



NAHRAB GOSTAR ESHTEHARD

Manufacture of Industrial Valves & relevant equipment

Steel butt welding And Flanged Fittings

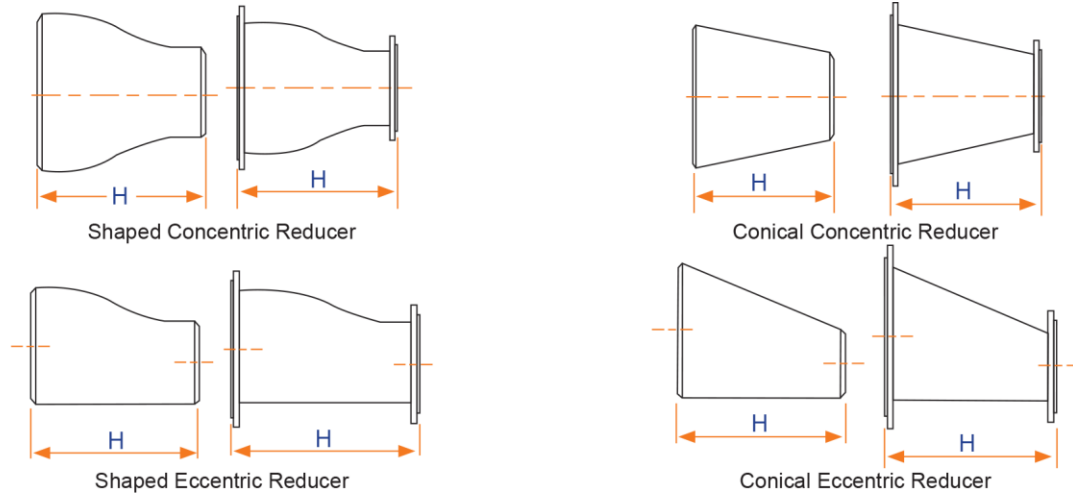
Reducer



Reducer

Flanged Standard: EN 1092-1 / ISO 7005-01

- Manufactured in accordance to ANSI/ASME B16.9 standard

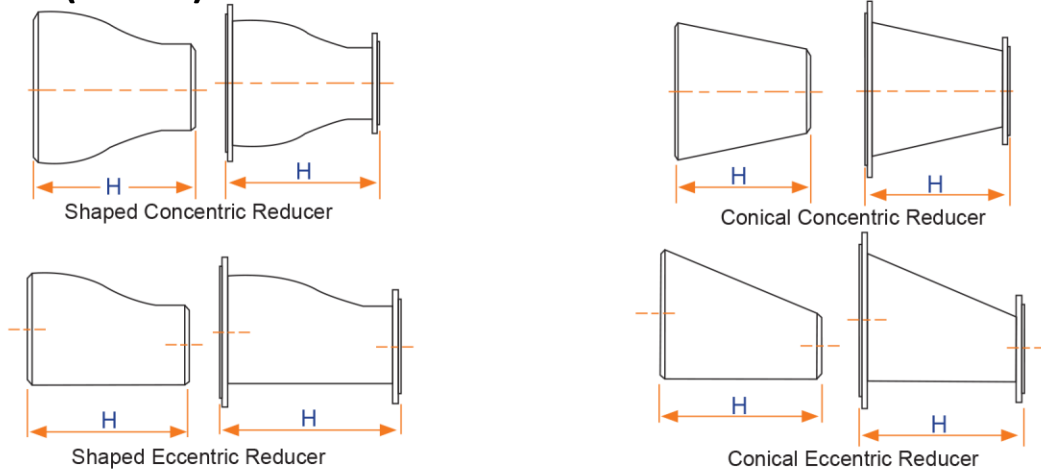


Nominal Pipe Size (inch)	DN (mm)	Outside Diameter at Bevel		End-to-End, H
		Large End	Small End	
3×2 ^{1/2}	85×65	88.9	73	89
3×2	80×50	88.9	60.3	89
3 ^{1/2} ×3	90×80	101.6	88.9	102
3 ^{1/2} ×2 ^{1/2}	90×65	101.6	73	102
3 ^{1/2} ×2	90×50	101.6	60.3	102
3 ^{1/2} ×1 ^{1/2}	90×40	101.6	48.3	102
3 ^{1/2} ×1 ^{1/4}	90×32	101.6	42.2	102
4×3 ^{1/2}	100×90	114.3	101.6	102
4×3	100×80	114.3	88.9	102
4×2 ^{1/2}	100×65	114.3	73	102
4×2	100×50	114.3	60.3	102
4×1 ^{1/2}	100×40	114.3	48.3	102
5×4	125×100	139.7	114.3	127
5×3 ^{1/2}	125×90	139.7	101.6	127
5×3	125×80	139.7	88.9	127
5×2 ^{1/2}	125×65	139.7	73	127
5×2	125×50	139.7	60.3	127
6×5	150×125	168.3	139.7	140
6×4	150×100	168.3	114.3	140
6×3 ^{1/2}	150×90	168.3	101.6	140
6×3	150×80	168.3	88.9	140
