

Rosemount 1595 Conditioning Orifice Plate



Rosemount 1595 Conditioning Orifice Plate

NOTICE

Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product.

The United States has two toll-free assistance numbers and one International number.

Customer Central

1-800-999-9307 (7:00 a.m. to 7:00 P.M. CST)

International

1-(952) 906-8888

National Response Center

1-800-654-7768 (24 hours a day)

Equipment service needs

⚠ CAUTION

The products described in this document are NOT designed for nuclear-qualified applications. Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings.

For information on Rosemount nuclear-qualified products, contact your local Emerson Process Management Representative.

This device is intended for use in temperature monitoring applications and should not be used in control and safety applications.

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Section 1 Introduction

Using This Manual	page 1-1
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USING THIS MANUAL

This product manual provides installation, configuration, calibration, troubleshooting, and maintenance instructions for the Rosemount 1595 Conditioning Orifice Plate.

Section 2: Installation

Appendix A: Reference Data

Appendix B: Installation Drawings

RECEIVING AND INSPECTION

Flowmeters are available in different models and with different options, so it is important to inspect and verify that the appropriate model was delivered before installation.

Upon receipt of the shipment, check the packing list against the material received and the purchase order. All items are tagged with a model number, serial number, and customer tag number. Report any damage to the carrier.

RETURNING THE PRODUCT

To expedite the return process, call the Rosemount National Response Center toll-free at 800-654-7768. This center, available 24 hours a day, will assist you with any needed information or materials.

The center will ask for the following information:

- Product model
- Serial numbers
- The last process material to which the product was exposed

The center will provide

- A Return Material Authorization (RMA) number
- Instructions and procedures that are necessary to return goods that were exposed to hazardous substances

NOTE

If a hazardous substance is identified, a Material Safety Data Sheet (MSDS), required by law to be available to people exposed to specific hazardous substances, must be included with the returned materials.

Rosemount 1595

Reference Manual
00809-0100-4828, Rev CA
April 2005

Section 2 Installation

Safety Messages	page 2-1
Location and Orientation	page 2-3
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SAFETY MESSAGES

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations. Please refer to the following safety messages before performing any operation in this section.

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury:

- Make sure only qualified personnel perform the installation.
- Remove pressure and drain the pipe assembly prior to installing or removing the orifice plate.
- If the process fluid is caustic or otherwise hazardous, follow the instruction closely to prevent mishap.

Checklist

The following is a summary of the steps required to complete a 1595 installation.

If this is a new installation, begin with step 1.

If the mounting is already in place, verify that the orifice flange size and rating match the recommended specification and begin with step 5.

1. Determine where the 1595 is to be placed within the piping system.
2. Establish the proper orientation as determined by the intended service for the orifice plate.
3. Orient the 1595 Conditioning Orifice Plate so the pressure taps are centered between any two (of four) orifice bore holes.
4. Review "Location and Orientation" on page 2-3.
5. Confirm the 1595 configuration.
6. Measure the pipe's internal diameter (I.D.), preferably at 1 x I.D. from the orifice flange (upstream or downstream).

NOTE

Providing the pipe's I.D. at the time of purchasing the 1595 is necessary to maintain published orifice plate accuracy.

7. Install the orifice plate.
8. Check for leaks.
9. Commission the orifice plate.

LOCATION AND ORIENTATION

Horizontal Pipe Installation

The orifice plate electronics must be installed in the proper orientation relative to the pipe and the fluid measured.

OPERATING TEMPERATURE LIMITS

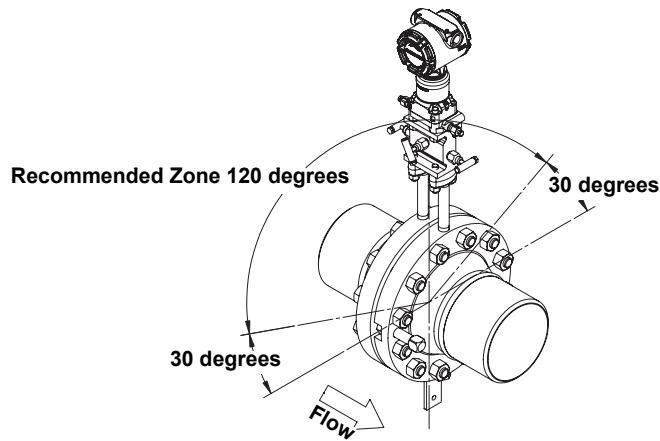
Temperature Range: -320 to 1200°F (-196 to 649°C)
-320 to 800°F (-196 to 427°C) and differential pressure up to 800 inH₂O.
800 to 1200°F (427 to 649°C) and differential pressure up to 400 inH₂O.

