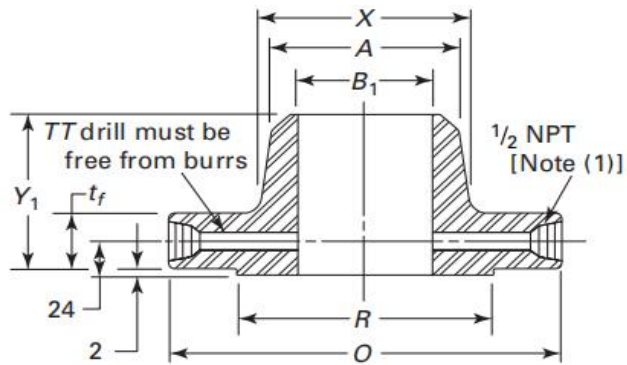
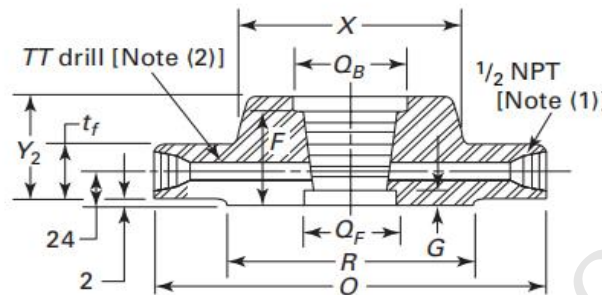


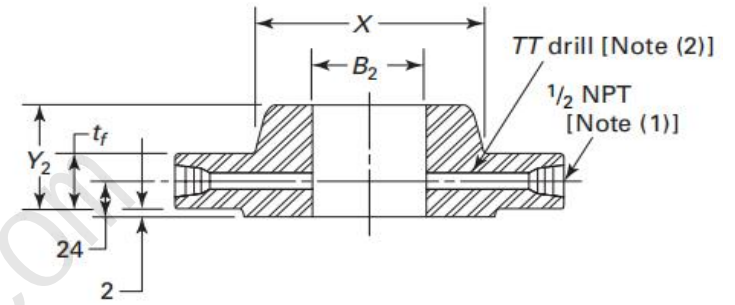
Class 300 Orifice Flanges, Welding Neck, Threaded, and Slip-On



Weld Neck



Threaded



Slip-On

NPS	OD of Raised Face, R	OD of Flange, O	Thickness s (Min.), t_f	Length Through Hub		Diameter of Hub, X	Diameter of Bevel Ends, A	Diameter of Counterbore		Counterbore Depth		Bore		Diameter of Pressure Connection, TT	Drilling Template				Bolt Length [(3), (4)]	
				SO and Threaded,	Weld Neck, Y_1			Back, Q_B	Face, Q_F	F	G	SO, B_2	WN, B_1		Bolt Circle	Number of Holes	Diameter of Holes	Diameter of	Machine Bolts	Stud Bolts
1	50.8	125	36.6	46	81	54	33.4	35.8	33.0	36.5	19.0	34.5	(5)	6.4	88.9	4	11/16	5/8	115	125
1 1/2	73.0	155	36.6	46	84	70	48.3	50.5	48.0	37.3	18.3	49.5	(5)	6.4	114.3	4	13/16	3/4	120	135
2	92.1	165	36.6	48	84	84	60.3	63.5	59.9	38.1	17.5	61.9	(5)	6.4	127.0	8	11/16	5/8	115	125
2 1/2	104.8	190	36.6	49	87	100	73.0	76.2	72.1	44.4	14.3	74.6	(5)	6.4	149.2	8	13/16	3/4	120	135
3	127.0	210	36.6	51	87	117	88.9	92.2	87.9	46.0	14.3	90.7	(5)	9.5	168.3	8	13/16	3/4	120	135
4	157.2	255	36.6	52	90	146	114.3	117.6	113.0	47.6	14.3	116.1	(5)	12.7	200.0	8	13/16	3/4	120	135
6	215.9	320	36.6	52	98	206	168.3	171.4	166.9	47.6	7.9	170.7	(5)	12.7	269.9	12	7/8	3/4	120	135
8	269.9	380	39.7	60	110	260	219.1	222.2	217.2	55.6	11.1	221.5	(5)	12.7	330.2	12	1	7/8	125	145
10	323.8	445	46.1	65	116	321	273.0	(6)	(6)	(6)	(6)	276.2	(5)	12.7	387.4	16	1-1/8	1	145	165
12	381.0	520	49.3	71	129	375	323.8	(6)	(6)	(6)	(6)	327.0	(5)	12.7	450.8	16	1-1/4	1-1/8	160	180
14	412.8	585	52.4	75	141	425	355.6	(6)	(6)	(6)	(6)	359.2	(5)	12.7	514.4	20	1-1/4	1-1/8	165	185
16	469.9	650	55.6	81	144	483	406.4	(6)	(6)	(6)	(6)	410.5	(5)	12.7	571.5	20	1-3/8	1-1/4	180	195
18	533.4	710	58.8	87	157	533	457.0	(6)	(6)	(6)	(6)	461.8	(5)	12.7	628.6	24	1-3/8	1-1/4	185	205
20	584.2	775	62.0	94	160	587	508.0	(6)	(6)	(6)	(6)	513.1	(5)	12.7	685.8	24	1-3/8	1-1/4	190	215
24	692.2	915	68.3	105	167	702	610.0	(6)	(6)	(6)	(6)	616.0	(5)	12.7	812.8	24	1-5/8	1-1/2	210	240

