

# Rosemount 1495 Orifice Plate and 1496 Orifice Flange Union



- Orifice bore in strict accordance with API, AGA, ASME, and ISO to ensure proper orientation between pipe flanges

---

**Contents**

Rosemount 1495 Orifice Plate ..... page 3  
    1495 ordering information ..... page 3  
Rosemount 1496 Orifice Flange Union ..... page 7  
    1496 ordering information ..... page 7  
1495/1496 specifications ..... page 10  
1495 dimensional drawings ..... page 14  
1496 dimensional drawings ..... page 16  
Installation and Flowmeter Orientation ..... [Click Here](#)

# Rosemount 1495 Orifice Plate

Standard configuration is with a square-edged concentric bore in both paddle and universal type plates. Also available with a spiral finish. Final inspection reports illustrating plate thickness, concentricity, outside dimensions, inside dimensions, roundness, and flatness are available.

- Bore calculations are available if the Configuration Data Sheet (CDS) is completed and Option BC is selected.

## 1495 ordering information

**Table 1. Rosemount 1495 Orifice Plate Ordering Information**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
1495	Orifice Plate Primary	
<b>Orifice Plate Type</b>		
<b>Standard</b>		<b>Standard</b>
PC	Paddle, Concentric with better than 50 Ra (1.25 μm) finish.	★
PG	Paddle, concentric, with 125-250 Ra (3.2-3.6 μm) surface finish for use with spiral wound gaskets.	★
UC	Universal, Concentric	★
<b>Line Size</b>		
<b>Standard</b>		<b>Standard</b>
020	2 in. (DN50)	★
025	2 1/2 in. (DN65)	★
030	3 in. (DN80)	★
040	4 in. (DN100)	★
060	6 in. (DN150)	★
080	8 in. (DN200)	★
100	10 in. (DN250)	★
120	12 in. (DN300)	★
140	14 in. (DN350)	★
160	16 in. (DN400)	★
180	18 in. (DN450)	★
200	20 in. (DN500)	★
240	24 in. (DN600)	★

<b>Flange Rating</b>		
<b>Standard</b>		<b>Standard</b>
A1	Flange ANSI Class 150 Raised Face. Not typical for ASME B16.36 flange tapped flanges.	★
A3	ANSI Class 300 Raised Face	★
A6	ANSI Class 600 Raised Face	★
A9	ANSI Class 900 Raised Face	★
AF	ANSI Class 1500 Raised Face	★
AT <sup>(1)</sup>	ANSI Class 2500 Raised Face	★
D1	DIN PN10	★
D2	DIN PN16	★
D3	DIN PN25	★
D4	DIN PN40	★
D5	DIN PN63 <sup>(2)</sup>	★
D6	DIN PN100	★

**Table 1. Rosemount 1495 Orifice Plate Ordering Information**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

<b>Expanded</b>		
R3	Flange ANSI Class 300 Ring Joint	
R6	Flange ANSI Class 600 Ring Joint	
R9	Flange ANSI Class 900 Ring Joint	
RF	Flange ANSI Class 1500 Ring Joint	
RT	Flange ANSI Class 2500 Ring Joint	
<b>Orifice Plate Material Type</b>		
<b>Standard</b>		<b>Standard</b>
S	316/316L Stainless Steel	★
T	DIN 1.4571 (316Ti Stainless Steel)	★
L	304/304L Stainless Steel	★
<b>Expanded</b>		
H	Alloy C-276	
M	Alloy 400	
<b>Plate Thickness</b>		
<b>Standard</b>		<b>Standard</b>
A	0.125-in. (3.2 mm) – default for line size 2 to 6-in. (50 to 150 mm)	★
B	0.250-in. (6.35 mm) – default for line size 8 to 14-in. (200 to 350 mm)	★
C	0.375 in. (9.53 mm) - default for line size 16 to 20-in. (400 to 500 mm)	★
D	0.500-in. (12.7 mm) – default for line size 24-in. (600 mm)	★
E <sup>(3)</sup>	Plate Thickness per DIN 19206	★
<b>Bore</b>		
<b>Standard</b>		<b>Standard</b>
XXXXX	Bore (XXXXX = XX.XXX)	★

### Options (Include with selected model number)

<b>Bore Calculation</b>		
<b>Standard</b>		<b>Standard</b>
BC	Bore Calculation	★
<b>Drain / Vent Hole</b>		
<b>Standard</b>		<b>Standard</b>
DV <sup>(4)</sup>	Drain / Vent Hole	★
<b>Plate Holder</b>		
<b>Standard</b>		<b>Standard</b>
PH <sup>(5)</sup>	Plate Holder for RTJ Flanges	★
<b>Alternate Bore Type</b>		
<b>Standard</b>		<b>Standard</b>
TC	Conical Entrance Bore	★
TE <sup>(4)</sup>	Eccentric Bore	★
TS <sup>(4)</sup>	Segmental Bore	★
TQ	Quadrant Edged Bore	★
RO <sup>(6)</sup>	Restriction Orifice Plate	★

**Table 1. Rosemount 1495 Orifice Plate Ordering Information**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

<b>Alternate Pipe Schedule</b>		
<b>Standard</b>		<b>Standard</b>
FA <sup>(1)</sup>	Schedule 5S	★
FB <sup>(7)</sup>	Schedule 10	★
FC <sup>(7)</sup>	Schedule 10S	★
FD <sup>(7)</sup>	Schedule 20	★
FE <sup>(7)</sup>	Schedule 30	★
FF <sup>(7)</sup>	Schedule 40	★
FG <sup>(7)</sup>	Schedule 40S	★
FH <sup>(7)</sup>	Schedule Standard (STD)	★
FI <sup>(7)</sup>	Schedule 60	★
FJ <sup>(7)</sup>	Schedule 80	★
FK <sup>(7)</sup>	Schedule 80S	★
FL <sup>(7)</sup>	Schedule Extra Strong (XS)	★
FM <sup>(7)</sup>	Schedule 100	★
FN <sup>(7)</sup>	Schedule 120	★
FP <sup>(7)</sup>	Schedule 140	★
FQ <sup>(7)</sup>	Schedule 160	★
FR <sup>(7)</sup>	Schedule Double Extra Strong (XXS)	★
<b>Special Cleaning</b>		
<b>Expanded</b>		
P2	Cleaning for Special Services	
<b>Special Inspection</b>		
<b>Standard</b>		<b>Standard</b>
QC1	Visual & dimensional inspection with certificate	★
QC7	Inspection & performance certificate	★
<b>Material Traceability Certification</b>		
<b>Standard</b>		<b>Standard</b>
Q8	Material Traceability Certificate per and EN 10204:2004 3.1	★
<b>Code Conformance</b>		
<b>Expanded</b>		
J5 <sup>(8)</sup>	NACE MR-0175 / ISO 15156	
<b>Country Certification</b>		
<b>Expanded</b>		
J1	Canadian Registration	
<b>Typical Model Number: 1495 PC 040 A3 S A 02125</b>		

(1) Available in line sizes from 2-12 in.

- (2) Previously PN64.
- (3) Standard Plate Thickness:
  - DN50 - 65 = 3 mm
  - DN80 - 450 = 4 mm
  - DN500 - 600 = 6 mm
- (4) This option requires pipe I.D. to be specified. Please select alternate pipe schedule option or specify on order.
- (5) 3-in. line sizes and below use an integral plate holder. Line sizes 4-in. and above use a screw type plate holder. The plate holder material matches the plate material.
- (6) A standard beveled orifice plate is provided with the "RO" option code.
- (7) These options should only be selected if options DV, TE, or TS are selected. These options are not available with flange rating D1-D6.
- (8) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.

# Rosemount 1496 Orifice Flange Union

Standard flange styles are raised face (RF) weld neck, RF slip-on, or RF threaded for paddle type orifice plates, and ring type joint (RTJ) weld neck for universal type plates with plate holders. All flange unions are supplied with studs, nuts, jackscrews, gaskets, and pipe plugs. [Table 5](#) lists standard pipe schedules.

- Meets ASME B16.36
- Meets DIN 19214 part 1
- Threaded tap connection provided 180-degrees apart

The following options are available.

- Socket weld tap connections
- High temperature flange gaskets for temperatures greater than 500 °F (260 °C)
- Stainless Steel flange bolting per ASTM A193 Grade B8M/A194 Grade 8M

## 1496 ordering information

**Table 2. Rosemount 1496 Orifice Flange Union Ordering Table**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
1496	Orifice Flange Union	
<b>Flange Union Type</b>		
<b>Standard</b>		<b>Standard</b>
WN	Raised Face, Weld Neck	★
TH	Raised Face, Threaded	★
SO	Raised Face, Slip-On	★
DN	Raised Face, Weld Neck, DIN 19214 Part 1	★
<b>Expanded</b>		
RJ	Ring Joint, Weld Neck	
<b>Line Size</b>		
<b>Standard</b>		<b>Standard</b>
020	2 in. (DN50)	★
025	2½-in. (DN65)	★
030	3 in. (DN80)	★
040	4 in. (DN100)	★
060	6 in. (DN150)	★
080	8 in. (DN200)	★
100	10 in. (DN250)	★
120	12 in. (DN300)	★
140	14 in. (DN350)	★
160	16 in. (DN400)	★
180	18 in. (DN450)	★
200	20 in. (DN500)	★
240	24 in. (DN600)	★
<b>Flange Rating</b>		
<b>Standard</b>		<b>Standard</b>
A3	ANSI Class 300	★
A6	ANSI Class 600	★
A9	ANSI Class 900	★

**Table 2. Rosemount 1496 Orifice Flange Union Ordering Table**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.  
The Expanded offering is subject to additional delivery lead time.

