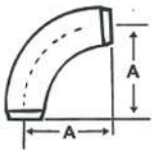
180° Short Radius Return

Nom. Pipe Size mm Dia. Nom.	A	B	D	E	O	K	Os	Ks
15	38	16		25	76	48		
20	28	11		25	57	43		
25	38	22	25	38	76	56	51	41
32	48	25	32	38	95	70	64	52
40	57	28	38	38	114	83	76	62
50	76	35	51	38	152	106	102	81
65	95	44	64	38	190	132	127	100
80	114	51	76	51	229	159	152	121
90	133	57	89	64	267	184	178	140
100	152	64	102	64	305	210	203	159
125	190	79	127	76	381	262	254	197
150	229	95	152	89	457	313	305	236
200	305	127	203	102	610	414	406	313
250	381	159	254	127	762	518	508	391
300	457	190	305	152	914	619	610	467
350	533	222	356	165	1067	711	711	533
400	610	254	406	178	1219	813	813	610
450	686	286	457	203	1372	914	914	686
500	762	318	508	229	1524	1016	1016	762
550	838	343		254	1676	1118		
600	914	381	610	267	1829	1219	1219	914
650	991	406		267	1981	1321		
700	1067	438		267				
750	1143	470	762	267	2286	1524	1524	1143
800	1219	502		267				
850	1295	533		267				
900	1372	565	914	267			1829	1372
1100	1600	660		305				
1200	1829	759	1219	343				

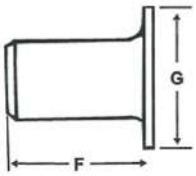
WELDABLE FITTINGS

X-Long Radius Elbows, Lab Joint Stub ends, Returns

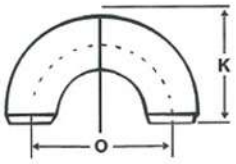




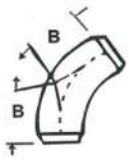
90° Extra Long Radius Elbow



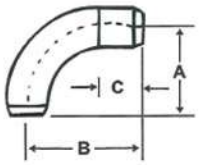
Lap Joint Stub End



180° Long Radius Return



45° Extra Long Radius Elbow



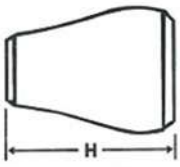
90° Long Radius Elbow with Long Tangent one End

Nom. Pipe Size mm Dia. Nom.	A	B	Nom. Pipe Size Dia. Nom.	F	G	Nom. Pipe Size Dia. Nom.	C	A	B	Nom. Pipe Size Dia. Nom.	O	K
50	152	64	15	76	35	40	25	57	83	25	102	67
80	229	95	20	76	43	50	32	76	108	32	127	84
100	305	127	25	102	51	65	32	95	127	40	152	100
150	457	190	32	102	64	80	32	114	146	50	203	132
200	610	254	40	102	73	90	38	133	171	65	254	164
250	762	318	50	152	92	100	38	152	190			
300	914	381	65	152	105	125	38	190	229			
350	1067	444	80	152	127	150	44	229	273			
400	1219	505	90	152	140	200	44	305	349			
450	1372	568	100	152	157	250	51	381	432			
500	1524	632	125	203	186	300	64	457	521			
550	1676	694	150	203	216							
600	1829	757	200	203	270							
650	1981	821	250	254	324							
750	2286	946	300	254	381							
850	2591	1073	350	305	413							
900	2743	1137	400	305	470							
1100	3200	1326	450	305	533							
1200	3658	1516	500	305	584							
			550	305	641							
			600	305	692							

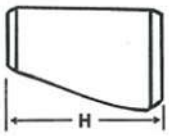
Conforms to ANSI B 16.9 except for added tangent.

WELDABLE FITTINGS
Concentric - Eccentric

CONCENTRIC

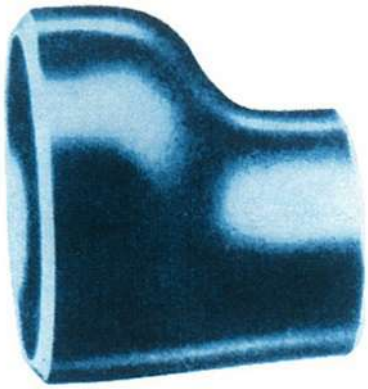


Concentric



Eccentric

ECCENTRIC



Conversion Table
Inch/Millimeter

Reducers

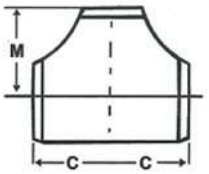
ANSI B 16.9

Nom. Pipe Size mm Dia. Nominal Lg. End	sm. End	H	Nom. Pipe Size Dia. Nominal Lg. End	sm. End	H	Nom. Pipe Size Dia. Nominal Lg. End	sm. End	H
20	10	38		32	102		100	178
	15	38		40	102	250	125	178
	10	51	90	50	102		150	178
25	15	51		65	102		200	178
	20	51		80	102		125	203
	15	51		40	102	300	150	203
32	20	51		50	102		200	203
	25	51	100	65	102		250	203
	15	64		80	102		150	330
40	20	64		90	102	350	200	330
	25	64		50	127		250	330
	32	64		65	127		300	330
	20	76	125	80	127		200	356
50	25	76		90	127	400	250	356
	32	76		100	127		300	356
	40	76		65	140		350	356
	25	89		80	140		250	381
65	32	89	150	90	140	450	300	381
	40	89		100	140		350	381
	50	89		125	140		400	381
	32	89		90	152		300	508
80	40	89	200	100	152	500	350	508
	50	89		125	152		400	508
	65	89		150	152		450	508

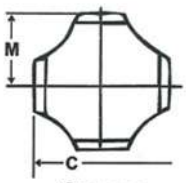
WELDABLE FITTINGS

Straight and Reducing Outlet Tees Crosses

ANSI B 16-9



Tees



Crosses

Conversion Table Inch/Millimeter

Nom. Pipe Size mm Dia. Nominal		Center to End of Run	Center to End of Branch	Nom. Pipe Size Dia. Nominal		Center to End of Run	Center to End of Branch
Run	Branch	C	M	Run	Branch	C	M
	6	25	25		25	86	67
15	10	25	25		32	86	70
	15	25	25	80	40	86	73
	10	28	28		50	86	76
20	15	28	28		65	86	83
	20	28	28		80	86	86
	10	34	34		40	95	79
25	15	34	34		60	95	83
	20	34	34	90	65	95	89
	25	34	34		80	95	92
	15	48	48		90	95	95
32	20	48	48		40	105	86
	25	48	48		50	105	89
	32	48	48	100	65	105	95
	15	57	57		80	105	99
	20	57	57		90	105	102
40	25	57	57		100	105	105
	32	57	57		50	124	105
	40	57	57		65	124	108
	20	64	44	125	60	124	111
	25	64	51		90	124	114
50	32	64	57		100	124	117
	40	64	60		125	124	124
	50	64	64		65	143	121
	25	76	57		80	143	124
	32	76	64	150	90	143	127
65	40	76	67		100	143	130
	50	76	70		125	143	137
	65	76	76		150	143	143

