

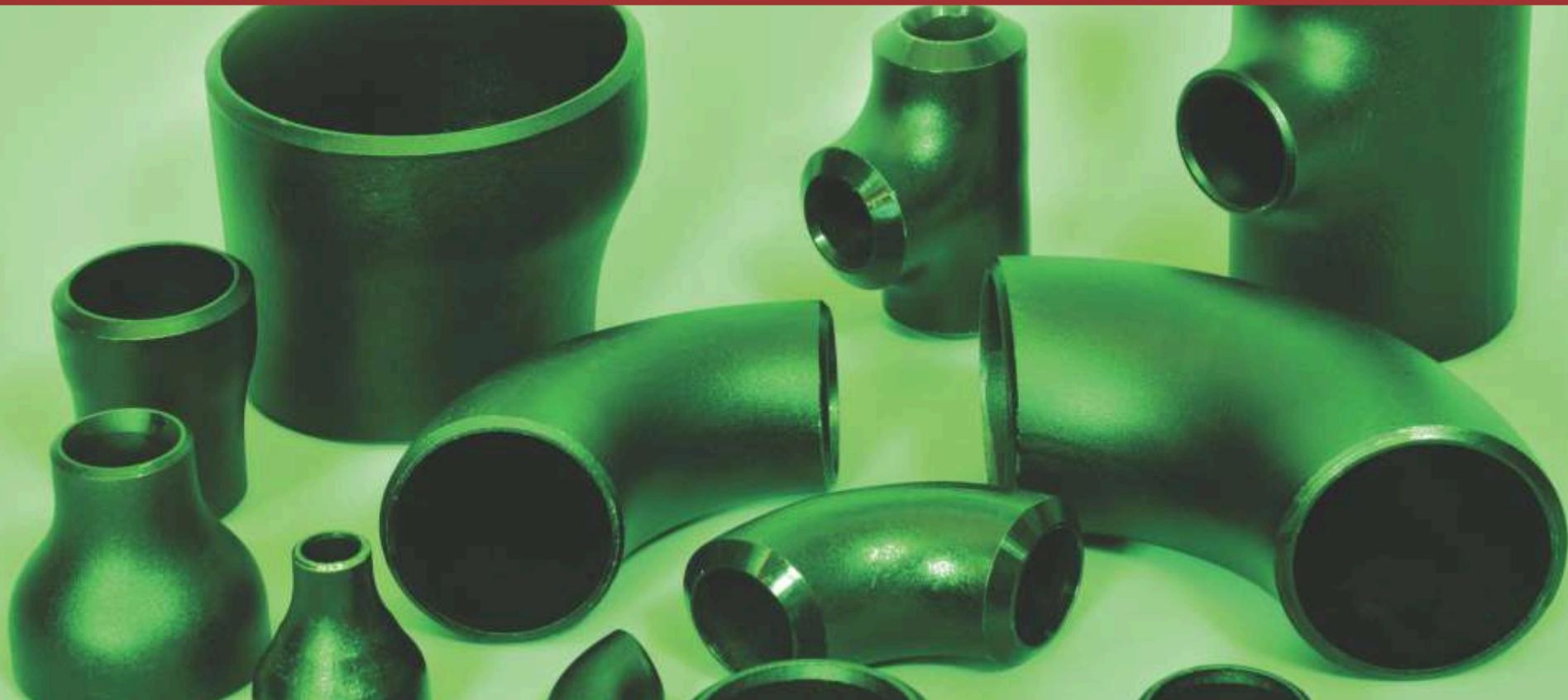


WALKERFIT

FLANGES & FITTINGS

Butt Weld Fittings

• Carbon Steel • Stainless Steel • Special Alloys



WALKERFIT

FLANGES & FITTINGS

W.E.C (Leeds) Ltd, established in the UK in 1997, is today a leading name in the Manufacture and Distribution of specialised hoses for the Oil and Petrochemical industry.

Recognising the opportunity in the piping industry W.E.C (Leeds) ramped up manufacturing to become a major PFV (Pipes, Fittings & Valves), branded as Rhinofitt. Today Rhinofitt is the preferred vendor across UK and Europe for enterprise level projects.

Upping the ante in the international market, based on our success in Europe, we are now one of the leading brands worldwide. Rhinofitt is known for offering a good quality product at competitive prices whilst maintaining a high standard of service and technical know how, supported by our wide network of distributors.

W.E.C (Leeds) recognises the need to offer the highest standards of customer service and this has always been a fundamental rule in our business model as well as our success both for existing and potential new clients.

Within the Rhinofitt range we provide all types of pipe fittings and flanges in various grades of Carbon Steel and Stainless Steel manufactured to the highest quality standards.





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Capabilities

Carbon Steel

- ASTM A234 / A234M
- ASTM A420 / A420M

Stainless Steel

- ASTM A403 / A403M
- Duplex & Super Duplex ASTM A815 / A815M

Product Range

Size

- ½" to 60"
- Larger sizes available on request

Wall Thickness

- Sch 20 to Sch XXS
- Special Wall Thickness on request

Type

- Elbows, Equal & Reducing Tees, Eccentric and Concentric Reducers, and Caps

Grade

- ASTM A234 (WPB), ASTM A420 (WPL6)
- ASTM A403 / A403M (WP304L) / (WP316L)
- ASTM A815 Gr. S31803 / S32750 / S32760

Pipe Material

- Carbon Steel
- Stainless Steel
- Available in Seamless and Welded

Applicable Standards

ASTM A234 / A234M WPB Fittings
Piping Fittings of Wrought Carbon Steel
and Alloy Steel for Moderate and High
Temperature Service

ASTM A420 / A420M WPL6 Fittings
Piping Fittings of Wrought Carbon Steel
and Alloy Steel for Low – Temperature
Service

ASTM A860 / A860M (WPHY 52 Fittings)
Wrought High Strength Low – Alloy Steel
Buttweld Fittings

ASTM A815 / A815M Fittings
Wrought Ferritic / Austenitic Pipe Fittings

ASME B16.90
Factory Made Wrought Butt Welding
Fittings

MSS-SP-75
High Test Wrought Butt - Welded Fittings

NACE MR0175 / ISO 15156

Metals for Sulfide Stress Cracking and
Stress Corrosion Cracking Resistance in
Sour Oilfield Environments



At RHINOFITT we ensure that all our products undergo the most stringent process of testing and analysis.

Testing

Destructive Testing

- Tensile Test
- Charpy Impact Test (0°C to -60°C)
- Macro Hardness Test
- Metallographic Test
- Guided or Welded Bend Test for Welded Materials
- Hydrogen Induced Cracking Test (HIC) – Sour Service
- Sulphite Stress Cracking Test (SSC) – Sour Service
- Intergranular Corrosion Test
- Pitting and Crevice Corrosion Resistance Test
- Ferrite Count

Heat Treatment

Temperature

- Up to 1200°C

Non - Destructive Testing

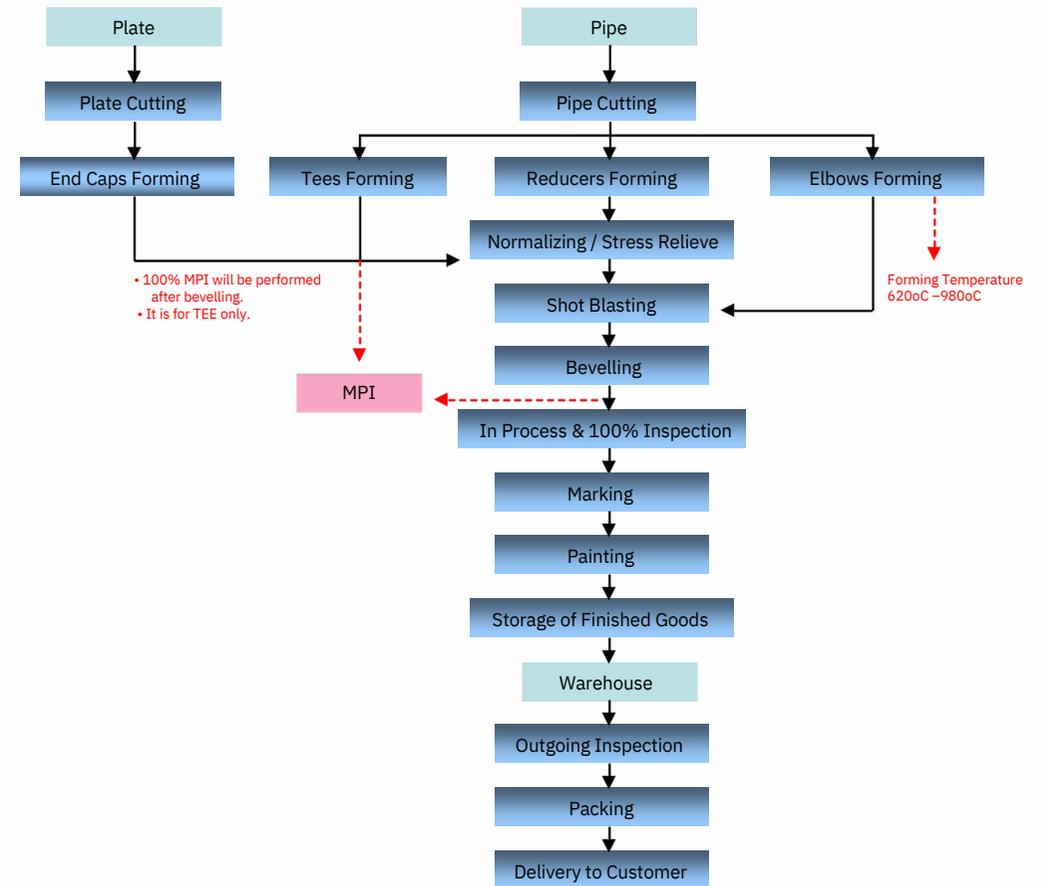
- Dimensional Inspection
- Positive Material Identification (PMI)
- Surface Hardness Test
- Ultrasonic Thickness Check
- Penetrant Test – Liquid Penetrant Test (LPT)
- Ultrasonic Flaw Detection (UTFD)
- Radiography Inspection (RT)
- Eddy Current Test (ET)
- Drift Test / Pigging
- Hydrostatic Test

Post Heat Treatment

- Stress Relieved
- Tempering
- Normalizing
- Quenched

Note : The above tests are subject to customer's requirement on the standard/specification compliance.

Manufacturing Process



Wrought Steel Butt-welding Fittings



90° Elbow Long Radius



90° Elbow Short Radius



45° Elbow Long Radius



180° Long Radius
Return Elbow



180° Short Radius
Return Elbow



Equal Tee



Reducing Tee



Reducer (Concentric)



Reducer (Eccentric)



End Cap

Stainless Steel Butt-welding Fittings



90° Elbow Long Radius



90° Elbow Short Radius



45° Elbow Long Radius



180° Elbow Long Radius



180° Elbow Short Radius



Equal Tee



Reducing Tee



Reducer (Concentric)



Reducer (Eccentric)

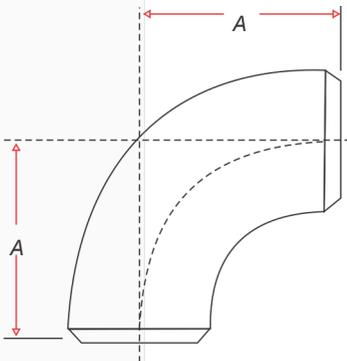


Cap



Butt Weld Fittings • Carbon Steel • Stainless Steel • Special Alloys

90° LONG RADIUS ELBOWS



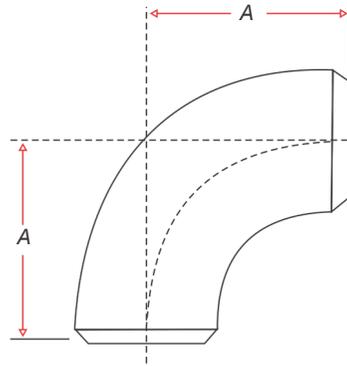
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Sch.10s	Sch.40s	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk	Wall thk	Wall thk	Weight kg												
1/2"	21.3	2.1	2.77	2.7	0.08	2.77	0.08	3.73	0.1	3.73	0.1			4.78	0.12	7.47	0.18
3/4"	26.7	1	2.87	7	0.11	2.87	0.11	3.91	0.14	3.91	0.14			5.56	0.13	7.82	0.22
1"	33.4	2.1	3.38	2.8	0.16	3.38	0.16	4.55	0.2	4.55	0.2			6.35	0.26	9.09	0.36
1 1/4"	42.2	1	3.56	7	0.27	3.56	0.27	4.85	0.36	4.85	0.36			6.35	0.42	9.7	0.64
1 1/2"	48.3	2.7	3.68	3.3	0.4	3.68	0.4	5.08	0.53	5.08	0.53			7.14	0.7	10.15	0.93
2"	60.3	7	3.91	8	0.67	3.91	0.67	5.54	0.9	5.54	0.9			8.74	1.5	11.07	1.69
2 1/2"	73	2.7	5.16	3.5	1.37	5.16	1.37	7.01	1.79	7.01	1.79			9.53	2.33	14.02	3.43
3"	88.9	7	5.49	6	2.08	5.49	2.08	7.62	2.74	7.62	2.74			11.13	4.1	15.24	5.25
4"	114.3	2.7	6.02	3.6	3.95	6.02	3.95	8.56	5.4	8.56	5.4	11.13	7.2	13.49	8.6	17.12	10.4
5"	141.3	7	6.56	8	6.67	6.55	6.67	9.53	9.34	9.53	9.34	12.7	12.7	15.88	17.6	19.05	17.6
6"	168.3	2.7	7.11	3.9	10.4	7.11	10.4	10.97	15.5	10.97	15.5	14.27	21.1	18.26	28	21.95	31.8
8"	219.1	7	8.18	1	20.9	8.18	20.9	12.7	31.3	12.7	31.3	18.26	46.05	23.01	56.72	22.23	55
10"	273.1	3.0	9.27	5.1	37	9.27	37	12.7	49.4	15.09	57.11	21.44	84.55	28.58	109.7	25.4	98.65
12"	323.9	5	9.52	6	54	10.31	58.15	12.7	71.2	17.48	94.82	25.4	140	33.32	182.42	25.4	140
14"	355.6	3.0		5.4	69.3	11.13	79.96	12.7	91.5	19.05	132.16	27.79	197	35.71			
16"	406.4	5		9	91.2	12.7	120	12.7	120	21.44	204.3	30.96	227.5	40.49	246.5		
18"	457.2	3.0		6.0	116	14.27	177.06	12.7	153	23.83	287.84	34.93	412	45.24	365.9		
20"	508	5		2	143.3	15.09	230	12.7	190.3	26.19	390.9	38.1	554.6	50.01	519		
22"	559	3.4		6.5	174.5	-		12.7	230.5	28.58	523.4	41.28	728	53.98	716		
24"	610	0		5	207	17.48		12.7	274.5	30.96	667.4	46.02	964	59.54	886		
		3.4		7.1			384								1,250.00		