Standard		Standard
AF	ANSI Class 1500	★
AT <sup>(1)</sup>	ANSI Class 2500	★
D1	DIN PN10	★
D2	DIN PN16	★
D3	DIN PN25	★
D4	DIN PN40	★
D5	DIN PN63 <sup>(2)</sup>	★
D6	DIN PN100	★
<b>Expanded</b>		
R3	Ring-Type Joint (RTJ) Class 300	
R6	Ring-Type Joint (RTJ) Class 600	
R9	Ring-Type Joint (RTJ) Class 900	
RF	Ring-Type Joint (RTJ) Class 1500	
RT	Ring-Type Joint (RTJ) Class 2500	
<b>Flange Union Material Type</b>		
<b>Standard</b>		<b>Standard</b>
C	Carbon Steel	★
S	316/316L Stainless Steel	★
T	DIN 1.4571 (316Ti Stainless Steel)	★
L	304/304L Stainless Steel	★
<b>Expanded</b>		
H	Alloy C-276	
M	Alloy 400	

**Options (Include with selected model number)**

Alternate Pipe Schedule / Wall Thickness <sup>(3)</sup>		
Standard		Standard
FA <sup>(4)</sup>	Schedule 5S	★
FB <sup>(4)</sup>	Schedule 10	★
FC <sup>(4)</sup>	Schedule 10S	★
FD <sup>(4)</sup>	Schedule 20	★
FE <sup>(4)</sup>	Schedule 30	★
FF <sup>(4)</sup>	Schedule 40	★
FG <sup>(4)</sup>	Schedule 40S	★
FH <sup>(4)</sup>	Schedule Standard (STD)	★
FI <sup>(4)</sup>	Schedule 60	★
FJ <sup>(4)</sup>	Schedule 80	★
FK <sup>(4)</sup>	Schedule 80S	★
FL <sup>(4)</sup>	Schedule Extra Strong (XS)	★
FM <sup>(4)</sup>	Schedule 100	★
FN <sup>(4)</sup>	Schedule 120	★
FP <sup>(4)</sup>	Schedule 140	★
FQ <sup>(4)</sup>	Schedule 160	★
FR <sup>(4)</sup>	Schedule Double Extra Strong (XXS)	★



**Table 2. Rosemount 1496 Orifice Flange Union Ordering Table**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.  
The Expanded offering is subject to additional delivery lead time.

<b>High Temperature Gaskets</b>		
<b>Standard</b>		<b>Standard</b>
G1 <sup>(5)(6)</sup>	High Temperature Gaskets (spiral wound gaskets for use with 125-250 (3.2-3.6 μm) Ra flange surface finish).	★
<b>Alternate Bolting Material</b>		
<b>Standard</b>		<b>Standard</b>
SS <sup>(7)</sup>	316SST Studs/Nuts	★
<b>Alternate Pressure Tap Type</b>		
<b>Standard</b>		<b>Standard</b>
ST	Socketweld Pressure Taps (not available with Flange Union Type code DN)	★
<b>Special Cleaning</b>		
<b>Expanded</b>		
P2	Cleaned for Special Services	
<b>Special Inspection</b>		
<b>Standard</b>		<b>Standard</b>
QC1	Visual & dimensional inspection with certificate	★
<b>Material Traceability Certification</b>		
<b>Standard</b>		<b>Standard</b>
Q8	Material Traceability Certificate per and EN 10204:2004 3.1	★
<b>Code Conformance</b>		
<b>Expanded</b>		
J5 <sup>(8)</sup>	Materials conforming to NACE MR01-75	
<b>Country Certification</b>		
<b>Standard</b>		<b>Standard</b>
J1	Canadian Registration	★
<b>Expanded</b>		
J6	Conformance to European Pressure Equipment Directive (PED) 97/23/EC	
<b>Typical Model Number: 1496 WN 040 A3 S</b>		

(1) Available in line sizes from 2-12 in.

(2) Previously PN64.

(3) Default pipe schedules are listed in [Table 5 on page 11](#) for the 1496 Orifice Flange Unions.

(4) These options are not available with flange type DN. These options should only be selected if the required pipe schedule is different from the default pipe schedule, as shown in [Table 5 on page 11](#). Standard wall thickness for DIN weldneck flanges is per ISO EN 1092-1 (2002). Consult the factory if a different wall thickness is required.

(5) Not available with Flange Union Type code RJ.

(6) For more gasket information please see the Temperature Limit table in the 1495/1496 Specifications section of the Product Data Sheet.

(7) Stainless steel bolting (ASTM A193 GR B8M Class 2) is classified as "low strength bolting" by the various ASME B31 piping codes and may not be suitable for all applications requiring code conformance.

(8) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.

# 1495/1496 specifications

## 1495/1496 functional specifications

### Service and flow range

Liquid, gas or vapor turbulent flow, for pipe Reynold's Numbers greater than the following<sup>(1)</sup>:

AGA-3: 4,000

ASME MFC-3M<sup>(2)</sup>: 5,000 and  $170\beta^2 D$  (whichever is higher)

ISO-5167<sup>(2)</sup>: 5,000 and  $170\beta^2 D$  (whichever is higher)

(1) For flange tap applications.

(2) D = pipe I.D. in mm.  $\beta$  = Beta Ratio

### Orifice Plate operating limitations

**Table 3. Temperature Limit (Based on flange rating per ANSI B16.5.)**

ANSI Flange Rating	Applicability	Gasket Description	Temperature Rating
300#	Default	Durlon 8500, Compressed Sheet Gasket	-100 °F to 700 °F (-73 °C to 371 °C)
	If "P2" option	Durlon 9000, Compressed Sheet Gasket	-350 °F to 520 °F (-212 °C to 271 °C)
	If "G1" option	Flexitallic CGI, Spiral Wound Gasket with Thermiculite 735 Filler	-350 °F to 1000 °F (-212 °C to 538 °C)
600#, 900#, 1500#, 2500#	Default	Flexitallic CGI, Spiral Wound Gasket with Thermiculite 735 Filler	-350 °F to 1000 °F (-212 °C to 538 °C)
	If "P2" option	Flexitallic CGI, Spiral Wound Gasket with PTFE Filler	-300 °F to 500 °F (-184 °C to 260 °C)
	If "G1" option	Flexitallic CGI, Spiral Wound Gasket with Thermiculite 735 Filler	-350 °F to 1000 °F (-212 °C to 538 °C)

### Maximum working pressure:

Based on flange rating per ANSI B16.5.

### Service and flow range

Liquid, gas or vapor turbulent flow, for pipe Reynold's Numbers within ISO 5167, AGA Report No. 3/ API 14.3.2, and ASME MFC-3M specifications.

### Pipe sizes

2-in. to 24-in. (50 mm to 600 mm). Contact Emerson Process Management for pipe sizes less than 2-in. (50 mm) or greater than 24-in. (600 mm).

### Operating limits

1495 Temperature Range:

- -320 to 1200 °F (-196 to 649 °C)

**Table 4. 1496 Temperature Range:**

1496 Material <sup>(1)</sup>	Temperature Rating
Carbon Steel (ASTM A105 <sup>(2)</sup> )	-20 to 800 °F (-29 to 538 °C)
316/316L Stainless Steel (ASTM A182 F316/316L)	-325 to 1000 °F (-198 to 538 °C)
304/304L Stainless Steel (ASTM A182 F304/304L)	-425 to 1000 °F (-254 to 816 °C)
Alloy C-276 (ASTM B564 N10276)	-325 to 1250 °F (-198 to 677 °C)
Alloy 400 (ASTM B564 N04400)	-325 to 900 °F (-198 to 482 °C)
Carbon Steel (ASTM A350-LF2 <sup>(2)</sup> )	-50 to 1000 °F (-46 to 538 °C)
DIN 1.4571 (316Ti Stainless Steel) (ASTM A182 F316Ti)	-325 to 1000 °F (-198 to 538 °C)
Alloy C4 (ASTM B574 UNS N06455)	-325 to 800 °F (-198 to 427 °C)

(1) Depending on World Area, flanges will conform to one or more of the listed material specifications

(2) When the J6 Option is selected, this material will be supplied as ASTM A350 LF2

## 1495/1496 physical specifications

### Standard pipe schedules

**Table 5. Default Pipe Schedules for 1496 Orifice Flange Unions <sup>(1)(2)</sup>**

Nominal Pipe Size <sup>(3)</sup>	ANSI 300# (WN, TH, SO)	ANSI 600# (WN, RJ)	ANSI 900# (WN, RJ)	ANSI 1500# (WN, RJ)	ANSI 2500# (WN, RJ)
2 (51)	Standard	Standard	XS	XS	160
2½- (64)	Standard	Standard	XS	XS	
3 (76)	Standard	Standard	XS		
4 (102)	Standard	Standard	XS		
6 (152)	Standard	Standard	XS		
8 (203)	Standard	Standard			
10 (254)	Standard	XS			
12 (305)	Standard	XS			
14 (356)	Standard				
16 (406)	Standard				
18 (457)	Standard				
20 (508)	Standard				
24 (610)	XS				

(1) If no default schedule provided - customer must specify pipe schedule.

(2) Standard wall thickness for DIN weldneck flanges is per ISO EN 1092-1 (2002). Consult factory if different wall thickness is required.