WELDABLE FITTINGS

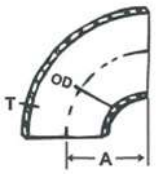
SS Butt Welding Fittings*

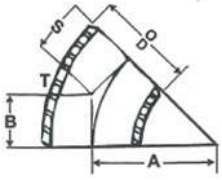
MANUFACTURING STANDARDS

A.S.T.M. A 403

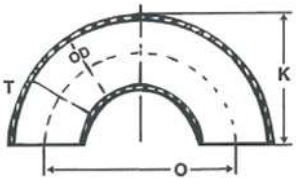
Dimensional tolerances A.N.S.I. B 16.9 & MSS-SP 43

90° – 45° Elbows LR or SR

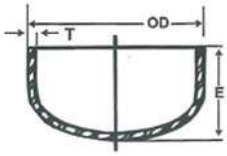


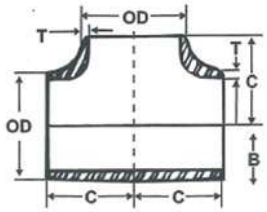


180° Return Bends

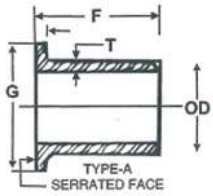


Caps

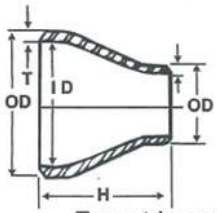


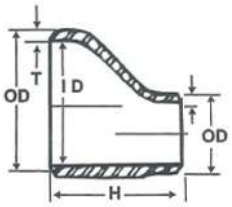


Equal or reducing Tees



Stub ends





Eccentric and Concentric reducers

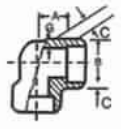
ALL SIZES IN MM

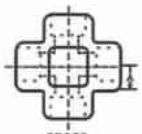
Nominal Pipe Size mm	Outside Diametre (OD)	90° ELBOWS long	45° ELBOWS long radius		90° ELBOWS SHORT Radius	Straight TEES	CAPS	STUB ENDS			Reducers concentric eccentric
		Radias Center to face (A)	Center to face (B)	Radius (A)	Center to face (A)	Center to end (C)	Length (E)	Diametre (G)	Long (ASA) length (F)	Short (MSS) length (F)	Length (H) specified from large end
15	21.34	38.1	15.9	38.1	–	25.4	25.4	34.9	76.2	50.8	50.8
20	26.67	28.6	11.1	28.6	–	28.6	25.4	42.8	76.2	50.8	50.8
25	33.40	38.1	22.2	38.1	25.4	38.1	38.1	50.8	101.6	50.8	50.8
32	42.16	47.6	25.4	47.6	31.8	47.6	38.1	63.5	101.6	50.8	50.8
40	48.26	57.2	28.6	57.2	38.1	57.2	38.1	73.0	101.6	50.8	63.5
50	60.32	76.2	34.9	76.2	50.8	63.5	38.1	92.0	152.4	63.5	76.2
65	73.02	95.2	44.5	95.2	63.5	76.2	38.1	104.8	152.4	63.5	88.9
80	88.90	114.0	50.8	114.0	76.2	85.7	50.8	127.0	152.4	63.5	88.9
90	101.60	133.0	57.2	133.0	88.9	95.3	63.5	139.7	152.4	76.2	–
100	114.30	152.0	63.5	152.0	101.6	104.8	63.5	157.2	152.4	76.2	101.6
125	141.30	191.0	82.6	191.0	127.0	123.8	76.2	185.7	203.2	76.2	127.0
150	168.27	228.6	95.3	228.6	152.4	142.8	88.9	215.9	203.2	88.9	140.0
200	219.07	304.8	127.0	304.8	203.2	177.8	101.6	270.0	203.2	101.6	152.0
250	273.05	381.0	158.7	381.0	254.0	215.9	127.0	324.0	254.0	127.0	178.0
300	323.85	457.2	190.5	457.2	305.0	254.0	152.4	381.0	254.0	152.4	203.0
350	355.60	533.4	222.2	533.4	356.0	280.0	165.1	412.8	305.0	152.4	330.0
400	406.40	609.6	254.0	609.6	406.0	304.8	177.8	470.0	305.0	152.4	356.0
450	457.20	685.8	285.7	685.8	457.0	343.0	203.2	533.4	305.0	152.4	381.0
500	508.00	762.0	317.6	762.0	508.0	381.0	228.6	584.2	305.0	152.4	508.0
600	609.60	914.4	381.0	914.4	610.0	432.0	266.7	692.2	305.0	152.4	508.0

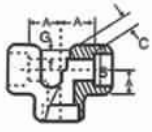
* Subject to sufficient manufacturing quantities, available in nearly every alloy mentioned in this catalogue, either in seamless pressed or welded execution.

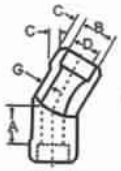
FORGED STEEL FITTINGS TO AMERICAN STANDARD

Socket Welding & Threaded


90° ELBOW


CROSS


TEE


45° ELBOW


COUPLING


HALF-COUPLING

Steel Socket - Welding Fittings

Nom. Pipe Size	Socket Bore Dia. B²	Bore Diameter of Fitting D²			Socket Wall Thickness G						Body Wall G			Depth of socket Min	Center to Bottom of Socket - A						Laying Lenghts Tolerances :				
		Pressure Class Designation			3000 1b		6000 1b		9000 1b		Pressure Class Designation				90° Elbows Tees, and Crosses Pressure Class Designation			45° Elbows Pressure Class Designation							
		3000 1b	6000 1b	9000 1b	Ave.	Min.	Ave.	Min.	Ave.	Min.	3000 1b Min.	6000 1b Min.	9000 1b Min.		3000 1b	6000 1b	9000 1b	3000 1b	6000 1b	9000 1b	coupl-ings E. B.	Half Coupl-ings I	A	E	F
1/8	0.430	0.299	0.189		0.125	0.125	0.156	0.135			0.095	0.124		0.38	0.44	0.44		0.31	0.31		0.25	0.62	0.03	0.06	0.03
	0.420	0.239	0.126																						
1/4	0.565	0.394	0.280		0.149	0.130	0.181	0.158			0.119	0.145		0.38	0.44	0.53	0.31	0.31	0.31		0.25	0.62	0.03	0.06	0.03
	0.555	0.334	0.220																						
3/8	0.700	0.523	0.389		0.158	0.138	0.198	0.172			0.126	0.158		0.38	0.53	0.62		0.31	0.44		0.25	0.69	0.06	0.12	0.06
	0.690	0.463	0.329																						
1/2	0.865	0.652	0.494	0.282	0.184	0.161	0.235	0.204	0.368	0.322	0.147	0.188	0.294	0.38	0.62	0.75	1.00	0.44	0.50	0.62	0.38	0.88	0.06	0.12	0.06
	0.855	0.592	0.434	0.222																					
3/4	1.075	0.854	0.642	0.464	0.193	0.168	0.274	0.238	0.385	0.337	0.154	0.219	0.308	0.50	0.75	0.88	1.12	0.50	0.56	0.75	0.38	0.94	0.06	0.12	0.06
	1.065	0.794	0.582	0.404																					
1	1.340	1.079	0.845	0.629	0.224	0.196	0.312	0.273	0.448	0.392	0.179	0.250	0.358	0.50	0.88	1.06	1.25	0.56	0.69	0.81	0.50	1.12	0.08	0.16	0.08
	1.330	1.019	0.785	0.569																					
1¼	1.685	1.410	1.190	0.926	0.239	0.208	0.312	0.273	0.478	0.418	0.191	0.250	0.382	0.50	1.06	1.25	1.38	0.69	1.81	0.88	0.50	1.19	0.08	0.16	0.08
	1.675	1.350	1.130	0.866																					
1½	1.925	1.640	1.368	1.130	0.250	0.218	0.351	0.307	0.500	0.438	0.200	0.281	0.400	0.50	1.25	1.50	1.50	0.81	1.00	1.00	0.50	1.25	0.08	0.16	0.08
	1.915	1.580	1.308	1.070																					
2	2.416	2.097	1.717	1.533	0.273	0.238	0.430	0.374	0.545	0.477	0.218	0.344	0.436	0.62	1.50	1.62	2.12	1.00	1.12	1.12	0.75	1.62	0.08	0.16	0.08
	2.406	2.037	1.657	1.473																					
2½	2.921	2.529			0.345	0.302					0.276			0.62	1.62			1.12			0.75	1.69	0.10	0.20	0.10
	2.906	2.409																							
3	3.550	3.128			0.375	0.327					0.300			0.62	2.25			1.25			0.75	1.75	0.10	0.20	0.10
	3.535	3.008																							
4	4.560	4.086			0.421	0.368					0.337			0.75	2.62			1.62			0.75	1.88	0.10	0.20	0.10
	4.545	3.966																							