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request

0	1
3.7	8.1
6	8
4.9	9.2
0	7
4.5	9.5

90° LONG RADIUS ELBOWS



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH XS	
		Wall thk.	Weight kg	Wall thk.	Weight kg
26	660.0	9.5	247.0	12.7	328.0
"	711.0	3	0	0	0
28	762.0	9.5	276.0	12.7	356.0
32	813.0	9.5	362.0	12.7	468.0
30	864.0	9.5	331.0	12.7	429.0
34	914.0	9.5	408.0	12.7	539.0
"	965.0	3	0	0	0
40	1016.0	9.5	560.0	12.7	760.0
"	0	3	0	0	0
42	1067.0	9.5	686.0	12.7	920.0
"	0	3	0	0	0
48"	1219.0	9.53	810.00	12.70	1060.00

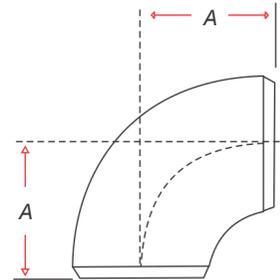
* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

HIGHER
W.T.
ON REQUEST





90° SHORT RADIUS ELBOWS



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Weight kg												
33.4 1"		3.3	0.11	3.38	0.11	4.55	0.14	4.55	0.14			6.35	0.17	9.09	0.22
42.21 1 1/4"		8	0.18	3.56	0.18	4.85	0.24	4.85	0.24			6.35	0.31	9.70	0.43
48.31 1 1/2"		3.5	0.25	3.68	0.25	5.08	0.34	5.08	0.34			7.14	0.43	10.15	0.57
60.3 2"		6	0.44	3.91	0.44	5.54	0.62	5.54	0.62			8.74	0.92	11.07	1.13
73.02 2 1/2"		3.6	0.91	5.16	0.91	7.01	1.19	7.01	1.19			9.53	1.49	14.02	2.19
88.9 3"		8	1.38	5.49	1.38	7.62	1.85	7.62	1.85			11.13	2.60	15.24	3.49
114.3 4"		3.9	2.60	6.02	2.60	8.56	3.60	8.56	3.60	11.13	4.50	13.49	5.35	17.12	6.79
141.3 5"		1	4.40	6.55	4.40	9.53	6.20	9.53	6.20	12.70	9.10	15.88	11.40	19.05	13.53
168.3 6"		5.1	6.85	7.11	6.85	10.97	10.30	10.97	10.30	14.27	14.60	18.26	18.20	21.9	21.33
219.18 8"		6	13.70	8.18	13.70	12.70	20.60	12.70	20.60	18.26	33.50	23.01	40.57	22.2	39.50
273.10 10"		5.4	24.50	9.27	24.50	12.70	47.00	15.09	40.00	21.44	64.80	28.58	83.95	3	75.60
323.92 12"		9	36.00	10.31	40.00	12.70	61.20	17.48	66.28	25.40	87.60	33.32	114.00	25.4	89.50
355.14 14"		6.0	46.20	11.13	55.39	12.70	80.10	19.05	93.07	27.79	130.00	35.71	162.00	0	
406.4 16"		2	61.00	12.70	80.10	12.70	102.00	21.44	136.20	30.96	190.30	40.49	242.50	25.4	
457.28 18"		6.5	77.50	14.27	117.59	12.70	126.30	23.83	191.60	34.93	272.50	45.24	344.50	0	
508.0 20"		5	96.00	15.09	153.45	12.70	154.00	26.19	260.14	38.10	368.00	50.01	476.00	0	
559.02 22"		7.1	117.50			12.70	183.50	28.58	350.50	41.28	485.00	53.98	625.00		
610.04 24"		1	138.50			12.70		30.96	443.55	46.02	641.50	59.54	833.00		

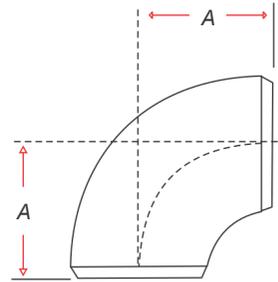
All dimensions in mm.
 * All weights indicated are approximate.

Other sizes available on request:

- 8
- 9.2
- 7
- 9.5
- 3
- 9.5
- 3
- 9.5
- 3
- 9.5



90° SHORT RADIUS ELBOWS



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH XS	
		Wall thk.	Weight kg	Wall thk.	Weight kg
26	660.0	9.5	159.5	12.70	204.0
"	762.0	3	0	12.70	0
30	914.0	9.5	216.0	12.70	285.0
"	965.0	3	0	12.70	0
36	1016.0	9.5	313.0	12.70	423.0
"	1067.0	3	0	12.70	0
38	1118.0	9.5	340.0	12.70	452.0
"	1168.0	3	0	12.70	0
40	1219.0	9.5	377.0	12.70	501.0
"		3	0		0
42		9.5	416.0		553.0
"		3	0		0
44		9.5	457.0		607.0
"		3	0		0
46		9.5	499.0		664.0
"		3	0		0
48		9.5	544.0		723.0
"		3	0		0

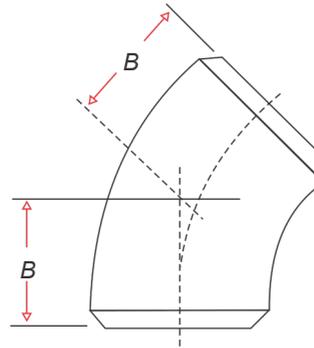
* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

44
 HIGHER
 " W.T.
 ON REQUEST





45° LONG RADIUS ELBOWS



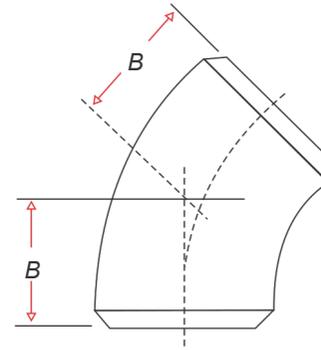
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Sch.10s	Sch.40s	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Wall thk.	Wall thk.	Weight kg												
1/2"	21.3	2.11	2.7	2.7	0.04	2.77	0.04	3.73	0.05	3.73	0.05			4.78	0.05	7.47	0.08
3/4"	26.7	2.11	7	7	0.06	2.87	0.06	3.91	0.07	3.91	0.07			5.56	0.06	7.82	0.1
1"	33.4	2.77	2.8	2.8	0.08	3.38	0.08	4.55	0.1	4.55	0.1			6.35	0.13	9.09	0.18
1 1/4"	42.2	2.77	7	7	0.13	3.56	0.13	4.85	0.18	4.85	0.18			6.35	0.21	9.7	0.32
1 1/2"	48.3	2.77	3.3	3.3	0.19	3.68	0.19	5.08	0.25	5.08	0.25			7.14	0.33	10.15	0.47
2"	60.3	2.77	8	8	0.33	3.91	0.33	5.54	0.45	5.54	0.45			8.74	0.71	11.07	0.85
2 1/2"	73	3.05	3.5	3.5	0.69	5.16	0.69	7.01	0.9	7.01	0.9			9.53	1.17	14.02	1.72
3"	88.9	3.05	6	6	1.02	5.49	1.02	7.62	1.37	7.62	1.37			11.13	1.92	15.24	2.63
4"	114.3	3.05	3.6	3.6	1.95	6.02	1.95	8.56	2.68	8.56	2.68	11.13	3.5	13.49	4.2	17.12	5.09
5"	141.3	3.40	8	8	3.31	6.55	3.31	9.53	4.63	9.53	4.63	12.7	6.15	15.88	7.46	19.05	8.8
6"	168.3	3.40	3.9	3.9	5.13	7.11	5.13	10.97	7.57	10.97	7.57	14.27	10.2	18.26	13.7	21.95	15.4
8"	219.1	3.76	1	1	10.3	8.18	10.3	12.7	15.4	12.7	15.4	18.26	22.6	23.01	26.6	22.23	26.6
10"	273.1	4.90	5.1	5.1	18.3	9.27	18.3	12.7	24.4	15.09	30	21.44	41.3	28.58	53.7	25.4	47.9
12"	323.9	4.57	6	6	27	10.31	29.57	12.7	35.5	17.48	49.94	25.4	68.6	33.32	90	25.4	68.6
14"	355.6	4.78	5.4	5.4	34.5	11.13	39.98	12.7	45.4	19.05	69.92	27.79	97.5	35.71	123		
16"	406.4	4.78	9	9	44.5	12.7	59.3	12.7	59.3	21.44	102.15	30.96	143.5	40.49	183		
18"	457.2	4.78	6.0	6.0	57.5	14.27	88.53	12.7	76	23.83	143.92	34.93	205	45.24	259		
20"	508	5.54	2	2	71	15.09	114	12.7	94	26.19	195.67	38.1	277	50.01	357.5		
22"	559	5.54	6.5	6.5	86.5			12.7	114.3	28.58	256.7	41.28	363	53.98	469		
24"	610	6.35	6	5	103			12.7	137	30.96	333.7	46.02	481.5	59.54	625		
			7.1	7.1		17.48	192.04										

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

1
1
8.1
8.1
8
8
9.2
9.2
7
7
9.5
9.5

45° LONG RADIUS ELBOWS



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH XS	
		Wall thk.	Weight kg	Wall thk.	Weight kg
26"	660.0	9.5	124.0	12.7	164.0
28"	711.0	3	0	0	0
30"	762.0	9.5	154.0	12.7	193.0
32"	813.0	3	0	0	0
34"	864.0	9.5	165.0	12.7	214.0
36"	914.0	3	0	0	0
38"	965.0	9.5	193.0	12.7	255.0
40"	1016.0	3	0	0	0
42"	1067.0	9.5	210.0	12.7	279.0
44"	1118.0	3	0	0	0
46"	1168.0	9.5	235.0	12.7	318.0
48"	1219.0	3	0	0	0

* All dimensions in mm.

* All weights indicated are approximate.

Other sizes available on request.

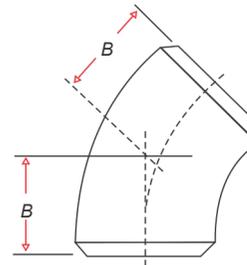
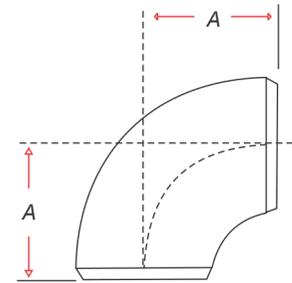
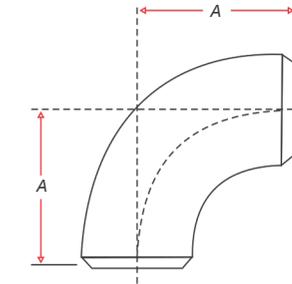
	9.5	272.0	12.7	354.0
	3	0	0	0
	9.5	295.0	12.7	397.0
	3	0	0	0
HIGHER W.T. ON REQUEST	9.5	320.0	12.7	425.0
	3	0	0	0
	9.5	363.0	12.7	488.0
	3	0	0	0
	9.5	408.0	12.7	530.0
	3	0	0	0
	9.5	454.0	12.7	589.0
	3	0	0	0



While every care has been taken in the preparation of the information in this catalogue, the Company accepts no liability for any loss or damage either direct or consequential arising out of use of this catalogue. This compilation is for reference only, for further details please refer to relevant Standards.

DIMENSIONS OF ELBOWS

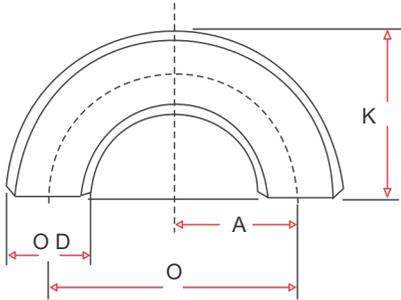
Nominal Pipe Size (NPS)	DN	Outside Diameter at Bevel	Center - to - End		
			90 Deg LR Elbows	45 Deg LR Elbows	90 Deg SR Elbows
			A	B	A
½"	15	21.3	38	16	
¾"	20	26.7	38	19	
1"	25	33.4	38	22	2
1¼"	32	42.2	48	25	5
1½"	40	48.3	57	29	3
2"	50	60.3	76	35	2
2½"	65	73	95	44	3
3"	80	88.9	114	51	8
4"	100	114.3	152	64	10
5"	125	141.3	190	79	12
6"	150	168.3	229	95	12
8"	200	219.1	305	127	17
10"	250	273	381	159	17
12"	300	323.9	457	190	20
14"	350	355.6	533	222	20
16"	400	406.4	610	254	3
18"	450	457.2	686	286	25
20"	500	508	762	318	4
22"	550	559	838	343	30
24"	600	610	914	381	5
26"	650	660	991	406	35
28"	700	711	1067	438	3
30"	750	762	1143	470	40
32"	800	813	1219	502	6
34"	850	864	1295	533	45
36"	900	914	1372	565	7
40"	950	1016	1524	632	50
42"	1050	1067	1600	660	8
48"	1200	1219	1829	759	55



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While every care has been taken in the preparation of the information in this catalogue, the Company accepts no liability for any loss or damage either direct or consequential arising out of use of this catalogue. This compilation is for reference only, for further details please refer to relevant Standards.

