

**ASME B16.36 Orifice Flanges, Specialized ASME B16.36 Flanges Manufacturer, ASME B16.36 Forged Flanges, B16.36 Standard Dimensions & Weight Chart, Trusted Stockist of ASME B16.36 Orifice Flange, ASME B16.36 Raised Face Orifice Flange, ASME B16 36 Ring Type Joint Orifice Flange, ASME B 16.36 Class 300 Flanges, ASME B16.36 Class 900 Flanges at Best Prices.**

ASME B16.36 is the standard specifically dealing with orifice flanges, which are used for flow metering in piping systems. **ASME B16.36 Orifice Flanges** are primarily used with orifice meters to measure fluid flow and are equipped with pressure taps (typically a pair of flanges with orifice plates between them).

### **Key Components of ASME B16.36**

#### **1. Scope of ASME B16.36:**

- **B16.36 Standard** includes requirements for pressure-temperature ratings, materials, dimensions, tolerances, marking, and testing of orifice flanges.

- These **ASME B16.36 Forged Flanges** come in pressure classes ranging from Class 150 to Class 2500 and cover raised face (RF) and ring-type joint (RTJ) designs.

#### **2. Design Requirements:**

- **ASME B16.36 Orifice Flange Design:** Orifice flanges are designed with radial tap holes for attaching instruments to measure flow rate. These taps are precisely located and aligned to ensure accurate readings.

- **Pressure Taps:** Each orifice flange pair contains two pressure taps for pressure differential measurement, often located on opposite sides of the flange.

#### **3. Pressure-Temperature Ratings:**

- **ASME B16.36 Production Standard** adheres to the pressure-temperature ratings established by ASME B16.5, which are dependent on the material grade used.

- For example, Class 150 orifice flanges can handle up to 285 psi at 100°F for most carbon steels, with decreasing pressure ratings at higher temperatures.

### **Dimensional Requirements**

The dimensional requirements of **ASME B16.36 Raised Face Orifice Flanges** are closely tied to the orifice plate size, the piping dimensions, and the pressure class. Key dimensions include:

- **Nominal Pipe Size (NPS):** Ranges from 1/2 inch to 24 inches.

- **Flange Bore Size:** Depends on the orifice plate size and design considerations.

- **Bolt Circle and Bolt Hole Dimensions:** These dimensions are consistent with those in ASME B16.5, ensuring compatibility with standard piping systems.

## ASME B16.36 Flanges Standard Specifications

Flange Size Range	15 Millimeter To 1500mm (1/2" - 60")
Flange Class / Pressure Rating	Class 300, Class 600, Class 900, Class 1500, and Class 2500
ASME B16.36 Flange Names	ORFF & Two Orifice Flanges Are Call Orifice Union
Flange Face Types	RTJ (Ring Type Joint) Facings, Raised Faces (RF)
B16.36 Standard Cover	Dimensions, Tolerances, Weight, Temperature Ratings & Pressure Ratings, Marking, Materials, Testing
Custom Design	As per your drawing
Material Test Certificates (MTC)	As per EN 10204 3.2 and EN 10204 3.1, Test Certificates certifying NACE MR0175, NACE MR0103
Test Certificates	100% Radiography Test Report, EN 10204/3.1B, Raw Materials Certificate, Third Party Inspection Report, etc
Tests	Hydrostatic Testing Machine, Direct-Reading Spectrograph, UI Trasonic Flaw Detector, X-Ray Detector, Magnetic Particle Detector
Equipment / Machines	Press Machine, Pushing Machine, Bending Machine, Sand-Blasting Machine, Electric Beveling Machine, etc.
Coating	Anti-rust Paint, Oil Black Paint, Yellow Transparent, Zinc Plated, Cold and Hot Dip Galvanized

Specific dimensions are dictated by the pressure class, which can range from Class 150 to Class 2500, and by the size of the piping. For example, larger flanges with higher pressure classes will have thicker walls and more robust bolt requirements to withstand greater pressure.