1. Average of Socket Wall Thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.
2. Upper and lower values for each size are the respective maximum and minimum dimensions.

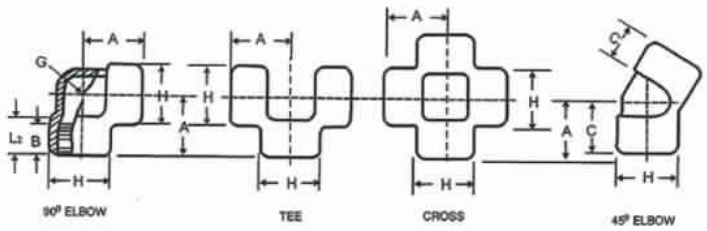


Table Forged Steel Threaded Fittings

Nom. Pipe Size	Center to End Elbows Tees, Crosses A			Center to End 45° Elbow C			Outside Diameter of Band H			Minimum Wall Thickness G			Length of Thread Min. *	
	2000 lb	3000 lb	6000 lb	2000 lb	3000 lb	6000 lb	2000 lb	3000 lb	6000 lb	2000 lb	3000 lb	6000 lb	lb	B
1/8	0.81	0.81	0.97	0.69	0.69	0.75	0.88	0.88	1.00	0.125	0.125	0.250	0.25	0.2639
1/4	0.81	0.97	1.12	0.69	0.75	0.88	0.88	1.00	1.31	0.125	0.130	0.260	0.32	0.4018
3/8	0.97	1.12	1.31	0.75	0.83	1.00	1.00	1.31	1.50	0.125	0.138	0.275	0.36	0.4078
1/2	1.12	1.31	1.50	0.88	1.00	1.12	1.31	1.50	1.81	0.125	0.161	0.321	0.43	0.5337
3/4	1.31	1.50	1.75	1.00	1.12	1.31	1.50	1.81	2.19	0.125	0.170	0.336	0.50	0.5457
1	1.50	1.75	2.00	1.12	1.31	1.38	1.81	2.19	2.44	0.145	0.196	0.391	0.58	0.6828
1-1/4	1.75	2.00	2.38	1.31	1.38	1.69	2.19	2.44	2.97	0.153	0.208	0.417	0.67	0.7068
1-1/2	2.00	2.38	3.00	1.38	1.69	1.72	2.44	2.97	3.31	0.158	0.219	0.436	0.70	0.7235
2	2.38	2.50	3.25	1.69	1.72	2.06	2.97	3.31	4.00	0.168	0.281	0.476	0.75	0.7565
2-1/2	3.00	3.25	3.75	2.06	2.06	2.50	3.62	4.00	4.75	0.221	0.301	0.602	0.93	1.138
3	3.38	3.75	4.19	2.50	2.50	3.12	4.31	4.75	5.75	0.236	0.348	0.655	1.02	1.200
4	4.19	4.50	4.50	3.12	3.12	3.12	5.75	6.00	6.00	0.258	0.440	0.735	1.09	1.300

* Dimension B is minimum length of perfect thread. The length of useful thread (B plus threads with fully formed roots and flat crests) shall not be less than L_2 (effective length of external thread) required by American National Standard for Pipe Threads (ANSI B2.1)

PIPES TO AMERICAN STANDARD

Welded & Seamless Wrought Steel Pipes
Stainless Steel Pipes

ANSI B 36 10-1979
ANSI B 36 19-1976

		NOMINAL WALL THICKNESS														
NOMINAL PIPE SIZE	OUT SIDE DIA	SCHED. 5S	SCHED. 10S	SCHED. 10	SCHED. 20	SCHED. 30	STANDA-RD (STD)	SCHED. 40/40S	SCHED. 60	EXTRA STRONG (XS)	SCHED. 80/80S	SCHED. 100	SCHED. 120	SCHED. 140	SCHED. 160	XX STRONG XXS
9 mm	10.3		1.24				1.73	1.73		2.41	2.41					
8 mm	13.7		1.65				2.24	2.24		3.02	3.02					
10 mm	17.1		1.65				2.31	2.31		3.20	3.20					
15 mm	21.3	1.65	2.11				2.77	2.77		3.73	3.73				4.75	7.47
20 mm	26.7	1.65	2.17				2.87	2.87		3.91	3.91				5.54	7.82
25 mm	33.4	1.65	2.77				3.38	3.38		4.55	4.55				6.35	9.09
32 mm	42.2	1.65	2.77				3.56	3.56		4.85	4.85				6.35	9.50
40 mm	48.3	1.65	2.77				3.68	3.68		5.08	5.08				7.14	10.16
50 mm	60.3	1.65	2.77				3.91	3.91		5.54	5.54				8.71	11.07
65 mm	73.0	2.11	3.05				5.16	5.16		7.01	7.01				9.52	14.02
80 mm	88.9	2.11	3.05				5.49	5.49		7.62	7.62				11.12	15.24
90 mm	101.6	2.11	3.06				5.74	5.74		8.07	8.07					
100 mm	114.3	2.11	3.05				6.02	6.02		8.56	8.56		11.12		13.49	17.12
125 mm	141.3	2.77	3.40				6.55	6.55		9.53	9.53		12.7		15.88	19.05
150 mm	168.3	2.77	3.40				7.11	7.11		12.70	12.70		14.27		18.26	21.95
200 mm	219.1	2.77	3.76		6.35	7.04	8.18	8.18	10.31	12.70	12.70	15.06	18.24	20.62	23.01	22.23
250 mm	273.0	3.40	4.19		6.35	7.80	9.27	9.27	12.70	12.70	15.06	18.24	21.41	25.40	28.58	25.40
300 mm	323.8	3.96	4.57		6.35	8.38	9.52	10.31	14.27	12.70	17.45	21.41	25.4	28.58	33.32	25.40
350 mm	355.6	3.96	4.78	6.35	7.92	9.52	9.52	11.13	15.06	12.70	19.05	23.80	27.76	31.75	35.71	
400 mm	406.4	4.19	4.78	6.35	7.92	9.52	9.52	12.70	16.66	12.70	21.41	26.19	30.94	36.53	40.46	
450 mm	457.2	4.19	4.78	6.35	7.92	11.12	9.52	14.27	19.05	12.70	19.05	23.50	27.76	31.75	35.71	
500 mm	508.0	4.78	5.54	6.38	9.52	12.70	9.52	15.08	20.62	12.70	26.13	32.54	33.10	44.45	48.93	

