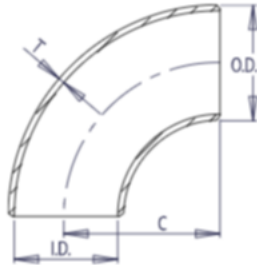


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BOX QUANTITIES 82

90° ELBOWS

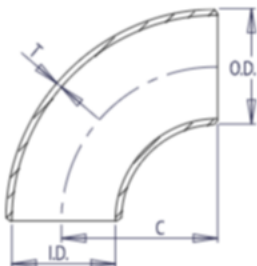
LONG RADIUS SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	15.76	2.77	38	40	1.27
¾	26.7	20.96	2.87	38	40	1.69
1	33.4	26.64	3.38	38	40	2.50
1 ¼	42.2	35.08	3.56	48	40	3.39
1 ½	48.3	40.94	3.68	57	40	4.05
2	60.3	52.48	3.91	76	40	5.44
2 ½	73.0	62.68	5.16	95	40	8.63
3	88.9	77.92	5.49	114	40	11.29
3 ½	101.6	90.12	5.74	133	40	13.57
4	114.3	102.26	6.02	152	40	16.08
5	141.3	128.20	6.55	190	40	21.77
6	168.3	154.08	7.11	229	40	28.26
8	219.1	202.74	8.18	305	40	42.55
10	273.0	254.46	9.27	381	40	60.29
12	323.8	304.74	9.53	457	*	73.86
14	355.6	336.54	9.53	533	30	81.33
16	406.4	387.34	9.53	610	30	93.27
18	457.0	437.94	9.53	686	*	105.17
20	508.0	488.94	9.53	762	20	117.15
24	610.0	590.94	9.53	914	20	141.12
30	762.0	742.94	9.53	1143	*	176.85
36	914.0	894.94	9.53	1372	*	212.57
42	1067.0	1047.94	9.53	1600	*	248.53
48	1219.0	1199.94	9.53	1829	*	284.25

LONG RADIUS SCHEDULE XS



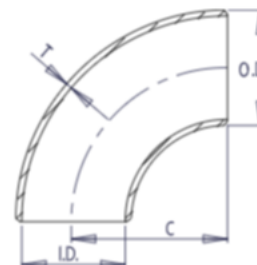
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	13.84	3.73	38	80	1.10
¾	26.7	18.88	3.91	38	80	1.62
1	33.4	24.30	4.55	38	80	3.24
1 ¼	42.2	32.50	4.85	48	80	4.47
1 ½	48.3	38.14	5.08	57	80	5.41
2	60.3	49.22	5.54	76	80	7.48
2 ½	73.0	58.98	7.01	95	80	11.41
3	88.9	73.66	7.62	114	80	15.27
3 ½	101.6	85.44	8.08	133	80	18.64
4	114.3	97.18	8.56	152	80	22.32
5	141.3	122.24	9.53	190	80	30.97
6	168.3	146.36	10.97	229	80	42.56
8	219.1	193.70	12.70	305	80	64.64
10	273.0	247.60	12.70	381	60	81.53
12	323.8	298.40	12.70	457	*	97.44
14	355.6	330.20	12.70	533	*	107.40
16	406.4	381.00	12.70	610	40	123.31
18	457.0	431.60	12.70	686	*	139.16
20	508.0	482.60	12.70	762	30	155.13
24	610.0	584.60	12.70	914	*	187.07
30	762.0	736.60	12.70	1143	20	234.68
36	914.0	888.60	12.70	1372	20	282.29
42	1067.0	1041.60	12.70	1600	*	330.21
48	1219.0	1193.60	12.70	1829	*	346.18

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	15.76	2.77	38	40	1.27
¾	26.7	20.96	2.87	38	40	1.69
1	33.4	26.64	3.38	38	40	2.50
1 ¼	42.2	35.08	3.56	48	40	3.39
1 ½	48.3	40.94	3.68	57	40	4.05
2	60.3	52.48	3.91	76	40	5.44
2 ½	73.0	62.68	5.16	95	40	8.63
3	88.9	77.92	5.49	114	40	11.29
3 ½	101.6	90.12	5.74	133	40	13.57
4	114.3	102.26	6.02	152	40	16.08
5	141.3	128.2	6.55	190	40	21.77
6	168.3	154.08	7.11	229	40	28.26
8	219.1	202.74	8.18	305	40	42.55
10	273.0	254.46	9.27	381	40	60.29
12	323.8	303.18	10.31	457	40	79.71
14	355.6	333.34	11.13	533	40	94.55
16	406.4	381.00	12.70	610	40	123.31
18	457.0	428.46	14.27	686	40	155.81
20	508.0	477.82	15.09	762	40	183.43
24	610.0	575.04	17.48	914	40	255.43

90° ELBOWS

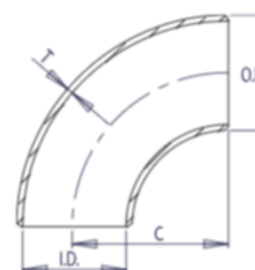
LONG RADIUS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	15.76	2.77	38	40	1.27
¾	26.7	20.96	2.87	38	40	1.69
1	33.4	26.64	3.38	38	40	2.50
1 ¼	42.2	35.08	3.56	48	40	3.39
1 ½	48.3	40.94	3.68	57	40	4.05
2	60.3	52.48	3.91	76	40	5.44
2 ½	73.0	62.68	5.16	95	40	8.63
3	88.9	77.92	5.49	114	40	11.29
3 ½	101.6	90.12	5.74	133	40	13.57
4	114.3	102.26	6.02	152	40	16.08
5	141.3	128.20	6.55	190	40	21.77
6	168.3	154.08	7.11	229	40	28.26
8	219.1	202.74	8.18	305	40	42.55
10	273.0	254.46	9.27	381	40	60.29
12	323.8	303.18	10.31	457	40	79.71
14	355.6	333.34	11.13	533	40	94.55
16	406.4	381.00	12.70	610	40	123.31
18	457.0	428.46	14.27	686	40	155.81
20	508.0	477.82	15.09	762	40	183.43
24	610.0	575.04	17.48	914	40	255.43

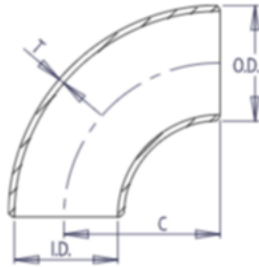
LONG RADIUS SCHEDULE 80



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

90° ELBOWS

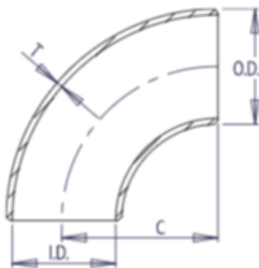
LONG RADIUS SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	11.74	4.78	38	160	1.95
¾	26.7	15.58	5.56	38	160	2.90
1	33.4	20.7	6.35	38	160	4.24
1 ¼	42.2	29.5	6.35	48	160	5.61
1 ½	48.3	34.02	7.14	57	160	7.25
2	60.3	42.82	8.74	76	160	11.11
2 ½	73.0	53.94	9.53	95	160	14.92
3	88.9	66.64	11.13	114	160	21.35
4	114.3	87.32	13.49	152	160	33.54
5	141.3	109.54	15.88	190	160	49.12
6	168.3	131.78	18.26	229	160	67.57
8	219.1	173.08	23.01	305	160	111.27
10	273.0	215.84	28.58	381	160	172.27
12	323.8	257.16	33.32	457	160	238.69
14	355.6	284.18	35.71	533	160	281.72
16	406.4	325.42	40.49	610	160	365.38
18	457.0	366.52	45.24	686	160	459.39
20	508.0	407.98	50.01	762	160	564.85
24	610.0	490.92	59.54	914	160	808.27

LONG RADIUS SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

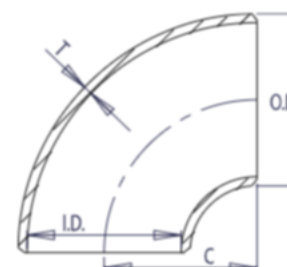
* This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
½	21.3	6.36	7.47	38	*	2.55
¾	26.7	11.06	7.82	38	*	3.64
1	33.4	15.22	9.09	38	*	5.45
1 ¼	42.2	22.80	9.70	48	*	7.77
1 ½	48.3	28.00	10.15	57	*	9.55
2	60.3	38.16	11.07	76	*	13.44
2 ½	73.0	44.96	14.02	95	*	20.39
3	88.9	58.42	15.24	114	*	27.68
4	114.3	80.06	17.12	152	*	41.03
5	141.3	103.20	19.05	190	*	57.43
6	168.3	124.40	21.95	229	*	79.22
8	219.1	174.64	22.23	305	*	107.93
10	273.0	222.20	25.40	381	140	155.10
12	323.8	273.00	25.40	457	120	186.92

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	26.64	3.38	25	40	0.14
1 ¼	42.2	35.08	3.56	32	40	0.18
1 ½	48.3	40.94	3.68	38	40	0.23
2	60.3	52.48	3.91	51	40	0.45
2 ½	73.0	62.68	5.16	64	40	0.91
3	88.9	77.92	5.49	76	40	1.36
3 ½	101.6	90.12	5.74	89	40	1.95
4	114.3	102.26	6.02	102	40	2.77
5	141.3	128.20	6.55	127	40	4.40
6	168.3	154.08	7.11	152	40	7.57
8	219.1	202.74	8.18	203	40	14.70
10	273.0	254.46	9.27	254	40	25.54
12	323.8	304.74	9.53	305	*	36.02
14	355.6	336.54	9.53	356	30	47.17
16	406.4	387.34	9.53	406	30	58.51
18	457.0	437.94	9.53	457	*	73.94
20	508.0	488.94	9.53	508	20	95.25
24	610.0	590.94	9.53	610	20	134.72
⊠30	762.0	742.94	9.53	762	*	213.19
⊠36	914.0	894.94	9.53	914	*	313.88
⊠42	1067.0	1047.94	9.53	1067	*	438.62
⊠48	1219.0	1199.94	9.53	1219	*	607.81

90° ELBOWS

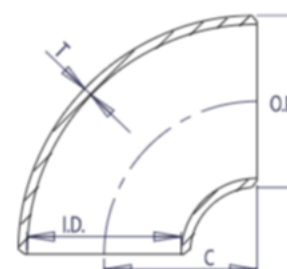
SHORT RADIUS SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
 ⊠ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	24.30	4.55	25	80	0.14
1 ¼	42.2	32.50	4.85	32	80	0.27
1 ½	48.3	38.14	5.08	38	80	0.36
2	60.3	49.22	5.54	51	80	0.68
2 ½	73.0	58.98	7.01	64	80	1.18
3	88.9	73.66	7.62	76	80	1.72
3 ½	101.6	85.44	8.08	89	80	2.45
4	114.3	97.18	8.56	102	80	3.45
5	141.3	122.24	9.53	127	80	6.26
6	168.3	146.36	10.97	152	80	10.34
8	219.1	193.70	12.70	203	80	21.45
10	273.0	247.60	12.70	254	60	32.20
12	323.8	298.40	12.70	305	*	47.17
14	355.6	330.20	12.70	356	*	62.14
16	406.4	381.00	12.70	406	40	77.56
18	457.0	431.60	12.70	457	*	97.07
20	508.0	482.60	12.70	508	30	125.64
24	610.0	584.60	12.70	610	*	176.90
⊠30	762.0	736.60	12.70	762	20	286.99
⊠36	914.0	888.60	12.70	914	20	414.13
⊠42	1067.0	1041.60	12.70	1067	*	589.67
⊠48	1219.0	1193.60	12.70	1219	*	759.76

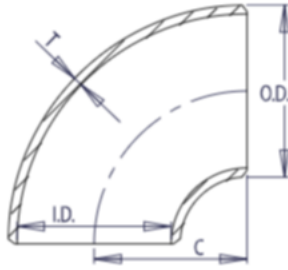
SHORT RADIUS SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
 ⊠ In accordance with B16.9. Special Fittings paragraph 4.4.2.

90° ELBOWS

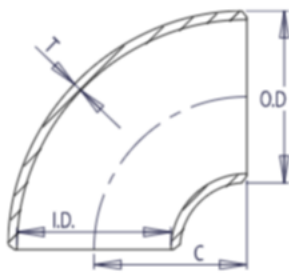
SHORT RADIUS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	26.64	3.38	25	40	0.14
1 ¼	42.2	35.08	3.56	32	40	0.18
1 ½	48.3	40.94	3.68	38	40	0.23
2	60.3	52.48	3.91	51	40	0.45
2 ½	73.0	62.68	5.16	64	40	0.91
3	88.9	77.92	5.49	76	40	1.36
3 ½	101.6	90.12	5.74	89	40	1.95
4	114.3	102.26	6.02	102	40	2.77
5	141.3	128.20	6.55	127	40	4.40
6	168.3	154.08	7.11	152	40	7.57
8	219.1	202.74	8.18	203	40	14.70
10	273.0	254.46	9.27	254	40	25.54
12	323.8	303.18	10.31	305	40	36.29
14	355.6	333.34	11.13	356	40	47.63
16	406.4	381.00	12.70	406	40	58.97
18	457.0	428.46	14.27	457	40	74.84
20	508.0	477.82	15.09	508	40	97.52
24	610.0	575.04	17.48	610	40	136.08

SHORT RADIUS SCHEDULE 80



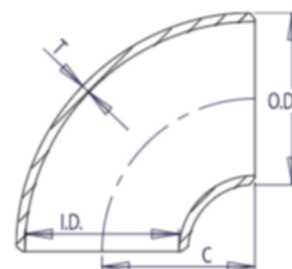
1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	24.30	4.55	25	80	0.14
1 ¼	42.2	32.50	4.85	32	80	0.27
1 ½	48.3	38.14	5.08	38	80	0.36
2	60.3	49.22	5.54	51	80	0.68
2 ½	73.0	58.98	7.01	64	80	1.18
3	88.9	73.66	7.62	76	80	1.72
3 ½	101.6	85.44	8.08	89	80	2.45
4	114.3	97.18	8.56	102	80	3.45
5	141.3	122.24	9.53	127	80	6.26
6	168.3	146.36	10.97	152	80	10.34
8	219.1	193.70	12.70	203	80	21.45
10	273.0	242.82	15.09	254	80	34.02
12	323.8	288.84	17.48	305	80	47.63
14	355.6	317.50	19.05	356	80	63.50
16	406.4	363.52	21.44	406	80	79.38
18	457.0	409.34	23.83	457	80	97.52
20	508.0	455.62	26.19	508	80	127.01
24	610.0	548.08	30.96	610	80	181.44

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	20.70	6.35	25.40	160	0.23
1 ¼	42.2	29.50	6.35	31.75	160	0.41
1 ½	48.3	34.02	7.14	38.10	160	0.68
2	60.3	42.82	8.74	50.80	160	1.32
2 ½	73.0	53.94	9.53	63.50	160	2.49
3	88.9	66.64	11.13	76.20	160	4.45
4	114.3	87.32	13.49	101.60	160	9.07
5	141.3	109.54	15.88	127.00	160	13.61
6	168.3	131.78	18.26	152.40	160	27.22
8	219.1	173.08	23.01	203.20	160	56.70
10	273.0	215.84	28.58	254.00	160	117.03
12	323.8	257.16	33.32	304.80	160	206.38
14	355.6	284.18	35.71	355.60	160	249.47
16	406.4	325.42	40.49	406.40	160	362.87
18	457.0	366.52	45.24	457.20	160	464.93
20	508.0	407.98	50.01	508.00	160	587.40
24	610.0	490.92	59.54	609.60	160	657.71

90° ELBOWS

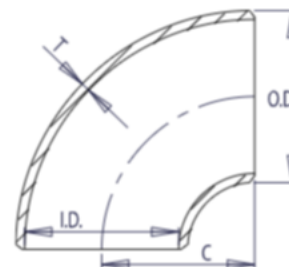
SHORT RADIUS SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

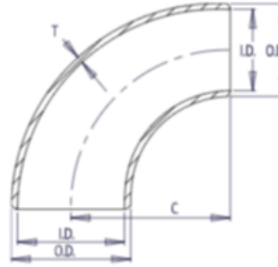
Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
1	33.4	15.22	9.09	25.40	*	0.29
1 ¼	42.2	22.80	9.70	31.75	*	0.59
1 ½	48.3	28.00	10.15	38.10	*	0.77
2	60.3	38.16	11.07	50.80	*	1.45
2 ½	73.0	44.96	14.02	63.50	*	2.77
3	88.9	58.42	15.24	76.20	*	4.99
4	114.3	80.06	17.12	101.60	*	9.98
5	141.3	103.20	19.05	127.00	*	15.88
6	168.3	124.40	21.95	152.40	*	27.22
8	219.1	174.64	22.23	203.20	*	55.79
10	273.0	222.20	25.40	254.00	140	102.06
12	323.8	273.00	25.40	304.80	120	165.56

SHORT RADIUS SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

90° REDUCING ELBOWS SCHEDULE STD



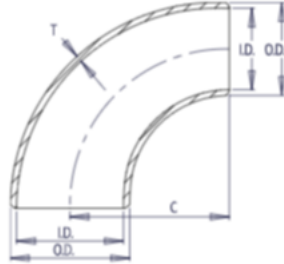
1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 12 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

Pipe Size NPS	LARGE DIAMETER			SMALL DIAMETER			Center to End C	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter O.D.	Inside Diameter I.D.	Wall Thickness T	Outside Diameter O.D.	Inside Diameter I.D.	Wall Thickness T			
2 x 1 1/2	60.3	52.48	3.91	48.3	40.94	3.68	76	40	0.64
2 x 1 1/4	60.3	52.48	3.91	42.2	35.08	3.56	76	40	0.59
2 x 1	60.3	52.48	3.91	33.4	26.64	3.38	76	40	0.54
2 1/2 x 2	73.0	62.68	5.16	60.3	52.48	3.91	95	40	1.27
2 1/2 x 1 1/2	73.0	62.68	5.16	48.3	40.94	3.68	95	40	1.18
2 1/2 x 1 1/4	73.0	62.68	5.16	42.2	35.08	3.56	95	40	1.13
3 x 2 1/2	88.9	77.92	5.49	73.0	62.68	5.16	114	40	1.91
3 x 2	88.9	77.92	5.49	60.3	52.48	3.91	114	40	1.63
3 x 1 1/2	88.9	77.92	5.49	48.3	40.94	3.68	114	40	1.50
3 1/2 x 3	101.6	90.12	5.74	88.9	77.92	5.49	133	40	2.72
3 1/2 x 2 1/2	101.6	90.12	5.74	73.0	62.68	5.16	133	40	2.49
3 1/2 x 2	101.6	90.12	5.74	60.3	52.48	3.91	133	40	2.04
4 x 3 1/2	114.3	102.26	6.02	101.6	90.12	5.74	152	40	3.81
4 x 3	114.3	102.26	6.02	88.9	77.92	5.49	152	40	3.49
4 x 2 1/2	114.3	102.26	6.02	73.0	62.68	5.16	152	40	3.08
4 x 2	114.3	102.26	6.02	60.3	52.48	3.91	152	40	2.72
5 x 4	141.3	128.20	6.55	114.3	102.26	6.02	190	40	6.08
5 x 3 1/2	141.3	128.20	6.55	101.6	90.12	5.74	190	40	5.72
5 x 3	141.3	128.20	6.55	88.9	77.92	5.49	190	40	5.35
5 x 2 1/2	141.3	128.20	6.55	73.0	62.68	5.16	190	40	4.85
6 x 5	168.3	154.08	7.11	141.3	128.20	6.55	229	40	9.53
6 x 4	168.3	154.08	7.11	114.3	102.26	6.02	229	40	8.57
6 x 3 1/2	168.3	154.08	7.11	101.6	90.12	5.74	229	40	8.07
6 x 3	168.3	154.08	7.11	88.9	77.92	5.49	229	40	7.62
8 x 6	219.1	202.74	8.18	168.3	154.08	7.11	305	40	18.01
8 x 5	219.1	202.74	8.18	141.3	128.20	6.55	305	40	16.42
8 x 4	219.1	202.74	8.18	114.3	102.26	6.02	305	40	15.01
10 x 8	273.0	254.46	9.27	219.1	202.74	8.18	381	40	33.11
10 x 6	273.0	254.46	9.27	168.3	154.08	7.11	381	40	28.67
10 x 5	273.0	254.46	9.27	141.3	128.20	6.55	381	40	26.54
12 x 10	323.8	304.74	9.53	273.0	254.46	9.27	457	*	51.26
12 x 8	323.8	304.74	9.53	219.1	202.74	8.18	457	*	44.63
12 x 6	323.8	304.74	9.53	168.3	154.08	7.11	457	*	39.24

1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 12 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

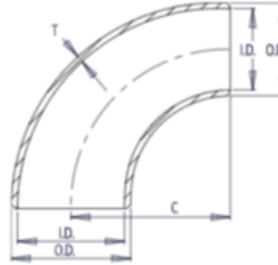


90° REDUCING ELBOWS

SCHEDULE XS

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	C		
2 x 1 1/2	60.3	49.22	5.54	48.3	38.14	5.08	76	80	0.86
2 x 1 1/4	60.3	49.22	5.54	42.2	32.50	4.85	76	80	0.82
2 x 1	60.3	49.22	5.54	33.4	24.30	4.55	76	80	0.77
2 1/2 x 2	73.0	58.98	7.01	60.3	49.22	5.54	95	80	1.54
2 1/2 x 1 1/2	73.0	58.98	7.01	48.3	38.14	5.08	95	80	1.36
2 1/2 x 1 1/4	73.0	58.98	7.01	42.2	32.50	4.85	95	80	1.32
3 x 2 1/2	88.9	73.66	7.62	73.0	58.98	7.01	114	80	2.59
3 x 2	88.9	73.66	7.62	60.3	49.22	5.54	114	80	2.22
3 x 1 1/2	88.9	73.66	7.62	48.3	38.14	5.08	114	80	2.04
3 1/2 x 3	101.6	85.44	8.08	88.9	73.66	7.62	133	80	3.72
3 1/2 x 2 1/2	101.6	85.44	8.08	73.0	58.98	7.01	133	80	3.31
3 1/2 x 2	101.6	85.44	8.08	60.3	49.22	5.54	133	80	2.90
4 x 3 1/2	114.3	97.18	8.56	48.3	38.14	5.08	152	80	5.17
4 x 3	114.3	97.18	8.56	88.9	73.66	7.62	152	80	4.76
4 x 2 1/2	114.3	97.18	8.56	73.0	58.98	7.01	152	80	4.26
4 x 2	114.3	97.18	8.56	60.3	49.22	5.54	152	80	3.81
5 x 4	141.3	122.24	9.53	114.3	97.18	8.56	190	80	8.53
5 x 3 1/2	141.3	122.24	9.53	101.6	85.44	8.08	190	80	7.89
5 x 3	141.3	122.24	9.53	88.9	73.66	7.62	190	80	7.48
5 x 2 1/2	141.3	122.24	9.53	73.0	58.98	7.01	190	80	6.85
6 x 5	168.3	146.36	10.97	141.3	122.24	9.53	229	80	14.24
6 x 4	168.3	146.36	10.97	114.3	97.18	8.56	229	80	12.66
6 x 3 1/2	168.3	146.36	10.97	101.6	85.44	8.08	229	80	11.93
6 x 3	168.3	146.36	10.97	88.9	73.66	7.62	229	80	11.29
8 x 6	219.1	193.70	12.70	168.3	146.36	10.97	305	80	27.58
8 x 5	219.1	193.70	12.70	141.3	122.24	9.53	305	80	24.63
8 x 4	219.1	193.70	12.70	114.3	97.18	8.56	305	80	22.45
10 x 8	273.0	247.60	12.70	219.1	193.70	12.70	381	*	46.27
10 x 6	273.0	247.60	12.70	168.3	146.36	10.97	381	*	39.24
10 x 5	273.0	247.60	12.70	141.3	122.24	9.53	381	*	35.61
12 x 10	323.8	298.40	12.70	273.0	247.60	12.70	457	*	67.13
12 x 8	323.8	298.40	12.70	219.1	193.70	12.70	457	*	59.87
12 x 6	323.8	298.40	12.70	168.3	146.36	10.97	457	*	51.71