180° LONG RADIUS RETURN ELBOWS

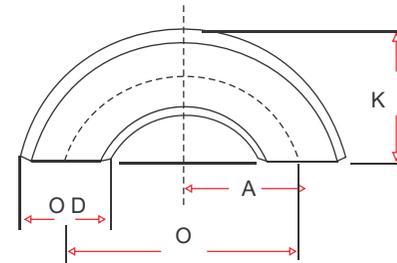


ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Weight kg												
½"	21.3	2.7		2.77		3.73		3.73				4.78		7.47	
¾"	26.7	7		2.87		3.91		3.91				5.56		7.82	
1"	33.4	2.8	0.31	3.38	0.31	4.55	0.40	4.55	0.40			6.35	0.54	9.09	0.68
1¼"	42.2	7	0.76	3.68	0.76	5.08	1.00	5.08	1.00			6.35	1.36	9.70	1.80
1½"	48.3	3.3	0.53	3.56	0.53	4.85	0.69	4.85	0.69			7.14	0.88	10.15	1.22
2"	60.3	8	1.36	3.91	1.36	5.54	1.85	5.54	1.85			8.74	2.80	11.07	3.36
2½"	73.0	3.6	2.67	5.16	2.67	7.01	3.50	7.01	3.50			9.53	4.68	14.02	5.40
3"	88.9	8	4.19	5.49	4.19	7.62	5.62	7.62	5.62			11.13	8.04	15.24	10.34
4"	114.3	3.5	7.94	6.02	7.94	8.56	11.00	8.56	11.00	11.13	14.22	13.49	16.84	17.12	20.60
5"	141.3	6	13.5	6.55	13.50	9.53	19.00	9.53	19.00	12.70	25.30	15.88	30.84	19.05	36.20
6"	168.3	3.9	0	7.11	20.90	10.97	31.30	10.97	31.30	14.27	40.84	18.26	50.92	21.95	59.80
8"	219.1	1	20.9	8.18	41.90	12.70	63.50	12.70	63.50	18.65	90.92	23.01	111.86	22.23	108.80
10"	273.1	5.1	0	9.27	74.40	12.70	100.20	15.09	120.62	21.44	167.08	28.58	216.38	25.40	194.82
12"	323.9	6	0	10.31	120.14	12.70	143.80	17.48	174.60	25.40	227.36	33.32	359.80	25.40	281.74
14"	355.6	5.4	0	11.13	166.12	12.70	184.60	19.05	227.36	27.79	359.08	35.71	495.40		
16"	406.4	9	0	12.70	242.20	12.70	242.20	21.44	308.00	30.96	422.42	40.49	734.30		
18"	457.2	6.0	0	14.27	352.42	12.70	308.00	23.83	381.50	34.93	482.06	45.24	1039.18		
20"	508.0	2	288.90	15.09	459.92	12.70	462.70	26.19	1032.70	38.10	1454.08	50.01	1435.00		
22"	559.0	6.5	349.70	12.70		12.70	533.40	28.58	1329.42	41.28	1928.20	53.98	1879.00		
24"	610.0	5	417.30	17.48	768.20			30.96		46.02		59.54	2502.00		

* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

180° SHORT RADIUS RETURN ELBOWS



ASME B16.9

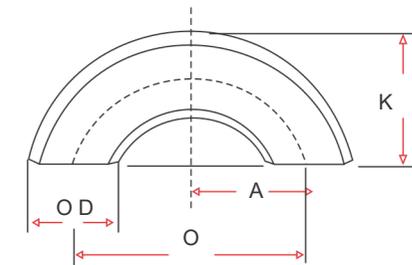
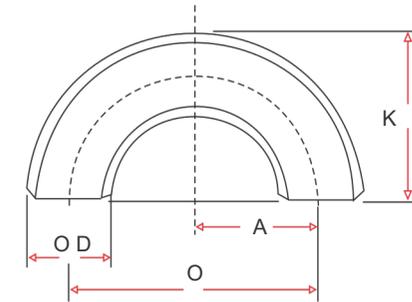
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Weight kg												
½"	21.3	2.7		2.77		3.73		3.73				4.78		7.4	
¾"	26.7	7		2.87		3.91		3.91				5.56		7	
1"	33.4	2.8	0.23	3.38	0.23	4.55		4.55				6.35	0.3	7.8	0.44
1¼"	42.2	7	0.36	3.68	0.36	5.08		5.08				6.35	4	2	0.86
1½"	48.3	3.3	0.50	3.56	0.50	4.85	0.68	4.85	0.68			7.14	0.86	9.0	1.14
2"	60.3	8	0.86	3.91	0.86	5.54	1.32	5.54	1.32			8.74	1.84	5.9	2.26
2½"	73.0	3.6	1.82	5.16	1.82	7.01	2.36	7.01	2.36			9.53	2.98	11.0	4.38
3"	88.9	8	2.72	5.49	2.72	7.62	3.72	7.62	3.72			11.13	5.20	7.0	6.98
4"	114.3	3.5	5.53	6.02	5.53	8.56	7.44	8.56	7.44	11.1	9.00	13.49	10.70	14.0	13.58
5"	141.3	6	8.70	6.55	8.70	9.53	12.56	9.53	12.56	3	18.20	15.88	22.80	2	27.06
6"	168.3	3.9	14.92	7.11	14.92	10.97	20.73	10.97	20.73	12.7	29.20	18.26	36.40	15.2	42.60
8"	219.1	1	29.44	8.18	29.44	12.70	43.66	12.70	43.66	0	67.00	23.01	81.14	4	79.00
10"	273.1	5.1	50.80	9.27	50.80	12.70	64.87	15.09		14.2	129.60	28.58	167.90	17.1	151.20
12"	323.9	6	71.22			12.70	96.16	17.48		7	175.20	33.32	228.00	2	179.00
14"	355.6	5.4	94.35	10.31		12.70	122.92	19.05		18.6	260.00	35.71	324.00	19.0	
16"	406.4	9	116.58	11.13		2.70	153.77	21.44		5	380.60	40.49	485.00	5	
18"	457.2	6.0	167.42	12.70		1	192.77	23.83		21.4	545.00	45.24	689.00	21.9	
20"	508.0	2	188.10	14.27		12.70	251.75	26.19		4	736.00	50.01	952.00	5	
22"	559.0	6.5		15.09		12.70		28.58		25.4	970.00	53.98	1250.00	22.2	
24"	610.0	5				12.70		30.96		0	1283.00	59.54	1666.00	3	
		7.1	268.53	17.48		12.70	352.90			22.7				25.4	

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

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DIMENSIONS OF ELBOWS 180°

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Center - to - Center		Back - to - Face	
		O	K	O	K
½"	21	76	48		
¾"	27	57	43		
1"	33	76	56		
1¼"	42	95	70		
1½"	48	114	83		
2"	60	152	106		
2½"	73	191	132		
3"	89	229	159		
4"	114	305	210		
5"	141	381	262		
6"	168	457	313		
8"	219	610	414		
10"	273	762	518		
12"	324	914	619		
14"	356	1067	711		
16"	406	1219	813		
18"	457	1372	914		
20"	508	1524	1016		
22"	559	1676	1118		
24"	610	1829	1219		

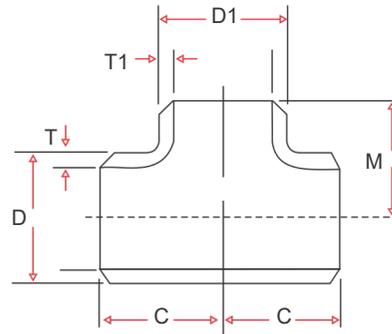


* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.



Butt Weld Fittings • Carbon Steel • Stainless Steel • Special Alloys

EQUAL TEES



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Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Sch.10s		Sch.40s		SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Wall thk.	Wall thk.	Wall thk.	Weight kg													
½"	21.3	2.11	2.77	2.7	0.11	2.77	0.11	3.73	0.14	3.73	0.14					4.78	0.28		
¾"	26.7	2.11	2.87	7	0.16	2.87	0.16	3.91	0.21	3.91	0.21					5.56	0.29	7.82	0.38
1"	33.4	2.77	3.38	2.8	0.32	3.38	0.32	4.55	0.41	4.55	0.41					6.35	0.45	9.09	0.58
1¼"	42.2	2.77	3.56	7	0.57	3.56	0.57	4.85	0.76	4.85	0.76					6.35	0.77	9.7	1.05
1½"	48.3	2.77	3.68	3.3	0.8	3.68	0.8	5.08	1.08	5.08	1.08					7.14	1.21	10.15	1.56
2"	60.3	2.77	3.91	8	1.17	3.91	1.17	5.54	1.67	5.54	1.67					8.74	2.25	11.07	2.69
2½"	73	3.05	5.16	3.5	2.28	5.16	2.28	7.01	3.05	7.01	3.05					9.53	3.42	14.02	4.54
3"	88.9	3.05	5.49	6	3.05	5.49	3.05	7.62	4.24	7.62	4.24					11.13	6.21	15.24	7.63
4"	114.3	3.05	6.02	3.6	5.17	6.02	5.17	8.56	7.36	8.56	7.36					13.49	15.53	17.12	17
5"	141.3	3.40	6.56	8	8.36	6.55	8.36	9.53	12.12	9.53	12.12	12.7	18			15.88	23.93	19.05	25
6"	168.3	3.40	7.11	3.9	12.32	7.11	12.32	10.97	18.86	10.97	18.86	14.27	24			18.26	38.59	21.95	39
8"	219.1	3.76	8.18	1	22.87	8.18	22.87	12.7	30.9	12.7	30.9	18.26	50			23.01	71	22.23	69
10"	273.1	4.90	9.27	5.1	36.45	9.27	36.45	12.7	48.3	15.09	68	21.44	93			28.58	120		
12"	323.9	4.57	9.52	6	55.9	10.31	70.5	12.7	72.58	17.48	115	25.4	150			33.32	184		
14"	355.6	4.78		5.4	70.1	11.13	114.41	12.7	76.8	19.05	165	27.79	240			35.71	300		
16"	406.4	4.78		9	87.25	12.7	105.6	12.7	105.6	21.44	249	30.96	330			40.49	425		
18"	457.2	4.78		6.0	107.05	14.27	238.35	12.7	184	23.83	322	34.93	450			45.24	590		
20"	508	5.54		2	129.6	15.09	320.52	12.7	176	26.19	459.05	38.1	590			50.01	790		
22"	559	5.54		6.5	163.9			12.7	203.7	28.58	600	41.28	840			53.98	1100		
24"	610	6.35		5	186.3	17.48		12.7	232	30.96	748	46.02	1100			59.54	1310		

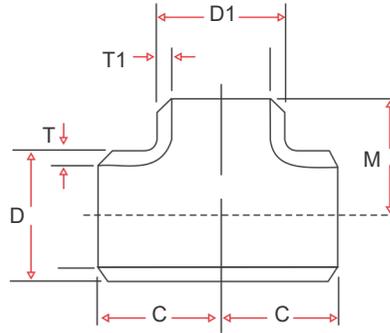
* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

- 7.1
- 1
- 8.1
- 8
- 9.2
- 7
- 9.5



Butt Weld Fittings • Carbon Steel • Stainless Steel • Special Alloys

EQUAL TEES



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Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH XS	
		Wall thk.	Weight kg	Wall thk.	Weight kg
26	660.0	9.5	213.0	12.7	270.00
"	711.0	3	0	0	305.00
28	762.0	9.5	240.0	12.7	351.00
"	813.0	3	0	0	401.00
30	864.0	9.5	277.0	12.7	453.00
"	914.0	3	0	0	509.00
32	965.0	9.5	316.0	12.7	569.00
"	1016.0	3	0	0	631.00
34	1067.0	9.5	357.0	12.7	669.00
"	1118.0	3	0	0	752.00
36	1168.0	9.5	401.0	12.7	823.00
"	1219.0	3	0	0	898.00
38		9.5	447.0	12.7	

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

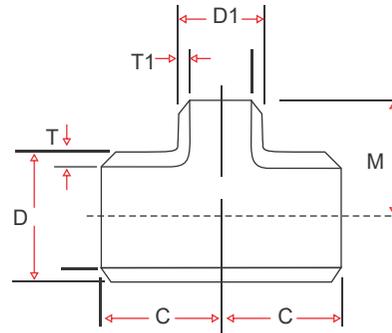
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40		9.5	497.0	12.7	
"		3	0	0	
42		9.5	526.0	12.7	
"		3	0	0	
44		9.5	591.0	12.7	
"		3	0	0	
46		9.5	647.0	12.7	
"		3	0	0	
48		9.5	706.0	12.7	





