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TECHNICAL DATA



TITANIUM

Tensile and Chemical Requirements acc. to ASTM B 265

Riser Pipe. A Critical Element In Reaching For New Deep Oil Fields.

A riser pipe is the conductor connecting the seabed oil & gas heads to the ocean situated production or drilling process/operation on the fixed or non-fixed platform.

For the non-fixed type platform (moving floater) this element is required to be in a dynamic mode of operation and consequently very specific qualities are looked for. The offshore oil floating platforms sometimes use non-bonded types of armoured hose in steel/plastic as flexible production risers. These have limitations as regards: inspectability, life time and reliability at high temperatures, pressures and lengths.

When the platform motion is limited all metal riser are also made in steel with tapered stress joints. A main problem with steel is its weight and stiffness.

For heavier motion a strongly considered and also applied solution is to make solid metal flexible risers in Titanium alloy. This remarkable metal has half the weight, twice the elasticity and higher strength than carbon steel. In addition it can handle high temperature well streams, sour conditions, CO₂, H₂S etc..

Additional Titanium Products:

- Weldolet - Weldoflange - Nipoflange - Nipples - Swage nipples - Screw end union - Cap - Socket Weldings (fittings rating 3000 lb 6000 lb) - Threaded fittings rating 3000 lb 6000 lb - Reinforced branches for male connections - Gasket - Spectable blinds - Spade-Spacer - Stub-end ANSI/MSS - Drip Rings - Special fittings

Titanium Properties

Grade	1	2	3	4	5	7	9
Element%							
N (max)	0.03	0.03	0.05	0.05	0.05	0.03	0.02
C (max)	0.10	0.10	0.10	0.10	0.10	0.10	0.05
H (max)	0.015	0.015	0.015	0.015	0.015	0.015	0.10
Fe (max)	0.20	0.30	0.30	0.50	0.40	0.30	0.015
O (max)	0.18	0.25	0.35	0.40	0.20	0.25	0.15
Al	-	-	-	-	5.5÷6.75	-	2.5÷3.5
V	-	-	-	-	3.5÷4.5	-	2.0-3.0
Pd	-	-	-	-	-	0.12÷0.25	-
Tensile							
strength min.MPa	240	345	450	550	895	345	620
Yield strength							
0,2% offset min. MPa	170	275	380	485	830	275	485
max.MPa	310	450	550	655	-	450	-
Elongation							
in 50 mm min. %	24	20	18	15	10	20	15
Hardness Vickers							
(approx)	140	170	240	310	330	170	290

TITANIUM PROPERTIES



TITANIUM

acc. to ANSI B 16.5

Production Range:

- Flanges Welding Neck, Socket Weld, Threaded, Blind, Slip On, Lap Joint and Reducing type to ANSI B 16.5 from 1/2" to 24" and cl. 150 to 2500.
- Flanges from 12" to 60" and classes 150 to 900 lbs, in accordance with MSS SP 44 standard.
- Flanges Long Welding Neck, from class 150 to 2500 lbs and sizes from 1/2" to 24".
- Orifice flanges from 1" to 24" and class from 300 to 2500 lbs in accordance with ANSI 16.36.
- Flanges 26" to 48" cl. 150 to 600 lbs to BS 3293.
- Flanges to API 605, AWWA TEMA and light type.
- Flanges anchor type and swivel ring type.
- Flanges to API 6A std for well head equipment.
- Flanges of special type made acc. to drawing.

TITANIUM FLANGES

Weight* of Titanium Flanges

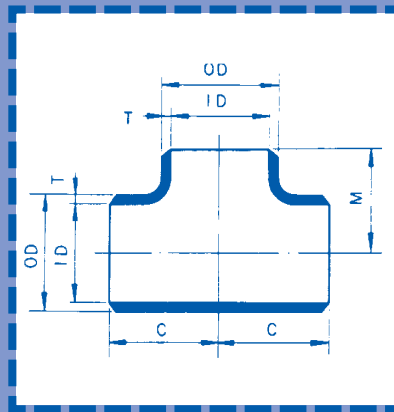
NPS	CLASS 150#					CLASS 300#				
	Welding Neck	Slip-on	Lap Joint	Threaded	Blind	Welding Neck	Slip-on	Lap Joint	Threaded	Blind
	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)	(Kg)
1/2	0.40	0.23	0.23	0.23	0.30	0.46	0.40	0.40	0.40	0.46
3/4	0.46	0.40	0.40	0.40	0.46	0.80	0.70	0.70	0.70	0.70
1	0.63	0.46	0.46	0.46	0.50	1.0	0.80	0.80	0.80	0.85
1 1/4	0.91	0.70	0.63	0.70	0.75	1.27	1.0	1.0	1.1	1.15
1 1/2	1.15	0.80	0.80	0.85	0.90	1.85	1.55	1.55	1.6	1.7
2	1.6	1.3	1.3	1.3	1.5	2.1	1.85	1.85	1.9	2.0
2 1/2	2.5	2.0	2.0	2.1	2.4	3.1	2.6	2.6	2.65	3.1
3	3.0	2.2	2.2	2.4	3.0	4.2	3.4	3.4	3.65	4.2
3 1/2	3.7	2.9	2.9	2.9	3.7	5.1	4.3	4.3	4.5	5.3
4	4.3	3.2	3.2	3.4	4.3	6.8	5.8	5.8	5.9	7.0
5	5.3	3.7	3.7	4.0	5.3	9.2	7.2	7.2	7.4	9.2
6	6.3	4.7	4.7	4.8	6.8	11.6	9.5	9.5	9.7	12.7
8	10.5	7.5	7.5	7.5	11.7	18	14.7	14.7	15	20.7
10	14.6	10.6	10.6	10.4	18	25.5	20	20	21.5	31.5
12	21.5	16.5	16.5	16.7	27	36.5	30	35.6	30.5	47.5
14	29	21.5	24	22.4	34.5	49.5	42	49.5	42	62
16	35.5	25.5	30.5	27	46.5	64.5	50.5	65	50.5	80
18	41	31	34	33	54	81	66	77	66	102
20	49	41.5	42.5	44	73	99.5	80	96	80	131
24	68.5	54.5	57	56	109	143	122	138	122	201

*Approximate u. weight in Kg.



TITANIUM

acc. to ASME/ANSI B 16.9



Wall Thickness and Weight*

Nominal Pipe Size	Nominal Outside Diameter (mm)	Nominal Center to end C (mm)	Nominal Center to end M (mm)	SCH10S (mm)	Weight (Kg)	SCH40S (mm)	Weight (Kg)	SCH80S (mm)	Weight (Kg)
1/2	21.34	25	25	2.11	0.10	2.77	0.10	3.73	0.14
3/4	26.63	29	29	2.11	0.15	2.87	0.15	3.91	0.16
1	33.4	38	38	2.77	0.16	3.38	0.17	4.55	0.20
1 1/4	42.2	48	48	2.77	0.26	3.56	0.30	4.85	0.40
1 1/2	48.3	57	57	2.77	0.39	3.68	0.45	5.08	0.56
2	60.3	64	64	2.77	1.0	3.91	1.1	5.54	1.1
2 1/2	73.0	76	76	3.05	1.3	5.16	1.55	7.01	1.8
3	88.9	86	86	3.05	1.7	5.49	2.2	7.62	2.6
3 1/2	101.6	95	95	3.05	2.3	5.74	3.0	8.08	3.6
4	114.3	105	105	3.05	2.6	6.02	3.5	8.56	4.8
5	141.3	124	124	3.40	4.3	6.55	5.7	9.52	7.5
6	168.3	143	143	3.40	6.9	7.11	11	10.97	10.9
8	219.1	178	178	3.76	11.5	8.18	16.1	12.70	20.1
10	273.0	216	216	4.19	15.5	9.27	23.5	12.70	34
12	323.9	254	254	4.57	27.6	9.52	38.5	12.70	49
14	355.6	279	279	4.78	50.5	--	--	--	--
16	406.4	305	305	4.78	53	--	--	--	--
18	457.2	343	343	4.78	74.5	--	--	--	--
20	508.0	381	381	5.54	115	--	--	--	--
22	558.8	419	419	5.54	124	--	--	--	--
24	609.6	432	432	6.35	175	--	--	--	--
30	762.4	559	559	7.92	275	--	--	--	--

*Approximate u. weight in Kg.

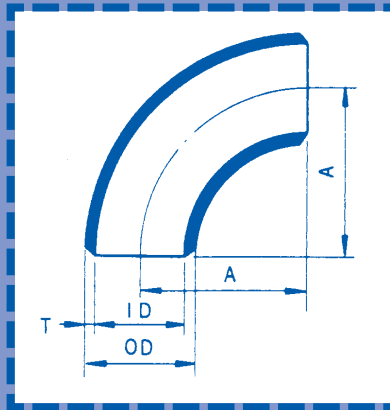
TITANIUM ELBOWS RADIUS 90°

TITANIUM

acc.to ASME/ANSI B 16.9 Wall Thickness and Weight*



Outside diameter and/or wall thickness of elbows not shown in the above table can be supplied upon customer request.



Wall Thickness and Weight*

Nominal Pipe Size	Nominal Outside Diameter (mm)	A Nom. (mm)	SCH 5S (mm)	Weight (Kg)	SCH 10S (mm)	Weight (Kg)	SCH 40S (mm)	Weight (Kg)	SCH 80S (mm)	Weight (Kg)
1/2	21.34	38	1.65	0.027	2.11	0.035	2.77	0.045	3.73	0.062
3/4	26.63	29	1.65	0.027	2.11	0.035	2.87	0.047	3.91	0.065
1	33.4	38	1.65	0.042	2.77	0.070	3.38	0.085	4.55	0.114
1 1/4	42.2	48	1.65	0.070	2.77	0.116	3.56	0.150	4.85	0.203
1 1/2	48.3	57	1.65	0.102	2.77	0.172	3.68	0.228	5.08	0.315
2	60.3	76	1.65	0.165	2.77	0.277	3.91	0.391	5.54	0.554
2 1/2	73.0	95	2.11	0.34	3.05	0.49	5.16	0.83	7.01	1.12
3	88.9	114	2.11	0.47	3.05	0.67	5.49	1.2	7.62	1.70
3 1/2	101.6	133	2.11	0.64	3.05	0.92	5.74	1.73	8.08	2.43
4	114.3	152	2.11	0.85	3.05	1.22	6.02	2.41	8.56	3.43
5	141.3	190	2.77	1.66	3.40	2.05	6.55	3.95	9.52	5.75
6	168.3	229	2.77	2.5	3.40	3.0	7.1	6.4	10.97	9.9
8	219.1	305	2.77	4.1	3.76	5.5	8.18	12	12.70	18.6
10	273.0	381	3.40	7.8	4.19	9.7	9.27	21.4	12.70	29.3
12	323.9	457	3.96	13.1	4.57	15.1	9.52	31.5	12.70	42
14	355.6	533	3.96	17	4.78	20.6	÷	÷	÷	÷
16	406.4	610	4.19	23.1	4.78	26.3	÷	÷	÷	÷
18	457.3	686	4.19	30.2	4.78	34.5	÷	÷	÷	÷
20	508.0	762	4.77	42.3	5.54	49	÷	÷	÷	÷
22	558.8	838	4.77	51.5	5.54	60	÷	÷	÷	÷
24	609.6	914	5.53	70	6.35	80	÷	÷	÷	÷
30	762.4	1143	6.35	128	7.92	160	÷	÷	÷	÷

*Approximate u. weight in Kg.



TITANIUM

ANSI/ASME B36.19M

Wall Thickness and Weight*

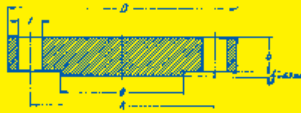
Nominal Pipe Size	Outside Diameter (mm)	SCH5S (mm)	Weight (kg/m)	SCH10S	Weight (kg/m)	SCH40S	Weight (kg/m)	SCH80S (mm)	Weight (kg/m)
1/8	10.30	÷	÷	1.24	0.18	1.73	0.25	2.41	0.35
1/4	13.71	÷	÷	1.65	0.32	2.27	0.44	3.02	0.59
3/8	17.14	÷	÷	1.65	0.40	2.31	0.56	3.20	0.78
1/2	21.34	1.65	0.50	2.11	0.64	2.77	0.87	3.73	1.13
3/4	26.67	1.65	0.63	2.11	0.80	2.87	1.08	3.91	1.47
1	33.43	1.65	0.74	2.77	1.19	3.38	1.43	4.55	1.85
1 1/4	42.2	1.65	0.94	2.77	1.54	3.56	1.94	4.85	2.55
1 1/2	48.3	1.65	1.09	2.77	1.79	3.68	2.32	5.08	3.11
2	60.3	1.65	1.36	2.77	2.26	3.91	3.12	5.54	4.29
2 1/2	73.0	2.11	2.13	3.05	3.01	5.16	4.98	7.01	6.55
3	88.9	2.11	2.58	3.05	3.70	5.49	6.47	7.62	8.75
3 1/2	101.6	2.11	2.98	3.05	4.24	5.74	7.78	8.08	10.68
4	114.3	2.11	3.33	3.05	4.78	6.02	9.22	8.56	12.79
5	141.3	2.77	5.42	3.40	6.63	6.55	12.48	9.52	17.74
6	168.3	2.77	6.48	3.40	7.92	7.11	16.20	10.97	24.40
8	219.1	2.77	8.47	3.76	11.43	8.18	24.38	12.7	37.05
10	273.1	3.40	12.97	4.19	15.95	9.27	34.56	12.7	46.70
12	323.9	3.96	18.92	4.57	20.64	9.53	42.32	12.7	55.81
14	355.6	3.96	19.62	4.78	23.61	÷	÷	÷	÷
16	406.4	4.19	23.85	4.78	27.13	÷	÷	÷	÷
18	457.2	4.19	26.85	4.78	30.49	÷	÷	÷	÷
20	508.0	4.78	34.00	5.54	39.27	÷	÷	÷	÷
22	558.8	4.78	37.41	5.54	43.30	÷	÷	÷	÷
24	609.6	5.54	47.35	6.35	54.10	÷	÷	÷	÷
30	762	6.35	68.00	7.92	84.46	÷	÷	÷	÷

TITANIUM PIPE

*Approximate u. weight in Kg.

FLANGES

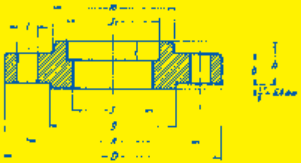
ANSI B16.5/B.S. 3293/MSS SP-44/API Std 605/API 6A S. 30



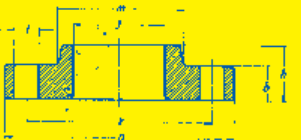
Blind Flanges: normally used to stop one end of a flanged pipe, a valve orifice or the opening of a pressure vessel. Owing to their form, they are not recommended if water hammers in the piping are possible. In this case it is better to stop the pipe by using welding neck flanges or slip-on flanges provided with a welded cap.



Slip-on flanges: recommended for their use in quick assembly, saving in cost, and in cases where extreme precision in length of pipe sections is not required. These slip-on flanges are recommended for less strict requirements, especially for more tolerant nominal pressures.



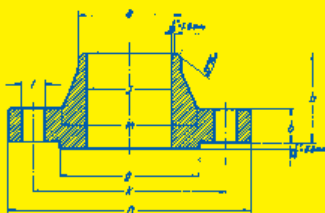
Socket welding flanges: they advantageously substitute slip-on flanges (particularly for small nominal diameters and for rather high working pressures) when a greater flow continuity is required without loss of force and turbulent flows owing to the step formed by the tube. They are particularly recommended for orifice flanges, as welding neck flanges are too.



Lap-joint flanges: having their principal use when there is need of a quick assembly and disassembly of pipe line sections with limited working pressure. They are put onto a flanged pipe or a flanged nozzle which is welded onto the pipe head. With the possibility of turning the flange keeping the pipe still, they make assembly and disassembly of large sized pipes much easier, because the problem of alignment between holes for bolts is eliminated.



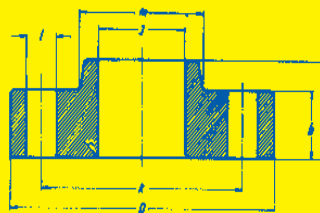
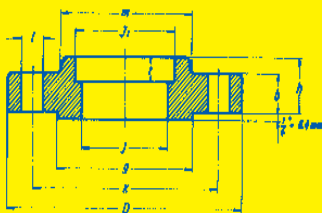
Threaded flanges: usually used for special requirements. Their advantage is the possibility to work under considerably high temperatures and pressures, avoiding the welding joint on assembly which requires a difficult heat treatment with alloy steel. They are not recommended when there is the possibility of bending stress on the pipe because, in a short time, loss on the threads would result.



Welding neck flanges: used on heat coupling of pipes, in the most difficult cases i.e. when bending stress on the coupling, due to expansion of section or to other various forces, is foreseen. The form of welding neck flanges with conical neck sloping down from welding point to flange, is the most recommended to support such stresses and to be employed in all the most severe fields with the most dangerous fluids.



FLANGES



ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX WEIGHT IN KGS						ND
												No.	Ø	WN	SW	SO	LJ	THR	BL	

DIMENSIONS IN MM

CLASS 150 LBS

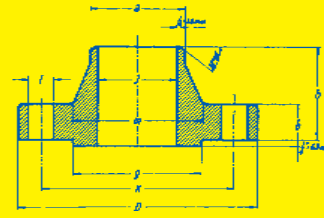
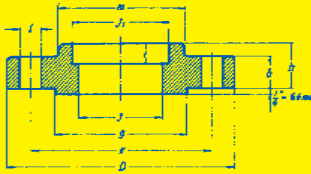
ASA B 16.5	1/2	88.9	30.2	21.3	22.3	22.9	34.9	11.1	15.9	47.6	15.9	60.3	4	15.9	0.5	0.4	0.4	0.4	0.4	0.4	0.4	1/2
	3/4	98.4	38.1	26.7	27.7	28.2	42.9	12.7	15.9	52.4	15.9	69.8	4	15.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	3/4
	1	107.9	49.2	33.5	34.5	35.05	50.8	14.3	17.5	55.6	17.5	79.4	4	15.9	1.1	0.9	0.8	0.8	0.8	0.9	0.9	1
	1 1/4	117.5	58.7	42.2	43.2	43.7	63.5	15.9	20.6	57.1	20.6	88.9	4	15.9	1.5	1.2	1.1	1.1	1.2	1.3	1.3	1 1/4
	1 1/2	127.0	65.1	48.3	49.5	50.0	73.0	17.5	22.2	61.9	22.2	98.4	4	15.9	1.8	1.5	1.4	1.4	1.5	1.6	1.6	1 1/2
	2	152.4	77.8	60.4	62.0	62.5	92.1	19.05	25.4	63.5	25.4	120.6	4	19.0	2.7	2.3	2.2	2.2	2.3	2.6	2.6	2
	2 1/2	177.8	90.5	73.1	74.7	75.4	104.8	22.3	28.6	69.7	28.6	139.7	4	19.0	4.4	3.7	3.6	3.6	3.7	4.1	4.1	2 1/2
	3	190.5	107.9	88.9	90.7	91.4	127.0	23.8	30.2	69.8	30.2	152.4	4	19.0	5.2	4.2	4.1	4.1	4.2	5	5	3
	3 1/2	215.9	122.2	101.6	103.4	104.1	139.7	23.8	31.7	71.4	31.7	177.8	8	19.0	6.4	5.3	5.2	5.2	5.3	6.4	6.4	3 1/2
	4	228.6	134.9	114.3	116.1	116.8	157.2	23.8	33.3	76.2	33.3	190.5	8	19.0	7.5	5.9	5.0	5.6	5.9	7.1	7.1	4
	5	254.0	163.5	141.2	143.8	144.5	185.7	23.8	36.5	88.9	36.5	215.9	8	22.2	9.2	7	6.3	6.3	7	9	9	5
	6	279.4	192.1	168.4	170.7	171.45	215.9	25.4	39.7	88.9	39.7	241.3	8	22.2	11	8.4	7.5	7.5	8.4	11.8	11.8	6
	8	342.9	246.1	219.2	221.5	222.25	269.9	28.6	44.4	101.6	44.4	298.4	8	22.2	18.3	13	12.6	12.6	13	21	21	8
	10	406.4	304.8	273.0	276.35	277.4	323.8	30.2	49.2	101.6	49.2	361.9	12	25.4	25	17.8	18.5	18.5	17.8	30	30	10
	12	482.6	365.1	323.8	327.15	328.2	381.0	31.7	55.6	114.3	55.6	431.8	12	25.4	39	29.5	28	28	29.5	45	45	12
	14	533.4	400.0	355.6	359.15	360.2	412.7	34.9	57.1	127.0	79.4	476.2	12	28.6	51	39	36	42	39	59	59	14
	16	596.9	457.2	406.4	410.5	411.2	469.9	36.5	63.5	127.0	87.3	539.7	16	28.6	60	42	46	52	42	79	79	16
	18	635.0	504.8	457.2	461.8	462.3	533.4	39.7	68.3	139.7	96.8	577.8	16	31.7	71	54	50	58	54	97	97	18
20	698.5	558.8	508.0	513.1	514.35	584.2	42.9	73.0	144.5	103.2	635.0	20	31.7	88	70	64	74	68	124	124	20	
22	749.3	609.6	558.8	564.4	565.1	641.2	46.0	79.4	149.2	107.9	692.1	20	34.9	102	72	91	72	91	151	151	22	
24	812.8	663.6	609.6	615.95	615.95	692.1	47.6	82.5	152.4	111.1	749.3	20	34.9	119	95	89	101	93	188	188	24	
ASA B 16.1	26	869.9	723.9	660.4	666.75	742.9	50.8	85.7	127.0	806.4	24	34.9	136			106			238	238	26	
	28	927.1	781.0	711.2	717.55	793.7	52.4	87.3	128.6	863.6	28	34.9	143			126			281	281	28	
	30	984.2	831.8	762.0	768.35	857.2	54.0	88.9	130.2	914.4	28	34.9	163			140			327	327	30	
	32	1060.4	889.0	812.8	819.15	908.0	57.1	92.1	133.35	977.9	28	41.3	197			168			395	395	32	
	34	1111.2	939.8	863.6	869.95	958.8	58.7	93.7	134.9	1028.7	32	41.3	211			191			449	449	34	
	36	1168.4	996.9	914.4	920.75	1022.3	60.3	95.2	136.5	1085.8	32	41.3	236			205			511	511	36	
	38	1238.2	1060.4	965.2	971.5	60.3	95.2	136.5		1149.3	32	41.3	272			251			571	571	38	
	40	1289.0	1111.2	1016.0	1022.3	63.5	98.4	139.7		1200.1	36	41.3	294			272			653	653	40	
	42	1346.2	1168.4	1066.8	1073.15	66.7	101.6	142.9		1257.3	36	41.3	340			310			738	738	42	
	44	1403.3	1219.2	1117.6	1123.9	66.7	101.6	142.9		1314.4	40	41.3	357			333			813	813	44	
	46	1454.1	1270.0	1168.4	1174.7	68.2	103.2	144.5		1365.2	40	41.3	380			353			896	896	46	
	48	1504.9	1327.1	1219.2	1225.5	69.8	111.1	146.0		1422.4	44	41.3	412			380			987	987	48	

CLASS 300 LBS

ASA B 16.5	1/2	95.2	38.1	21.3	22.3	22.9	34.9	14.3	22.2	52.4	22.2	66.7	4	15.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7	1/2
	3/4	117.5	47.6	26.7	27.7	28.2	42.9	15.9	25.4	57.1	25.4	82.5	4	19.05	1.5	1.2	1.1	1.1	1.2	1.2	1.2	3/4
	1	123.8	54.0	33.5	34.5	35.05	50.8	17.5	27.0	61.9	27.0	88.9	4	19.05	1.9	1.4	1.4	1.4	1.4	1.5	1.5	1
	1 1/4	133.35	63.5	42.2	43.2	43.7	63.5	19.05	27.0	65.1	27.0	98.4	4	19.05	2.6	1.9	1.8	1.8	1.9	2	2	1 1/4
	1 1/2	155.6	69.8	48.3	49.5	50.0	73.0	20.6	30.2	68.3	30.2	114.3	4	22.2	3.3	2.8	2.6	2.6	2.8	2.9	2.9	1 1/2
	2	165.1	84.1	60.45	62.0	62.5	92.1	22.2	33.3	69.8	33.3	127.0	8	19.05	3.6	3.3	3.4	3.4	3.3	3.4	3.4	2
	2 1/2	190.5	100.0	73.15	74.7	75.4	104.8	25.4	38.1	76.2	38.1	149.2	8	22.2	5.4	4.6	4.4	4.4	4.6	5.1	5.1	2 1/2
	3	209.55	117.5	88.9	90.7	91.4	127.0	28.6	42.9	79.4	42.9	168.3	8	22.2	7.4	6.3	6.1	6.1	6.3	7	7	3
	3 1/2	228.6	133.35	101.6	103.4	104.1	139.7	30.2	44.4	81.0	44.4	184.15	8	22.2	8.9	7.8	7.5	7.5	7.8	8.9	8.9	3 1/2
	4	254.0	146.05	114.3	116.1	116.8	157.2	31.7	47.6	85.7	47.6	200.0	8	22.2	11.9	10.2	10.1	10.1	10.2	11.8	11.8	4
	5	279.4	177.8	141.2	143.8	144.5	185.7	34.9	50.8	98.4	50.8	234.95	8	22.2	16		12.5	12.5	12.9	15.5	15.5	5
	6	317.5	206.4	168.4	170.7	171.45	215.9	36.5	52.4	98.4	52.4	269.9	12	22.2	20.2		14.1	14.1	18	21.3	21.3	6
	8	381.0	260.35	219.2	221.5	222.25	269.9	41.3	61.9	111.1	61.9	330.2	12	25.4	31		24.8	24.8	26	35.2	35.2	8
	10	444.5	320.7	273.05	276.35	277.4	323.8	47.6	66.7	117.5	95.2	387.3	16	28.6	44.3		37.1	42	37.5	57	57	10
	12	520.7	374.6	323.85	327.15	328.2	381.0	50.8	73.0	130.2	101.6	450.8	16	31.7	64		50	64	52	82	82	12
	14	584.2	425.5	355.6	359.15	360.2	412.7	54.0	76.2	142.9	111.1	514.3	20	31.7	88		70	87	72	106	106	14
	16	647.7	482.6	406.4	410.5	411.2	469.9	57.1	82.5	146.05	120.6	571.5	20	34.9	113		90	114	100	140	140	16
	18	711.2	533.4	457.2	461.8	462.3	533.4	60.3	88.9	158.75	130.2	628.6	24	34.9	134		112	134	126	178	178	18
20	774.7	587.4	508.0	513.1	514.35	584.2	63.5	95.2	161.9	139.7	685.8	24	34.9	171		133	168	148	223	223	20	
22	838.2	641.2	558.8	564.4	565.1	641.2	66.7	101.6	165.1	146.05	742.9	24	41.3	195		197	198	270	270	22		
24	914.4	701.7	609.6	615.95	615.95	692.1	69.8	106.4	168.3	152.4	812.8	24	41.3	238		208	250	222	345	345	24	
MSS-SP-44	26	971.5	720.7	666.7	666.7	749.3	79.4	184.15	184.15	876.3	28	44.5	306			260			477	477	26	
	28	1035.0	774.7	717.5	717.5	800.1	85.7	196.85	196.85	939.8	28	44.5	371			328			579	579	28	
	30	1092.2	827.0	768.3	768.3	857.2	92.0	209.55	209.55	996.9	28	47.6	426			371			681	681	30	
	32	1149.3	881.0	819.1	819.1	914.4	98.4	222.25	225.25	1054.1	28	50.8	469			407						