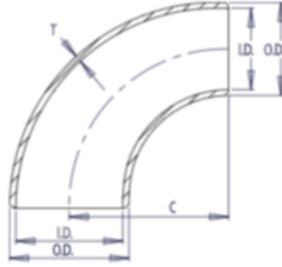
90° REDUCING ELBOWS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 12 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size NPS	LARGE DIAMETER			SMALL DIAMETER			Center to End C	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter O.D.	Inside Diameter I.D.	Wall Thickness T	Outside Diameter O.D.	Inside Diameter I.D.	Wall Thickness T			
2 x 1 1/2	60.3	52.48	3.91	48.3	40.94	3.68	76	40	0.64
2 x 1 1/4	60.3	52.48	3.91	42.2	35.08	3.56	76	40	0.59
2 x 1	60.3	52.48	3.91	33.4	26.64	3.38	76	40	0.54
2 1/2 x 2	73.0	62.68	5.16	60.3	52.48	3.91	95	40	1.27
2 1/2 x 1 1/2	73.0	62.68	5.16	48.3	40.94	3.68	95	40	1.18
2 1/2 x 1 1/4	73.0	62.68	5.16	42.2	35.08	3.56	95	40	1.13
3 x 2 1/2	88.9	77.92	5.49	73.0	62.68	5.16	114	40	1.91
3 x 2	88.9	77.92	5.49	60.3	52.48	3.91	114	40	1.63
3 x 1 1/2	88.9	77.92	5.49	48.3	40.94	3.68	114	40	1.50
3 1/2 x 3	101.6	90.12	5.74	88.9	77.92	5.49	133	40	2.72
3 1/2 x 2 1/2	101.6	90.12	5.74	73.0	62.68	5.16	133	40	2.49
3 1/2 x 2	101.6	90.12	5.74	60.3	52.48	3.91	133	40	2.04
4 x 3 1/2	114.3	102.26	6.02	101.6	90.12	5.74	152	40	3.81
4 x 3	114.3	102.26	6.02	88.9	77.92	5.49	152	40	3.49
4 x 2 1/2	114.3	102.26	6.02	73.0	62.68	5.16	152	40	3.08
4 x 2	114.3	102.26	6.02	60.3	52.48	3.91	152	40	2.72
5 x 4	141.3	128.20	6.55	114.3	102.26	6.02	190	40	6.08
5 x 3 1/2	141.3	128.20	6.55	101.6	90.12	5.74	190	40	5.72
5 x 3	141.3	128.20	6.55	88.9	77.92	5.49	190	40	5.35
5 x 2 1/2	141.3	128.20	6.55	73.0	62.68	5.16	190	40	4.85
6 x 5	168.3	154.08	7.11	141.3	128.20	6.55	229	40	9.53
6 x 4	168.3	154.08	7.11	114.3	102.26	6.02	229	40	8.57
6 x 3 1/2	168.3	154.08	7.11	101.6	90.12	5.74	229	40	8.07
6 x 3	168.3	154.08	7.11	88.9	77.92	5.49	229	40	7.62
8 x 6	219.1	202.74	8.18	168.3	154.08	7.11	305	40	18.01
8 x 5	219.1	202.74	8.18	141.3	128.20	6.55	305	40	16.42
8 x 4	219.1	202.74	8.18	114.3	102.26	6.02	305	40	15.01
10 x 8	273.0	254.46	9.27	219.1	202.74	8.18	381	40	33.11
10 x 6	273.0	254.46	9.27	168.3	154.08	7.11	381	40	28.67
10 x 5	273.0	254.46	9.27	141.3	128.20	6.55	381	40	26.54
12 x 10	323.8	303.18	10.31	273.0	254.46	9.27	457	40	52.16
12 x 8	323.8	303.18	10.31	219.1	202.74	8.18	457	40	45.36
12 x 6	323.8	303.18	10.31	168.3	154.08	7.11	457	40	40.82

1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 12 please call.
6. All weights are in kilograms and approximated or estimated.

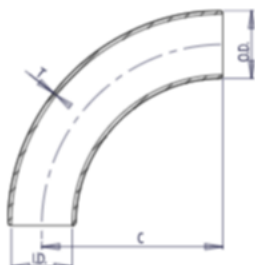


90° REDUCING ELBOWS SCHEDULE 80

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	C		
2 x 1 1/2	60.3	49.22	5.54	48.3	38.14	5.08	76	80	0.86
2 x 1 1/4	60.3	49.22	5.54	42.2	32.50	4.85	76	80	0.82
2 x 1	60.3	49.22	5.54	33.4	24.30	4.55	76	80	0.77
2 1/2 x 2	73.0	58.98	7.01	60.3	49.22	5.54	95	80	1.54
2 1/2 x 1 1/2	73.0	58.98	7.01	48.3	38.14	5.08	95	80	1.36
2 1/2 x 1 1/4	73.0	58.98	7.01	42.2	32.50	4.85	95	80	1.32
3 x 2 1/2	88.9	73.66	7.62	73.0	58.98	7.01	114	80	2.59
3 x 2	88.9	73.66	7.62	60.3	49.22	5.54	114	80	2.22
3 x 1 1/2	88.9	73.66	7.62	48.3	38.14	5.08	114	80	2.04
3 1/2 x 3	101.6	85.44	8.08	88.9	73.66	7.62	133	80	3.72
3 1/2 x 2 1/2	101.6	85.44	8.08	73.0	58.98	7.01	133	80	3.31
3 1/2 x 2	101.6	85.44	8.08	60.3	49.22	5.54	133	80	2.90
4 x 3 1/2	114.3	97.18	8.56	48.3	38.14	5.08	152	80	5.17
4 x 3	114.3	97.18	8.56	88.9	73.66	7.62	152	80	4.76
4 x 2 1/2	114.3	97.18	8.56	73.0	58.98	7.01	152	80	4.26
4 x 2	114.3	97.18	8.56	60.3	49.22	5.54	152	80	3.81
5 x 4	141.3	122.24	9.53	114.3	97.18	8.56	190	80	8.53
5 x 3 1/2	141.3	122.24	9.53	101.6	85.44	8.08	190	80	7.89
5 x 3	141.3	122.24	9.53	88.9	73.66	7.62	190	80	7.48
5 x 2 1/2	141.3	122.24	9.53	73.0	58.98	7.01	190	80	6.85
6 x 5	168.3	146.36	10.97	141.3	122.24	9.53	229	80	14.24
6 x 4	168.3	146.36	10.97	114.3	97.18	8.56	229	80	12.66
6 x 3 1/2	168.3	146.36	10.97	101.6	85.44	8.08	229	80	11.93
6 x 3	168.3	146.36	10.97	88.9	73.66	7.62	229	80	11.29
8 x 6	219.1	193.70	12.70	168.3	146.36	10.97	305	80	27.58
8 x 5	219.1	193.70	12.70	141.3	122.24	9.53	305	80	24.63
8 x 4	219.1	193.70	12.70	114.3	97.18	8.56	305	80	22.45
10 x 8	273.0	242.82	15.09	219.1	193.70	12.70	381	80	47.63
10 x 6	273.0	242.82	15.09	168.3	146.36	10.97	381	80	40.82
10 x 5	273.0	242.82	15.09	141.3	122.24	9.53	381	80	36.29
12 x 10	323.8	288.84	17.48	273.0	242.82	15.09	457	80	70.31
12 x 8	323.8	288.84	17.48	219.1	193.70	12.70	457	80	61.23
12 x 6	323.8	288.84	17.48	168.3	146.36	10.97	457	80	54.43

90° ELBOWS

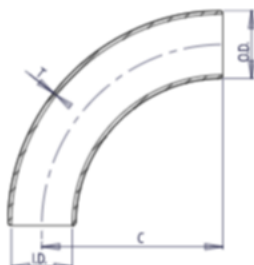
3R SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
¾	26.7	20.96	2.87	57	40	0.14
1	33.4	26.64	3.38	76	40	0.36
1 ¼	42.2	35.08	3.56	95	40	0.50
1 ½	48.3	40.94	3.68	114	40	0.73
2	60.3	52.48	3.91	152	40	1.45
2 ½	73.0	62.68	5.16	190	40	2.90
3	88.9	77.92	5.49	229	40	4.35
3 ½	101.6	90.12	5.74	267	40	6.80
4	114.3	102.26	6.02	305	40	8.07
5	141.3	128.20	6.55	381	40	13.61
6	168.3	154.08	7.11	457	40	21.77
8	219.1	202.74	8.18	610	40	43.09
10	273.0	254.46	9.27	762	40	75.75
12	323.8	304.74	9.53	914	*	113.40
14	355.6	336.54	9.53	1067	30	140.61
16	406.4	387.34	9.53	1219	30	188.24
18	457.0	437.94	9.53	1372	*	240.40
20	508.0	488.94	9.53	1524	20	294.83
24	610.0	590.94	9.53	1829	20	424.11

3R SCHEDULE XS

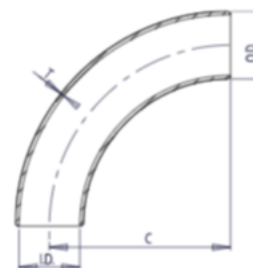


1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
¾	26.7	18.88	3.91	57	80	0.14
1	33.4	24.30	4.55	76	80	0.72
1 ¼	42.2	32.50	4.85	95	80	1.09
1 ½	48.3	38.14	5.08	114	80	1.91
2	60.3	49.22	5.54	152	80	3.45
2 ½	73.0	58.98	7.01	190	80	5.72
3	88.9	73.66	7.62	229	80	7.80
3 ½	101.6	85.44	8.08	267	80	9.98
4	114.3	97.18	8.56	305	80	11.34
5	141.3	122.24	9.53	381	80	20.41
6	168.3	146.36	10.97	457	80	31.75
8	219.1	193.70	12.70	610	80	65.77
10	273.0	247.60	12.70	762	60	102.06
12	323.8	298.40	12.70	914	*	145.15
14	355.6	330.20	12.70	1067	*	183.70
16	406.4	381.00	12.70	1219	40	244.94
18	457.0	431.60	12.70	1372	*	317.51
20	508.0	482.60	12.70	1524	30	383.28
24	610.0	584.60	12.70	1829	*	548.84

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
¾	26.7	20.96	2.87	57	40	0.14
1	33.4	26.64	3.38	76	40	0.36
1 ¼	42.2	35.08	3.56	95	40	0.50
1 ½	48.3	40.94	3.68	114	40	0.73
2	60.3	52.48	3.91	152	40	1.45
2 ½	73.0	62.68	5.16	190	40	2.90
3	88.9	77.92	5.49	229	40	4.35
3 ½	101.6	90.12	5.74	267	40	6.80
4	114.3	102.26	6.02	305	40	8.07
5	141.3	128.20	6.55	381	40	13.61
6	168.3	154.08	7.11	457	40	21.77
8	219.1	202.74	8.18	610	40	43.09
10	273.0	254.46	9.27	762	40	75.75
12	323.8	303.18	10.31	914	40	92.99
14	355.6	333.34	11.13	1067	40	138.34
16	406.4	381.00	12.70	1219	40	244.94
18	457.0	428.46	14.27	1372	40	335.66
20	508.0	477.82	15.09	1524	40	430.91
24	610.0	575.04	17.48	1829	40	635.03

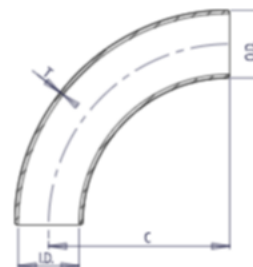
90° ELBOWS 3R SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	C		
¾	26.7	18.88	3.91	57	80	0.14
1	33.4	24.30	4.55	76	80	0.72
1 ¼	42.2	32.50	4.85	95	80	1.09
1 ½	48.3	38.14	5.08	114	80	1.91
2	60.3	49.22	5.54	152	80	3.45
2 ½	73.0	58.98	7.01	190	80	5.72
3	88.9	73.66	7.62	229	80	7.80
3 ½	101.6	85.44	8.08	267	80	9.98
4	114.3	97.18	8.56	305	80	11.34
5	141.3	122.24	9.53	381	80	20.41
6	168.3	146.36	10.97	457	80	31.75
8	219.1	193.70	12.70	610	80	65.77
10	273.0	242.82	15.09	762	80	90.72
12	323.8	288.84	17.48	914	80	145.15
14	355.6	317.50	19.05	1067	80	272.15
16	406.4	363.52	21.44	1219	80	367.41
18	457.0	409.34	23.83	1372	80	462.66
20	508.0	455.62	26.19	1524	80	635.03
24	610.0	548.08	30.96	1829	80	816.46

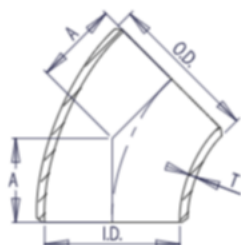
3R SCHEDULE 80



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

45° ELBOWS

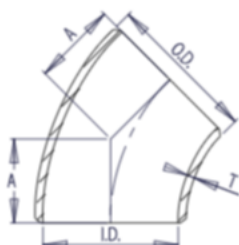
LONG RADIUS SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.3	15.76	2.77	16	40	0.04
¾	26.7	20.96	2.87	19	40	0.05
1	33.4	26.64	3.38	22	40	0.10
1 ¼	42.2	35.08	3.56	25	40	0.15
1 ½	48.3	40.94	3.68	29	40	0.20
2	60.3	52.48	3.91	35	40	0.39
2 ½	73.0	62.68	5.16	44	40	0.77
3	88.9	77.92	5.49	51	40	1.13
3 ½	101.6	90.12	5.74	57	40	1.54
4	114.3	102.26	6.02	64	40	2.04
5	141.3	128.20	6.55	79	40	3.40
6	168.3	154.08	7.11	95	40	5.31
8	219.1	202.74	8.18	127	40	10.57
10	273.0	254.46	9.27	159	40	18.55
12	323.8	304.74	9.53	190	*	27.85
14	355.6	336.54	9.53	222	30	35.43
16	406.4	387.34	9.53	254	30	45.81
18	457.0	437.94	9.53	286	*	58.06
20	508.0	488.94	9.53	318	20	72.12
24	610.0	590.94	9.53	381	20	104.78
30	762.0	742.94	9.53	470	*	162.39
36	914.0	894.94	9.53	565	*	234.96
42	1067.0	1047.94	9.53	660	*	320.69
48	1219.0	1199.94	9.53	759	*	453.59

LONG RADIUS SCHEDULE XS

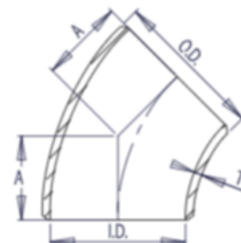


1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.34	13.868	3.734	15.75	80	0.07
¾	26.67	18.847	3.912	19.05	80	0.07
1	33.53	24.435	4.547	22.35	80	0.13
1 ¼	42.16	32.461	4.851	25.40	80	0.20
1 ½	48.26	38.100	5.080	28.45	80	0.28
2	60.45	49.378	5.537	35.05	80	0.54
2 ½	73.15	59.131	7.010	44.45	80	0.91
3	88.90	73.660	7.620	50.80	80	1.50
3 ½	101.60	85.446	8.077	57.15	80	2.04
4	114.30	97.180	8.560	63.50	80	2.81
5	141.22	122.174	9.525	79.25	80	4.76
6	168.15	146.202	10.973	95.25	80	7.71
8	218.95	193.548	12.700	127.00	80	15.56
10	273.05	247.650	12.700	158.75	60	24.27
12	323.85	298.450	12.700	190.50	*	35.20
14	355.60	330.200	12.700	222.25	*	45.36
16	406.40	381.000	12.700	254.00	40	60.78
18	457.20	431.800	12.700	285.75	*	77.11
20	508.00	482.600	12.700	317.50	30	94.80
24	609.60	584.200	12.700	381.00	*	136.98
30	762.00	736.600	12.700	469.90	20	215.50
36	914.40	889.000	12.700	565.15	20	311.21
42	1066.80	1041.400	12.700	660.40	*	424.61
48	1219.20	1193.800	12.700	758.95	*	566.99

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.3	15.76	2.77	16	40	0.04
¾	26.7	20.96	2.87	19	40	0.05
1	33.4	26.64	3.38	22	40	0.10
1 ¼	42.2	35.08	3.56	25	40	0.15
1 ½	48.3	40.94	3.68	29	40	0.20
2	60.3	52.48	3.91	35	40	0.39
2 ½	73.0	62.68	5.16	44	40	0.77
3	88.9	77.92	5.49	51	40	1.13
3 ½	101.6	90.12	5.74	57	40	1.54
4	114.3	102.26	6.02	64	40	2.04
5	141.3	128.20	6.55	79	40	3.40
6	168.3	154.08	7.11	95	40	5.31
8	219.1	202.74	8.18	127	40	10.57
10	273.0	254.46	9.27	159	40	18.55
12	323.8	303.18	10.31	190	40	29.48
14	355.6	333.34	11.13	222	40	36.29
16	406.4	381.00	12.70	254	40	47.63
18	457.0	428.46	14.27	286	40	58.97
20	508.0	477.82	15.09	318	40	74.84
24	610.0	575.04	17.48	381	40	106.59

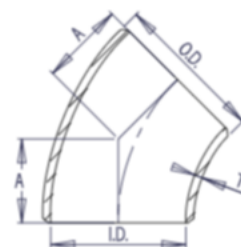
45° ELBOWS LONG RADIUS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.3	13.84	3.73	16	80	0.07
¾	26.7	18.88	3.91	19	80	0.07
1	33.4	24.30	4.55	22	80	0.13
1 ¼	42.2	32.50	4.85	25	80	0.20
1 ½	48.3	38.14	5.08	29	80	0.28
2	60.3	49.22	5.54	35	80	0.54
2 ½	73.0	58.98	7.01	44	80	0.91
3	88.9	73.66	7.62	51	80	1.50
3 ½	101.6	85.44	8.08	57	80	2.04
4	114.3	97.18	8.56	64	80	2.81
5	141.3	122.24	9.53	79	80	4.76
6	168.3	146.36	10.97	95	80	7.71
8	219.1	193.70	12.70	127	80	15.56
10	273.0	242.82	15.09	159	80	24.95
12	323.8	288.84	17.48	190	80	36.29
14	355.6	317.50	19.05	222	80	45.36
16	406.4	363.52	21.44	254	80	61.23
18	457.0	409.34	23.83	286	80	79.38
20	508.0	455.62	26.19	318	80	95.25
24	610.0	548.08	30.96	381	80	138.34

LONG RADIUS SCHEDULE 80

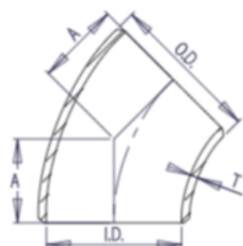


1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

45° ELBOWS

LONG RADIUS

SCHEDULE 160

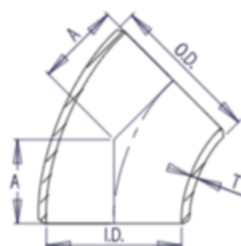


1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.3	11.74	4.78	16	160	0.82
¾	26.7	15.58	5.56	19	160	0.91
1	33.4	20.70	6.35	22	160	1.36
1 ¼	42.2	29.50	6.35	25	160	1.59
1 ½	48.3	34.02	7.14	29	160	1.68
2	60.3	42.82	8.74	35	160	2.27
2 ½	73.0	53.94	9.53	44	160	1.68
3	88.9	66.64	11.13	51	160	2.54
4	114.3	87.32	13.49	64	160	2.54
5	141.3	109.54	15.88	79	160	6.80
6	168.3	131.78	18.26	95	160	12.70
8	219.1	173.08	23.01	127	160	21.77
10	273.0	215.84	28.58	159	160	32.66
12	323.8	257.16	33.32	190	160	44.45
14	355.6	284.18	35.71	222	160	58.97
16	406.4	325.42	40.49	254	160	81.65
18	457.0	366.52	45.24	286	160	117.93
20	508.0	407.98	50.01	318	160	176.90
24	610.0	490.92	59.54	381	160	254.01

LONG RADIUS

SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

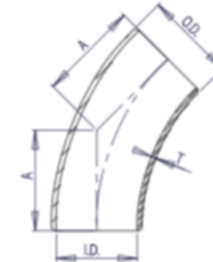
* This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
½	21.3	6.36	7.47	16	*	0.82
¾	26.7	11.06	7.82	19	*	0.91
1	33.4	15.22	9.09	22	*	1.36
1 ¼	42.2	22.80	9.70	25	*	1.59
1 ½	48.3	28.00	10.15	29	*	1.68
2	60.3	38.16	11.07	35	*	2.27
2 ½	73.0	44.96	14.02	44	*	1.68
3	88.9	58.42	15.24	51	*	2.72
4	114.3	80.06	17.12	64	*	4.72
5	141.3	103.20	19.05	79	*	8.71
6	168.3	124.40	21.95	95	*	13.61
8	219.1	174.64	22.23	127	*	22.68
10	273.0	222.20	25.40	159	140	34.02
12	323.8	273.00	25.40	190	120	43.09