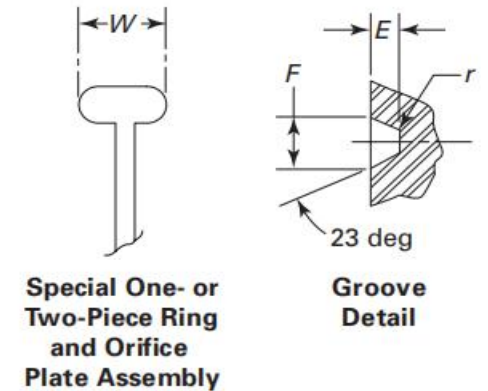
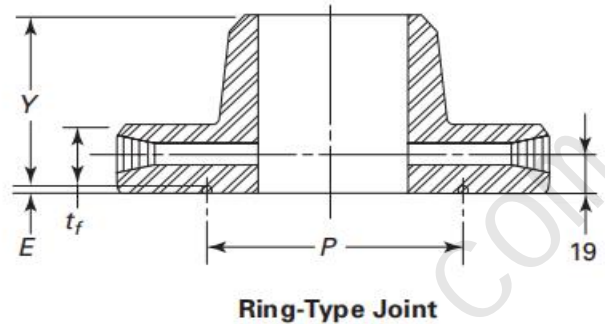
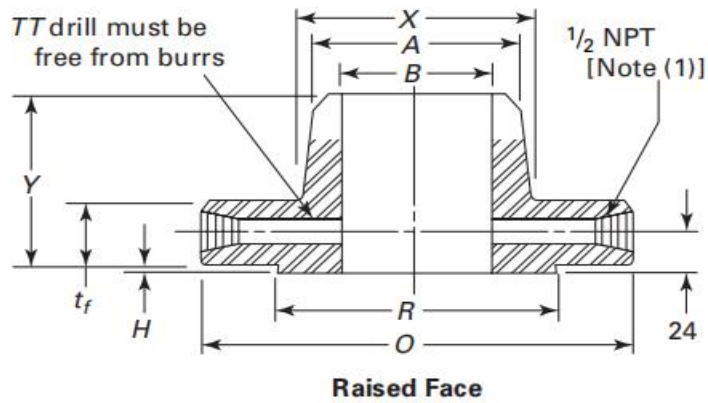
GENERAL NOTES:

- (a) Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix I for U.S. Customary.
- (b) Weld neck flanges NPS 3 and smaller are dimensionally identical to Class 600 flanges and may be so marked.
- (c) All other dimensions are in accordance with ASME B16.5.

NOTES:

- (1) Other NPT sizes may be furnished if required.
- (2) For slip-on and threaded flanges, verify that TT drilling extends to inside diameter of pipe after assembly and is free from burrs.
- (3) Bolt lengths include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12 and 10 mm (0.38 in.) for NPS 14 to NPS 24.
- (4) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (5) Bore diameter of weld neck flanges is to be specified by the purchaser.
- (6) Threaded flanges are furnished in NPS 1 to NPS 8 only.