FORGED STEEL FLANGES

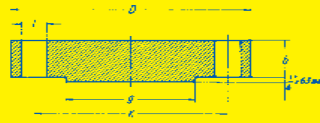
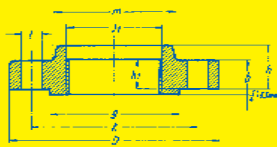
FLANGES



	ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX. WEIGHT IN KGS						ND
													No.	Ø	WN	SW	SO	LJ	THR	BL	
DIMENSIONS IN MM CLASS 400 LBS																					
ASA B 16.5	1/2	95.2	38.1	21.3	22.3	22.9	34.9	14.3	22.2	52.4	22.2	66.7	4	15.9	0.8	0.8	0.8	1.0	0.7	1/2	
	3/4	117.5	47.6	26.7	27.7	28.2	42.9	15.9	25.4	57.1	25.4	82.5	4	19.05	1.3	1.4	1.4	1.6	1.2	3/4	
	1	123.8	54.0	33.5	34.5	35.05	50.8	17.5	27.0	61.9	27.0	88.9	4	19.05	1.7	1.6	1.6	1.8	1.5	1	
	1 1/4	133.35	63.5	42.2	43.2	43.7	63.5	20.6	28.6	66.7	28.6	98.4	4	19.05	2.2	2.1	2.1	2.6	2.0	1 1/4	
	1 1/2	155.6	69.8	48.3	49.5	50.0	73.0	22.2	31.7	69.8	31.7	114.3	4	22.2	3.2	3.1	3.1	3.3	3.2	1 1/2	
	2	165.1	84.1	60.45	62.0	62.5	92.1	25.4	36.5	73.0	36.5	127.0	8	19.05	4.7	3.7	3.7	3.9	4.3	2	
	2 1/2	190.5	100.0	73.15	74.7	75.4	104.8	28.6	41.3	79.4	41.3	149.2	8	22.2	6.5	5.4	5.4	6.0	6.0	2 1/2	
	3	209.55	117.5	88.9	90.7	91.4	127.0	31.8	46.0	82.5	46.0	168.3	8	22.2	8.7	7.3	7.3	7.4	8.0	3	
	3 1/2	228.6	133.35	101.6	103.4	104.1	139.7	34.9	49.2	85.7	49.2	184.15	8	25.4	11.2	8.9	8.9	10	10.5	3 1/2	
	4	254.0	146.05	114.3	116.1	116.8	157.2	34.9	50.8	88.9	50.8	200.0	8	25.4	14	11.5	11.5	12.5	14	4	
	5	279.4	177.8	141.2	143.8	144.5	185.7	38.1	54.0	101.6	54.0	234.95	8	25.4	19	14.5	14.5	15.5	19	5	
	6	317.5	206.4	168.4	170.7	171.45	215.9	41.3	57.1	103.2	57.1	269.9	12	25.4	25.5	19	19	21	26	6	
	8	381.0	260.35	219.2	221.5	222.25	269.9	47.6	68.3	117.5	68.3	330.2	12	28.6	39.5	29	32	31	43	8	
	10	444.5	320.7	273.05	276.35	277.4	323.8	54.0	73.0	123.8	73.0	401.6	16	31.7	54	39.5	44	42	65	10	
	12	520.7	374.6	323.85	327.15	328.2	381.0	57.1	79.4	136.5	79.4	450.8	16	34.9	78	58	65	61	95	12	
	14	584.2	425.5	355.6	359.15	360.2	412.7	60.3	84.1	149.2	84.1	514.3	20	34.9	105	82	91	85	126	14	
	16	647.7	482.6	406.4	410.5	411.2	469.9	63.5	93.7	152.4	93.7	571.5	20	38.1	131	105	115	110	163	16	
	18	711.2	533.4	457.2	461.8	462.3	533.4	66.7	98.4	165.1	98.4	636.5	24	38.1	159	126	139	131	206	18	
	20	774.7	587.4	508.0	513.1	514.35	584.2	69.8	101.6	168.3	101.6	700.0	24	41.3	190	152	170	157	270	20	
	22	838.2	641.2	558.8	564.4	565.1	641.2	73.0	107.9	171.45	107.9	772.9	24	44.4	211	211	206	311	22		
24	914.4	701.7	609.6	615.95	615.95	692.1	76.2	114.3	174.6	114.3	847.8	24	47.6	275	232	260	225	410	24		
MSS-SP-44	26	971.5	727.1	668.3	666.75		749.3	88.9	193.7	193.7		876.3	28	47.6	340	295			511	26	
	28	1035.0	782.6	719.1	717.55		800.1	95.2	206.4	206.4		939.8	28	50.8	400	354			647	28	
	30	1092.2	836.6	769.9	768.35		857.2	101.6	219.1	219.1		996.9	28	54.0	454	408			760	30	
	32	1149.3	889.0	822.3	819.15		914.4	107.9	231.8	231.8		1054.1	28	54.0	522	465			897	32	
	34	1206.5	944.55	873.1	869.95		965.2	111.1	241.3	241.3		1104.9	28	54.0	590	522			1021	34	
	36	1270.0	1000.1	925.5	920.75		1022.3	114.3	250.8	250.8		1168.4	32	54.0	669	601			1146	36	
	CLASS 600 LBS																				
	ASA B 16.5	1/2	95.2	38.1	21.3	22.3	22.9	34.9	14.3	22.2	52.4	22.2	66.7	4	15.9	0.9	1.0	0.8	0.8	1.0	0.7
3/4		117.5	47.6	26.7	27.7	28.2	42.9	15.9	25.4	57.1	25.4	82.5	4	19.05	1.5	1.6	1.4	1.4	1.6	1.2	3/4
1		123.8	54.0	33.5	34.5	35.05	50.8	17.5	27.0	61.9	27.0	88.9	4	19.05	1.9	1.8	1.6	1.6	1.8	1.5	1
1 1/4		133.35	63.5	42.2	43.2	43.7	63.5	20.6	28.6	66.7	28.6	98.4	4	19.05	2.6	2.6	2.1	2.1	2.6	2.0	1 1/4
1 1/2		155.6	69.8	48.3	49.5	50.0	73.0	22.2	31.7	69.8	31.7	114.3	4	22.2	3.3	3.3	3.1	3.1	3.3	3.2	1 1/2
2		165.1	84.1	60.45	62.0	62.5	92.1	25.4	36.5	73.0	36.5	127.0	8	19.05	4.7	3.9	3.7	3.7	3.9	4.3	2
2 1/2		190.5	100.0	73.15	74.7	75.4	104.8	28.6	41.3	79.4	41.3	149.2	8	22.2	6.5	6.0	5.4	5.4	6.0	6.0	2 1/2
3		209.55	117.5	88.9	90.7	91.4	127.0	31.7	46.0	82.5	46.0	168.3	8	22.2	8.7	7.4	7.3	7.3	7.4	8.0	3
3 1/2		228.6	133.35	101.6	103.4	104.1	139.7	34.9	49.2	85.7	49.2	184.15	8	25.4	11.2	9.5	8.9	8.9	9.5	10.5	3 1/2
4		273.05	152.4	114.3	116.1	116.8	157.2	38.1	54.0	101.6	54.0	215.9	8	25.4	18.1		15.8	15.8	17.0	18	4
5		330.2	188.9	141.2	143.8	144.5	185.7	44.4	60.3	114.3	60.3	266.7	8	28.6	30.5		24.5	24.5	26.5	28.5	5
6		355.6	222.25	168.4	170.7	171.45	215.9	47.6	66.7	117.5	66.7	292.1	12	28.6	36.2		29.5	29.5	32	35.5	6
8		419.1	273.05	219.2	221.5	222.25	269.9	55.6	76.2	133.35	76.2	349.2	12	31.7	56.5		43	43	46	58	8
10		508.0	342.9	273.05	276.35	277.4	323.8	63.5	85.7	152.4	85.7	431.8	16	34.9	91		70	77	74	98	10
12		558.8	400.0	323.85	327.15	328.2	381.0	66.7	92.1	155.6	92.1	488.9	20	34.9	105		86	92	90	125	12
14		603.2	431.8	355.6	359.15	360.2	412.7	69.8	93.7	165.1	93.7	527.0	20	38.1	127		100	114	108	151	14
16		685.8	495.3	406.4	410.5	411.2	469.9	76.2	106.4	177.8	106.4	603.2	20	41.3	178		142	160	150	215	16
18		742.9	546.1	457.2	461.8	462.3	533.5	82.6	117.5	184.15	117.5	654.0	20	44.4	216		175	192	188	287	18
20		812.8	609.6	508.0	513.1	514.35	584.2	88.9	127.0	190.5	127.0	723.9	24	44.4	268		232	260	230	366	20
22		869.9	666.7	558.8	564.4	565.1	641.2	95.2	133.35	196.8	133.35	777.9	24	47.6	328		292	305	437	437	22
24	939.8	717.5	609.6	615.95	615.95	692.1	101.6	139.7	203.2	139.7	838.3	24	50.8	380		330	368	325	532	24	
MSS-SP-44	26	1016.0	747.7	671.5	666.75		749.3	107.9	222.25	222.25		914.4	28	50.8	470		432			692	26
	28	1073.1	803.3	723.9	717.55		800.1	111.1	234.95	234.95		965.2	28	54.0	535		490			794	28
	30	1130.3	862.0	774.7	768.35		857.2	114.3	247.65	247.65		1022.3	28	54.0	592		533			908	30
	32	1193.8	917.6	825.5	819.15		914.4	117.5	260.35	260.35		1079.5	28	60.3	681		624			1044	32
	34	1244.6	973.1	877.9	869.95		965.2	120.6	269.9	269.9		1130.3	28	60.3	749		681			1169	34
	36	1314.4	1031.9	928.7	920.75		1022.3	123.8	282.6	282.6		1193.8	28	66.7	795		726			1339	36



FLANGES



ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX. WEIGHT IN KGS						ND
												No.	Ø	WN	SW	SO	LJ	THR	BL	

DIMENSIONS IN MM CLASS 900 LBS
FOR RANGE FROM 1/2" TO 2 1/2" SAME DIMENSIONS AS 1500 LBS

ASA B 16.5	ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX. WEIGHT IN KGS						ND
													No.	Ø	WN	SW	SO	LJ	THR	BL	
3	241.3	127.0	88.9	90.7	91.4	127.0	38.1	54.0	101.6	54.0	190.5	8	25.4	15	11.6	11.6	11.9	13.1	3		
4	292.1	158.75	114.3	116.1	116.8	157.2	44.4	69.8	114.3	69.8	234.9	8	31.7	24	19.8	19.8	20	22.1	4		
5	349.2	190.5	141.2	143.8	144.5	185.7	50.8	79.4	127.0	79.4	279.4	8	34.9	37	32	32	32.5	36.5	5		
6	381.0	234.9	168.4	170.7	174.45	215.9	55.6	85.7	139.7	85.7	317.5	12	31.7	50	41.2	41.2	41.7	47.4	6		
8	469.9	298.4	219.2	221.5	222.25	269.9	63.5	101.6	161.9	114.3	393.7	12	38.1	85	78	75	77.5	82.5	8		
10	546.1	368.3	273.05	276.35	277.4	323.8	69.8	107.9	184.15	127.0	469.9	16	38.1	127	110	115	110	123	10		
12	609.6	419.1	323.85	327.15	328.2	381.0	79.4	117.5	200.0	142.9	533.4	20	38.1	170	149	155	149	174	12		
14	641.3	450.8	355.6	359.15	360.2	412.7	85.7	130.2	212.7	155.6	558.8	20	41.3	198	181	170	181	225	14		
16	704.8	508.0	406.4	410.5	411.2	469.9	88.9	133.35	215.9	165.1	615.9	20	44.4	224	194	210	194	280	16		
18	787.4	565.1	457.2	461.8	462.3	533.4	101.6	152.4	228.6	190.5	685.8	20	50.8	300	274	298	274	400	18		
20	857.2	622.3	508.0	513.1	514.35	584.2	107.9	158.75	247.65	209.55	749.3	20	54.0	374	332	370	332	503	20		
24	1041.4	749.3	609.6	615.95	615.95	692.1	139.7	203.2	292.1	266.7	901.7	20	66.7	680	637	710	637	953	24		

CLASS 1500 LBS

ASA B 16.5	ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX. WEIGHT IN KGS						ND
													No.	Ø	WN	SW	SO	LJ	THR	BL	
1/2	120.6	38.1	21.3	22.3	22.9	34.9	22.2	31.7	60.3	31.7	82.5	4	22.2	1.9	1.7	1.7	1.7	1.7	1.8	1/2	
3/4	130.2	44.4	26.7	27.7	28.2	42.9	25.4	34.9	69.8	34.9	88.9	4	22.2	2.6	2.4	2.3	2.3	2.4	2.4	3/4	
1	149.2	52.4	33.5	34.5	35.05	50.8	28.6	41.3	73.0	41.3	101.6	4	25.4	3.8	3.5	3.4	3.4	3.5	3.6	1	
1 1/4	158.7	63.5	42.2	43.2	43.7	63.5	28.6	41.3	73.0	41.3	111.1	4	25.4	4.4	4.0	3.9	3.9	4.0	4.1	1 1/4	
1 1/2	177.8	69.8	48.3	49.5	50.0	73.0	31.7	44.4	82.5	44.4	123.8	4	28.6	6.1	5.5	5.4	5.4	5.5	5.8	1 1/2	
2	215.9	104.8	60.4	62.0	62.5	92.1	38.1	57.1	101.6	57.1	165.1	8	25.4	11.1	10.0	9.8	9.8	10.0	10.1	2	
2 1/2	244.5	123.8	73.1	74.7	75.4	104.8	41.3	63.5	104.8	63.5	190.5	8	28.6	15.5	13.9	13.7	13.7	13.9	14	2 1/2	
3	266.7	133.35	88.9	90.7	91.4	127.0	47.6	73.0	117.5	73.0	203.2	8	31.7	20.4	18	18	18.1	19	3		
4	311.1	161.9	114.3	116.1	116.8	157.2	54.0	90.5	123.8	90.5	241.3	8	34.9	30.5	27.8	27.8	28	30	4		
5	374.6	196.8	141.2	143.8	144.5	185.7	73.0	104.8	155.6	104.8	292.1	8	41.3	58	52	52	52	58	5		
6	393.7	228.6	168.4	170.7	171.45	215.9	82.6	119.1	171.4	119.1	317.5	12	38.1	70	61	61	61	72	6		
8	482.6	292.1	219.2	221.5	222.25	269.9	92.1	142.9	212.7	142.9	393.7	12	44.4	125	104	104	105	122	8		
10	584.2	368.3	273.0	276.3	277.4	323.8	107.9	158.75	254.0	177.8	482.6	12	50.8	204	175	220	176	210	10		
12	673.1	450.8	323.8	327.1	328.2	381.0	123.8	181.0	282.5	219.1	571.5	16	54.0	303	264	287	266	315	12		
14	749.3	495.3	355.6	359.1	360.2	412.7	133.45	298.4	241.3	635.0	667.7	16	60.3	427	405	405	423	14			
16	825.5	552.4	406.4	410.5	411.2	469.9	146.15	311.1	260.35	704.8	867.7	16	66.7	570	525	525	590	16			
18	914.4	596.9	457.2	461.8	462.3	533.4	161.9	327.0	276.2	774.7	967.7	16	73.0	740	670	670	795	18			
20	984.2	641.3	508.0	513.1	514.3	584.2	177.8	355.6	292.1	831.8	1031.8	16	79.4	935	810	810	1030	20			
24	1168.4	762.0	609.6	615.9	615.9	692.1	203.2	406.4	330.2	990.6	1230.6	16	92.1	1515	1290	1290	1650	24			

CLASS 3000 LBS

ASA B 16.5	ND	D	M	A	J	J ₂	G	B	H	H ₁	H ₂	K	HOLES		APPROX. WEIGHT IN KGS						ND
													No.	Ø	WN	SW	SO	LJ	THR	BL	
1/2	133.35	42.9	21.3	22.35	22.9	34.9	30.2	39.7	73.0	39.7	88.9	4	22.2	3.6	3	3	3	3	3	1/2	
3/4	139.7	50.8	26.7	27.7	28.2	42.9	31.7	42.9	79.4	42.9	95.2	4	22.2	4.0	4	4	4	4.5	3/4		
1	158.75	57.1	33.5	34.5	35.05	50.8	34.9	47.6	88.9	47.6	107.9	4	25.4	6.0	5	5	5	5	1		
1 1/4	184.15	73.0	42.2	43.2	43.7	63.5	38.1	52.4	95.2	52.4	130.2	4	28.6	9	8	8	8	8	1 1/4		
1 1/2	203.2	79.4	48.3	49.5	50.0	73.0	44.4	60.3	111.1	60.3	146.05	4	31.7	13	11	11	11	11	1 1/2		
2	234.95	95.2	60.45	62.0	62.5	92.1	50.8	69.8	127.0	69.8	171.45	8	28.6	19	17	17	17	17	2		
2 1/2	266.7	114.3	73.15	74.7	75.4	104.8	57.1	79.4	142.9	79.4	196.85	8	31.7	24	25	25	25	25	2 1/2		
3	304.8	133.35	88.9	90.7	91.4	127.0	66.7	92.1	168.3	92.1	228.6	8	34.9	43	38	38	38	39	3		
4	355.6	165.1	114.3	116.1	116.8	157.2	76.2	107.9	190.5	107.9	273.05	8	41.3	66	58	58	58	60	4		
5	419.1	203.2	141.2	143.8	144.5	185.7	92.1	130.2	228.6	130.2	323.8	8	47.6	111	95	95	95	101	5		
6	482.6	234.95	168.4	170.7	171.45	215.9	107.9	152.4	273.05	152.4	368.3	8	54.0	172	146	146	146	156	6		
8	552.4	304.8	219.2	221.5	222.25	269.9	127.0	177.8	317.5	177.8	438.1	12	54.0	261	220	220	220	242	8		
10	673.1	374.6	273.05	276.35	277.4	323.8	165.1	228.6	419.1	228.6	539.7	12	66.7	485	420	420	420	465	10		
12	762.0	441.3	323.85	327.15	328.2	381.0	184.15	254.0	463.5	254.0	619.1	12	73.0	730	500	500	590	665	12		

FORGED STEEL FLANGES

FLANGES



DIMENSIONS OF WELDED AND SEAMLESS PIPES (ANSI B36.10 & B36.19)

NOM. DIAM.	OUTSIDE PIPE DIAMET.	CARBON AND ALLOY STEELS											STAINLESS STEELS				NOM. DIAM.			
		STANDARD STD.	EXTRA HEAVY XH	DOUBLE EXTRA HEAVY XXH	SCHEDULES AS A B 36.10								SCHEDULES B 36.19							
					10	20	30	40	60	80	100	120	140	160	5S	10S		40S	80S	
1/2	21,34	15,8	13,9	6,4				15,8		13,9					11,8	16,0	17,1	15,8	13,9	1/2
3/4	26,67	20,9	18,9	11,0				20,9		18,9					15,6	23,3	22,5	20,9	18,9	3/4
1	33,40	26,6	24,3	15,2				26,6		24,3					20,7	30,1	27,9	26,6	24,3	1
1 1/4	42,16	35,0	32,5	22,7				35,0		32,5					29,5	38,8	36,6	35,0	32,5	1 1/4
1 1/2	48,26	40,9	38,1	27,8				40,9		38,1					34,0	44,9	42,7	40,9	38,1	1 1/2
2	60,32	52,5	49,2	38,1				52,5		49,2					42,9	57,0	54,8	52,5	49,2	2
2 1/2	73,02	62,7	59,0	45,0				62,7		59,0					54,0	68,8	66,9	62,7	59,0	2 1/2
3	88,90	77,9	73,7	58,5				77,9		73,7					66,7	84,7	82,8	77,9	73,7	3
3 1/2	101,60	90,1	85,4					90,1		85,4						97,4	95,5	90,1	85,4	3 1/2
4	114,30	102,3	97,2	80,1				102,3		97,2		92,1			87,3	110,1	108,2	102,3	97,2	4
5	141,30	128,2	122,2	103,3				128,2		122,2		115,9			109,5	135,8	134,5	128,2	122,2	5
6	168,3	154,1	146,3	124,5				154,1		146,3		139,7			131,9	162,7	161,5	154,1	146,3	6
7	219,1	202,7	193,7	174,7			206,4	205,0	202,7	198,5	193,7	188,9	182,7	177,9	173,1	213,5	211,5	202,7	193,7	8
10	273,0	254,5	247,6				260,3	257,4	254,5	247,6	242,8	236,6	230,2	222,2	215,8	266,2	264,7	254,5	247,6	10
12	323,8	304,8	298,4				311,1	307,0	303,2	295,2	289,0	281,0	273,0	266,6	257,2	315,9	314,7	304,8	298,4	12
14	355,6	336,5	330,2				342,9	339,7	336,5	333,4	325,4	317,6	308,0	300,0	292,0	347,7	346,0			14
16	406,4	387,3	381,0				393,7	390,5	387,4	381,0	373,0	363,6	354,0	344,6	333,4	398,0	396,8			16
18	457,2	438,1	431,8				444,5	441,3	435,0	428,6	419,2	409,6	398,4	387,4	377,8	448,8	448,8			18
20	508,0	483,9	482,6				495,3	488,9	482,6	477,8	466,8	455,6	443,0	431,8	419,2	498,5	496,9			20
24	609,6	590,5	584,2				596,9	590,5	581,0	574,8	560,4	547,8	531,8	517,6	504,8	598,5	596,9			24
30	762,0						746,15	736,6	730,2											30

DIMENSIONS IN MM

DIMENSIONS OF BOLTS

ND	N°	150 LBS				300 LBS				400 LBS				600 LBS				900 LBS				1500 LBS				2500 LBS			
		Ø	RF L	RTJ L		Ø	RF L	RTJ L		Ø	RF L	RTJ L		Ø	RF L	RTJ L		Ø	RF L	RTJ L		Ø	RF L	RTJ L		Ø	RF L	RTJ L	
1/2	4	12,7	57,2			4	12,7	63,5	76,2	4	12,7	76,2	76,2	4	12,7	76,2	76,2					4	19,1	101,6	101,6	4	19,1	120,7	120,7
3/4	4	12,7	57,2			4	15,9	69,9	82,6	4	15,9	82,6	82,6	4	15,9	82,6	82,6					4	19,1	108,0	108,0	4	19,1	120,7	120,7
1	4	12,7	63,5	76,2		4	15,9	76,2	88,9	4	15,9	88,9	88,9	4	15,9	88,9	88,9					4	22,2	120,7	120,7	4	22,2	133,4	133,4
1 1/4	4	12,7	63,5	76,2		4	15,9	76,2	88,9	4	15,9	95,3	95,3	4	15,9	95,3	95,3					4	22,2	120,7	120,7	4	25,4	146,1	152,4
1 1/2	4	12,7	69,9	82,6		4	19,1	88,9	101,6	4	19,1	101,6	101,6	4	19,1	101,6	101,6					4	25,4	133,4	133,4	4	28,6	165,1	171,5
2	4	15,9	76,2	88,9		8	15,9	82,6	101,6	8	15,9	101,6	108,0	8	15,9	101,6	108,0					8	22,2	139,7	146,1	8	25,4	171,5	177,8
2 1/2	4	15,9	82,6	95,3		8	19,1	95,3	114,3	8	19,1	114,3	120,7	8	19,1	114,3	120,7					8	25,4	152,4	158,8	8	28,6	190,5	196,9
3	4	15,9	88,9	101,6		8	19,1	101,6	120,7	8	19,1	120,7	127,0	8	19,1	120,7	127,0					8	28,6	171,5	177,8	8	31,8	215,9	222,3
3 1/2	8	15,9	88,9	101,6		8	19,1	108,0	127,0	8	22,2	133,4	139,7	8	22,2	133,4	139,7												
4	8	15,9	88,9	101,6		8	19,1	108,0	127,0	8	22,2	133,4	139,7	8	22,2	139,7	146,1	8	28,6	165,1	171,5	8	31,8	190,5	196,9	8	38,1	247,7	260,4
5	8	19,1	95,3	108,0		8	19,1	114,3	133,4	8	22,2	139,7	146,1	8	25,4	158,8	165,1	8	31,8	184,2	190,5	8	38,1	241,3	247,7	8	44,5	292,1	311,2
6	8	19,1	95,3	108,0		12	19,1	120,7	139,7	12	22,2	146,1	152,4	12	25,4	165,1	171,5	12	28,6	190,5	190,5	12	34,9	254,0	260,4	8	50,8	342,9	355,6
8	8	19,1	101,6	114,3		12	22,2	133,4	152,4	12	25,4	165,1	171,5	12	28,6	190,5	196,9	12	34,9	215,9	222,3	12	41,3	285,8	298,5	12	50,8	381,0	393,7
10	12	22,2	114,3	127,0		16	25,4	152,4	171,5	16	28,6	184,2	190,5	16	31,8	209,6	215,9	16	34,9	228,6	235,0	12	47,6	336,6	342,9	12	63,5	482,6	508,0
12	12	22,2	114,3	127,0		16	28,6	165,1	184,2	16	31,8	196,9	203,2	20	31,8	215,9	222,3	20	34,9	247,7	254,0	16	50,8	374,7	387,4	12	69,9	533,4	558,8
14	12	25,4	127,0	139,7		20	28,6	171,5	190,5	20	31,8	203,2	209,6	20	34,9	228,6	235,0	20	38,1	266,7	279,4	16	57,2	406,4	425,5				
16	16	25,4	133,4	146,1		20	31,8	184,2	203,2	20	34,9	215,9	222,3	20	38,1	247,7	254,0	20	41,3	279,4	292,1	16	63,5	444,5	469,9				
18	16	28,6	146,1	158,8		24	31,8	190,5	209,6	24	34,9	222,3	228,6	20	41,3	266,7	273,1	20	47,6	323,9	336,6	16	69,9	489,0	514,4				
20	20	28,6	152,4	165,1		24	31,8	203,2	222,3	24	38,1	241,3	247,7	24	41,3	285,8	292,1	20	50,8	342,9	355,6	16	76,2	533,4	565,2				
24	20	31,8	171,5	184,2		24	38,1	228,6	254,0	24	44,5	266,7	279,4	24	47,6	323,9	336,6	20	63,5	431,8	450,9	16	88,9	609,6	647,7				

SPECIAL ASA FLANGES

LONG WELDING NECKS
LIGHT WEIGHT SLIP ON'S
ORIFICE FLANGE UNIONS
LARGE DIAMETER
REDUCING FLANGES
ANCHORING FLANGES
DRIP RINGS
SPECTACLE PLATES
SINGLE BLINDS
RING SPACERS