### Pressure Classes (Class 150, Class 300, Class 600, Class 900, etc.):

#### 1. Class 150 Orifice Flanges:

- Pressure rating at 100°F: Up to 285 psi for most carbon steel materials.
- Flange thickness and bolt dimensions are generally smaller compared to higher pressure classes.

## 2. Class 300 Orifice Flanges:

- Pressure rating at 100°F: Up to 740 psi.
- Requires thicker flanges and larger bolts to accommodate the higher pressure rating.

**Table 1 Class 300 Orifice Flanges, Welding Neck, Threaded, and Slip-On**

Nom-inal Pipe Size	Outside Diameter of Raised Face, R	Outside Diameter of Flange, D	Minimum Thickness of Flange, $t_f$	Length Through Hub		Weld Neck, $Y_1$	Hub Diameter of Hub, X	Hub Diameter Beginning of Chamfer (W.N.), A	Diameter of Counterbore		Counterbore Depth (From Face)		Bore		Diameter of Pressure Connection, TT	Drilling Template			Bolt Length [(3), (4)]	
				Slip-On and Threaded, $Y_2$	Weld Neck, $Y_1$				Back, $Q_a$	Face, $Q_f$	F	G	Slip-On, $B_2$	Weld Neck, $B_1$		Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machine 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	1 1/16	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	1 1/16	5/8	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	1 1/16	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	1 1/16	5/8	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	1 1/16	5/8	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	1 1/16	5/8	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	1 1/8	5/8	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	5/8	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 1/2	1 1/8	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 1/2	1 1/8	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 3/4	1 1/8	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 3/4	1 1/2	210	240

**GENERAL NOTES:**

- Dimensions are in millimeters, except for bolts and bolt holes. Reference Mandatory Appendix 1 for U.S. Customary.
- Weld neck flanges NPS 3 and smaller are dimensionally identical to Class 600 flanges and may be so marked.
- All other dimensions are in accordance with ASME B16.5.

**NOTES:**

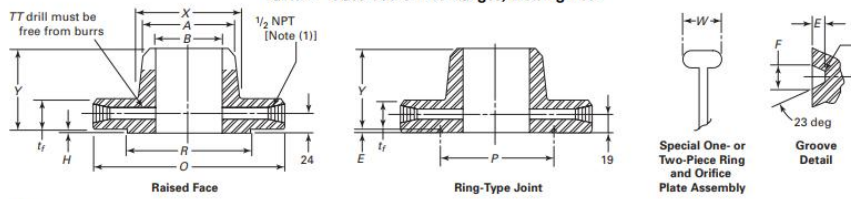
- Other NPT sizes may be furnished if required.
- For slip-on and threaded flanges, verify that TT drilling extends to inside diameter of pipe after assembly and is free from burrs.
- Bolt lengths include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 1 to NPS 12 and 10 mm (0.38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

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## 3. Class 600 Orifice Flanges:

- Pressure rating at 100°F: Up to 1480 psi.
- Used in systems where higher pressures need to be handled, leading to even thicker flanges and more robust construction.

**Table 2 Class 600 Orifice Flanges, Welding Neck**



Nominal Pipe Size	Outside Diameter of Raised Face, R	Outside Diameter of Flange, O	Minimum Thickness of Flange, $t_f$	Length Through Hub, Y	Height of Raised Face, H	Ring-Type Joint						Diameter of Hub, X	Hub Diameter Beginning of Chamfer, A	Diameter of Pressure Connection, TT	Drilling Template			Length of Stud Bolts [(2), (3)]				
						Groove Number	Pitch Diameter, P	Groove Depth, E	Groove Width, F	Radius at Bottom, r	Special Oval Ring Height, W				Bore, B	Bolt Circle	Number of Holes		Diameter of Holes	Diameter of Raised Ring Joint	Diameter of 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	$1\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	125	140
1½	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	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	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	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	125	140
2½	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	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	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	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	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	$\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	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	$1\frac{1}{4}$	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.