REDUCING TEES



ASME B16.9

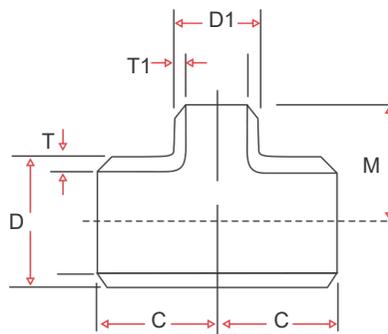
Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH 40			SCH XS			SCH 80		
			Wall thk.		Weight									
			T	T1	kg									
¾" x ½"	26.7	21.3	2.87	2.77	0.15	2.87	2.77	0.1	3.91	3.73	0.2	3.91	3.73	0.21
1" x ½"	33.4	21.3	3.38	2.77	0.30	3.38	2.77	5	4.55	3.73	1	4.55	3.73	0.40
		¾"		2.87	0.30		2.87	0.3		3.91	0.4		3.91	0.40
1¼" x ½"	42.2	21.3	3.56	2.77	0.52	3.56	2.77	0	4.85	3.73	0	4.85	3.73	0.70
		¾"		2.87	0.54		2.87	0.3		3.91	0.4		3.91	0.72
		¾"		3.38	0.54		3.38	0		4.55	0		4.55	0.72
1" x ¾"	33.4	26.7	3.38	2.77	0.70	3.38	2.77	0	4.55	3.73	0	8	4.55	0.66
		¾"		2.87	0.74		2.87	0.5		3.91	0.7		3.91	1.06
1½" x ½"	48.3	21.3	3.68	2.77	0.74	3.68	2.77	0.5	5.08	3.73	0.7	5.0	3.91	1.06
		¾"		3.38	0.74		2.87	2		3.91	0		4.55	1.06
		¾"		3.56	0.76		3.38	0.5		4.55	0.7		4.85	1.06
1" x ¾"	33.4	26.7	2.77	2.77	1.03	3.38	2.77	4	4.55	3.73	0.7	4.85	3.73	1.44
		¾"		2.87	1.10		3.56	0.5		4.85	2		3.73	1.44
1¼" x ¾"	42.2	26.7	3.91	2.87	1.10	3.91	2.87	0.5	5.54	3.73	0.7	5.54	3.91	1.54
2" x ½"	60.3	21.3		3.38	1.12	3.91	2.77	0.7	5.54	3.91	2			1.54
		¾"		3.56	1.12		2.87	0.7		3.91	2			1.54
		¾"		3.68	1.14		3.38	4		4.55	0.9		4.55	1.57
1" x ¾"	33.4	26.7		3.38	2.13		3.38	0.7		4.55	0.9		4.55	1.57
		¾"		3.56	2.17		3.56	0.7		4.85	9		4.85	2.75
1¼" x ¾"	42.2	26.7					3.56	0.7		5.08	1.0		4.85	2.80
1½" x ¾"	48.3	26.7		3.68	2.20		3.68	6		4.55	6	1	5.08	2.86
		¾"		3.91	2.20		3.91	0		4.55	6		4.55	2.86
2½" x 1"	73.0	33.4	5.16	3.91	2.20	5.16	3.38	1.0	7.01	4.85	1.0	7.0	4.85	2.95
		¾"					3.56	3		5.08	6		5.08	
		¾"					3.68	1.1		5.54	1.0		5.54	
		¾"					3.91	0						

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

1.1 1.4
 2 4
 1.1 1.5
 2 4
 1.1 4
 4 1.5
 3.1 4
 2.1 1.5
 7 1.5
 2.2 1



REDUCING TEES



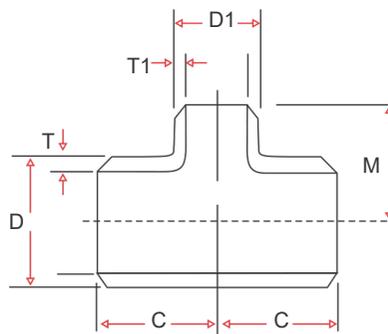
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Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH 40			SCH XS			SCH 80		
			Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg	T	T1	kg	T	T1	kg
3" x 1"	88.9	33.4	5.49	3.38	2.68	5.49	3.38	2.68	7.62	4.55	3.69	7.62	4.55	3.69
		42.2		3.56	2.73		3.56	2.73		4.85	3.69		4.85	3.76
		48.3		3.68	2.73		3.68	2.88		5.08	3.76		5.08	3.90
		60.3		3.91	2.88		3.91	2.93		5.54	3.90		5.54	4.09
4" x 1"	114.3	33.4	6.02	3.38	4.67	6.02	3.38	4.89	8.56	4.55	6.86	8.56	4.55	6.96
		42.2		3.56	4.89		3.56	4.96		4.85	6.96		4.85	7.06
		48.3		3.68	4.96		3.68	4.96		5.08	7.06		5.08	7.06
		60.3		3.91	4.96		3.91	4.96		5.54	7.06		5.54	7.16
5" x 2"	141.3	60.3	6.55	3.91	7.39	6.55	3.91	7.59	9.53	5.54	10.75	9.53	5.54	11.02
		73.0		5.16	7.59		5.16	7.77		7.01	11.02		7.01	11.29
		88.9		5.49	7.77		5.49	7.95		7.62	11.29		7.62	11.57
		114.3		6.02	10.80		6.02	10.94		8.56	11.57		8.56	11.85
6" x 2"	168.3	60.3	7.11	3.91	11.18	7.11	3.91	10.80	10.97	5.54	16.30	10.97	5.54	17.80
		73.0		5.16	11.31		5.16	11.84		7.01	16.48		7.01	17.80
		88.9		5.49	12.32		5.49	12.32		7.62	17.46		7.62	18.86
		114.3		6.02	19.35		6.02	19.35		8.56	17.80		8.56	18.86
8" x 4"	219.1	114.3	8.18	5.49	20.49	8.18	5.49	20.10	12.70	8.56	27.20	12.70	8.56	29.05
		141.3		6.55	20.10		6.55	20.49		7.62	23.18		7.62	24.54
		141.3		6.02	21.05		6.02	21.05		9.53	28.43		9.53	29.05
		168.3		7.11			7.11			10.97	29.05		10.97	

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.



REDUCING TEES



ASME B16.9

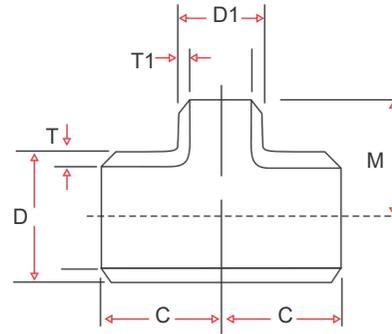
Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH 40			SCH XS			SCH 80		
			Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg	T	T1	kg	T	T1	kg
10" x 3"	273.1	88.9	9.27	5.49	27.3	9.27	5.49	27.34	12.70	7.62	36.23	15.09	7.62	
4"		114.3		6.02	4		6.02	29.89		8.56	39.61		8.56	53.00
5"		141.3		6.55	29.8		6.55	32.08		9.53	42.51		9.53	53.00
6"		168.3		7.11	9		7.11	33.54		10.97	44.44		10.97	54.00
8"		219.1		8.18	32.0		8.18	34.27		12.70	41.41	17.48	12.70	71.00
12" x 4"	323.9	114.1	9.53	6.02	8	10.31	6.02		12.70	8.56	54.44		8.56	
5"		141.3		6.55	33.5		6.55	64.00		9.53	59.52		9.53	82.00
6"		168.1		7.11	4		7.11	64.00		10.97	63.88		10.97	82.00
8"		219.1		8.18	34.2		8.18	67.00		12.70	66.78		12.70	82.00
10"		273.0		9.27	7		9.27	109.00		12.70	68.23		15.09	122.00
14" x 6"	355.6	168.3	9.53	7.11	41.9	11.13	7.11	109.00	12.70	10.97	64.46	19.05	10.97	122.00
8"		219.1		8.18	3		8.18	114.00		12.70	69.17		12.70	141.00
10"		273.0		9.27	45.8		9.27	160.00		12.70	72.32		15.09	143.00
12"		323.9		9.53	4	12.70	10.31	160.00		12.70	73.89		17.48	
16" x 6"	406.4	168.3	9.53	7.11	49.2		7.11	160.00	12.70	10.97	77.80	21.44	10.97	163.00
8"		219.1		8.18	31.4		8.18	161.00		12.70	86.60		12.70	163.00
10"		273.0		9.27	52.5		9.27	167.00		12.70	92.93		15.09	163.00
12"		323.9		9.53	5		10.31			12.70	97.16		17.48	181.00
14"		355.6		9.53	57.4		11.13			12.70	99.27		19.05	200.00

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

9
 64.5
 0
 65.9
 0
 65.4
 4



REDUCING TEES



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD		SCH 40		SCH XS			SCH 80				
			Wall thk. T1		Weight		Wall thk. T1		Weight		Wall thk.		Weight	
			T	T1	kg	T	T1	kg	T	T1	kg	T	T1	kg
18" x 8"	457.0	219.1	9.53	8.18	105.4	14.27	8.18	150.00	12.70	12.70	124.7	23.88	12.70	205.00
		273.0		9.53	5		9.27	150.00		12.70	0		15.09	225.00
		323.9		9.53	105.4		10.31	194.00		12.70	124.7		17.48	231.00
		355.6		9.53	5		11.13	194.00		12.70	0		19.05	229.00
16"	406.4		9.53		107.0		12.70	238.00		12.70	184.0		21.44	228.00
		219.1	9.53	8.18	5	15.09	8.18	220.00	12.70	12.70	0	26.19	12.70	324.00
		273.0		9.53	107.0		9.27	220.00		12.70	184.0		15.09	324.00
		323.9		9.53	5		10.31	224.00		12.70	0		17.48	355.00
14"	355.6		9.53		107.0		11.13	224.00		12.70	184.0		19.05	410.00
		406.4		9.53	0		12.70	224.00		12.70	0		21.44	374.00
		457.2		9.53	5		14.27	230.00		12.70	160.0		23.88	374.00
		508.0		9.53	0		14.27	265.00		12.70	0		15.09	374.00
22" x 10"	559.0	273.0	9.53	9.27	128.7	-			12.70	12.70	160.0	28.58	17.48	374.00
		323.9		9.53	128.7					12.70	0		19.05	415.00
		355.6		9.53	0					12.70	160.0		21.44	415.00
		406.4		9.53	0					12.70	160.0		23.88	513.00
20"	457.2		9.53		128.7					12.70	0		26.19	452.00
		508.0		9.53	0					12.70	176.0		15.09	
		559.0		9.53	129.6					12.70	0		30.96	452.00
		610.0		9.53	0	17.48	9.27	308.0	12.70	12.70	176.0		17.48	490.00
24" x 12"	610.0	323.9		9.53	0		10.31	0		12.70	0		19.05	490.00
		355.6		9.53	129.6		11.13	308.0		12.70	176.0		21.44	533.00
		406.4		9.53	0		12.70	0		12.70	0		23.88	606.00
		457.2		9.53	129.6		14.27	309.0		12.70	203.7		26.19	675.00
20"	508.0		9.53		0		15.09	0		12.70	0		26.19	675.00
		559.0		9.53	154.3		-	309.0			203.7		28.58	
				9.53	154.3			0			0			
				9.53	0			390.0			203.7			
18"					154.3			0			0			
					0			390.0			203.7			
					0			0			0			
					0			0			0			

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REDUCING TEES

Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH XS		
			Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg
26" x 12"	660.0	324.	9.52	9.52	231.0	12.70	12.70	293.0
14"		0		9.52	0		12.70	0
16"		356.		9.52	239.0		12.70	300.0
18"		0		9.52	0		12.70	0
20"		406.		9.52	247.0		12.70	309.0
22"		0		9.52	0		12.70	0
24"		457.		9.52	255.0		12.70	323.0
28" x 12"	711.0	0	9.52	9.52	0	12.70	12.70	0
14"		508.		9.52	264.0		12.70	330.0
16"		0		9.52	0		12.70	0
18"		559.		9.52	272.0		12.70	0
20"		0		9.52	0		12.70	340.0
22"		610.		9.52	280.0		12.70	0
24"		0		9.52	0		12.70	340.0
26"		324.		9.52			12.70	0
10"		0		9.52			12.70	
30" x 12"	762.0	356.	9.52	9.52	296.0	12.70	12.70	377.0
14"		0		9.52	0		12.70	0
16"		406.		9.52	304.0		12.70	385.0
18"		0		9.52	0		12.70	0
20"		457.		9.52	312.0		12.70	395.0
22"		0		9.52	0		12.70	0
24"		508.		9.52	321.0		12.70	405.0
26"		0		9.52	0		12.70	0
28"		559.		9.52	330.0		12.70	417.0
14"		0		9.52	0		12.70	0
32" x 16"	813.0	0	9.52	9.52	0	12.70	12.70	0
18"		660.		9.52	351.0		12.70	441.0
20"		0		9.52	0		12.70	0
22"		273.		9.52	361.0		12.70	452.0
24"		0		9.52	0		12.70	0
26"		324.		9.52	372.0		12.70	463.0
28"		0		9.52	0		12.70	0
30"		356.			380.0			475.0
		0			0			0

Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH XS		
			Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg
34" x 16	864.0	406.0	9.52	9.52	415.0	12.70	12.70	523.0
"		0		9.52	0		12.70	0
18		457.0		9.52	425.0		12.70	535.0
"		508.0		9.52	0		12.70	0
20		559.0		9.52	436.0		12.70	547.0
"		610.0		9.52	0		12.70	0
22		660.0		9.52	448.0		12.70	562.0
"		711.0		9.52	0		12.70	0
24		762.0		9.52	460.0		12.70	577.0
"		813.0		9.52	0		12.70	0
36" x "	914.0	406.0	9.52	9.52	0	12.70	12.70	0
26		457.0		9.52	472.0		12.70	591.0
"		508.0		9.52	0		12.70	0
28		559.0		9.52	482.0		12.70	605.0
"		610.0		9.52	0		12.70	0
30		660.0		9.52	493.0		12.70	616.0
"		711.0		9.52	0		12.70	0
32		762.0		9.52	504.0		12.70	628.0
"		813.0		9.52	0		12.70	0
16		864.0		9.52	521.0		12.70	602.0
40" x "	1016.0	457.0	9.52	9.52	540.0	12.70	12.70	0
18		508.0		9.52	574.0		12.70	611.0
"		559.0		9.52	0		12.70	0
20		610.0		9.52	582.0		12.70	621.0
"		660.0		9.52	0		12.70	0
22		711.0		9.52	595.0		12.70	632.0
"		762.0		9.52	0		12.70	0
24		813.0		9.52	613.0		12.70	643.0
"		864.0		9.52	0		12.70	0
26		914.0		9.52	626.0		12.70	654.0
"		965.0		9.52	0		12.70	0
28					637.0			670.0
"					0			0
30					627.0			0
"					0			685.0
32					643.0			0
"					0			700.0
34					659.0			0
"					0			715.0
18					659.0			0
"					0			650.0
20					664.0			0
"					0			665.0
22					682.0			0
"					0			682.0
24					700.0			0

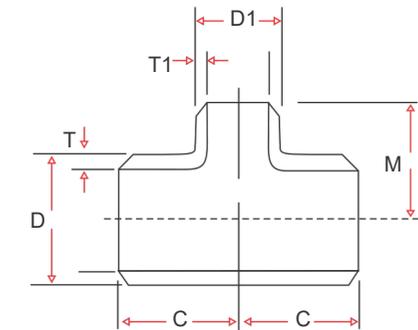
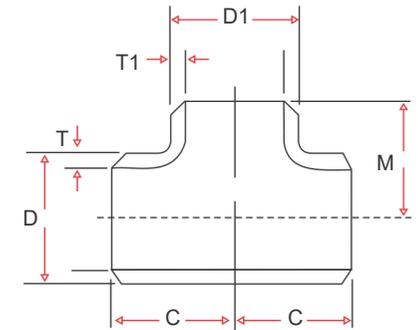
* All dimensions in mm.
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 Other sizes available on request.