SPECIAL FLANGES CAN BE ALSO SUPPLIED ACCORDING TO CUSTOMER'S DRAWINGS



FLANGES

Tolerances acc. to ANSI B 16.5

Thread, Socket-Welding, Slip-on, Lap Joint and Blind.		
Outside Diameter	When O.D. is 24" or less	± 1/16" (1.6mm)
	When O.D. is Over 24"	± 1/8" (3.2mm)
Inside Diameter	Threaded	Within limits on boring gauge
	Socket-Welding, Slip-on and Lap joint	10" and Smaller + 1/32" (0.8mm), -0" 12" and Larger + 1/16"(1.6mm), -0"
Outside Diameter of Hub	5" and Smaller	+ 3/32" (2.4mm) - 1/32" (0.8mm)
	6" and Larger	+ 5/32" (4.0mm) - 1/32" (0.8mm)
Diameter of Contact Face	1/16" Raised Face	± 1/32" (0.8mm)
	1/4" Raised Face Tongue & Groove Male, Female	± 1/64" (0.4mm)
Diameter of Counterbore	Same as for Inside Diameter	
Drilling	Bolt Circle	± 1/16" (1.6mm)
	Bolt hole spacing	± 1/32" (0.8mm)
	Eccentricity of Bolt Circle with Respect to Facing	2½" and Smaller 1/32" (0.8mm) max 3" and Larger 1/16" (1.6mm)
	Eccentricity of Bolt Circle with Respect to Bore	1/32" (0.8mm) max
	Eccentricity of Facing with Respect to Bore	1/32" (0.8mm) max
Thickness	18" and Smaller	+ 1/8" (3.2mm), -0"
	20" and Larger	+ 3/16" (4.8mm), -0"
Length Thru Hub	10" and Smaller	± 1/16" (1.6mm)
	12" and Larger	± 1/8"(3.2mm)

Welding Neck		
Outside Diameter	When O.D. is 24" or less	± 1/16" (1.6mm)
	When O.D. is Over 24"	± 1/8" (3.2mm)
Inside Diameter	10" and Smaller	± 1/32" (0.8mm)
	12" thru 18"	± 1/16" (1.6mm)
	20" and larger	+ 1/8" (3.2mm) - 1/16" (1.6mm)
Diameter of Contact Face	1/16" Raised Face	± 1/32" (0.8mm)
	1/4" Raised Face Tongue & Groove Male, Female	± 1/64" (0.4mm)
Diameter of Hub at Base	When Hub base is 24" or Smaller	± 1/16" (1.6mm)
	When Hub base is over 24"	+ 1/8" (3.2mm)
Diameter of Hub at Point of Welding	5" and smaller	+ 3/32" (2,4mm) -1/32" (0,8 mm)
	6" and larger	+ 5/32" (4,0mm) -1/32" (0,8 mm)
Drilling	Bolt Circle	± 1/16" (1.6mm)
	Bolt hole spacing	± 1/32" (0.8mm)
	Eccentricity of Bolt Circle with Respect to Facing	2½" & Smaller 1/32" (0.8mm) max 3" & Larger 1/16" (1.6mm)
	Eccentricity of Bolt Circle with Respect to Bore	1/32" (0.8mm) max
	Eccentricity of Facing with Respect to Bore	1/32" (0.8mm) max
Thickness	18" and Smaller	+ 1/8" (3.2mm), -0"
	20" and Larger	+ 3/16" (4.8mm), -0"
Length Thru Hub	10" and Smaller	± 1/16" (1.6mm)
	12" and Larger	± 1/8"(3.2mm)

FORGED STEEL FLANGES

MATERIAL FOR FLANGES

FLANGES

Material for Flanges according to ASTM Standards



Designation	Tensile strength		Yield point		Analysis %				Analysis %				Designation	
	lb/sq. in. min.	N/mm ² mind.	lb/sq. in. min.	N/mm ² mind.	C	Si	Mn	P max.	S max.	Cr	Ni	Mo		ASTM
for High-Temperature-Service														
A 105-87 a	70000	483	36000	248	max. 0,35	max. 0,35	0,60-1,05	0,040	0,050	-	-	-	A 105-77	
for General Service														
A 181-87 a	60000	414	30000	207	max. 0,35	max. 0,35	max. 1,10	0,050	0,050	-	-	-	A 181-77	
Class 60	70000	483	36000	248	max. 0,35	max. 0,35	max. 1,10	0,050	0,050	-	-	-	Class 60	
Class 70	70000	483	36000	248	max. 0,35	max. 0,35	max. 1,10	0,050	0,050	-	-	-	Class 70	
Ferritic Steels for High-Temperature-Service														
A 182-87 a	70000	483	40000	276	max. 0,28	0,15-0,35	0,60-0,90	0,045	0,045	-	-	0,44-0,65	Grade F 1	
Grade F 1	70000	483	40000	276	max. 0,21	0,10-0,60	0,30-0,80	0,040	0,040	0,50-0,81	-	0,44-0,65	Grade F 2	
Grade F 2	70000	483	40000	276	max. 0,15	max. 0,50	0,30-0,60	0,030	0,030	4,00-6,00	max. 0,50	0,44-0,65	Grade F 5	
Grade F 5	90000	621	65000	448	max. 0,25	max. 0,50	max. 0,60	0,040	0,030	4,00-6,00	max. 0,50	0,44-0,65	Grade F 5a	
Grade F 5a	85000	586	55000	379	max. 0,15	0,50-1,00	0,30-0,60	0,030	0,030	8,00-10,00	0,90-1,10	0,90-1,10	Grade F 9	
Grade F 9	70000	483	40000	276	0,10-0,20	0,50-1,00	0,30-0,80	0,040	0,040	1,00-1,50	-	0,44-0,65	Grade F 11	
Grade F 11	70000	483	40000	276	0,10-0,20	0,10-0,60	0,30-0,80	0,040	0,040	0,80-1,25	-	0,44-0,65	Grade F 12	
Grade F 12	75000	517	45000	310	max. 0,15	max. 0,50	0,30-0,60	0,040	0,040	2,00-2,50	-	0,87-1,13	Grade F 22	
Austenitic Steels for High-Temperature-Service														
A 182-87 a	75000	517	30000	207	max. 0,08	max. 1,00	max. 2,00	0,040	0,030	18,0-20,0	8,0-11,0	-	Grade F 304	
Grade F 304	75000	517	30000	207	0,04-0,10	max. 1,00	max. 2,00	0,040	0,030	18,0-20,0	8,0-11,0	-	Grade F 304 H	
Grade F 304 H	70000	483	25000	172	max. 0,035	max. 1,00	max. 2,00	0,040	0,030	18,0-20,0	8,0-13,0	-	Grade F 304 L	
Grade F 304 L	75000	517	30000	207	max. 0,15	max. 1,00	max. 2,00	0,040	0,030	24,0-26,0	19,0-22,0	-	Grade F 310	
Grade F 310	75000	517	30000	207	max. 0,08	max. 1,00	max. 2,00	0,040	0,030	16,0-18,0	10,00-14,00	2,00-3,00	Grade F 316	
Grade F 316	75000	517	30000	207	0,04-0,10	max. 1,00	max. 2,00	0,040	0,030	16,0-18,0	10,00-14,00	2,00-3,00	Grade F 316 H	
Grade F 316 H	70000	483	25000	172	max. 0,035	max. 1,00	max. 2,00	0,040	0,030	16,0-18,0	10,00-15,00	2,00-3,00	Grade F 316 L	
Grade F 316 L	75000	517	30000	207	max. 0,08	max. 1,00	max. 2,00	0,030	0,030	min. 17,0	9,0-12,0	-1)	Grade F 321	
Grade F 321	75000	517	30000	207	0,04-0,10	max. 1,00	max. 2,00	0,030	0,030	min. 17,0	9,0-12,0	-2)	Grade F 321 H	
Grade F 321 H	75000	517	30000	207	max. 0,08	max. 1,00	max. 2,00	0,030	0,030	17,0-20,0	9,0-13,0	-3)	Grade F 347	
Grade F 347	75000	517	30000	207	0,04-0,10	max. 1,00	max. 2,00	0,030	0,030	17,0-20,0	9,0-13,0	-4)	Grade F 347 H	
Grade F 347 H	for Low-Temperature-Service													
A 350-87 a	60000	414	30000	207	max. 0,30	0,15-0,30	0,75-1,05	0,035	0,040	-	-	-	A 350-77	
Grade LF 1	70000	483	36000	248	max. 0,30	0,15-0,30	max. 1,35	0,035	0,040	-	-	-	Grade LF 1	
Grade LF 2	70000	483	37500	259	max. 0,20	0,20-0,35	max. 0,90	0,035	0,040	-	3,25-3,75	-	Grade LF 2	
Grade LF 3	70000	483	37500	259	max. 0,20	0,20-0,35	max. 0,90	0,035	0,040	-	3,25-3,75	-	Grade LF 3	

1) 5 x C% ≤ Ti% ≤ 0,60%

2) 5 x C% ≤ Ti% ≤ 0,60%

3) 10 x C% ≤ Ta + Nb% ≤ 1,00%

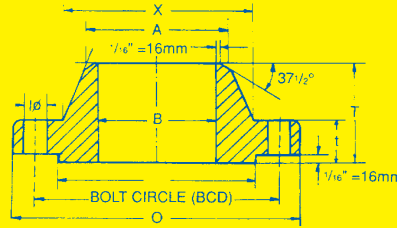
4) 8 x C% ≤ Ta + Nb% ≤ 1,00%



FLANGES

Welding Neck Flanges

75 Lbs, 150Lbs, 300Lbs for flanges from nominal size 26"



75 LBS. NOMINAL RATING

UNIT: inches

Nominal Size	Welding Neck and Integral Flanges								
	Flange Outside Diameter O	Flange Thickness t	Raised Face Diameter R	Drilling				Bolt Length	
				Bolt-Circle Diameter (BCD)	Number of Bolts	Bolt Diameter	Bolt-Hole Diameter	Machine Bolt	Stud Bolt
26	30	1 5/16	27 3/4	28 1/2	36	5/8	3/4	3 3/4	4 1/4
28	32	1 5/16	29 3/4	30 1/2	40	5/8	3/4	3 3/4	4 1/4
30	34	1 5/16	31 3/4	32 1/2	44	5/8	3/4	3 3/4	4 1/4
32	36	1 3/8	33 3/4	34 1/2	48	5/8	3/4	4	4 1/2
34	38	1 3/8	35 3/4	36 1/2	52	5/8	3/4	4	4 1/2
36	40 11/16	1 7/16	38	39 1/16	40	3/4	7/8	4 1/4	4 3/4
42	46 11/16	1 9/16	44	45 1/16	48	3/4	7/8	4 1/4	5
48	53 1/4	1 3/16	50 1/4	51 3/8	44	7/8	1	5 1/4	5 3/4
54	59 3/8	1 5/16	56 1/2	57 1/2	48	7/8	1	5 1/4	6
60	66	2 3/16	62 1/2	63 7/8	44	1	1 1/8	6	6 3/4

150 LBS. NOMINAL RATING

UNIT: inches

26	30 15/16	1 5/8	28	29 5/16	36	3/4	7/8	4 1/2	5 1/4
28	32 15/16	1 3/4	30	31 5/16	40	3/4	7/8	4 3/4	5 1/2
30	34 15/16	1 3/4	32	33 5/16	44	3/4	7/8	4 3/4	5 1/2
32	37 1/16	1 13/16	34	37 7/16	48	3/4	7/8	5	5 1/2
34	39 9/16	1 15/16	36 1/4	37 11/16	40	7/8	1	5 1/2	6
36	41 5/8	2 1/16	38 1/4	39 3/4	44	7/8	1	5 3/4	6 1/4
42	48 1/4	2 5/16	44 1/2	46 1/8	48	1	1 1/8	6 1/4	7
48	54 13/16	2 9/16	50 3/4	52 9/16	44	1 1/8	1 1/4	7	7 3/4
54	61	2 13/16	56 3/2	58 3/4	56	1 1/8	1 1/4	7 1/2	8 1/4
60	67 15/16	3	63	65 7/16	52	1 1/4	1 3/8	8	8 3/4

300 LBS. NOMINAL RATING

UNIT: inches

26	34 1/8	3 1/2	29	31 5/8	32	1 1/4	1 3/8	9	10
28	36 1/4	3 1/2	31	33 3/4	36	1 1/4	1 3/8	9	10
30	39	3 11/16	33 1/4	36 1/4	36	1 3/8	1 1/2	9 1/2	10 1/2
32	41 1/2	4 1/16	35 1/2	38 1/2	32	1 1/2	1 5/8	10 1/2	11 1/2
34	43 5/8	4 1/16	37 1/2	40 5/8	36	1 1/2	1 5/8	10 1/2	11 1/2
36	46 1/8	4 1/16	39 3/4	42 7/8	32	1 5/8	1 3/4	10 1/2	11 3/4
42	52 1/2	4 11/16	46	49	36	1 3/4	1 7/8	12	13 1/4
48	59 1/2	5 1/16	52 1/4	55 3/4	40	1 7/8	2	12 3/4	14 1/4
54	65 7/8	5 3/8	58 1/4	62 1/8	48	1 7/8	2	13 1/2	15
60	73 15/16	5 15/16	65	69 7/16	40	2 1/4	2 3/8	15	16 3/4

Flanges of special design on enquiry:

A) Long Welding Necks

B) British Standard 3293

Welding Neck and Slip-on Flanges acc. to B.S. 3293

Nominal Sizes larger than 24"

C) MSS Standard Practise SP-44

Welding Neck Flanges acc. to

MSS Standard Practise SP-44 Issue 1985

Nominal Sizes from 26" to 60"

API STANDARD 605

FLANGES

ASTM - DIN - B.S. Comparable Materials



ASTM		DIN		B.S.	APPLICATION
Designation	Grade	Designation	W.Nr.	1503 (1969)	
A 105-87 a		C21	1,043	-	for High-Temperature Service
A 181-87 a	CL 60 CL 70	C 22,3 St 50-2	- 1,053		for General Service
A 182-87 a	F1 F2 F5 F5a F9 F11 F12 F22	16 Mo 5 12CrMo 19,5 X 12 CrMo 91 - 13 CrMo 44 10 CrMo 9,10	1,542 1,736 1,738 - 1,733 1,738	- B.S. 1503-625 - B.S. 1503-621 B.S. 1503-620 B.S. 1503-622	Ferritic for High-Temperature Service
A 182-87a	F304 F304 H F304 L F310 F316 F316H F316 L F321 F321 H F347 F347 H	X 5 CrNi 18,9 X 2 CrNi 18,9 X15 CrNiSi. 2520 X 5 CrNiMo 1810 X 2 CrNiMo 1810 X10 CrNiTi 18,9 X 10 CrNiNb 18,9	1,430 1,430 1,484 1,440 1,440 1,454 1455	B.S. 1503-801 - - B.S. 1503-845 Grade B - B.S. 1503-821 Grade Ti B.S. 1503-821 Grade Nb	Austenitic-steels for High-Temperature Service
A 350-87 a	LF1 LF2 LF3	therefore TT St 41 N therefore St E 36 therefore 10 Ni 14	1,043 1,056 1,563	- - B.S. 1503-503	for Low-Temperature Service

Lbs/sq. in. in N/mm² (MPa)
1 Lbs/sq. in. = 0,0068974 N/mm² (MPa)

Lbs/sq. in. (psi)	Ksi (=1000 psi)	MPa			Lbs/sq. in. (psi)	Ksi (=1000 psi)	MPa		
		Tensile strength	Yield point	High temper. stability			Tensile strength	Yield point	High temper. stability
		N/mm ² ¹⁾					N/mm ² ¹⁾		
10000	10	70	70	69	55000	55	380	380	379
15000	15	100	105	103	60000	60	410	415	414
20000	20	140	140	138	65000	65	450	450	448
25000	25	170	170	172	70000	70	480	485	483
30000	30	210	205	207	75000	75	520	515	517
35000	35	240	240	241	80000	80	550	550	552
36000	36	250	250	248	85000	85	590	585	586
37500	37,5	260	260	259	90000	90	620	620	621
40000	40	280	275	276	95000	95	660	655	655
45000	45	310	310	310	100000	100	690	690	690
50000	50	340	345	345	110000	110	760	760	759

1) acc. to DIN



BUTT-WELD-FITTINGS

ANSI Standards

- B16.9** Wrought Steel Butt-Welding Fittings
- B16.28** Wrought Steel Butt-Welding Short Radius Elbows and Returns
- B16.25** Butt-Welding Ends
- B36.10** Welded and Seamless Wrought Steel Pipe
- B36.19** Stainless Steel Pipe

ASTM Standards

- A234** Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures
- A403** Wrought Austenitic Stainless Steel Piping Fittings
- A420** Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low Temperature Service

MSS Standards

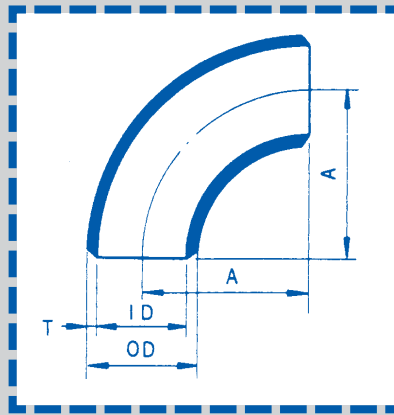
- SP-43** Wrought Stainless Steel Butt-Welding Fittings
- SP-75** Specification for High Test Wrought Welding Fittings

BUTT-WELD-FITTINGS

LONG RADIUS ELBOWS SCH 10 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



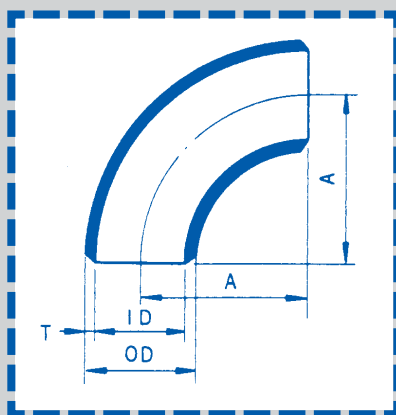
Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End A	Approx. Weight (kgs)
1/2	0.840	21.34	0.674	0.083	2.11	1.500	0.06
3/4	1.050	26.67	0.884	0.083	2.11	1.125	0.06
1	1.315	33.40	1.097	0.109	2.77	1.500	0.16
1 1/4	1.660	42.16	1.442	0.109	2.77	1.875	0.20
1 1/2	1.900	48.26	1.682	0.109	2.77	2.250	0.28
2	2.375	60.33	2.157	0.109	2.77	3.000	0.47
2 1/2	2.875	73.03	2.635	0.120	3.05	3.750	0.79
3	3.500	88.90	3.260	0.120	3.05	4.500	1.16
4	4.500	114.30	4.260	0.120	3.05	6.000	2.00
5	5.563	141.30	5.295	0.134	3.40	7.500	3.46
6	6.625	168.28	6.357	0.134	3.40	9.000	4.96
8	8.625	219.08	8.329	0.148	3.76	12.000	9.55
10	10.750	273.05	10.420	0.165	4.19	15.000	16.60
12	12.750	323.85	12.390	0.180	4.57	18.000	25.80
14	14.000	355.60	13.624	0.188	4.78	21.000	34.60
16	16.000	406.40	15.624	0.188	4.78	24.000	45.20
18	18.000	457.20	17.624	0.188	4.78	27.000	57.30
20	20.000	508.00	19.564	0.218	5.54	30.000	82.00
22	22.000	558.80	21.564	0.218	5.54	33.000	99.40
24	24.000	609.60	23.500	0.250	6.35	36.000	136.00
26	26.000	660.40	25.376	0.312	7.92	39.000	204.50
28	28.000	711.20	27.376	0.312	7.92	42.000	237.10
30	30.000	762.00	29.376	0.312	7.92	45.000	272.20
32	32.000	812.80	31.376	0.312	7.92	48.000	309.70
36	36.000	914.40	35.376	0.312	7.92	54.000	392.00

Up to 24 inches SR Elbows also available



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



LONG RADIUS ELBOWS SCH 40 S

Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End A	Approx. Weight (kgs)
1/2	0.840	21.34	0.622	0.109	2.77	1.500	0.08
3/4	1.050	26.67	0.824	0.113	2.87	1.125	0.10
1	1.315	33.40	1.049	0.133	3.38	1.500	0.15
1 1/4	1.660	42.16	1.380	0.140	3.56	1.875	0.25
1 1/2	1.900	48.26	1.610	0.145	3.68	2.250	0.36
2	2.375	60.33	2.067	0.154	3.91	3.000	0.65
2 1/2	2.875	73.03	2.469	0.203	5.16	3.750	1.29
3	3.500	88.90	3.068	0.216	5.49	4.500	2.02
4	4.500	114.30	4.026	0.237	6.02	6.000	3.84
5	5.563	141.30	5.047	0.258	6.55	7.500	6.51
6	6.625	168.28	6.065	0.280	7.11	9.000	10.10
8	8.625	219.08	7.981	0.322	8.18	12.000	20.30
10	10.750	273.05	10.020	0.365	9.27	15.000	36.00
12	12.750	323.85	12.000	0.375	9.53	18.000	53.00
14	14.000	355.60	13.250	0.375	9.53	21.000	68.00
16	16.000	406.40	15.250	0.375	9.53	24.000	89.20
18	18.000	457.20	17.250	0.375	9.53	27.000	113.00
20	20.000	508.00	19.250	0.375	9.53	30.000	140.00
22	22.000	558.80	21.250	0.375	9.53	33.000	170.00
24	24.000	609.60	23.250	0.375	9.53	36.000	202.00
26	26.000	660.40	25.264	0.375	9.53	39.000	241.40
28	28.000	711.20	27.264	0.375	9.53	42.000	279.90
30	30.000	762.00	29.264	0.375	9.53	45.000	321.30
32	32.000	812.80	31.264	0.375	9.53	48.000	365.60
36	36.000	914.40	35.264	0.375	9.53	54.000	462.70
40	40.000	1016.00	39.264	0.375	9.53	60.000	571.30
42	42.000	1066.80	41.264	0.375	9.53	63.000	629.80

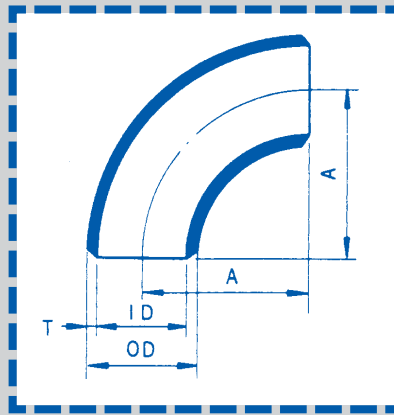
Up to 24 inches SR Elbows also available



LONG RADIUS ELBOWS SCH 80 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



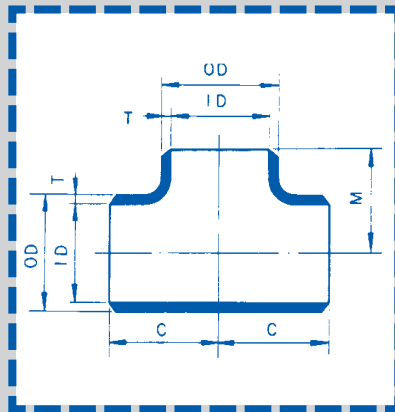
Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End A	Approx. Weight (kgs)
1/2	0.840	21.34	0.546	0.147	3.73	1.500	0.10
3/4	1.050	26.67	0.742	0.154	3.91	1.125	0.12
1	1.315	33.40	0.957	0.179	4.55	1.500	0.19
1 1/4	1.660	42.16	1.278	0.191	4.85	1.875	0.33
1 1/2	1.900	48.26	1.500	0.200	5.08	2.250	0.49
2	2.375	60.33	1.939	0.218	5.54	3.000	0.89
2 1/2	2.875	73.03	2.323	0.276	7.01	3.750	1.70
3	3.500	88.90	2.900	0.300	7.62	4.500	2.74
4	4.500	114.30	3.826	0.337	8.56	6.000	5.34
5	5.563	141.30	4.813	0.375	9.53	7.500	9.25
6	6.625	168.28	5.761	0.432	10.97	9.000	15.30
8	8.625	219.08	7.625	0.500	12.70	12.000	30.90
10	10.750	273.05	9.750	0.500	12.70	15.000	48.80
12	12.750	323.85	11.750	0.500	12.70	18.000	69.90
14	14.000	355.60	13.000	0.500	12.70	21.000	89.90
16	16.000	406.40	15.000	0.500	12.70	24.000	118.00
18	18.000	457.20	17.000	0.500	12.70	27.000	150.00
20	20.000	508.00	19.000	0.500	12.70	30.000	185.00
22	22.000	558.80	21.000	0.500	12.70	33.000	225.00
24	24.000	609.60	23.000	0.500	12.70	36.000	268.00
26	26.000	660.40	25.000	0.500	12.70	39.000	327.80
28	28.000	711.20	27.000	0.500	12.70	42.000	380.20
30	30.000	762.00	29.000	0.500	12.70	45.000	436.50
32	32.000	812.80	31.000	0.500	12.70	48.000	496.60
36	36.000	914.40	35.000	0.500	12.70	54.000	628.50
40	40.000	1016.00	39.000	0.500	12.70	60.000	776.00
42	42.000	1066.80	41.000	0.500	12.70	63.000	855.50

Up to 24 inches SR Elbows also available



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



STRAIGHT TEES SCH 10 S

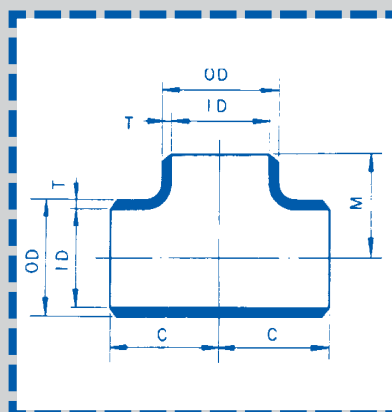
Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End		Approx. Weight (kgs)
						Run C	Outlet M	
1/2	0.840	21.34	0.674	0.083	2.11	1.000	1.000	0.07
3/4	1.050	26.67	0.884	0.083	2.11	1.125	1.125	0.09
1	1.315	33.40	1.097	0.109	2.77	1.500	1.500	0.20
1 1/4	1.660	42.16	1.442	0.109	2.77	1.875	1.875	0.33
1 1/2	1.900	48.26	1.682	0.109	2.77	2.250	2.250	0.46
2	2.375	60.33	2.157	0.109	2.77	2.500	2.500	0.63
2 1/2	2.875	73.03	2.635	0.120	3.05	3.000	3.000	1.01
3	3.500	88.90	3.260	0.120	3.05	3.375	3.375	1.37
4	4.500	114.30	4.260	0.120	3.05	4.125	4.125	2.15
5	5.563	141.30	5.295	0.134	3.40	4.875	4.875	3.48
6	6.625	168.28	6.357	0.134	3.40	5.625	5.625	4.76
8	8.625	219.08	8.329	0.148	3.76	7.000	7.000	8.46
10	10.750	273.05	10.420	0.165	4.19	8.500	8.500	14.20
12	12.750	323.85	12.390	0.180	4.57	10.000	10.000	21.60
14	14.000	355.60	13.624	0.188	4.78	11.000	11.000	27.30
16	16.000	406.40	15.624	0.188	4.78	12.000	12.000	33.60
18	18.000	457.20	17.624	0.188	4.78	13.500	13.500	47.30
20	20.000	508.00	19.564	0.218	5.54	15.000	15.000	61.00
22	22.000	558.80	21.564	0.218	5.54	16.500	16.500	73.80
24	24.000	609.60	23.500	0.250	6.35	17.000	17.000	93.50