(3) Size in inches (millimeters).

### Note

It is strongly encouraged to use the ordering codes to specify desired pipe schedule.

**Table 6. Dimensions of Pipe Inner Diameter<sup>(1)</sup>**

Nominal Pipe Size	Schedule					
	5S	10	10S	20	30	40
2 (51)	2.245 (57.02)	2.157 (54.79)	2.157 (54.79)	-	-	2.067 (52.501)
2½- (64)	2.709 (68.81)	2.635 (66.93)	2.635 (66.93)	-	-	2.469 (62.71)
3 (76)	2.224 (56.49)	3.26 (82.80)	3.26 (82.80)	-	-	3.068 (77.93)
4 (102)	4.334 (110.08)	4.26 (108.20)	4.26 (108.20)	-	-	4.026 (102.26)
6 (152)	6.407 (162.74)	6.357 (161.47)	6.357 (161.47)	-	-	6.065 (154.05)
8 (203)	8.407 (213.54)	8.329 (211.56)	8.329 (211.56)	8.125 (206.38)	8.071 (205)	7.981 (202.72)
10 (254)	10.482 (266.24)	10.42 (264.67)	10.42 (264.67)	10.25 (260.35)	10.136 (257.45)	10.02 (254.51)
12 (305)	12.438 (315.93)	12.39 (314.71)	12.39 (314.71)	12.25 (311.15)	12.09 (307.09)	11.938 (303.23)
14 (356)	-	13.5 (342.90)	13.624 (346.05)	13.376 (339.75)	13.25 (336.55)	13.124 (333.35)
16 (406)	-	15.5 (393.70)	15.624 (396.85)	15.376 (390.55)	15.25 (387.35)	15.0 (381.0)
18 (457)	-	17.5 (444.50)	17.624 (447.65)	17.376 (441.35)	17.126 (435.00)	16.976 (431.19)
20 (508)	-	19.5 (495.30)	19.564 (496.93)	19.25 (488.95)	19.0 (482.60)	18.814 (477.88)
24 (610)	-	23.5 (596.90)	23.5 (596.90)	23.25 (590.55)	22.876 (581.05)	22.626 (574.70)
Nominal Pipe Size	Schedule					
	40S	Standard	60	80	80S	XS
2 (51)	2.067 (52.501)	2.067 (52.50)	-	1.939 (49.25)	1.939 (49.25)	1.939 (49.25)
2½- (64)	2.469 (62.71)	2.469 (62.71)	-	2.323 (59.0)	2.323 (59.0)	2.323 (59.0)
3 (76)	3.068 (77.93)	3.068 (77.93)	-	2.90 (73.66)	2.90 (73.66)	2.90 (73.66)
4 (102)	4.026 (102.26)	4.026 (102.26)	-	3.826 (97.18)	3.826 (97.18)	3.826 (97.18)
6 (152)	6.065 (154.05)	6.065 (154.05)	-	5.761 (146.33)	5.761 (146.33)	5.761 (146.33)
8 (203)	7.981 (202.72)	7.981 (202.72)	7.813 (198.45)	7.625 (193.68)	7.625 (193.68)	7.625 (193.68)
10 (254)	10.02 (254.51)	10.02 (254.51)	9.75 (247.65)	9.564 (242.94)	9.75 (247.65)	9.75 (247.65)
12 (305)	12.0 (304.8)	12.00 (304.80)	11.626 (41.30)	11.376 (288.95)	11.75 (298.45)	11.75 (298.45)

Table 6. Dimensions of Pipe Inner Diameter<sup>(1)</sup>

Nominal Pipe Size	Schedule					
	40S	Standard	60	80	80S	XS
14 (356)	–	13.250 (336.55)	12.814 (325.48)	12.50 (317.50)	–	13.0 (330.20)
16 (406)	–	15.250 (387.35)	14.688 (373.08)	14.314 (363.58)	–	15.0 (381.0)
18 (457)	–	17.250 (438.15)	16.5 (419.10)	16.126 (409.60)	–	17.0 (425.0)
20 (508)	–	19.252 (488.95)	18.376 (466.75)	17.938 (455.63)	–	19.0 (482.60)
24 (610)	–	23.250 (590.55)	22.064 (560.43)	21.564 (547.73)	–	23.0 (584.20)
Nominal Pipe Size	Schedule					
	100	120	140	160	XXS	
2 (51)	–	–	–	1.689 (42.9)	1.503 (38.18)	
2½- (64)	–	–	–	2.125 (53.98)	1.771 (44.98)	
3 (76)	–	–	–	2.624 (66.65)	2.30 (58.42)	
4 (102)	–	3.624 (92.005)	–	3.438 (87.33)	3.152 (80.06)	
6 (152)	–	5.501 (139.73)	–	5.189 (131.80)	4.897 (124.38)	
8 (203)	7.437 (188.90)	7.189 (157.15)	7.001 (177.83)	6.813 (173.05)	6.875 (174.63)	
10 (254)	9.314 (236.58)	9.064 (230.23)	8.75 (222.25)	8.50 (215.90)	–	
12 (305)	11.064 (281.03)	10.75 (273.05)	10.5 (266.70)	10.126 (257.20)	–	
14 (356)	12.126 (308.00)	11.814 (300.08)	11.5 (37.50)	11.188 (284.18)	–	
16 (406)	13.938 (354.03)	13.564 (344.53)	13.124 (333.35)	12.814 (325.48)	–	
18 (457)	15.688 (398.27)	15.25 (387.35)	14.876 (377.85)	14.438 (366.73)	–	
20 (508)	17.44 (443.98)	17.0 (431.80)	16.5 (410.10)	16.064 (408.03)	–	
24 (610)	20.938 (531.83)	20.376 (517.55)	19.876 (504.85)	19.314 (490.58)	–	

(1) Measurement is in inches (millimeters).

## Materials of construction

### 1495 Orifice Plate

**Table 7. 1495 Materials of construction**

1495 Material	Material Specifications Reference
304/304L Stainless Steel	ASTM A240 Grade 304/304L
316/316L Stainless Steel	ASTM A240 Grade 316/316L
DIN 1.4571 (316Ti SST) <sup>(1)</sup>	ASTM A240 Gr 316Ti (UNS S31635) (DIN Material Number 1.4571)
Alloy C-276	ASTM B575 UNS N10276
Alloy 400	ASTM B127 UNS N04400

(1) May not be available in all world areas.

### Orifice bore sizes

Standard bore sizes are in 1/8-in. (3.2 mm) increments from 1/2-in. (12.7 mm) to 4-in. (101.6 mm) and in 1/4-in. (6.3 mm) increments from 4 1/4 to 6-in. (107.95 mm to 152.4 mm).

If required, Emerson Process Management can determine the orifice bore. Basic flow data is required at the time of order, see Calculation Data Sheet.

Bore tolerances are within AGA and ASME specifications.

Available options allow the user to have the Rosemount 1495 sized for specific operating conditions. The [“1495PC Paddle Type Orifice Plate”](#) on page 14 specifies the physical parameters of the orifice from a detailed sizing calculation.

### 1496 Flange Unions

**Table 8. 1496 Materials of construction**

1496 Material	Material Specification Reference
Carbon Steel	ASTM A105 / A350
Stainless Steel	ASTM A240 Grade 316/316L
DIN 1.4571 (316Ti SST) <sup>(1)</sup>	ASTM A182
DIN 1.0460 (carbon steel) <sup>(1)</sup>	ASTM A105 <sup>(2)</sup>
Alloy C-276	ASTM B564/575
Alloy 400	ASTM B564/127

(1) May not be available in all world areas.

(2) When the J6 Option is selected, this material will be supplied as ASTM A350 LF2.

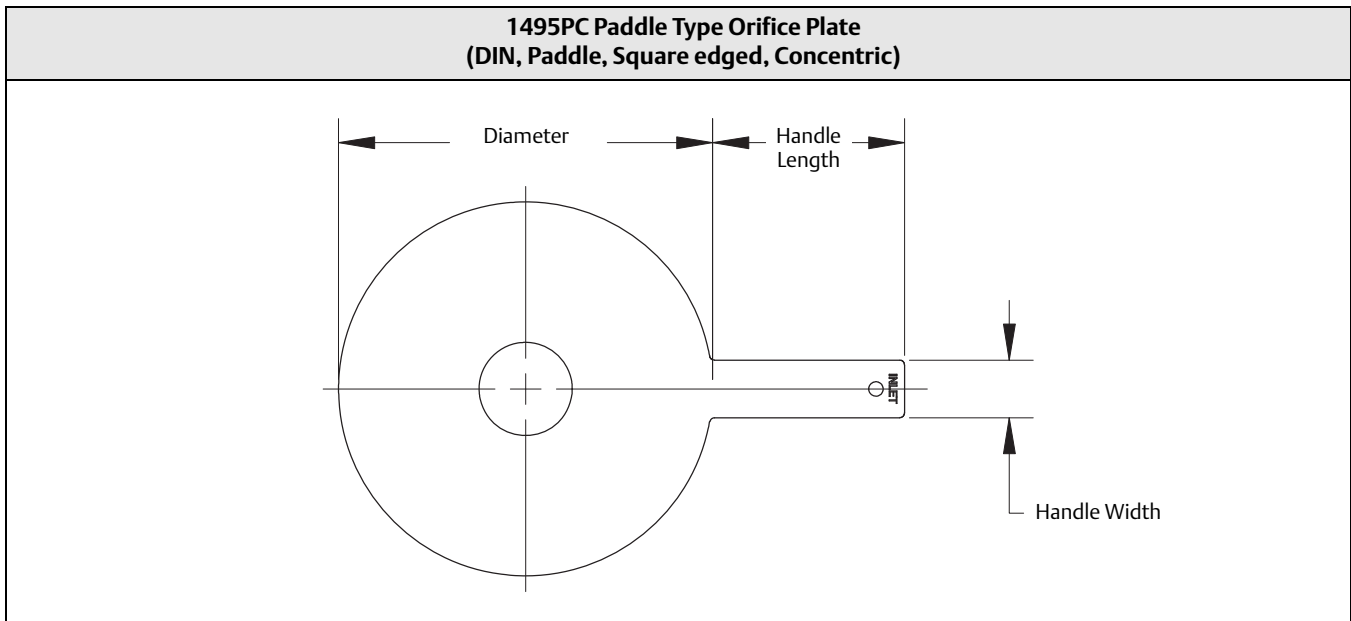
## Standard Flange Mounting Hardware

- Studs: Carbon Steel ASTM A193 Grade B7M
- Nuts: Carbon Steel ASTM A194 Gr 2H
- Gaskets: Non-asbestos ring type, Durlon® 8500 Green, Klingsil C4400, or equivalent
- Pipe Plugs: Match flange material