Class 600 Orifice Flanges, Welding Neck



NPS	OD of Raised Face, R	OD of Flange, O	Thickness (Min.), t _f	Length Through Hub, Y	Height of Raised Face, H	Ring-Type Joint						Diameter of Hub, X	Diameter of Bevel Ends, X	Bore, B	Diameter of Pressure Connection, TT	Drilling Template			Bolt Length			
						Groove Number	Pitch Diameter, P	Groove Depth, E	Groove Width, F	Radius at Bottom, r	Special Oval Ring Height, W					Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machin e Bolts	Stud Bolts	
1	50.8	125	36.6	81	2	R16	50.80	6.35	8.74	0.8	25.4	54	33.5	(4)	6.4	88.9	4	11/16	3/4	5/8	125	140
1 1/2	73.0	155	36.6	84	2	R20	68.27	6.35	8.74	0.8	25.4	70	48.3	(4)	6.4	114.3	4	13/16	7/8	3/4	135	140
2	92.1	165	36.6	84	2	R23	82.55	7.92	11.91	0.8	27.0	84	60.3	(4)	6.4	127.0	8	11/16	3/4	5/8	125	140
2 1/2	104.8	190	36.6	87	2	R26	101.60	7.92	11.91	0.8	27.0	100	73.0	(4)	6.4	149.2	8	13/16	7/8	3/4	135	145
3	127.0	210	36.6	87	2	R31	123.83	7.92	11.91	0.8	27.0	117	88.9	(4)	9.5	168.3	8	13/16	7/8	3/4	135	145
4	157.2	275	38.1	102	7	R37	149.23	7.92	11.91	0.8	27.0	152	114.3	(4)	12.7	215.9	8	1	1	7/8	150	165
6	215.9	355	47.7	117	7	R45	211.12	7.92	11.91	0.8	27.0	222	168.3	(4)	12.7	292.1	12	1-1/8	1-1/8	1	180	190
8	269.9	420	55.6	133	7	R49	269.88	7.92	11.91	0.8	27.0	273	219.1	(4)	12.7	349.2	12	1-1/4	1-1/4	1-1/8	195	210
10	323.8	510	63.5	152	7	R53	323.85	7.92	11.91	0.8	27.0	343	273.0	(4)	12.7	431.8	16	1-3/8	1-3/8	1-1/4	220	235
12	381.0	560	66.7	156	7	R57	381.00	7.92	11.91	0.8	27.0	400	323.8	(4)	12.7	489.0	20	1-3/8	1-3/8	1-1/4	230	240
14	412.8	605	69.9	165	7	R61	419.10	7.92	11.91	0.8	27.0	432	355.6	(4)	12.7	527.0	20	1-1/2	1-1/2	1-3/8	240	255
16	469.9	685	76.2	178	7	R65	469.90	7.92	11.91	0.8	30.2	495	406.4	(4)	12.7	603.2	20	1-5/8	1-5/8	1-1/2	260	275
18	533.4	745	82.6	184	7	R69	533.40	7.92	11.91	0.8	30.2	546	457.2	(4)	12.7	654.0	20	1-3/4	1-3/4	1-5/8	280	290
20	584.2	815	88.9	190	7	R73	584.20	9.53	13.49	1.5	31.8	610	508.0	(4)	12.7	723.9	24	1-3/4	1-3/4	1-5/8	300	320
24	692.2	940	101.6	203	7	R77	692.15	11.13	16.66	1.5	36.5	718	609.6	(4)	12.7	838.2	24	2	2	1-7/8	335	350