STRAIGHT TEES SCH 40 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

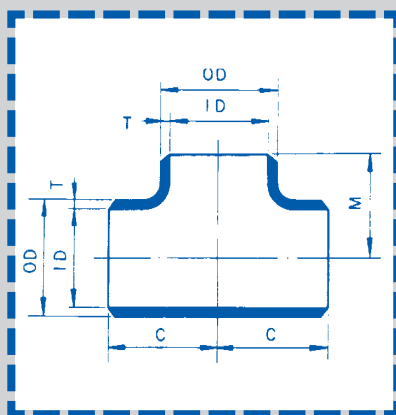


Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End		Approx. Weight (kgs)
						Run C	Outlet M	
1/2	0.840	21.34	0.622	0.109	2.77	1.000	1.000	0.08
3/4	1.050	26.67	0.824	0.113	2.87	1.125	1.125	0.11
1	1.315	33.40	1.049	0.133	3.38	1.500	1.500	0.24
1 1/4	1.660	42.16	1.380	0.140	3.56	1.875	1.875	0.41
1 1/2	1.900	48.26	1.610	0.145	3.68	2.250	2.250	0.60
2	2.375	60.33	2.067	0.154	3.91	2.500	2.500	0.87
2 1/2	2.875	73.03	2.469	0.203	5.16	3.000	3.000	1.66
3	3.500	88.90	3.068	0.216	5.49	3.375	3.375	1.90
4	4.500	114.30	4.026	0.237	6.02	4.125	4.125	4.13
5	5.563	141.30	5.047	0.258	6.55	4.875	4.875	6.55
6	6.625	168.28	6.065	0.280	7.11	5.625	5.625	9.73
8	8.625	219.08	7.981	0.322	8.18	7.000	7.000	18.00
10	10.750	273.05	10.020	0.365	9.27	8.500	8.500	30.80
12	12.750	323.85	12.000	0.375	9.53	10.000	10.000	44.30
14	14.000	355.60	13.250	0.375	9.53	11.000	11.000	53.70
16	16.000	406.40	15.250	0.375	9.53	12.000	12.000	66.30
18	18.000	457.20	17.250	0.375	9.53	13.500	13.500	84.10
20	20.000	508.00	19.250	0.375	9.53	15.000	15.000	104.00
22	22.000	558.80	21.250	0.375	9.53	16.500	16.500	126.00
24	24.000	609.60	23.250	0.375	9.53	17.000	17.000	140.00
26	26.000	660.40	25.250	0.375	9.53	19.500	19.500	158.20
28	28.000	711.20	27.250	0.375	9.53	20.500	20.500	176.80
30	30.000	762.00	29.250	0.375	9.53	22.000	22.000	203.40
32	32.000	812.80	31.250	0.375	9.53	23.500	23.500	231.80
36	36.000	914.40	35.250	0.375	9.53	26.500	26.500	294.10
40	40.000	1016.00	39.250	0.375	9.53	29.500	29.500	363.90
42	42.000	1066.80	41.250	0.375	9.53	30.000	30.000	382.10



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



STRAIGHT TEES SCH 80 S

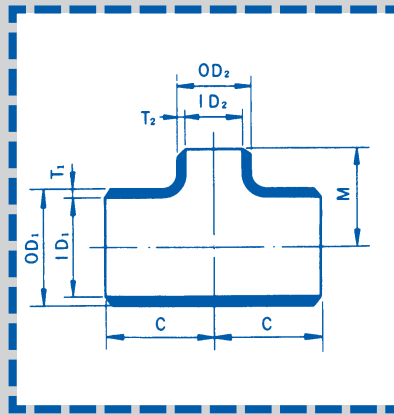
Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Center to End		Approx. Weight (kgs)
						Run C	Outlet M	
1/2	0.840	21.34	0.546	0.147	3.73	1.000	1.000	0.11
3/4	1.050	26.67	0.742	0.154	3.91	1.125	1.125	0.16
1	1.315	33.40	0.957	0.179	4.55	1.500	1.500	0.32
1 1/4	1.660	42.16	1.278	0.191	4.85	1.875	1.875	0.54
1 1/2	1.900	48.26	1.500	0.200	5.08	2.250	2.250	0.80
2	2.375	60.33	1.939	0.218	5.54	2.500	2.500	1.20
2 1/2	2.875	73.03	2.323	0.276	7.01	3.000	3.000	2.19
3	3.500	88.90	2.900	0.300	7.62	3.375	3.375	3.25
4	4.500	114.30	3.826	0.337	8.56	4.125	4.125	5.74
5	5.563	141.30	4.813	0.375	9.53	4.875	4.875	9.31
6	6.625	168.28	5.761	0.432	10.97	5.625	5.625	12.80
8	8.625	219.08	7.625	0.500	12.70	7.000	7.000	27.40
10	10.750	273.05	9.750	0.500	12.70	8.500	8.500	41.70
12	12.750	323.85	11.750	0.500	12.70	10.000	10.000	58.40
14	14.000	355.60	13.000	0.500	12.70	11.000	11.000	70.90
16	16.000	406.40	15.000	0.500	12.70	12.000	12.000	87.70
18	18.000	457.20	17.000	0.500	12.70	13.500	13.500	111.00
20	20.000	508.00	19.000	0.500	12.70	15.000	15.000	138.00
22	22.000	558.80	21.000	0.500	12.70	16.500	16.500	167.00
24	24.000	609.60	23.000	0.500	12.70	17.000	17.000	185.00
26	26.000	660.40	25.000	0.500	12.70	19.500	19.500	211.50
28	28.000	711.20	27.000	0.500	12.70	20.500	20.500	236.40
30	30.000	762.00	29.000	0.500	12.70	22.000	22.000	271.80
32	32.000	812.80	31.000	0.500	12.70	23.500	23.500	309.70
36	36.000	914.40	35.000	0.500	12.70	26.500	26.500	392.90
40	40.000	1016.00	39.000	0.500	12.70	29.500	29.500	486.00
42	42.000	1066.80	41.000	0.500	12.70	30.000	30.000	510.30



REDUCING OUTLET TEES SCH 10 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

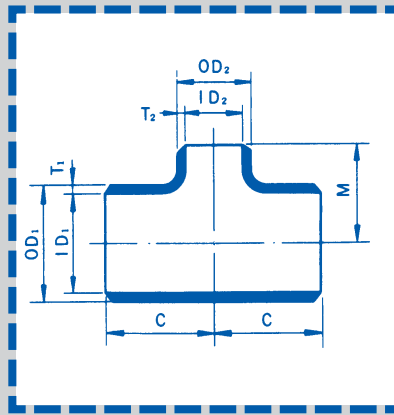


Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
3/4 x 3/4 x 1/2	1.050	26.67	0.083	2.11	0.840	21.34	0.083	2.11	1.125	1.125	0.08
1 x 1 x 3/4	1.315	33.40	0.109	2.77	1.050	26.67	0.083	2.11	1.500	1.500	0.19
1 x 1 x 1/2	1.315	33.40	0.109	2.77	0.840	21.34	0.083	2.11	1.500	1.500	0.19
1 1/4 x 1 1/4 x 1	1.660	42.16	0.109	2.77	1.315	33.40	0.109	2.77	1.875	1.875	0.31
1 1/4 x 1 1/4 x 3/4	1.660	42.16	0.109	2.77	1.050	26.67	0.083	2.11	1.875	1.875	0.29
1 1/2 x 1 1/2 x 1 1/4	1.900	48.26	0.109	2.77	1.660	42.16	0.109	2.77	2.250	2.250	0.44
1 1/2 x 1 1/2 x 1	1.900	48.26	0.109	2.77	1.315	33.40	0.109	2.77	2.250	2.250	0.42
1 1/2 x 1 1/2 x 3/4	1.900	48.26	0.109	2.77	1.050	26.67	0.083	2.11	2.250	2.250	0.40
1 1/2 x 1 1/2 x 1/2	1.900	48.26	0.109	2.77	0.840	21.34	0.083	2.11	2.250	2.250	0.39
2 x 2 x 1 1/2	2.375	60.33	0.109	2.77	1.900	48.26	0.109	2.77	2.500	2.375	0.59
2 x 2 x 1 1/4	2.375	60.33	0.109	2.77	1.660	42.16	0.109	2.77	2.500	2.250	0.57
2 x 2 x 1	2.375	60.33	0.109	2.77	1.315	33.40	0.109	2.77	2.500	2.000	0.54
2 1/2 x 2 1/2 x 2	2.875	73.03	0.120	3.05	2.375	60.33	0.109	2.77	3.000	2.750	0.94
2 1/2 x 2 1/2 x 1 1/2	2.875	73.03	0.120	3.05	1.900	48.26	0.109	2.77	3.000	2.625	0.90
2 1/2 x 2 1/2 x 1 1/4	2.875	73.03	0.120	3.05	1.660	42.16	0.109	2.77	3.000	2.500	0.87
3 x 3 x 2 1/2	3.500	88.90	0.120	3.05	2.875	73.03	0.120	3.05	3.375	3.250	1.31
3 x 3 x 2	3.500	88.90	0.120	3.05	2.375	60.33	0.109	2.77	3.375	3.000	1.23
3 x 3 x 1 1/2	3.500	88.90	0.120	3.05	1.900	48.26	0.109	2.77	3.375	2.875	1.19
4 x 4 x 3	4.500	114.30	0.120	3.05	3.500	88.90	0.120	3.05	4.125	3.875	2.02
4 x 4 x 2 1/2	4.500	114.30	0.120	3.05	2.875	73.03	0.120	3.05	4.125	3.750	1.95
4 x 4 x 2	4.500	114.30	0.120	3.05	2.375	60.33	0.120	2.77	4.125	3.500	1.88
4 x 4 x 1 1/2	4.500	114.30	0.120	3.05	1.900	48.26	0.109	2.77	4.125	3.375	1.75
5 x 5 x 4	5.563	141.30	0.134	3.40	4.500	114.30	0.120	3.05	4.875	4.625	3.26
5 x 5 x 3	5.563	141.30	0.134	3.40	3.500	88.90	0.120	3.05	4.875	4.375	3.13
5 x 5 x 2 1/2	5.563	141.30	0.134	3.40	2.875	73.03	0.120	3.05	4.875	4.250	3.06



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



REDUCING OUTLET TEES SCH 10 S

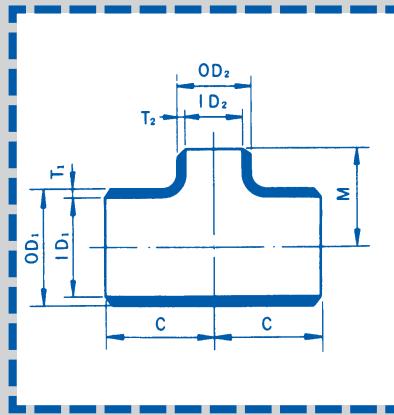
Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
6 x 6 x 5	6.625	168.28	0.134	3.40	5.563	141.30	0.134	3.40	5.625	5.375	4.56
6 x 6 x 4	6.625	168.28	0.134	3.40	4.500	114.30	0.120	3.05	5.625	5.125	4.34
6 x 6 x 3	6.625	168.28	0.134	3.40	3.500	88.90	0.120	3.05	5.625	4.875	4.21
8 x 8 x 6	8.625	219.08	0.148	3.76	6.625	168.28	0.134	3.40	7.000	6.625	7.91
8 x 8 x 5	8.625	219.08	0.148	3.76	5.563	141.30	0.134	3.40	7.000	6.375	7.70
8 x 8 x 4	8.625	219.08	0.148	3.76	4.500	114.30	0.120	3.05	7.000	6.125	7.48
10 x 10 x 8	10.750	273.05	0.165	4.19	8.625	219.08	0.148	3.76	8.500	8.000	13.30
10 x 10 x 6	10.750	273.05	0.165	4.19	6.625	168.28	0.134	3.40	8.500	7.625	12.80
10 x 10 x 5	10.750	273.05	0.165	4.19	5.563	141.30	0.134	3.40	8.500	7.500	12.60
12 x 12 x 10	12.750	323.85	0.180	4.57	10.750	273.05	0.165	4.19	10.000	9.500	20.50
12 x 12 x 8	12.750	323.85	0.180	4.57	8.625	219.08	0.148	3.76	10.000	9.000	19.60
12 x 12 x 6	12.750	323.85	0.180	4.57	6.625	168.28	0.134	3.40	10.000	0.625	19.10
14 x 14 x 12	14.000	355.60	0.188	4.78	12.750	323.85	0.180	4.57	11.000	10.625	26.40
14 x 14 x 10	14.000	355.60	0.188	4.78	10.750	273.05	0.165	4.19	11.000	10.125	25.60
14 x 14 x 8	14.000	355.60	0.188	4.78	8.625	219.08	0.148	3.76	11.000	9.750	24.50
16 x 16 x 14	16.000	406.40	0.188	4.78	14.000	355.60	0.188	4.78	12.000	12.000	33.00
16 x 16 x 12	16.000	406.40	0.188	4.78	12.750	323.85	0.180	4.57	12.000	11.625	32.00
16 x 16 x 10	16.000	406.40	0.188	4.78	10.750	273.05	0.165	4.19	12.000	11.125	31.00
18 x 18 x 16	18.000	457.20	0.188	4.78	16.000	406.40	0.188	4.78	13.500	13.000	41.90
18 x 18 x 14	18.000	457.20	0.188	4.78	14.000	355.60	0.188	4.78	13.500	13.000	41.20
18 x 18 x 12	18.000	457.20	0.188	4.78	12.750	323.85	0.180	4.57	13.500	12.625	40.60
20 x 20 x 18	20.000	508.00	0.218	5.54	18.000	457.20	0.188	4.78	15.000	14.500	59.00
20 x 20 x 16	20.000	508.00	0.218	5.54	16.000	406.40	0.188	4.78	15.000	14.000	58.30
20 x 20 x 14	20.000	508.00	0.218	5.54	14.000	355.60	0.188	4.78	15.000	14.000	57.50
22 x 22 x 20	22.000	558.80	0.218	5.54	20.000	508.00	0.218	5.54	16.500	16.000	72.90
22 x 22 x 18	22.000	558.80	0.218	5.54	18.000	457.20	0.188	4.78	16.500	15.500	70.70
22 x 22 x 16	22.000	558.80	0.218	5.54	16.000	406.40	0.188	4.78	16.500	15.000	69.90
24 x 24 x 22	24.000	609.60	0.250	6.35	22.000	558.80	0.218	5.54	17.000	17.000	91.10
24 x 24 x 20	24.000	609.60	0.250	6.35	20.000	508.00	0.218	5.54	17.000	17.000	90.30
24 x 24 x 18	24.000	609.60	0.250	6.35	18.000	457.20	0.188	4.78	17.000	16.500	88.30



REDUCING OUTLET TEES SCH 40 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

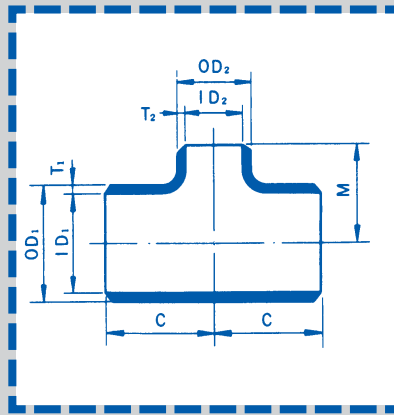


Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
¾ x ¾ x ½	1.050	26.67	0.113	2.87	0.840	21.34	0.109	2.77	1.125	1.125	1.12
1 x 1 x ¾	1.315	33.40	0.133	3.38	1.050	26.67	0.113	2.87	1.500	1.500	0.23
1 x 1 x ½	1.315	33.40	0.133	3.38	0.840	21.34	0.109	2.77	1.500	1.500	0.22
1¼ x 1¼ x 1	1.660	42.16	0.140	3.56	1.315	33.40	0.133	3.38	1.875	1.875	0.39
1¼ x 1¼ x ¾	1.660	42.16	0.140	3.56	1.050	26.67	0.113	2.87	1.875	1.875	0.37
1½ x 1½ x 1¼	1.900	48.26	0.145	3.68	1.660	42.16	0.140	3.56	2.250	2.250	0.57
1½ x 1½ x 1	1.900	48.26	0.145	3.68	1.315	33.40	0.133	3.38	2.250	2.250	0.55
1½ x 1½ x ¾	1.900	48.26	0.145	3.68	1.050	26.67	0.113	2.87	2.250	2.250	0.52
1½ x 1½ x ½	1.900	48.26	0.145	3.68	0.840	21.34	0.109	2.77	2.250	2.250	0.51
2 x 2 x 1½	2.375	60.33	0.154	3.91	1.900	48.26	0.145	3.68	2.500	2.375	0.83
2 x 2 x 1¼	2.375	60.33	0.154	3.91	1.660	42.16	0.140	3.56	2.500	2.250	0.80
2 x 2 x 1	2.375	60.33	0.154	3.91	1.315	33.40	0.133	3.38	2.500	2.000	0.74
2½ x 2½ x 2	2.875	73.03	0.203	5.16	2.375	60.33	0.154	3.91	3.000	2.750	1.53
2½ x 2½ x 1½	2.875	73.03	0.203	5.16	1.900	48.26	0.145	3.68	3.000	2.625	1.49
2½ x 2½ x 1¼	2.875	73.03	0.203	5.16	1.660	42.16	0.140	3.56	3.000	2.500	1.38
3 x 3 x 2½	3.500	88.90	0.216	5.49	2.875	73.03	0.203	5.16	3.375	3.250	2.29
3 x 3 x 2	3.500	88.90	0.216	5.49	2.375	60.33	0.154	3.91	3.375	3.000	2.16
3 x 3 x 1½	3.500	88.90	0.216	5.49	1.900	48.26	0.145	3.68	3.375	2.375	2.05
4 x 4 x 3	4.500	114.30	0.237	6.02	3.500	88.90	0.216	5.49	4.125	3.875	3.83
4 x 4 x 2½	4.500	114.30	0.237	6.02	2.875	73.03	0.203	5.16	4.125	3.750	3.70
4 x 4 x 2	4.500	114.30	0.237	6.02	2.375	60.33	0.154	3.91	4.125	3.500	3.52
4 x 4 x 1½	4.500	114.30	0.237	6.02	1.900	48.26	0.145	3.68	4.125	3.375	3.41
5 x 5 x 4	5.563	141.30	0.258	6.55	4.500	114.30	0.237	6.02	4.875	4.625	6.14
5 x 5 x 3	5.563	141.30	0.258	6.55	3.500	88.90	0.216	5.49	4.875	4.375	5.85
5 x 5 x 2½	5.563	141.30	0.258	6.55	2.875	73.03	0.203	5.16	4.875	4.250	5.71



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



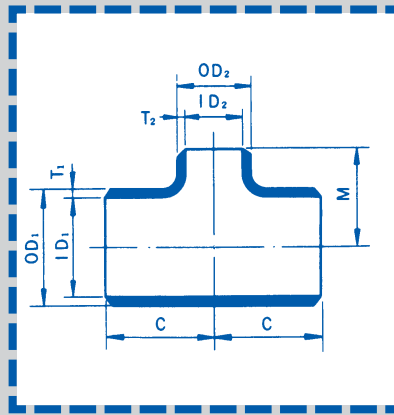
REDUCING OUTLET TEES SCH 40 S

Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
6 x 6 x 5	6.625	168.28	0.280	7.11	5.563	141.30	0.258	6.55	5.625	5.375	9.21
6 x 6 x 4	6.625	168.28	0.280	7.11	4.500	114.30	0.237	6.02	5.625	5.125	8.81
6 x 6 x 3	6.625	168.28	0.280	7.11	3.500	88.90	0.216	5.49	5.625	4.875	8.52
8 x 8 x 6	8.625	219.08	0.322	8.18	6.625	168.28	0.280	7.11	7.000	6.625	16.80
8 x 8 x 5	8.625	219.08	0.322	8.18	5.563	141.30	0.258	6.55	7.000	6.375	16.30
8 x 8 x 4	8.625	219.08	0.322	8.18	4.500	114.30	0.237	6.02	7.000	6.125	15.90
10 x 10 x 8	10.750	273.05	0.365	9.27	8.625	219.08	0.322	8.18	8.500	8.000	28.90
10 x 10 x 6	10.750	273.05	0.365	9.27	6.625	168.28	0.280	7.11	8.500	7.125	27.60
10 x 10 x 5	10.750	273.05	0.365	9.27	5.563	141.30	0.258	6.55	8.500	7.500	27.10
12 x 12 x 10	12.750	323.85	0.375	9.53	10.750	273.05	0.365	9.27	10.000	9.500	42.30
12 x 12 x 8	12.750	323.85	0.375	9.53	8.625	219.08	0.322	8.18	10.000	9.000	40.30
12 x 12 x 6	12.750	323.85	0.375	9.53	6.625	168.28	0.280	7.11	10.000	8.625	39.10
14 x 14 x 12	14.000	355.60	0.375	9.53	12.750	323.85	0.375	9.53	11.000	10.625	52.20
14 x 14 x 10	14.000	355.60	0.375	9.53	10.750	273.05	0.365	9.27	11.000	10.625	50.20
14 x 14 x 8	14.000	355.60	0.375	9.53	8.625	219.08	0.322	8.18	11.000	9.750	48.40
16 x 16 x 14	16.000	406.40	0.375	9.53	14.000	355.60	0.375	9.53	12.000	12.000	65.10
16 x 16 x 12	16.000	406.40	0.375	9.53	12.750	323.85	0.375	9.53	12.000	11.625	63.60
16 x 16 x 10	16.000	406.40	0.375	9.53	10.750	273.05	0.365	9.27	12.000	11.125	61.60
18 x 18 x 16	18.000	457.20	0.375	9.53	16.000	406.40	0.375	9.53	13.500	13.000	81.50
18 x 18 x 14	18.000	457.20	0.375	9.53	14.000	355.60	0.375	9.53	13.500	13.000	80.30
18 x 18 x 12	18.000	457.20	0.375	9.53	12.750	323.85	0.375	9.53	13.500	12.625	78.90
20 x 20 x 18	20.000	508.00	0.375	9.53	18.000	457.20	0.375	9.53	15.000	14.500	101.00
20 x 20 x 16	20.000	508.00	0.375	9.53	16.000	406.40	0.375	9.53	15.000	14.000	98.60
20 x 20 x 14	20.000	508.00	0.375	9.53	14.000	355.60	0.375	9.53	15.000	14.000	97.40
22 x 22 x 20	22.000	558.80	0.375	9.53	20.000	508.00	0.375	9.53	16.500	16.000	123.00
22 x 22 x 18	22.000	558.80	0.375	9.53	18.000	457.20	0.375	9.53	16.500	15.500	120.00
22 x 22 x 16	22.000	558.80	0.375	9.53	16.000	406.40	0.375	9.53	16.500	15.000	118.00
24 x 24 x 22	24.000	609.60	0.375	9.53	22.000	558.80	0.375	9.53	17.000	17.000	138.00
24 x 24 x 20	24.000	609.60	0.375	9.53	20.000	508.00	0.375	9.53	17.000	17.000	137.00
24 x 24 x 18	24.000	609.60	0.375	9.53	18.000	457.20	0.375	9.53	17.000	16.500	134.00

REDUCING OUTLET TEES SCH 80 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

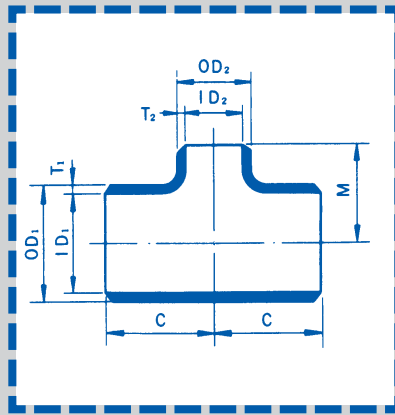


Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
3/4 x 3/4 x 1/2	1.050	26.67	0.154	3.91	0.840	21.34	0.147	3.73	1.125	1.125	0.15
1 x 1 x 3/4	1.315	33.40	0.179	4.55	1.050	26.67	0.154	3.91	1.500	1.500	0.29
1 x 1 x 1/2	1.315	33.40	0.179	4.55	0.840	21.37	0.147	3.73	1.500	1.500	0.28
1 1/4 x 1 1/4 x 1	1.660	42.16	0.191	4.85	1.315	33.40	0.179	4.55	1.875	1.875	0.51
1 1/4 x 1 1/4 x 3/4	1.660	42.16	0.191	4.85	1.050	26.67	0.154	3.91	1.875	1.875	0.48
1 1/2 x 1 1/2 x 1 1/4	1.900	48.26	0.200	5.08	1.660	42.16	0.191	4.85	2.250	2.250	0.77
1 1/2 x 1 1/2 x 1	1.900	48.26	0.200	5.08	1.315	33.40	0.179	4.55	2.250	2.250	0.73
1 1/2 x 1 1/2 x 3/4	1.900	48.26	0.200	5.08	1.050	26.67	0.154	3.91	2.250	2.250	0.69
1 1/2 x 1 1/2 x 1/2	1.900	48.26	0.200	5.08	0.840	21.37	0.147	3.73	2.250	2.250	0.67
2 x 2 x 1 1/2	2.375	60.33	0.218	5.54	1.900	48.26	0.200	5.08	2.500	2.375	1.11
2 x 2 x 1 1/4	2.375	60.33	0.218	5.54	1.660	42.16	0.191	4.85	2.500	2.250	1.07
2 x 2 x 1	2.375	60.33	0.218	5.54	1.315	33.40	0.179	4.55	2.500	2.000	1.02
2 1/2 x 2 1/2 x 2	2.875	73.03	0.276	7.01	2.375	60.33	0.218	5.54	3.000	2.750	1.99
2 1/2 x 2 1/2 x 1 1/2	2.875	73.03	0.276	7.01	1.900	48.26	0.200	5.08	3.000	2.625	1.90
2 1/2 x 2 1/2 x 1 1/4	2.875	73.03	0.276	7.01	1.660	42.16	0.191	4.85	3.000	2.500	1.86
3 x 3 x 2 1/2	3.500	88.90	0.300	7.62	2.875	73.03	0.276	7.01	3.375	3.250	3.05
3 x 3 x 2	3.500	88.90	0.300	7.62	2.375	60.33	0.218	5.54	3.375	3.000	2.85
3 x 3 x 1 1/2	3.500	88.90	0.300	7.62	1.900	48.26	0.200	5.08	3.375	2.875	2.77
4 x 4 x 3	4.500	114.30	0.337	8.56	3.500	88.90	0.300	7.62	4.125	3.875	5.31
4 x 4 x 2 1/2	4.500	114.30	0.337	8.56	2.875	73.03	0.276	7.01	4.125	3.750	5.11
4 x 4 x 2	4.500	114.30	0.337	8.56	2.375	60.33	0.218	5.54	4.125	3.500	4.91
4 x 4 x 1 1/2	4.500	114.30	0.377	8.56	1.900	48.26	0.200	5.08	4.500	3.375	4.83
5 x 5 x 4	5.563	141.30	0.375	9.53	4.500	114.30	0.337	8.56	4.875	4.625	8.71
5 x 5 x 3	5.563	141.30	0.375	9.53	3.500	88.90	0.300	7.62	4.875	4.375	8.28
5 x 5 x 2 1/2	5.563	141.30	0.375	9.53	2.875	73.03	0.276	7.01	4.875	4.250	8.09