## Pressure Taps

Pressure tap connections are 1/2-in. (12.7 mm) NPT and 180° apart as standard. The tap hole diameter is 1/4-in. (6.35 mm) for 2-in. (51 mm) and 2 1/2-in. (63.5 mm) size, 3/8-in. (9.6 mm) for 3-in. (76.2 mm) size, and 1/2-in. (12.7 mm) for 4-in. (101.6 mm) and larger sizes.

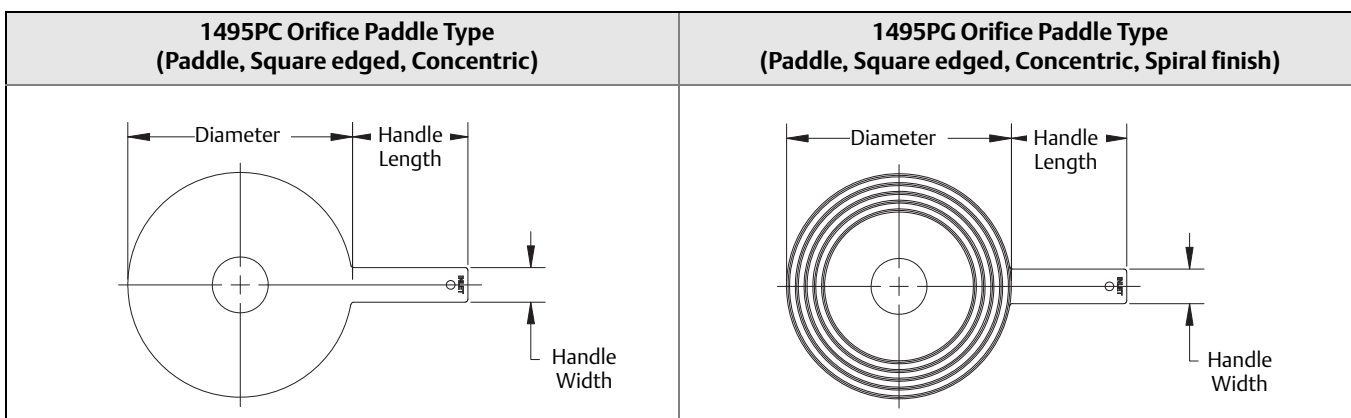
## 1495 dimensional drawings



**Table 9. 1495 Orifice Plate Dimensions<sup>(1)</sup>**

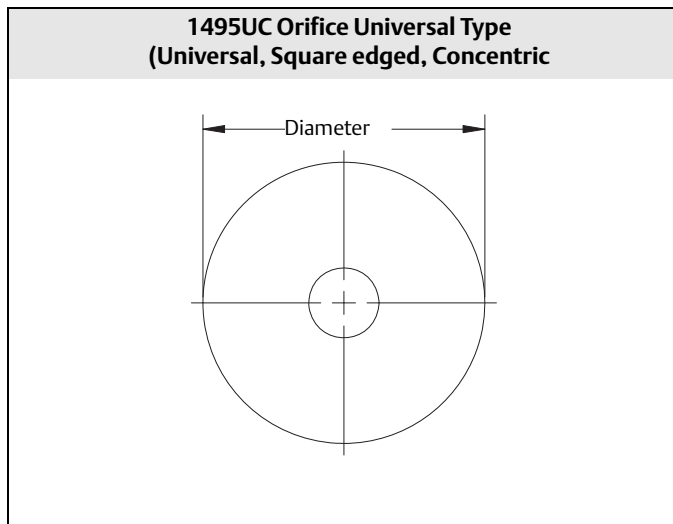
DN	Diameter (max) – by flange rating						Handle Width	Handle Length
	PN 10	PN 16	PN 25	PN 40	PN 63/64	PN 100		
DN 50	4.21 (107)	4.21 (107)	4.21 (107)	4.21 (107)	4.45 (113)	4.69 (119)	1.5 (40)	6.3 (160)
DN 65	5 (127)	5 (127)	5 (127)	5 (127)	5.43 (138)	5.67 (144)	1.5 (40)	6.3 (160)
DN 80	5.6 (142)	5.6 (142)	5.6 (142)	5.6 (142)	5.82 (148)	6.06 (154)	1.5 (40)	6.3 (160)
DN 100	6.38 (162)	6.38 (162)	6.61 (168)	6.61 (168)	6.85 (174)	7.09 (180)	1.5 (40)	6.3 (160)
DN 125	7.56 (192)	7.56 (192)	7.64 (194)	7.63 (194)	8.27 (210)	8.54 (217)	1.5 (40)	6.3 (160)
DN 150	8.58 (218)	8.58 (218)	8.82 (224)	8.82 (224)	9.72 (247)	10.12 (257)	1.5 (40)	6.3 (160)
DN 200	10.74 (273)	10.74 (273)	11.18 (284)	11.42 (290)	12.17 (309)	12.76 (324)	1.5 (40)	6.3 (160)
DN 250	12.91 (328)	12.95 (329)	13.39 (340)	13.86 (352)	14.33 (364)	15.39 (391)	1.5 (40)	6.3 (160)
DN 300	14.88 (378)	15.11 (384)	15.75 (400)	16.42 (417)	16.69 (424)	18.03 (458)	1.5 (40)	6.3 (160)
DN 350	17.24 (438)	17.48 (444)	17.99 (457)	18.66 (474)	19.13 (486)	20.16 (512)	1.5 (40)	6.3 (160)
DN 400	19.25 (489)	19.49 (495)	20.24 (514)	21.49 (546)	21.38 (543)	22.52 (572)	1.5 (40)	6.3 (160)
DN 450	21.22 (539)	21.85 (555)	22.24 (565)	22.48 (571)	Not Applicable	Not Applicable	1.5 (40)	6.3 (160)
DN 500	23.39 (594)	24.29 (617)	24.57 (624)	24.72 (628)	25.87 (657)	27.72 (704)	1.5 (40)	8.0 (200)
DN 600	27.36 (695)	28.9 (734)	28.78 (731)	29.41 (747)	30.08 (764)	32.01 (813)	1.5 (40)	8.0 (200)

(1) Measurement is in inches (millimeters)



Line Size	Diameter for Paddle Type <sup>(1)</sup>						Handle Length	Handle Width
	150#	300#	600#	900#	1500#	2500#		
2-in.	4.125 (104.78)	4.375 (111.13)	4.375 (111.13)	5.625 (142.875)	5.625 (142.875)	5.750 (146.05)	4.0 (101.6)	1.00 (25.4)
2½-in.	4.875 (123.82)	5.125 (130.18)	5.125 (130.18)	6.500 (165.1)	6.500 (165.1)	6.625 (168.275)	4.0 (101.6)	1.00 (25.4)
3-in.	5.375 (136.53)	5.875 (149.23)	5.875 (149.23)	6.625 (168.275)	6.875 (174.625)	7.750 (196.85)	4.0 (101.6)	1.00 (25.4)
4-in.	6.875 (174.63)	7.125 (180.98)	7.625 (193.675)	8.125 (206.375)	8.250 (209.55)	9.250 (234.95)	4.0 (101.6)	1.00 (25.4)
6-in.	8.750 (222.25)	9.875 (250.83)	10.500 (266.7)	11.375 (288.925)	11.125 (282.575)	12.500 (317.5)	4.0 (101.6)	1.00 (25.4)
8-in.	11.000 (279.4)	12.125 (307.98)	12.625 (320.675)	14.125 (358.775)	13.875 (352.425)	15.250 (387.35)	6.0 (127)	1.5 (38.1)
10-in.	13.375 (339.73)	14.250 (361.95)	15.750 (400.05)	17.125 (434.975)	17.125 (434.975)	18.750 (476.25)	6.0 (152.4)	1.5 (38.1)
12-in.	16.125 (409.58)	16.625 (422.26)	18.000 (457.2)	19.625 (498.475)	20.500 (520.7)	21.625 (549.275)	6.0 (152.4)	1.5 (38.1)
14-in.	17.750 (450.85)	19.125 (485.78)	19.375 (339.725)	20.500 (520.7)	22.750 (577.85)	—	6.0 (152.4)	1.5 (38.1)
16-in.	20.250 (514.35)	21.250 (539.75)	22.250 (565.15)	22.625 (574.675)	25.250 (641.35)	—	6.0 (152.4)	1.5 (38.1)
18-in.	21.500 (546.1)	23.375 (593.725)	24.000 (609.6)	25.000 (635.00)	27.625 (701.675)	—	6.0 (152.4)	1.5 (38.1)
20-in.	23.750 (603.25)	25.625 (650.875)	26.750 (679.45)	27.375 (695.325)	29.625 (752.475)	—	6.0 (152.4)	1.5 (38.1)
24-in.	28.125 (714.375)	30.375 (771.525)	31.000 (787.4)	32.875 (835.025)	35.500 (901.7)	—	6.0 (152.4)	1.5 (38.1)