i) 1 inch (in) 25.4 milli. meters (mm) exact. ii) Schedules 55 and 105 wall thicknesses do not permit threading in accordance with ANSI B2.1. iii) Schedules 5S, 10S, 40S & 80S denotes STAINLESS STEEL PIPES TO ANSI B36. 19- 1976 except 10" 80S (O.500"). 12" Sch. 40S (0.375") and Sch. 80S (0.500"). For sizes 14" and above Schedules 40S and 80S are not applicable.

PIPES IS 3589

Electric Resistance Welded Pipes

Commercial Quality IS 3589

Outer Diameter		Wall Thickness	Weight	Test Pressure
Inches	mm	mm	kg/mt.	kg/sq. cm
8 5/8	219.075	5.56	29.23	77
"	"	6.35	33.28	84
"	"	7.04	36.76	91
"	"	7.92	41.28	105
"	"	8.18	42.49	112
"	"	8.74	45.24	120
"	"	9.52	49.17	127
10 3/4	273.050	6.350	41.73	70
"	"	7.087	46.43	84
"	"	7.798	50.96	84
"	"	8.738	56.85	91
"	"	9.271	60.24	98
"	"	11.125	71.72	120
12 3/4	323.850	6.350	49.68	56
"	"	7.137	55.73	67
"	"	7.925	61.78	70
"	"	8.382	65.14	84
"	"	8.738	67.79	84
"	"	9.525	73.76	84
"	"	10.312	79.71	91
"	"	11.125	85.62	98
14	355.600	6.350	54.63	53
"	"	7.137	61.33	60
"	"	7.925	67.98	67
"	"	8.738	74.62	70
"	"	9.525	81.21	77
"	"	11.125	94.31	91
"	"	11.913	100.87	98
"	"	12.700	107.28	105
16	406.40	6.35	62.58	46
"	"	7.14	70.27	53
"	"	7.92	77.92	56
"	"	8.74	85.54	63
"	"	9.52	93.13	70
"	"	11.13	108.22	77
"	"	11.91	115.71	84
"	"	12.70	123.78	91
18	457.200	6.350	70.53	42
"	"	7.137	79.20	46
"	"	9.925	87.85	53
"	"	8.738	96.47	56
"	"	9.525	105.05	63
"	"	11.125	113.61	70
"	"	11.913	130.62	77
"	"	12.700	139.07	84

STEEL TUBE AND TUBULAR

(Light, Medium, Heavy)

IS 1239 : 1968 BS 1387 : 1967

Nominal Bore	Outside Diameter				Thickness		Plain End		
	max.		min.						
inch.	inch.	mm	inch.	mm	inch.	mm	1b/ft	kg/ft	kg/ft
L `` 1/8	.396	10.1	.387	9.7	.072	1.8	.243	.110	.361
I `` 1/4	.532	13.6	.518	13.2	.072	1.8	.347	.157	.517
`` 3/8	.671	17.1	.656	16.7	.072	1.8	.453	.205	.674
G 1/2	.841	21.4	.825	21.0	.080	2.0	.640	.290	.952
3/4	1.059	26.9	1.041	26.4	.092	2.35	.944	.428	1.41
H 1	1.328	33.8	1.309	32.2	.104	2.65	1.35	.612	2.01
$1^1/_4$	1.670	42.5	1.650	41.9	.104	2.65	1.73	.785	2.58
T $1^1/_2$	1.903	48.4	1.882	47.8	.116	2.9	2.19	.993	3.25
2	2.370	60.2	2.347	59.6	.116	2.9	2.76	1.25	4.11
$2^1/_2$	2.991	76.0	2.960	75.2	.128	3.25	3.90	1.77	5.80
3	3.491	88.7	3.460	87.9	.128	3.25	4.58	2.08	6.81
4	4.481	113.9	4.450	113.0	.144	3.65	6.64	3.01	9.89
M `` 1/8	.411	10.4	.386	9.8	.080	2.0	.273	.124	.407
`` 1/4	.547	13.9	.522	13.3	.092	2.35	.437	.198	.650
E `` 3/8	.685	17.4	.660	16.8	.092	2.35	.573	.260	.852
1/2	.856	21.7	.831	21.1	.104	2.65	.822	.373	1.22
D 3/4	1.072	27.2	1.047	26.6	.104	2.65	1.06	.481	1.58
1	1.346	34.2	1.316	33.4	.128	3.25	1.64	.744	2.44
I $1^1/_4$	1.687	42.9	1.657	42.1	.128	3.25	2.11	.957	3.14
U $1^1/_2$	1.919	48.8	1.889	48.0	.128	3.25	2.43	1.10	3.61
2	2.394	60.8	2.354	59.8	.144	3.65	3.42	1.55	5.10
M $2^1/_2$	3.014	76.6	2.969	75.4	.144	3.65	4.38	1.99	6.51
3	3.524	89.5	3.469	88.1	.160	4.05	5.69	2.58	8.47
4	4.524	114.9	4.459	113.3	.176	4.5	8.14	3.69	12.1
5	5.534	140.6	5.459	138.7	.192	4.85	10.9	4.94	16.2
6	6.539	166.1	6.459	164.1	.192	4.85	12.9	5.85	19.2
H `` 1/8	.411	10.4	.386	9.8	.104	2.65	.331	.150	.493
`` 1/4	.547	13.9	.522	13.3	.116	2.9	.517	.235	.769
E `` 3/8	.685	17.4	.660	16.8	.116	2.9	.686	.311	1.02
1/2	.856	21.7	.831	21.1	.128	3.25	.977	.443	1.45
A 3/4	1.072	27.2	1.047	26.6	.128	3.25	1.27	.576	1.90
1	1.346	34.2	1.316	33.4	.160	4.05	2.00	.907	2.97
V $1^1/_4$	1.687	42.9	1.657	42.1	.160	4.05	2.58	1.17	3.84
Y $1^1/_2$	1.919	48.8	1.889	48.0	.160	4.05	2.98	1.35	4.43
2	2.394	60.8	2.354	59.8	.176	4.5	4.14	1.89	6.17
$2^1/_2$	3.014	76.6	2.969	75.4	.176	4.5	5.31	2.41	7.90
3	3.524	89.5	3.469	88.1	.192	4.85	6.76	3.07	10.1
4	4.524	114.9	4.459	113.3	.212	5.4	9.71	4.40	14.4
5	5.534	140.6	5.459	138.7	.212	5.4	12.0	5.44	17.8
6	6.539	166.1	6.459	164.1	.212	5.4	14.3	6.49	21.2

STANDARD SIZE AND WEIGHTS-PIPES

ASTM A 53-68 Welded and Seamless Steel Pipes.