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



REDUCING OUTLET TEES SCH 80 S

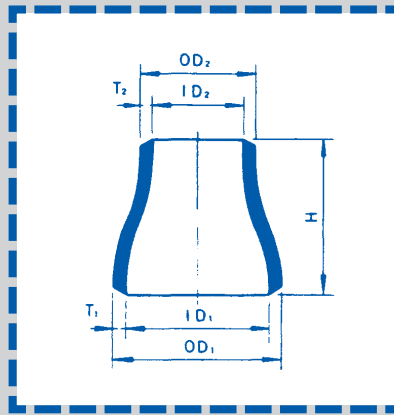
Nominal Pipe Size	Outside Diameter OD ₁	Run		mm	Outside Diameter OD ₂	Outlet		mm	Center to End		Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂		Run C	Outlet M	
6 x 6 x 5	6.625	168.28	0.432	10.97	5.563	141.30	0.375	9.53	5.625	5.375	13.80
6 x 6 x 4	6.625	168.28	0.432	10.97	4.500	114.30	0.337	8.56	5.625	5.125	13.00
6 x 6 x 3	6.625	168.28	0.432	10.97	3.500	88.90	0.300	7.62	5.625	4.875	12.60
8 x 8 x 6	8.625	219.08	0.500	12.70	6.625	168.28	0.432	10.97	7.000	6.625	25.00
8 x 8 x 5	8.625	219.08	0.500	12.70	5.563	141.30	0.375	9.35	7.000	6.375	24.00
8 x 8 x 4	8.625	219.08	0.500	12.70	4.500	114.30	0.337	8.56	7.000	6.125	24.00
10 x 10 x 8	10.750	273.05	0.500	12.70	8.625	219.08	0.500	12.70	8.500	8.000	39.00
10 x 10 x 6	10.750	273.05	0.500	12.70	6.625	168.28	0.432	10.97	8.500	7.625	37.00
10 x 10 x 5	10.750	273.05	0.500	12.70	5.563	141.30	0.375	9.53	8.500	7.500	36.00
12 x 12 x 10	12.750	323.85	0.500	12.70	10.750	273.05	0.500	12.70	10.000	9.500	55.00
12 x 12 x 8	12.750	323.85	0.500	12.70	8.625	219.08	0.500	12.70	10.000	9.000	53.00
12 x 12 x 6	12.750	323.85	0.500	12.70	6.625	168.28	0.432	10.97	10.000	8.625	51.00
14 x 14 x 12	14.000	355.60	0.500	12.70	12.750	323.85	0.500	12.70	11.000	10.625	69.00
14 x 14 x 10	14.000	355.60	0.500	12.70	10.750	273.05	0.500	12.70	11.000	10.125	66.00
14 x 14 x 8	14.000	355.60	0.500	12.70	8.625	219.08	0.500	12.70	11.000	9.750	64.00
16 x 16 x 14	16.000	406.40	0.500	12.70	14.000	355.60	0.500	12.70	12.000	12.000	86.00
16 x 16 x 12	16.000	406.40	0.500	12.70	12.750	323.85	0.500	12.70	12.000	11.625	84.00
16 x 16 x 10	16.000	406.40	0.500	12.70	10.750	273.05	0.500	12.70	12.000	11.125	81.00
18 x 18 x 16	18.000	457.20	0.500	12.70	16.000	406.40	0.500	12.70	13.500	13.000	108.00
18 x 18 x 14	18.000	457.20	0.500	12.70	14.000	355.60	0.500	12.70	13.500	13.000	106.00
18 x 18 x 12	18.000	457.20	0.500	12.70	12.750	323.85	0.500	12.70	13.500	12.375	104.00
20 x 20 x 18	20.000	508.00	0.500	12.70	18.000	457.20	0.500	12.70	15.000	14.500	134.00
20 x 20 x 16	20.000	508.00	0.500	12.70	16.000	406.40	0.500	12.70	15.000	14.000	131.00
20 x 20 x 14	20.000	508.00	0.500	12.70	14.000	355.60	0.500	12.70	15.000	14.000	129.00
22 x 22 x 20	22.000	558.80	0.500	12.70	20.000	508.00	0.500	12.70	16.500	16.000	163.00
22 x 22 x 18	22.000	558.80	0.500	12.70	18.000	457.20	0.500	12.70	16.500	15.500	159.00
22 x 22 x 16	22.000	558.80	0.500	12.70	16.000	406.40	0.500	12.70	16.500	15.000	156.00
24 x 24 x 22	24.000	609.60	0.500	12.70	22.000	558.80	0.500	12.70	17.000	17.000	183.00
24 x 24 x 20	24.000	609.60	0.500	12.70	20.000	508.00	0.500	12.70	17.000	17.000	181.00
24 x 24 x 18	24.000	609.60	0.500	12.70	18.000	457.20	0.500	12.70	17.000	16.500	177.00



REDUCERS, CONC. SCH 10 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

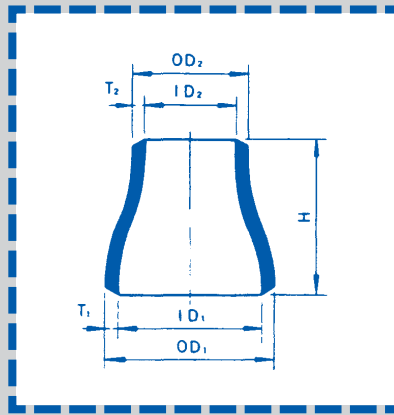


Nominal Pipe Size	Outside Diameter OD ₁	Large End			Outside Diameter OD ₂	Small End			End to End H	Approx. Weight (kgs)
		mm	Wall Thickness T ₁	mm		mm	Wall Thickness T ₂	mm		
¾ x ½	1.050	26.67	0.083	2.11	0.840	21.34	0.083	2.11	1.500	0.04
1 x ¾	1.315	33.40	0.109	2.77	1.050	26.67	0.083	2.11	2.000	0.10
1 x ½	1.315	33.40	0.109	2.77	0.840	21.34	0.083	2.11	2.000	0.09
1¼ x 1	1.660	42.16	0.109	2.77	1.315	33.40	0.109	2.77	2.000	0.12
1¼ x ¾	1.660	42.16	0.109	2.77	1.050	26.67	0.083	2.11	2.000	0.11
1¼ x ½	1.660	42.16	0.109	2.77	0.840	21.34	0.083	2.11	2.000	0.10
1½ x 1¼	1.900	48.26	0.109	2.77	1.660	42.16	0.109	2.77	2.500	0.18
1½ x 1	1.900	48.26	0.109	2.77	1.315	33.40	0.109	2.77	2.500	0.17
1½ x ¾	1.900	48.26	0.109	2.77	1.050	26.67	0.083	2.11	2.500	0.15
1½ x ½	1.900	48.26	0.109	2.77	0.840	21.34	0.083	2.11	2.500	0.14
2 x 1½	2.375	60.33	0.109	2.77	1.900	48.26	0.109	2.77	3.000	0.27
2 x 1¼	2.375	60.33	0.109	2.77	1.660	42.16	0.109	2.77	3.000	0.25
2 x 1	2.375	60.33	0.109	2.77	1.315	33.40	0.109	2.77	3.000	0.23
2 x ¾	2.375	60.33	0.109	2.77	1.050	26.67	0.083	2.11	3.000	0.22
2 x ½	2.375	60.33	0.109	2.77	0.840	21.34	0.083	2.11	3.000	0.23
2½ x 2	2.875	73.03	0.120	3.05	2.375	60.33	0.109	2.77	3.500	0.43
2½ x 1½	2.875	73.03	0.120	3.05	1.900	48.26	0.109	2.77	3.500	0.39
2½ x 1¼	2.875	73.03	0.120	3.05	1.660	42.16	0.109	2.77	3.500	0.37
3 x 2½	3.500	88.90	0.120	3.05	2.875	73.03	0.120	3.05	3.500	0.52
3 x 2	3.500	88.90	0.120	3.05	2.375	60.33	0.109	2.77	3.500	0.48
3 x 1½	3.500	88.90	0.120	3.05	1.900	48.26	0.109	2.77	3.500	0.45
3 x 1¼	3.500	88.90	0.120	3.05	1.660	42.16	0.109	2.77	3.500	0.43
3 x 1	3.500	88.90	0.120	3.05	1.315	33.40	0.109	2.77	3.500	0.43
4 x 3	4.500	114.30	0.120	3.05	3.500	88.90	0.120	3.05	4.000	0.76
4 x 2½	4.500	114.30	0.120	3.05	2.875	73.03	0.120	3.05	4.000	0.71
4 x 2	4.500	114.30	0.120	3.05	2.375	60.33	0.109	2.77	4.000	0.67
4 x 1½	4.500	114.30	0.120	3.05	1.900	48.26	0.109	2.77	4.000	0.63
5 x 4	5.563	141.30	0.134	3.40	4500	11430	0.120	3.05	5.000	1.33
5 x 3	5.563	141.30	0.134	3.40	3.500	88.90	0.120	3.05	5.000	1.22
5 x 2½	5.563	141.30	0.134	3.40	2.875	73.03	0.120	3.05	5.000	1.14



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



Nominal Pipe Size	Outside Diameter OD ₁	Large End			Outside Diameter OD ₂	Small End			End to End H	Approx. Weight (kgs)
		mm	Wall Thickness T ₁	mm		mm	Wall Thickness T ₂	mm		
6 x 5	6.625	168.28	0.134	3.40	5.563	141.30	0.134	3.40	5.500	1.78
6 x 4	6.625	168.28	0.134	3.40	4.500	114.30	0.120	3.05	5.500	1.65
6 x 3	6.625	168.28	0.134	3.40	3.500	88.90	0.120	3.05	5.500	1.53
8 x 6	8.625	219.08	0.148	3.76	6.625	168.28	0.134	3.40	6.000	2.72
8 x 5	8.625	219.08	0.148	3.76	5.563	141.30	0.134	3.40	6.000	2.57
8 x 4	8.625	219.08	0.148	3.76	4.500	114.30	0.120	3.05	6.000	2.43
10 x 8	10.750	273.05	0.165	4.19	8.625	219.08	0.148	3.76	7.000	4.49
10 x 6	10.750	273.05	0.165	4.19	6.625	168.28	0.134	3.40	7.000	4.14
10 x 5	10.750	273.05	0.165	4.19	5.563	141.30	0.134	3.40	7.000	3.98
12 x 10	12.750	323.85	0.180	4.57	10.750	273.05	0.165	4.19	8.000	6.78
12 x 8	12.750	323.85	0.180	4.57	8.625	219.08	0.148	3.76	8.000	6.31
12 x 6	12.750	323.85	0.180	4.57	6.625	168.28	0.134	3.40	8.000	5.92
14 x 12	14.000	355.60	0.188	4.78	12.750	323.85	0.180	4.57	13.000	13.00
14 x 10	14.000	355.60	0.188	4.78	10.750	273.05	0.165	4.19	13.000	12.10
14 x 8	14.000	355.60	0.188	4.78	8.625	219.08	0.148	3.76	13.000	11.20
16 x 14	16.000	406.40	0.188	4.78	14.000	355.60	0.188	4.78	14.000	15.80
16 x 12	16.000	406.40	0.188	4.78	12.750	323.85	0.180	4.57	14.000	15.20
16 x 10	16.000	406.40	0.188	4.78	10.750	273.05	0.165	4.19	14.000	14.40
18 x 16	18.000	457.20	0.188	4.78	16.000	406.40	0.188	4.78	15.000	19.20
18 x 14	18.000	457.20	0.188	4.78	14.000	355.60	0.188	4.78	15.000	18.20
18 x 12	18.000	457.20	0.188	4.78	12.750	323.85	0.180	4.57	15.000	17.60
20 x 18	20.000	508.00	0.218	5.54	18.000	457.20	0.188	4.78	20.000	33.10
20 x 16	20.000	508.00	0.218	5.54	16.000	406.40	0.188	4.78	20.000	31.70
20 x 14	20.000	508.00	0.218	5.54	14.000	355.60	0.188	4.78	20.000	29.90
22 x 20	22.000	558.80	0.218	5.54	20.000	508.00	0.218	5.54	20.000	36.60
22 x 18	22.000	558.80	0.218	5.54	18.000	457.20	0.188	4.78	20.000	35.00
22 x 16	22.000	558.80	0.218	5.54	16.000	406.40	0.188	4.78	20.000	33.40
24 x 22	24.000	609.60	0.250	6.35	22.000	558.80	0.218	5.54	20.000	46.00
24 x 20	24.000	609.60	0.250	6.35	20.000	508.00	0.218	5.54	20.000	44.10
24 x 18	24.000	609.60	0.250	6.35	18.000	457.20	0.188	4.78	20.000	42.40

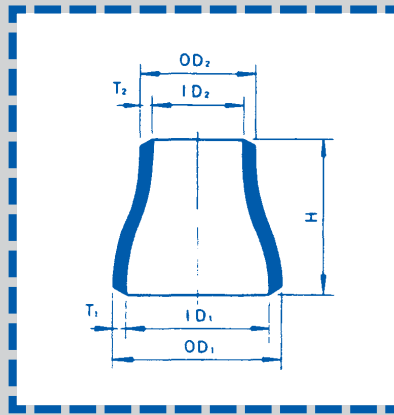
Larger sizes may be conical type

REDUCERS, CONC. SCH 10 S

REDUCERS, CONC. SCH 40 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

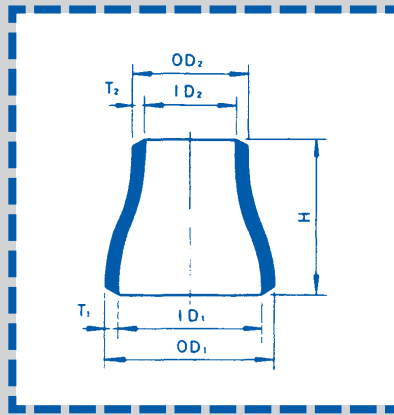


Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
3/4 x 1/2	1.050	26.67	0.113	2.87	0.840	21.34	0.109	2.77	1.500	0.06
1 x 3/4	1.315	33.40	0.133	3.38	1.050	26.67	0.113	2.87	2.000	0.12
1 x 1/2	1.315	33.40	0.133	3.38	0.840	21.34	0.109	2.77	2.000	0.11
1 1/4 x 1	1.660	42.16	0.140	3.56	1.315	33.40	0.133	3.38	2.000	0.16
1 1/4 x 3/4	1.660	42.16	0.140	3.56	1.050	26.67	0.113	2.87	2.000	0.14
1 1/4 x 1/2	1.660	42.16	0.140	3.56	0.840	21.34	0.109	2.77	2.000	0.13
1 1/2 x 1 1/4	1.900	48.26	0.145	3.68	1.660	42.16	0.140	3.56	2.500	0.24
1 1/2 x 1	1.900	48.26	0.145	3.68	1.315	33.40	0.133	3.38	2.500	0.22
1 1/2 x 3/4	1.900	48.26	0.145	3.68	1.050	26.67	0.113	2.87	2.500	0.20
1 1/2 x 1/2	1.900	48.26	0.145	3.68	0.840	21.34	0.109	2.77	2.500	0.18
2 x 1 1/2	2.375	60.33	0.154	3.91	1.900	48.26	0.145	3.68	3.000	0.37
2 x 1 1/4	2.375	60.33	0.154	3.91	1.660	42.16	0.140	3.56	3.000	0.35
2 x 1	2.375	60.33	0.154	3.91	1.315	33.40	0.133	3.38	3.000	0.32
2 x 3/4	2.375	60.33	0.154	3.91	1.050	26.67	0.113	2.87	3.000	0.30
2 x 1/2	2.375	60.33	0.154	3.91	0.840	21.34	0.109	2.77	3.000	0.28
2 1/2 x 2	2.875	73.03	0.203	5.16	2.375	60.33	0.154	3.91	3.500	0.72
2 1/2 x 1 1/2	2.875	73.03	0.203	5.16	1.900	48.26	0.145	3.68	3.500	0.66
2 1/2 x 1 1/4	2.875	73.03	0.203	5.16	1.660	42.16	0.140	3.56	3.500	0.63
3 x 2 1/2	3.500	88.90	0.216	5.49	2.875	73.03	0.203	5.16	3.500	0.93
3 x 2	3.500	88.90	0.216	5.49	2.375	60.33	0.154	3.91	3.500	0.85
3 x 1 1/2	3.500	88.90	0.216	5.49	1.900	48.26	0.145	3.68	3.500	0.78
3 x 1 1/4	3.500	88.90	0.216	5.49	1.660	42.16	0.140	3.56	3.500	0.75
3 x 1	3.500	88.90	0.216	5.49	1.315	33.40	0.133	3.38	3.500	0.74
4 x 3	4.500	114.30	0.237	6.02	3.500	88.90	0.216	5.49	4.000	1.45
4 x 2 1/2	4.500	114.30	0.237	6.02	2.875	73.03	0.203	5.16	4.000	1.37
4 x 2	4.500	114.30	0.237	6.02	2.375	60.33	0.154	3.91	4.000	1.27
4 x 1 1/2	4.500	114.30	0.237	6.02	1.900	48.26	0.145	3.68	4.000	1.18
5 x 4	5.563	141.30	0.258	6.55	4.500	114.30	0.237	6.02	5.000	2.50
5 x 3	5.563	141.30	0.258	6.55	3.500	88.90	0.216	5.49	5.000	2.27
5 x 2 1/2	5.563	141.30	0.258	6.55	2.875	73.03	0.203	5.16	5.000	2.16



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



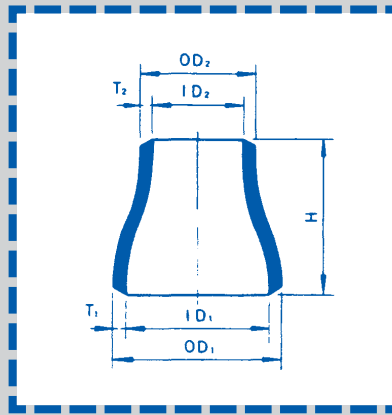
Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
6 x 5	6.625	168.28	0.280	7.11	5.563	141.30	0.258	6.55	5.500	3.57
6 x 4	6.625	168.28	0.280	7.11	4.500	114.30	0.237	6.02	5.500	3.30
6 x 3	6.625	168.28	0.280	7.11	3.500	88.90	0.216	5.49	5.500	3.04
8 x 6	8.625	219.08	0.322	8.18	6.625	168.28	0.280	7.11	6.000	5.71
8 x 5	8.625	219.08	0.322	8.18	5.563	141.30	0.258	6.55	6.000	5.40
8 x 4	8.625	219.08	0.322	8.18	4.500	114.30	0.237	6.02	6.000	5.10
10 x 8	10.750	273.05	0.365	9.27	8.625	219.08	0.322	8.18	7.000	9.58
10 x 6	10.750	273.05	0.365	9.27	6.625	168.28	0.280	7.11	7.000	8.78
10 x 5	10.750	273.05	0.365	9.27	5.563	141.30	0.258	6.55	7.000	8.42
12 x 10	12.750	323.85	0.375	9.53	10.750	273.05	0.365	9.27	8.000	13.60
12 x 8	12.750	323.85	0.375	9.53	8.625	219.08	0.322	8.18	8.000	12.70
12 x 6	12.750	323.85	0.375	9.53	6.625	168.28	0.280	7.11	8.000	11.80
14 x 12	14.000	355.60	0.375	9.53	12.750	323.85	0.375	9.53	13.000	25.40
14 x 10	14.000	355.60	0.375	9.53	10.750	273.05	0.365	9.27	13.000	23.60
14 x 8	14.000	355.60	0.375	9.53	8.625	219.08	0.322	8.18	13.000	21.80
16 x 14	16.000	406.40	0.375	9.53	14.000	355.60	0.375	9.53	14.000	31.00
16 x 12	16.000	406.40	0.375	9.53	12.750	323.85	0.375	9.53	14.000	29.60
16 x 10	16.000	406.40	0.375	9.53	10.750	273.05	0.365	9.27	14.000	27.80
18 x 16	18.000	457.20	0.375	9.53	16.000	406.40	0.375	9.53	15.000	37.80
18 x 14	18.000	457.20	0.375	9.53	14.000	355.60	0.375	9.53	15.000	35.70
18 x 12	18.000	457.20	0.375	9.53	12.750	323.85	0.375	9.53	15.000	34.30
20 x 18	20.000	508.00	0.375	9.53	18.000	457.20	0.375	9.53	20.000	56.40
20 x 16	20.000	508.00	0.375	9.53	16.000	406.40	0.375	9.53	20.000	53.50
20 x 14	20.000	508.00	0.375	9.53	14.000	355.60	0.375	9.53	20.000	50.80
22 x 20	22.000	558.80	0.375	9.53	20.000	508.00	0.375	9.53	20.000	62.60
22 x 18	22.000	558.80	0.375	9.53	18.000	457.20	0.375	9.53	20.000	59.70
22 x 16	22.000	558.80	0.375	9.53	16.000	406.40	0.375	9.53	20.000	57.10
24 x 22	24.000	609.60	0.375	9.53	22.000	558.80	0.375	9.53	20.000	68.60
24 x 20	24.000	609.60	0.375	9.53	20.000	508.00	0.375	9.53	20.000	65.70
24 x 18	24.000	609.60	0.375	9.53	18.000	457.20	0.375	9.53	20.000	63.00

REDUCERS, CONC. SCH 40 S

REDUCERS, CONC. SCH 80 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

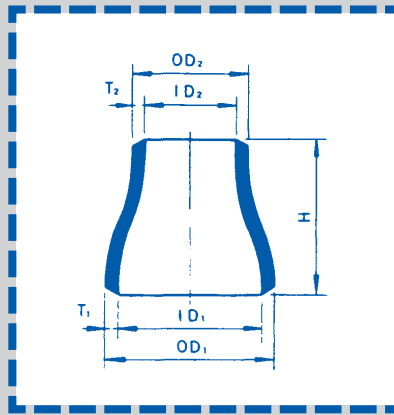


Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
3/4 x 1/2	1.050	26.67	0.154	3.91	0.840	21.34	0.147	3.73	1.500	0.08
1 x 3/4	1.315	33.40	0.179	4.55	1.050	26.67	0.154	3.91	2.000	0.15
1 x 1/2	1.315	33.40	0.179	4.55	0.840	21.34	0.147	3.73	2.000	0.13
1 1/4 x 1	1.660	42.16	0.191	4.85	1.315	33.40	0.179	4.55	2.000	0.21
1 1/4 x 3/4	1.660	42.16	0.191	4.85	1.050	26.67	0.154	3.91	2.000	0.19
1 1/4 x 1/2	1.660	42.16	0.191	4.85	0.840	21.34	0.147	3.73	2.000	0.17
1 1/2 x 1 1/4	1.900	48.26	0.200	5.08	1.660	42.16	0.191	4.85	2.500	0.32
1 1/2 x 1	1.900	48.26	0.200	5.08	1.315	33.40	0.179	4.55	2.500	0.29
1 1/2 x 3/4	1.900	48.26	0.200	5.08	1.050	26.67	0.154	3.91	2.500	0.27
1 1/2 x 1/2	1.900	48.26	0.200	5.08	0.840	21.34	0.147	3.73	2.500	0.24
2 x 1 1/2	2.375	60.33	0.218	5.54	1.900	48.26	0.200	5.08	3.000	0.51
2 x 1 1/4	2.375	60.33	0.218	5.54	1.660	42.16	0.191	4.85	3.000	0.48
2 x 1	2.375	60.33	0.218	5.54	1.315	33.40	0.179	4.55	3.000	0.44
2 x 3/4	2.375	60.33	0.218	5.54	1.050	26.67	0.154	3.91	3.000	0.41
2 x 1/2	2.375	60.33	0.218	5.54	0.840	21.34	0.147	3.73	3.000	0.38
2 1/2 x 2	2.875	73.03	0.276	7.01	2.375	60.33	0.218	5.54	3.500	0.92
2 1/2 x 1 1/2	2.875	73.03	0.276	7.01	1.900	48.26	0.200	5.08	3.500	0.83
2 1/2 x 1 1/4	2.875	73.03	0.276	7.01	1.660	42.16	0.191	4.85	3.500	0.79
3 x 2 1/2	3.500	88.90	0.300	7.62	2.875	73.03	0.276	7.01	3.500	1.23
3 x 2	3.500	88.90	0.300	7.62	2.375	60.33	0.218	5.54	3.500	1.13
3 x 1 1/2	3.500	88.90	0.300	7.62	1.900	48.26	0.200	5.08	3.500	1.04
3 x 1 1/4	3.500	88.90	0.300	7.62	1.660	42.16	0.191	4.85	3.500	0.96
3 x 1	3.500	88.90	0.300	7.62	1.315	33.40	0.179	4.55	3.500	0.83
4 x 3	4.500	114.30	0.337	8.56	3.500	88.90	0.300	7.62	4.000	2.02
4 x 2 1/2	4.500	114.30	0.337	8.56	2.875	73.03	0.276	7.01	4.000	1.86
4 x 2	4.500	114.30	0.337	8.56	2.375	60.33	0.218	5.54	4.000	1.76
4 x 1 1/2	4.500	114.30	0.337	8.56	1.900	48.26	0.200	5.08	4.000	1.64
5 x 4	5.563	141.30	0.375	9.53	4.500	114.30	0.337	8.56	5.000	3.52
5 x 3	5.563	141.30	0.375	9.53	3.500	88.90	0.300	7.62	5.000	3.18
5 x 2 1/2	5.563	141.30	0.375	9.53	2.875	73.03	0.276	7.01	5.000	3.01