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DIMENSIONS OF EQUAL AND REDUCING TEES

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	Run C	Outlet (1) M
½" x ½"	21.3	21.3	25.4	25.4
" x ¾"	26.7	26.7	28.4	28.4
¾" x ½"		21.3		28.4
1" x 1"	33.4	33.4	38.1	38.1
x ¾"		26.7		38.1
x ½"		21.3		38.1
1¼" x 1¼"	42.2	42.2	47.8	47.8
x 1"		33.4		47.8
x ¾"		26.7		47.8
x ½"		21.3		47.8
x 1½"		48.3		47.8
1½" x 1¼"	48.3	42.2	57.2	57.2
x 1"		33.4		57.2
x ¾"		26.7		57.2
x ½"		21.3		57.2
x 2"		60.3		57.2
2" x 1½"	60.3	48.3	63.5	63.5
x 1¼"		42.2		60.5
x 1"		33.4		57.2
x ¾"		26.7		50.8
x ½"		21.3		44.4
x 2½"		73		44.4
2½" x 2"	73	60.3	76.2	76.2
x 1½"		48.3		69.8
x 1¼"		42.2		67
x 1"		33.4		63.5
				57.2

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	Run C	Outlet (1) M
3" x 3"	88.9	88.9	85.9	85.9
x 2½"		73		82.6
x 2"		60.3		76.2
x 1½"		48.3		73.2
x 1¼"		42.2		69.8
x 1"		33.4		69.8
4" x 4"	114.3	114.3	104.6	104.6
x 3½"		101.6		101.6
x 3"		88.9		98.6
x 2½"		73		95.2
x 2"		60.3		88.9
x 1½"		48.3		85.9
x 1¼"		42.2		85.9
x 1"		33.5		85
x 5"		141.3		124
5" x 4"	141.3	114.3	124	124
x 3½"		101.6		117.3
x 3"		88.9		114.3
x 2½"		73		111.3
x 2"		60.3		108
x 6"		168.3		104.6
6" x 5"	168.3	141.3	142.7	142.7
x 4"		114.3		136.7
x 3½"		101.6		130
x 3"		88.9		127
x 2½"		73		124
x 2"		60.3		120.6
				121



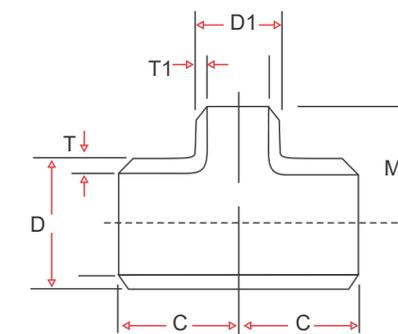
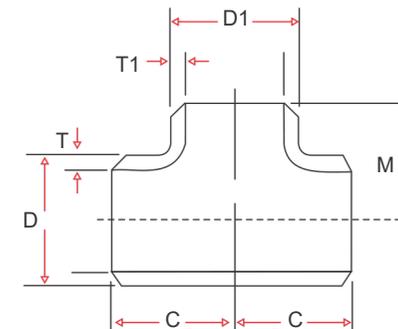
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DIMENSIONS OF EQUAL AND REDUCING TEES

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	RunC	Outlet (1) M
8" x 8"	219.1	219.1	177.8	177.8
x 6"		168.3		168.1
x 5"		141.3		162.1
x 4"		114.3		155.4
x 3½"		101.6		152.4
x 3"		88.9		152
10" x 10"	273.1	273.1	215.9	215.9
x 8"		219.1		203.2
x 6"		168.3		193.5
x 5"		141.3		190.5
x 4"		114.3		184.2
x 3"		88.9		184.2
12" x 12"	323.9	323.9	254	254
x 10"		273.1		241.3
x 8"		219.1		228.6
x 6"		168.3		218.9
x 5"		141.3		215.9
x 4"		114.3		215.9
14" x 14"	355.6	355.6	279.4	279.4
x 12"		323.9		269.7
x 10"		273.1		257
x 8"		219.1		247.6
x 6"		168.3		238.3
x 16"		406.4		304.8
16" x 14"	406.4	355.6	304.8	304.8
x 12"		323.9		295.1
x 10"		273.1		282.4
x 8"		219.1		273
x 6"		168.3		263.7

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	RunC	Outlet (1) M
18" x 18"	457.2	457.2	342.9	342.9
x 16"		406.4		330.2
x 14"		355.6		330.2
x 12"		323.9		320.5
x 10"		273.1		307.8
x 8"		219.1		298.4
20" x 20"	508	508	381	381
x 18"		457.2		369.3
x 16"		406.4		355.6
x 14"		355.6		355.6
x 12"		323.9		345.9
x 10"		273.1		333.2
x 8"		219.1		323.8
22" x 22"	558.8	558.8	419.1	419.1
x 20"		508		406.4
x 18"		457.2		393.7
x 16"		406.4		381
x 14"		355.6		381
x 12"		323.8		371.3
x 10"		273.1		358.6
x 8"		219.1		345.9
24" x 24"	609.6	609.6	431.8	431.8
x 22"		558.8		431.8
x 20"		508		431.8
x 18"		457.2		419.1
x 16"		406.4		406.4
x 14"		355.6		406.4
x 12"		323.9		396.7
x 10"		273.1		384



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DIMENSIONS OF EQUAL AND REDUCING TEES

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	Run C	Outlet (1) M
26" x 26	660	660	495	495
x "		610		483
x 24		559		470
x "		508		457
x 22		457		444
x "		406		432
x 20		356		432
x "		324		422
28" x 18	711	711	521	521
x "		660		521
x 16		610		508
x "		559		495
x 14		508		483
x "		457		470
x 12		406		457
x "		356		457
x 28		324		448
x "		273		448
30" x 26	762	711	559	559
x "		660		546
x 24		610		533
x "		559		521
x 22		508		508
x "		457		495
x 20		406		483
x "		356		483
x 18		324		473
x "		273		460
x 16		232		460
x "		181		457
32" x 26	813	711	597	572
x 14		660		572
x "		610		559
x 12		559		546
x "		508		533
x 30		457		521
x "		406		508
x 28		356		508

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	Run C	Outlet (1) M
34" x 34"	864	864	635	635
x 32"		813		622
x 30"		762		610
x 28"		711		597
x 26"		660		597
x 24"		610		584
x 22"		559		572
x 20"		508		572
x 18"		457		559
x 16"		406		546
x 36"	914	914	673	673
x 34"		864		673
x 32"		813		660
x 30"		762		648
x 28"		711		635
x 26"		660		622
x 24"		610		622
x 22"		559		610
x 20"		508		597
x 18"		457		584
x 16"		406		572
x 40"	1016	1016	749	749
x 38"		965		749
x 36"		914		749
x 34"		864		737
x 32"		813		724
x 30"		762		711
x 28"		711		698
x 26"		660		698
x 24"		610		673
x 22"		559		673
x 20"		508		660
x 18"		457		648
				635
				622

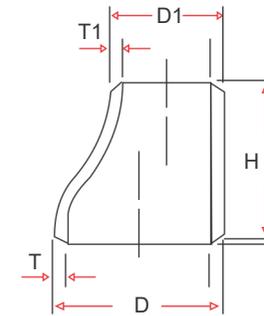
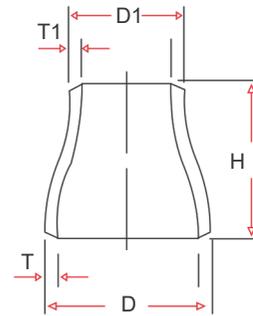
Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center - to - End	
	Run D	Outlet D1	Run C	Outlet (1) M
42" x 42"	1067	1067	762	762
x "		1016		711
x 40		965		711
x "		914		711
x 38		864		711
x "		813		711
x 36		762		711
x "		711		698
x 34		660		698
x "		610		660
x 32		559		660
x "		508		660
x 30		457		648
x "		406		635
x "		356		622
48" x 28	1219	1168	889	889
x "		1118		838
x 26		1067		813
x "		1016		813
x 24		965		813
x "		914		787
x 22		864		787
x "		813		787
x 20		762		762
x "		711		762
x 18		660		762
x "		610		737
x 16		559		737

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

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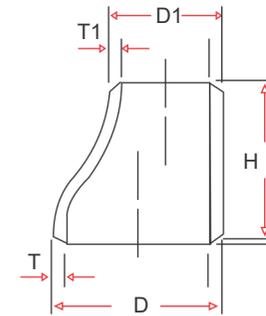
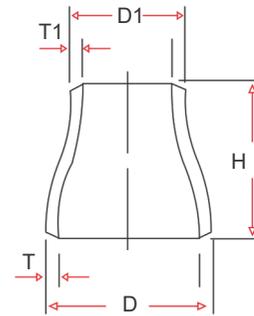
Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD				SCH 40				SCH XS				SCH 80			
			Wall thk.		Weight		Wall thk.		Weight		Wall thk.		Weight		Wall thk.		Weight	
			T	T1	kg		T	T1	kg		T	T1	kg		T	T1	kg	
¾" x ½"	26.7	21.3	2.87	2.77	0.0		2.87	2.77	0.06	3.91	3.73	0.0		3.91	3.73	0.0		
1" x ½"	33.4	21.3	3.38		6		2.77	0.13	4.55	3.73	8		4.55	3.73	8			
		¾"			2.8	0.1		2.87	0.12		3.91	0.1		3.91	0.1			
1¼" x ½"	42.2	21.3	3.56	7	3		3.56	2.77	0.18	4.85	3.73	6		4.85	3.73	6		
		¾"			2.7	0.1		2.87	0.17		3.91	0.1		3.91	0.1			
		1"			7	2		3.38	0.16		4.55	5		4.55	5			
1½" x ½"	48.3	21.3	3.68	2.8	0.1		3.68	2.77	0.28	5.08	3.91	0.2		5.08	3.73	0.2		
		¾"			7	8		2.87	0.27		4.55	3		3.91	3			
		1"			3.3	0.1		3.38	0.26		4.85	0.2		4.55	0.2			
		1¼"			8	7		3.56	0.25		3.91	2		4.85	2			
2" x ½"	60.3	21.3	3.91	2.7	0.1		3.91	2.87	0.42	5.54	4.55	0.2		5.54	3.73	0.2		
		¾"			7	6		3.38	0.41		4.85	1		3.91	1			
		1"			2.8	0.2		3.56	0.40		5.08	0.6		4.55	0.6			
		1¼"			7	8		3.68	0.38		4.55	5		4.85	5			
		1½"			3.3	0.2		5.16	0.38		4.85	0.6		5.08	0.6			
2½" x 1"	73.0	33.4	5.16	8	7		5.16	3.56	0.76	7.01	5.08	3		7.01	4.55	3		
		1¼"			3.5	0.2		3.68	0.74		5.54	0.6		4.85	0.6			
		1½"			6	6		3.91	0.71			0		5.08	0			
		2"			2.7	0.2			0.73			0.3		5.54	0.3			
					7	5						3			3			

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

2.8	0.4	0.5	0.5
7	2	8	8
3.3	0.4	0.5	0.5
8	1	5	5
3.5	0.4	0.5	0.5
6	0	4	4



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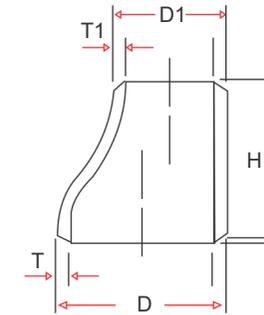
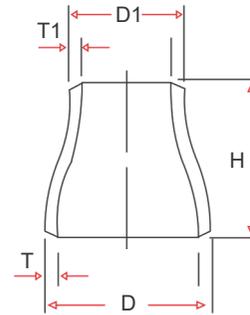
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD		SCH 40		SCH XS		SCH 80					
			Wall thk.		Wall thk.		Wall thk.		Wall thk.					
			T	T1	T	T1	T	T1	T	T1	kg			
3" x 1"	88.9	33.4	5.49	3.38	0.99	5.49	3.38	0.9	7.62	4.55	1.3	7.62	4.55	1.3
		42.2		3.56	0.96		3.56	0.9		4.85	4		4.85	4
		48.3		3.68	0.92		3.68	0.9		5.08	1.3		5.08	1.3
		60.3		3.91	0.89		3.91	6		5.54	0		5.54	0
		73.0		5.16	0.94		5.16	0.9		7.01	1.2		7.01	1.2
4" x 1"	114.3	33.4	6.02	3.38	1.61	6.02	3.38	2	8.56	4.55	4	8.56	4.55	4
		42.2		3.56	1.58		3.56	0.8		4.85	1.2		4.85	1.2
		48.3		3.68	1.54		3.68	9		5.08	1		5.08	1
		60.3		3.91	1.48		3.91	0.9		5.54	1.2			1.2
		73.0		5.16	1.44		5.16	4		7.01	5		5.54	5
5" x 2"	141.3	60.3	6.55	3.91	2.10	6.55	3.91	1	9.53	5.54	2	9.53	5.54	2
		73.0		5.16	2.16		5.16	1.5		7.01	2.1		7.62	2.1
		88.9		5.49	2.27		5.49	8		7.01	2.1		7.01	9
		114.3		5.49	2.27		5.49	1.5		7.62	9		7.62	2.1
		60.3		6.02	2.50		6.02	4		8.56	2.1		8.56	3
6" x 2 1/2"	168.3	73.0	7.11	3.91	3.17	7.11	3.91	1.4	10.97	5.54	3	10.97	5.54	3
		73.0		5.16	3.07		5.16	1.4		7.01	2.0		7.01	2.0
		88.9		5.49	3.04		5.49	8		7.62	4		7.62	4
		114.3		5.49	3.04		5.49	1.4		7.62	4		7.62	4
		141.3		6.02	3.30		6.02	1.4		8.56	2.0		8.56	2.0

* All dimensions in mm.
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 Other sizes available on request.