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
¾	26.7	20.96	2.87	24	40	0.23
1	33.4	26.64	3.38	31	40	0.32
1 ¼	42.2	35.08	3.56	39	40	0.45
1 ½	48.3	40.94	3.68	47	40	0.59
2	60.3	52.48	3.91	63	40	0.68
2 ½	73.0	62.68	5.16	79	40	0.79
3	88.9	77.92	5.49	95	40	1.36
3 ½	101.6	90.12	5.74	111	40	2.27
4	114.3	102.26	6.02	127	40	4.08
5	141.3	128.20	6.55	157	40	7.26
6	168.3	154.08	7.11	189	40	10.21
8	219.1	202.74	8.18	252	40	20.41
10	273.0	254.46	9.27	316	40	36.29
12	323.8	304.74	9.53	378	*	54.43
14	355.6	336.54	9.53	441	30	68.04
16	406.4	387.34	9.53	505	30	87.54
18	457.0	437.94	9.53	568	*	112.49
20	508.0	488.94	9.53	632	20	139.71
24	610.0	590.94	9.53	757	20	199.58

45° ELBOWS

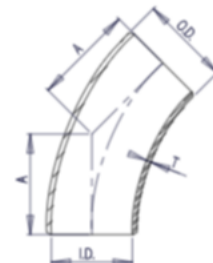
3R SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
¾	26.7	18.88	3.91	24	80	0.07
1	33.4	24.30	4.55	31	80	0.13
1 ¼	42.2	32.50	4.85	39	80	0.20
1 ½	48.3	38.14	5.08	47	80	0.28
2	60.3	49.22	5.54	63	80	0.54
2 ½	73.0	58.98	7.01	79	80	0.91
3	88.9	73.66	7.62	95	80	1.50
3 ½	101.6	85.44	8.08	111	80	2.04
4	114.3	97.18	8.56	127	80	2.81
5	141.3	122.24	9.53	157	80	4.76
6	168.3	146.36	10.97	189	80	7.71
8	219.1	193.70	12.70	252	80	15.56
10	273.0	247.60	12.70	316	60	24.27
12	323.8	298.40	12.70	378	*	35.20
14	355.6	330.20	12.70	441	*	45.36
16	406.4	381.00	12.70	505	40	60.78
18	457.0	431.60	12.70	568	*	77.11
20	508.0	482.60	12.70	632	30	94.80
24	610.0	584.60	12.70	757	*	136.98

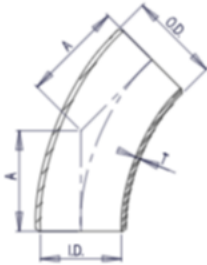
3R SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

45° ELBOWS

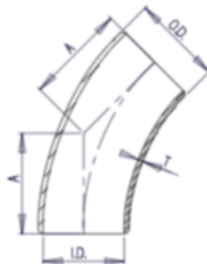
3R SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
¾	26.7	20.96	2.87	24	40	0.23
1	33.4	26.64	3.38	31	40	0.32
1 ¼	42.2	35.08	3.56	39	40	0.45
1 ½	48.3	40.94	3.68	47	40	0.59
2	60.3	52.48	3.91	63	40	0.68
2 ½	73.0	62.68	5.16	79	40	0.79
3	88.9	77.92	5.49	95	40	1.36
3 ½	101.6	90.12	5.74	111	40	2.27
4	114.3	102.26	6.02	127	40	4.08
5	141.3	128.20	6.55	157	40	7.26
6	168.3	154.08	7.11	189	40	10.21
8	219.1	202.74	8.18	252	40	20.41
10	273.0	254.46	9.27	316	40	36.29
12	323.8	303.18	10.31	378	40	72.57
14	355.6	333.34	11.13	441	40	122.47
16	406.4	381.00	12.70	505	40	163.29
18	457.0	428.46	14.27	568	40	222.26
20	508.0	477.82	15.09	632	40	278.96
24	610.0	575.04	17.48	757	40	351.53

3R SCHEDULE 80



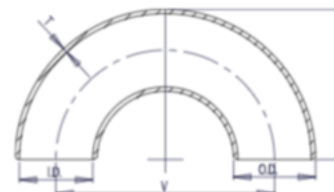
1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	A		
¾	26.7	18.88	3.91	24	80	0.07
1	33.4	24.30	4.55	31	80	0.13
1 ¼	42.2	32.50	4.85	39	80	0.20
1 ½	48.3	38.14	5.08	47	80	0.28
2	60.3	49.22	5.54	63	80	0.54
2 ½	73.0	58.98	7.01	79	80	0.91
3	88.9	73.66	7.62	95	80	1.50
3 ½	101.6	85.44	8.08	111	80	2.04
4	114.3	97.18	8.56	127	80	2.81
5	141.3	122.24	9.53	157	80	4.76
6	168.3	146.36	10.97	189	80	7.71
8	219.1	193.70	12.70	252	80	15.56
10	273.0	242.82	15.09	316	80	68.04
12	323.8	288.84	17.48	378	80	90.72
14	355.6	317.50	19.05	441	80	153.09
16	406.4	363.52	21.44	505	80	204.12
18	457.0	409.34	23.83	568	80	277.82
20	508.0	455.62	26.19	632	80	348.70
24	610.0	548.08	30.96	757	80	439.42

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1/2	21.3	15.76	2.77	76	48	40	0.15
3/4	26.7	20.96	2.87	76	51	40	0.15
1	33.4	26.64	3.38	76	56	40	0.34
1 1/4	42.2	35.08	3.56	95	70	40	0.50
1 1/2	48.3	40.94	3.68	114	83	40	0.73
2	60.3	52.48	3.91	152	106	40	1.45
2 1/2	73.0	62.68	5.16	190	132	40	2.77
3	88.9	77.92	5.49	229	159	40	4.26
3 1/2	101.6	90.12	5.74	267	184	40	5.81
4	114.3	102.26	6.02	305	210	40	7.94
5	141.3	128.20	6.55	381	262	40	13.29
6	168.3	154.08	7.11	457	313	40	21.32
8	219.1	202.74	8.18	610	414	40	39.46
10	273.0	254.46	9.27	762	518	40	74.39
12	323.8	304.74	9.53	914	619	*	107.50
14	355.6	336.54	9.53	1067	711	30	141.07
16	406.4	387.34	9.53	1219	813	30	185.06
18	457.0	437.94	9.53	1372	914	*	233.15
20	508.0	488.94	9.53	1524	1016	20	288.48
24	610.0	590.94	9.53	1829	1219	20	411.86

180° RETURN BENDS

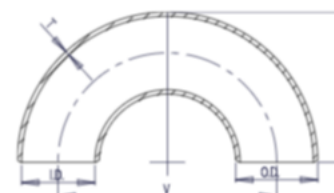
LONG RADIUS SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1/2	21.3	13.84	3.73	76	48	80	0.20
3/4	26.7	18.88	3.91	76	51	80	0.24
1	33.4	24.30	4.55	76	56	80	0.44
1 1/4	42.2	32.50	4.85	95	70	80	0.73
1 1/2	48.3	38.14	5.08	114	83	80	1.00
2	60.3	49.22	5.54	152	106	80	1.86
2 1/2	73.0	58.98	7.01	190	132	80	3.49
3	88.9	73.66	7.62	229	159	80	5.62
3 1/2	101.6	85.44	8.08	267	184	80	7.76
4	114.3	97.18	8.56	305	210	80	10.93
5	141.3	122.24	9.53	381	262	80	18.91
6	168.3	146.36	10.97	457	313	80	30.93
8	219.1	193.70	12.70	610	414	60	63.50
10	273.0	247.60	12.70	762	518	*	98.43
12	323.8	298.40	12.70	914	619	*	141.07
14	355.6	330.20	12.70	1067	711	40	181.44
16	406.4	381.00	12.70	1219	813	*	244.94
18	457.0	431.60	12.70	1372	914	30	311.16
20	508.0	482.60	12.70	1524	1016	*	381.02
24	610.0	584.60	12.70	1829	1219	*	548.84

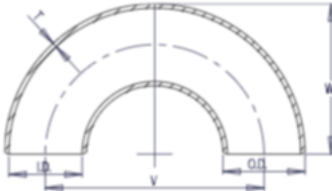
LONG RADIUS SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

180° RETURN BENDS

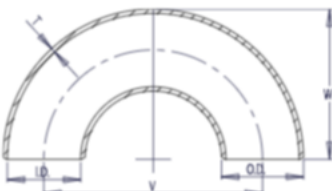
LONG RADIUS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
½	21.3	15.76	2.77	76	48	40	0.15
¾	26.7	20.96	2.87	76	51	40	0.15
1	33.4	26.64	3.38	76	56	40	0.34
1 ¼	42.2	35.08	3.56	95	70	40	0.50
1 ½	48.3	40.94	3.68	114	83	40	0.73
2	60.3	52.48	3.91	152	106	40	1.45
2 ½	73.0	62.68	5.16	190	132	40	2.77
3	88.9	77.92	5.49	229	159	40	4.26
3 ½	101.6	90.12	5.74	267	184	40	5.81
4	114.3	102.26	6.02	305	210	40	7.94
5	141.3	128.20	6.55	381	262	40	13.29
6	168.3	154.08	7.11	457	313	40	21.32
8	219.1	202.74	8.18	610	414	40	39.46
10	273.0	254.46	9.27	762	518	40	74.39
12	323.8	303.18	10.31	914	619	40	108.86
14	355.6	333.34	11.13	1067	711	40	142.88
16	406.4	381.00	12.70	1219	813	40	185.97
18	457.0	428.46	14.27	1372	914	40	235.87
20	508.0	477.82	15.09	1524	1016	40	290.30
24	610.0	575.04	17.48	1829	1219	40	415.03

LONG RADIUS SCHEDULE 80



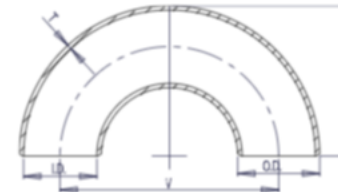
1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
½	21.3	13.84	3.73	76	48	80	0.20
¾	26.7	18.88	3.91	76	51	80	0.24
1	33.4	24.30	4.55	76	56	80	0.44
1 ¼	42.2	32.50	4.85	95	70	80	0.73
1 ½	48.3	38.14	5.08	114	83	80	1.00
2	60.3	49.22	5.54	152	106	80	1.86
2 ½	73.0	58.98	7.01	190	132	80	3.49
3	88.9	73.66	7.62	229	159	80	5.62
3 ½	101.6	85.44	8.08	267	184	80	7.76
4	114.3	97.18	8.56	305	210	80	10.93
5	141.3	122.24	9.53	381	262	80	18.91
6	168.3	146.36	10.97	457	313	80	30.93
8	219.1	193.70	12.70	610	414	80	63.50
10	273.0	242.82	15.09	762	518	80	99.79
12	323.8	288.84	17.48	914	619	80	142.88
14	355.6	317.50	19.05	1067	711	80	185.97
16	406.4	363.52	21.44	1219	813	80	249.47
18	457.0	409.34	23.83	1372	914	80	315.25
20	508.0	455.62	26.19	1524	1016	80	385.55
24	610.0	548.08	30.96	1829	1219	80	555.65

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
½	21.3	11.74	4.78	76	48	160	0.18
¾	26.7	15.58	5.56	76	51	160	0.20
1	33.4	20.70	6.35	76	56	160	0.42
1 ¼	42.2	29.50	6.35	95	70	160	0.63
1 ½	48.3	34.02	7.14	114	83	160	0.91
2	60.3	42.82	8.74	152	106	160	1.81
2 ½	73.0	53.94	9.53	190	132	160	3.46
3	88.9	66.64	11.13	229	159	160	5.33
4	114.3	87.32	13.49	305	210	160	9.92
5	141.3	109.54	15.88	381	262	160	16.62
6	168.3	131.78	18.26	457	313	160	26.65
8	219.1	173.08	23.01	610	414	160	49.33
10	273.0	215.84	28.58	762	518	160	92.99
12	323.8	257.16	33.32	914	619	160	134.38
14	355.6	284.18	35.71	1067	711	160	176.33
16	406.4	325.42	40.49	1219	813	160	231.33
18	457.0	366.52	45.24	1372	914	160	291.43
20	508.0	407.98	50.01	1524	1016	160	360.60
24	610.0	490.92	59.54	1829	1219	160	514.82

180° RETURN BENDS

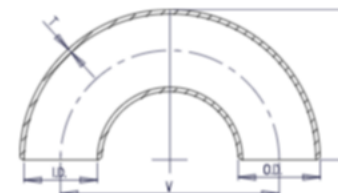
LONG RADIUS SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
½	21.3	6.36	7.47	76	48	*	0.20
¾	26.7	11.06	7.82	76	51	*	0.21
1	33.4	15.22	9.09	76	56	*	0.46
1 ¼	42.2	22.80	9.70	95	70	*	0.68
1 ½	48.3	28.00	10.15	114	83	*	1.00
2	60.3	38.16	11.07	152	106	*	2.00
2 ½	73.0	44.96	14.02	190	132	*	3.81
3	88.9	58.42	15.24	229	159	*	5.86
4	114.3	80.06	17.12	305	210	*	10.91
5	141.3	103.20	19.05	381	262	*	18.28
6	168.3	124.40	21.95	457	313	*	29.32
8	219.1	174.64	22.23	610	414	*	54.26
10	273.0	222.20	25.40	762	518	140	102.28
12	323.8	273.00	25.40	914	619	120	147.82

LONG RADIUS SCHEDULE XXS

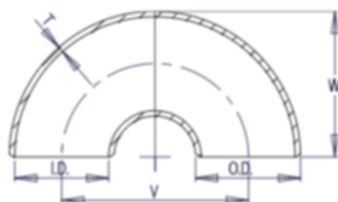


1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

180° RETURN BENDS

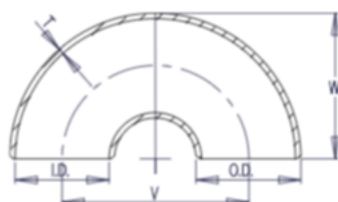
SHORT RADIUS SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	26.64	3.38	51	41	40	0.23
1 ¼	42.2	35.08	3.56	64	52	40	0.36
1 ½	48.3	40.94	3.68	76	62	40	0.50
2	60.3	52.48	3.91	102	81	40	0.86
2 ½	73.0	62.68	5.16	127	100	40	1.81
3	88.9	77.92	5.49	152	121	40	2.72
3 ½	101.6	90.12	5.74	178	140	40	3.95
4	114.3	102.26	6.02	203	159	40	5.53
5	141.3	128.20	6.55	254	197	40	8.71
6	168.3	154.08	7.11	305	237	40	14.92
8	219.1	202.74	8.18	406	313	40	29.44
10	273.0	254.46	9.27	508	391	40	50.80
12	323.8	304.74	9.53	610	467	*	71.21
14	355.6	336.54	9.53	711	533	30	94.35
16	406.4	387.34	9.53	813	610	30	116.57
18	457.0	437.94	9.53	914	686	*	147.42
20	508.0	488.94	9.53	1016	762	20	188.69
24	610.0	590.94	9.53	1219	914	20	268.53

SHORT RADIUS SCHEDULE XS



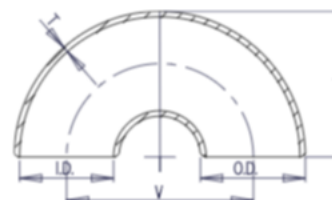
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	24.30	4.55	51	41	80	0.32
1 ¼	42.2	32.50	4.85	64	52	80	0.45
1 ½	48.3	38.14	5.08	76	62	80	0.68
2	60.3	49.22	5.54	102	81	80	1.32
2 ½	73.0	58.98	7.01	127	100	80	2.36
3	88.9	73.66	7.62	152	121	80	3.72
3 ½	101.6	85.44	8.08	178	140	80	5.31
4	114.3	97.18	8.56	203	159	80	7.44
5	141.3	122.24	9.53	254	197	80	12.56
6	168.3	146.36	10.97	305	237	80	20.73
8	219.1	193.70	12.70	406	313	80	43.68
10	273.0	247.60	12.70	508	391	60	64.86
12	323.8	298.40	12.70	610	467	*	96.16
14	355.6	330.20	12.70	711	533	*	122.92
16	406.4	381.00	12.70	813	610	40	153.77
18	457.0	431.60	12.70	914	686	*	192.78
20	508.0	482.60	12.70	1016	762	30	251.74
24	610.0	584.60	12.70	1219	914	*	352.89

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	26.64	3.38	51	41	40	0.23
1 ¼	42.2	35.08	3.56	64	52	40	0.36
1 ½	48.3	40.94	3.68	76	62	40	0.50
2	60.3	52.48	3.91	102	81	40	0.86
2 ½	73.0	62.68	5.16	127	100	40	1.81
3	88.9	77.92	5.49	152	121	40	2.72
3 ½	101.6	90.12	5.74	178	140	40	3.95
4	114.3	102.26	6.02	203	159	40	5.53
5	141.3	128.20	6.55	254	197	40	8.71
6	168.3	154.08	7.11	305	237	40	14.92
8	219.1	202.74	8.18	406	313	40	29.44
10	273.0	254.46	9.27	508	391	40	50.80
12	323.8	303.18	10.31	610	467	40	74.84
14	355.6	333.34	11.13	711	533	40	97.52
16	406.4	381.00	12.70	813	610	40	120.20
18	457.0	428.46	14.27	914	686	40	151.95
20	508.0	477.82	15.09	1016	762	40	192.78
24	610.0	575.04	17.48	1219	914	40	274.42

180° RETURN BENDS

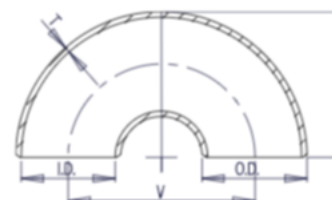
SHORT RADIUS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

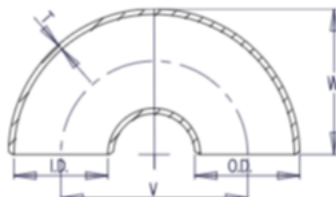
Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	24.30	4.55	51	41	80	0.32
1 ¼	42.2	32.50	4.85	64	52	80	0.45
1 ½	48.3	38.14	5.08	76	62	80	0.68
2	60.3	49.22	5.54	102	81	80	1.32
2 ½	73.0	58.98	7.01	127	100	80	2.36
3	88.9	73.66	7.62	152	121	80	3.72
3 ½	101.6	85.44	8.08	178	140	80	5.31
4	114.3	97.18	8.56	203	159	80	7.44
5	141.3	122.24	9.53	254	197	80	12.56
6	168.3	146.36	10.97	305	237	80	20.73
8	219.1	193.70	12.70	406	313	80	43.68
10	273.0	242.82	15.09	508	391	80	72.57
12	323.8	288.84	17.48	610	467	80	102.06
14	355.6	317.50	19.05	711	533	80	127.01
16	406.4	363.52	21.44	813	610	80	158.76
18	457.0	409.34	23.83	914	686	80	197.31
20	508.0	455.62	26.19	1016	762	80	258.55
24	610.0	548.08	30.96	1219	914	80	358.34

SHORT RADIUS SCHEDULE 80



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

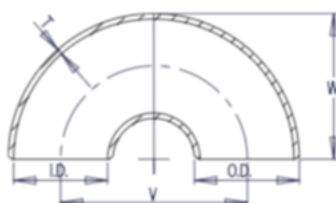
180° RETURN BENDS SHORT RADIUS SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	20.70	6.35	51	41	160	0.39
1 ¼	42.2	29.50	6.35	64	52	160	0.55
1 ½	48.3	34.02	7.14	76	62	160	0.83
2	60.3	42.82	8.74	102	81	160	1.59
2 ½	73.0	53.94	9.53	127	100	160	2.85
3	88.9	66.64	11.13	152	121	160	4.50
4	114.3	87.32	13.49	203	159	160	9.00
5	141.3	109.54	15.88	254	197	160	15.20
6	168.3	131.78	18.26	305	237	160	25.08
8	219.1	173.08	23.01	406	313	160	52.85
10	273.0	215.84	28.58	508	391	160	78.48
12	323.8	257.16	33.32	610	467	160	116.35
14	355.6	284.18	35.71	711	533	160	148.74
16	406.4	325.42	40.49	813	610	160	186.06
18	457.0	366.52	45.24	914	686	160	233.26
20	508.0	407.98	50.01	1016	762	160	304.61
24	610.0	490.92	59.54	1219	914	160	427.00

SHORT RADIUS SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

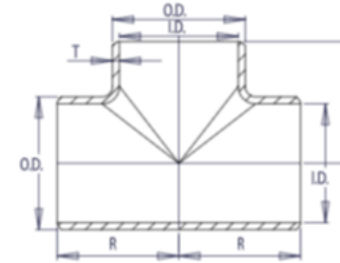
Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Back to Face	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	V	W		
1	33.4	15.22	9.09	51	41	*	0.42
1 ¼	42.2	22.80	9.70	64	52	*	0.60
1 ½	48.3	28.00	10.15	76	62	*	0.91
2	60.3	38.16	11.07	102	81	*	1.77
2 ½	73.0	44.96	14.02	127	100	*	3.14
3	88.9	58.42	15.24	152	121	*	4.95
4	114.3	80.06	17.12	203	159	*	9.90
5	141.3	103.20	19.05	254	197	*	16.72
6	168.3	124.40	21.95	305	237	*	27.59
8	219.1	174.64	22.23	406	313	*	58.14
10	273.0	222.20	25.40	508	391	140	86.33
12	323.8	273.00	25.40	610	467	120	127.99

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
½	21.3	15.76	2.77	25	25	40	0.16
¾	26.7	20.96	2.87	29	29	40	0.23
1	33.4	26.64	3.38	38	38	40	0.34
1 ¼	42.2	35.08	3.56	48	48	40	0.59
1 ½	48.3	40.94	3.68	57	57	40	0.86
2	60.3	52.48	3.91	64	64	40	1.45
2 ½	73.0	62.68	5.16	76	76	40	2.63
3	88.9	77.92	5.49	86	86	40	3.27
3 ½	101.6	90.12	5.74	95	95	40	4.31
4	114.3	102.26	6.02	105	105	40	5.76
5	141.3	128.20	6.55	124	124	40	9.43
6	168.3	154.08	7.11	143	143	40	15.01
8	219.1	202.74	8.18	178	178	40	25.63
10	273.0	254.46	9.27	216	216	40	41.23
12	323.8	304.74	9.53	254	254	*	61.69
14	355.6	336.54	9.53	279	279	30	73.48
16	406.4	387.34	9.53	305	305	30	93.44
18	457.0	437.94	9.53	343	343	*	123.38
20	508.0	488.94	9.53	381	381	20	158.76
24	610.0	590.94	9.53	432	432	20	230.42
30	762.0	742.94	9.53	559	559	*	378.75
36	914.0	894.94	9.53	673	673	*	586.95
42	1067.0	1047.94	9.53	762	711	*	678.12
48	1219.0	1199.94	9.53	889	838	*	1043.26