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



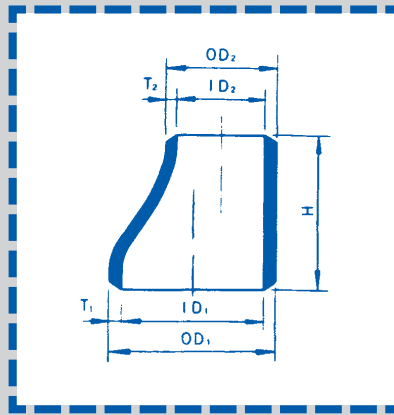
Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
6 x 5	6.625	168.28	0.432	10.97	5.563	141.30	0.375	9.53	5.500	5.38
6 x 4	6.625	168.28	0.432	10.97	4.500	114.30	0.337	8.56	5.500	4.96
6 x 3	6.625	168.28	0.432	10.97	3.500	88.90	0.300	7.62	5.500	4.56
8 x 6	8.625	219.08	0.500	12.70	6.625	168.28	0.432	10.97	6.000	8.63
8 x 5	8.625	219.08	0.500	12.70	5.563	141.30	0.375	9.53	6.000	8.14
8 x 4	8.625	219.08	0.500	12.70	4.500	114.30	0.337	8.56	6.000	7.68
10 x 8	10.750	273.05	0.500	12.70	8.625	219.08	0.500	12.70	7.000	12.90
10 x 6	10.750	273.05	0.500	12.70	6.625	168.28	0.432	10.97	7.000	11.80
10 x 5	10.750	273.05	0.500	12.70	5.563	141.30	0.375	9.53	7.000	11.30
12 x 10	12.750	323.85	0.500	12.70	10.750	273.05	0.500	12.70	8.000	18.00
12 x 8	12.750	323.85	0.500	12.70	8.625	219.08	0.500	12.70	8.000	16.70
12 x 6	12.750	323.85	0.500	12.70	6.625	168.28	0.432	10.97	8.000	15.90
14 x 12	14.000	355.60	0.500	12.70	12.750	323.85	0.500	12.70	13.000	33.60
14 x 10	14.000	355.60	0.500	12.70	10.750	273.05	0.500	12.70	13.000	31.20
14 x 8	14.000	355.60	0.500	12.70	8.625	219.08	0.500	12.70	13.000	28.90
16 x 14	16.000	406.40	0.500	12.70	14.000	355.60	0.500	12.70	14.000	41.10
16 x 12	16.000	406.40	0.500	12.70	12.750	323.85	0.500	12.70	14.000	39.20
16 x 10	16.000	406.40	0.500	12.70	10.750	273.05	0.500	12.70	14.000	36.80
18 x 16	18.000	457.20	0.500	12.70	16.000	406.40	0.500	12.70	15.000	50.10
18 x 14	18.000	457.20	0.500	12.70	14.000	355.60	0.500	12.70	15.000	47.40
18 x 12	18.000	457.20	0.500	12.70	12.750	323.85	0.500	12.70	15.000	45.50
20 x 18	20.000	508.00	0.500	12.70	18.000	457.20	0.500	12.70	20.000	74.90
20 x 16	20.000	508.00	0.500	12.70	16.000	406.40	0.500	12.70	20.000	71.10
20 x 14	20.000	508.00	0.500	12.70	14.000	355.60	0.500	12.70	20.000	67.40
22 x 20	22.000	558.80	0.500	12.70	20.000	508.00	0.500	12.70	20.000	82.90
22 x 18	22.000	558.80	0.500	12.70	18.000	457.20	0.500	12.70	20.000	79.20
22 x 16	22.000	558.80	0.500	12.70	16.000	406.40	0.500	12.70	20.000	75.60
24 x 22	24.000	609.60	0.500	12.70	22.000	558.80	0.500	12.70	20.000	91.00
24 x 20	24.000	609.60	0.500	12.70	20.000	508.00	0.500	12.70	20.000	87.30
24 x 18	24.000	609.60	0.500	12.70	18.000	457.20	0.500	12.70	20.000	83.70

REDUCERS, CONC. SCH 80 S

REDUCERS, ECC. SCH 10 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

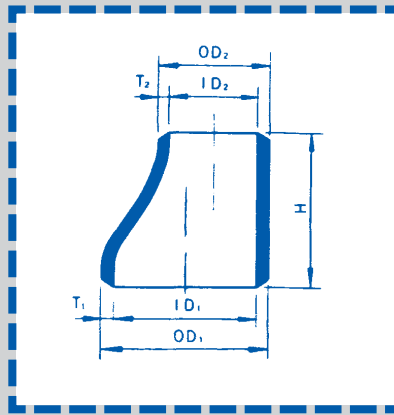


Nominal Pipe Size	Outside Diameter OD ₁	Large End		mm	Outside Diameter OD ₂	Small End		mm	End to End H	Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂			
3/4 x 1/2	1.050	26.67	0.083	2.11	0.840	21.34	0.083	2.11	1.500	0.04
1 x 3/4	1.315	33.40	0.109	2.77	1.050	26.67	0.083	2.11	2.000	0.10
1 x 1/2	1.315	33.40	0.109	2.77	0.840	21.34	0.083	2.11	2.000	0.09
1 1/4 x 1	1.660	42.16	0.109	2.77	1.315	33.40	0.109	2.77	2.000	0.12
1 1/4 x 3/4	1.660	42.16	0.109	2.77	1.050	26.67	0.083	2.11	2.000	0.11
1 1/4 x 1/2	1.660	42.16	0.109	2.77	0.840	21.34	0.083	2.11	2.000	0.10
1 1/2 x 1 1/4	1.900	48.26	0.109	2.77	1.660	42.16	0.109	2.77	2.500	0.18
1 1/2 x 1	1.900	48.26	0.109	2.77	1.315	33.40	0.109	2.77	2.500	0.17
1 1/2 x 3/4	1.900	48.26	0.109	2.77	1.050	26.67	0.083	2.11	2.500	0.15
1 1/2 x 1/2	1.900	48.26	0.109	2.77	0.840	21.34	0.083	2.11	2.500	0.14
2 x 1 1/2	2.375	60.33	0.109	2.77	1.900	48.26	0.109	2.77	3.000	0.27
2 x 1 1/4	2.375	60.33	0.109	2.77	1.660	42.16	0.109	2.77	3.000	0.25
2 x 1	2.375	60.33	0.109	2.77	1.315	33.40	0.109	2.77	3.000	0.23
2 x 3/4	2.375	60.33	0.109	2.77	1.050	26.67	0.083	2.11	3.000	0.22
2 x 1/2	2.375	60.33	0.109	2.77	0.840	21.34	0.083	2.11	3.000	0.23
2 1/2 x 2	2.875	73.03	0.120	3.05	2.375	60.33	0.109	2.77	3.500	0.43
2 1/2 x 1 1/2	2.875	73.03	0.120	3.05	1.900	48.26	0.109	2.77	3.500	0.39
2 1/2 x 1 1/4	2.875	73.03	0.120	3.05	1.660	42.16	0.109	2.77	3.500	0.37
3 x 2 1/2	3.500	88.90	0.120	3.05	2.875	73.03	0.120	3.05	3.500	0.52
3 x 2	3.500	88.90	0.120	3.05	2.375	60.33	0.109	2.77	3.500	0.48
3 x 1 1/2	3.500	88.90	0.120	3.05	1.900	48.26	0.109	2.77	3.500	0.45
3 x 1 1/4	3.500	88.90	0.120	3.05	1.660	42.16	0.109	2.77	3.500	0.43
3 x 1	3.500	88.90	0.120	3.05	1.315	33.40	0.109	2.77	3.500	0.43
4 x 3	4.500	114.30	0.120	3.05	3.500	88.90	0.120	3.05	4.000	0.76
4 x 2 1/2	4.500	114.30	0.120	3.05	2.875	73.03	0.120	3.05	4.000	0.71
4 x 2	4.500	114.30	0.120	3.05	2.375	60.33	0.109	2.77	4.000	0.67
4 x 1 1/2	4.500	114.30	0.120	3.05	1.900	48.26	0.109	2.77	4.000	0.63
5 x 4	5.563	141.30	0.134	3.40	4500	11430	0.120	3.05	5.000	1.33
5 x 3	5.563	141.30	0.134	3.40	3.500	88.90	0.120	3.05	5.000	1.22
5 x 2 1/2	5.563	141.30	0.134	3.40	2.875	73.03	0.120	3.05	5.000	1.14



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



Nominal Pipe Size	Outside Diameter OD ₁	Large End			Outside Diameter OD ₂	Small End			End to End H	Approx. Weight (kgs)
		mm	Wall Thickness T ₁	mm		mm	Wall Thickness T ₂	mm		
6 x 5	6.625	168.28	0.134	3.40	5.563	141.30	0.134	3.40	5.500	1.78
6 x 4	6.625	168.28	0.134	3.40	4.500	114.30	0.120	3.05	5.500	1.65
6 x 3	6.625	168.28	0.134	3.40	3.500	88.90	0.120	3.05	5.500	1.53
8 x 6	8.625	219.08	0.148	3.76	6.625	168.28	0.134	3.40	6.000	2.72
8 x 5	8.625	219.08	0.148	3.76	5.563	141.30	0.134	3.40	6.000	2.57
8 x 4	8.625	219.08	0.148	3.76	4.500	114.30	0.120	3.05	6.000	2.43
10 x 8	10.750	273.05	0.165	4.19	8.625	219.08	0.148	3.76	7.000	4.49
10 x 6	10.750	273.05	0.165	4.19	6.625	168.28	0.134	3.40	7.000	4.14
10 x 5	10.750	273.05	0.165	4.19	5.563	141.30	0.134	3.40	7.000	3.98
12 x 10	12.750	323.85	0.180	4.57	10.750	273.05	0.165	4.19	8.000	6.78
12 x 8	12.750	323.85	0.180	4.57	8.625	219.08	0.148	3.76	8.000	6.31
12 x 6	12.750	323.85	0.180	4.57	6.625	168.28	0.134	3.40	8.000	5.92
14 x 12	14.000	355.60	0.188	4.78	12.750	323.85	0.180	4.57	13.000	13.00
14 x 10	14.000	355.60	0.188	4.78	10.750	273.05	0.165	4.19	13.000	12.10
14 x 8	14.000	355.60	0.188	4.78	8.625	219.08	0.148	3.76	13.000	11.20
16 x 14	16.000	406.40	0.188	4.78	14.000	355.60	0.188	4.78	14.000	15.80
16 x 12	16.000	406.40	0.188	4.78	12.750	323.85	0.180	4.57	14.000	15.20
16 x 10	16.000	406.40	0.188	4.78	10.750	273.05	0.165	4.19	14.000	14.40
18 x 16	18.000	457.20	0.188	4.78	16.000	406.40	0.188	4.78	15.000	19.20
18 x 14	18.000	457.20	0.188	4.78	14.000	355.60	0.188	4.78	15.000	18.20
18 x 12	18.000	457.20	0.188	4.78	12.750	323.85	0.180	4.57	15.000	17.60
20 x 18	20.000	508.00	0.218	5.54	18.000	457.20	0.188	4.78	20.000	33.10
20 x 16	20.000	508.00	0.218	5.54	16.000	406.40	0.188	4.78	20.000	31.70
20 x 14	20.000	508.00	0.218	5.54	14.000	355.60	0.188	4.78	20.000	29.90
22 x 20	22.000	558.80	0.218	5.54	20.000	508.00	0.218	5.54	20.000	36.60
22 x 18	22.000	558.80	0.218	5.54	18.000	457.20	0.188	4.78	20.000	35.00
22 x 16	22.000	558.80	0.218	5.54	16.000	406.40	0.188	4.78	20.000	33.40
24 x 22	24.000	609.60	0.250	6.35	22.000	558.80	0.218	5.54	20.000	46.00
24 x 20	24.000	609.60	0.250	6.35	20.000	508.00	0.218	5.54	20.000	44.10
24 x 18	24.000	609.60	0.250	6.35	18.000	457.20	0.188	4.78	20.000	42.40

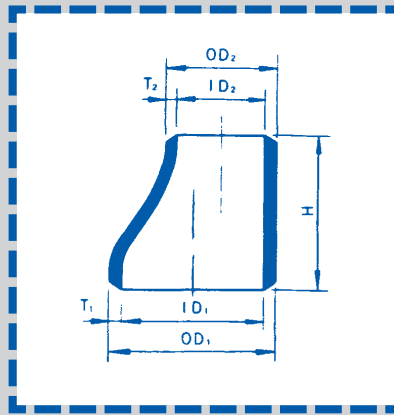
Larger sizes may be conical type

REDUCERS, ECC. SCH 10 S

REDUCERS, ECC. SCH 40 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

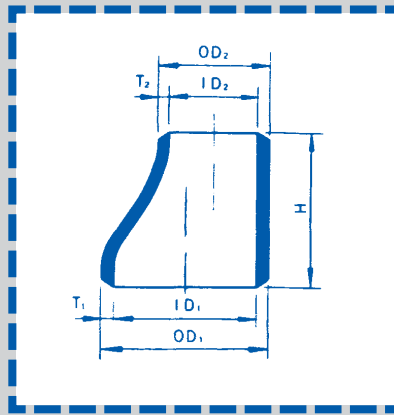


Nominal Pipe Size	Outside Diameter OD ₁	Large End		mm	Outside Diameter OD ₂	Small End		mm	End to End H	Approx. Weight (kgs)
		mm	Wall Thickness T ₁			mm	Wall Thickness T ₂			
3/4 x 1/2	1.050	26.67	0.113	2.87	0.840	21.34	0.109	2.77	1.500	0.06
1 x 3/4	1.315	33.40	0.133	3.38	1.050	26.67	0.113	2.87	2.000	0.12
1 x 1/2	1.315	33.40	0.133	3.38	0.840	21.34	0.109	2.77	2.000	0.11
1 1/4 x 1	1.660	42.16	0.140	3.56	1.315	33.40	0.133	3.38	2.000	0.16
1 1/4 x 3/4	1.660	42.16	0.140	3.56	1.050	26.67	0.113	2.87	2.000	0.14
1 1/4 x 1/2	1.660	42.16	0.140	3.56	0.840	21.34	0.109	2.77	2.000	0.13
1 1/2 x 1 1/4	1.900	48.26	0.145	3.68	1.660	42.16	0.140	3.56	2.500	0.24
1 1/2 x 1	1.900	48.26	0.145	3.68	1.315	33.40	0.133	3.38	2.500	0.22
1 1/2 x 3/4	1.900	48.26	0.145	3.68	1.050	26.67	0.113	2.87	2.500	0.20
1 1/2 x 1/2	1.900	48.26	0.145	3.68	0.840	21.34	0.109	2.77	2.500	0.18
2 x 1 1/2	2.375	60.33	0.154	3.91	1.900	48.26	0.145	3.68	3.000	0.37
2 x 1 1/4	2.375	60.33	0.154	3.91	1.660	42.16	0.140	3.56	3.000	0.35
2 x 1	2.375	60.33	0.154	3.91	1.315	33.40	0.133	3.38	3.000	0.32
2 x 3/4	2.375	60.33	0.154	3.91	1.050	26.67	0.113	2.87	3.000	0.30
2 x 1/2	2.375	60.33	0.154	3.91	0.840	21.34	0.109	2.77	3.000	0.28
2 1/2 x 2	2.875	73.03	0.203	5.16	2.375	60.33	0.154	3.91	3.500	0.72
2 1/2 x 1 1/2	2.875	73.03	0.203	5.16	1.900	48.26	0.145	3.68	3.500	0.66
2 1/2 x 1 1/4	2.875	73.03	0.203	5.16	1.660	42.16	0.140	3.56	3.500	0.63
3 x 2 1/2	3.500	88.90	0.216	5.49	2.875	73.03	0.203	5.16	3.500	0.93
3 x 2	3.500	88.90	0.216	5.49	2.375	60.33	0.154	3.91	3.500	0.85
3 x 1 1/2	3.500	88.90	0.216	5.49	1.900	48.26	0.145	3.68	3.500	0.78
3 x 1 1/4	3.500	88.90	0.216	5.49	1.660	42.16	0.140	3.56	3.500	0.75
3 x 1	3.500	88.90	0.216	5.49	1.315	33.40	0.133	3.38	3.500	0.74
4 x 3	4.500	114.30	0.237	6.02	3.500	88.90	0.216	5.49	4.000	1.45
4 x 2 1/2	4.500	114.30	0.237	6.02	2.875	73.03	0.203	5.16	4.000	1.37
4 x 2	4.500	114.30	0.237	6.02	2.375	60.33	0.154	3.91	4.000	1.27
4 x 1 1/2	4.500	114.30	0.237	6.02	1.900	48.26	0.145	3.68	4.000	1.18
5 x 4	5.563	141.30	0.258	6.55	4.500	114.30	0.237	6.02	5.000	2.50
5 x 3	5.563	141.30	0.258	6.55	3.500	88.90	0.216	5.49	5.000	2.27
5 x 2 1/2	5.563	141.30	0.258	6.55	2.875	73.03	0.203	5.16	5.000	2.16



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
6 x 5	6.625	168.28	0.280	7.11	5.563	141.30	0.258	6.55	5.500	3.57
6 x 4	6.625	168.28	0.280	7.11	4.500	114.30	0.237	6.02	5.500	3.30
6 x 3	6.625	168.28	0.280	7.11	3.500	88.90	0.216	5.49	5.500	3.04
8 x 6	8.625	219.08	0.322	8.18	6.625	168.28	0.280	7.11	6.000	5.71
8 x 5	8.625	219.08	0.322	8.18	5.563	141.30	0.258	6.55	6.000	5.40
8 x 4	8.625	219.08	0.322	8.18	4.500	114.30	0.237	6.02	6.000	5.10
10 x 8	10.750	273.05	0.365	9.27	8.625	219.08	0.322	8.18	7.000	9.58
10 x 6	10.750	273.05	0.365	9.27	6.625	168.28	0.280	7.11	7.000	8.78
10 x 5	10.750	273.05	0.365	9.27	5.563	141.30	0.258	6.55	7.000	8.42
12 x 10	12.750	323.85	0.375	9.53	10.750	273.05	0.365	9.27	8.000	13.60
12 x 8	12.750	323.85	0.375	9.53	8.625	219.08	0.322	8.18	8.000	12.70
12 x 6	12.750	323.85	0.375	9.53	6.625	168.28	0.280	7.11	8.000	11.80
14 x 12	14.000	355.60	0.375	9.53	12.750	323.85	0.375	9.53	13.000	25.40
14 x 10	14.000	355.60	0.375	9.53	10.750	273.05	0.365	9.27	13.000	23.60
14 x 8	14.000	355.60	0.375	9.53	8.625	219.08	0.322	8.18	13.000	21.80
16 x 14	16.000	406.40	0.375	9.53	14.000	355.60	0.375	9.53	14.000	31.00
16 x 12	16.000	406.40	0.375	9.53	12.750	323.85	0.375	9.53	14.000	29.60
16 x 10	16.000	406.40	0.375	9.53	10.750	273.05	0.365	9.27	14.000	27.80
18 x 16	18.000	457.20	0.375	9.53	16.000	406.40	0.375	9.53	15.000	37.80
18 x 14	18.000	457.20	0.375	9.53	14.000	355.60	0.375	9.53	15.000	35.70
18 x 12	18.000	457.20	0.375	9.53	12.750	323.85	0.375	9.53	15.000	34.30
20 x 18	20.000	508.00	0.375	9.53	18.000	457.20	0.375	9.53	20.000	56.40
20 x 16	20.000	508.00	0.375	9.53	16.000	406.40	0.375	9.53	20.000	53.50
20 x 14	20.000	508.00	0.375	9.53	14.000	355.60	0.375	9.53	20.000	50.80
22 x 20	22.000	558.80	0.375	9.53	20.000	508.00	0.375	9.53	20.000	62.60
22 x 18	22.000	558.80	0.375	9.53	18.000	457.20	0.375	9.53	20.000	59.70
22 x 16	22.000	558.80	0.375	9.53	16.000	406.40	0.375	9.53	20.000	57.10
24 x 22	24.000	609.60	0.375	9.53	22.000	558.80	0.375	9.53	20.000	68.60
24 x 20	24.000	609.60	0.375	9.53	20.000	508.00	0.375	9.53	20.000	65.70
24 x 18	24.000	609.60	0.375	9.53	18.000	457.20	0.375	9.53	20.000	63.00

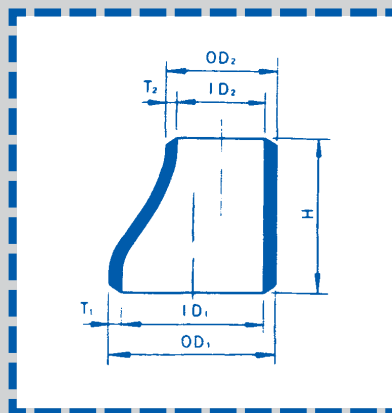
Larger sizes may be conical type

REDUCERS, ECC. SCH 40 S

REDUCERS, ECC. SCH 80 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

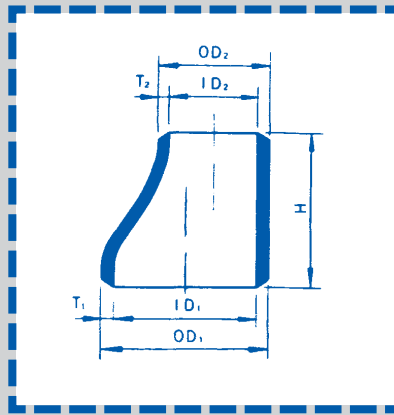


Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
3/4 x 1/2	1.050	26.67	0.154	3.91	0.840	21.34	0.147	3.73	1.500	0.08
1 x 3/4	1.315	33.40	0.179	4.55	1.050	26.67	0.154	3.91	2.000	0.15
1 x 1/2	1.315	33.40	0.179	4.55	0.840	21.34	0.147	3.73	2.000	0.13
1 1/4 x 1	1.660	42.16	0.191	4.85	1.315	33.40	0.179	4.55	2.000	0.21
1 1/4 x 3/4	1.660	42.16	0.191	4.85	1.050	26.67	0.154	3.91	2.000	0.19
1 1/4 x 1/2	1.660	42.16	0.191	4.85	0.840	21.34	0.147	3.73	2.000	0.17
1 1/2 x 1 1/4	1.900	48.26	0.200	5.08	1.660	42.16	0.191	4.85	2.500	0.32
1 1/2 x 1	1.900	48.26	0.200	5.08	1.315	33.40	0.179	4.55	2.500	0.29
1 1/2 x 3/4	1.900	48.26	0.200	5.08	1.050	26.67	0.154	3.91	2.500	0.27
1 1/2 x 1/2	1.900	48.26	0.200	5.08	0.840	21.34	0.147	3.73	2.500	0.24
2 x 1 1/2	2.375	60.33	0.218	5.54	1.900	48.26	0.200	5.08	3.000	0.51
2 x 1 1/4	2.375	60.33	0.218	5.54	1.660	42.16	0.191	4.85	3.000	0.48
2 x 1	2.375	60.33	0.218	5.54	1.315	33.40	0.179	4.55	3.000	0.44
2 x 3/4	2.375	60.33	0.218	5.54	1.050	26.67	0.154	3.91	3.000	0.41
2 x 1/2	2.375	60.33	0.218	5.54	0.840	21.34	0.147	3.73	3.000	0.38
2 1/2 x 2	2.875	73.03	0.276	7.01	2.375	60.33	0.218	5.54	3.500	0.92
2 1/2 x 1 1/2	2.875	73.03	0.276	7.01	1.900	48.26	0.200	5.08	3.500	0.83
2 1/2 x 1 1/4	2.875	73.03	0.276	7.01	1.660	42.16	0.191	4.85	3.500	0.79
3 x 2 1/2	3.500	88.90	0.300	7.62	2.875	73.03	0.276	7.01	3.500	1.23
3 x 2	3.500	88.90	0.300	7.62	2.375	60.33	0.218	5.54	3.500	1.13
3 x 1 1/2	3.500	88.90	0.300	7.62	1.900	48.26	0.200	5.08	3.500	1.04
3 x 1 1/4	3.500	88.90	0.300	7.62	1.660	42.16	0.191	4.85	3.500	0.96
3 x 1	3.500	88.90	0.300	7.62	1.315	33.40	0.179	4.55	3.500	0.83
4 x 3	4.500	114.30	0.337	8.56	3.500	88.90	0.300	7.62	4.000	2.02
4 x 2 1/2	4.500	114.30	0.337	8.56	2.875	73.03	0.276	7.01	4.000	1.86
4 x 2	4.500	114.30	0.337	8.56	2.375	60.33	0.218	5.54	4.000	1.76
4 x 1 1/2	4.500	114.30	0.337	8.56	1.900	48.26	0.200	5.08	4.000	1.64
5 x 4	5.563	141.30	0.375	9.53	4.500	114.30	0.337	8.56	5.000	3.52
5 x 3	5.563	141.30	0.375	9.53	3.500	88.90	0.300	7.62	5.000	3.18
5 x 2 1/2	5.563	141.30	0.375	9.53	2.875	73.03	0.276	7.01	5.000	3.01



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



Nominal Pipe Size	Outside Diameter OD ₁	Large End Wall Thickness		mm	Outside Diameter OD ₂	Small End Wall Thickness		mm	End to End H	Approx. Weight (kgs)
		mm	T ₁			mm	T ₂			
6 x 5	6.625	168.28	0.432	10.97	5.563	141.30	0.375	9.53	5.500	5.38
6 x 4	6.625	168.28	0.432	10.97	4.500	114.30	0.337	8.56	5.500	4.96
6 x 3	6.625	168.28	0.432	10.97	3.500	88.90	0.300	7.62	5.500	4.56
8 x 6	8.625	219.08	0.500	12.70	6.625	168.28	0.432	10.97	6.000	8.63
8 x 5	8.625	219.08	0.500	12.70	5.563	141.30	0.375	9.53	6.000	8.14
8 x 4	8.625	219.08	0.500	12.70	4.500	114.30	0.337	8.56	6.000	7.68
10 x 8	10.750	273.05	0.500	12.70	8.625	219.08	0.500	12.70	7.000	12.90
10 x 6	10.750	273.05	0.500	12.70	6.625	168.28	0.432	10.97	7.000	11.80
10 x 5	10.750	273.05	0.500	12.70	5.563	141.30	0.375	9.53	7.000	11.30
12 x 10	12.750	323.85	0.500	12.70	10.750	273.05	0.500	12.70	8.000	18.00
12 x 8	12.750	323.85	0.500	12.70	8.625	219.08	0.500	12.70	8.000	16.70
12 x 6	12.750	323.85	0.500	12.70	6.625	168.28	0.432	10.97	8.000	15.90
14 x 12	14.000	355.60	0.500	12.70	12.750	323.85	0.500	12.70	13.000	33.60
14 x 10	14.000	355.60	0.500	12.70	10.750	273.05	0.500	12.70	13.000	31.20
14 x 8	14.000	355.60	0.500	12.70	8.625	219.08	0.500	12.70	13.000	28.90
16 x 14	16.000	406.40	0.500	12.70	14.000	355.60	0.500	12.70	14.000	41.10
16 x 12	16.000	406.40	0.500	12.70	12.750	323.85	0.500	12.70	14.000	39.20
16 x 10	16.000	406.40	0.500	12.70	10.750	273.05	0.500	12.70	14.000	36.80
18 x 16	18.000	457.20	0.500	12.70	16.000	406.40	0.500	12.70	15.000	50.10
18 x 14	18.000	457.20	0.500	12.70	14.000	355.60	0.500	12.70	15.000	47.40
18 x 12	18.000	457.20	0.500	12.70	12.750	323.85	0.500	12.70	15.000	45.50
20 x 18	20.000	508.00	0.500	12.70	18.000	457.20	0.500	12.70	20.000	74.90
20 x 16	20.000	508.00	0.500	12.70	16.000	406.40	0.500	12.70	20.000	71.10
20 x 14	20.000	508.00	0.500	12.70	14.000	355.60	0.500	12.70	20.000	67.40
22 x 20	22.000	558.80	0.500	12.70	20.000	508.00	0.500	12.70	20.000	82.90
22 x 18	22.000	558.80	0.500	12.70	18.000	457.20	0.500	12.70	20.000	79.20
22 x 16	22.000	558.80	0.500	12.70	16.000	406.40	0.500	12.70	20.000	75.60
24 x 22	24.000	609.60	0.500	12.70	22.000	558.80	0.500	12.70	20.000	91.00
24 x 20	24.000	609.60	0.500	12.70	20.000	508.00	0.500	12.70	20.000	87.30
24 x 18	24.000	609.60	0.500	12.70	18.000	457.20	0.500	12.70	20.000	83.70