(1) Measurement is in inches (millimeters)



Line Size	Diameter for Universal Type <sup>(1)</sup>
2-in.	2.437 (61.8998)
2½-in.	2.812 (71.4248)
3-in.	3.437 (87.2998)
4-in.	4.406 (111.912)
6-in.	6.437 (163.5)
8-in.	8.437 (214.3)
10-in.	10.687 (271.45)
12-in.	12.593 (319.862)
14-in.	14.000 (355.6)
16-in.	16.000 (406.4)
18-in.	18.000 (457.2)
20-in.	20.000 (508)
24-in.	24.000 (609.6)

(1) Measurement is in inches (millimeters)

# 1496 dimensional drawings ASME B16.36-1996

Figure 1. Class 300

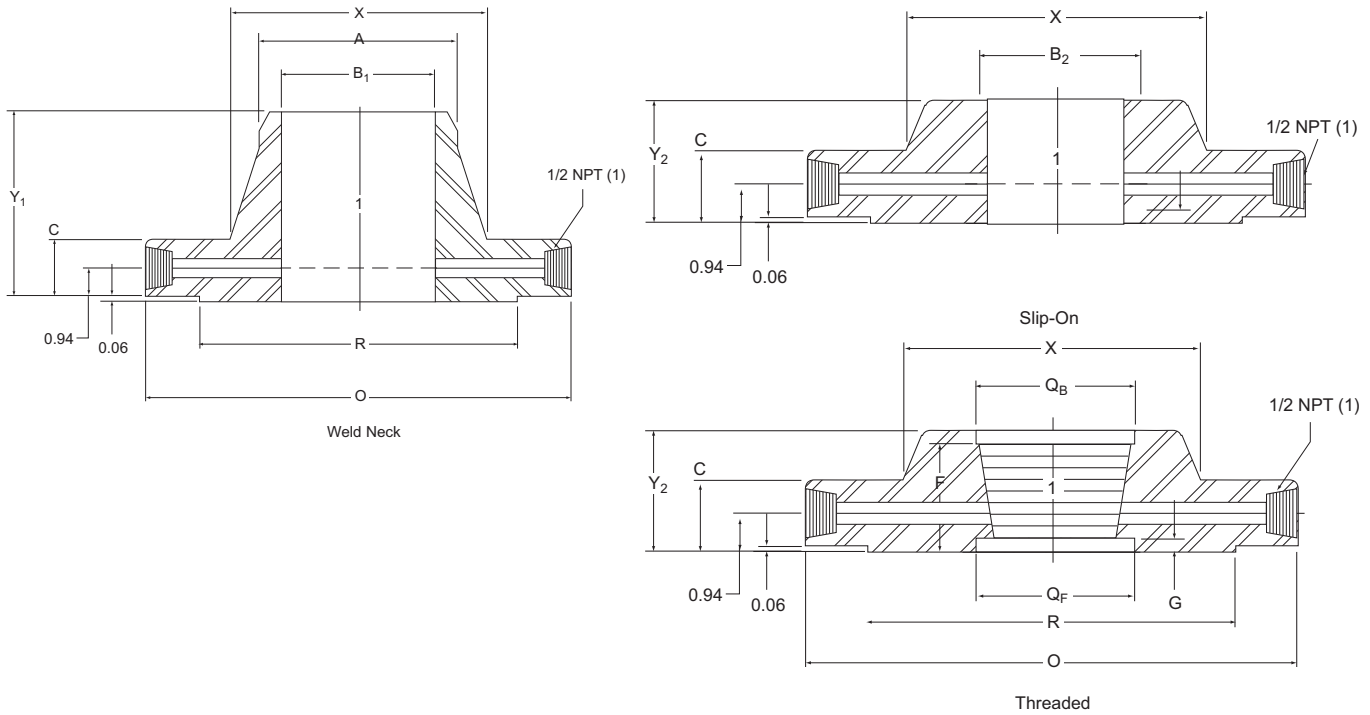


Table 10. Class 300 Orifice Flanges, Welding Neck, Slip-On, and Threaded<sup>(1)(2)</sup>

Nominal Pipe Size	Outside Diameter of Raised Face R	Outside Diameter of Flange O	Thickness of Flange, Min. C	Length Through Hub		Diameter of Hub X	Hub Diameter Beginning of Chamfer (W.N.) A	Diameter of Counter bore		Counter-bore Depth (From Face)		Bore	
				Slip-On and Threaded Y <sub>2</sub>	Weld Neck Y <sub>1</sub>			Back Q <sub>B</sub>	Face Q <sub>F</sub>	F	G	Slip-On B <sub>2</sub>	Weld Neck B <sub>1</sub>
1	2.00	4.88	1.50	1.88	3.25	2.12	1.32	1.41	1.30	1.44	0.75	1.36	See Note (5)
1½	2.88	6.12	1.50	1.88	3.38	2.75	1.90	1.99	1.89	1.47	0.72	1.95	
2	3.62	6.50	1.50	1.94	3.38	3.31	2.38	2.50	2.36	1.50	0.69	2.44	
2½	4.12	7.50	1.50	2.00	3.50	3.94	2.88	3.00	2.84	1.75	0.56	2.94	
3	5.00	8.25	1.50	2.06	3.50	4.62	3.50	3.63	3.46	1.81	0.56	3.57	
4	6.19	10.00	1.50	2.12	3.62	5.75	4.50	4.63	4.45	1.88	0.56	4.57	
6	8.50	12.50	1.50	2.12	3.94	8.12	6.63	6.75	6.57	1.88	0.31	6.72	
8	10.62	15.00	1.62	2.44	4.38	10.25	8.63	8.75	8.55	2.19	0.44	8.72	
10	12.75	17.50	1.88	2.62	4.62	12.62	10.75	See Note (6).				10.88	
12	15.00	20.50	2.00	2.88	5.12	14.75	12.75					12.88	
14	16.25	23.00	2.12	3.00	5.62	16.75	14.00					14.14	
16	18.50	25.50	2.25	3.25	5.75	19.00	16.00					16.16	
18	21.00	28.00	2.38	3.50	6.25	21.00	18.00					18.18	
20	23.00	30.50	2.50	3.75	6.38	23.12	20.00					20.20	
24	27.25	36.00	2.75	4.19	6.62	27.62	24.00					24.25	



Nominal Pipe Size (1)(2)	Diameter of Pressure Connection TT	Drilling Template				Bolt Length (3)(4)	
		Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Machine Bolts	Stud Bolts
1	1/4	3.50	4	0.69	5/8	4.50	5.00
1 1/2	1/4	4.50	4	0.81	3/4	4.75	5.25
2	1/4	5.00	8	0.69	5/8	4.50	5.00
2 1/2	1/4	5.88	8	0.81	3/4	4.75	5.25
3	3/8	6.62	8	0.81	3/4	4.75	5.25
4	1/2	7.88	8	0.81	3/4	4.75	5.25
6	1/2	10.62	12	0.88	3/4	4.75	5.25
8	1/2	13.00	12	1.00	7/8	5.00	5.75
10	1/2	15.25	16	1.12	1	5.75	6.50
12	1/2	17.75	16	1.25	1 1/8	6.25	7.00
14	1/2	20.25	20	1.25	1 1/8	6.50	7.25
16	1/2	22.50	20	1.38	1 1/4	7.00	7.75
18	1/2	24.75	24	1.38	1 1/4	7.25	8.00
20	1/2	27.00	24	1.38	1 1/4	7.50	8.50
24	1/2	32.00	24	1.62	1 1/2	8.25	9.50

- (1) Weld neck flanges NPS 3 and smaller are identical to Class 600 flanges and may be so marked.
- (2) All other dimensions are in accordance with ASME B16.5.
- (3) Bolt lengths include allowance for orifice and gasket thickness of 0.25 in. for NPS 1-12 and 0.38 in. for NPS 14-24.
- (4) In conformance with ASME B16.5, stud bolt lengths do not include point heights.
- (5) Threaded flanges are furnished in NPS 1-8 only.
- (6) Bore diameter of weld neck flanges is to be specified by the purchaser.