Nominal Size	Outside Diameter		Wall Thickness		Class	Sched No	Plain End								
							Nominal Weight			Test Pressure min. Butt Welded		Grade A		Grade B	
inch.	inch.	mm	inch.	mm			lb/ft	kg/ft	kg/m	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²
1/8	.405	10.3	.068	1.7	std	40	.24	.11	.36	700	49.2	700	49.2	700	49.2
			.095	2.4	xs	80	.31	.14	.46	850	59.8	850	59.8	850	59.8
1/4	.540	13.7	.088	2.2	std	40	.42	19	.63	700	49.2	700	49.2	700	49.2
			.119	3.0	xs	80	.54	.24	.80	850	59.8	850	59.8	850	59.8
3/8	.675	17.1	.091	2.3	std	40	.57	.26	.85	700	49.2	700	49.2	700	49.2
			.126	3.2	xs	80	.74	.34	1.10	850	59.8	850	59.8	850	59.8
1/2	.840	21.3	.109	2.8	std	40	.85	.39	1.26	700	49.2	700	49.2	700	49.2
			.147	3.7	xs	80	1.09	.49	1.62	850	59.8	850	59.8	850	59.8
			.294	7.5	xxs	...	1.71	.78	2.54	1 000	70.3	1 000	70.3	1 000	70.3
3/4	1.050	26.7	.113	2.9	std	40	1.13	.51	1.68	700	49.2	700	49.2	700	49.2
			.154	3.9	xs	80	1.47	.67	2.19	8 850	59.8	850	59.8	850	59.8
			.308	7.8	xxs	...	2.44	1.11	3.63	1 000	70.3	1 000	70.3	1 000	70.3
1	1.315	33.4	.133	3.4	std	40	1.68	.76	2.50	700	49.2	700	49.2	700	49.2
			.179	4.5	xs	80	2.17	.98	3.23	850	59.8	850	59.8	850	59.8
			.358	9.1	xxs	...	3.66	1.66	5.45	1 000	70.3	1 000	70.3	1 000	70.3
1 1/4	1.660	42.2	140	3.6	std	40	2.27	1.03	3.38	1 000	70.3	1 000	70.3	1 100	77.3
			.191	4.9	xs	80	3.00	1.36	4.46	1 300	91.4	1 500	105.5	1 600	112.5
			.382	9.7	xxs	...	5.21	2.36	7.75	1 400	98.4	1 800	126.6	1 900	133.6
1 1/2	1.990	48.3	.145	3.7	std	40	2.72	1.23	4.05	1 000	70.3	1 100	70.3	1 100	77.3
			.200	5.1	xs	80	3.63	1.65	5.40	1 300	91.4	1 500	105.5	1 600	112.5
			.400	10.2	xxs	...	6.41	2.91	9.54	1 400	98.4	1 800	126.6	1 900	133.6
2	2.375	60.3	.154	3.9	std	40	3.65	1.66	5.43	1 000	70.3	2 300	161.7	2 500	175.8
			.218	5.5	xs	80	5.02	2.28	7.47	1 300	91.4	2 500	175.8	2 500	175.8
			.344	8.7	...	160	7.46	3.38	11.10	...	...	2 500	175.8	2 500	175.8
			.436	11.1	xxs	...	9.03	4.10	13.44	1 400	98.4	2 500	175.8	2 500	175.8
2 1/2	2.875	73.0	.203	5.2	std	40	5.79	2.63	8.62	1 000	70.3	2 500	175.8	2 500	175.8
			.276	7.0	xs	80	7.66	3.47	11.40	1 300	91.4	2 500	175.8	2 500	175.8
			.375	9.5	...	160	10.01	4.54	14.90	1 400	98.4	2 500	175.8	2 500	175.8
			.552	14.0	xxs	...	13.70	6.21	20.39	1 400	98.4	2 500	175.8	2 500	175.8
3	3.500	88.9	.188	4.8	...	...	6.63	3.01	9.87	1 000	70.3	...	...	...	...
			.216	5.5	std	40	7.58	3.44	11.28	1 000	70.3	2 200	154.7	2 500	175.8
			.300	7.6	xs	80	10.25	4.65	15.25	1 300	91.4	2 500	175.8	2 500	175.8
			.438	11.1	...	160	14.31	6.49	21.30	...	...	2 500	175.8	2 500	175.8
			.600	15.2	xxs	...	18.58	8.43	27.65	...	...	2 500	175.8	2 500	175.8
3 1/2	4.000	101.6	.188	4.8	...	...	7.63	3.46	11.35	1 200	84.4	...	...	...	...
			.226	5.7	std	40	9.11	4.13	13.56	1 200	84.4	2 000	140.6	2 400	168.7
			.318	8.1	xs		12.51	5.67	18.62	1 700	199.5	2 800	196.9	2 800	196.9
4	4.500	114.3	.156	4.0	...	...	7.25	3.29	10.79	1 000	70.3	...	...	...	...
			.188	4.8	...	...	8.64	3.92	12.86	1 200	84.4	...	...	...	...
			.219	5.6		...	10.00	4.54	14.88	1 200	84.4	...	...	...	...
			.237	6.0	std	40	10.79	4.89	16.06	1 200	84.4	1 900	133.6	2 200	154.7
			.337	8.6	xs	80	14.98	6.79	22.29	1 700	119.5	2 700	189.8	2 800	196.9
			.438	11.1	...	120	18.98	8.61	28.25	...	...	2 800	196.9	2 800	196.9
			.531	13.5	...	160	22.52	10.21	33.51	...	...	2 800	196.9	2 800	196.9
			.674	17.1	xxs	...	27.54	12.49	40.98	...	...	2 800	196.9	2 800	196.9
5	5.563	141.3	.258	6.6	std	40	14.62	6.63	21.76	...	...	1 700	119.5	1 900	133.6
			.375	9.5	xs	80	20.78	9.43	30.92	...	...	2 400	168.7	2 800	196.9
			.500	12.7	...	120	27.04	12.27	40.24	...	...	2 800	196.9	2 800	196.9
			.625	15.9	...	160	32.96	14.95	49.95	...	...	2 800	196.9	2 800	196.9
			.750	19.0	xxs	...	38.55	17.49	57.37	...	...	2 800	196.9	2 800	196.9

STANDARD SIZE AND WEIGHTS-PIPES

ASTM A 53 Welded and Seamless Steel Pipes.