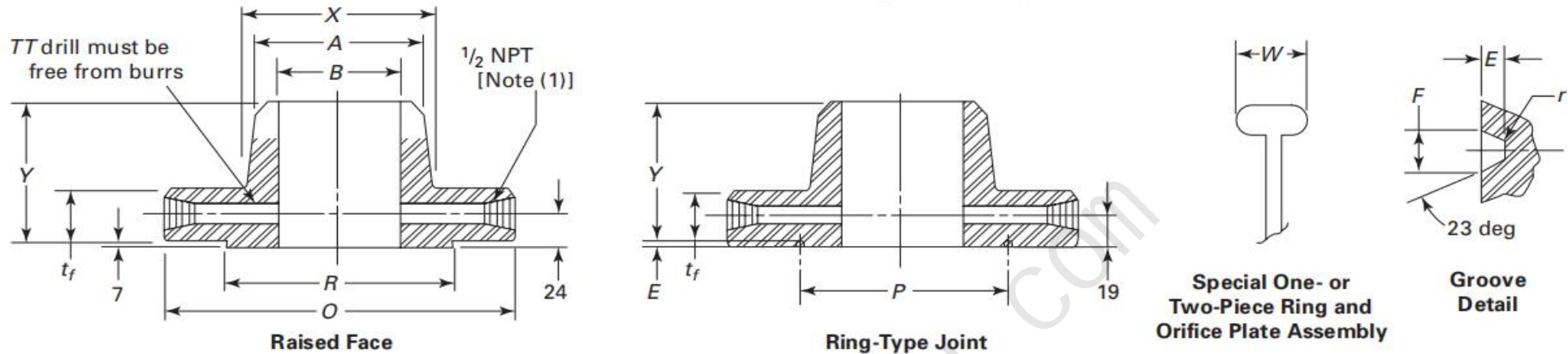
GENERAL NOTES:

- (a) Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix I for U.S. Customary.
- (b) Weld neck flanges NPS 3 and smaller are identical to Class 300 flanges except for bolting and may be used for such service.
- (c) All other dimensions are in accordance with ASME B16.5.
- (d) Ring joint flange in NPS 24 will require an angular meter tap as shown in Fig. 2.

NOTES:

- (1) Other NPT sizes may be furnished if required.
- (2) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (3) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12 and 10 mm (0.38 in.) for NPS 14 to NPS 24. Bolt lengths for ring-type joint flanges include allowance of 15 mm (0.62 in.) for NPS 1 to NPS 10, 19 mm (0.75 in.) for NPS 12 to NPS 18, and 22 mm (0.88 in.) for NPS 20.
- (4) Bore diameter of weld neck flanges is to be specified by the purchaser.

Class 900 Orifice Flanges, Welding Neck



NPS	OD of Raised Face, <i>R</i>	OD of Flange, <i>O</i>	Thickness (Min.), <i>t_f</i>	Length Through Hub, <i>Y</i>	Ring -Type Joint						Diameter of Hub, <i>X</i>	Diameter of Bevel Ends, <i>X</i>	Bore, <i>B</i>	Diameter of Pressure Connection	Drilling Template				Bolt Length	
					Groove Number	Pitch Diameter, <i>P</i>	Groove Depth, <i>E</i>	Groove Width, <i>F</i>	Radius at Bottom, <i>r</i>	Special Oval Ring Height, <i>W</i>					Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machin e Bolts	Stud Bolts
1	50.8	150	38.1	83	R16	50.80	6.35	8.74	0.8	25.4	52	33.5	(4)	6.4	101.6	4	1	7/8	150	160
1 1/2	73.0	180	38.1	89	R20	68.27	6.35	8.74	0.8	25.4	70	48.3	(4)	6.4	123.8	4	1-1/8	1	160	165
2	92.1	215	38.1	102	R24	95.25	7.92	11.91	0.8	27.0	105	60.3	(4)	6.4	165.1	8	1	7/8	150	165
2 1/2	104.8	245	41.3	105	R27	107.95	7.92	11.91	0.8	27.0	124	73.0	(4)	6.4	190.5	8	1-1/8	1	165	180
3	127.0	240	38.1	102	R31	123.83	7.92	11.91	0.8	27.0	127	88.9	(4)	9.5	190.5	8	1	7/8	150	165
4	157.2	290	44.5	114	R37	149.23	7.92	11.91	0.8	27.0	159	114.3	(4)	12.7	235.0	8	1-1/4	1-1/8	180	190
6	215.9	380	55.6	140	R45	211.12	7.92	11.91	0.8	27.0	235	168.3	(4)	12.7	317.5	12	1-1/4	1-1/8	195	210
8	269.9	470	63.5	162	R49	269.88	7.92	11.91	0.8	27.0	298	219.1	(4)	12.7	393.7	12	1-1/2	1-3/8	230	240
10	323.8	545	69.9	184	R53	323.85	7.92	11.91	0.8	27.0	368	273.0	(4)	12.7	469.9	16	1-1/2	1-3/8	240	255
12	381.0	610	79.4	200	R57	381.00	7.92	11.91	0.8	27.0	419	323.8	(4)	12.7	533.4	20	1-1/2	1-3/8	260	275
14	412.8	640	85.8	213	R62	419.10	11.13	16.66	1.5	33.3	451	355.6	(4)	12.7	558.8	20	1-5/8	1-1/2	280	290
16	469.9	705	88.9	216	R66	469.90	11.13	16.66	1.5	36.5	508	406.4	(4)	12.7	616.0	20	1-3/4	1-5/8	290	305
18	533.4	785	101.6	229	R70	533.40	12.70	19.84	1.5	39.7	565	457.2	(4)	12.7	685.8	20	2	1-7/8	330	350
20	584.2	855	108.0	248	R74	584.20	12.70	19.84	1.5	39.7	622	508.0	(4)	12.7	749.3	20	2-1/8	2	355	375
24	692.2	1040	139.7	292	R78	692.15	15.88	26.97	2.4	47.6	749	609.6	(4)	12.7	901.7	20	2-5/8	2-1/2	445	470