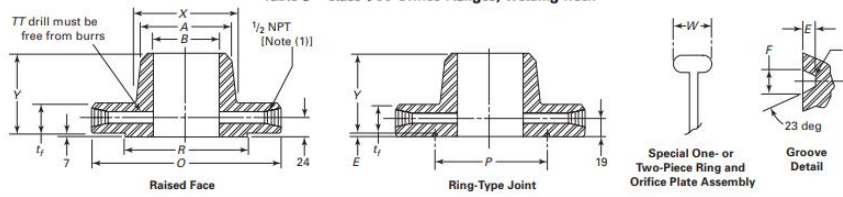
**NOTES:**

- (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 is to be specified by the purchaser.

**4. Class 900 Orifice Flanges:**

- Pressure rating at 100°F: Up to 2220 psi.
- These flanges are significantly thicker and heavier and require substantial bolt dimensions for high-pressure applications.

**Table 3 Class 900 Orifice Flanges, Welding Neck**



Nominal Pipe Size	Outside Diameter of Raised Face, R	Outside Diameter of Flange, D	Minimum Thickness of Flange, $t_f$	Length Through Hub, Y	Ring-Type Joint										Diameter of Pressure Connection, TT	Drilling Template				Length of Stud Bolts (2), (3)				
					Groove Number	Pitch Diameter, P	Groove Depth, E	Groove Width, F	Radius at Bottom, r	Special Oval Ring Height, W	Diameter of Hub, X	Hub Diameter Beginning of Chamfer, A	Bore, B	Diameter of Bolt Circle		Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint				
1																								
1 1/2																								
2																								
2 1/2																								
For NPS 2 1/2 and smaller, use Class 1500.																								
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	1/4	1/4	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	1/4	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	1/4	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	1/4	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	1/4	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	1/4	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 3/4	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	1/2	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	1/2	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 1/4	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 3/4	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 flanges larger than NPS 12 will require angular meter taps as shown in Fig. 2.

**NOTES:**

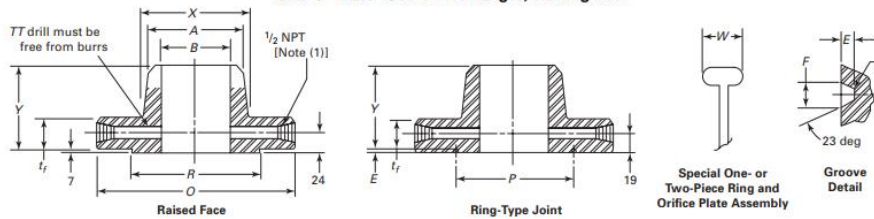
- (1) Other NPT sizes may be furnished if required.
- (2) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (3) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 6 mm (0.25 in.) for NPS 3 to NPS 12 and 10 mm (0.38 in.) for NPS 14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

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## 5. Class 1500 and Class 2500 Orifice Flanges:

- For very high-pressure systems, with ratings up to 3705 psi and 6170 psi at 100°F, respectively.
- Flange dimensions, including thickness and bolt requirements, are proportionally increased to handle the extreme pressures.

**Table 4 Class 1500 Orifice Flanges, Welding Neck**



Nominal Pipe Size	Outside Diameter of Raised Face, R	Outside Diameter of Flange, O	Minimum Thickness of Flange, t <sub>f</sub>	Length Through Hub, Y	Groove Number	Pitch Diameter, P	Groove Depth, E	Groove Width, F	Ring-Type Joint				Hub Diameter Beginning of Chamfer, A	Diameter of Pressure Connection, TT	Drilling Template			Length of Stud Bolts [(2), (3)]		
									Radius at Bottom, r	Special Oval Ring Height, W	Diameter of Hub, X	Bore, B			Diameter of Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint
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	1/4	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 1/4	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	1/4	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 1/4	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 1/4	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 1/4	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 1/4	1 1/4	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 1/4	1 1/4	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 1/4	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 1/2	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 1/2	2 1/2	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 1/2	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 1/2	2 1/2	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 1/4	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 1/4	3 1/2	620	660