The following figures show paddle style conditioning orifice plate, but orientation pertains to both paddle and universal plate styles.

⚠ Gas in Horizontal Pipes

The electronics should be mounted above the pipe to ensure that condensate does not collect on the transmitter sensing diaphragms. Orient the unit within the 120° recommended zone as shown in Figure 2-1.

Figure 2-1. Gas in Horizontal Pipes



⚠ Liquid or Steam in Horizontal Pipes

The electronics should be mounted below the pipe to ensure that gases do not collect on the transmitter sensing diaphragms.

Figure 2-2. Steam in Horizontal Pipes

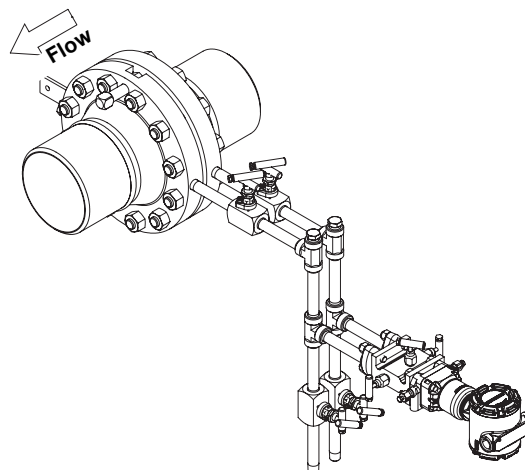
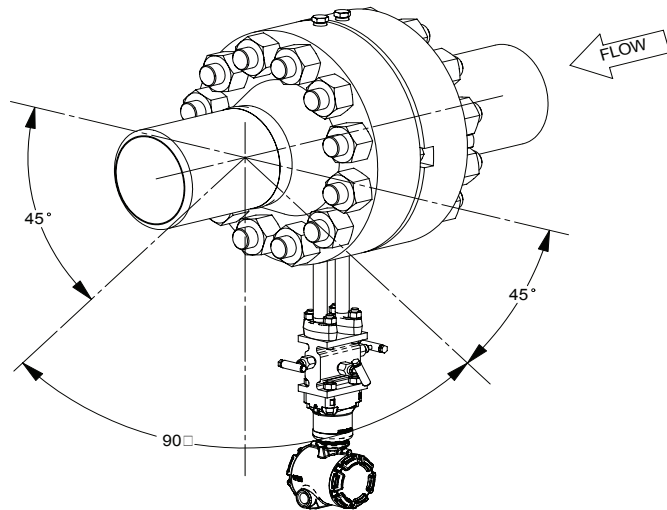


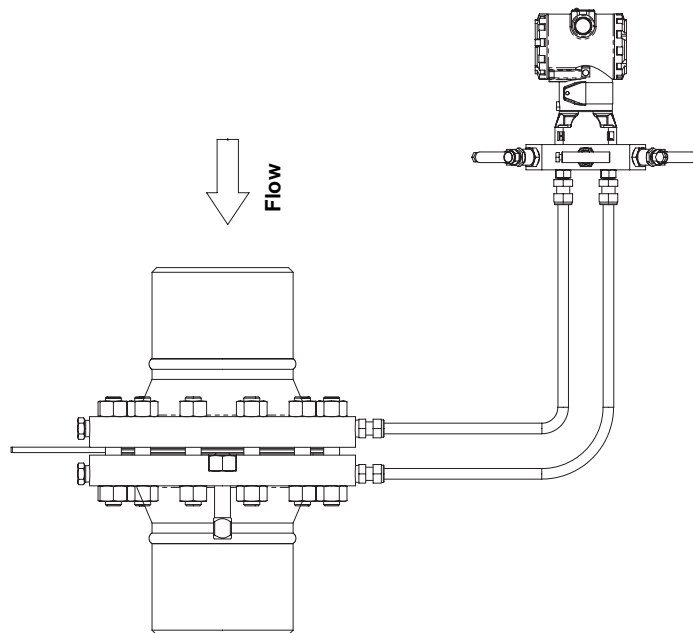
Figure 2-3. Liquid in Horizontal Pipes



Vertical Pipe Installation Gas in Vertical Pipes

Mount the electronics above the pipe with the instrument lines sloping down.