6×2 ^{1/2}	150×65	168.3	73	140
8×6	200×150	219.1	168.3	152
8×5	200×125	219.1	139.7	152
8×4	200×100	219.1	114.3	152
8×3 ^{1/2}	200×90	219.1	101.6	152

Nominal Pipe Size (inch)	DN (mm)	Outside Diameter at Bevel		End-to-End, H
		Large End	Small End	
10×8	250×200	273	219.1	178
10×6	250×150	273	168.3	178
10×5	250×125	273	139.7	178
10×4	250×100	273	114.3	178
12×10	300×250	323.8	273	203
12×8	300×200	323.8	219.1	203
12×6	300×150	323.8	168.3	203
12×5	300×125	323.8	139.7	203
14×12	350×300	355.6	323.8	330
14×10	350×250	355.6	273	330
14×8	350×200	355.6	219.1	330
14×6	350×150	355.6	168.3	330
16×14	400×350	406.4	355.6	356
16×12	400×300	406.4	323.8	356
16×10	400×250	406.4	273	356
16×8	400×200	406.4	219.1	356
18×16	450×400	457.2	406.4	381
18×14	450×350	457.2	355.6	381
18×12	450×300	457.2	323.8	381
18×10	450×250	457.2	273	381
20×18	500×450	508	457.2	508
20×16	500×400	508	406.4	508
20×14	500×350	508	355.6	508
20×12	500×300	508	323.8	508
22×20	550×500	558.8	508	508
22×18	550×450	558.8	457.2	508

Specification for size larger than 1200 mm will be provided as per request

Reducer (Cont'd)