CONCENTRIC & ECCENTRIC REDUCERS



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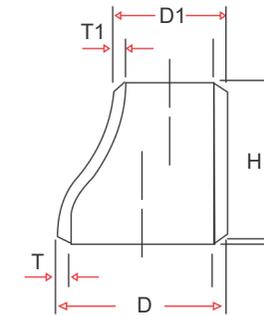
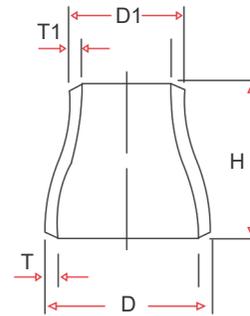
Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD		SCH 40			SCH XS			SCH 80			
			Wall thk.		Weight									
			T	T1	kg									
8" x 3"	219.1	88.9	8.18	5.49	5.06	8.18	5.49	5.06	12.70	7.62	7.70	12.70	7.62	7.70
		114.3		6.02	5.10		6.02	5.10		8.56	7.68		8.56	7.68
		141.3		6.55	5.40		6.55	5.40		9.53	8.14		9.53	8.14
		168.3		7.11	5.71		7.11	5.71		10.97	8.63		10.97	8.63
10" x 4"	273.1	114.3	9.27	6.02	9.73	9.27	6.02	9.73	12.70	8.56	13.15	15.09	8.56	17.00
		141.3		6.55	9.51		6.55	9.51		9.53	12.84		9.53	17.00
		168.3		7.11	8.82		7.11	8.82		10.97	11.93		10.97	17.00
		219.1		8.18	9.58		8.18	9.58		12.70	12.90			17.00
12" x 4"	323.9	114.1	9.53	6.02	14.12	10.31	6.02		12.70	8.56	18.63	17.48	12.70	
		141.3		6.55	13.57		6.55	16.30		9.53	17.91		9.53	26.80
		168.1		7.11	13.02		7.11	16.30		10.97	17.17		10.97	26.80
		219.1		8.18	12.70		8.18	16.30		12.70	16.70		12.70	26.80
14" x 8"	355.6	168.3	9.53	7.11	22.81	11.13	7.11	31.10	12.70	10.97	30.14	19.05	10.97	52.20
		219.1		8.18	22.49		8.18	31.10		12.70	29.72		12.70	52.20
		273.0		9.27	23.60		9.27	31.10		12.70	31.20		15.09	52.20
		323.9		9.53	25.40		10.3	31.10		12.70	33.60		17.48	52.20
16" x 8"	406.4	168.3	9.53	7.11	29.83	12.70	7.11		12.70	10.97	37.46	21.44	10.9	
		219.1		8.18	28.34		8.18	43.80		12.70	36.96		7	72.2
		273.0		9.27	27.96		9.27	43.80		12.70	39.20		12.7	0
		323.9		9.53	29.60		10.31	43.80		12.70	41.10		0	72.2
	355.6		9.53	31.00		11.13	43.80		12.70			15.0	0	

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 Other sizes available on request.

9 72.2
 17.4 0
 8 72.2
 19.0 0
 5



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Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH 40			SCH XS			SCH 80		
			Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg	T	T1	kg	T	T1	kg
18" x 8"	457.2	219.1	9.53	8.18	37.3	14.27	8.18		12.70	12.70	49.40	23.88	15.09	
		273.0		9.27	0		9.27	59.00		12.70	12.70	49.40		17.48
		323.9		9.53	36.4		10.31	59.00		12.70	12.70	47.40		19.05
		355.6		9.53	0		11.13	59.00		12.70	12.70	50.10		21.44
		406.4		9.53	35.6		12.70	59.00		12.70	12.70	71.60		21.44
20" x 8"	508.0	219.1	9.53	8.18	0	15.09	8.18		12.70	12.70		26.19	12.70	96.70
		273.0		9.27	35.7		9.27			12.70			15.09	
		323.9		9.53	0		10.31	93.00		12.70	70.30		17.48	158.00
		355.6		9.53	37.8		11.13	93.00		12.70	69.80		19.05	158.00
		406.4		9.53	0		12.70	93.00		12.70	71.10		21.44	158.00
22" x 10"	559.0	219.1	9.53	8.18	0				12.70	12.70		28.58	15.09	158.00
		273.0		9.27	0				12.70	12.70	80.40		17.48	
		323.9		9.53	54.0				12.70	12.70	79.00		19.05	188.00
		355.6		9.53	0				12.70	12.70	77.60		21.44	188.00
		406.4		9.53	53.1				12.70	12.70	76.20		23.88	188.00
24" x 12"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 14"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 16"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 18"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 20"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 22"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0
24" x 24"	610.0	219.1	9.53	8.18	0				12.70	12.70		30.96	15.09	228.0
		273.0		9.27	0				12.70	12.70	82.90		17.48	
		323.9		9.53	53.5	17.48	9.27		12.70	12.70	87.90		19.05	228.0
		355.6		9.53	0		10.31		12.70	12.70	86.30		21.44	228.0
		406.4		9.53	56.4		11.13		12.70	12.70	84.80		23.88	228.0

* All dimensions in mm.
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58.6
 0
 57.5
 0
 228.0

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62.4
 0
 67.5



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Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH XS		
			Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg
26" x 18	660.0	457.		9.53	91.0		12.70	115.0
"		0		9.53	0		12.70	0
"		0		9.53	91.0		12.70	115.0
20		508.		9.53	91.0		12.70	115.0
"		0	9.53	9.53	0	12.70	12.70	0
28" x 22	711.0	559.		9.53	91.0		12.70	125.0
"		0		9.53	0		12.70	0
"		0		9.53	91.0		12.70	125.0
24		610.		9.53	91.0		12.70	125.0
"		0	9.53	9.53	0	12.70	12.70	0
30" x 18	762.0	457.		9.53	100.0		12.70	143.0
"		0		9.53	0		12.70	0
"		0		9.53	100.0		12.70	143.0
20		508.		9.53	100.0		12.70	143.0
"		0	9.53	9.53	0	12.70	12.70	0
24		610.	9.53	9.53	100.00	12.70	12.70	143.0
32" x "	813.0	0		9.53			12.70	0
"		660.		9.53			12.70	143.0
"		0		9.53			12.70	143.0
20		508.		9.53			12.70	0
"		0	9.53	9.53		12.70	12.70	
34" x 24	864.0	610.		9.53	123.0		12.70	162.0
"		0		9.53	0		12.70	0
"		0		9.53	123.0		12.70	162.0
26		660.		9.53	123.0		12.70	162.0
"		0		9.53	0		12.70	0
"		0		9.53	123.0		12.70	162.0
28		711.	9.53		0	12.70		0
"		0			123.0			162.0
"		0			0			0
"		0			123.0			162.0
26		660.			0			0
"		0			0			0
28		711.			0			0
"		0			0			0
30		762.			0			0
"		0			0			0
24		610.			0			0
"		0			0			0
28		711.			0			0
"		0			0			0

Nominal Pipe Size (NPS)	Outside Diameter mm		SCH STD			SCH XS		
			Wall thk.		Weight	Wall thk.		Weight
			T	T1	kg	T	T1	kg
36" x 24	914.0	610.0		9.53	145.0		12.70	160.0
"		660.0		9.53	0		12.70	0
"		0		9.53	150.0		12.70	160.0
26		762.0		9.53	150.0		12.70	160.0
"		0		9.53	0		12.70	0
"		0		9.53	813.0		12.70	0
30		864.0		9.53	154.0	12.70	12.70	165.0
40" x "	1,016.0	762.0	9.53	9.53	0		12.70	0
"		813.0		9.53	0		12.70	0
32		864.0		9.53	154.0		12.70	165.0
"		0		9.53	0		12.70	0
34		914.0		9.53	154.0		12.70	165.0
"		0		9.53	0		12.70	0
"		0		9.53	965.0		12.70	0
30		762.0	9.53	9.53	168.0	12.70	12.70	175.0
42" x "	1,067.0	813.0		9.53	0		12.70	0
"		864.0		9.53	0		12.70	0
32		864.0		9.53	168.0		12.70	175.0
x "		0		9.53	0		12.70	0
34		914.0		9.53	168.0		12.70	175.0
"		0		9.53	0		12.70	0
"		0		9.53	965.0		12.70	0
36		1,016.0		9.53	177.0		12.70	196.0
48" x "	1,219.0	1,067.0	9.53	9.53	0	12.70	12.70	0
"		1,118.0		9.53	177.0		12.70	196.0
"		0		9.53	0		12.70	0
30		1,168.0		9.53	191.0		12.70	209.0
"		0			0	12.70		0
32					191.0			209.0
"					0			0
34					191.0			209.0
"					0			0
"					0			0
36					202.0			222.0
"					0			0
"					0			0
38					202.0			222.0
"					0			0
"					0			0
40					202.0			222.0
"					0			0
"					0			0
42					241.0			266.0
"					0			0
44					241.0			266.0
"					0			0

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request

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DIMENSIONS OF CONCENTRIC & ECCENTRIC REDUCERS

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	D	D1	
¾" x ½"	26.7	21.3	38.
1" x ¾"	33.4	26.7	1
x ½"		21.3	50.
1¼" x 1"	42.2	33.4	90.8
x ¾"		26.7	
x ½"		21.3	
1½" x 1¼"	48.3	42.2	63.5
x 1"		33.4	
x ¾"		26.7	
x ½"		21.3	
2" x 1½"	60.3	48.3	76.2
x 1¼"		42.2	
x 1"		33.4	
x ¾"		26.7	
x 2"			
2½" x 1½"	73	60.3	88.9
x 1¼"		48.3	
x 1"		42.2	
x 2½"		33.4	
3" x 2"	88.9	73	88.9
x 1½"		60.3	
x 1¼"		48.3	
x 1"		42.2	
x 3½"		33.4	
4" x 3"	114.3	101.6	101.6
x 2½"		88.9	
x 2"		73	
x 1½"		60.3	
x 1¼"		48.3	
x 1"		42.2	
		33.4	

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	D	D1	
5" x 4"	141.3	114.3	127
x 3½"		101.6	
x 3"		88.9	
x 2½"		73	
x 2"		60.3	
6" x 5"	168.3	141.3	139.7
x 4"		114.3	
x 3½"		101.6	
x 3"		88.9	
x 2½"		73	
x 2"		60.3	
8" x 6"	219.1	168.3	152.4
x 5"		141.3	
x 4"		114.3	
x 3½"		101.6	
x 3"		88.9	
10" x 6"	273.1	219.1	177.8
x 5"		168.3	
x 4"		141.3	
x 10"		114.3	
12" x 8"	323.9	273.1	203.2
x 6"		219.1	
x 5"		168.3	
x 4"		141.3	
x 12"		114.3	
14" x 10"	355.6	323.9	330.2
x 8"		273.1	
x 6"		219.1	
		168.3	

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	D	D1	
16" x 14"	406.4	355.6	355.6
x 12"		323.9	
x 10"		273.1	
x 8"		219.1	
x 6"		168.3	
18" x 16"	457.2	406.4	381
x 14"		355.6	
x 12"		323.9	
x 10"		273.1	
x 8"		219.1	
20" x 18"	508	457.2	508
x 16"		406.4	
x 14"		355.6	
x 12"		323.9	
x 10"		273.1	
x 8"		219.1	
x 20"		508	
22" x 18"	558.8	457.2	508
x 16"		406.4	
x 14"		355.6	
x 12"		323.9	
x 10"		273.1	
x 22"		558.8	
24" x 20"	609.6	508	508
x 18"		457.2	
x 16"		406.4	
x 14"		355.6	
x 12"		323.9	
x 10"		273.1	

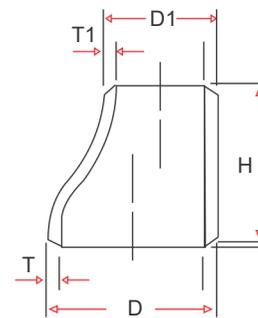
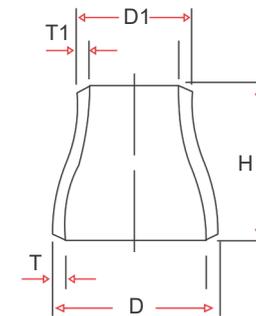
* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