Figure 2-4. Gas in Vertical Pipes



⚠ Liquid or Steam in Vertical Pipes

Mount the transmitter below the pipe with the instrument lines sloping up.

Figure 2-5. Liquid in Vertical Pipes

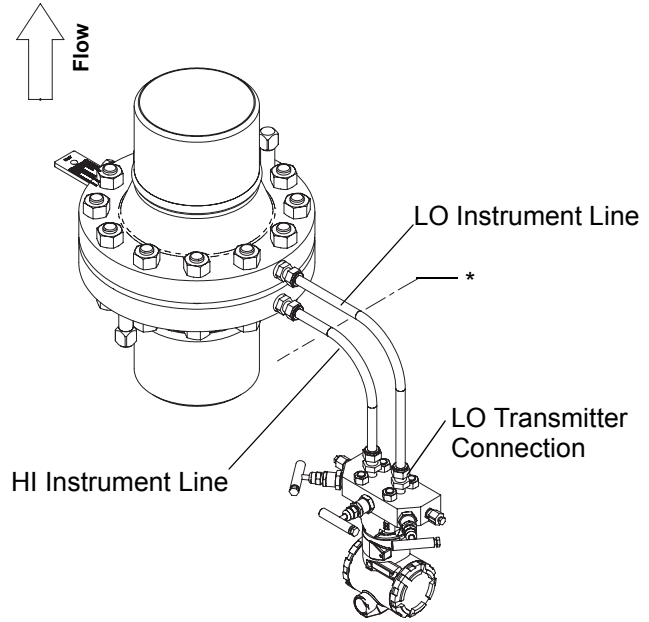
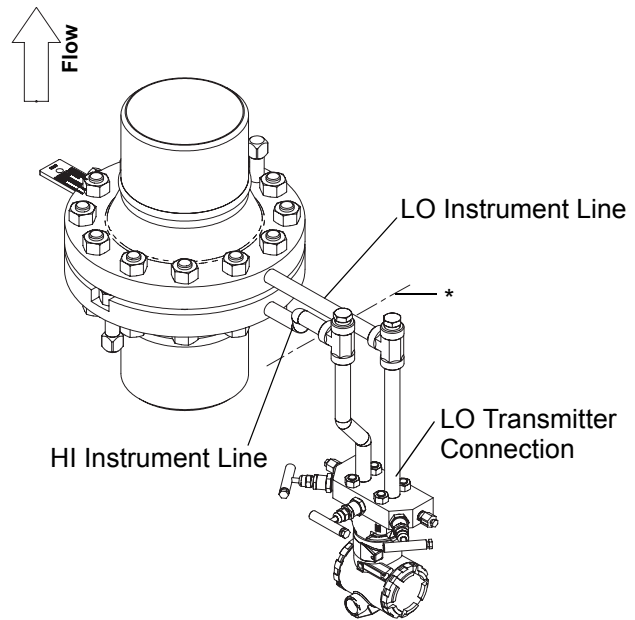


Figure 2-6. Steam in Vertical Pipes



** Bring height of HI instrument line to the same height as LO instrument line before running down to the transmitter*

1595 Straight Pipe Requirements

Use the appropriate lengths of straight pipe upstream and downstream of the 1595 to minimize the effects of moderate flow disturbances in the pipe.