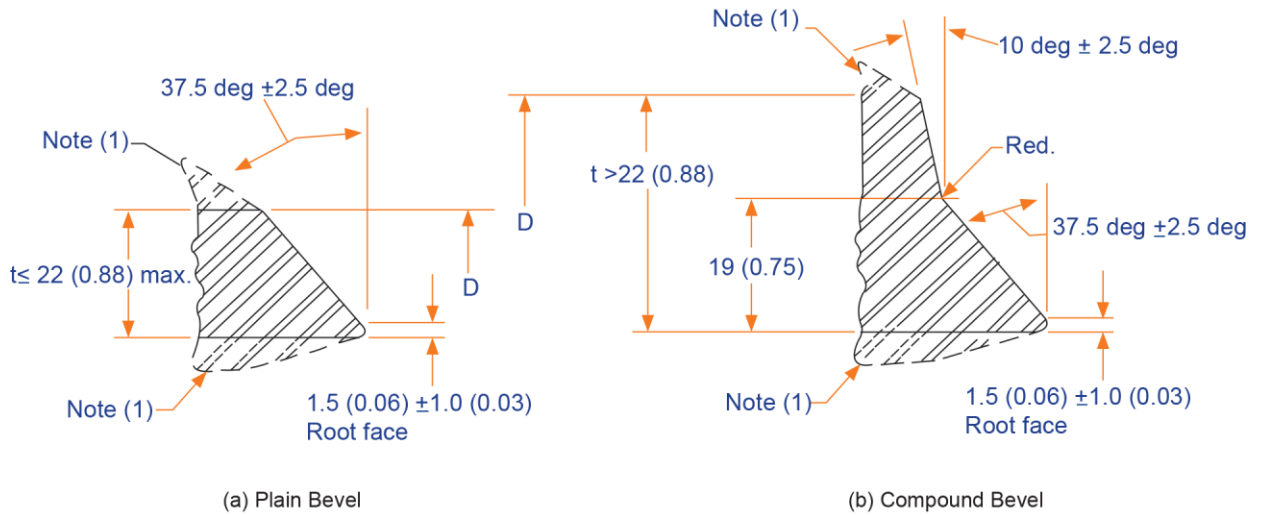


Nominal Pipe Size (inch)	DN (mm)	Outside Diameter at Bevel		End-to-End, H
		Large End	Small End	
22×16	550×400	558.8	406.4	508
22×14	550×350	558.8	355.4	508
24×22	600×550	609.6	558.8	508
24×20	600×500	609.6	508	508
24×18	600×450	609.6	457.2	508
24×16	600×400	609.6	406.4	508
26×24	650×600	660.4	609.6	610
26×22	650×550	660.4	558.8	610
26×20	650×500	660.4	508	610
26×18	650×450	660.4	457.2	610
28×26	700×650	711.2	660.4	610
28×24	700×600	711.2	609.6	610
28×22	700×550	711.2	508	610
28×20	700×500	711.2	457.2	610
30×28	750×700	762	711.2	610
30×26	750×650	762	660.4	610
30×24	750×600	762	609.6	610
30×22	750×550	762	508	610
32×30	800×750	812.8	762	610
32×28	800×700	812.8	711.2	610
32×26	800×650	812.8	660.4	610
32×24	800×600	812.8	609.6	610
34×32	850×800	863.6	812.8	610
34×30	850×750	863.6	762	610
34×28	850×700	863.6	660.4	610
34×26	850×650	863.6	609.6	610
36×34	900×850	914.4	863.6	610
36×32	900×800	914.4	812.8	610
36×30	900×750	914.4	762	610
36×28	900×700	914.4	660.4	610

Nominal Pipe Size (inch)	DN (mm)	Outside Diameter at Bevel		End-to-End, H
		Large End	Small End	
36×26	900×650	914.4	609.6	610
38×36	950×900	965.2	914.4	610
38×34	950×850	965.2	863.6	610
38×32	950×800	965.2	812.8	610
38×30	950×750	965.2	762	610
38×28	950×700	965.2	711.2	610
38×26	950×650	965.2	660.4	610
40×38	1000×950	1016	965.2	610
40×36	1000×900	1016	914.4	610
40×34	1000×850	1016	863.6	610
40×32	1000×800	1016	812.6	610
40×30	1000×750	1016	762	610
42×40	1050×1000	1066.8	1016	610
42×38	1050×950	1067	965.2	610
42×36	1050×900	1067	914.4	610
42×34	1050×850	1067	863.6	610
42×32	1050×800	1067	812.8	610
42×30	1050×750	1067	762	610
44×42	1100×1050	1117.6	1066.8	610
44×40	1100×1000	1118	1016	610
44×38	1100×950	1118	965.2	610
44×36	1100×900	1118	914.4	610
46×44	1150×1100	1168.4	1117.6	711
46×42	1150×1050	1168	1066.8	711
46×40	1150×1000	1168	1016	711
46×38	1150×950	1168	965.2	711
48×46	1200×1150	1219.2	1168.4	711
48×44	1200×1100	1219	1117.6	711
48×42	1200×1050	1219	1066.8	711
48×40	1200×1000	1219	1016	711

Specification for size larger than 1200 mm will be provided as per request

Welding Bevels and Root Face ASME B 16.9



Nominal Wall Thickness. t	End Preparation
Less than $\times$ [Note (2)]	cut square or slightly chamfer, at manufacturer's option (not illustrated)
$\times$ * to 22(0.88), inclusive	plain bevel as in illustration (a) above
More than 22 (0.88)	compound bevelas in illustration (b) above