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
½	21.3	13.84	3.73	25	25	80	0.17
¾	26.7	18.88	3.91	29	29	80	0.26
1	33.4	24.30	4.55	38	38	80	0.39
1 ¼	42.2	32.50	4.85	48	48	80	0.73
1 ½	48.3	38.14	5.08	57	57	80	1.04
2	60.3	49.22	5.54	64	64	80	1.77
2 ½	73.0	58.98	7.01	76	76	80	2.95
3	88.9	73.66	7.62	86	86	80	4.08
3 ½	101.6	85.44	8.08	95	95	80	5.53
4	114.3	97.18	8.56	105	105	80	7.35
5	141.3	122.24	9.53	124	124	80	12.07
6	168.3	146.36	10.97	143	143	80	18.96
8	219.1	193.70	12.70	178	178	80	34.56
10	273.0	247.60	12.70	216	216	60	52.16
12	323.8	298.40	12.70	254	254	*	76.66
14	355.6	330.20	12.70	279	279	*	107.50
16	406.4	381.00	12.70	305	305	40	128.82
18	457.0	431.60	12.70	343	343	*	160.12
20	508.0	482.60	12.70	381	381	30	200.49
24	610.0	584.60	12.70	432	432	*	283.49
30	762.0	736.60	12.70	559	559	20	483.07
36	914.0	888.60	12.70	673	673	20	730.28
42	1067.0	1041.60	12.70	762	711	*	811.02
48	1219.0	1193.60	12.70	889	838	*	1043.26

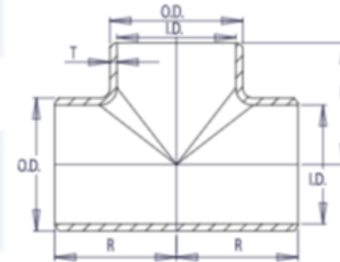
STRAIGHT TEES

SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

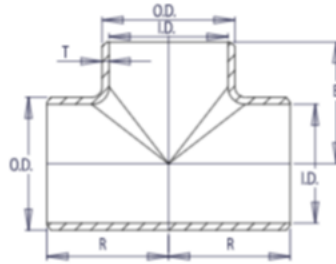
SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

STRAIGHT TEES

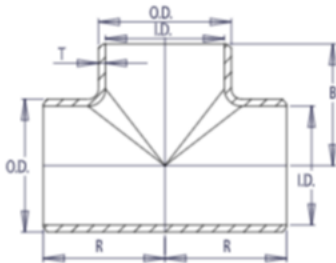
SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
½	21.3	15.76	2.77	25	25	40	0.16
¾	26.7	20.96	2.87	29	29	40	0.23
1	33.4	26.64	3.38	38	38	40	0.34
1 ¼	42.2	35.08	3.56	48	48	40	0.59
1 ½	48.3	40.94	3.68	57	57	40	0.86
2	60.3	52.48	3.91	64	64	40	1.45
2 ½	73.0	62.68	5.16	76	76	40	2.63
3	88.9	77.92	5.49	86	86	40	3.27
3 ½	101.6	90.12	5.74	95	95	40	3.86
4	114.3	102.26	6.02	105	105	40	4.31
5	141.3	128.20	6.55	124	124	40	5.76
6	168.3	154.08	7.11	143	143	40	9.43
8	219.1	202.74	8.18	178	178	40	15.01
10	273.0	254.46	9.27	216	216	40	25.63
12	323.8	303.18	10.31	254	254	40	41.23
14	355.6	333.34	11.13	279	279	40	74.84
16	406.4	381.00	12.70	305	305	40	95.25
18	457.0	428.46	14.27	343	343	40	124.74
20	508.0	477.82	15.09	381	381	40	161.02
24	610.0	575.04	17.48	432	432	40	231.33

SCHEDULE 80

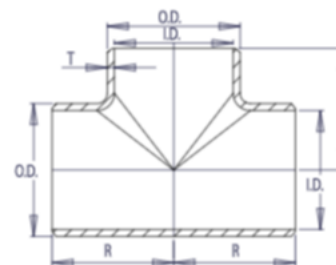


1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
½	21.3	13.84	3.73	25	25	80	0.17
¾	26.7	18.88	3.91	29	29	80	0.26
1	33.4	24.30	4.55	38	38	80	0.39
1 ¼	42.2	32.50	4.85	48	48	80	0.73
1 ½	48.3	38.14	5.08	57	57	80	1.04
2	60.3	49.22	5.54	64	64	80	1.77
2 ½	73.0	58.98	7.01	76	76	80	2.95
3	88.9	73.66	7.62	86	86	80	4.08
3 ½	101.6	85.44	8.08	95	95	80	5.53
4	114.3	97.18	8.56	105	105	80	7.35
5	141.3	122.24	9.53	124	124	80	12.07
6	168.3	146.36	10.97	143	143	80	18.96
8	219.1	193.70	12.70	178	178	80	34.56
10	273.0	242.82	15.09	216	216	80	54.43
12	323.8	288.84	17.48	254	254	80	79.38
14	355.6	317.50	19.05	279	279	80	108.86
16	406.4	363.52	21.44	305	305	80	131.54
18	457.0	409.34	23.83	343	343	80	163.29
20	508.0	455.62	26.19	381	381	80	204.12
24	610.0	548.08	30.96	432	432	80	285.76

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
1/2	21.3	11.74	4.78	25	25	160	0.21
3/4	26.7	15.58	5.56	29	29	160	0.33
1	33.4	20.70	6.35	38	38	160	0.49
1 1/4	42.2	29.50	6.35	48	48	160	0.91
1 1/2	48.3	34.02	7.14	57	57	160	1.31
2	60.3	42.82	8.74	64	64	160	2.21
2 1/2	73.0	53.94	9.53	76	76	160	3.69
3	88.9	66.64	11.13	86	86	160	5.10
4	114.3	87.32	13.49	105	105	160	9.19
5	141.3	109.54	15.88	124	124	160	15.08
6	168.3	131.78	18.26	143	143	160	23.70
8	219.1	173.08	23.01	178	178	160	43.20
10	273.0	215.84	28.58	216	216	160	65.20
12	323.8	257.16	33.32	254	254	160	95.82
14	355.6	284.18	35.71	279	279	160	134.38
16	406.4	325.42	40.49	305	305	160	161.02
18	457.0	366.52	45.24	343	343	160	200.15
20	508.0	407.98	50.01	381	381	160	250.61
24	610.0	490.92	59.54	432	432	160	354.37

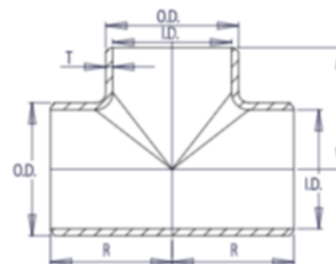
STRAIGHT TEES SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Center to Center	Center to End	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	R	B		
1/2	21.3	6.36	7.47	25	25	*	0.23
3/4	26.7	11.06	7.82	29	29	*	0.36
1	33.4	15.22	9.09	38	38	*	0.54
1 1/4	42.2	22.80	9.70	48	48	*	1.00
1 1/2	48.3	28.00	10.15	57	57	*	1.43
2	60.3	38.16	11.07	64	64	*	2.43
2 1/2	73.0	44.96	14.02	76	76	*	4.06
3	88.9	58.42	15.24	86	86	*	5.62
4	114.3	80.06	17.12	105	105	*	10.11
5	141.3	103.20	19.05	124	124	*	16.59
6	168.3	124.40	21.95	143	143	*	26.07
8	219.1	174.64	22.23	178	178	*	47.53
10	273.0	222.20	25.40	216	216	140	71.73
12	323.8	273.00	25.40	254	254	120	105.41

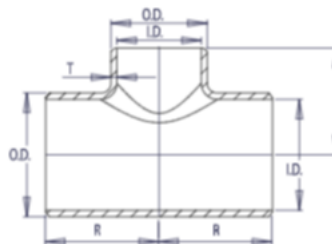
SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

REDUCING TEES



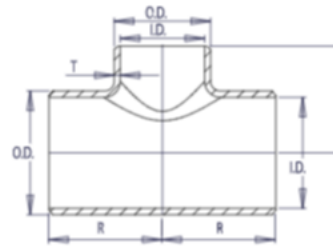
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
 ⌘ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
¾ x ½	26.7	20.96	2.87	29	21.3	15.76	2.77	29	40	0.19
1 x ¾	33.4	26.64	3.38	38	26.7	20.96	2.87	38	40	0.37
1 x ½	33.4	26.64	3.38	38	21.3	15.76	2.77	38	40	0.35
1 ¼ x 1	42.2	35.08	3.56	48	33.4	26.64	3.38	48	40	0.59
1 ¼ x ¾	42.2	35.08	3.56	48	26.7	20.96	2.87	48	40	0.59
1 ¼ x ½	42.2	35.08	3.56	48	21.3	15.76	2.77	48	40	0.59
1 ½ x 1 ¼	48.3	40.94	3.68	57	42.2	35.08	3.56	57	40	0.91
1 ½ x 1	48.3	40.94	3.68	57	33.4	26.64	3.38	57	40	0.86
1 ½ x ¾	48.3	40.94	3.68	57	26.7	20.96	2.87	57	40	0.82
1 ½ x ½	48.3	40.94	3.68	57	21.3	15.76	2.77	57	40	0.82
2 x 1 ½	60.3	52.48	3.91	64	48.3	40.94	3.68	60	40	1.41
2 x 1 ¼	60.3	52.48	3.91	64	42.2	35.08	3.56	57	40	1.36
2 x 1	60.3	52.48	3.91	64	33.4	26.64	3.38	51	40	1.27
2 x ¾	60.3	52.48	3.91	64	26.7	20.96	2.87	44	40	1.13
2 ½ x 2	73.0	62.68	5.16	76	60.3	52.48	3.91	70	40	2.45
2 ½ x 1 ½	73.0	62.68	5.16	76	48.3	40.94	3.68	67	40	2.31
2 ½ x 1 ¼	73.0	62.68	5.16	76	42.2	35.08	3.56	64	40	2.18
2 ½ x 1	73.0	62.68	5.16	76	33.4	26.64	3.38	57	40	2.09
3 x 2 ½	88.9	77.92	5.49	86	73.0	62.68	5.16	83	40	3.27
3 x 2	88.9	77.92	5.49	86	60.3	52.48	3.91	76	40	3.18
3 x 1 ½	88.9	77.92	5.49	86	48.3	40.94	3.68	73	40	3.08
3 x 1 ¼	88.9	77.92	5.49	86	42.2	35.08	3.56	70	40	2.99
⌘ 3 x 1	88.9	77.92	5.49	86	33.4	26.64	3.38	67	40	2.95
3 ½ x 3	101.6	90.12	5.74	95	88.9	77.92	5.49	92	40	4.45
3 ½ x 2 ½	101.6	90.12	5.74	95	73.0	62.68	5.16	89	40	4.26
3 ½ x 2	101.6	90.12	5.74	95	60.3	52.48	3.91	83	40	4.17
3 ½ x 1 ½	101.6	90.12	5.74	95	48.3	40.94	3.68	79	40	4.04
4 x 3 ½	114.3	102.26	6.02	105	101.6	90.12	5.74	102	40	5.40
4 x 3	114.3	102.26	6.02	105	88.9	77.92	5.49	98	40	5.26
4 x 2 ½	114.3	102.26	6.02	105	73.0	62.68	5.16	95	40	5.17
4 x 2	114.3	102.26	6.02	105	60.3	52.48	3.91	89	40	5.08
4 x 1 ½	114.3	102.26	6.02	105	48.3	40.94	3.68	86	40	5.08
5 x 4	141.3	128.20	6.55	124	114.3	102.26	6.02	117	40	9.30
5 x 3 ½	141.3	128.20	6.55	124	101.6	90.12	5.74	114	40	9.07
5 x 3	141.3	128.20	6.55	124	88.9	77.92	5.49	111	40	8.80
5 x 2 ½	141.3	128.20	6.55	124	73.0	62.68	5.16	108	40	8.62
5 x 2	141.3	128.20	6.55	124	60.3	52.48	3.91	105	40	8.53
6 x 5	168.3	154.08	7.11	143	141.3	128.20	6.55	137	40	14.51
6 x 4	168.3	154.08	7.11	143	114.3	102.26	6.02	130	40	13.83
6 x 3 ½	168.3	154.08	7.11	143	101.6	90.12	5.74	127	40	13.61
6 x 3	168.3	154.08	7.11	143	88.9	77.92	5.49	124	40	13.61
6 x 2 ½	168.3	154.08	7.11	143	73.0	62.68	5.16	121	40	13.47
⌘ 6 x 2	168.3	154.08	7.11	143	60.3	52.48	3.91	121	40	13.15
8 x 6	219.1	202.74	8.18	178	168.3	154.08	7.11	168	40	25.63
8 x 5	219.1	202.74	8.18	178	141.3	128.20	6.55	162	40	24.49
8 x 4	219.1	202.74	8.18	178	114.3	102.26	6.02	156	40	24.13

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
8 x 3 1/2	219.1	202.74	8.18	178	101.6	90.12	5.74	152	40	24.04
8 x 3	219.1	202.74	8.18	178	88.9	77.92	5.49	152	40	23.59
10 x 8	273.0	254.46	9.27	216	219.1	202.74	8.18	203	40	39.24
10 x 6	273.0	254.46	9.27	216	168.3	154.08	7.11	194	40	38.96
10 x 5	273.0	254.46	9.27	216	141.3	128.20	6.55	191	40	37.42
10 x 4	273.0	254.46	9.27	216	114.3	102.26	6.02	184	40	37.19
10 x 3	273.0	254.46	9.27	216	88.9	77.92	5.49	184	40	35.83
12 x 10	323.8	304.74	9.53	254	273.0	254.46	9.27	241	*	55.79
12 x 8	323.8	304.74	9.53	254	219.1	202.74	8.18	229	*	54.43
12 x 6	323.8	304.74	9.53	254	168.3	154.08	7.11	219	*	53.52
12 x 5	323.8	304.74	9.53	254	141.3	128.20	6.55	216	*	53.07
12 x 4	323.8	304.74	9.53	254	114.3	102.26	6.02	216	*	50.80
14 x 12	355.6	336.54	9.53	279	323.8	304.74	9.53	270	*	68.49
14 x 10	355.6	336.54	9.53	279	273.0	254.46	9.27	257	*	67.13
14 x 8	355.6	336.54	9.53	279	219.1	202.74	8.18	248	*	66.22
14 x 6	355.6	336.54	9.53	279	168.3	154.08	7.11	238	*	65.77
16 x 14	406.4	387.34	9.53	305	355.6	336.54	9.53	305	*	100.24
16 x 12	406.4	387.34	9.53	305	323.8	304.74	9.53	295	*	96.61
16 x 10	406.4	387.34	9.53	305	273.0	254.46	9.27	283	*	89.36
16 x 8	406.4	387.34	9.53	305	219.1	202.74	8.18	273	*	86.18
16 x 6	406.4	387.34	9.53	305	168.3	154.08	7.11	264	*	81.65
18 x 16	457.0	437.94	9.53	343	406.4	387.34	9.53	330	*	118.84
18 x 14	457.0	437.94	9.53	343	355.6	336.54	9.53	330	*	112.49
18 x 12	457.0	437.94	9.53	343	323.8	304.74	9.53	321	*	109.32
18 x 10	457.0	437.94	9.53	343	273.0	254.46	9.27	308	*	103.87
18 x 8	457.0	437.94	9.53	343	219.1	202.74	8.18	298	*	97.98
20 x 18	508.0	488.94	9.53	381	457.0	437.94	9.53	368	*	159.66
20 x 16	508.0	488.94	9.53	381	406.4	387.34	9.53	356	*	153.77
20 x 14	508.0	488.94	9.53	381	355.6	336.54	9.53	356	*	148.32
20 x 12	508.0	488.94	9.53	381	323.8	304.74	9.53	346	*	142.88
20 x 10	508.0	488.94	9.53	381	273.0	254.46	9.27	333	*	138.34
20 x 8	508.0	488.94	9.53	381	219.1	202.74	8.18	324	*	132.90
24 x 20	610.0	590.94	9.53	432	508.0	488.94	9.53	432	*	226.80
24 x 18	610.0	590.94	9.53	432	457.0	437.94	9.53	419	*	220.90
24 x 16	610.0	590.94	9.53	432	406.4	387.34	9.53	406	*	215.46
24 x 14	610.0	590.94	9.53	432	355.6	336.54	9.53	406	*	210.92
24 x 12	610.0	590.94	9.53	432	323.8	304.74	9.53	397	*	204.12
24 x 10	610.0	590.94	9.53	432	273.0	254.46	9.27	384	*	202.75
30 x 24	762.0	742.94	9.53	559	610.0	590.94	9.53	533	*	360.60
30 x 20	762.0	742.94	9.53	559	508.0	488.94	9.53	508	*	339.74
30 x 18	762.0	742.94	9.53	559	457.0	437.94	9.53	495	*	329.76
30 x 16	762.0	742.94	9.53	559	406.4	387.34	9.53	483	*	324.32
36 x 30	914.0	894.94	9.53	673	762.0	742.94	9.53	635	*	547.48
36 x 24	914.0	894.94	9.53	673	610.0	590.94	9.53	610	*	512.10
36 x 20	914.0	894.94	9.53	673	508.0	488.94	9.53	584	*	486.25
36 x 18	914.0	894.94	9.53	673	457.0	437.94	9.53	572	*	515.28
42 x 36	1067.0	1047.94	9.53	762	914.0	894.94	9.53	711	*	641.83
42 x 30	1067.0	1047.94	9.53	762	762.0	742.94	9.53	711	*	601.91
42 x 24	1067.0	1047.94	9.53	762	610.0	590.94	9.53	660	*	566.08
42 x 20	1067.0	1047.94	9.53	762	508.0	488.94	9.53	660	*	544.31
48 x 42	1219.0	1199.94	9.53	889	1067.0	1047.94	9.53	813	*	1001.07
48 x 36	1219.0	1199.94	9.53	889	914.0	894.94	9.53	787	*	964.79
48 x 30	1219.0	1199.94	9.53	889	762.0	742.94	9.53	762	*	928.95
48 x 24	1219.0	1199.94	9.53	889	610.0	590.94	9.53	737	*	861.82

REDUCING TEES

SCHEDULE XS



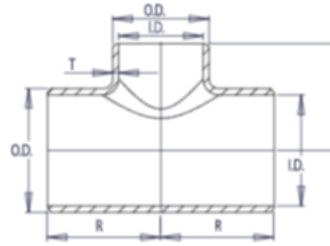
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
 ⌘ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
¾ x ½	26.7	18.88	3.91	29	21.3	13.84	3.73	29	80	0.21
1 x ¾	33.4	24.30	4.55	38	26.7	18.88	3.91	38	80	0.44
1 x ½	33.4	24.30	4.55	38	21.3	13.84	3.73	38	80	0.42
1 ¼ x 1	42.2	32.50	4.85	48	33.4	24.30	4.55	48	80	0.73
1 ¼ x ¾	42.2	32.50	4.85	48	26.7	18.88	3.91	48	80	0.73
1 ¼ x ½	42.2	32.50	4.85	48	21.3	13.84	3.73	48	80	0.73
1 ½ x 1 ¼	48.3	38.14	5.08	57	42.2	32.50	4.85	57	80	1.09
1 ½ x 1	48.3	38.14	5.08	57	33.4	24.30	4.55	57	80	1.04
1 ½ x ¾	48.3	38.14	5.08	57	26.7	18.88	3.91	57	80	1.00
1 ½ x ½	48.3	38.14	5.08	57	21.3	13.84	3.73	57	80	1.00
2 x 1 ½	60.3	49.22	5.54	64	48.3	38.14	5.08	60	80	1.72
2 x 1 ¼	60.3	49.22	5.54	64	42.2	32.50	4.85	57	80	1.68
2 x 1	60.3	49.22	5.54	64	33.4	24.30	4.55	51	80	1.59
2 x ¾	60.3	49.22	5.54	64	26.7	18.88	3.91	44	80	1.59
2 ½ x 2	73.0	58.98	7.01	76	60.3	49.22	5.54	70	80	2.86
2 ½ x 1 ½	73.0	58.98	7.01	76	48.3	38.14	5.08	67	80	2.81
2 ½ x 1 ¼	73.0	58.98	7.01	76	42.2	32.50	4.85	64	80	2.72
2 ½ x 1	73.0	58.98	7.01	76	33.4	24.30	4.55	57	80	2.63
3 x 2 ½	88.9	73.66	7.62	86	73.0	58.98	7.01	83	80	3.99
3 x 2	88.9	73.66	7.62	86	60.3	49.22	5.54	76	80	3.90
3 x 1 ½	88.9	73.66	7.62	86	48.3	38.14	5.08	73	80	3.67
3 x 1 ¼	88.9	73.66	7.62	86	42.2	32.50	4.85	70	80	3.63
⌘ 3 x 1	88.9	73.66	7.62	86	33.4	24.30	4.55	67	80	3.54
3 ½ x 3	101.6	85.44	8.08	95	88.9	73.66	7.62	92	80	5.72
3 ½ x 2 ½	101.6	85.44	8.08	95	73.0	58.98	7.01	89	80	5.49
3 ½ x 2	101.6	85.44	8.08	95	60.3	49.22	5.54	83	80	5.31
3 ½ x 1 ½	101.6	85.44	8.08	95	48.3	38.14	5.08	79	80	5.26
4 x 3 ½	114.3	97.18	8.56	105	101.6	85.44	8.08	102	80	7.12
4 x 3	114.3	97.18	8.56	105	88.9	73.66	7.62	98	80	6.99
4 x 2 ½	114.3	97.18	8.56	105	73.0	58.98	7.01	95	80	6.85
4 x 2	114.3	97.18	8.56	105	60.3	49.22	5.54	89	80	6.85
4 x 1 ½	114.3	97.18	8.56	105	48.3	38.14	5.08	86	80	6.80
5 x 4	141.3	122.24	9.53	124	114.3	97.18	8.56	117	80	11.52
5 x 3 ½	141.3	122.24	9.53	124	101.60	85.446	8.077	114	80	11.25
5 x 3	141.3	122.24	9.53	124	88.9	73.66	7.62	111	80	10.98
5 x 2 ½	141.3	122.24	9.53	124	73.0	58.98	7.01	108	80	10.84
5 x 2	141.3	122.24	9.53	124	60.3	49.22	5.54	105	80	10.70
6 x 5	168.3	146.36	10.97	143	141.3	122.24	9.53	137	80	17.92
6 x 4	168.3	146.36	10.97	143	114.3	97.18	8.56	130	80	17.83
6 x 3 ½	168.3	146.36	10.97	143	101.6	85.44	8.08	127	80	17.60
6 x 3	168.3	146.36	10.97	143	88.9	73.66	7.62	124	80	17.51
6 x 2 ½	168.3	146.36	10.97	143	73.0	58.98	7.01	121	80	17.33
⌘ 6 x 2	168.3	146.36	10.97	143	60.3	49.22	5.54	121	80	16.96
8 x 6	219.1	193.70	12.70	178	168.3	146.36	10.97	168	80	31.84
8 x 5	219.1	193.70	12.70	178	141.3	122.24	9.53	162	80	31.48
8 x 4	219.1	193.70	12.70	178	114.3	97.18	8.56	156	80	31.39