Nominal Size	Outside Diameter		Wall Thickness		Class	Sched No	Plain End								
							Nominal Weight			Test Pressure min. Butt Welded		Grade A		Grade B	
inch.	inch.	m m	inch.	m m			lb/ft	kg/ft	kg/m	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²
6	6.625	168.3	.280	7.1	std	40	18.97	8.60	28.23	...	...	1 500	105.5	1 800	126.6
			.432	11.0	xs	80	28.57	12.96	42.52	...	...	2 300	161.7	2 700	189.8
			.562	14.3	...	120	36.42	16.52	54.20	...	...	2 800	196.9	2 800	196.9
			.719	18.3	...	160	45.34	20.57	67.47	...	...	2 800	196.9	2 800	196.9
			.864	21.9	xxs	...	53.16	24.11	79.11	...	...	2 800	196.9	2 800	196.9
8	8.625	219.1	.250	6.4	...	20	22.36	10.14	33.28	...	...	1 000	70.3	1 200	84.4
			.277	7.0	...	30	24.70	11.20	36.76	...	...	1 200	84.4	1 300	91.4
			.322	8.2	std	40	28.55	12.95	42.49	...	...	1 300	91.4	1 600	112.5
			.406	10.3	...	60	35.66	16.18	53.07	...	...	1 700	119.5	2 000	140.6
			.500	12.7	xs	80	43.39	19.68	64.57	...	...	2 100	147.7	2 400	168.7
			.594	15.1	...	100	50.93	23.10	75.79	...	...	2 600	175.8	2 800	196.9
			.719	18.3	...	120	60.69	27.53	90.32	...	...	2 800	196.9	2 800	196.9
			.812	20.6	...	140	67.79	30.75	100.88	...	...	2 800	196.9	2 800	196.9
			.875	22.2	xxs	...	72.42	32.85	107.77	...	...	2 800	196.9	2 800	196.9
			.906	23.0	...	160	74.71	33.89	111.18	...	...	2 800	196.9	2 800	196.9
10	10.750	273.0	.250	6.4	...	20	28.04	12.72	41.73	...	...	850	59.8	1 000	70.3
			.279	7.1	...	...	31.20	14.15	46.43	...	...	950	66.8	1 100	77.3
			.307	7.8	...	30	34.24	15.53	50.95	...	...	1 000	70.3	1 200	84.4
			.365	9.3	std	40	40.48	18.36	60.24	...	...	1 200	84.4	1 400	98.4
			.500	12.7	xs	60	54.74	24.83	81.46	...	...	1 700	119.5	2 000	140.6
			.594	15.1	...	80	64.46	29.21	95.84	...	...	2 000	140.6	2 300	161.7
			.719	18.3	...	100	77.00	34.93	114.59	...	...	2 400	168.7	2 800	196.9
			.844	21.4	...	120	89.27	40.49	132.85	...	...	2 800	196.9	2 800	196.9
			1.000	25.4	xxs	140	104.13	47.23	154.96	...	...	2 800	196.9	2 800	196.9
			1.125	28.6	...	160	115.05	52.46	172.11	...	...	2 800	196.9	2 800	196.9
12	12.750	323.8	.250	6.4	...	20	33.38	15.14	49.67	...	...	700	49.2	800	56.2
			.330	8.4	...	30	43.77	19.85	15.14	...	...	950	66.8	1 100	77.3
			.375	9.5	std	...	49.56	22.48	73.75	...	...	1 100	77.3	1 200	84.4
			.406	10.3	...	40	53.56	24.29	79.71	...	...	1 100	77.3	1 300	91.4
			.500	12.7	xs	...	65.42	29.67	97.36	...	...	1 400	98.4	1 600	112.5
			.562	14.3	...	60	73.22	33.21	108.96	...	...	1 600	112.5	1 900	133.6
			.688	17.5	...	80	88.57	40.17	131.81	...	...	1 900	133.6	2 300	161.7
			.844	21.4	...	100	107.29	48.67	159.66	...	...	2 400	168.7	2 800	196.9
			1.000	25.4	xxs	120	125.49	56.92	186.75	...	...	2 800	196.9	2 800	196.9
			1.125	28.6	...	140	139.68	63.36	207.87	...	...	2 800	196.9	2 800	196.9
			1.312	33.3	...	160	160.33	72.72	238.60	...	...	2 800	196.9	2 800	196.9
			1.000	25.4	xxs	120	125.49	56.92	186.75	...	...	2 800	196.9	2 800	196.9
			1.125	28.6	...	140	139.68	63.36	207.87	...	...	2 800	196.9	2 800	196.9
			1.312	33.3	...	160	160.33	72.72	238.60	...	...	2 800	196.9	2 800	196.9
14	14.000	355.6	.250	6.4	...	10	36.71	16.65	54.63	...	...	650	45.7	750	52.7
			.312	7.9	...	20	45.68	20.72	67.98	...	...	800	56.2	950	66.8
			.375	9.5	std	30	54.57	24.75	81.21	...	...	950	66.8	1 100	77.3
			.438	11.1	...	40	63.37	28.74	94.30	...	...	1 100	77.3	1 300	91.4
			.500	12.7	xs	...	72.09	32.70	107.28	...	...	1 300	91.4	1 300	105.5
			.594	15.1	...	60	85.01	38.56	126.51	...	...	1 500	105.5	1 500	126.6
			.750	19.0	...	80	106.13	48.14	157.94	...	...	1 900	133.6	2 800	161.7
			.938	23.8	...	100	130.79	59.33	194.64	...	...	2 400	168.7	2 800	196.9
			1.094	27.8	...	120	150.76	68.38	224.36	...	...	2 800	196.9	2 800	196.9
			1.250	31.8	...	140	170.22	77.21	253.31	...	...	2 800	196.9	2 800	196.9
			1.406	35.7	...	160	189.15	85.80	281.49	...	...	2 800	196.9	2 800	196.9
16	16.000	406.4	.250	6.4	...	10	42.05	19.07	62.58	...	...	550	38.7	650	45.7
			.312	7.9	...	20	52.36	23.75	77.92	...	...	700	49.2	800	56.2
			.375	9.5	std	30	62.58	28.39	93.13	...	...	850	59.8	1 000	70.3
			.500	12.7	xs	40	82.77	37.54	123.18	...	...	1 100	77.3	1 300	91.4
			.656	16.7	...	60	107.54	48.78	160.04	...	...	1 500	105.5	1 700	119.5
			.844	21.4	...	80	136.58	61.95	203.25	...	...	1 900	133.6	2 200	154.7
			1.031	26.2	...	100	164.86	74.78	245.34	...	...	2 300	161.7	2 700	189.8
			1.219	31.0	...	120	192.40	82.27	286.32	...	...	2 700	189.8	2 800	196.9
			1.438	36.5	...	140	223.57	101.41	332.71	...	...	2 800	196.9	2 800	196.9
			1.594	40.5	...	160	245.22	111.23	364.93	...	...	2 800	196.9	2 800	196.9

Notes : 1) Marks as std, xs and xxs indicate standard weight, extra strong and double extra strong, respectively.

STANDARD SIZE AND WEIGHTS-PIPES

ASTM A 53 Welded and Seamless Steel Pipes.