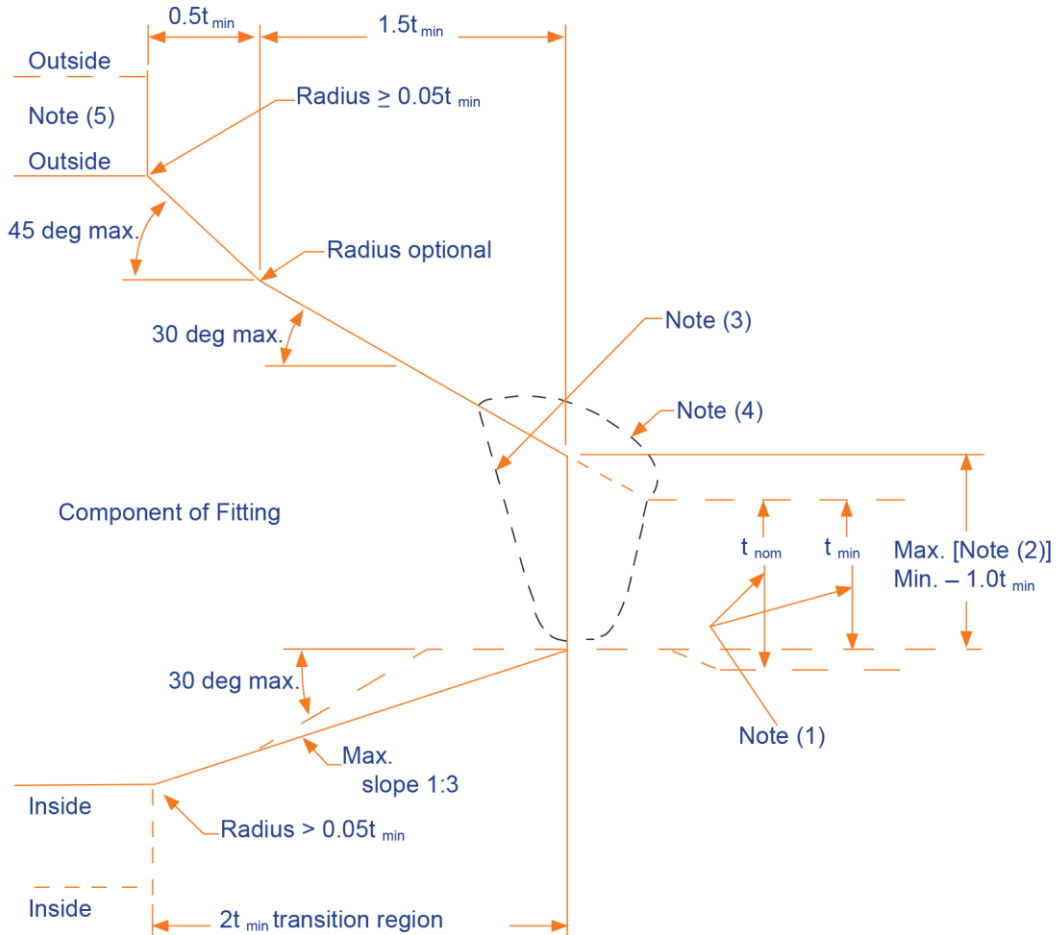
GENERAL VOTES:

- (a) Dimensions in parentheses are in inches.
 (b) Other dimensions in millimeters.

NOTES:

- (1) See section 8 and Fig. 1 for transition contours.
 (2) $\times = 5 \text{ (0.19)}$ for carbon steel or ferritic alloy steel and 3 (0.12) for austenitic alloy steel.

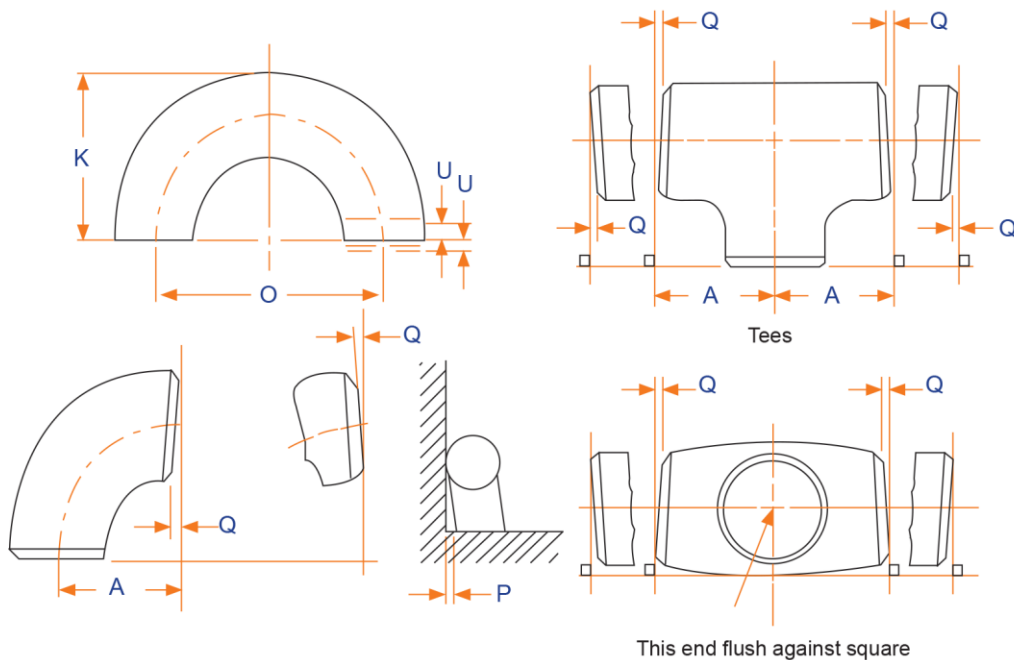
Maximum Envelope For Welding end Transitions