Figure 2. Class 600

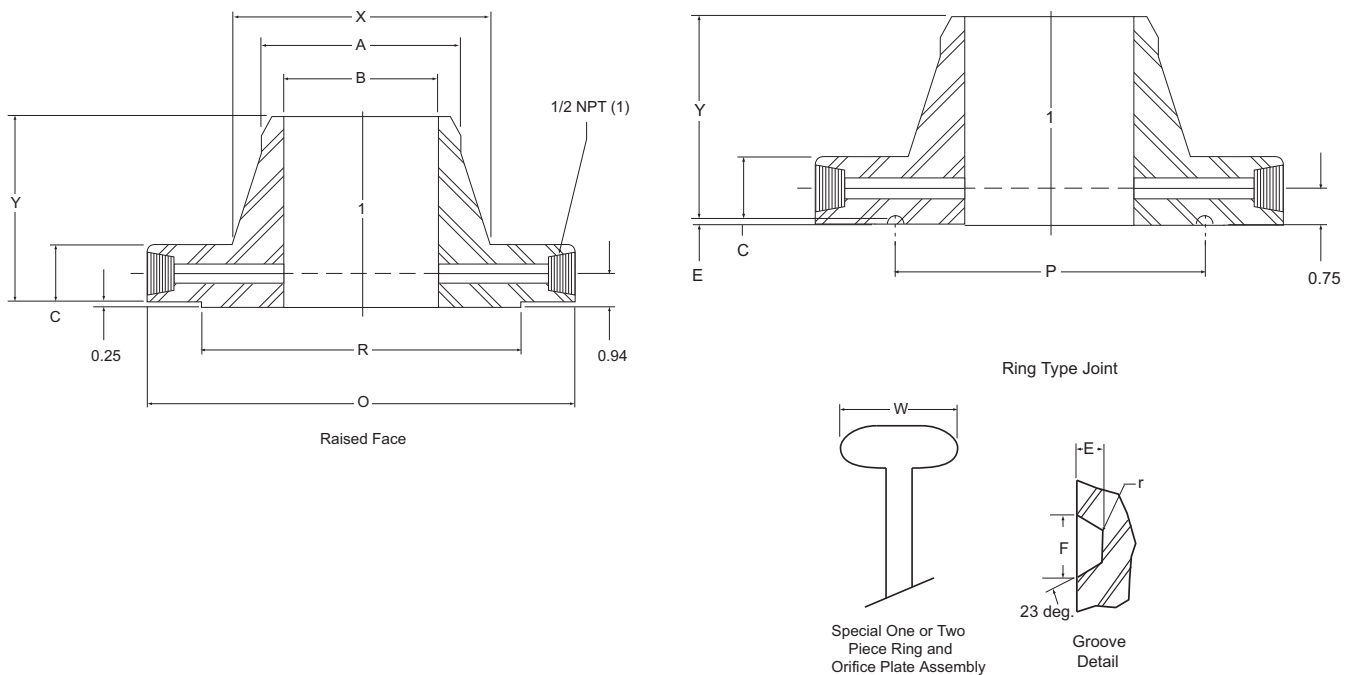


Table 11. Class 600 Orifice Flanges, Welding Neck<sup>(1)(2)</sup>

Nominal Pipe Size	Outside Diameter of Raised Face R	Outside Diameter of Flange O	Thickness of Flange, Min. C	Length Through Hub Y	Height of Raised Face H	Ring Type Joint						Diameter of Hub X	Hub Diameter Beginning of Chamfer A
						Groove Number	Pitch Diameter P	Groove Depth E	Groove Width F	Radius at Bottom r <sub>max</sub>	Special Oval Ring Height W		
1	2.00	4.88	1.44	3.19	0.06	R16	2.000	0.250	0.344	0.03	1.00	2.12	1.32
1½	2.88	6.12	1.44	3.32	0.06	R20	2.688	0.250	0.344	0.03	1.00	2.75	1.90
2	3.62	6.50	1.44	3.32	0.06	R23	3.250	0.312	0.469	0.03	1.06	3.31	2.38
2½	4.12	7.50	1.44	3.44	0.06	R26	4.000	0.312	0.469	0.03	1.06	3.94	2.88
3	5.00	8.25	1.44	3.44	0.06	R31	4.875	0.312	0.469	0.03	1.06	4.62	3.50
4	6.19	10.75	1.50	4.00	0.25	R37	5.875	0.312	0.469	0.03	1.06	6.00	4.50
6	8.50	14.00	1.88	4.62	0.25	R45	8.312	0.312	0.469	0.03	1.06	8.75	6.63
8	10.62	16.50	2.19	5.25	0.25	R49	10.625	0.312	0.469	0.03	1.06	10.75	8.63
10	12.75	20.00	2.50	6.00	0.25	R53	12.750	0.312	0.469	0.03	1.06	13.50	10.75
12	15.00	22.00	2.62	6.12	0.25	R57	15.000	0.312	0.469	0.03	1.06	15.75	12.75
14	16.25	23.75	2.75	6.50	0.25	R61	16.500	0.312	0.469	0.03	1.06	17.00	14.00
16	18.50	27.00	3.00	7.00	0.25	R65	18.500	0.312	0.469	0.03	1.19	19.50	16.00
18	21.00	29.25	3.25	7.25	0.25	R69	21.000	0.312	0.469	0.03	1.19	21.50	18.00
20	23.00	32.00	3.50	7.50	0.25	R73	23.000	0.375	0.531	0.06	1.25	24.00	20.00
24	27.25	37.00	4.00	8.00	0.25	R77	27.250	0.438	0.656	0.06	1.44	28.25	24.00

(1)(2) Nominal Pipe Size	Bore B	Diameter of Pressure Connection TT	Drilling Template				Diameter of Bolts	Length of Stud Bolts <sup>(3)(4)</sup>	
			Bolt Circle	Number of Holes	Diameter of Holes			Raised Face	Ring Joint
					Raised Face	Ring Joint			
1	See Note (4).	¼	3.50	4	0.69	0.75	5/8	5.00	5.50
1½		¼	4.50	4	0.81	0.88	¾	5.25	5.50
2		¼	5.00	8	0.69	0.75	5/8	5.00	5.50
2½		¼	5.88	8	0.81	0.88	¾	5.25	5.75
3		3/8	6.62	8	0.81	0.88	¾	5.25	5.75
4		½	8.50	8	1.00	1.00	7/8	6.00	6.50
6		½	11.50	12	1.12	1.12	1	7.00	7.50
8		½	13.75	12	1.25	1.25	1 1/8	7.75	8.25
10		½	17.00	16	1.38	1.38	1 1/4	8.75	9.25
12		½	19.25	20	1.38	1.38	1 1/4	9.00	9.50
14		½	20.75	20	1.50	1.50	1 3/8	9.50	10.00
16		½	23.75	20	1.62	1.62	1 1/2	10.25	10.75
18		½	25.75	20	1.75	1.75	1 5/8	11.00	11.50
20		½	28.50	24	1.75	1.75	1 5/8	11.75	12.50
24		½	33.00	24	2.00	2.00	1 7/8	13.25	13.75

(1) Weld neck flanges NPS 3 and smaller are identical to Class 300 flanges except for bolting and may be used for such service.

(2) All other dimensions are in accordance with ASME B16.5.

(3) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25 in. for NPS 1-12 and 0.38 in. for NPS 14-24. Bolt lengths for ring type joint flanges include allowance of 0.62 in. for NPS 1-10, 0.75 in. for NPS 12-18, and 0.88 in. for NPS 20.

(4) In conformance with ASME B16.5, stud bolt lengths do not include point heights.