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
8 x 3 1/2	219.1	193.70	12.70	178	101.6	85.44	8.08	152	80	31.12
8 x 3	219.1	193.70	12.70	178	88.90	73.660	7.620	152	80	30.98
10 x 8	273.0	247.60	12.70	216	219.1	193.70	12.70	203	*	48.53
10 x 6	273.0	247.60	12.70	216	168.3	146.36	10.97	194	*	47.17
10 x 5	273.0	247.60	12.70	216	141.3	122.24	9.53	191	*	46.72
10 x 4	273.0	247.60	12.70	216	114.3	97.18	8.56	184	*	45.81
10 x 3	273.0	247.60	12.70	216	88.9	73.66	7.62	184	*	44.91
12 x 10	323.8	298.40	12.70	254	273.0	247.60	12.70	241	*	74.84
12 x 8	323.8	298.40	12.70	254	219.1	193.70	12.70	229	*	70.76
12 x 6	323.8	298.40	12.70	254	168.3	146.36	10.97	219	*	68.49
12 x 5	323.8	298.40	12.70	254	141.3	122.24	9.53	216	*	67.58
12 x 4	323.8	298.40	12.70	254	114.3	97.18	8.56	216	*	67.13
14 x 12	355.6	330.20	12.70	279	323.8	298.40	12.70	270	*	95.25
14 x 10	355.6	330.20	12.70	279	273.0	247.60	12.70	257	*	92.08
14 x 8	355.6	330.20	12.70	279	219.1	193.70	12.70	248	*	90.72
14 x 6	355.6	330.20	12.70	279	168.3	146.36	10.97	238	*	88.90
16 x 14	406.4	381.00	12.70	305	355.6	330.20	12.70	305	*	121.56
16 x 12	406.4	381.00	12.70	305	323.8	298.40	12.70	295	*	118.39
16 x 10	406.4	381.00	12.70	305	273.0	247.60	12.70	283	*	113.40
16 x 8	406.4	381.00	12.70	305	219.1	193.70	12.70	273	*	108.86
16 x 6	406.4	381.00	12.70	305	168.3	146.36	10.97	264	*	106.59
18 x 16	457.0	431.60	12.70	343	406.4	381.00	12.70	330	*	157.85
18 x 14	457.0	431.60	12.70	343	355.6	330.20	12.70	330	*	151.95
18 x 12	457.0	431.60	12.70	343	323.8	298.40	12.70	321	*	148.78
18 x 10	457.0	431.60	12.70	343	273.0	247.60	12.70	308	*	139.71
18 x 8	457.0	431.60	12.70	343	219.1	193.70	12.70	298	*	136.08
20 x 18	508.0	482.60	12.70	381	457.0	431.60	12.70	368	*	201.85
20 x 16	508.0	482.60	12.70	381	406.4	381.00	12.70	356	*	193.68
20 x 14	508.0	482.60	12.70	381	355.6	330.20	12.70	356	*	186.88
20 x 12	508.0	482.60	12.70	381	323.8	298.40	12.70	346	*	180.08
20 x 10	508.0	482.60	12.70	381	273.0	247.60	12.70	333	*	174.18
20 x 8	508.0	482.60	12.70	381	219.1	193.70	12.70	324	*	170.10
24 x 20	610.0	584.60	12.70	432	508.0	482.60	12.70	432	*	276.69
24 x 18	610.0	584.60	12.70	432	457.0	431.60	12.70	419	*	266.71
24 x 16	610.0	584.60	12.70	432	406.4	381.00	12.70	406	*	262.18
24 x 14	610.0	584.60	12.70	432	355.6	330.20	12.70	406	*	256.28
24 x 12	610.0	584.60	12.70	432	323.8	298.40	12.70	397	*	253.10
24 x 10	610.0	584.60	12.70	432	273.0	247.60	12.70	384	*	249.47
30 x 24	762.0	736.60	12.70	559	610.0	584.60	12.70	533	*	450.87
30 x 20	762.0	736.60	12.70	559	508.0	482.60	12.70	508	*	428.64
30 x 18	762.0	736.60	12.70	559	457.0	431.60	12.70	495	*	417.30
30 x 16	762.0	736.60	12.70	559	406.4	381.00	12.70	483	*	408.23
36 x 30	914.0	888.60	12.70	673	762.0	736.60	12.70	635	*	684.92
36 x 24	914.0	888.60	12.70	673	610.0	584.60	12.70	610	*	641.83
36 x 20	914.0	888.60	12.70	673	508.0	482.60	12.70	584	*	610.08
36 x 18	914.0	888.60	12.70	673	457.0	431.60	12.70	572	*	599.19
42 x 36	1067.0	1041.60	12.70	762	914.0	888.60	12.70	711	*	775.19
42 x 30	1067.0	1041.60	12.70	762	762.0	736.60	12.70	711	*	738.90
42 x 24	1067.0	1041.60	12.70	762	610.0	584.60	12.70	660	*	703.06
42 x 20	1067.0	1041.60	12.70	762	508.0	482.60	12.70	660	*	680.39
48 x 42	1219.0	1193.60	12.70	889	1067.0	1041.60	12.70	813	*	1001.07
48 x 36	1219.0	1193.60	12.70	889	914.0	888.60	12.70	787	*	964.79
48 x 30	1219.0	1193.60	12.70	889	762.0	736.60	12.70	762	*	928.95
48 x 24	1219.0	1193.60	12.70	889	610.0	584.60	12.70	737	*	898.11

REDUCING TEES

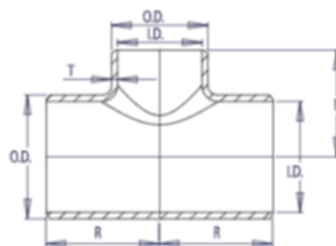
SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.
- Ø In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
FOR DIMENSION SPECIFICATIONS NPS ½ THROUGH 10 REFER TO SCHEDULE STD										
12 x 10	323.8	303.18	10.31	254	610.0	575.04	17.48	241	40	69.74
12 x 8	323.8	303.18	10.31	254	219.1	202.74	8.18	229	40	68.04
12 x 6	323.8	303.18	10.31	254	168.3	154.08	7.11	219	40	66.90
12 x 5	323.8	303.18	10.31	254	141.3	128.20	6.55	216	40	66.34
Ø 12 x 4	323.8	303.18	10.31	254	114.3	102.26	6.02	216	40	63.50
14 x 12	355.6	333.34	11.13	279	323.8	303.18	10.31	270	40	85.62
14 x 10	355.6	333.34	11.13	279	610.0	575.04	17.48	257	40	83.91
14 x 8	355.6	333.34	11.13	279	219.1	202.74	8.18	248	40	82.78
14 x 6	355.6	333.34	11.13	279	168.3	154.08	7.11	238	40	82.21
16 x 14	406.4	381.00	12.70	305	355.6	333.34	11.13	305	40	125.30
16 x 12	406.4	381.00	12.70	305	323.8	303.18	10.31	295	40	120.77
16 x 10	406.4	381.00	12.70	305	610.0	575.04	17.48	283	40	111.70
16 x 8	406.4	381.00	12.70	305	219.1	202.74	8.18	273	40	107.73
16 x 6	406.4	381.00	12.70	305	168.3	154.08	7.11	264	40	102.06
18 x 16	457.0	428.46	14.27	343	406.4	381.00	12.70	330	40	148.55
18 x 14	457.0	428.46	14.27	343	355.6	333.34	11.13	330	40	140.61
18 x 12	457.0	428.46	14.27	343	323.8	303.18	10.31	321	40	136.64
18 x 10	457.0	428.46	14.27	343	610.0	575.04	17.48	308	40	129.84
18 x 8	457.0	428.46	14.27	343	219.1	202.74	8.18	298	40	122.47
20 x 18	508.0	477.82	15.09	381	457.0	428.46	14.27	368	40	199.58
20 x 16	508.0	477.82	15.09	381	406.4	381.00	12.70	356	40	192.21
20 x 14	508.0	477.82	15.09	381	355.6	333.34	11.13	356	40	185.40
20 x 12	508.0	477.82	15.09	381	323.8	303.18	10.31	346	40	178.60
20 x 10	508.0	477.82	15.09	381	610.0	575.04	17.48	333	40	172.93
20 x 8	508.0	477.82	15.09	381	219.1	202.74	8.18	324	40	166.13
24 x 20	610.0	575.04	17.48	432	508.0	477.82	15.09	432	40	283.49
24 x 18	610.0	575.04	17.48	432	457.0	428.46	14.27	419	40	276.12
24 x 16	610.0	575.04	17.48	432	406.4	381.00	12.70	406	40	269.32
24 x 14	610.0	575.04	17.48	432	355.6	333.34	11.13	406	40	263.65
24 x 12	610.0	575.04	17.48	432	323.8	303.18	10.31	397	40	255.14
24 x 10	610.0	575.04	17.48	432	610.0	575.04	17.48	384	40	253.44

1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9-2007. Special Fittings paragraph 4.4.2.



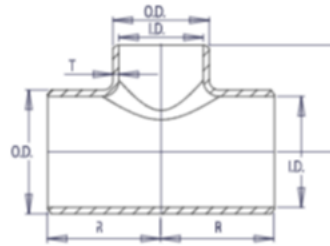
REDUCING TEES

SCHEDULE 80

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
FOR DIMENSION SPECIFICATIONS NPS ½ THROUGH 8 REFER TO SCHEDULE XS										
10 x 8	273.0	242.82	15.09	216	219.1	193.70	12.70	203	80	68.66
10 x 6	273.0	242.82	15.09	216	168.3	146.36	10.97	194	80	68.19
10 x 5	273.0	242.82	15.09	216	141.3	122.24	9.53	191	80	65.49
10 x 4	273.0	242.82	15.09	216	114.3	97.18	8.56	184	80	65.09
☒ 10 x 3	273.0	242.82	15.09	216	88.90	73.660	7.620	184	80	64.41
12 x 10	323.8	288.84	17.48	254	273.0	242.82	15.09	241	80	97.64
12 x 8	323.8	288.84	17.48	254	219.1	193.70	12.70	229	80	95.25
12 x 6	323.8	288.84	17.48	254	168.3	146.36	10.97	219	80	93.67
12 x 5	323.8	288.84	17.48	254	141.3	122.24	9.53	216	80	92.87
☒ 12 x 4	323.8	288.84	17.48	254	114.3	97.18	8.56	216	80	88.90
14 x 12	355.6	317.50	19.05	279	323.8	288.84	17.48	270	80	119.86
14 x 10	355.6	317.50	19.05	279	273.0	242.82	15.09	257	80	117.48
14 x 8	355.6	317.50	19.05	279	219.1	193.70	12.70	248	80	115.89
14 x 6	355.6	317.50	19.05	279	168.3	146.36	10.97	238	80	115.10
16 x 14	406.4	363.52	21.44	305	355.6	317.50	19.05	305	80	175.43
16 x 12	406.4	363.52	21.44	305	323.8	288.84	17.48	295	80	169.08
16 x 10	406.4	363.52	21.44	305	273.0	242.82	15.09	283	80	156.38
16 x 8	406.4	363.52	21.44	305	219.1	193.70	12.70	273	80	150.82
16 x 6	406.4	363.52	21.44	305	168.3	146.36	10.97	264	80	142.88
18 x 16	457.0	409.34	23.83	343	406.4	363.52	21.44	330	80	207.97
18 x 14	457.0	409.34	23.83	343	355.6	317.50	19.05	330	80	196.86
18 x 12	457.0	409.34	23.83	343	323.8	288.84	17.48	321	80	191.30
18 x 10	457.0	409.34	23.83	343	273.0	242.82	15.09	308	80	181.78
18 x 8	457.0	409.34	23.83	343	219.1	193.70	12.70	298	80	171.46
20 x 18	508.0	455.62	26.19	381	457.0	409.34	23.83	368	80	279.41
20 x 16	508.0	455.62	26.19	381	406.4	363.52	21.44	356	80	269.09
20 x 14	508.0	455.62	26.19	381	355.6	317.50	19.05	356	80	259.57
20 x 12	508.0	455.62	26.19	381	323.8	288.84	17.48	346	80	250.04
20 x 10	508.0	455.62	26.19	381	273.0	242.82	15.09	333	80	242.10
20 x 8	508.0	455.62	26.19	381	219.1	193.70	12.70	324	80	232.58
24 x 20	610.0	548.08	30.96	432	508.0	455.62	26.19	432	80	396.89
24 x 18	610.0	548.08	30.96	432	457.0	409.34	23.83	419	80	386.57
24 x 16	610.0	548.08	30.96	432	406.4	363.52	21.44	406	80	377.05
24 x 14	610.0	548.08	30.96	432	355.6	317.50	19.05	406	80	369.11
24 x 12	610.0	548.08	30.96	432	323.8	288.84	17.48	397	80	357.20
24 x 10	610.0	548.08	30.96	432	273.0	242.82	15.09	384	80	354.82

REDUCING TEES

SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- Ø In accordance with B16.9. Special Fittings paragraph 4.4.2.

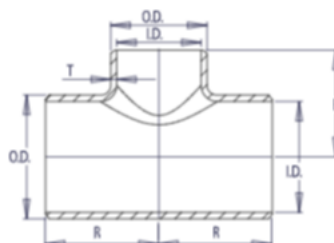
Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
¾ x ½	26.7	15.58	5.56	29	21.3	11.74	4.78	29	160	0.30
1 x ¾	33.4	20.70	6.35	38	26.7	15.58	5.56	38	160	0.62
1 x ½	33.4	20.70	6.35	38	21.3	11.74	4.78	38	160	0.59
1 ¼ x 1	42.2	29.50	6.35	48	33.4	20.70	6.35	48	160	1.02
1 ¼ x ¾	42.2	29.50	6.35	48	26.7	15.58	5.56	48	160	1.02
1 ¼ x ½	42.2	29.50	6.35	48	21.3	11.74	4.78	48	160	1.02
1 ½ x 1 ¼	48.3	34.02	7.14	57	42.2	29.50	6.35	57	160	1.52
1 ½ x 1	48.3	34.02	7.14	57	33.4	20.70	6.35	57	160	1.46
1 ½ x ¾	48.3	34.02	7.14	57	26.7	15.58	5.56	57	160	1.40
1 ½ x ½	48.3	34.02	7.14	57	21.3	11.74	4.78	57	160	1.40
2 x 1 ½	60.3	42.82	8.74	64	48.3	34.02	7.14	60	160	2.41
2 x 1 ¼	60.3	42.82	8.74	64	42.2	29.50	6.35	57	160	2.35
2 x 1	60.3	42.82	8.74	64	33.4	20.70	6.35	51	160	2.22
2 x ¾	60.3	42.82	8.74	64	26.7	15.58	5.56	44	160	2.22
2 ½ x 2	73.0	53.94	9.53	76	60.3	42.82	8.74	70	160	4.00
2 ½ x 1 ½	73.0	53.94	9.53	76	48.3	34.02	7.14	67	160	3.94
2 ½ x 1 ¼	73.0	53.94	9.53	76	42.2	29.50	6.35	64	160	3.81
2 ½ x 1	73.0	53.94	9.53	76	33.4	20.70	6.35	57	160	3.68
3 x 2 ½	88.9	66.64	11.13	86	73.0	53.94	9.53	83	160	5.59
3 x 2	88.9	66.64	11.13	86	60.3	42.82	8.74	76	160	5.46
3 x 1 ½	88.9	66.64	11.13	86	48.3	34.02	7.14	73	160	5.14
3 x 1 ¼	88.9	66.64	11.13	86	42.2	29.50	6.35	70	160	5.08
Ø3 x 1	88.9	66.64	11.13	86	33.4	20.70	6.35	67	160	5.08
4 x 3	114.3	87.32	13.49	105	88.9	66.64	11.13	105	160	9.78
4 x 2 ½	114.3	87.32	13.49	105	73.0	53.94	9.53	105	160	9.59
4 x 2	114.3	87.32	13.49	105	60.3	42.82	8.74	105	160	9.59
4 x 1 ½	114.3	87.32	13.49	105	48.3	34.02	7.14	105	160	9.53
5 x 4	141.3	109.54	15.88	124	114.3	87.32	13.49	124	160	16.13
5 x 3	141.3	109.54	15.88	124	88.9	66.64	11.13	124	160	15.37
5 x 2 ½	141.3	109.54	15.88	124	73.0	53.94	9.53	124	160	15.18
5 x 2	141.3	109.54	15.88	124	60.3	42.82	8.74	124	160	14.99
6 x 5	168.3	131.78	18.26	143	141.3	109.54	15.88	143	160	25.08
6 x 4	168.3	131.78	18.26	143	114.3	87.32	13.49	143	160	24.96
6 x 3	168.3	131.78	18.26	143	88.9	66.64	11.13	143	160	24.51
6 x 2 ½	168.3	131.78	18.26	143	73.0	53.94	9.53	143	160	24.26
Ø6 x 2	168.3	131.78	18.26	143	60.3	42.82	8.74	143	160	23.75

REDUCING TEES

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
8 x 6	219.1	173.08	23.01	178	168.3	131.78	18.26	162	160	44.58
8 x 5	219.1	173.08	23.01	178	141.3	109.54	15.88	156	160	44.07
8 x 4	219.1	173.08	23.01	178	114.3	87.32	13.49	191	160	43.94
8 x 3	219.1	173.08	23.01	178	88.90	66.650	152	184	160	43.37
10 x 8	273.0	215.84	28.58	216	219.1	173.08	23.01	203	160	67.95
10 x 6	273.0	215.84	28.58	216	168.3	131.78	18.26	194	160	66.04
10 x 5	273.0	215.84	28.58	216	141.3	109.54	15.88	191	160	65.41
10 x 4	273.0	215.84	28.58	216	114.3	87.32	13.49	184	160	64.14
10 x 3	273.0	215.84	28.58	216	88.90	66.650	11.125	184	160	63.50
12 x 10	323.8	257.16	33.32	254	273.0	215.84	28.58	241	160	104.78
12 x 8	323.8	257.16	33.32	254	219.1	173.08	23.01	229	160	99.06
12 x 6	323.8	257.16	33.32	254	168.3	131.78	18.26	219	160	95.89
12 x 5	323.8	257.16	33.32	254	141.3	109.54	15.88	216	160	94.62
12 x 4	323.8	257.16	33.32	254	114.3	87.32	13.49	216	160	93.98
14 x 12	355.6	284.18	35.71	279	323.8	257.16	33.32	270	160	133.36
14 x 10	355.6	284.18	35.71	279	273.0	215.84	28.58	257	160	128.91
14 x 8	355.6	284.18	35.71	279	219.1	173.08	23.01	248	160	127.01
14 x 6	355.6	284.18	35.71	279	168.3	131.78	18.26	238	160	124.47
16 x 14	406.4	325.42	40.49	305	355.6	284.18	35.71	305	160	170.19
16 x 12	406.4	325.42	40.49	305	323.8	257.16	33.32	295	160	165.74
16 x 10	406.4	325.42	40.49	305	273.0	215.84	28.58	283	160	158.76
16 x 8	406.4	325.42	40.49	305	219.1	173.08	23.01	273	160	152.41
16 x 6	406.4	325.42	40.49	305	168.3	131.78	18.26	264	160	149.23
18 x 16	457.0	366.52	45.24	343	406.4	325.42	40.49	330	160	220.99
18 x 14	457.0	366.52	45.24	343	355.6	284.18	35.71	330	160	212.73
18 x 12	457.0	366.52	45.24	343	323.8	257.16	33.32	321	160	208.29
18 x 10	457.0	366.52	45.24	343	273.0	215.84	28.58	308	160	195.59
18 x 8	457.0	366.52	45.24	343	219.1	173.08	23.01	298	160	190.51
20 x 18	508.0	407.98	50.01	381	457.0	366.52	45.24	368	160	282.59
20 x 16	508.0	407.98	50.01	381	406.4	325.42	40.49	356	160	271.16
20 x 14	508.0	407.98	50.01	381	355.6	284.18	35.71	356	160	261.63
20 x 12	508.0	407.98	50.01	381	323.8	257.16	33.32	346	160	252.11
20 x 10	508.0	407.98	50.01	381	273.0	215.84	28.58	333	160	243.85
20 x 8	508.0	407.98	50.01	381	219.1	173.08	23.01	324	160	238.13
24 x 20	610.0	490.92	59.54	432	508.0	407.98	50.01	432	160	387.37
24 x 18	610.0	490.92	59.54	432	457.0	366.52	45.24	419	160	373.40
24 x 16	610.0	490.92	59.54	432	406.4	325.42	40.49	406	160	367.05
24 x 14	610.0	490.92	59.54	432	355.6	284.18	35.71	406	160	358.79
24 x 12	610.0	490.92	59.54	432	323.8	257.16	33.32	397	160	354.34
24 x 10	610.0	490.92	59.54	432	273.0	215.84	28.58	384	160	349.26

REDUCING TEES

SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
- ☒ In accordance with B16.9, Special Fittings paragraph 4.4.2.