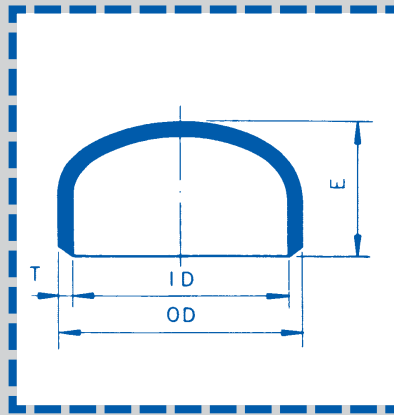
Larger sizes may be conical type

REDUCERS, ECC. SCH 80 S

CAPS SCH 10 S

STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43

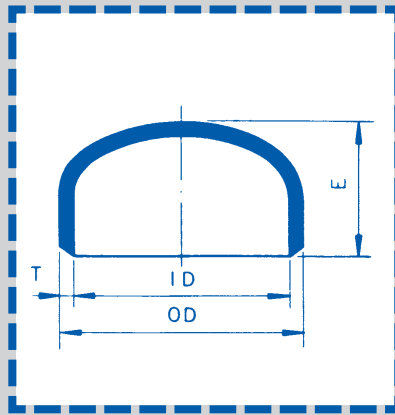


Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Length E	Approx. Weight (kgs)
1/2	0.840	21.34	0.674	0.083	2.11	1.000	0.03
3/4	1.050	26.67	0.884	0.083	2.11	1.000	0.04
1	1.315	33.40	1.097	0.109	2.77	1.500	0.09
1 1/4	1.660	42.16	1.442	0.109	2.77	1.500	0.11
1 1/2	1.900	48.26	1.682	0.109	2.77	1.500	0.13
2	2.375	60.33	2.157	0.109	2.77	1.500	0.17
2 1/2	2.875	73.03	2.635	0.120	3.05	1.500	0.23
3	3.500	88.90	3.260	0.120	3.05	2.000	0.37
4	4.500	114.30	4.260	0.120	3.05	2.500	0.59
5	5.563	141.30	5.295	0.134	3.40	3.000	0.99
6	6.625	168.28	6.357	0.134	3.40	3.500	1.39
8	8.625	219.08	8.329	0.148	3.76	4.000	2.38
10	10.750	273.05	10.420	0.165	4.19	5.000	4.14
12	12.750	323.85	12.390	0.180	4.57	6.000	6.39
14	14.000	355.60	13.624	0.188	4.78	6.500	7.98
16	16.000	406.40	15.624	0.188	4.78	7.000	10.00
18	18.000	457.20	17.624	0.188	4.78	8.000	12.80
20	20.000	508.00	19.564	0.218	5.54	9.000	18.50
22	22.000	558.80	21.564	0.218	5.54	10.000	22.60
24	24.000	609.60	23.500	0.250	6.35	10.500	30.10



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



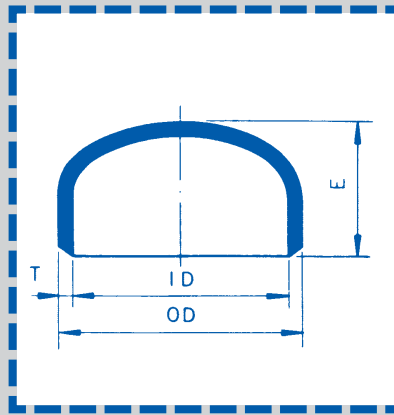
Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Length E	Approx. Weight (kgs)
1/2	0.840	21.34	0.622	0.109	2.77	1.000	0.04
3/4	1.050	26.67	0.824	0.113	2.87	1.000	0.05
1	1.315	33.40	1.049	0.133	3.38	1.500	0.11
1 1/4	1.660	42.16	1.380	0.140	3.56	1.500	0.14
1 1/2	1.900	48.26	1.610	0.145	3.68	1.500	0.17
2	2.375	60.33	2.067	0.154	3.91	1.500	0.23
2 1/2	2.875	73.03	2.469	0.203	5.16	1.500	0.39
3	3.500	88.90	3.068	0.216	5.49	2.000	0.66
4	4.500	114.30	4.026	0.237	6.02	2.500	1.17
5	5.563	141.30	5.047	0.258	6.55	3.000	1.91
6	6.625	168.28	6.065	0.280	7.11	3.500	2.90
8	8.625	219.08	7.981	0.322	8.18	4.000	5.19
10	10.750	273.05	10.020	0.365	9.27	5.000	9.15
12	12.750	323.85	12.000	0.375	9.53	6.000	13.30
14	14.000	355.60	13.250	0.375	9.53	6.500	15.90
16	16.000	406.40	15.250	0.375	9.53	7.000	20.00
18	18.000	457.20	17.250	0.375	9.53	8.000	25.60
20	20.000	508.00	19.250	0.375	9.53	9.000	31.90
22	22.000	558.80	21.250	0.375	9.53	10.000	38.80
24	24.000	609.60	23.250	0.375	9.53	10.500	45.10
26	26.000	660.40	25.264	0.368	9.35	10.500	53.80
28	28.000	711.20	27.264	0.368	9.35	10.500	62.40
30	30.000	762.00	29.264	0.368	9.35	10.500	71.70
32	32.000	812.80	31.264	0.368	9.35	10.500	81.60
36	36.000	914.40	35.264	0.368	9.35	10.500	103.20
40	40.000	1016.00	39.264	0.368	9.35	12.000	127.40
42	42.000	1066.80	41.264	0.368	9.35	12.000	140.50

CAPS SCH 40 S



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



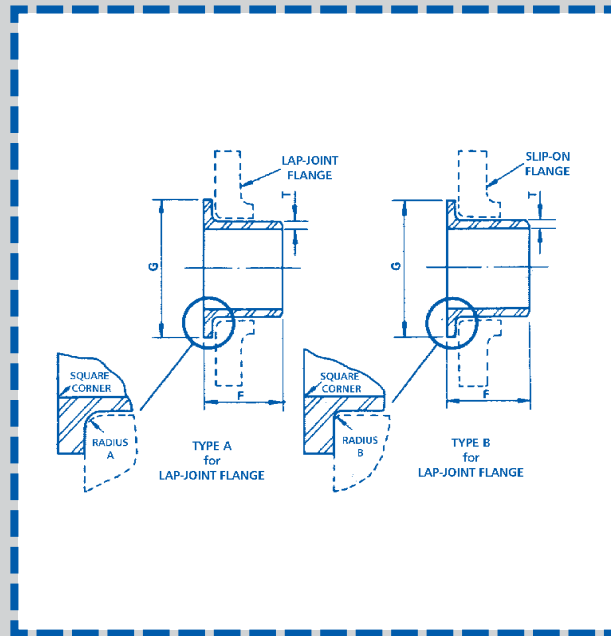
CAPS SCH 80 S

Nominal Pipe Size	Outside Diameter OD	mm	Inside Diameter ID	Wall Thickness T	mm	Length E	Approx. Weight (kgs)
1/2	0.840	21.34	0.546	0.147	3.73	1.000	0.05
3/4	1.050	26.67	0.742	0.154	3.91	1.000	0.07
1	1.315	33.40	0.957	0.179	4.55	1.500	0.14
1 1/4	1.660	42.16	1.278	0.191	4.85	1.500	0.19
1 1/2	1.900	48.26	1.500	0.200	5.08	1.500	0.23
2	2.375	60.33	1.939	0.218	5.54	1.500	0.33
2 1/2	2.875	73.03	2.323	0.276	7.01	1.500	0.53
3	3.500	88.90	2.900	0.300	7.62	2.000	0.92
4	4.500	114.30	3.823	0.337	8.56	2.500	1.67
5	5.563	141.30	4.813	0.375	9.53	3.000	2.78
6	6.625	168.28	5.761	0.432	10.97	3.500	4.47
8	8.625	219.08	7.625	0.500	12.70	4.000	8.05
10	10.750	273.05	9.750	0.500	12.70	5.000	12.50
12	12.750	323.85	11.750	0.500	12.70	6.000	17.70
14	14.000	355.60	13.000	0.500	12.70	6.500	21.20
16	16.000	406.40	15.000	0.500	12.70	7.000	26.70
18	18.000	457.20	17.000	0.500	12.70	8.000	34.10
20	20.000	508.00	19.000	0.500	12.70	9.000	42.50
22	22.000	558.80	21.000	0.500	12.70	10.000	51.70
24	24.000	609.60	23.000	0.500	12.70	10.500	60.10
26	26.000	660.40	25.000	0.500	12.70	10.500	73.10
28	28.000	711.20	27.000	0.500	12.70	10.500	84.80
30	30.000	762.00	29.000	0.500	12.70	10.500	97.40
32	32.000	812.80	31.000	0.500	12.70	10.500	110.80
36	36.000	914.40	35.000	0.500	12.70	10.500	140.20
40	40.000	1016.00	39.000	0.500	12.70	12.000	173.10
42	42.000	1066.80	41.000	0.500	12.70	12.000	190.80



STAINLESS STEEL BUTT-WELD-FITTINGS

ANSI B16.9, MSS SP-43



LAP JOINT STUB ENDS SCH 5 S, 10 S & 40 S

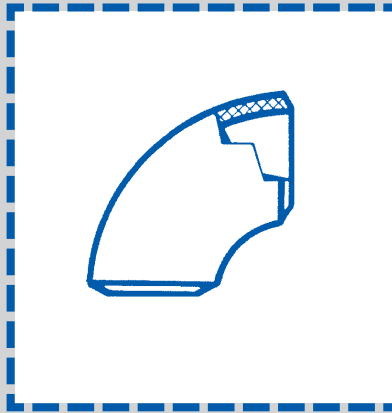
Nominal Pipe Size	Nominal O.D. at Bevel O.D.	Length F	Dia. of Lap-G Nominal & Maximum	Radius of Fillet		Wall Thickness T			Approx. Weight (kgs)		
				A Nominal Max.	B Max.	SCH 5 S	SCH 10 S	SCH 40 S	SCH 5 S	SCH 10 S	SCH 40 S
1/2	0.84	2.00	1.38	0.12	0.03	0.065	0.083	0.109	0.05	0.06	0.08
3/4	1.05	2.00	1.69	0.12	0.03	0.065	0.083	0.113	0.06	0.08	0.10
1	1.32	2.00	2.00	0.12	0.03	0.065	0.109	0.133	0.08	0.13	0.16
1 1/4	1.66	2.00	2.50	0.19	0.03	0.065	0.109	0.140	0.11	0.18	0.23
1 1/2	1.90	2.00	2.88	0.25	0.03	0.065	0.109	0.145	0.13	0.21	0.28
2	2.38	2.50	3.62	0.31	0.03	0.065	0.109	0.154	0.20	0.34	0.47
2 1/2	2.88	2.50	4.12	0.31	0.03	0.083	0.120	0.203	0.31	0.45	0.74
3	3.50	2.50	5.00	0.38	0.03	0.083	0.120	0.216	0.40	0.57	1.01
4	4.50	3.00	6.19	0.44	0.03	0.083	0.120	0.237	0.61	0.87	1.68
5	5.56	3.00	7.31	0.44	0.06	0.109	0.134	0.258	0.99	1.21	2.28
6	6.62	3.50	8.50	0.50	0.06	0.109	0.134	0.280	1.34	1.64	3.37
8	8.62	4.00	10.62	0.50	0.06	0.109	0.148	0.322	1.96	2.65	5.67
10	10.75	5.00	12.75	0.50	0.06	0.134	0.165	0.365	3.57	4.38	9.55
12	12.75	6.00	15.00	0.50	0.06	0.156	0.180	0.375	5.85	6.74	13.80
14	14.00	6.00	16.25	0.50	0.06	0.156	0.188	-	6.42	7.73	-
16	16.00	6.00	18.50	0.50	0.06	0.165	0.188	-	7.91	9.00	-
18	18.00	6.00	21.00	0.50	0.06	0.165	0.188	-	9.24	10.50	-
20	20.00	6.00	23.00	0.50	0.06	0.188	0.218	-	11.70	13.50	-
24	24.00	6.00	27.25	0.50	0.06	0.218	0.250	-	16.50	18.90	-



90° SHORT RADIUS ELBOWS

BUTT-WELD-FITTINGS

ANSI B16.28

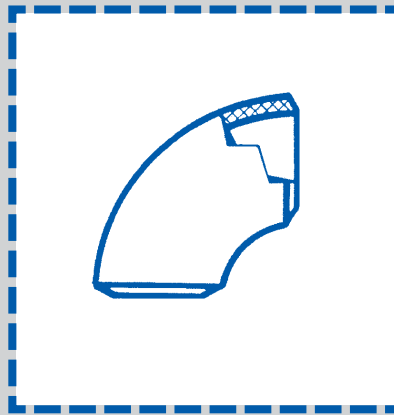


Nominal Pipe Size in.	Outside Diameter m/m	Center to End m/m	SCH STD		SCH XS		SCH XXS		SCH 10		SCH 20		SCH 30	
			Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg
1"	33	25	3,38	0,10	4,55	0,13	9,09	0,23	-	-	-	-	-	-
1 ¼"	42	32	3,56	0,17	4,85	0,23	9,70	0,41	-	-	-	-	-	-
1 ½"	48	38	3,68	0,25	5,08	0,33	10,15	0,60	-	-	-	-	-	-
2"	60	51	3,91	0,45	5,54	0,60	11,07	1,13	-	-	-	-	-	-
2 ½"	73	64	5,16	0,87	7,01	1,14	14,02	2,03	-	-	-	-	-	-
3"	89	76	5,49	1,38	7,62	1,83	15,24	3,47	-	-	-	-	-	-
3 ½"	102	89	5,74	1,93	8,08	2,61	-	-	-	-	-	-	-	-
4"	114	102	6,02	2,62	8,56	3,58	17,12	6,86	-	-	-	-	-	-
5"	141	127	6,55	4,42	9,53	6,21	19,05	12,02	-	-	-	-	-	-
6"	168	152	7,11	6,89	10,97	10,30	21,95	19,90	-	-	-	-	-	-
8"	219	203	8,18	13,80	12,70	20,70	22,23	36,12	-	-	6,35	11,16	7,04	12,34
10"	273	254	9,27	24,50	12,70	32,90	25,40	64,94	-	-	6,35	17,48	7,80	21,36
12"	324	305	9,53	36,10	12,70	47,20	25,40	93,91	-	-	6,35	24,97	8,38	32,75
14"	356	356	9,53	46,30	12,70	61,20	-	-	6,35	32,06	7,92	39,80	9,53	46,30
16"	406	406	9,53	61,20	12,70	80,30	-	-	6,35	41,97	7,92	52,14	9,53	61,20
18"	457	457	9,53	77,60	12,70	102,10	-	-	6,35	53,21	7,92	66,13	11,13	92,19
20"	508	508	9,53	96,20	12,70	126,10	-	-	6,35	65,78	9,53	96,20	12,70	126,10
22"	559	559	9,53	117,00	12,70	154,20	-	-	6,35	79,69	9,53	117,00	12,70	154,20
24"	610	610	9,53	138,30	12,70	183,30	-	-	6,35	94,93	9,53	138,30	14,27	210,24
26"	660	660	9,53	163,80	12,70	216,80	-	-	7,92	138,73	12,70	216,80	-	-
28"	711	711	9,53	206,80	12,70	258,60	-	-	7,92	161,03	12,70	258,60	15,88	319,04
30"	762	762	9,53	217,70	12,70	287,60	-	-	7,92	185,00	12,70	287,60	15,88	366,80
32"	813	813	9,53	236,80	12,70	342,00	-	-	7,92	210,63	12,70	342,00	15,88	417,89
34"	864	864	9,53	280,00	12,70	395,00	-	-	7,92	233,00	12,70	395,00	15,88	493,75
36"	914	914	9,53	313,90	12,70	414,10	-	-	7,92	266,87	12,70	414,10	15,88	530,06
38"	965	965	9,53	364,70	12,70	480,40	-	-	-	-	-	-	-	-
40"	1016	1016	9,53	395,10	12,70	532,10	-	-	-	-	-	-	-	-
42"	1067	1067	9,53	438,20	12,70	590,00	-	-	-	-	-	-	-	-



BUTT-WELD-FITTINGS

ANSI B16.28



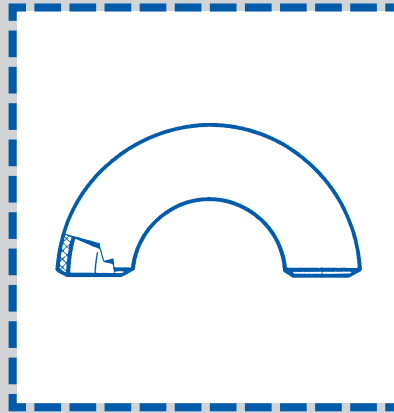
90° SHORT RADIUS ELBOWS

SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Nominal Pipe Size in.
Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	
3,38	0,10	-	-	4,55	0,13	-	-	-	-	-	-	6,35	0,18	1"
3,56	0,17	-	-	4,85	0,23	-	-	-	-	-	-	6,35	0,29	1 1/4"
3,68	0,25	-	-	5,08	0,33	-	-	-	-	-	-	7,14	0,45	1 1/2"
3,91	0,45	-	-	5,54	0,60	-	-	-	-	-	-	8,74	0,93	2"
5,16	0,87	-	-	7,01	1,14	-	-	-	-	-	-	9,53	1,56	2 1/2"
5,49	1,38	-	-	7,62	1,83	-	-	-	-	-	-	11,13	2,68	3"
5,74	1,93	-	-	8,08	2,61	-	-	-	-	-	-	-	-	3 1/2"
6,02	2,62	-	-	8,56	3,58	-	-	11,13	4,74	-	-	13,49	5,62	4"
6,55	4,42	-	-	9,53	6,21	-	-	12,70	8,43	-	-	15,88	10,28	5"
7,11	6,89	-	-	10,97	10,30	-	-	14,27	13,62	-	-	18,26	16,97	6"
8,18	13,80	10,31	17,77	12,70	20,70	15,09	25,46	18,26	30,31	20,62	33,82	23,01	37,29	8"
9,27	24,50	12,70	32,90	15,09	40,21	18,26	47,88	21,44	55,69	25,40	64,94	28,58	72,13	10"
10,31	40,05	14,27	54,87	17,48	66,24	21,44	80,18	25,40	93,91	28,58	104,55	33,32	119,93	12"
11,13	55,37	15,09	74,33	19,05	92,68	23,83	114,16	27,79	131,69	31,75	148,64	35,71	165,13	14"
12,70	80,30	16,66	107,52	21,44	136,08	26,19	164,57	30,96	192,03	36,53	223,22	40,49	244,77	16"
14,27	117,48	19,05	155,13	23,83	191,71	29,36	233,76	34,93	274,14	39,67	307,85	45,24	346,39	18"
15,09	153,31	20,62	207,35	26,19	260,68	32,54	319,14	38,10	369,72	44,45	425,51	50,01	478,50	20"
-	-	22,23	270,84	28,58	344,24	34,93	415,57	41,28	485,29	47,63	553,08	53,98	626,70	22"
17,48	256,07	24,61	356,63	30,96	443,95	38,89	550,15	46,02	642,73	52,37	734,42	59,54	834,76	24"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	26"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	28"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	30"
17,48	460,00	-	-	-	-	-	-	-	-	-	-	-	-	32"
17,48	545,00	-	-	-	-	-	-	-	-	-	-	-	-	34"
19,05	634,02	-	-	-	-	-	-	-	-	-	-	-	-	36"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	38"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	40"
-	-	-	-	-	-	-	-	-	-	-	-	-	-	42"

180° LONG RADIUS RETURNS

BUTT-WELD-FITTINGS

ANSI B16.9

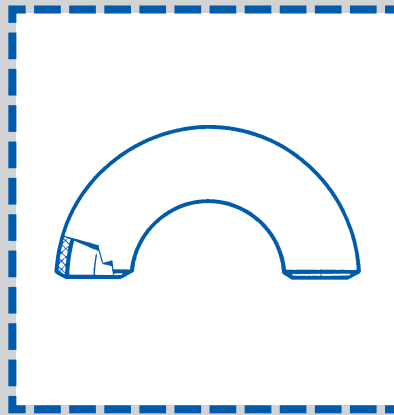


Nominal Pipe Size in.	Outside Diameter m/m	Center to Center m/m	Back to Face m/m	SCH STD		SCH XS		SCH XXS		SCH 10		SCH 20		SCH 30	
				Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg
1"	33	76	56	3,38	0,31	4,55	0,40	9,09	0,68	-	-	-	-	-	-
1 ¼"	42	95	70	3,56	0,53	4,85	0,69	9,70	1,22	-	-	-	-	-	-
1 ½"	48	114	83	3,68	0,76	5,08	1,00	10,15	1,80	-	-	-	-	-	-
2"	60	152	106	3,91	1,36	5,54	1,85	11,07	3,36	-	-	-	-	-	-
2 ½"	73	191	132	5,16	2,67	7,01	3,50	14,02	6,40	-	-	-	-	-	-
3"	89	229	159	5,49	4,19	7,62	5,62	15,24	10,34	-	-	-	-	-	-
3 ½"	102	267	184	5,74	5,90	8,08	7,98	-	-	-	-	-	-	-	-
4"	114	305	210	6,02	7,94	8,56	11,00	17,12	20,60	-	-	-	-	-	-
5"	141	381	262	6,55	13,50	9,53	19,00	19,05	36,20	-	-	-	-	-	-
6"	168	457	313	7,11	20,90	10,97	31,30	21,95	59,80	-	-	-	-	-	-
8"	219	610	414	8,18	41,90	12,70	63,50	22,23	108,80	-	-	6,35	33,48	7,04	37,00
10"	273	762	518	9,27	74,40	12,70	100,20	25,40	194,82	-	-	6,35	52,44	7,80	64,08
12"	324	914	619	9,53	109,30	12,70	143,80	25,40	281,74	-	-	6,35	74,92	8,38	98,24
14"	356	1067	711	9,53	140,20	12,70	184,60	-	-	6,35	96,18	7,92	119,40	9,53	140,20
16"	406	1219	813	9,53	183,70	12,70	242,20	-	-	6,35	125,90	7,92	156,40	9,53	183,70
18"	457	1372	914	9,53	233,10	12,70	308,00	-	-	6,35	159,64	7,92	198,40	11,13	276,58
20"	508	1524	1016	9,53	288,90	12,70	381,50	-	-	6,35	197,34	9,53	288,90	12,70	381,50
22"	559	1676	1118	9,53	349,70	12,70	462,70	-	-	6,35	239,08	9,53	349,70	12,70	462,70
24"	610	1829	1219	9,53	417,30	12,70	553,40	-	-	6,35	284,80	9,53	417,30	14,27	630,72



BUTT-WELD-FITTINGS

ANSI B16.9



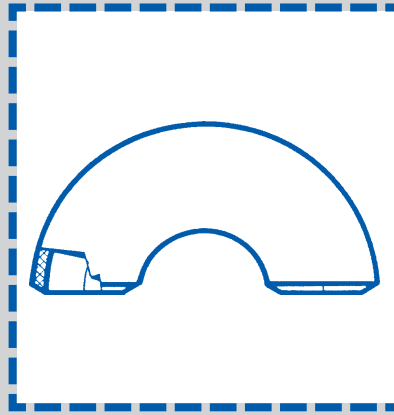
180° LONG RADIUS RETURNS

SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Nominal Pipe Size in.
Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	
3,38	0,31	-		4,55	0,40	-		-		-		6,35	0,54	1"
3,56	0,53	-		4,58	0,69	-		-		-		6,35	0,88	1 1/4"
3,68	0,76	-		5,08	1,00	-		-		-		7,14	1,36	1 1/2"
3,91	1,36	-		5,54	1,85	-		-		-		8,74	2,80	2"
5,16	2,67	-		7,01	3,50	-		-		-		9,53	4,68	2 1/2"
5,49	4,19	-		7,62	5,62	-		-		-		11,13	8,04	3"
5,74	5,90	-		8,08	7,98	-		-		-		-	-	3 1/2"
6,02	7,94	-		8,56	11,00	-		11,13	14,22	-		13,49	16,84	4"
6,55	13,50	-		9,53	19,00	-		12,70	25,30	-		15,88	30,84	5"
7,11	20,90	-		10,97	31,30	-		14,27	40,84	-		18,26	50,92	6"
8,18	41,90	10,31	53,32	12,70	63,50	15,09	76,38	18,26	90,92	20,62	101,48	23,01	111,86	8"
9,27	74,40	12,70	100,20	15,09	120,62	18,26	143,64	21,44	167,08	25,40	194,82	28,58	216,38	10"
10,31	120,14	14,27	164,52	17,48	198,72	21,44	240,54	25,40	281,74	28,58	313,64	33,32	359,80	12"
11,13	166,12	15,09	222,98	19,05	277,36	23,83	342,46	27,79	395,08	31,75	445,92	35,71	495,40	14"
12,70	242,20	16,66	322,58	21,44	408,34	26,19	493,70	30,96	576,10	36,53	669,66	40,49	734,30	16"
14,27	352,42	19,05	465,40	23,83	575,14	29,36	701,28	34,93	822,42	39,67	923,54	45,24	1039,18	18"
15,09	459,92	20,62	622,04	26,19	782,06	32,54	957,42	38,10	1109,16	44,45	1276,54	50,01	1435,00	20"
-	-	22,23	812,52	28,58	1032,70	34,93	1246,72	41,28	1454,08	47,63	1659,22	53,98	1879,60	22"
17,48	768,20	24,61	1069,90	30,96	1329,42	38,89	1650,46	46,02	1928,20	52,37	2203,24	59,54	2502,00	24"