**GENERAL NOTES:**

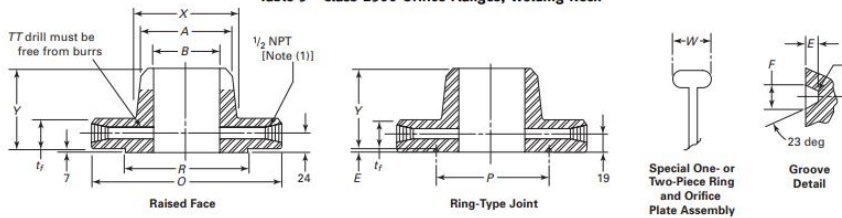
- (a) Dimensions are in millimeters, except for bolts and bolt holes.
- (b) All other dimensions are in accordance with ASME B16.5.
- (c) Ring joint flanges larger than NPS 6 will require angular meter taps shown in Fig. 2.

**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 6.
- (4) Bore is to be specified by the purchaser.

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**Table 5 Class 2500 Orifice Flanges, Welding Neck**



Nominal Pipe Size	Outside Diameter of Raised Face, R	Outside Diameter of Flange, O	Minimum Thickness of Flange, t <sub>f</sub>	Length Through Hub, Y	Groove Number	Pitch Diameter, P	Groove Depth, E	Groove Width, F	Ring-Type Joint				Hub Diameter Beginning of Chamfer, A	Diameter of Pressure Connection, TT	Drilling Template			Length of Stud Bolts [(2), (3)]		
									Radius at Bottom, r	Special Oval Ring Height, W	Diameter of Hub, X	Bore, B			Diameter of Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint
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	1/4	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 1/4	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 1/4	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 1/4	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 1/4	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 1/4	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 1/4	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 1/4	2	385	405
10	323.8	675	146.1	419	R55	342.90	17.48	30.18	2.4	47.6	375	273.0	(4)	12.7	539.8	12	2 1/2	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 1/2	2 1/2	540	570

**GENERAL NOTES:**

- (a) Dimensions are in millimeters, except for bolts and bolt holes.
- (b) All other dimensions are in accordance with ASME B16.5.
- (c) Ring joint flanges larger than NPS 3 will require angular meter taps 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 is to be specified by the purchaser.

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### ASME B16.36 Flange Weight Chart

ASME B16.36 Orifice Flange Weights by Pressure Class and Size																		
N P S	Class 150			Class 300			Class 600			Class 900			Class 1500			Class 2500		
	W N	S O	B L D	W N	S O	B L D	W N	S O	BL D	W N	S O	BL D	W N	S O	BL D	W N	S O	BL D
1/ 2"	2	1	1	2	1	1	2	2	2	Class 1500 Weight			5	4	4	7	7	7
3/ 4"	2	2	2	3	3	3	4	3	3	Class 1500 Weight			6	5	6	8	8	8
1"	3	2	2	4	3	3	4	4	4	Class 1500 Weight			9	8	8	12	11	11
1 1/ 2"	4	3	3	7	6	6	8	7	8	Class 1500 Weight			13	1 2	13	25	22	23
2"	6	5	5	9	7	8	1 2	9	10	Class 1500 Weight			25	2 5	25	42	37	39
2 1/ 2"	8	7	7	1 2	1 0	1 2	1 8	1 3	15	Class 1500 Weight			36	3 6	35	52	55	56
3"	1 0	8	9	1 5	1 3	1 6	2 3	1 6	20	31	26	29	48	4 8	48	94	83	86
4"	1 5	1 3	1 7	2 5	2 2	2 7	4 2	3 7	41	53	53	54	73	7 3	73	14 5	12 5	13 0
5"	1 9	1 5	2 0	3 2	2 8	3 5	6 8	6 3	68	86	83	87	13 0	1 3 0	14 0	24 5	21 0	22 5
6"	2 4	1 9	2 6	4 2	3 9	5 0	8 1	8 0	86	11 0	11 0	11 5	16 5	1 6 5	16 0	38 0	32 5	34 5
8"	3 9	3 0	4 5	6 7	5 8	8 1	1 2 0	1 1 5	14 0	17 5	17 0	20 0	27 5	2 6 0	30 0	58 0	48 5	53 0