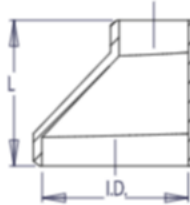
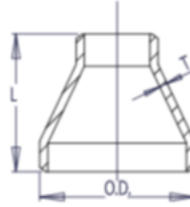
Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
¾ x ½	26.7	11.06	7.82	29	21.3	6.36	7.47	29	*	0.34
1 x ¾	33.4	15.22	9.09	38	26.7	11.06	7.82	38	*	0.70
1 x ½	33.4	15.22	9.09	38	21.3	6.36	7.47	38	*	0.66
1 ¼ x 1	42.2	22.80	9.70	48	33.4	15.22	9.09	48	*	1.14
1 ¼ x ¾	42.2	22.80	9.70	48	26.7	11.06	7.82	48	*	1.14
1 ¼ x ½	42.2	22.80	9.70	48	21.3	6.36	7.47	48	*	1.14
1 ½ x 1 ¼	48.3	28.00	10.15	57	42.2	22.80	9.70	57	*	1.71
1 ½ x 1	48.3	28.00	10.15	57	33.4	15.22	9.09	57	*	1.64
1 ½ x ¾	48.3	28.00	10.15	57	26.7	11.06	7.82	57	*	1.57
1 ½ x ½	48.3	28.00	10.15	57	21.3	6.36	7.47	57	*	1.57
2 x 1 ½	60.3	38.16	11.07	64	48.3	28.00	10.15	60	*	2.72
2 x 1 ¼	60.3	38.16	11.07	64	42.2	22.80	9.70	57	*	2.64
2 x 1	60.3	38.16	11.07	64	33.4	15.22	9.09	51	*	2.50
2 x ¾	60.3	38.16	11.07	64	26.7	11.06	7.82	44	*	2.50
2 ½ x 2	73.0	44.96	14.02	76	60.3	38.16	11.07	70	*	4.50
2 ½ x 1 ½	73.0	44.96	14.02	76	48.3	28.00	10.15	67	*	4.43
2 ½ x 1 ¼	73.0	44.96	14.02	76	42.2	22.80	9.70	64	*	4.29
2 ½ x 1	73.0	44.96	14.02	76	33.4	15.22	9.09	57	*	4.15
3 x 2 ½	88.9	58.42	15.24	86	73.0	44.96	14.02	83	*	6.29
3 x 2	88.9	58.42	15.24	86	60.3	38.16	11.07	76	*	6.15
3 x 1 ½	88.9	58.42	15.24	86	48.3	28.00	10.15	73	*	5.79
3 x 1 ¼	88.9	58.42	15.24	86	42.2	22.80	9.70	70	*	5.72
☒ 3 x 1	88.9	58.42	15.24	86	33.4	15.22	9.09	67	*	5.72
4 x 3	114.3	80.06	17.12	105	88.9	58.42	15.24	105	*	11.00
4 x 2 ½	114.3	80.06	17.12	105	73.0	44.96	14.02	105	*	10.79
4 x 2	114.3	80.06	17.12	105	60.3	38.16	11.07	105	*	10.79
4 x 1 ½	114.3	80.06	17.12	105	48.3	28.00	10.15	105	*	10.72
5 x 4	141.3	103.20	19.05	124	114.3	80.06	17.12	124	*	18.15
5 x 3	141.3	103.20	19.05	124	88.9	58.42	15.24	124	*	17.29
5 x 2 ½	141.3	103.20	19.05	124	73.0	44.96	14.02	124	*	17.07
5 x 2	141.3	103.20	19.05	124	60.3	38.16	11.07	124	*	16.86

REDUCING TEES

Pipe Size	DIMENSIONS OF RUN				DIMENSIONS OF BRANCH				Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Center to End	Outside Diameter	Inside Diameter	Wall Thickness	Center to End		
NPS	O.D.	I.D.	T	R	O.D.	I.D.	T	B		
6 x 5	168.3	124.40	21.95	143	141.3	103.20	19.05	143	*	28.22
6 x 4	168.3	124.40	21.95	143	114.3	80.06	17.12	143	*	28.08
6 x 3	168.3	124.40	21.95	143	88.9	58.42	15.24	143	*	27.58
6 x 2 ½	168.3	124.40	21.95	143	73.0	44.96	14.02	143	*	27.29
☒ 6 x 2	168.3	124.40	21.95	143	60.3	38.16	11.07	143	*	26.72
8 x 6	219.1	174.64	22.23	178	168.3	124.40	21.95	162	*	50.15
8 x 5	219.1	174.64	22.23	178	141.3	103.20	19.05	156	*	49.58
8 x 4	219.1	174.64	22.23	178	114.3	80.06	17.12	191	*	49.44
☒ 8 x 3	219.1	174.64	22.23	178	88.9	58.42	15.24	184	*	48.79
10 x 8	273.0	222.20	25.40	216	219.1	174.64	22.23	203	*	76.44
10 x 6	273.0	222.20	25.40	216	168.3	124.40	21.95	194	*	74.30
10 x 5	273.0	222.20	25.40	216	141.3	103.20	19.05	191	*	73.59
10 x 4	273.0	222.20	25.40	216	114.3	80.06	17.12	184	*	72.16
☒ 10 x 3	273.0	222.20	25.40	216	88.9	58.42	15.24	184	*	71.67
12 x 10	323.8	273.00	25.40	254	273.0	222.20	25.40	241	*	117.88
12 x 8	323.8	273.00	25.40	254	219.1	174.64	22.23	229	*	111.45
12 x 6	323.8	273.00	25.40	254	168.3	124.40	21.95	219	*	107.88
12 x 5	323.8	273.00	25.40	254	141.3	103.20	19.05	216	*	106.45
☒ 12 x 4	323.8	273.00	25.40	254	114.3	80.06	17.12	216	*	105.73

CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 48 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

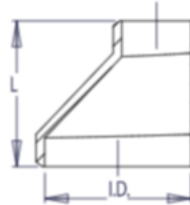
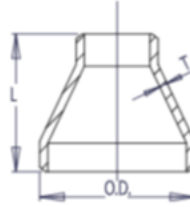
☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
¾ x ½	26.7	20.96	2.87	21.3	15.76	2.77	38	40	0.10
1 x ¾	33.4	26.64	3.38	26.7	20.96	2.87	51	40	0.16
1 x ½	33.4	26.64	3.38	21.3	15.76	2.77	51	40	0.16
1 ¼ x 1	42.2	35.08	3.56	33.4	26.64	3.38	51	40	0.22
1 ¼ x ¾	42.2	35.08	3.56	26.7	20.96	2.87	51	40	0.19
1 ¼ x ½	42.2	35.08	3.56	21.3	15.76	2.77	51	40	0.19
1 ½ x 1 ¼	48.3	40.94	3.68	42.2	35.08	3.56	64	40	0.29
1 ½ x 1	48.3	40.94	3.68	33.4	26.64	3.38	64	40	0.26
1 ½ x ¾	48.3	40.94	3.68	26.7	20.96	2.87	64	40	0.25
1 ½ x ½	48.3	40.94	3.68	21.3	15.76	2.77	64	40	0.25
2 x 1 ½	60.3	52.48	3.91	48.3	40.94	3.68	76	40	0.43
2 x 1 ¼	60.3	52.48	3.91	42.2	35.08	3.56	76	40	0.40
2 x 1	60.3	52.48	3.91	33.4	26.64	3.38	76	40	0.37
2 x ¾	60.3	52.48	3.91	26.7	20.96	2.87	76	40	0.34
2 ½ x 2	73.0	62.68	5.16	60.3	52.48	3.91	89	40	0.73
2 ½ x 1 ½	73.0	62.68	5.16	48.3	40.94	3.68	89	40	0.68
2 ½ x 1 ¼	73.0	62.68	5.16	42.2	35.08	3.56	89	40	0.64
2 ½ x 1	73.0	62.68	5.16	33.4	26.64	3.38	89	40	0.59
3 x 2 ½	88.9	77.92	5.49	73.0	62.68	5.16	89	40	1.00
3 x 2	88.9	77.92	5.49	60.3	52.48	3.91	89	40	0.91
3 x 1 ½	88.9	77.92	5.49	48.3	40.94	3.68	89	40	0.86
3 x 1 ¼	88.9	77.92	5.49	42.2	35.08	3.56	89	40	0.82
☒ 3 x 1	88.9	77.92	5.49	33.4	26.64	3.38	89	40	0.77
3 ½ x 3	101.6	90.12	5.74	88.9	77.92	5.49	102	40	1.27
3 ½ x 2 ½	101.6	90.12	5.74	73.0	62.68	5.16	102	40	1.22
3 ½ x 2	101.6	90.12	5.74	60.3	52.48	3.91	102	40	1.18
3 ½ x 1 ½	101.6	90.12	5.74	48.3	40.94	3.68	102	40	1.18
3 ½ x 1 ¼	101.6	90.12	5.74	42.2	35.08	3.56	102	40	1.13
4 x 3 ½	114.3	102.26	6.02	101.6	90.12	5.74	102	40	1.59
4 x 3	114.3	102.26	6.02	88.9	77.92	5.49	102	40	1.50
4 x 2 ½	114.3	102.26	6.02	73.0	62.68	5.16	102	40	1.45
4 x 2	114.3	102.26	6.02	60.3	52.48	3.91	102	40	1.41
4 x 1 ½	114.3	102.26	6.02	48.3	40.94	3.68	102	40	1.36

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
4 x 1 1/4	114.3	102.26	6.02	42.16	35.052	3.556	102	40	1.36
4 x 1	114.3	102.26	6.02	33.4	26.64	3.38	102	40	1.27
5 x 4	141.3	128.20	6.55	114.3	102.26	6.02	127	40	2.49
5 x 3 1/2	141.3	128.20	6.55	101.6	90.12	5.74	127	40	2.40
5 x 3	141.3	128.20	6.55	88.9	77.92	5.49	127	40	2.31
5 x 2 1/2	141.3	128.20	6.55	73.0	62.68	5.16	127	40	2.18
5 x 2	141.3	128.20	6.55	60.3	52.48	3.91	127	40	2.13
6 x 5	168.3	154.08	7.11	141.3	128.20	6.55	140	40	3.45
6 x 4	168.3	154.08	7.11	114.3	102.26	6.02	140	40	3.36
6 x 3 1/2	168.3	154.08	7.11	101.6	90.12	5.74	140	40	3.22
6 x 3	168.3	154.08	7.11	88.9	77.92	5.49	140	40	3.13
6 x 2 1/2	168.3	154.08	7.11	73.0	62.68	5.16	140	40	2.99
6 x 2	168.3	154.08	7.11	60.3	52.48	3.91	140	40	2.95
8 x 6	219.1	202.74	8.18	168.3	154.08	7.11	152	40	5.58
8 x 5	219.1	202.74	8.18	141.3	128.20	6.55	152	40	5.22
8 x 4	219.1	202.74	8.18	114.3	102.26	6.02	152	40	4.90
8 x 3 1/2	219.1	202.74	8.18	101.6	90.12	5.74	152	40	4.81
8 x 3	219.1	202.74	8.18	88.9	77.92	5.49	152	40	4.45
10 x 8	273.0	254.46	9.27	219.1	202.74	8.18	178	40	10.02
10 x 6	273.0	254.46	9.27	168.3	154.08	7.11	178	40	9.39
10 x 5	273.0	254.46	9.27	141.3	128.20	6.55	178	40	8.85
10 x 4	273.0	254.46	9.27	114.3	102.26	6.02	178	40	8.35
12 x 10	323.8	304.74	9.53	273.0	254.46	9.27	203	*	14.70
12 x 8	323.8	304.74	9.53	219.1	202.74	8.18	203	*	13.83
12 x 6	323.8	304.74	9.53	168.3	154.08	7.11	203	*	13.38
12 x 5	323.8	304.74	9.53	141.3	128.20	6.55	203	*	12.61
12 x 4	323.8	304.74	9.53	114.3	102.26	6.02	203	*	11.88
14 x 12	355.6	336.54	9.53	323.8	304.74	9.53	330	*	28.62
14 x 10	355.6	336.54	9.53	273.0	254.46	9.27	330	*	27.85
14 x 8	355.6	336.54	9.53	219.1	202.74	8.18	330	*	27.22
14 x 6	355.6	336.54	9.53	168.3	154.08	7.11	330	*	26.85
16 x 14	406.4	387.34	9.53	355.6	336.54	9.53	356	*	34.20
16 x 12	406.4	387.34	9.53	323.8	304.74	9.53	356	*	32.98
16 x 10	406.4	387.34	9.53	273.0	254.46	9.27	356	*	32.25
16 x 8	406.4	387.34	9.53	219.1	202.74	8.18	356	*	31.48
16 x 6	406.4	387.34	9.53	168.3	154.08	7.11	356	*	30.57
18 x 16	457.0	437.94	9.53	406.4	387.34	9.53	381	*	39.60
18 x 14	457.0	437.94	9.53	355.6	336.54	9.53	381	*	39.01
18 x 12	457.0	437.94	9.53	323.8	304.74	9.53	381	*	38.46
18 x 10	457.0	437.94	9.53	273.0	254.46	9.27	381	*	37.97
18 x 8	457.0	437.94	9.53	219.1	202.74	8.18	381	*	37.08
20 x 18	508.0	488.94	9.53	457.0	437.94	9.53	508	*	55.79
20 x 16	508.0	488.94	9.53	406.4	387.34	9.53	508	*	54.88
20 x 14	508.0	488.94	9.53	355.6	336.54	9.53	508	*	53.98

CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 48 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

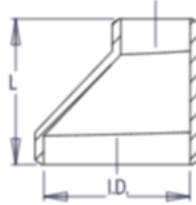
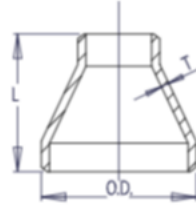
☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
20 x 12	508.0	488.94	9.53	323.8	304.74	9.53	508	*	53.52
☒ 20 x 10	508.0	488.94	9.53	273.0	254.46	9.27	508	*	53.07
24 x 20	508.0	488.94	9.53	508.0	488.94	9.53	508	*	70.76
24 x 18	610.0	590.94	9.53	457.0	437.94	9.53	508	*	69.40
24 x 16	610.0	590.94	9.53	406.4	387.34	9.53	508	*	68.04
☒ 24 x 14	610.0	590.94	9.53	355.6	336.54	9.53	508	*	66.68
☒ 24 x 12	610.0	590.94	9.53	323.8	304.74	9.53	508	*	65.32
☒ 24 x 10	610.0	590.94	9.53	273.0	254.46	9.27	508	*	63.96
30 x 24	762.0	742.94	9.53	610.0	590.94	9.53	610	*	142.88
30 x 20	762.0	742.94	9.53	508.0	488.94	9.53	610	*	142.88
☒ 30 x 18	762.0	742.94	9.53	457.0	437.94	9.53	610	*	142.88
36 x 30	914.0	894.94	9.53	762.0	742.94	9.53	610	*	171.91
36 x 24	914.0	894.94	9.53	610.0	590.94	9.53	610	*	171.91
☒ 36 x 20	914.0	894.94	9.53	508.0	488.94	9.53	610	*	171.91
42 x 36	1067.0	1047.94	9.53	914.0	894.94	9.53	610	*	200.94
42 x 30	1067.0	1047.94	9.53	762.0	742.94	9.53	610	*	200.94
☒ 42 x 24	1067.0	1047.94	9.53	610.0	590.94	9.53	610	*	200.94
48 x 42	1219.0	1199.94	9.53	1067.0	1047.94	9.53	711	*	238.13
☒ 48 x 36	1219.0	1199.94	9.53	914.0	894.94	9.53	711	*	238.13
☒ 48 x 30	1219.0	1199.94	9.53	762.0	742.94	9.53	711	*	238.13
☒ 48 x 24	1219.0	1200.15	9.53	609.6	590.55	9.53	711	*	238.13

1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 48 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

Ø In accordance with B16.9. Special Fittings paragraph 4.4.2.

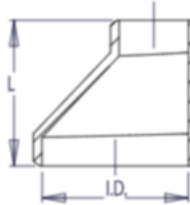
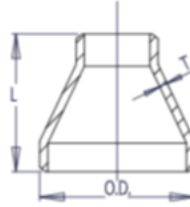


CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE XS

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
¾ x ½	26.7	18.88	3.91	21.3	13.84	3.73	38	80	0.11
1 x ¾	33.4	24.30	4.55	26.7	18.88	3.91	51	80	0.20
1 x ½	33.4	24.30	4.55	21.3	13.84	3.73	51	80	0.19
1 ¼ x 1	42.2	32.50	4.85	33.4	24.30	4.55	51	80	0.26
1 ¼ x ¾	42.2	32.50	4.85	26.7	18.88	3.91	51	80	0.24
1 ¼ x ½	42.2	32.50	4.85	21.3	13.84	3.73	51	80	0.23
1 ½ x 1 ¼	48.3	38.14	5.08	42.2	32.50	4.85	64	80	0.35
1 ½ x 1	48.3	38.14	5.08	33.4	24.30	4.55	64	80	0.33
1 ½ x ¾	48.3	38.14	5.08	26.7	18.88	3.91	64	80	0.29
1 ½ x ½	48.3	38.14	5.08	21.3	13.84	3.73	64	80	0.29
2 x 1 ½	60.3	49.22	5.54	48.3	38.14	5.08	76	80	0.54
2 x 1 ¼	60.3	49.22	5.54	42.2	32.50	4.85	76	80	0.50
2 x 1	60.3	49.22	5.54	33.4	24.30	4.55	76	80	0.45
2 x ¾	60.3	49.22	5.54	26.7	18.88	3.91	76	80	0.43
2 ½ x 2	73.0	58.98	7.01	60.3	49.22	5.54	89	80	0.95
2 ½ x 1 ½	73.0	58.98	7.01	48.3	38.14	5.08	89	80	0.86
2 ½ x 1 ¼	73.0	58.98	7.01	42.2	32.50	4.85	89	80	0.77
2 ½ x 1	73.0	58.98	7.01	33.4	24.30	4.55	89	80	0.68
3 x 2 ½	88.9	73.66	7.62	73.0	58.98	7.01	89	80	1.27
3 x 2	88.9	73.66	7.62	60.3	49.22	5.54	89	80	1.18
3 x 1 ½	88.9	73.66	7.62	48.3	38.14	5.08	89	80	1.09
3 x 1 ¼	88.9	73.66	7.62	42.2	32.50	4.85	89	80	1.04
Ø 3 x 1	88.9	73.66	7.62	33.4	24.30	4.55	89	80	1.00
3 ½ x 3	101.6	85.44	8.08	88.9	73.66	7.62	102	80	1.68
3 ½ x 2 ½	101.6	85.44	8.08	73.0	58.98	7.01	102	80	1.59
3 ½ x 2	101.6	85.44	8.08	60.3	49.22	5.54	102	80	1.50
3 ½ x 1 ½	101.6	85.44	8.08	48.3	38.14	5.08	102	80	1.45
3 ½ x 1 ¼	101.6	85.44	8.08	42.2	32.50	4.85	102	80	1.45
4 x 3 ½	114.3	97.18	8.56	101.6	85.44	8.08	102	80	2.22
4 x 3	114.3	97.18	8.56	88.9	73.66	7.62	102	80	2.13
4 x 2 ½	114.3	97.18	8.56	73.0	58.98	7.01	102	80	2.09
4 x 2	114.3	97.18	8.56	60.3	49.22	5.54	102	80	1.95
4 x 1 ½	114.3	97.18	8.56	48.3	38.14	5.08	102	80	1.91

CONCENTRIC AND ECCENTRIC REDUCERS SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 48 please call.
6. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.