NOTES:

- (1) The value of t_{min} is whichever of the following is applicable:
 - (a) the minimum ordered wall thickness of the pipe, to include pipe that is purchased to a nominal wall thickness with an undertolerance other than 12.5%.
 - (b) 0.875 times the nominal wall thickness of pipe ordered to a pipe schedule wall thickness that has an undertolerance of 12.5%.
- (2) The maximum thickness at the end of the component is:
 - (a) the greater of $\{t_{min} + 4 \text{ mm (0.16)}\}$ or $1.15 t_{min}$ when ordered on a minimum wall basis.
 - (b) the greater of $\{t_{min} + 4 \text{ mm (0.16)}\}$ or $1.10 t_{min}$ when ordered on a minimum wall basis.
- (3) weld bevel is for illustration only.
- (4) The weld reinforcement permitted by applicable code may lie outside the maximum envelope.
- (5) where transition using maximum slope do not intersect the inside or outside surfaces within the transition region, as shown by phantom outline, maximum slopes shall be used. Alternatively radii lying within the envelope may be used.

Tolerances ASME B 16.9



All Fittings [notes(1)and(2)] (inch)				Center-to-End Dimensions		Overall Length of Reducers and Lap Joint Stup Ends, F, H	Overall Length of Caps, E	180-deg Returns		
Nominal pipe Size (NPS)	DN	Outside Dimmeter At End [Notes(3) and (4)]	Inside Dimmeter At End [Notes(3) and (5)]	90-deg and 45-deg Long and Short Radios Elbows and Tees, A,B,C, M	3D Radius Elbows, A,B			Center- to Center Dimension O	Back-to- Face Dimension, K	Alignment ,Of End U
1/2 to 2 1/2	15-65	+1.6,-0.8	0.8	2	3	2	3	6	6	1
3 to 3 1/2	80-90	1.6	1.6	2	3	2	3	6	6	1
4	100	1.6	1.6	2	3	2	3	6	6	1
5 to 8	125-200	+2.4,-1.6	1.6	2	3	2	6	6	6	1
10 to 18	250-450	+4.0,-3.2	3.2	2	3	2	6	10	6	2
20 to 24	500-600	+6.4,-4.8	4.8	2	3	2	6	10	6	2
26 to 30	650- 750	+6.4,-4.8	4.8	3	6	5	10			
32 to 48	800-1200	+6.4,-4.8	4.8	5	6	5	10			

Tolerances (Cont'd)

Nominal pipe Size (NPS)	DN	Lap Joint Stub Ends [Note (6)]		
		Outside Diameter Of Lap, G	Fillet Radius Of Lap, R	Lap Thickness
1/2 to 2 1/2	15-65	+0,-1	+0,-1	+1.6,-0
3 to 2 1/2	80-90	+0,-1	+0,-1	+1.6,-0
4	100	+0,-1	+0,-2	+1.6,-0
5 to 8	125-200	+0,-1	+0,-2	+1.6,-0
10 to 18	250-450	+0,-2	+0,-2	+3.2,-0
20 to 24	500-600	+0,-2	+0,-2	+3.2,-0
26 to 30	650-750			
32 to 48	800-1200			

Nominal pipe Size (NPS)	DN	Angularity Tolerances	
		Off Angle Q	Off Plane P
1/2 to 4	15-100	1	2
5 to 8	125-200	2	4
10 to 12	250-300	3	5
14 to 16	350-400	3	6
18 to 24	450-600	4	10
26 to 30	650-750	5	10
32 to 42	800-1050	5	13
44 to 48	1100-1200	5	19

GENERAL NOTES:

- (a) All dimensions are in milimeters.
- (b) Tolerances are equal plus and minus except as noted.

NOTES:

- (1) The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser.
- (2) A minimum wall thickness of 87.5 applies unless the purchaser specifies a different wall thickness tolerance. see fig. 1, Note (1).
- (3) Out-of-round is the sum of absolute values of plus and minus tolerances.
- (4) This tolerance may not apply in localized areas of formed fitting where increased wall thickness is required to meet design requirements of para. 2.2.
- (5) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.
- (6) See Table 9 limiting dimensions of outside diameter of barrel.