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DIMENSIONS OF CONCENTRIC & ECCENTRIC REDUCERS

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	D	D1	
26" x 24	660	610	610
x "		559	
x 22		508	
x "		457	
28" x 20	711	660	610
x "		610	
x 18		508	
x "		457	
30" x 26	762	711	610
x "		660	
x 24		610	
x "		508	
32" x 20	813	762	610
x "		711	
x 18		660	
x "		610	
x 28		813	
34" x "	864	762	610
x 26		711	
x "		610	

Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	D	D1	
36" x 34	914	864	610
x "		813	
x 32		762	
x "		660	
x 30		610	
40" x "	1016	965	610
x 26		914	
x "		864	
x 24		813	
x "		762	
42" x 38	1067	1016	610
x "		965	
x 36		914	
x "		864	
x 34		813	
x "		1168	
48" x 32	1219	1118	711
x "		1067	
x 30		1016	



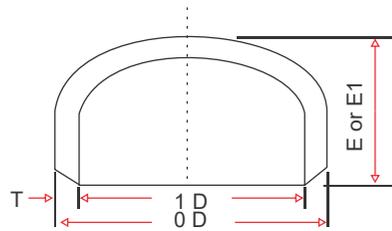
* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

30
"
28
"
26
"
24
"
32
"

40
"
38
"
36
"
34
"
32
"
46
"
44
"

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CAPS



ASME B16.9

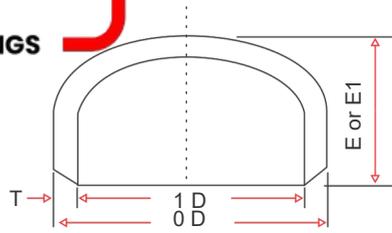
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH 40		SCH XS		SCH 80		SCH 120		SCH 160		SCH XXS	
		Wall thk.	Weight kg												
½"	21.3	2.77	0.04	2.77	0.04	3.73	0.05	3.73	0.05			4.78			
¾"	26.7	2.87	0.05	2.87	0.05	3.91	0.07	3.91	0.07			5.56			
1"	33.4	3.38	0.11	3.38	0.11	4.55	0.15	4.55	0.15			6.35	0.15	9.09	0.2
1¼"	42.2	3.56	0.18	3.56	0.18	4.85	0.24	4.85	0.24			6.35	0.23	9.70	0
1½"	48.3	3.68	0.22	3.68	0.22	5.08	0.30	5.08	0.30			7.14	0.30	10.16	0.2
2"	60.3	3.91	0.26	3.91	0.26	5.54	0.33	5.54	0.33			8.74	0.55	11.07	8
2½"	73.0	5.16	0.42	5.16	0.42	7.01	0.57	7.01	0.57			9.53	0.90	14.02	0.3
3"	88.9	5.49	0.67	5.49	0.67	7.62	0.92	7.62	0.92			11.13	1.40	15.24	6
4"	114.3	6.02	1.33	6.02	1.33	8.56	1.76	8.56	1.76	11.13	2.31	13.49	2.75	17.12	0.5
5"	141.3	6.55	1.99	6.55	1.99	9.53	2.73	9.53	2.73	12.70	3.89	15.88	5.00	19.05	9
6"	168.3	7.11	3.00	7.11	3.00	10.97	4.40	10.97	4.40	14.27	6.02	18.26	7.50	21.95	1.0
8"	219.1	8.18	5.43	8.18	5.43	12.70	7.91	12.70	7.91	18.26	15.50	23.01	20.00	22.22	19.50
10"	273.1	9.27	8.92	9.27	8.92	12.70	12.20	12.70	12.20	21.44	24.00	28.58	30.00		1.7
12"	323.9	9.53	13.10	10.31	19.00	12.70	17.40	12.70	17.40	25.40	41.00	33.32	44.50		8
14"	355.6	9.53	15.90	11.13	23.00	12.70	21.20	12.70	21.20	27.79	47.00	35.71	60.00		3.1
16"	406.4	9.53	19.00	12.70	26.70	12.70	26.70	12.70	26.70	30.96	64.00	40.49	79.00		7
18"	457.0	9.53	23.00	14.27	39.00	12.70	36.52	12.70	36.52	34.93	88.00	45.24	104.00		5.5
20"	508.0	9.53	27.65	15.09	66.70	12.70	46.98	12.70	46.98	38.10	105.00	50.01	170.00		0
22"	559.0	9.53	35.60	-	-	12.70	56.60	12.70	56.60	41.28	150.00	53.98	220.00		8.1
24"	610.0	9.53	46.00	17.48	93.00	12.70	64.60	12.70	64.60	46.02	200.00	59.54	285.00		0

* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.

9
28.5
8
30.9
6



CAPS



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel	SCH STD		SCH XS	
		Wall thk.	Weight kg	Wall thk.	Weight kg
26	660.0	9.53	50.00	12.7	66.00
"	711.0	9.5	56.00	0	74.80
28	762.0	3	60.00	12.7	79.00
"	813.0	9.5	68.00	0	93.40
30	864.0	3	72.60	12.7	96.91
"	914.0	9.5	87.00	0	107.00
32	965.0	3	86.20	12.7	124.70
"	1016.	9.5	95.30	0	129.30
34	0	3	102.00	12.7	134.00
"	1067.	9.5	120.20	0	167.80
36	0	3	136.00	12.7	186.00
"	1118.	9.5	159.00	0	215.50
38	0	3		12.7	
40	0	3		12.7	
"	1219.	9.5		0	
42	0	3		12.7	
"	HIGHER W.T. ON REQUEST	9.5		0	
44	0	3		12.7	
"		9.5		0	
46	0	3		12.7	
"		9.5		0	
48	0	3		12.7	

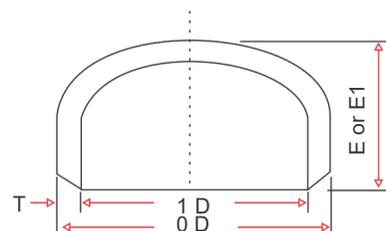
* All dimensions in mm.
 * All weights indicated are approximate.
 Other sizes available on request.



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DIMENSIONS OF CAPS

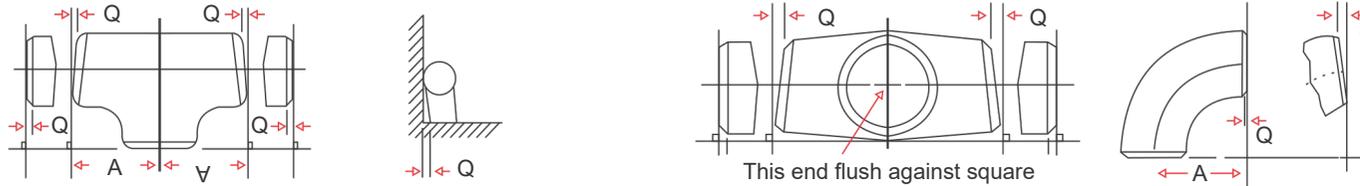
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Length (1) E	Limiting Wall Thickness for Length E	Length (2) E1
½"	21.3	25.4	4.6	25.4
¾"	26.7	25.4	3.8	25.4
1"	33.4	38.1	4.6	38.1
1¼"	42.2	38.1	4.8	38.1
1½"	48.3	38.1	5.1	38.1
2"	60.3	38.1	5.6	44.4
2½"	73	38.1	7.1	50.8
3"	88.9	50.8	7.6	63.5
4"	114.3	63.5	8.6	76.2
5"	141.3	76.2	9.7	88.9
6"	168.3	88.9	10.9	101.6
8"	219.1	101.6	12.7	127
10"	273.1	127	12.7	152.4
12"	323.9	152.4	12.7	177.8
14"	355.6	165.1	12.7	190.5
16"	406.4	177.8	12.7	203.2
18"	457.2	203.2	12.7	228.6
20"	508	228.6	12.7	254
22"	558.8	254	12.7	254
24"	609.6	266.7	12.7	304.8
26"	660	267		
28"	711	267		
30"	762	267		
32"	813	267		
34"	864	267		
36"	914	267		
40"	1016	305		
42"	1067	305		
48"	1219	343		



* All dimensions in mm.
* All weights indicated are approximate.
Other sizes available on request.

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ASME B16.9 DIMENSIONS TOLERANCE



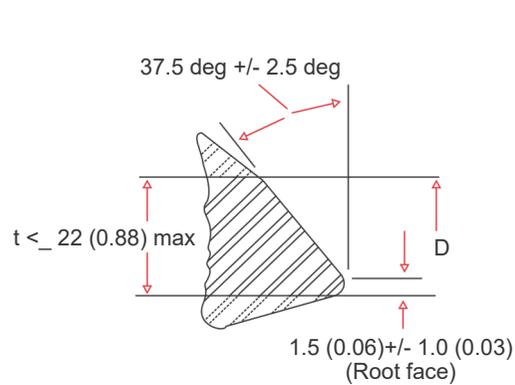
Nominal Pipe Size (NPS)	All Fittings						Center to End Dimension		Overall Length	
	Outside Diameter at Bevel (Notes : 1 & 2)	Inside Diameter at End (Notes : 1, 3 & 4)	Wall Thickness (Note 3)	Overall Length of Cap E	Angularity		90°, 45° Long and Short Radius Elbows A, B	Tees C, M	Reducers H	Caps E
					Off Angle Q	Off Plane P				
½" -2½"	+1.6, -0.8	±0.8	Not Less than 87.5% of Nominal Thickness Marked on Fittings	±3	±1	±2	±2	±2	±2	±3
3" -4"	±1.6	±1.6		±3	±1	±2	±2	±2	±2	±3
5" -8 "	+2.4, -1.6	±1.6		±6	±2	±4	±2	±2	±2	±6
10" -1 2"	+4.0, -3.2	±3.2		±6	±3	±5	±2	±2	±2	±6
14" -16"	+4.0, -3.2	±3.2		±6	±3	±6 ±10	±2 ±2	±2	±2	±6
18"	+4.0, -3.2	±3.2		±6	±4	±10	±2	±2	±2	±6
20" -24"	+6.4, -4.8	±4.8		±6	±4			±2	±2	±6

* All dimensions are in mm. Tolerances are equal plus and minus except as noted.

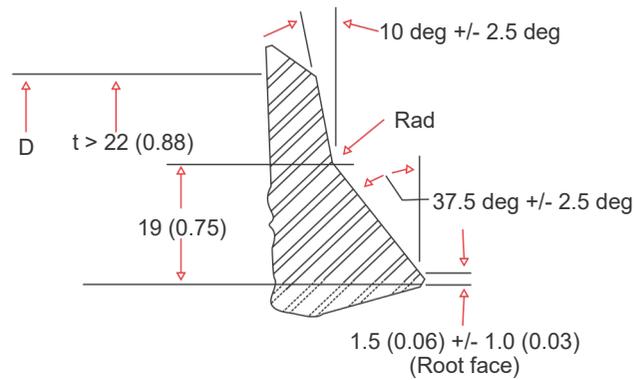
Notes:

- 1.) Out-of-round is the sum of absolute values of plus and minus tolerance.
- 2.) The inside diameter and the nominal wall thicknesses at ends are to be specified by the Purchaser. Wall thickness tolerance applies throughout the Fittings.
- 3.) Unless otherwise specified by the Purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.

ASME B16.9 WELDING END PREPARATIONS



(a) Plain Bevel



(b) Compound Bevel

Nominal Wall Thickness, t	End Preparation
Less than x (Note)	Cut square or slightly chamfer, at Manufacturer's option (not illustrated)
x to 22 (0.88), inclusive	Plain bevel as in sketch (a) above. Compound bevel as in sketch (b) above.
More than 22 (0.88)	

* Dimensions in parenthesis are in inches.
* Other dimensions are in mm.

Note : x = 5 (0.19) for Carbon Steel or Ferritic Alloy Steel.