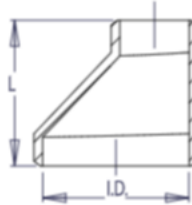
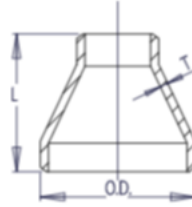
☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
☒ 4 x 1 ¼	114.3	97.18	8.56	42.2	32.50	4.85	102	80	1.86
☒ 4 x 1	114.3	97.18	8.56	33.4	24.30	4.55	102	80	1.81
5 x 4	141.3	122.24	9.53	114.3	97.18	8.56	127	80	3.40
5 x 3 ½	141.3	122.24	9.53	101.6	85.44	8.08	127	80	3.13
5 x 3	141.3	122.24	9.53	88.9	73.66	7.62	127	80	2.86
5 x 2 ½	141.3	122.24	9.53	73.0	58.98	7.01	127	80	2.77
5 x 2	141.3	122.24	9.53	60.3	49.22	5.54	127	80	2.72
6 x 5	168.3	146.36	10.97	141.3	122.24	9.53	140	80	5.22
6 x 4	168.3	146.36	10.97	114.3	97.18	8.56	140	80	4.85
6 x 3 ½	168.3	146.36	10.97	101.6	85.44	8.08	140	80	4.54
6 x 3	168.3	146.36	10.97	88.9	73.66	7.62	140	80	4.40
6 x 2 ½	168.3	146.36	10.97	73.0	58.98	7.01	140	80	4.13
☒ 6 x 2	168.3	146.36	10.97	60.3	49.22	5.54	140	80	3.90
8 x 6	219.1	193.70	12.70	168.3	146.36	10.97	152	80	8.53
8 x 5	219.1	193.70	12.70	141.3	122.24	9.53	152	80	7.98
8 x 4	219.1	193.70	12.70	114.3	97.18	8.56	152	80	7.71
8 x 3 ½	219.1	193.70	12.70	101.6	85.44	8.08	152	80	7.21
☒ 8 x 3	219.1	193.70	12.70	88.9	73.66	7.62	152	80	6.80
10 x 8	273.0	247.60	12.70	219.1	193.70	12.70	178	*	13.34
10 x 6	273.0	247.60	12.70	168.3	146.36	10.97	178	*	12.84
10 x 5	273.0	247.60	12.70	141.3	122.24	9.53	178	*	12.20
10 x 4	273.0	247.60	12.70	114.3	97.18	8.56	178	*	10.98
12 x 10	323.8	298.40	12.70	273.0	247.60	12.70	203	*	18.82
12 x 8	323.8	298.40	12.70	219.1	193.70	12.70	203	*	17.51
12 x 6	323.8	298.40	12.70	168.3	146.36	10.97	203	*	16.96
12 x 5	323.8	298.40	12.70	141.3	122.24	9.53	203	*	16.47
☒ 12 x 4	323.8	298.40	12.70	114.3	97.18	8.56	203	*	15.74
14 x 12	355.6	330.20	12.70	323.8	298.40	12.70	330	*	36.74
14 x 10	355.6	330.20	12.70	273.0	247.60	12.70	330	*	34.79
14 x 8	355.6	330.20	12.70	219.1	193.70	12.70	330	*	33.84
14 x 6	355.6	330.20	12.70	168.3	146.36	10.97	330	*	32.79
16 x 14	406.40	381.000	12.700	355.6	330.20	12.70	356	*	44.45

CONCENTRIC AND ECCENTRIC REDUCERS

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
16 x 12	406.4	381.00	12.70	323.8	298.40	12.70	356	*	43.45
16 x 10	406.4	381.00	12.70	273.0	247.60	12.70	356	*	42.32
16 x 8	406.4	381.00	12.70	219.1	193.70	12.70	356	*	41.32
☒ 16 x 6	406.4	381.00	12.70	168.3	146.36	10.97	356	*	40.73
18 x 16	457.0	431.60	12.70	406.4	381.00	12.70	381	*	53.52
18 x 14	457.0	431.60	12.70	355.6	330.20	12.70	381	*	53.07
18 x 12	457.0	431.60	12.70	323.8	298.40	12.70	381	*	52.16
18 x 10	457.0	431.60	12.70	273.0	247.60	12.70	381	*	51.26
☒ 18 x 8	457.0	431.60	12.70	219.1	193.70	12.70	381	*	45.36
20 x 18	508.0	482.60	12.70	457.0	431.60	12.70	508	*	73.48
20 x 16	508.0	482.60	12.70	406.4	381.00	12.70	508	*	72.12
20 x 14	508.0	482.60	12.70	355.6	330.20	12.70	508	*	71.21
20 x 12	508.0	482.60	12.70	323.8	298.40	12.70	508	*	70.31
☒ 20 x 10	508.0	482.60	12.70	273.0	247.60	12.70	508	*	68.95
24 x 20	610.0	584.60	12.70	508.0	482.60	12.70	508	*	91.17
24 x 18	610.0	584.60	12.70	457.0	431.60	12.70	508	*	89.36
24 x 16	610.0	584.60	12.70	406.4	381.00	12.70	508	*	88.00
☒ 24 x 14	610.0	584.60	12.70	355.6	330.20	12.70	508	*	86.18
☒ 24 x 12	610.0	584.60	12.70	323.8	298.40	12.70	508	*	85.27
☒ 24 x 10	610.0	584.60	12.70	273.0	247.60	12.70	508	*	84.37
30 x 24	762.0	736.60	12.70	610.0	584.60	12.70	610	*	142.88
30 x 20	762.0	736.60	12.70	508.0	482.60	12.70	610	*	142.88
☒ 30 x 18	762.0	736.60	12.70	457.0	431.60	12.70	610	*	142.88
36 x 30	914.0	888.60	12.70	762.0	736.60	12.70	610	*	171.91
36 x 24	914.0	888.60	12.70	610.0	584.60	12.70	610	*	171.91
☒ 36 x 20	914.0	888.60	12.70	508.0	482.60	12.70	610	*	171.91
42 x 36	1067.0	1041.60	12.70	914.0	888.60	12.70	610	*	200.94
42 x 30	1067.0	1041.60	12.70	762.0	736.60	12.70	610	*	200.94
☒ 42 x 24	1067.0	1041.60	12.70	610.0	584.60	12.70	610	*	200.94
48 x 42	1219.0	1193.60	12.70	1067.0	1041.60	12.70	711	*	238.13
☒ 48 x 36	1219.0	1193.60	12.70	914.0	888.60	12.70	711	*	238.13
☒ 48 x 30	1219.0	1193.60	12.70	762.0	736.60	12.70	711	*	238.13
☒ 48 x 24	1219.0	1193.60	12.70	610.0	584.60	12.70	711	*	238.13

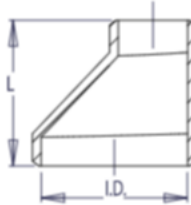
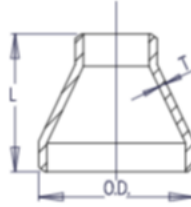
CONCENTRIC AND ECCENTRIC REDUCERS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 24 please call.
 6. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
FOR DIMENSION SPECIFICATIONS NPS ½ THROUGH 10 REFER TO SCHEDULE STD									
12 x 10	323.8	303.18	10.31	273.0	254.46	9.27	203	40	16.24
12 x 8	323.8	303.18	10.31	219.1	202.74	8.18	203	40	16.24
12 x 6	323.8	303.18	10.31	168.3	154.08	7.11	203	40	16.24
12 x 5	323.8	303.18	10.31	141.3	128.20	6.55	203	40	16.24
☒ 12 x 4	323.8	303.18	10.31	114.3	102.26	6.02	203	40	16.24
14 x 12	355.6	333.34	11.13	323.8	303.18	10.31	330	40	31.12
14 x 10	355.6	333.34	11.13	273.0	254.46	9.27	330	40	31.12
14 x 8	355.6	333.34	11.13	219.1	202.74	8.18	330	40	31.12
14 x 6	355.6	333.34	11.13	168.3	154.08	7.11	330	40	31.12
16 x 14	406.4	381.00	12.70	355.6	333.34	11.13	356	40	43.77
16 x 12	406.4	381.00	12.70	323.8	303.18	10.31	356	40	43.77
16 x 10	406.4	381.00	12.70	273.0	254.46	9.27	356	40	43.77
16 x 8	406.4	381.00	12.70	219.1	202.74	8.18	356	40	43.77
☒ 16 x 6	406.4	381.00	12.70	168.3	154.08	7.11	356	40	43.77
18 x 16	457.0	428.46	14.27	406.4	381.00	12.70	381	40	59.42
18 x 14	457.0	428.46	14.27	355.6	333.34	11.13	381	40	59.42
18 x 12	457.0	428.46	14.27	323.8	303.18	10.31	381	40	59.42
18 x 10	457.0	428.46	14.27	273.0	254.46	9.27	381	40	59.42
☒ 18 x 8	457.0	428.46	14.27	219.1	202.74	8.18	381	40	59.42
20 x 18	508.0	477.82	15.09	457.0	428.46	14.27	508	40	92.99
20 x 16	508.0	477.82	15.09	406.4	381.00	12.70	508	40	92.99
20 x 14	508.0	477.82	15.09	355.6	333.34	11.13	508	40	92.99
20 x 12	508.0	477.82	15.09	323.8	303.18	10.31	508	40	92.99
☒ 20 x 10	508.0	477.82	15.09	273.0	254.46	9.27	508	40	92.99
☒ 20 x 8	508.0	477.82	15.09	219.1	202.74	8.18	508	40	92.99
24 x 20	610.0	575.04	17.48	508.0	477.82	15.09	508	40	129.27
24 x 18	610.0	575.04	17.48	457.0	428.46	14.27	508	40	129.27
24 x 16	610.0	575.04	17.48	406.4	381.00	12.70	508	40	129.27
☒ 24 x 14	610.0	575.04	17.48	355.6	333.34	11.13	508	40	129.27
☒ 24 x 12	610.0	575.04	17.48	323.8	303.18	10.31	508	40	129.27
☒ 24 x 10	610.0	575.04	17.48	273.0	254.46	9.27	508	40	129.27

1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.



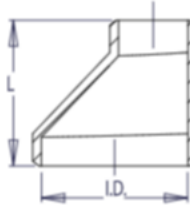
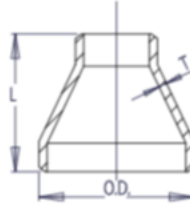
CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE 80

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
FOR DIMENSION SPECIFICATIONS NPS ½ THROUGH 8 REFER TO SCHEDULE XS									
10 x 8	273.0	242.82	15.09	219.1	193.70	12.70	178	80	17.01
10 x 6	273.0	242.82	15.09	168.3	146.36	10.97	178	80	17.01
10 x 5	273.0	242.82	15.09	141.3	122.24	9.53	178	80	17.01
10 x 4	273.0	242.82	15.09	114.3	97.18	8.56	178	80	17.01
12 x 10	323.8	288.84	17.48	273.0	242.82	15.09	203	80	26.76
12 x 8	323.8	288.84	17.48	219.1	193.70	12.70	203	80	26.76
12 x 6	323.8	288.84	17.48	168.3	146.36	10.97	203	80	26.76
12 x 5	323.8	288.84	17.48	141.3	122.24	9.53	203	80	26.76
☒ 12 x 4	323.8	288.84	17.48	114.3	97.18	8.56	203	80	26.76
14 x 12	355.6	317.50	19.05	323.8	288.84	17.48	330	80	52.16
14 x 10	355.6	317.50	19.05	273.0	242.82	15.09	330	80	52.16
14 x 8	355.6	317.50	19.05	219.1	193.70	12.70	330	80	52.16
14 x 6	355.6	317.50	19.05	168.3	146.36	10.97	330	80	52.16
16 x 14	406.4	363.52	21.44	355.6	317.50	19.05	356	80	72.12
16 x 12	406.4	363.52	21.44	323.8	288.84	17.48	356	80	72.12
16 x 10	406.4	363.52	21.44	273.0	242.82	15.09	356	80	72.12
16 x 8	406.4	363.52	21.44	219.1	193.70	12.70	356	80	72.12
☒ 16 x 6	406.4	363.52	21.44	168.3	146.36	10.97	356	80	72.12
18 x 16	457.0	409.34	23.83	406.4	363.52	21.44	381	80	96.61
18 x 14	457.0	409.34	23.83	355.6	317.50	19.05	381	80	96.61
18 x 12	457.0	409.34	23.83	323.8	288.84	17.48	381	80	96.61
18 x 10	457.0	409.34	23.83	273.0	242.82	15.09	381	80	96.61
☒ 18 x 8	457.0	409.34	23.83	219.1	193.70	12.70	381	80	96.61

CONCENTRIC AND ECCENTRIC REDUCERS

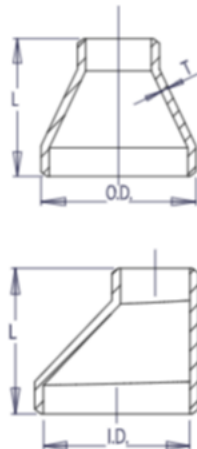
SCHEDULE 80



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
20 x 18	508.0	455.62	26.19	457.0	409.34	23.83	508	80	157.85
20 x 16	508.0	455.62	26.19	406.4	363.52	21.44	508	80	157.85
20 x 14	508.0	455.62	26.19	355.6	317.50	19.05	508	80	157.85
20 x 12	508.0	455.62	26.19	323.8	288.84	17.48	508	80	157.85
☒ 20 x 10	508.0	455.62	26.19	273.0	242.82	15.09	508	80	157.85
☒ 20 x 8	508.0	455.62	26.19	219.1	193.70	12.70	508	80	157.85
24 x 20	610.0	548.08	30.96	508.0	455.62	26.19	508	80	224.07
24 x 18	610.0	548.08	30.96	457.0	409.34	23.83	508	80	224.07
24 x 16	610.0	548.08	30.96	406.4	363.52	21.44	508	80	224.07
☒ 24 x 14	610.0	548.08	30.96	355.6	317.50	19.05	508	80	224.07
☒ 24 x 12	610.0	548.08	30.96	323.8	288.84	17.48	508	80	224.07
☒ 24 x 10	610.0	548.08	30.96	273.0	242.82	15.09	508	80	224.07

1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.



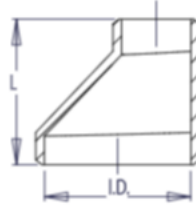
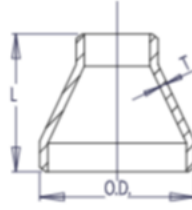
CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE 160

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
¾ x ½	26.7	15.58	5.56	21.3	11.74	4.78	38	160	0.17
1 x ¾	33.4	20.70	6.35	26.7	15.58	5.56	51	160	0.20
1 x ½	33.4	20.70	6.35	21.3	11.74	4.78	51	160	0.20
1 ¼ x 1	42.2	29.50	6.35	33.4	20.70	6.35	51	160	0.32
1 ¼ x ¾	42.2	29.50	6.35	26.7	15.58	5.56	51	160	0.32
1 ¼ x ½	42.2	29.50	6.35	21.3	11.74	4.78	51	160	0.32
1 ½ x 1 ¼	48.3	34.02	7.14	42.2	29.50	6.35	64	160	0.41
1 ½ x 1	48.3	34.02	7.14	33.4	20.70	6.35	64	160	0.41
1 ½ x ¾	48.3	34.02	7.14	26.7	15.58	5.56	64	160	0.41
1 ½ x ½	48.3	34.02	7.14	21.3	11.74	4.78	64	160	0.41
2 x 1 ½	60.3	42.82	8.74	48.3	34.02	7.14	76	160	0.84
2 x 1 ¼	60.3	42.82	8.74	42.2	29.50	6.35	76	160	0.84
2 x 1	60.3	42.82	8.74	33.4	20.70	6.35	76	160	0.84
2 x ¾	60.3	42.82	8.74	26.7	15.58	5.56	76	160	0.68
2 ½ x 2	73.0	53.94	9.53	60.3	42.82	8.74	89	160	1.36
2 ½ x 1 ½	73.0	53.94	9.53	48.3	34.02	7.14	89	160	1.36
2 ½ x 1 ¼	73.0	53.94	9.53	42.2	29.50	6.35	89	160	1.27
2 ½ x 1	73.0	53.94	9.53	33.4	20.70	6.35	89	160	1.27
3 x 2 ½	88.9	66.64	11.13	73.0	53.94	9.53	89	160	1.81
3 x 2	88.9	66.64	11.13	60.3	42.82	8.74	89	160	1.81
3 x 1 ½	88.9	66.64	11.13	48.3	34.02	7.14	89	160	1.81
3 x 1 ¼	88.9	66.64	11.13	42.2	29.50	6.35	89	160	1.59
☒ 3 x 1	88.9	66.64	11.13	33.4	20.70	6.35	89	160	1.59
4 x 3	114.3	87.32	13.49	88.9	66.64	11.13	102	160	2.72
4 x 2 ½	114.3	87.32	13.49	73.0	53.94	9.53	102	160	2.72
4 x 2	114.3	87.32	13.49	60.3	42.82	8.74	102	160	2.27
4 x 1 ½	114.3	87.32	13.49	48.3	34.02	7.14	102	160	2.27
☒ 4 x 1 ¼	114.3	87.32	13.49	42.2	29.50	6.35	102	160	2.27
☒ 4 x 1	114.3	87.32	13.49	33.4	20.70	6.35	102	160	2.27

CONCENTRIC AND ECCENTRIC REDUCERS

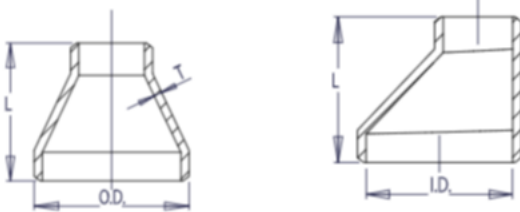
SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
5 x 4	141.3	109.54	15.88	114.3	87.32	13.49	127	160	6.35
5 x 3	141.3	109.54	15.88	88.9	66.64	11.13	127	160	6.35
5 x 2 ½	141.3	109.54	15.88	73.0	53.94	9.53	127	160	6.35
5 x 2	141.3	109.54	15.88	60.3	42.82	8.74	127	160	6.35
6 x 5	168.3	131.78	18.26	141.3	109.54	15.88	140	160	8.16
6 x 4	168.3	131.78	18.26	114.3	87.32	13.49	140	160	8.16
6 x 3	168.3	131.78	18.26	88.9	66.64	11.13	140	160	7.03
6 x 2 ½	168.3	131.78	18.26	73.0	53.94	9.53	140	160	7.03
☒ 6 x 2	168.3	131.78	18.26	60.3	42.82	8.74	140	160	6.80
8 x 6	219.1	173.08	23.01	168.3	131.78	18.26	152	160	14.29
8 x 5	219.1	173.08	23.01	141.3	109.54	15.88	152	160	12.70
8 x 4	219.1	173.08	23.01	114.3	87.32	13.49	152	160	12.70
☒ 8 x 3	219.1	173.08	23.01	88.9	66.64	11.13	152	160	13.61
10 x 8	273.0	215.84	28.58	219.1	173.08	23.01	178	160	26.31
10 x 6	273.0	215.84	28.58	168.3	131.78	18.26	178	160	26.31
10 x 5	273.0	215.84	28.58	141.3	109.54	15.88	178	160	24.49
10 x 4	273.0	215.84	28.58	114.3	87.32	13.49	178	160	23.59
12 x 10	323.8	257.16	33.32	273.0	215.84	28.58	203	160	43.09
12 x 8	323.8	257.16	33.32	219.1	173.08	23.01	203	160	38.56
12 x 6	323.8	257.16	33.32	168.3	131.78	18.26	203	160	36.29
12 x 5	323.8	257.16	33.32	141.3	109.54	15.88	203	160	36.29
☒ 12 x 4	323.8	257.16	33.32	114.3	87.32	13.49	203	160	36.29
14 x 12	355.6	284.18	35.71	323.8	257.16	33.32	330	160	52.16
14 x 10	355.6	284.18	35.71	273.0	215.84	28.58	330	160	52.16
14 x 8	355.6	284.18	35.71	219.1	173.08	23.01	330	160	72.12
14 x 6	355.6	284.18	35.71	168.3	131.78	18.26	330	160	72.12
16 x 14	406.4	325.42	40.49	355.6	284.18	35.71	356	160	72.12
16 x 12	406.4	325.42	40.49	323.8	257.16	33.32	356	160	72.12
16 x 10	406.4	325.42	40.49	273.0	215.84	28.58	356	160	72.12
16 x 8	406.4	325.42	40.49	219.1	173.08	23.01	356	160	96.61
☒ 16 x 6	406.4	325.42	40.49	168.3	131.78	18.26	356	160	96.61

CONCENTRIC AND ECCENTRIC REDUCERS

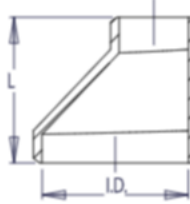
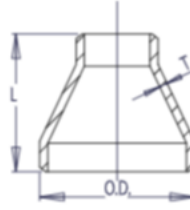


- 1. Conforms to ASME B16.9 & ASTM A234 WPB.
- 2. All dimensions are in millimeters.
- 3. For bevel detail see page 107.
- 4. For dimensional tolerances see page 108.
- 5. All weights are in kilograms and approximated or estimated.
- ⊠ In accordance with B16.9. Special Fittings paragraph 4.4.2.

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
18 x 16	457.0	366.52	45.24	406.4	325.42	40.49	381	160	96.61
18 x 14	457.0	366.52	45.24	355.6	284.18	35.71	381	160	96.61
18 x 12	457.0	366.52	45.24	323.8	257.16	33.32	381	160	96.61
18 x 10	457.0	366.52	45.24	273.0	215.84	28.58	381	160	157.85
⊠ 18 x 8	457.0	366.52	45.24	219.1	173.08	23.01	381	160	148.32
20 x 18	508.0	407.98	50.01	457.0	366.52	45.24	508	160	157.85
20 x 16	508.0	407.98	50.01	406.4	325.42	40.49	508	160	157.85
20 x 14	508.0	407.98	50.01	355.6	284.18	35.71	508	160	224.07
20 x 12	508.0	407.98	50.01	323.8	257.16	33.32	508	160	224.07
⊠ 20 x 10	508.0	407.98	50.01	273.0	215.84	28.58	508	160	224.07
24 x 20	610.0	490.92	59.54	508.0	407.98	50.01	508	160	224.07
24 x 18	610.0	490.92	59.54	457.0	366.52	45.24	508	160	242.67
24 x 16	610.0	490.92	59.54	406.4	325.42	40.49	508	160	242.67
⊠ 24 x 14	610.0	490.92	59.54	355.6	284.18	35.71	508	160	242.67
⊠ 24 x 12	610.0	490.92	59.54	323.8	257.16	33.32	508	160	242.67
⊠ 24 x 10	610.0	490.92	59.54	273.0	215.84	28.58	508	160	242.67

CONCENTRIC AND ECCENTRIC REDUCERS

SCHEDULE XXS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.
 ☒ In accordance with B16.9. Special Fittings paragraph 4.4.2.