Figure 3. Class 900

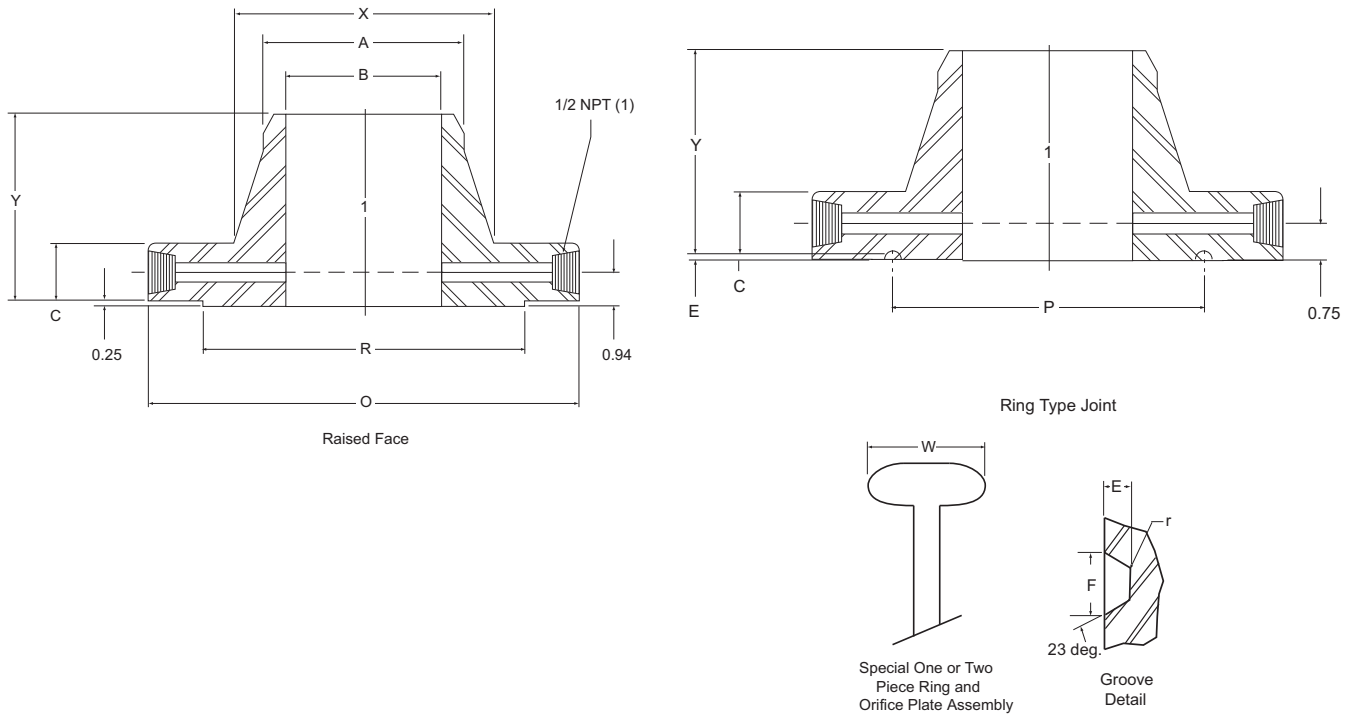


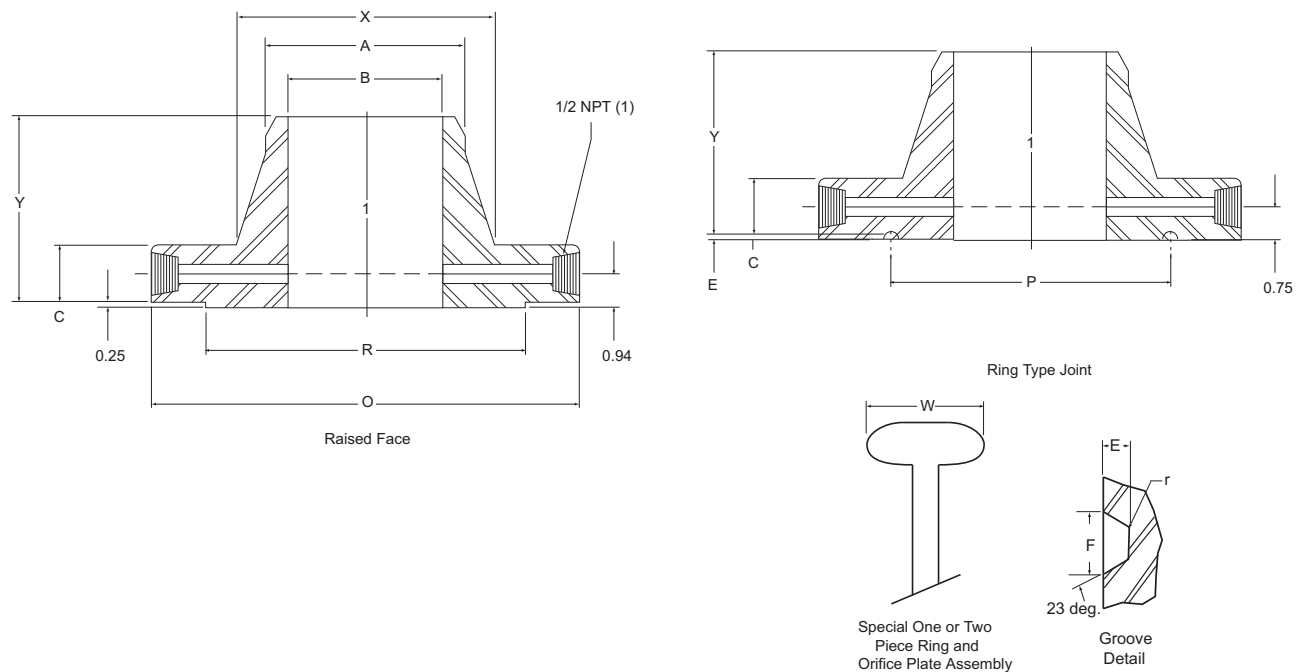
Table 12. Class 900 Orifice Flanges, Welding Neck<sup>(1)</sup>

Nominal Pipe Size	Out-side Diameter of Raised Face R	Out-side Diameter of Flange O	Thickness of Flange, Min. C	Length Through Hub Y	Ring Type Joint						Diameter of Hub X	Hub Diameter Beginning of Chamfer A
					Groove Number	Pitch Diameter P	Groove Depth E	Groove Width F	Radius at Bottom $r_{max}$	Special Oval Ring Height W		
1	For Nominal Pipe Size (NPS) 2 <sup>1</sup> / <sub>2</sub> and smaller, use Class 1500.											
1 <sup>1</sup> / <sub>2</sub>												
2												
2 <sup>1</sup> / <sub>2</sub>												
3	5.00	9.50	1.50	4.00	R31	4.875	0.312	0.469	0.03	1.06	5.00	3.50
4	6.19	11.50	1.75	4.50	R37	5.875	0.312	0.469	0.03	1.06	6.25	4.50
6	8.50	15.00	2.19	5.50	R45	8.312	0.312	0.469	0.03	1.06	9.25	6.63
8	10.62	18.50	2.50	6.38	R49	10.625	0.312	0.469	0.03	1.06	11.75	8.63
10	12.75	21.50	2.75	7.25	R53	12.750	0.312	0.469	0.03	1.06	14.50	10.75
12	15.00	24.00	3.12	7.88	R57	15.000	0.312	0.469	0.03	1.06	16.50	12.75
14	16.25	25.25	3.38	8.38	R62	16.500	0.438	0.656	0.06	1.31	17.75	14.00
16	18.50	27.75	3.50	8.50	R66	18.500	0.438	0.656	0.06	1.44	20.00	16.00
18	21.00	31.00	4.00	9.00	R70	21.000	0.500	0.781	0.06	1.56	22.25	18.00
20	23.00	33.75	4.25	9.75	R74	23.000	0.500	0.781	0.06	1.56	24.50	20.00
24	27.25	41.00	5.50	11.50	R78	27.250	0.625	1.062	0.09	1.88	29.50	24.00

(1) Nominal Pipe Size	Bore B	Diameter of Pressure Connection TT	Drilling Template				Length of Stud Bolts <sup>(2)(3)</sup>	
			Diameter of Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint
1	For Nominal Pipe Size (NPS) 2 1/2 and smaller, use Class 1500.							
1 1/2								
2								
2 1/2								
3	See Note <sup>(4)</sup> .	3/8	7.50	8	7.50	7/8	6.00	6.50
4		1/2	9.25	8	9.25	1 1/8	7.00	7.50
6		1/2	12.50	12	12.50	1 1/8	7.75	8.25
8		1/2	15.50	12	15.50	1 3/8	9.00	9.50
10		1/2	18.50	16	18.50	1 3/8	9.50	10.00
12		1/2	21.00	20	21.00	1 3/8	10.25	10.75
14		1/2	22.00	20	22.00	1 1/2	11.00	11.50
16		1/2	24.25	20	24.25	1 5/8	11.50	12.00
18		1/2	27.00	20	27.00	1 7/8	13.00	13.75
20		1/2	29.50	20	29.50	2	14.00	14.75
24	1/2	35.50	20	35.50	2 1/2	17.50	18.50	

- (1) All other dimensions are in accordance with ASME B16.5.
- (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 0.25 in. for NPS 3-12 and 0.38 in. for NPS 14-24. Bolt lengths for ring type joint flanges include allowance of 0.62 in. for NPS 3-10 and 0.75 in. for NPS 12.
- (4) Bore is to be specified by the purchaser.

Figure 4. Class 1500



**Table 13. Class 1500 Orifice Flanges, Welding Neck<sup>(1)</sup>**

Nominal Pipe Size	Outside Diameter of Raised Face R	Out-side Diameter of Flange O	Thickness of Flange, Min. C	Length Through Hub Y	Ring Type Joint						Diameter of Hub X	Hub Diameter Beginning of Chamfer A
					Groove Number	Pitch Diameter P	Groove Depth E	Groove Width F	Radius at Bottom $r_{max}$	Special Oval Ring Height W		
1	2.00	5.88	1.50	3.25	R16	2.000	0.250	0.344	0.03	1.00	2.06	1.32
1½	2.88	7.00	1.50	3.50	R20	2.688	0.250	0.344	0.03	1.00	2.75	1.90
2	3.62	8.50	1.50	4.00	R24	3.750	0.312	0.469	0.03	1.06	4.12	2.38
2½	4.12	9.62	1.62	4.12	R27	4.250	0.312	0.469	0.03	1.06	4.88	2.88
3	5.00	10.50	1.88	4.62	R35	5.375	0.312	0.469	0.03	1.06	5.25	3.50
4	6.19	12.25	2.12	4.88	R39	6.375	0.312	0.469	0.03	1.06	6.38	4.50
6	8.50	15.50	3.25	6.75	R46	8.312	0.375	0.531	0.06	1.12	9.00	6.63
8	10.62	19.00	3.62	8.38	R50	10.625	0.438	0.656	0.06	1.31	11.50	8.63
10	12.75	23.00	4.25	10.00	R54	12.750	0.438	0.656	0.06	1.31	14.50	10.75
12	15.00	26.50	4.88	11.12	R58	15.000	0.562	0.806	0.06	1.56	17.75	12.75
14	16.25	29.50	5.25	11.75	R63	16.500	0.625	1.062	0.09	1.75	19.50	14.00
16	18.50	32.50	5.75	12.25	R67	18.500	0.688	1.188	0.09	2.00	21.75	16.00
18	21.00	36.00	6.38	12.88	R71	21.000	0.688	1.188	0.09	2.00	23.50	18.00
20	23.00	38.75	7.00	14.00	R75	23.000	0.688	1.312	0.09	2.12	25.25	20.00
24	27.25	46.00	8.00	16.00	R79	27.250	0.812	1.438	0.09	2.31	30.00	24.00

(1) Nominal Pipe Size	Bore B	Diameter of Pressure Connection TT	Drilling Template			Length of Stud Bolts <sup>(2)(3)</sup>		
			Diameter of Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint
1	See Note (4).	¼	4.00	4	1.00	7/8	6.00	6.25
1½		¼	4.88	4	1.12	1	6.25	6.50
2		¼	6.50	8	1.00	7/8	6.00	6.50
2½		¼	7.50	8	1.12	1	6.50	7.00
3		3/8	8.00	8	1.25	1 1/8	7.25	7.25
4		½	9.50	8	1.38	1 1/4	8.00	8.50
6		½	12.50	12	1.50	1 3/8	10.50	11.00
8		½	15.50	12	1.75	1 5/8	11.75	12.25
10		½	19.00	12	2.00	1 7/8	13.50	14.00
12		½	22.50	16	2.12	2	15.00	15.75
14		½	25.00	16	2.38	2 1/4	16.25	17.52
16		½	27.75	16	2.62	2 1/2	17.75	19.00
18		½	30.50	16	2.88	2 3/4	19.75	21.00
20		½	32.75	16	3.12	3	21.50	22.50
24		½	39.00	16	3.62	3 1/2	24.50	26.00

(1) All other dimensions are in accordance with ASME B16.5.