STEEL PIPE, BUTTWELD FITTINGS & FLANGE TO ASME STANDARDS

LR

ASME B31.3 PIPE DIMENSIONS				BUTTWELD FITTINGS - E. FLANGES										
NOMINAL SIZE	Diam.		Sch.	Steel Pipe	Elbows	#180° Tees	S.O.W. / SW	Blind	Blind		Blind		#600 (PN150)	
	Outside	Inside							kg/ea	kg/ea	kg/ea	kg/ea		kg/ea
INCH	MM	mm	mm	kg/m	kg/ea	kg/ea	kg/ea	kg/ea	kg/ea	kg/ea	kg/ea	kg/ea	kg/ea	
1/2"	15	15.8	13.9	40	0.08	0.16	-	.45	.79	.57	.73	.91	.79	2.00
		XS	80	1.62	0.10	0.21	-							
3/4"	20	20.9	18.9	40	0.08	0.21	W/N(20)	.68	.86	.91	1.25	1.41	1.13	2.72
		XS	80	2.20	0.11	0.27	0.10							
1"	25	26.6	24.3	40	0.17	0.34	0.14	.95	1.09	1.09	1.36	1.81	1.77	3.86
		XS	80	3.24	0.21	0.43	0.18							
1-1/4"	32	35.1	32.5	40	0.28	0.64	0.18	1.13	1.41	1.25	2.04	2.27	2.68	4.54
		XS	80	4.47	0.39	0.75	0.23							
1-1/2"	40	40.9	38.1	40	0.39	0.95	0.27	1.36	1.81	1.70	2.81	3.06	2.83	6.35
		XS	80	5.41	0.50	1.13	0.32							
2"	50	52.5	49.2	40	0.68	1.45	0.41	2.22	2.83	2.77	3.13	3.74	3.52	10.89
		XS	80	7.48	1.00	1.72	0.54							
2-1/2"	65	62.7	59.0	40	1.36	2.45	0.68	3.82	4.42	4.04	4.54	5.56	5.44	16.33
		XS	80	11.41	1.82	2.95	0.91							
3"	80	77.9	73.7	40	2.18	3.45	0.91	4.08	5.22	5.44	6.12	7.37	7.26	23.13
		XS	80	15.27	2.86	4.30	1.27							
3-1/2"	90	90.1	85.4	40	3.57	4.5	1.36	4.99	5.44	6.35	7.71	9.53	9.98	-
		XS	80	18.63	4.1	5.9	1.81							
4"	100	102.3	97.2	40	16.07	4.2	5.7	5.94	7.48	7.37	9.53	11.79	11.79	23.13
		XS	80	22.32	5.7	7.3	2.18							
5"	125	122.2	122.3	40	21.77	6.8	9.1	6.12	9.53	9.07	12.70	15.42	15.88	39.01
		XS	80	30.97	10.0	11.8	3.8							
6"	150	154.1	146.3	40	28.26	10.9	13.6	8.16	11.34	12.70	16.33	19.96	20.87	49.90
		XS	80	42.56	16.3	19.0	5.4							
8"	200	202.7	193.7	40	42.55	21.8	25	12.70	19.05	21.77	25.40	32.21	38.10	84.82
		XS	80	64.64	33.1	33.5	8.6							
10"	250	254.5	247.7	40	60.31	38.6	41	17.24	25.40	31.75	35.38	44.00	53.34	121.56
		XS	60	81.55	52	54	14							
12"	300	304.8	298.5	40	73.88	57	57	27.22	38.10	45.36	50.80	64.41	86.18	168.74
		XS	-	97.46	75	77	20							
14"	350	336.6	330.2	40	81.33	73	73	35.38	51.26	58.97	74.39	84.37	107.05	254.92
		XS	-	107.39	97	93	37							
16"	400	387.4	381.0	40	93.27	98	91	42.18	63.50	77.11	101.60	111.58	144.15	310.71
		XS	40	123.30	130	120	46							
18"	450	438.2	431.8	40	105.16	120	135	52.62	68.04	102.51	126.10	138.35	181.89	419.12
		XS	-	139.15	165	190	53							
20"	500	489.0	482.6	40	117.15	150	168	65.32	81.65	123.38	149.69	174.63	231.33	527.98
		XS	30	155.12	200	245	82							
24"	600	590.6	584.2	40	141.12	220	240	91.63	118.84	203.21	222.26	247.21	342.92	680.39
		XS	-	187.06	280	350	95							
30"	750	743.0	736.6	40	176.84	332	388	142.88	163.28	326.59	367.41	421.84	680.39	975.22
		XS	20	234.67	440	484	143							
36"	900	895.4	889.0	40	212.56	481	588	217.72	235.87	510.29	544.31	589.67	1031.92	1564.89
		XS	20	282.27	638	731	172							

MASS IN KILOGRAMS-KG.

DIMENSIONS

APPROXIMATE MASS PER UNIT FOR AUSTENITIC STAINLESS STEEL PIPE AND FITTINGS CAN BE OBTAINED BY APPLYING A FACTOR OF 1.015

ASTM STANDARDS

Summary of the main ASTM Standards generally used in the petroleum industries.

ASTM	Grade	UNS Designation	CHEMICAL REQUIREMENTS %										MECHANICAL REQUIREMENTS							
			C	Mn	Pmax	Smax	Si	Ni	Cr	Mo	Others	Tensile Strength		Yield Strength		Elongation min%	Red. of Area min %	Hardness	Impact Test at	
												Min. MPa	Min. ksi	Min. MPa	Min. ksi				°C	°F
A105			0.35 max	0.60-1.05	0.040	0.050	0.35 max	0.40 max	0.30 max	0.12 max	Cu<0.40 - V<0.03 Cb<0.02	485	70	250	36	22	30	137-187 H B		
A106	B F5a		0.30 max	0.29-1.06	0.035	0.035	0.10 min	0.40 max	0.40 max	0.15 max	Cu<0.40 - V<0.08	415	60	240	35	L30T16.5				
A182	F11	K42544	0.25 max	0.60 max	0.040	0.030	0.50 max	0.50 max	4.0-6.0	0.44-0.55		620	90	450	65	22	50	187-248 H		
	F22	K11572	0.10-0.20	0.30-0.8	0.040	0.040	0.50-1.00		1.0-1.50	0.44-0.65		485	70	275	40	20	30	B 143-207		
	F304	K21590	0.05-0.15	0.30-0.6	0.040	0.040	0.50 max		2.0-2.50	0.87-1.13		515	75	310	45	20	30	H B 156-		
	F304L	S30400	0.08 max	2.00 max	0.040	0.030	1.00 max	8.0-11.0	18.0-20.0			515	75	205	30	30	50	207 H B		
	F316	S30403	0.035 max	2.00 max	0.040	0.030	1.00 max	8.0-13.0	18.0-20.0			485	70	170	25	30	50			
	F316L	S31600	0.08 max	2.00 max	0.040	0.030	1.00 max	10.0-14.0	16.0-18.0	2.00-3.00		515	75	205	30	30	50			
	F321	S31603	0.035 max	2.00 max	0.040	0.030	1.00 max	10.0-15.0	16.0-18.0	2.00-3.00		485	70	170	25	30	50			
	F347	S32100	0.08 max	2.00 max	0.040	0.030	1.00 max	9.0-12.0	17.0 min		5C<Ti<0.70%	515	75	205	30	30	50			
	F51	S34700	0.08 max	2.00 max	0.040	0.030	1.00 max	9.0-13.0	17.0-20.0		10C<Cb+Ta<1.10%	515	75	205	30	30	50			
TP304	S31803	0.03 max	2.00 max	0.030	0.020	1.00 max	4.5-6.5	21.0-23.0	2.5-3.5	N0.08-0.20	620	90	450	65	25	45				
A312	TP304L	S30400	0.08 max	2.00 max	0.040	0.030	0.75 max	8.0-11.0	18.0-20.0			515	75	205	30	L35T25				
	TP316	S30403	0.035 max	2.00 max	0.040	0.030	0.75 max	8.0-13.0	18.0-20.0			485	70	170	25	L35T25				
	TP316L	S31600	0.08 max	2.00 max	0.040	0.030	0.75 max	11.0-14.0	16.0-18.0	2.00-3.00		515	75	205	30	L35T25				
	TP321	S31603	0.035 max	2.00 max	0.040	0.030	0.75 max	10.0-15.0	16.0-18.0	2.00-3.00		485	70	170	25	L35T25				
	TP347	S32100	0.08 max	2.00 max	0.040	0.030	0.75 max	9.0-13.0	17.0-20.0		5C<Ti<0.70%	515	75	205	30	L35T25				
	6 P5	S34700	0.08 max	2.00 max	0.040	0.030	0.75 max	9.0-13.0	17.0-20.0		10C<Cb+Ta<1%	515	75	205	30	L35T25				
A333	P11		0.30 max	0.29-1.06	0.025	0.025	0.10 min				415	60	240	35	L30T16.5			-45	-50	
A335	P22	K41545	0.15 max	0.30-0.60	0.025	0.025	0.50 max		4.00-6.00	0.45-0.65		415	60	205	30	L30T20				
		K11597	0.05-0.15	0.30-0.60	0.025	0.025	0.50-1.00		1.00-1.50	0.44-0.65		415	60	205	30	L30T20				
		K21590	0.05-0.15	0.30-0.60	0.025	0.025	0.50 max		1.90-2.60	0.87-1.13		415	60	205	30	L30T20				
A350	LF2		0.30 max	1.35 max	0.035	0.040	0.15-0.30	0.40 max	0.30 max	0.12 max	Cu<0.40 Cb<0.02 V<0.03	485-655	70-95	250	36	22	30		-45.6	-50
A420	WPL6		0.30 max	0.39-1.06	0.030	0.030	0.10 min				415-585	60-85	240	35	L30T16.5			-45.6	-50	
A403	WP304		0.08 max	2.00 max	0.045	0.030	1.00 max	8.0-11.00	18.0-20.0			515	75	205	30	L28T20				
	WP304		0.035 max	2.00 max	0.045	0.030	1.00 max	8.0-13.00	18.0-20.0			485	70	170	25	L28T20				
	L		0.08 max	2.00 max	0.045	0.030	1.00 max	9.0-13.00	17.0-20.0		a)	515	75	205	30	L28T20				
	WP347		0.08 max	2.00 max	0.045	0.030	1.00 max	10.0-14.00	16.0-18.0	2.00-3.00		515	75	205	30	L28T20				
	WP316		0.035 max	2.00 max	0.045	0.030	1.00 max	10.0-15.00	16.0-18.0	2.00-3.00		485	70	170	25	L28T20				
	WP316		0.08 max	2.00 max	0.045	0.030	1.00 max	9.0-13.00	17.0-20.0		b)	515	75	205	30	L28T20				

a) Niobium + Tantalum content must be : not 10 times minus than Carbon content and not 1.10% more.

b) Titanium content must be : not 5 times minus than Carbon content and not 0.70% more.

PIPE SCHEDULE

Size in Pipe	OD mm	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS	VOL.
1/8"	10.30				1.73 0.37			2.41 0.47							0.0001
1/4"	13.70				2.24 0.63			3.02 0.80							0.0002
3/8"	17.10				2.91 0.84			3.20 1.10							0.0003
1/2"	21.30				2.77 1.27			3.73 1.62					4.78 1.95	7.47 2.55	0.0004
3/4"	26.70				2.87 1.69			3.91 2.20					5.56 2.90	7.82 3.64	0.0007
1"	33.40				3.38 2.50			4.55 3.24					6.35 4.24	9.09 5.45	0.0011
1-1/4"	42.20				3.56 3.39			4.85 4.47					6.35 5.61	9.70 7.77	0.0018
1-1/2"	48.30				3.68 4.05			5.08 5.41					7.14 7.25	10.15 9.56	0.0023
2"	60.30				3.91 5.44			5.54 7.48					8.74 11.11	11.07 13.44	0.0036
2-1/2"	73.00				5.16 8.63			7.01 11.41					9.53 14.92	14.02 20.39	0.0053
3"	88.90				5.49 11.29			7.62 15.27					11.13 14.92	15.24 21.35	0.0079
3-1/2"	101.60				5.74 13.57			8.08 18.63					11.13 21.35	15.24 27.68	0.0103
4"	114.30				6.02 16.07			8.56 22.32					13.49 33.54	17.12 41.03	0.0130
5"	141.30				6.55 21.77			9.53 30.97					15.86 49.11	19.05 57.43	0.0199
6"	168.30				7.11 28.26			10.97 42.96					18.26 67.96	21.95 79.22	0.028
8"	219.10		6.35 33.31	7.04 36.81	8.18 42.55		10.31 53.08	12.70 64.84		15.09 75.92	18.26 90.44	20.62 100.92	23.01 111.27	22.23 107.92	0.048
10"	273.10		6.35 41.77	8.38 51.03	9.53 60.31	10.31	12.70 81.55	15.09 81.55	17.48 96.01	19.05 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15	0.074
12"	323.90		6.35 49.73	8.38 65.20	9.53 73.88	10.31 79.73	12.70 108.96	15.09 97.46	17.48 132.08	19.05 159.91	21.44 186.97	25.40 208.14	33.32 238.76	25.40 186.97	0.104
14"	355.60	6.35 54.69	7.92 67.90	9.53 81.33	9.53 81.33	11.13 94.55	12.70 126.71	15.09 107.39	17.48 198.10	19.05 194.96	21.44 224.65	25.40 253.56	35.71 281.70		0.126
16"	406.40	6.35 62.64	7.92 77.83	9.53 93.27	9.53 93.27	12.70 123.30	16.66 160.12	12.70 123.30	21.44 203.53	26.19 246.56	30.96 286.64	36.53 333.19	40.49 365.35		0.165
18"	457.00	6.35 70.57	7.92 87.71	11.13 122.38	9.53 105.16	14.27 155.80	19.05 205.74	12.70 139.15	23.88 294.55	29.36 309.62	34.93 363.96	39.67 406.26	45.24 459.37		0.208
20"	508.00	6.35 78.55	9.53 117.15	12.70 155.12	9.53 117.15	15.09 183.42	20.62 247.83	12.70 155.12	26.19 311.17	32.54 381.53	38.10 441.49	44.45 508.11	50.01 564.81		0.258
22"	559.00	6.35 86.54	9.53 129.13	12.70 171.09	9.53 129.13		22.23 294.25	12.70 171.09	28.58 373.83	34.93 451.42	41.28 527.02	47.63 600.63	53.98 672.26		0.312
24"	610.00	6.35 94.53	9.53 141.12	14.27 209.64	9.53 141.12	17.48 255.41	24.61 355.26	12.70 187.06	30.96 442.08	38.89 547.71	46.02 640.03	52.37 720.15	59.54 808.22		0.372
26"	660.00	7.92 127.36			9.53 152.87			12.70							0.435
28"	711.00	7.92 137.32			9.53 164.85			12.70							0.505
30"	762.00	7.92 147.28			9.53 176.84			12.70							0.580
32"	813.00	7.92 157.24			9.53 188.82	17.48 342.91		12.70							0.660
34"	864.00	7.92 167.20			9.53 200.31	17.48 364.90		12.70							0.746
36"	914.00	7.92 176.96			9.53 212.56	19.05 420.42		12.70							0.835
38"	965.00				9.53 224.54			12.70							0.931
40"	1016.00				9.53 236.53			12.70							1.032
42"	1067.00				9.53 248.52			12.70							1.138
44"	1118.00				9.53 260.50			12.70							1.249
46"	1168.00				9.53 272.25			12.70							1.364
48"	1219.00				9.53 284.24			12.70							1.485

← SAME AS EXTRA STRONG W.T. (XS) →

← SAME AS STANDARD W.T. (Std. W.T.) →

SAME AS EXTRA STRONG W.T. (XS)

Wall Thickness=MM Weight = Kg/Meter Volume = m3 / m