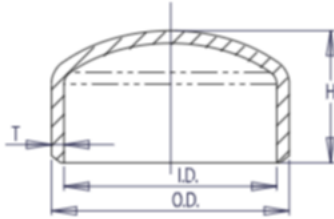
Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
¾ x ½	26.7	11.06	7.82	21.3	6.36	7.47	38.10	*	0.18
1 x ¾	33.4	15.22	9.09	26.7	11.06	7.82	50.80	*	0.23
1 x ½	33.4	15.22	9.09	21.3	6.36	7.47	50.80	*	0.23
1 ¼ x 1	42.2	22.80	9.70	33.4	15.22	9.09	50.80	*	0.34
1 ¼ x ¾	42.2	22.80	9.70	26.7	11.06	7.82	50.80	*	0.34
1 ¼ x ½	42.2	22.80	9.70	21.3	6.36	7.47	50.80	*	0.34
1 ½ x 1 ¼	48.3	28.00	10.15	42.2	22.80	9.70	63.50	*	0.45
1 ½ x 1	48.3	28.00	10.15	33.4	15.22	9.09	63.50	*	0.45
1 ½ x ¾	48.3	28.00	10.15	26.7	11.06	7.82	63.50	*	0.45
1 ½ x ½	48.3	28.00	10.15	21.3	6.36	7.47	63.50	*	0.45
2 x 1 ½	60.3	38.16	11.07	48.3	28.00	10.15	76.20	*	0.91
2 x 1 ¼	60.3	38.16	11.07	42.2	22.80	9.70	76.20	*	0.91
2 x 1	60.3	38.16	11.07	33.4	15.22	9.09	76.20	*	0.91
2 x ¾	60.3	38.16	11.07	26.7	11.06	7.82	76.20	*	0.79
2 ½ x 2	73.0	44.96	14.02	60.3	38.16	11.07	88.90	*	1.81
2 ½ x 1 ½	73.0	44.96	14.02	48.3	28.00	10.15	88.90	*	1.81
2 ½ x 1 ¼	73.0	44.96	14.02	42.2	22.80	9.70	88.90	*	1.59
2 ½ x 1	73.0	44.96	14.02	33.4	15.22	9.09	88.90	*	1.59
3 x 2 ½	88.9	58.42	15.24	73.0	44.96	14.02	88.90	*	2.27
3 x 2	88.9	58.42	15.24	60.3	38.16	11.07	88.90	*	2.27
3 x 1 ½	88.9	58.42	15.24	48.3	28.00	10.15	88.90	*	2.27
3 x 1 ¼	88.9	58.42	15.24	42.2	22.80	9.70	88.90	*	2.04
☒ 3 x 1	88.9	58.42	15.24	33.4	15.22	9.09	88.90	*	2.04
4 x 3	114.3	80.06	17.12	88.9	58.42	15.24	101.60	*	3.63
4 x 2 ½	114.3	80.06	17.12	73.0	44.96	14.02	101.60	*	3.63
4 x 2	114.3	80.06	17.12	60.3	38.16	11.07	101.60	*	3.40
4 x 1 ½	114.3	80.06	17.12	48.3	28.00	10.15	101.60	*	3.40
☒ 4 x 1 ¼	114.3	80.06	17.12	42.2	22.80	9.70	101.60	*	3.40
☒ 4 x 1	114.3	80.06	17.12	33.4	15.22	9.09	101.60	*	3.18

CONCENTRIC AND ECCENTRIC REDUCERS

Pipe Size	LARGE DIAMETER			SMALL DIAMETER			Length	Pipe Schedule Number	Approx. Weight in Kilograms
	Outside Diameter	Inside Diameter	Wall Thickness	Outside Diameter	Inside Diameter	Wall Thickness			
NPS	O.D.	I.D.	T	O.D.	I.D.	T	L		
5 x 4	141.3	103.20	19.05	114.3	80.06	17.12	127	*	7.26
5 x 3	141.3	103.20	19.05	88.9	58.42	15.24	127	*	7.26
5 x 2 ½	141.3	103.20	19.05	73.0	44.96	14.02	127	*	7.26
5 x 2	141.3	103.20	19.05	60.3	38.16	11.07	127	*	7.26
6 x 5	168.3	124.40	21.95	141.3	103.20	19.05	139	*	10.43
6 x 4	168.3	124.40	21.95	114.3	80.06	17.12	139	*	10.43
6 x 3	168.3	124.40	21.95	88.9	58.42	15.24	139	*	9.07
6 x 2 ½	168.3	124.40	21.95	73.0	44.96	14.02	139	*	9.07
⊠ 6 x 2	168.3	124.40	21.95	60.3	38.16	11.07	139	*	8.62
8 x 6	219.1	174.64	22.23	168.3	124.40	21.95	152	*	16.33
8 x 5	219.1	174.64	22.23	141.3	103.20	19.05	152	*	14.97
8 x 4	219.1	174.64	22.23	114.3	80.06	17.12	152	*	14.97
⊠ 8 x 3	219.1	174.64	22.23	88.9	58.42	15.24	152	*	14.97
10 x 8	273.0	222.20	25.40	219.1	174.64	22.23	178	*	21.77
10 x 6	273.0	222.20	25.40	168.3	124.40	21.95	178	*	26.31
10 x 5	273.0	222.20	25.40	141.3	103.20	19.05	178	*	24.49
10 x 4	273.0	222.20	25.40	114.3	80.06	17.12	178	*	23.59
12 x 10	323.8	273.00	25.40	273.0	222.20	25.40	203	*	43.09
12 x 8	323.8	273.00	25.40	219.1	174.64	22.23	203	*	38.56
12 x 6	323.8	273.00	25.40	168.3	124.40	21.95	203	*	36.29
12 x 5	323.8	273.00	25.40	141.3	103.20	19.05	203	*	36.29
⊠ 12 x 4	323.8	273.00	25.40	114.3	80.06	17.12	203	*	36.29

CAPS

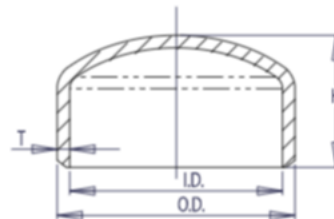
SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
 7. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	15.76	2.77	25	40	0.04
¾	26.7	20.96	2.87	25	40	0.06
1	33.4	26.64	3.38	38	40	0.10
1 ¼	42.2	35.08	3.56	38	40	0.15
1 ½	48.3	40.94	3.68	38	40	0.24
2	60.3	52.48	3.91	38	40	0.36
2 ½	73.0	62.68	5.16	38	40	0.45
3	88.9	77.92	5.49	51	40	0.77
3 ½	101.6	90.12	5.74	64	40	1.04
4	114.3	102.26	6.02	64	40	1.27
5	141.3	128.20	6.55	76	40	2.09
6	168.3	154.08	7.11	89	40	3.13
8	219.1	202.74	8.18	102	40	5.35
10	273.0	254.46	9.27	127	40	9.43
12	323.8	304.74	9.53	152	*	13.74
14	355.6	336.54	9.53	165	30	16.56
16	406.4	387.34	9.53	178	30	19.73
18	457.0	437.94	9.53	203	*	25.85
20	508.0	488.94	9.53	229	20	34.34
24	610.0	590.94	9.53	267	20	45.81
30	762.0	742.94	9.53	267	*	62.14
36	914.0	894.94	9.53	267	*	79.38
42	1067.0	1047.94	9.53	305	*	103.87
48	1219.0	1199.94	9.53	343	*	158.76

SCHEDULE XS



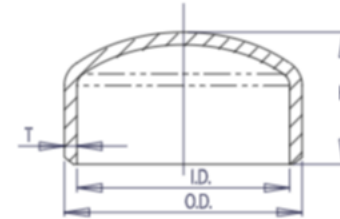
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. For sizes larger than NPS 48 please call.
 6. All weights are in kilograms and approximated or estimated.
 7. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	13.84	3.73	25	80	0.05
¾	26.7	18.88	3.91	25	80	0.07
1	33.4	24.30	4.55	38	80	0.13
1 ¼	42.2	32.50	4.85	38	80	0.22
1 ½	48.3	38.14	5.08	38	80	0.30
2	60.3	49.22	5.54	38	80	0.42
2 ½	73.0	58.98	7.01	38	80	0.59
3	88.9	73.66	7.62	51	80	0.95
3 ½	101.6	85.44	8.08	64	80	1.36
4	114.3	97.18	8.56	64	80	1.59
5	141.3	122.24	9.53	76	80	2.63
6	168.3	146.36	10.97	89	80	4.22
8	219.1	193.70	12.70	102	80	7.26
10	273.0	247.60	12.70	127	60	11.79
12	323.8	298.40	12.70	152	*	17.24
14	355.6	330.20	12.70	165	*	21.32
16	406.4	381.00	12.70	178	40	25.85
18	457.0	431.60	12.70	203	*	35.38
20	508.0	482.60	12.70	229	30	45.36
24	610.0	584.60	12.70	267	*	65.77
30	762.0	736.60	12.70	267	20	287.58
36	914.0	888.60	12.70	267	20	414.13
42	1067.0	1041.60	12.70	305	*	589.67
48	1219.0	1193.60	12.70	343	*	759.76

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	15.76	2.77	25	40	0.04
¾	26.7	20.96	2.87	25	40	0.06
1	33.4	26.64	3.38	38	40	0.10
1 ¼	42.2	35.08	3.56	38	40	0.15
1 ½	48.3	40.94	3.68	38	40	0.24
2	60.3	52.48	3.91	38	40	0.36
2 ½	73.0	62.68	5.16	38	40	0.45
3	88.9	77.92	5.49	51	40	0.77
3 ½	101.6	90.12	5.74	64	40	1.04
4	114.3	102.26	6.02	64	40	1.27
5	141.3	128.20	6.55	76	40	2.09
6	168.3	154.08	7.11	89	40	3.13
8	219.1	202.74	8.18	102	40	5.35
10	273.0	254.46	9.27	127	40	9.43
12	323.8	303.18	10.31	152	40	13.74
14	355.6	333.34	11.13	165	40	16.56
16	406.4	381.00	12.70	178	40	19.73
18	457.0	428.46	14.27	229	40	25.85
20	508.0	477.82	15.09	254	40	34.34
24	610.0	575.04	17.48	305	40	45.81

CAPS

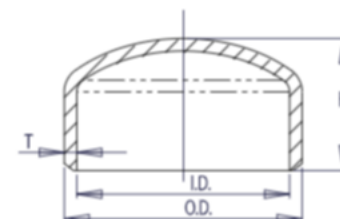
SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. For sizes larger than NPS 24 please call.
6. All weights are in kilograms and approximated or estimated.
7. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	13.84	3.73	25	80	0.05
¾	26.7	18.88	3.91	25	80	0.07
1	33.4	24.30	4.55	38	80	0.13
1 ¼	42.2	32.50	4.85	38	80	0.22
1 ½	48.3	38.14	5.08	38	80	0.30
2	60.3	49.22	5.54	38	80	0.42
2 ½	73.0	58.98	7.01	38	80	0.59
3	88.9	73.66	7.62	51	80	0.95
3 ½	101.6	85.44	8.08	64	80	1.36
4	114.3	97.18	8.56	64	80	1.59
5	141.3	122.24	9.53	76	80	2.63
6	168.3	146.36	10.97	89	80	4.22
8	219.1	193.70	12.70	102	80	7.26
10	273.0	242.82	15.09	152	80	11.79
12	323.8	288.84	17.48	178	80	17.24
14	355.6	317.50	19.05	191	80	21.32
16	406.4	363.52	21.44	203	80	25.85
18	457.0	409.34	23.83	229	80	35.38
20	508.0	455.62	26.19	254	80	45.36
24	610.0	548.08	30.96	305	80	65.77

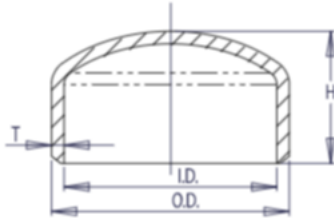
SCHEDULE 80



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
 6. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.
- * This size and thickness does not correspond to any pipe schedule number.

CAPS

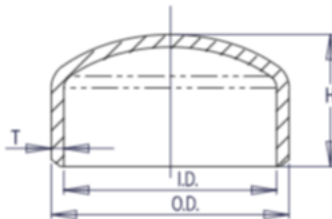
SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.
6. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	11.74	4.78	25	160	0.14
¾	26.7	15.58	5.56	25	160	0.14
1	33.4	20.70	6.35	38	160	0.18
1 ¼	42.2	29.50	6.35	38	160	0.23
1 ½	48.3	34.02	7.14	38	160	0.27
2	60.3	42.82	8.74	45	160	0.59
2 ½	73.0	53.94	9.53	51	160	0.82
3	88.9	66.64	11.13	64	160	1.32
4	114.3	87.32	13.49	76	160	2.68
5	141.3	109.54	15.88	89	160	4.54
6	168.3	131.78	18.26	102	160	6.80
8	219.1	173.08	23.01	127	160	14.06
10	273.0	215.84	28.58	152	160	25.85
12	323.8	257.16	33.32	178	160	43.09
14	355.6	284.18	35.71	191	160	90.72
16	406.4	325.42	40.49	203	160	134.72
18	457.0	366.52	45.24	229	160	163.29
20	508.0	407.98	50.01	254	160	190.51
24	610.0	490.92	59.54	305	160	242.67

SCHEDULE XXS



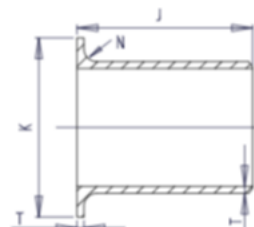
1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
 6. The shape of the cap is 2:1 ellipsoidal and conforms to the shape requirements given in the ASME Boiler and Pressure Vessel Code.
- * This size and thickness does not correspond to any pipe schedule number.

Pipe Size	Outside Diameter	Inside Diameter	Wall Thickness	Height	Pipe Schedule Number	Approx. Weight in Kilograms
NPS	O.D.	I.D.	T	H		
½	21.3	6.36	7.47	25	*	0.23
¾	26.7	11.06	7.82	25	*	0.34
1	33.4	15.22	9.09	38	*	0.45
1 ¼	42.2	22.80	9.70	38	*	0.68
1 ½	48.3	28.00	10.15	38	*	1.13
2	60.3	38.16	11.07	45	*	1.36
2 ½	73.0	44.96	14.02	51	*	1.81
3	88.9	58.42	15.24	64	*	2.72
4	114.3	80.06	17.12	76	*	4.08
5	141.3	103.20	19.05	89	*	6.12
6	168.3	124.40	21.95	102	*	8.16
8	219.1	174.64	22.23	127	*	11.79
10	273.0	222.20	25.40	152	140	20.87
12	323.8	273.00	25.40	178	120	30.84

Pipe Size NPS	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter K	Fillet Overall Length N	Radius J	Pipe Schedule Number	Approx. Weight in Kilograms
			T					
½	22.8	20.5	2.77	35	3	76	40	0.14
¾	28.1	25.9	2.87	43	3	76	40	0.18
1	35.0	32.6	3.38	51	3	102	40	0.34
1 ¼	43.6	41.4	3.56	64	5	102	40	0.50
1 ½	49.9	47.5	3.68	73	6	102	40	0.57
2	62.4	59.5	3.91	92	8	152	40	1.02
2 ½	75.3	72.2	5.16	105	8	152	40	1.59
3	91.3	88.1	5.49	127	10	152	40	2.15
3 ½	104.0	100.8	5.74	140	10	152	40	2.72
4	116.7	113.5	6.02	157	11	152	40	3.29
5	144.3	140.5	6.55	186	11	203	40	5.44
6	171.3	167.5	7.11	216	13	203	40	7.26
8	222.1	218.3	8.18	270	13	203	40	10.43
10	277.2	272.3	9.27	324	13	254	40	16.33
12	328.0	323.1	9.53	381	13	254	*	21.32
14	359.9	354.8	9.53	413	13	305	30	16.06
16	411.0	405.6	9.53	470	13	305	30	20.32
18	462.0	456.0	9.53	533	13	305	*	25.95
20	514.0	507.0	9.53	584	13	305	20	32.20
24	616.0	609.0	9.53	692	13	305	20	46.27

LAP JOINT STUB ENDS

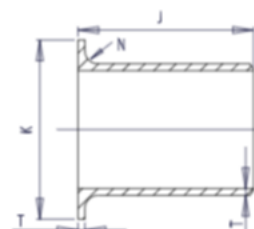
SCHEDULE STD



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

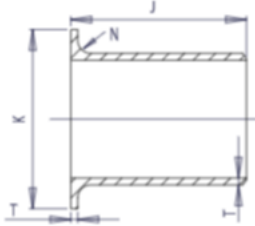
Pipe Size NPS	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter K	Fillet Overall Length N	Radius J	Pipe Schedule Number	Approx. Weight in Kilograms
			T					
½	22.8	20.5	3.73	35	3	76	80	0.17
¾	28.1	25.9	3.91	43	3	76	80	0.23
1	35.0	32.6	4.55	51	3	102	80	0.45
1 ¼	43.6	41.4	4.85	64	5	102	80	0.57
1 ½	49.9	47.5	5.08	73	6	102	80	0.79
2	62.4	59.5	5.54	92	8	152	80	1.36
2 ½	75.3	72.2	7.01	105	8	152	80	2.04
3	91.3	88.1	7.62	127	10	152	80	2.95
3 ½	104.0	100.8	8.08	140	10	152	80	3.52
4	116.7	113.5	8.56	157	11	152	80	4.31
5	144.3	140.5	9.53	186	11	203	80	7.71
6	171.3	167.5	10.97	216	13	203	80	10.43
8	222.1	218.3	12.70	270	13	203	80	14.51
10	277.2	272.3	12.70	324	13	254	60	24.04
12	328.0	323.1	12.70	381	13	254	*	28.12
14	359.9	354.8	12.70	413	13	305	*	40.37
16	411.0	405.6	12.70	470	13	305	40	43.54
18	462.0	456.0	12.70	533	13	305	*	50.80
20	514.0	507.0	12.70	584	13	305	30	56.70
24	616.0	609.0	12.70	692	13	305	*	68.49

SCHEDULE XS



1. Conforms to ASME B16.9 & ASTM A234 WPB.
 2. All dimensions are in millimeters.
 3. For bevel detail see page 107.
 4. For dimensional tolerances see page 108.
 5. All weights are in kilograms and approximated or estimated.
- * This size and thickness does not correspond to any pipe schedule number.

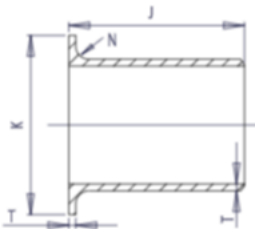
LAP JOINT STUB ENDS SCHEDULE 40



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter	Fillet Overall Length	Radius	Pipe Schedule Number	Approx. Weight in Kilograms
NPS			T	K	N	J		
1/2	22.8	20.5	2.77	35	3	76	40	0.14
3/4	28.1	25.9	2.87	43	3	76	40	0.18
1	35.0	32.6	3.38	51	3	102	40	0.34
1 1/4	43.6	41.4	3.56	64	5	102	40	0.50
1 1/2	49.9	47.5	3.68	73	6	102	40	0.57
2	62.4	59.5	3.91	92	8	152	40	1.02
2 1/2	75.3	72.2	5.16	105	8	152	40	1.59
3	91.3	88.1	5.49	127	10	152	40	2.15
3 1/2	104.0	100.8	5.74	140	10	152	40	2.72
4	116.7	113.5	6.02	157	11	152	40	3.29
5	144.3	140.5	6.55	186	11	203	40	5.44
6	171.3	167.5	7.11	216	13	203	40	7.26
8	222.1	218.3	8.18	270	13	203	40	10.43
10	277.2	272.3	9.27	324	13	254	40	16.33
12	328.0	323.1	10.31	381	13	254	40	23.59
14	359.9	354.8	11.13	413	13	305	40	33.11
16	411.0	405.6	12.70	470	13	305	40	44.00
18	462.0	456.0	14.27	533	13	305	40	57.15
20	514.0	507.0	15.09	584	13	305	40	66.68
24	616.0	609.0	17.48	692	13	305	40	92.99

SCHEDULE 80



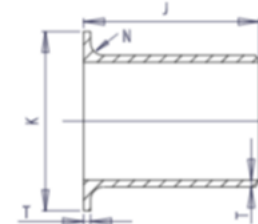
1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter	Fillet Overall Length	Radius	Pipe Schedule Number	Approx. Weight in Kilograms
NPS			T	K	N	J		
1/2	22.8	20.5	3.73	35	3	76	80	0.17
3/4	28.1	25.9	3.91	43	3	76	80	0.23
1	35.0	32.6	4.55	51	3	102	80	0.45
1 1/4	43.6	41.4	4.85	64	5	102	80	0.57
1 1/2	49.9	47.5	5.08	73	6	102	80	0.79
2	62.4	59.5	5.54	92	8	152	80	1.36
2 1/2	75.3	72.2	7.01	105	8	152	80	2.04
3	91.3	88.1	7.62	127	10	152	80	2.95
3 1/2	104.0	100.8	8.08	140	10	152	80	3.52
4	116.7	113.5	8.56	157	11	152	80	4.31
5	144.3	140.5	9.53	186	11	203	80	7.71
6	171.3	167.5	10.97	216	13	203	80	10.43
8	222.1	218.3	12.70	270	13	203	80	14.51
10	277.2	272.3	15.09	324	13	254	80	28.58
12	328.0	323.1	17.48	381	13	254	80	39.46
14	359.9	354.8	19.05	413	13	305	80	55.79
16	411.0	405.6	21.44	470	13	305	80	73.03
18	462.0	456.0	23.83	533	13	305	80	92.99
20	514.0	507.0	26.19	584	13	305	80	113.85
24	616.0	609.0	30.96	692	13	305	80	162.84

Pipe Size NPS	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter K	Fillet Overall Length N	Radius J	Pipe Schedule Number	Approx. Weight in Kilograms
			T					
½	22.8	20.5	4.78	35	3	76	160	0.34
¾	28.1	25.9	5.56	43	3	76	160	0.43
1	35.0	32.6	6.35	51	3	102	160	0.51
1 ¼	43.6	41.4	6.35	64	5	102	160	0.68
1 ½	49.9	47.5	7.14	73	6	102	160	0.92
2	62.4	59.5	8.74	92	8	152	160	2.05
2 ½	75.3	72.2	9.53	105	8	152	160	2.73
3	91.3	88.1	11.13	127	10	152	160	3.99
4	116.7	113.5	13.49	157	11	152	160	6.40
5	144.3	140.5	15.88	186	11	203	160	11.97
6	171.3	167.5	18.26	216	13	203	160	16.51
8	222.1	218.3	23.01	270	13	203	160	27.22
10	277.2	272.3	28.58	324	13	254	160	51.26
12	328.0	323.1	33.32	381	13	254	160	72.57
14	359.9	354.8	35.71	413	13	305	160	86.18
16	411.0	405.6	40.49	470	13	305	160	111.13
18	462.0	456.0	45.24	533	13	305	160	140.16
20	514.0	507.0	50.01	584	13	305	160	171.91
24	616.0	609.0	59.54	692	13	305	160	245.85

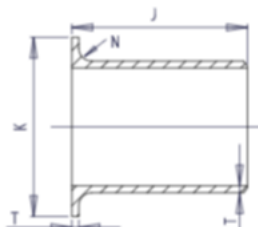
LAP JOINT STUB ENDS

SCHEDULE 160



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

Pipe Size NPS	Outside Diameter (Max.)	Outside Diameter (Min.)	Wall and Lap Thickness	Lap Diameter K	Fillet Overall Length N	Radius J	Pipe Schedule Number	Approx. Weight in Kilograms
			T					
½	22.8	20.5	7.468	35	3	76	*	0.79
¾	28.1	25.9	7.823	43	3	76	*	1.13
1	35.0	32.6	9.093	51	3	102	*	1.81
1 ¼	43.6	41.4	9.703	64	5	102	*	2.83
1 ½	49.9	47.5	10.160	73	6	102	*	2.95
2	62.4	59.5	11.074	92	8	152	*	4.08
2 ½	75.3	72.2	14.021	105	8	152	*	6.35
3	91.3	88.1	15.240	127	10	152	*	8.39
4	116.7	113.5	17.120	157	11	152	*	12.47
5	144.3	140.5	19.050	186	11	203	*	17.69
6	171.3	167.5	21.946	216	13	203	*	24.49
8	222.1	218.3	22.225	270	13	203	*	33.11
10	277.2	272.3	25.400	324	13	254	140	52.62
12	328.0	323.1	25.400	381	13	254	120	75.75



1. Conforms to ASME B16.9 & ASTM A234 WPB.
2. All dimensions are in millimeters.
3. For bevel detail see page 107.
4. For dimensional tolerances see page 108.
5. All weights are in kilograms and approximated or estimated.

* This size and thickness does not correspond to any pipe schedule number.