(2) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25 in. for NPS 1-12 and 0.38 in. for NPS 14-24. Bolt lengths for ring type joint flanges include allowance of 0.62 in. for NPS 1-10, 0.75 in. for NPS 12-18, and 0.88 in. for NPS 20.

(3) In conformance with ASME B16.5, stud bolt lengths do not include point heights.

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

Figure 5. Class 2500

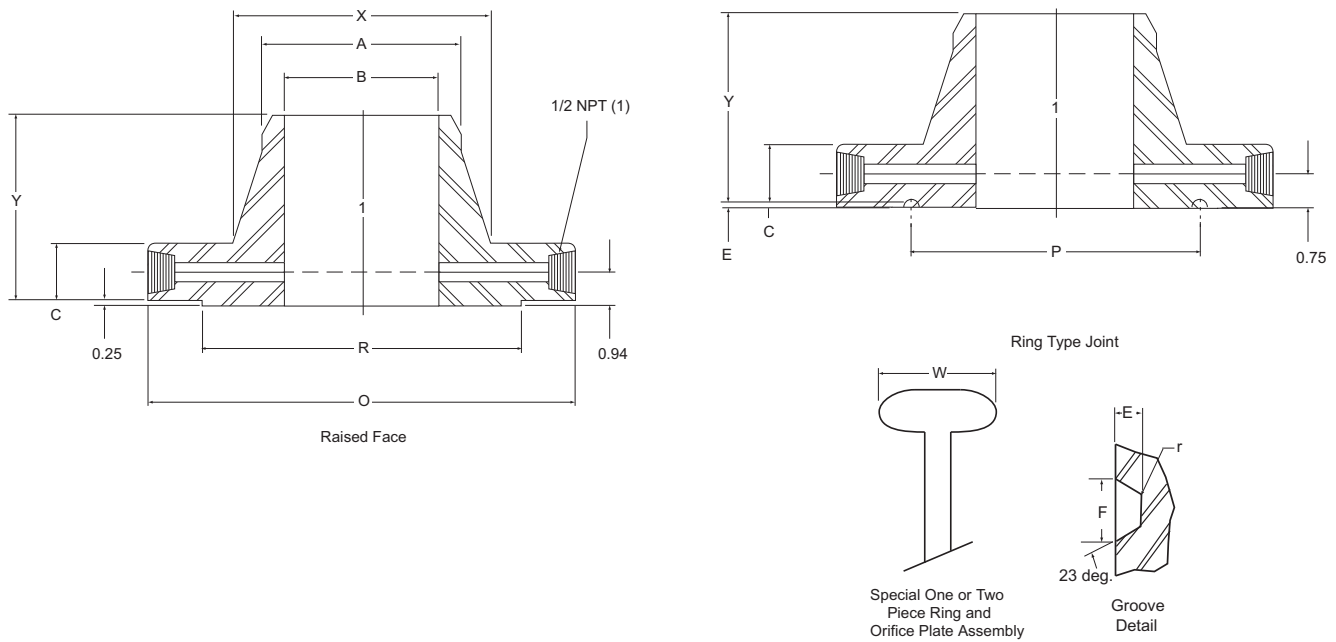


Table 14. Class 2500 Orifice Flanges, Welding Neck<sup>(1)</sup>

Nominal Pipe Size	Outside Diameter of Raised Face R	Outside Diameter of Flange O	Thickness of Flange, Min. C	Length Through Hub Y	Ring Type Joint						Diameter of Hub X	Hub Diameter Beginning of Chamfer A
					Groove Number	Pitch Diameter P	Groove Depth E	Groove Width F	Radius at Bottom $r_{max}$	Special Oval Ring Height W		
1	2.00	6.25	1.50	3.62	R18	2.375	0.250	0.344	0.03	1.00	2.25	1.32
1.5	2.88	8.00	1.75	4.38	R23	3.250	0.312	0.469	0.03	1.06	3.12	1.90
2	3.62	9.25	2.00	5.00	R26	4.000	0.312	0.469	0.03	1.06	3.75	2.38
2.5	4.12	10.50	2.25	5.62	R28	4.375	0.375	0.531	0.06	1.19	4.50	2.88
3	5.00	12.00	2.62	6.62	R32	5.000	0.375	0.531	0.06	1.19	5.25	3.50
4	6.19	14.00	3.00	7.35	R38	6.188	0.438	0.656	0.06	1.31	6.50	4.50
6	8.50	19.00	4.25	10.75	R47	9.000	0.500	0.781	0.06	1.31	6.50	4.50
8	10.62	21.75	5.00	12.50	R51	11.000	0.562	0.906	0.06	1.56	12.00	8.63
10	12.75	26.50	6.50	16.50	R55	13.500	0.688	1.188	0.09	1.88	14.75	10.75
12	15.00	30.00	7.25	18.25	R60	16.000	0.688	1.312	0.09	2.00	17.38	12.75

(1) Nominal Pipe Size	Bore B	Diameter of Pressure Connection TT	Drilling Template				Length of Stud Bolts <sup>(2)(3)</sup>	
			Diameter of Bolt Circle	Number of Holes	Diameter of Holes	Diameter of Bolts	Raised Face	Ring Joint
1	See Note <sup>(4)</sup>	$\frac{1}{4}$	4.25	4	1.00	$\frac{7}{8}$	6.00	6.25
1.5		$\frac{1}{4}$	5.75	4	1.25	$1\frac{1}{8}$	7.00	7.50
2		$\frac{1}{4}$	6.75	8	1.12	1	7.25	7.75
2.5		$\frac{1}{4}$	7.75	8	1.25	$1\frac{1}{8}$	8.00	8.50
3		$\frac{3}{8}$	9.00	8	1.38	$1\frac{1}{4}$	9.00	9.50
4		$\frac{1}{2}$	10.75	8	1.62	$1\frac{1}{2}$	10.25	10.75
6		$\frac{1}{2}$	14.50	8	2.12	2	13.75	14.50
8		$\frac{1}{2}$	17.25	12	2.12	2	15.25	16.00
10		$\frac{1}{2}$	21.25	12	2.62	$2\frac{1}{2}$	19.25	20.25
12		$\frac{1}{2}$	24.38	12	2.88	$2\frac{3}{4}$	21.25	22.50

(1) All other dimensions are in accordance with ASME B16.5.

(2) Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25 in. for NPS 1-12 and 0.38 in. for NPS 14-24. Bolt lengths for ring type joint flanges include allowance of 0.62 in. for NPS 1-10, 0.75 in. for NPS 12-18, and 0.88 in. for NPS 20.

(3) In conformance with ASME B16.5, stud bolt lengths do not include point heights.

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

**Emerson Process Management**

Rosemount Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317 USA  
T (U.S.) 1-800-999-9307  
T (International) (952) 906-8888  
F (952) 906-8889  
[www.rosemount.com](http://www.rosemount.com)

**Emerson Process Management**

Blegistrasse 23  
P.O. Box 1046  
CH 6341 Baar  
Switzerland  
T +41 (0) 41 768 6111  
F +41 (0) 41 768 6300  
[www.rosemount.com](http://www.rosemount.com)

**Emerson Process Management**

Asia Pacific Pte Ltd  
1 Pandan Crescent  
Singapore 128461  
T +65 6777 8211  
F +65 6777 0947  
Service Support Hotline: +65 6770 8711  
Email: [Enquiries@AP.EmersonProcess.com](mailto:Enquiries@AP.EmersonProcess.com)  
[www.rosemount.com](http://www.rosemount.com)

**Emerson Process Management**

**Latin America**  
1300 Concord Terrace, Suite 400  
Sunrise Florida 33323 USA  
T + 1 954 846 5030  
[www.rosemount.com](http://www.rosemount.com)

Standard Terms and Conditions of Sale can be found at [www.rosemount.com/terms\\_of\\_sale](http://www.rosemount.com/terms_of_sale)  
The Emerson logo is a trade mark and service mark of Emerson Electric Co.  
Rosemount and the Rosemount logotype are registered trademarks of Rosemount Inc.  
PlantWeb is a registered trademark of one of the Emerson Process Management group of companies.  
HART and WirelessHART are registered trademarks of the HART Communication Foundation  
Modbus is a trademark of Modicon, Inc.  
All other marks are the property of their respective owners.  
© 2013 Rosemount Inc. All rights reserved.