180° SHORT RADIUS RETURNS

BUTT-WELD-FITTINGS

ANSI B16.28

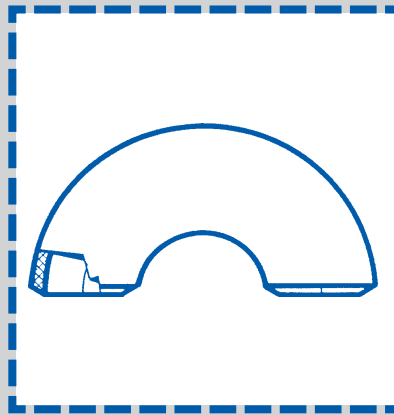


Nominal Pipe Size in.	Outside Diameter m/m	Center to Center m/m	Back to Back Face m/m	SCH		STD		SCH XS		SCH XXS		SCH 10		SCH 20		SCH 30	
				Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg
1"	33	51	41	3,38	0,21	4,55	0,27	9,09	0,46	-	-	-	-	-	-	-	-
1 1/4"	42	64	52	3,56	0,35	4,85	0,46	9,70	0,82	-	-	-	-	-	-	-	-
1 1/2"	48	76	62	3,68	0,50	5,08	0,66	10,15	1,20	-	-	-	-	-	-	-	-
2"	60	102	81	3,91	0,90	5,54	1,23	11,07	2,26	-	-	-	-	-	-	-	-
2 1/2"	73	127	100	5,16	1,78	7,01	2,32	14,02	4,06	-	-	-	-	-	-	-	-
3"	89	152	121	5,49	2,78	7,62	3,72	15,24	6,94	-	-	-	-	-	-	-	-
3 1/2"	102	178	140	5,74	3,90	8,08	5,31	-	-	-	-	-	-	-	-	-	-
4"	114	203	159	6,02	5,26	8,56	7,30	17,12	13,72	-	-	-	-	-	-	-	-
5"	141	254	197	6,55	8,94	9,53	12,60	19,05	24,04	-	-	-	-	-	-	-	-
6"	168	305	237	7,11	13,90	10,97	20,70	21,95	39,80	-	-	-	-	-	-	-	-
8"	219	406	313	8,18	27,90	12,70	42,00	22,23	72,24	-	-	6,35	22,32	7,04	24,68	-	-
10"	273	508	391	9,27	49,40	12,70	66,70	25,40	129,88	-	-	6,35	34,97	7,80	42,72	-	-
12"	324	610	467	9,53	72,60	12,70	95,30	25,40	187,82	-	-	6,35	49,95	8,38	65,50	-	-
14"	356	711	533	9,53	93,00	12,70	122,90	-	-	6,35	64,12	7,92	79,61	9,53	95,24	-	-
16"	406	813	610	9,53	122,50	12,70	161,00	-	-	6,35	83,94	7,92	104,28	9,53	124,84	-	-
18"	457	914	686	9,53	155,10	12,70	204,60	-	-	6,35	106,42	7,92	132,26	11,13	184,38	-	-
20"	508	1016	762	9,53	192,30	12,70	254,00	-	-	6,35	131,56	9,53	196,00	12,70	254,00	-	-
22"	559	1118	838	9,53	237,58	12,70	315,10	-	-	6,35	159,38	9,53	237,58	12,70	315,10	-	-
24"	610	1219	914	9,53	277,60	12,70	367,40	-	-	6,35	189,86	9,53	302,94	14,27	420,48	-	-



BUTT-WELD-FITTINGS

ANSI B16.28



180° SHORT RADIUS RETURNS

SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Nominal Pipe Size in.
Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	Wall Thickness m/m	Weight kg	
3,38	0,21	-		4,55	0,27	-		-		-		6,35	0,36	1"
3,56	0,35	-		4,85	0,46	-		-		-		6,35	0,58	1 1/4"
3,68	0,50	-		5,08	0,66	-		-		-		7,14	0,90	1 1/2"
3,91	0,90	-		5,54	1,23	-		-		-		8,74	1,86	2"
5,16	1,78	-		7,01	2,32	-		-		-		9,53	3,12	2 1/2"
5,49	2,78	-		7,62	3,72	-		-		-		11,13	5,36	3"
5,74	3,90	-		8,08	5,31	-		-		-		-	-	3 1/2"
6,02	5,26	-		8,56	7,30	-		11,13	9,48	-		13,49	11,24	4"
6,55	8,94	-		9,53	12,60	-		12,70	16,86	-		15,88	20,56	5"
7,11	13,90	-		10,97	20,70	-		14,27	27,24	-		18,26	33,94	6"
8,18	27,90	10,31	35,33	12,70	42,00	15,09	50,92	18,26	60,62	20,62	67,64	23,01	74,58	8"
9,27	49,40	12,70	66,70	15,09	80,42	18,26	95,78	21,44	111,38	25,40	129,88	28,58	144,26	10"
10,31	80,10	14,27	109,68	17,48	132,48	21,44	160,37	25,40	187,82	28,58	209,10	33,32	239,86	12"
11,13	110,75	15,09	148,65	19,05	185,36	23,83	228,32	27,79	263,38	31,75	297,28	35,71	330,26	14"
12,70	161,00	16,66	215,04	21,44	272,17	26,19	329,14	30,96	384,06	36,53	446,44	40,49	489,54	16"
14,27	234,95	19,05	310,26	23,83	383,43	29,36	467,53	34,93	548,28	39,67	615,70	45,24	692,78	18"
15,09	306,62	20,62	414,69	26,19	521,37	32,54	638,28	38,10	739,44	44,45	851,02	50,01	957,00	20"
-	-	22,23	541,69	28,58	688,48	34,93	831,14	41,28	970,58	47,63	1106,16	53,98	1255,00	22"
17,48	256,07	24,61	713,26	30,96	887,91	38,89	1100,30	46,02	1285,46	52,37	1468,84	59,54	1668,90	24"










SW FORGED FITTINGS

ANSI B16.11-BS3799 3000/6000/9000 lbs



SW FORGED FITTINGS

Type	Class/Rating	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
90° Elbows 	3000	.082	.115	.235	.290	.480	.750	.950	1.65	2.50	4.30	9.70
	6000	.165	.300	.430	.660	1.14	1.60	2.70	2.95	3.75	7.50	13.00
	9000			.850	1.50	2.25	3.35	3.90	4.25			
45° Elbows 	3000	.078	.100	.192	.250	.380	.580	.830	1.15	2.05	3.40	9.00
	6000	.120	.240	.300	.530	.860	1.07	1.90	2.35	3.00	6.00	10.30
	9000			.600	1.18	1.55	2.40	3.45	3.55			
Tees 	3000	.118	.190	.310	.400	.580	.910	1.25	2.10	3.15	5.25	13.50
	6000	.210	.400	.555	.910	1.41	1.75	3.56	4.10	6.25	10.30	17.00
	9000			1.04	1.85	2.32	3.50	4.55	5.00			
Crosses 	3000	.135	.205	.340	.470	.800	1.25	1.50	2.23	3.95	6.50	16.00
	6000	.260	.495	.670	1.06	1.79	2.15	4.45	5.40	7.75	12.80	21.00
	9000			1.29	2.25	2.85	4.30	5.60	5.90			
Couplings 	3000	.050	.065	.105	.152	.260	.370	.420	.770	1.10	1.40	2.35
	6000	.070	.095	.148	.335	.370	.490	.680	1.24	1.81	2.80	3.50
	9000			.230	.410	.640	.800	.890	1.63			
Half couplings 	3000	.058	.085	.180	.205	.320	.410	.560	.960	1.50	2.00	3.40
	6000	.075	.110	.205	.300	.470	.600	1.05	1.60	2.30	2.65	5.00
	9000			.260	.410	.650	.800	1.25	2.10			
Caps 	3000	.035	.060	.135	.175	.295	.510	.650	.920	1.40	2.50	3.50
	6000	.075	.135	.180	.210	.460	.700	.885	1.20	2.00	3.25	5.50
	9000			.235	.280	.600	.880	1.10	1.60			
Unions 	3000	.180	.225	.385	.520	.730	1.20	1.56	2.30	5.00	7.15	15.25
	6000	.350	.550	1.15	1.57	2.10	2.65	3.60	5.50	9.50	19.00	25.00
	9000			1.25	1.70	2.35	2.95	4.75	6.50			
M/F Reducing Insert   	3000	.040	.050	.100	.120	.160	.350	.450	.700			
	6000			.250	.300	.350	.500	.650	1.00			
	9000			.350	.400	.480	.650	.800	1.25			

Weights are in Kgs.



FORGED FITTINGS

ANSI B16.11-BS3799 2000/3000/6000 lbs

Type	Class/Rating	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
Swage nipples Tp. A. TBE Tp. B. BLE x TSE PLE x TSE Tp. C. PBE BBE BLE x PSE PLE x BSE Tp. D. TLE x PSE TLE x BSE	sch 40			.082	.112	.210	.341	.450	.920	1.29	2.20	2.60
	sch 80	.036	.064	.135	.180	.250	.440	.600	1.14	1.69	2.90	4.20
	sch 160			.155	.200	.340	.560	.820	1.60	2.25	4.07	6.25
	XXS			.200	.258	.423	.780	1.10	2.20	3.05	5.25	7.80
Thredolet 	3000	.065	.100	.125	.240	.379	.460	.660	.950	1.45	2.05	3.80
	6000			.425	.690	1.05	1.45	2.30	2.90	4.25	7.07	10.40
Sockolet 	3000	.070	.105	.132	.240	.370	.465	.650	1.02	1.50	2.39	3.80
	6000			.307	.405	.700	.950	1.25	1.87	2.50	4.00	6.30
	9000			.450	.720	1.10	1.50	2.25	2.90			
Weldolet 	STD	.045	.075	.095	.160	.225	.320	.420	.600	.950	1.30	3.00
	XS	.050	.078	.100	.175	.270	.390	.500	.850	1.30	1.90	3.50
	sch.160			.230	.330	.530	.750	1.00	1.40	2.10	3.40	4.75
	XXS			.240	.340	.550	.800	1.10	1.50	2.25	3.65	5.00
THRD 	3000	.220	.190	.168	.370	.680	1.10	1.50	2.36			
	6000			.480	.900	1.55	2.35	3.11	4.85			
SW 	3000	.220	.190	.168	.353	.580	1.00	1.35	2.10			
	6000			.450	.820	1.50	2.40	3.20	5.00			
	9000			.500	.900	1.60	2.60	3.50	5.25			
BW ELBOLET/LATROLET	STD XS			.150	.320	.520	.880	1.10	1.80			
	sch 160			.390	.680	1.25	2.00	2.75	4.35			
	XXS			.425	.840	1.45	2.35	3.15	4.85			
Nipolet/Reinforced nipples NPT SW BW	sch 40-80			.195	.340	.500	.650	.800	1.22			
	sch 160			.290	.390	.660	.880	1.15	1.65			
	XXS			.340	.460	.730	1.07	1.35	1.90			

















Weights are in Kgs.

THREADED FORGED FITTINGS

THREADED FORGED FITTINGS

ANSI B16.11-BS3799 2000/3000/6000 lbs

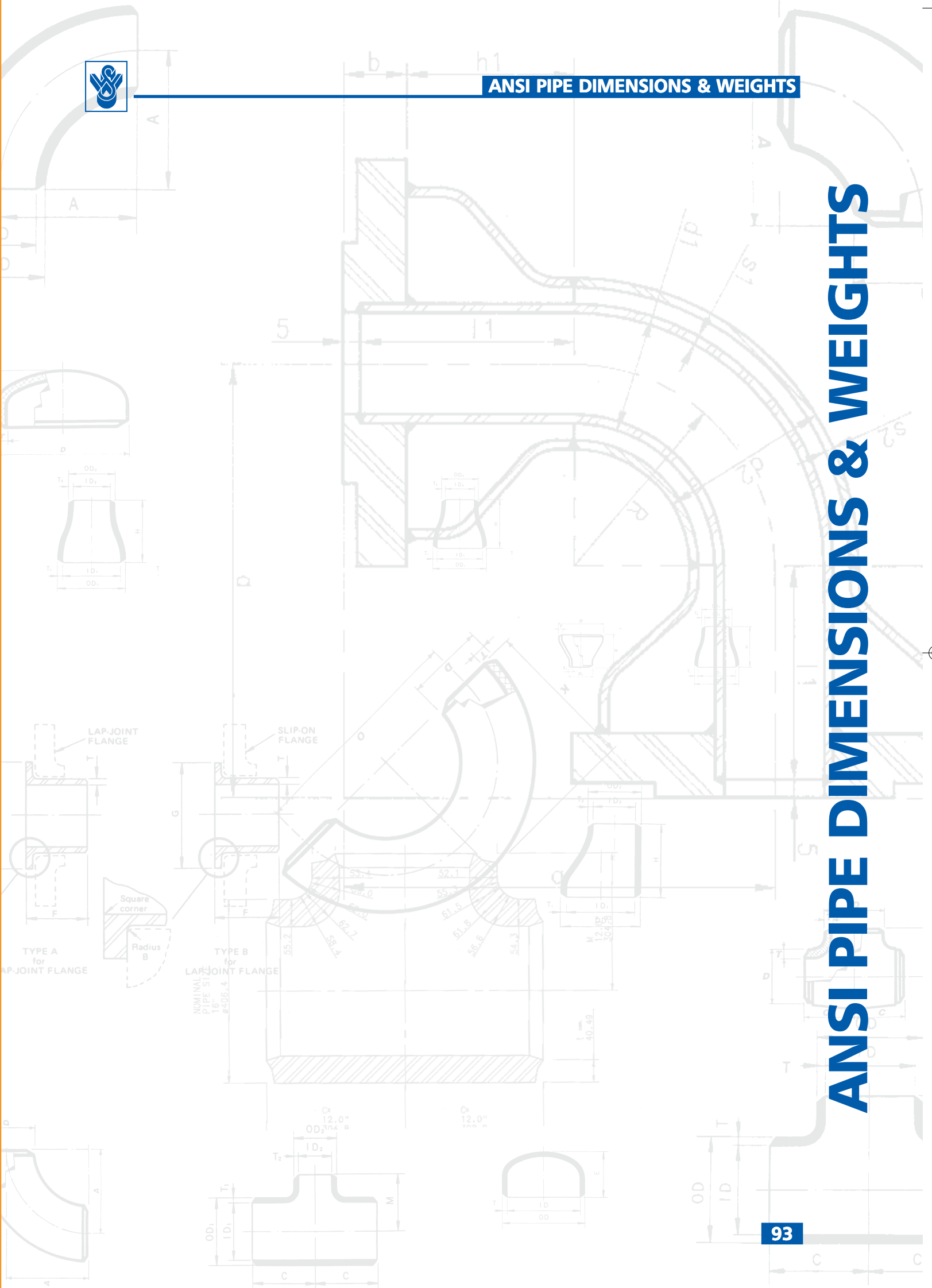


TYPE	CLASS/RATING	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
90° Elbows 	2000	.080	.105	.225	.280	.460	.800	1.00	1.60	2.30	4.35	10.25
	3000	.140	.265	.365	.600	1.08	1.22	2.45	2.50	5.25	7.40	13.00
	6000	.310	.500	.685	1.25	1.65	2.75	3.22	6.25	10.00	17.00	14.50
Street Elbows 	3000	.131	.225	.325	.530	.940	1.30	1.47	2.30			
45° Elbows 	2000	.100	.110	.210	.240	.390	.700	.850	1.23	3.00	3.50	9.00
	3000	.130	.250	.360	.530	.780	1.02	1.70	2.35	5.40	6.00	10.50
	6000	.250	.350	.600	.950	1.22	1.35	2.55	q5.60	8.00	15.50	13.00
Tees 	2000	.115	.180	.290	.385	.550	.930	1.30	1.80	3.00	5.50	14.00
	3000	.205	.305	.490	.800	1.31	1.61	3.20	3.55	6.50	9.25	17.00
	6000	.410	.600	.935	1.59	2.14	3.39	4.50	10.00	13.00	19.50	18.00
Crosses 	2000	.140	.190	.335	.420	.750	1.15	1.45	2.25	4.50	7.15	15.00
	3000	.220	.400	.630	.990	1.63	1.97	3.70	4.90	10.50	11.50	21.70
	6000	.450	.700	1.16	1.80	2.50	4.10	5.20	12.30	14.00	25.00	23.00
Couplings 	3000	.056	.066	.140	.200	.390	.730	1.03	1.35	2.30	3.15	5.80
	6000	.105	.115	.370	.450	1.00	1.65	1.85	2.80	4.00	5.50	10.00
Half couplings 	3000	.028	.033	.070	.110	.195	.365	.510	.660	1.15	1.57	2.90
	6000	.053	.058	.185	.225	.500	.830	.920	1.40	2.00	2.75	5.00
Caps 	3000	.047	.058	.125	.210	.370	.600	.730	1.10	2.31	3.00	4.50
	6000	.160	.200	.290	.395	.700	1.10	1.35	2.10	3.50	4.80	7.50
Male plugs 	Square 3000	.016	.028	.048	.090	.170	.273	.400	.600	.890	1.25	3.10
	Hexagonal 6000	0.26	.047	.071	.130	.218	.410	.490	.770	1.61	1.94	4.50
	Round	.048	.070	.130	.220	.320	.500	.720	1.35	2.20	3.30	6.00
Hexagonal Bushing 	6000	.016	.021	.032	.063	.120	.209	.212	.450	.760	1.00	2.50
	6000		.032	.047	.083	.150	.280	.314	.513	1.14	1.35	2.90
	6000			.057	.098	.173	.330	.418	.620	1.27	1.65	3.10
	6000				.170	.195	.400	.490	.690	1.41	1.80	3.52
	6000					.214	.480	.540	.704	1.53	2.00	3.85
Hexagonal Nipples 	2000 STD-XS	.028	.047	.070	.110	.182	.300	.360	.500	.960	1.40	2.40
	3000 sch.160	.030	.055	.080	.145	.236	.372	.452	.760	1.30	1.95	3.30
	6000 XXS			.120	.170	.303	.516	.626	.930	1.80	2.50	4.00
Unions 	3000	.167	.211	.305	.490	.830	1.22	1.53	2.30	5.00	6.25	14.50
	6000	.300	.500	1.12	1.60	2.15	2.42	4.73	6.50	9.50	19.20	23.00
M/F unions 	3000	.210	.274	.462	.610	.985	1.55	1.90	2.86			
Pipe nipples 100mm. Long   	STD	.060	.080	.125	.165	.240	.330	.400	.530	.850	1.10	1.30
	XS	0.75	.105	.155	.215	.305	.435	.530	.740	1.12	1.46	2.15
	Sch.160			.190	.280	.415	.550	.720	1.06	1.46	2.05	3.20
	XXs			.250	.355	.540	.770	.950	1.31	2.00	2.65	4.00



ANSI PIPE DIMENSIONS & WEIGHTS

ANSI PIPE DIMENSIONS & WEIGHTS





ANSI PIPE DIMENSIONS & WEIGHTS

ANSI B36.10, B36.19



Wall Thickness in millimetres/Weight per metre in kilograms



ANSI PIPE DIMENSIONS & WEIGHTS

ANSI B36.10, B36.19

Wall Thickness in millimetres/Weight per metre in kilograms



Steel Grades

Carbon, Alloy and Stainless Steel

Grade	DIN Designation	UNS	SS	AFNOR	AISI	BS
1.4005	X 12 CrS 13	S 41600	2380	Z 12 CF 13	416	416 S 21
1.4006	X 10 Cr 13	S 41000	2302	Z 12 C 13	410	410 S 21
1.4016	X 6 Cr 17	S 43000	2320	Z 8 C 17	430	430 S 15
1.4021	X 20 Cr 13	S 42000	2303	Z 20 C 13	420	420 S 37
1.4034	X 46 Cr 16	-	(2304)	Z 40 C 14	-	(420 S 45)
1.4057	X 12 CrNi 172	S 43100	2321	Z 15 CN 162	431	431 S 29
1.4104	X 12 Cr MoS 17	S 43020	2383	Z 10 CF 17	430F	(441 S 29)
1.4112	X 90 CrMoV 18	S 44003	-	-	-	440B
1.4122	X 35 CrMo 17	-	-	-	-	-
1.4301	X 5 CrNi 18 10	S 30400	2332	Z 6 CN 18.09	304	304 S 15
1.4305	X 10 Cr Nis 18 9	S 30300	2346	Z 10 CNF 18.09	303	303 S 21
1.4306	X2 CrNi 19 11	S 30403	2352	Z 2 CN 18.09	304L	304 S 12
1.4310	X 12 CrNi 17 7	S 30100	2331	Z 12 CN 17.07	301	-
1.4401	X 5 CrNiMo 17 12 2	S 31600	2347	Z 6 CND 17.11	316	316 S 16
1.4404	X 2 CrNiMo 17 13 2	S 31603	2348	Z 2 CND 17.12	316L	316 S 12
1.4435	X 2 CrNiMo 18 14 3	S 31603	2353	Z 2 CND 17.13	316L	316 S 12
1.4436	X 5 CrNiMo 17 13 3	S 31600	2343	Z 6 CND 17.12	316	316 S 16
1.4438	X 2 CrNiMo 18 16 4	S 31703	2367	Z 2 CND 19.15	317L	317 S 12
1.4439	X 2 CrNiMoN 17 13 5	-	-	-	317LNM	-
1.4449	X 5 CrNiMo 17 13	S 31700	-	-	317	317 S 16
1.4460	X 8 CrNiMo 27 5	S 32900	2324	-	-	329
1.4462	X 2 CrNiMoN 22 5	S 31803	-	Z 5 CND 21.08	-	-
1.4539	X 2 NiCrMoCu 25 20 5	N 08904	2562	Z1 NCDU 25.20	-	-
1.4541	X 6 CrNiTi 18 10	S 32100	2337	Z 6 CNT 18.10	321	321 S 12
1.4550	X 6 CrNiNb 18 10	S 34700	2338	Z 6 CNNB 18.10	347	347 S 17
1.4571	X 6 CrNiMoTi 17 12 2	S 31635	2350	Z 6 CNDT 17.12	316Ti	320 S 17
1.4713	X 10 CrAl 7	-	-	Z 8 CA 7	-	-
1.4724	X 10 CrAl 13	-	-	-	-	-
1.4742	X 10 CrAl 18	-	-	Z 10 CAS 18	-	-
1.4762	X 10 CrAl 24	(S44600)	(2322)	Z 10 CAS24	(446)	-
1.4821	X 20 CrNiS 25 4	-	-	-	-	-
1.4828	X 15 CrNiS 20 12	(S 30900)	-	Z 15 CNS 20.12	(309)	(309 S 24)
1.4841	X 15CrNiS 25 20	S 31400	-	Z 12 CNS 25.20	314	-
1.4845	X 12 CrNi 25 21	S 31008	2361	Z 12 CN 25.20	310S	310 S 24
1.4864	X 12 CrNiS 36 16	N 08330	-	(Z 12 NC 37.18)	330	-
1.4876	X 10 CrNiAlTi 32 20	-	-	Z 8 NC 32.21	-	3076 NA 15 H
1.4878	X 12 CrNiTi 18 9	S 32100	2337	Z 6 CNT 18.12	321	321 S 20
2.4068	LC Ni 99.2	-	-	-	B160	-
2.4360	Ni Cu 30 Fe	-	-	-	B164	3076NA13
2.4375	Ni Cu 30 Al	-	-	-	-	3076NA18
2.4610	Ni Mo 16 Cr 16 Ti	-	-	-	-	3076NA45
2.4816	Ni Cr 15 Fe	-	-	-	B166	3076NA14
2.4856	Ni Cr 21 Mo	-	-	-	-	3076NA43

**Corrosion-Resistant Alloys (CRA)**

Alloy Designation	ASTM	BS	Material Wst.Nr.	DIN Designation	Trade Name
Nickel 200	UNS N02200	3074 NA 11	2.4066	Ni 99.2	-
Nickel 201	UNS N02201	3074 NA 12	2.4068	LC-Ni 99	-
Alloy 400	UNS N04400	3074 NA 13	2.4360	Ni Cu 30 Fe	MONEL 400
Alloy 600	UNS N06600	3074 NA 14	2.4816	Ni Cr 15 Fe	INCONEL 600
Alloy 800	UNS N08810	3074 NA 15	1.4876	X10 Ni Cr-AlTi32 20	INCOLOY 800
Alloy 825	UNS N08825	3074 NA 16	2.4858	Ni Cr 21 Mo	INCOLOY 825
Alloy DS (330)	UNS N08330	3074 NA 17	1.4864	X 12 Ni Cr-Si 36 16	-
Alloy K-500	UNS N05500	3074 NA 18	2.4375	Ni Cu 30 Al	MONEL K-500
Alloy 75	-	-	2.4951	Ni Cr 20 Ti	-
Alloy 601	UNS N06601	-	2.4851	Ni Cr 23 Fe	INCONEL 601
Alloy 625	UNS N06625	-	2.4856	Ni Cr 22 Mo 8 Nb	INCONEL 625
904L	UNS N08904	-	1.4539	X1 Ni Cr MoCuN 25	CRONIFER 1925 LC
Alloy C-276	UNS N10276	-	2.4819	NiMo 16Cr15W	HASTELLOY C-276
Alloy C-22	UNS N06022	-	2.4602	Ni Cr 21 Mo 14W	HASTELLOY C-22
Alloy C-4	UNS N06455	-	2.4610	Ni Mo16 Cr16 Ti	HASTELLOY C-4
Alloy B-2	UNS N10665	-	2.4617	Ni Mo 28	B-2
Alloy G-3	UNS N06985	-	2.4619	Ni Cr 22 Mo 7 Cu	G-3
Titan Gr.1	-	-	3.7025	-	TITANIUM GR-1
Titan Gr.2	-	-	3.7035	-	TITANIUM GR-2
Alloy 2205	UNS S31803	-	1.4462	-	DUPLEX STEEL
-	UNS S32750	-	-	-	SUPER DUPLEX STEEL
-	UNS S32760	-	-	-	SUPER DUPLEX STEEL
-	UNS S31250	-	-	-	250 SMO
-	UNS S31254	-	-	-	254 SMO
-	UNS S31256	-	-	-	256 SMO
-	UNS S34565	-	1.4565	-	REMANIT 4565S



Common Standards

For Pipes, Fittings and Flanges			
Classification	Pipe	B.W. Fittings	Flanges
Carbon Steels	A 106 Grade A	A 234 Grade WPA	A 105 Grade I
	A 106 Grade B	A 234 Grade WPB	A 105 Grade II
Alloy Steels	A 335 Grade P 1	A 234 Grade WP 1	A 182 Grade F 1
	A 335 Grade P 5	A 234 Grade WP 5	A 182 Grade F 5
	A 335 Grade P 7	A 234 Grade WP 7	A 182 Grade F 7
	A 335 Grade P 9	A 234 Grade WP 9	A 182 Grade F 9
	A 335 Grade P 11	A 234 Grade WP 11	A 182 Grade F 11
	A 335 Grade P 12	A 234 Grade WP 12	A 182 Grade F 12
	A 335 Grade P 22	A 234 Grade WP 22	A 182 Grade F 22
Steels for Low-Temperature Service	A 333 Grade 1	A 420 Grade WFL 1	A 350 Grade LF 1
	A 333 Grade 3	A 420 Grade WFL 3	A 350 Grade LF 3
	A 333 Grade 4	A 420 Grade WFL 4	A 350 Grade LF 4
	A 333 Grade 6	A 420 Grade WFL 6	A 350 Grade LF 6
	A 333 Grade 8	A 420 Grade WFL 8	A 350 Grade LF 8
Stainless Steel	A 312 Grade TP 304	A 403 Grade WP 304	A 182 Grade F 304
	A 312 Grade TP 304H	A 403 Grade WP 304H	A 182 Grade F 304H
	A 312 Grade TP 304L	A 403 Grade WP 304L	A 182 Grade F 304L
	A 312 Grade TP 316	A 403 Grade WP 316	A 182 Grade F 316
	A 312 Grade TP 316H	A 403 Grade WP 316H	A 182 Grade F 316H
	A 312 Grade TP 316L	A 403 Grade WP 316L	A 182 Grade F 316L
	A 312 Grade TP 321	A 403 Grade WP 321	A 182 Grade F 321
	A 312 Grade TP 321H	A 403 Grade WP 321H	A 182 Grade F 321H
	A 312 Grade TP 347	A 403 Grade WP 347	A 182 Grade F 347
	A 312 Grade TP 347H	A 403 Grade WP 347H	A 182 Grade F 347H