Nominal Size	Outside Diameter		Wall Thickness		Class	Sched No	Plain End								
							Nominal Weight			Test Pressure min.					
										Butt Welded		Grade A		Grade B	
inch.	inch.	mm	inch.	mm			lb/ft	kg/ft	kg/m	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²
18	18.000	457.2	.250	6.4	...	10	47.39	21.50	70.53	...	...	500	35.2	600	42.2
			.312	7.9	...	20	59.03	26.28	87.85	...	...	600	42.2	750	52.7
			.275	9.5	std	...	70.59	32.02	105.05	...	...	750	52.7	900	63.3
			.438	11.1	...	30	82.06	37.22	122.12	...	...	900	63.3	1 000	70.3
			.500	12.7	xs	...	93.45	42.39	139.07	...	...	1 000	70.3	1 200	84.4
			.562	14.3	...	40	104.76	47.52	155.90	...	...	1 100	77.3	1 300	91.4
			.750	19.0	...	60	138.17	62.67	205.62	...	...	1 500	105.5	1 800	126.6
			938	23.8	...	80	170.84	77.49	254.24	...	...	1 900	133.6	2 200	154.7
			1.156	29.4	...	100	208.00	94.35	309.54	...	...	2 300	161.7	2 700	189.8
			1.375	34.9	...	120	244.14	110.72	363.32	...	...	2 800	196.9	2 800	196.9
			1.562	39.7	...	140	274.30	124.42	408.20	...	...	2 800	196.9	2 800	196.9
			1.781	45.2	...	160	308.55	139.96	459.17	...	...	2 800	196.9	2 800	196.9
20	20.000	508.0	.250	6.4	...	10	52.73	23.92	78.47	...	...	450	31.6	500	35.2
			.375	9.5	std	20	78.60	35.65	116.97	...	...	700	49.2	800	56.2
			.500	12.7	xs	30	104.13	47.23	154.97	...	...	900	63.3	1 000	70.3
			.594	15.1	...	40	123.06	55.82	183.13	...	...	1 100	77.3	1 200	84.4
			.812	20.6	...	60	166.50	75.52	247.78	...	...	1 500	105.5	1 700	119.5
			1.031	26.2	...	80	208.92	94.76	310.91	...	...	1 900	133.6	2 200	154.7
			1.281	32.5	...	100	256.15	116.19	381.19	...	...	2 300	161.7	2 700	189.8
			1.500	38.1	...	120	296.37	134.43	441.05	...	...	2 700	189.8	2 800	196.9
			1.750	44.4	...	140	341.10	154.72	507.61	...	...	2 800	196.9	2 800	196.9
			1.969	50.0	...	160	379.14	171.98	564.22	...	...	2 800	196.9	2 800	196.9
24	24.000	609.6	.250	6.4	...	10	63.41	28.76	94.36	...	...	400	28.1	450	31.6
			.375	9.5	std	20	94.62	42.92	140.81	...	...	550	38.7	650	45.7
			.500	12.7	xs	...	125.49	56.92	186.75	...	...	750	52.7	900	63.3
			.562	14.3	...	30	140.80	63.87	209.53	...	...	850	59.8	1 000	70.3
			.688	17.5	...	40	171.17	77.64	254.73	...	...	1 000	70.3	1 200	84.4
			.938	23.8	...	...	230.92	104.74	343.65	...	...	...	...	...	...
			.969	24.6	...	60	238.29	108.09	354.61	...	...	1 500	105.5	1 700	119.5
			1.219	31.0	...	90	296.53	134.50	441.28	...	...	1 800	126.6	2 100	147.7
			1.531	38.9	...	100	367.45	166.67	546.82	...	...	2 300	161.7	2 700	189.8
			1.812	46.0	...	120	429.50	194.82	639.16	...	...	2 700	189.8	2 800	196.9
			2.062	52.4	...	140	483.24	219.19	719.14	...	...	2 800	196.9	2 800	196.9
			2.344	59.5	...	160	542.09	245.89	806.72	...	...	2 800	196.9	2 800	196.9

CONVERSION TABLE

Inches & Fractions of Inches in Millimeters

Inches	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"
0"	0.000	25.400	50.799	76.199	101.60	127.00	152.40	177.80	203.20	228.60	254.00	279.39
1/16"	1.587	26.987	52.387	77.786	103.19	128.59	153.98	179.39	204.78	230.18	255.58	280.98
1/8"	3.175	28.574	53.974	79.374	104.77	130.17	155.57	180.97	206.37	231.77	257.17	282.57
3/16"	4.762	30.162	55.561	80.961	106.36	131.76	157.16	182.56	207.96	233.36	258.76	284.16
1/4"	6.350	31.749	57.149	82.549	107.95	133.35	159.75	184.15	209.55	234.95	260.35	285.74
5/16"	7.937	33.337	58.736	84.136	109.54	134.94	160.33	185.73	211.13	236.53	261.93	287.33
3/8"	9.525	34.924	60.324	85.723	111.12	136.52	161.92	187.32	212.72	238.12	263.52	288.92
7/16"	11.112	36.512	61.911	87.311	112.71	138.11	163.51	188.91	214.31	239.71	265.11	290.51
1/2"	12.700	38.099	63.499	88.898	114.30	139.70	165.10	190.50	215.90	241.30	266.70	292.09
9/16"	14.287	39.687	65.086	90.486	115.89	141.28	166.68	192.08	217.48	242.88	268.28	293.68
5/8"	15.875	41.274	66.674	92.073	117.47	142.87	168.27	193.67	219.07	244.47	269.87	295.27
11/16"	17.462	42.868	68.261	93.661	119.96	144.46	169.86	195.26	220.66	246.06	271.46	296.86
3/4"	19.050	44.449	69.849	95.248	120.65	146.05	171.45	196.85	222.25	247.65	273.05	298.44
13/16"	20.637	46.037	71.486	96.836	122.24	147.63	173.03	198.47	223.83	249.23	274.63	300.03
7/8"	22.225	47.634	73.024	98.423	123.82	149.22	174.62	200.02	225.42	250.82	276.22	301.62
15/16"	23.812	49.212	74.611	100.01	125.41	150.81	176.21	201.61	227.01	252.41	277.71	302.21