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Manufacture of Industrial Valves & relevant equipment

Dimension of Welded & Seamless Pipe Carbon and Alloy Steel Pipe

Nominal pipe Size (NPS)		Outside Diameter	Wall Thickness															Nominal pipe Size (mm)			
(mm)	(inch)		SGP	Sch. 5 S	Sch. 10 S	Sch. 10	Sch. 20	Sch. 30	Sch. 40 S	STD. Wall	Sch. 40	Sch. 60	Sch. 80 S	Extra Strong	Sch. 80	Sch. 100	Sch. 120		Sch. 140	Sch. 160	XX Strong
15	1/2	21.3	2.8	1.7	2.1	2.11		2.41	2.8	2.77	2.77		3.7	3.73	3.73				4.78	7.47	15
20	3/4	26.9	2.8	1.7	2.1	2.11		2.41	2.9	2.87	2.87		3.9	3.91	3.91				5.56	7.82	20
25	1	33.4	3.2	1.7	2.8	2.77		2.90	3.4	3.38	3.38		4.5	4.55	4.55				6.35	9.09	25
32	1 1/4	42.4	3.5	1.7	2.8	2.77		2.97	3.6	3.56	3.56		4.9	4.85	4.85				6.35	9.70	32
40	1 1/2	48.3	3.5	1.7	2.8	2.77		3.18	3.7	3.68	3.68		5.1	5.08	5.08				7.41	10.15	40
50	2	60.3	3.8	1.7	2.8	2.77		3.18	3.9	3.91	3.91		5.5	5.54	5.54				8.74	11.07	50
65	2 1/2	76.1	4.2	2.1	3	3.05		4.78	5.2	5.16	5.16		7	7.01	7.01				9.53	14.02	65
80	3	88.9	4.2	2.1	3	3.05		4.78	5.5	5.49	5.49		7.6	7.62	7.62				11.13	15.24	80
90	3 1/2	101.6	4.2	2.1	3	3.05		4.78	5.7	5.74	5.74		8.1	8.08	8.08						90
100	4	114.3	4.5	2.1	3	3.05		4.78	6	6.02	6.02		8.6	8.56	8.56		11.13		13.49	17.12	100
125	5	139.7	4.5	2.8	3.4	3.40			6.6	6.55	6.55		9.5	9.53	9.53		12.70		15.88	19.05	125
150	6	168.3	5.0	2.8	3.4	3.40			7.1	7.11	7.11		11	10.97	10.97		14.27		18.26	21.95	150
200	8	219.1	5.8	2.8	3.8	3.76	6.35	7.04	8.2	8.18	8.18	10.31	12.7	12.7	12.70	15.09	18.26	20.62	23.01	22.23	200
250	10	273.1	6.6	3.4	4.2	4.19	6.35	7.80	9.3	9.27	9.27	12.70	12.7	12.7	15.09	18.26	21.44	25.40	28.58	25.4	250
300	12	323.9	6.9	4	4.6	4.57	6.35	8.38	9.5	9.53	10.31	14.27	12.7	12.7	17.48	21.44	25.40	28.58	33.32	25.4	300
350	14	355.6	7.9	4	4.8	6.35	7.92	9.53	9.5	9.53	11.13	15.09		12.7	19.05	23.83	27.79	31.75	35.71		350
400	16	406.4	7.9	4.2	4.8	6.35	7.92	9.53	9.5	9.53	12.70	16.66		12.7	21.44	26.19	30.96	36.53	40.49		400
450	18	457.2	7.9	4.2	4.8	6.35	7.92	11.13	9.5	9.53	14.27	19.05		12.7	23.83	29.36	34.93	39.67	45.24		450
500	20	508	7.9	4.8	5.5	6.35	9.53	12.70	9.5	9.53	15.09	20.62		12.7	26.19	32.54	38.10	44.45	50.01		500
550	22	558.8		4.8	5.5	6.35	9.53	12.70	9.5	9.53		22.23		12.7	28.58	34.93	41.28	47.63	53.98		550
600	24	609.6		5.5	6.4	6.35	9.53	14.27	9.5	9.53	17.48	24.61		12.7	30.96	38.89	46.02	52.37	59.54		600
650	26	660.4				7.92	12.7			9.53				12.7							650
700	28	711.2				7.92	12.7	15.88		9.53				12.7							700
750	30	762		6.4	7.9	7.92	12.7	15.88	9.5	9.53				12.7							750
800	32	812.8				7.92	12.7	15.88		9.53	17.48			12.7							800
850	34	863.6				7.92	12.7	15.88		9.53	17.48			12.7							850
900	36	914.4				7.92	12.7	15.88		9.53	19.05			12.7							900

Unit: mm

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