1 0"	5 2	4 3	7 0	9 1	8 1	1 2 4	1 9 0	1 7 0	23 0	26 0	24 5	29 0	45 5	4 3 5	51 0	10 75	93 0	10 25
1 2"	8 0	6 4	1 1 0	1 4 0	1 1 5	1 8 5	2 2 5	2 0 0	29 5	32 5	32 5	41 5	69 0	5 8 0	69 0	15 25	11 00	13 00
1 4"	1 1 0	9 0	1 4 0	1 8 0	1 6 5	2 5 0	2 8 0	2 3 0	35 5	40 0	40 0	52 0	94 0	N A	97 5	N A	N A	N A
1 6"	1 4 0	9 8	1 8 0	2 5 0	1 9 0	2 9 5	3 9 0	3 3 0	49 5	49 5	42 5	60 0	12 50	N A	13 00	N A	N A	N A
1 8"	1 5 0	1 3 0	2 2 0	3 2 0	2 5 0	3 9 5	4 7 5	4 0 0	63 0	68 0	60 0	85 0	16 25	N A	17 50	N A	N A	N A
2 0"	1 8 0	1 6 5	2 8 5	4 0 0	3 1 5	5 0 5	5 9 0	5 1 0	81 0	83 0	73 0	10 75	20 50	N A	22 25	N A	N A	N A
2 2"	2 2 5	1 8 5	3 5 5	4 6 5	3 7 0	6 4 0	7 2 0	5 9 0	10 00	N A	N A	N A	N A	N A	N A	N A	N A	N A
2 4"	2 6 0	2 2 0	4 3 0	5 8 0	4 7 5	7 9 0	8 3 0	7 3 0	12 50	15 00	14 00	20 25	33 25	N A	36 25	N A	N A	N A

### Material Requirements

ASME B16.36 flanges must meet specific material requirements based on their intended pressure-temperature rating. The **ASME B16 36 Ring Type Joint Orifice Flange** material requirements are specified in line with ASME B16.5 and include materials such as:

- Carbon Steels (e.g., ASTM A105): Typically used for lower and moderate temperature applications.
- Alloy Steels (e.g., ASTM A182 F11, F22): Used in higher temperature and pressure applications.
- Stainless Steels (e.g., ASTM A182 F304, F316): Ideal for corrosive environments, with good performance at higher temperatures.
- Low-Alloy Steels (e.g., ASTM A350 LF1, LF2): For low-temperature pressure applications



- High Yield Carbon Steels (e.g., ASTM A694 F52, F56): High strength and durability for high-pressure applications
- Duplex Steels (e.g., ASTM A182 S31803, S32205): High strength and corrosion resistant especially in chloride-rich environments

Material selection is critical, as it directly influences the pressure-temperature performance of the flanges.

### **Construction Requirements**

- Raised Face (RF) and Ring-Type Joint (RTJ) Flanges: Construction varies depending on whether the flange design includes a raised face or an RTJ groove. RF designs are more common for lower-pressure applications, while RTJ is used for higher-pressure applications.
- Gasket Seating Surface: The design ensures that the **ASME B 16.36 Class 300 Flanges** create a secure seal when the gasket is placed between them. For RTJ flanges, the seal is created by the metal-to-metal contact of the ring joint.

### **Testing Requirements**

- Hydrostatic Testing: **ASME B 16.36 Class 900 Flanges** may undergo hydrostatic testing as required by the manufacturer or purchaser, ensuring the integrity of the flange under the pressure specified.
- NDE Testing: Non-destructive examination (NDE) methods such as radiographic or ultrasonic testing may also be used, particularly in higher-pressure applications or when material integrity is critical.

### **Summary**

ASME B16.36 provides a comprehensive standard for **Orifice Flanges**, ensuring their compatibility with piping systems, their ability to withstand specific pressures and temperatures, and their construction from suitable materials. It aligns with ASME B16.5 for dimensional consistency but focuses on the specialized needs of flow measurement using orifice plates.