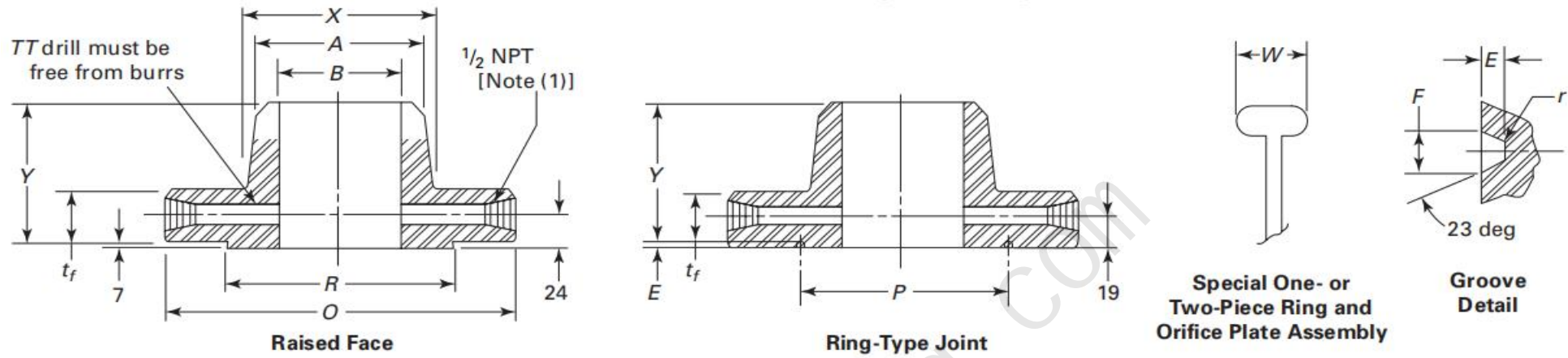
GENERAL NOTES:

- (a) Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix I for U.S. Customary.
- (b) All other dimensions are in accordance with ASME B16.5.
- (c) Ring joint flange in NPS 24 will require an angular meter tap as shown in Fig. 2.

NOTES:

- (1) Other NPT sizes may be furnished if required.
- (2) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (3) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12 and 10 mm (0.38 in.) for NPS 14 to NPS 24. Bolt lengths for ring-type joint flanges include allowance of 15 mm (0.62 in.) for NPS 3 to NPS 10 and 19 mm (0.75 in.) for NPS 12.
- (4) Bore diameter of weld neck flanges is to be specified by the purchaser.