COMPARISON TABLES OF DIN-ASTM API-BS

	% s = max	% Mo	% Cr	% Ni	STANDARD FOR SIZE + TOL.	TECHNICAL SPEC.	CORRESPONDING QUALITY			
							A S A	D I N	B S	
St 00					DIN 2448	DIN 1629/2				DIN
St 35	0.05				DIN 2448	DIN 1629/3	A 53 A		3601 HFS 22	
St 45	0.05				DIN 2448	DIN 1629/3	A 53 B		3601 HFS 27	
St 55	0.05				DIN 2448	DIN 1629/3			3601 HFS 35	
St 52	0.05				DIN 2448	DIN 1629/3				
St 35.8	0.05				DIN 2448	DIN 17175	A 106 A		3059 / 1 - 2	
St 45.8	0.05				DIN 2448	DIN 17175	A 106 B		3059/ 5 - 6	
TT St 35 N	0.045				DIN 2448	SE WERKSTOFF	A 333 Gr 1		3603 LT 27	
15 MO 3	0.04	0.25/0.35			DIN 2448	DIN 17175	A 335 P 1		3059 / 7- 8	
16 MO 5	0.04	0.45/0.65			DIN 2448	WERKST. BL. 210	A 335 P 1		3059 / 7- 8	
13 Cr Mo 44	0.04	0.40/0.50	0.70/1.00		DIN 2448	DIN 17175	A 335 P 12/11		3604 Gr 620	
10 Cr Mo 910	0.04	0.90/1.10	2.0/2.50		DIN 2448	DIN 17175	A 335 P 22		3604 Gr 622	
12 Cr Mo 195	0.03	0.45/0.65	4-6		DIN 2448	WERKST BL. 231	A 335 PS		3604 Gr 625	
MECHANICAL C35	0.035					DIN 17200				
St 52-3	0.05					DIN 17100				
ASTM A 53 A					ASA B 36.10		API 5L GR A	St 35	3601 HFS 22	ASTM
A 53 B					ASA B 36.10		API 5L GR B	St 45	3601 HFS 27	
A 106 A	0.058				ASA B 36.10		API SL GR A	St 35.8	3059 / 1-2	
A 106 B	0.058				ASA B 36.10		API 5L GR B	St 45.8	3059 / 5-6	
ASTM A 333/1	0.06				ASA B 36.10			TT St. 35 N	3606 /LT 27	
A 333/3	0.05			3.18/3.82	ASA B 36.10			10 Ni 14	3603 503 LT 100	
ASTM A 335 P1	0.045	0.44/0.65			ASA B 36.10			15 Mo 316 Mo 5	3059 / 7-8	
P2	0.045	0.44/0.65	0.50/0.81		ASA B 36.10			13 Cr Mo 44		
P11	0.03	0.44/0.65	1.1.5		ASA B 36.10			13 Cr Mo 44	3604 Gr 621	
P12	0.045	0.44/0.65	0.8/1.25		ASA B 36.10			13 Cr Mo 44	3604 Gr 620	
P22	0.03	0.87/1.13	1.9/2.6		ASA B 36.10			10 Cr Mo 910	3604 Gr 622	
P 5	0.03	0.45/0.65	4 - 6		ASA B 36.10			12 Cr Mo 195	3604 Gr 625	
API 5 L GR A	0.05				ASA B 36.10		ASTM A 53 A			API
API 5 L GR B	0.05				ASA B 36.10		ASTM A 53 B			
API 5 LX 42	0.05				ASA B 36.10					
API 5 LX 46	0.05				ASA B 36.10					
API 5 LX 56	0.05				ASA B 36.10					
API 5 LX 60	0.05				ASA B 36.10					
API 5 LX 65	0.05				ASA B 36.10					
BS3601 HFS22	0.06						A 53 A	St 35		BS
BS3601 HFS27	0.05						A 53 B	St 45		
BS3601 HFS35	0.05							St 55		
BS3602 HFS23	0.05						A 106 A	St 35.8		
BS3602 HFS27	0.05						A 106 B	St 45.8		
BS3602 HFS35	0.05						A 106 C			
BS3059/3 E.R.W	0.05							St 35.8		

COMPARISON TABLES OF DIN-ASTM API-BS

		TENSILE STRENGTH		YIELD POINT		ELONGATION MIN %	%	%	%	%
		daN/mm² kgf/mm² abt.	1tn/in² abt.	daN/mn² kgf/mm² abt.	1tn/in² abt.	abt.	C	Si	Mn	P - max.
DIN	St 00	35-45	22 - 29	24	15	25				
	St 35	35-45	22 - 29	24	15	25	≤ 0.18			0.05
	St 45	45 - 55	29 - 35	26	16.5	21	≤ 0.25			0.05
	St 55	55 - 56	35 - 41	30	19	17	≤ 0.36			0.05
	St 52	52 - 62	33 - 39	36	23	22	≤ 0.20	≤ 0.55	≤ 1.50	0.05
	St 35.8	35 - 45	22 - 29	24	15	25	≤ 0.17	≤ 0.35	≥ 0.40	0.05
	St 45.8	45 - 55	29 - 35	26	16.5	21	≤ 0.22	0.10/0.35	≥ 0.45	0.05
	TT St 35 N	35 - 45	22 - 29	23	14.5	25	≤ 0.16	0.10/0.35	0.40/0.60	0.045
	15 Mo 3	45 - 55	29 - 35	29	18.5	22	0.12/0.20	0.15/0.35	0.50/0.80	0.04
	16 Mo 5	38.7	24				0.10/0.20	0.10/0.50	0.30/0.80	0.045
	13 Cr Mo 44	45 - 58	29 - 37	30	19	22	0.10/0.18	0.15/0.35	0.40/0.70	0.04
	10 Cr Mo 910	45 - 60	29 - 38	27	17	22	≤ 0.15	0.15/0.50	0.40/0.60	0.04
	12 Cr Mo 195	42	≥ 27	18	11.5	21	≤ 0.15	≤ 0.50	0.30/0.60	0.03
	MECHANICAL C35	60	38	32	20	20	≤ 0.35	0.40	0.60	0.04
	St 52-3	52 - 62	33 - 39	34	21.5	22	≤ 0.20	≤ 0.55	≤ 1.50	0.05
ASTM	ASTM A 53 A	33.7	21	21.1	13.5	35		(0.10 - 0.30)		0.048
	A 53 B	42.2	27	24.6	15.5	30		(0.10 - 0.30)		0.048
	A 106 A	33.7	21	21.1	13.5	35	0.25	0.10	0.27/0.93	0.048
	A 106 B	42.2	27	24.6	15.5	30	0.30	0.10	0.29/0.06	0.048
	ASTM A 333/1	38.7	24.5	21.1	13.5	35	0.30		0.40/1.06	0.05
	A 333/3	45.7	29	24.6	15.5	30	0.19	(0.18 - 0.37)	0.31/0.64	0.05
	ASTM A 335 P1	38.7	24.5	21.1	13.5	30	0.10/0.20	0.10/0.50	0.30/0.80	0.045
	P2	38.7	24.5	21.1	13.5	30	0.10/0.20	0.10/0.30	0.30/0.80	0.045
	P11	42.2	27	21.1	13.5	30	0.15	0.50/1.00	0.30/0.60	0.03
	P12	42.2	27	21.1	13.5	30	0.15	0.50	0.30/0.61	0.04
	P22	42.2	27	21.1	13.5	30	0.15	0.50	0.30/0.60	0.03
	P 5	42.2	27	21.1	13.5	30	0.15	0.50	0.30/0.60	0.03
API	API 5 L GR A	33.7	21	21.1	13.5	Variable	0.22		0.90	0.04
	API 5 L GR B	42.2	27	24.6	15.5	"	0.27		1.15	0.04
	API 5 L LX 42	42.2	27	29.5	19	"	0.29		1.25	0.04
	API 5 L LX 46	44.3	28	32.3	20	"	0.31		1.35	0.04
	API 5 L LX 56	49.9	31.5	39.2	25	"	0.26		1.35	0.04
	API 5 L LX 60	52.7	33.5	42.2	27	"	0.26		1.35	0.04
	API 5 L LX 65	56.2	35.5	45.7	29	"	0.26		1.40	0.04
BS	BS 3601 HFS 22	34.6	22	21.3	13.5	700 / ts : ton f / in ²	≤ 0.21		0.70	0.06
	BS 3601 HFS 27	42.5	27	25.2	16	"	≤ 0.25		0.70	0.05
	BS 3601 HFS 35	55.1	35	31.5	21	"	≤ 0.40		1.20	0.05
	BS 3602 HFS 23	36.2 - 47.2	23-30	21.3	13.5	"	≤ 0.20	(0.10-0.35)	0.30/0.70	0.05
	BS 3602 HFS 27	42.5 - 55.1	27-35	25.2	16	"	≤ 0.25	(0.10-0.35)	0.30.0.70	0.05
	BS 3602 HFS 35	55.1 - 67.7	35-45	31.5	20	"	≤ 0.35	(0.10-0.35)	0.70/1.10	0.05
	BS 3059/3 ERW	31.5 - 44.1	20-28	–	–	"				0.05

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