Class 1500 Orifice Flanges, Welding Neck



NPS	OD of Raised Face, <i>R</i>	OD of Flange, <i>O</i>	Thickness (Min.), <i>t_f</i>	Length Through Hub, <i>Y</i>	Ring-Type Joint						Diameter of Hub, <i>X</i>	Diameter of Bevel Ends, <i>X</i>	Bore, <i>B</i>	Diameter of Pressure Connection	Drilling Template			Bolt Length		
					Groove Number	Pitch Diameter, <i>P</i>	Groove Depth, <i>E</i>	Groove Width, <i>F</i>	Radius at Bottom, <i>r</i>	Special Oval Ring Height					Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machine Bolts	Stud Bolts
1	50.8	150	38.1	83	R16	50.80	6.35	8.74	0.8	25.4	52	33.5	(4)	6.4	101.6	4	1	7/8	150	160
1 1/2	73.0	180	38.1	89	R20	68.27	6.35	8.74	0.8	25.4	70	48.3	(4)	6.4	123.8	4	1-1/8	1	160	165
2	92.1	215	38.1	102	R24	95.25	7.92	11.91	0.8	27.0	105	60.3	(4)	6.4	165.1	8	1	7/8	150	165
2 1/2	104.8	245	41.3	105	R27	107.95	7.92	11.91	0.8	27.0	124	73.0	(4)	6.4	190.5	8	1-1/8	1	165	180
3	127.0	265	47.7	117	R35	136.53	7.92	11.91	0.8	27.0	133	88.9	(4)	9.5	203.2	8	1-1/4	1-1/8	185	185
4	157.2	310	54.0	124	R39	161.93	7.92	11.91	0.8	27.0	162	114.3	(4)	12.7	241.3	8	1-3/8	1-1/4	205	215
6	215.9	395	82.6	171	R46	211.14	9.52	13.49	1.5	28.6	229	168.3	(4)	12.7	317.5	12	1-1/2	1-3/8	265	280
8	269.9	485	92.1	213	R50	269.88	11.13	16.66	1.5	33.3	292	219.1	(4)	12.7	393.7	12	1-3/4	1-5/8	300	310
10	323.8	585	108.0	254	R54	323.85	11.13	16.66	1.5	33.3	368	273.0	(4)	12.7	482.6	12	2	1-7/8	345	355
12	381.0	675	123.9	283	R58	381.00	14.27	23.01	1.5	39.7	451	323.8	(4)	12.7	571.6	16	2-1/8	2	380	400
14	412.8	750	133.4	298	R63	419.10	15.88	26.97	2.4	44.4	495	355.6	(4)	12.7	635.0	16	2-3/8	2-1/4	415	445
16	469.9	825	146.1	311	R67	469.90	17.48	30.18	2.4	50.8	552	406.4	(4)	12.7	704.8	16	2-5/8	2-1/2	450	485
18	533.4	915	162.0	327	R71	533.40	17.48	30.18	2.4	50.8	597	457.2	(4)	12.7	774.7	16	2-7/8	2-3/4	500	535
20	584.2	985	177.8	356	R75	584.20	17.48	33.32	2.4	54.0	641	508.0	(4)	12.7	831.8	16	3-1/8	3	545	570
24	692.2	1170	203.2	406	R79	692.15	20.62	36.53	2.4	58.7	762	609.6	(4)	12.7	990.6	16	3-5/8	3-1/2	620	660

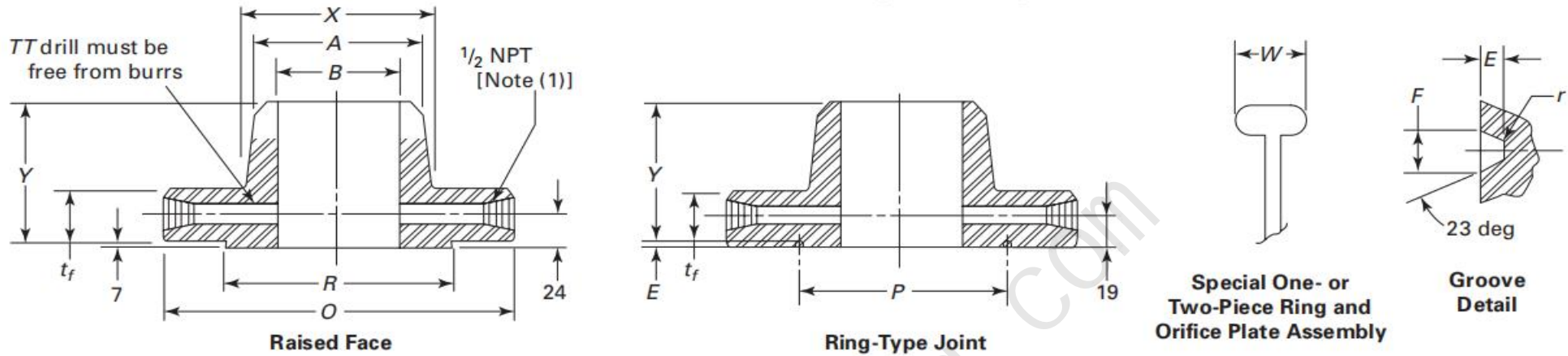
GENERAL NOTES:

- (a) Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix I for U.S. Customary.
- (b) All other dimensions are in accordance with ASME B16.5.
- (c) Ring joint flange in NPS 24 will require an angular meter tap as shown in Fig. 2.

NOTES:

- (1) Other NPT sizes may be furnished if required.
- (2) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (3) Bolt lengths include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12 and 10 mm (0.38 in.) for NPS 14 to NPS 24. Bolt lengths for ring-type joint flanges include allowance of 15 mm (0.62 in.) for NPS 1 to NPS 6.
- (4) Bore diameter of weld neck flanges is to be specified by the purchaser.

Class 2500 Orifice Flanges, Welding Neck



NPS	OD of Raised Face, <i>R</i>	OD of Flange, <i>O</i>	Thickness (Min.), <i>t_f</i>	Length Through Hub, <i>Y</i>	Ring-Type Joint						Diameter of Hub, <i>X</i>	Diameter of Bevel Ends, <i>X</i>	Bore, <i>B</i>	Diameter of Pressure Connection	Drilling Template				Bolt Length	
					Groove Number	Pitch Diameter, <i>P</i>	Groove Depth, <i>E</i>	Groove Width, <i>F</i>	Radius at Bottom, <i>r</i>	Special Oval Ring Height, <i>W</i>					Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machine Bolts	Stud Bolts
1	50.8	160	38.1	92	R18	60.33	6.35	8.74	0.8	25.4	57	33.5	(4)	6.4	108.0	4	1	7/8	150	160
1 1/2	73.0	205	44.5	111	R23	82.55	7.92	11.91	0.8	27.0	79	48.3	(4)	6.4	146.0	4	1-1/4	1-1/8	180	190
2	92.1	235	50.8	127	R26	101.60	7.92	11.91	0.8	27.0	95	60.3	(4)	6.4	171.4	8	1-1/8	1	185	195
2 1/2	104.8	265	57.2	143	R28	111.13	9.53	13.49	1.5	30.2	114	73.0	(4)	6.4	196.8	8	1-1/4	1-1/8	205	215
3	127.0	305	66.7	168	R32	127.00	9.53	13.49	1.5	30.2	133	88.9	(4)	9.5	228.6	8	1-3/8	1-1/4	230	240
4	157.2	355	76.2	190	R38	157.18	11.13	16.66	1.5	33.3	165	114.3	(4)	12.7	273.0	8	1-5/8	1-1/2	260	275
6	215.9	485	108.0	273	R47	228.60	12.70	19.84	1.5	36.5	235	168.3	(4)	12.7	368.3	8	2-1/8	2	350	370
8	269.9	550	127.0	318	R51	279.40	14.27	23.01	1.5	39.7	305	219.1	(4)	12.7	438.2	12	2-1/8	2	385	405
10	323.8	675	165.1	419	R55	342.90	17.48	30.18	2.4	47.6	375	273.0	(4)	12.7	539.8	12	2-5/8	2-1/2	490	515
12	381.0	760	184.2	464	R60	406.40	17.48	33.32	2.4	50.8	441	323.8	(4)	12.7	619.1	12	2-7/8	2-3/4	540	570

GENERAL NOTES:

- (a) Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix I for U.S. Customary.
- (b) All other dimensions are in accordance with ASME B16.5.
- (c) Ring joint flange in NPS 24 will require an angular meter tap as shown in Fig. 2.

NOTES:

- (1) Other NPT sizes may be furnished if required.
- (2) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (3) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12. Bolt lengths for ring-type joint flanges include allowance of 15 mm (0.62 in.) for NPS 1 to NPS 3.
- (4) Bore diameter of weld neck flanges is to be specified by the purchaser.