Table 2-1. 1595 Straight Pipe Requirements ⁽¹⁾ ⁽²⁾

Beta		0.20	0.40	0.65
Upstream (inlet) side of primary	Single 90° bend or tee	2	2	2
	Two or more 90° bends in the same plane	2	2	2
	Two or more 90° bends in different plane	2	2	2
	Up to 10° of swirl	2	2	2
	Reducer (1 line size)	2	2	2
	Butterfly valve (75% open)	2	2	2
Downstream (outlet) side of primary		2	2	2

⁽¹⁾ Consult an Emerson Process Management representative if disturbance is not listed.

⁽²⁾ Refer to ISO 5167 for recommended lengths when using flow straighteners.

Standard Pipe Schedule

Table 2-2. Default pipe schedules for 1496 Flange Unions

Line Size	ANSI Class 300			ANSI Class 600		ANSI Class 900 ⁽¹⁾		ANSI Class 1500 ⁽¹⁾		ANSI Class 2500 ⁽¹⁾	
	WN	SO	RTJ	WN	RTJ	WN	RTJ	WN	RTJ	WN	RTJ
2-in. (51 mm)	STD	STD	STD	STD	STD	STD	STD	XH	XH	160	160
3-in. (76 mm)	STD	STD	STD	STD	STD	STD	STD	XH	XH	160	160
4-in. (102 mm)	STD	STD	STD	STD	STD	STD	STD	XH	XH	160	160
5-in. (127 mm)	STD	STD	STD	STD	STD	STD	STD	XH	XH	—	—
6-in. (153 mm)	STD	STD	STD	STD	STD	STD	STD	XH	XH	—	—
8-in. (203 mm)	STD	STD	STD	STD	STD	STD	STD	—	—	—	—
10-in. (254 mm)	STD	STD	STD	STD	STD	STD	STD	—	—	—	—
12-in. (305 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—
14-in. (356 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—
16-in. (406 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—
18-in. (457 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—
20-in. (508 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—
24-in. (610 mm)	STD	STD	STD	STD	STD	—	—	—	—	—	—

⁽¹⁾ For 1595 Conditioning Orifice Plate, consult factory for sizes listed with dashes (—).

Standard 1497 Meter Section Lengths

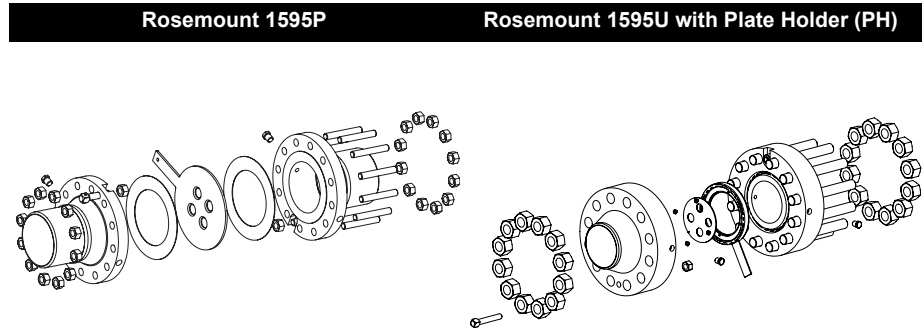
Line Size	Upstream Length	Downstream Length	I.D.
2-in. (51 mm)	1.7 ft. (518 mm)	0.90 ft. (274 mm)	2.067-in. (52.5 mm)
3-in. (76 mm)	2.6 ft. (792 mm)	1.30 ft. (396 mm)	3.068-in. (77.9 mm)
4-in. (102 mm)	3.4 ft. (1036 mm)	1.70 ft. (518 mm)	4.026-in. (102.3 mm)
5-in. (127 mm)	4.2 ft. (1280 mm)	2.10 ft. (640 mm)	5.047-in. (128.3 mm)
6-in. (153 mm)	5.1 ft. (1554 mm)	2.50 ft. (762 mm)	6.065-in. (154.1 mm)
8-in. (203 mm)	6.7 ft. (2042 mm)	3.30 ft. (1006 mm)	7.981-in. (202.7 mm)
10-in. (254 mm)	8.4 ft. (2560 mm)	4.20 ft. (1280 mm)	10.020-in. (254.5 mm)
12-in. (305 mm)	10.0 ft. (3048 mm)	5.00 ft. (1524 mm)	12.000-in. (304.8 mm)
14-in. (356 mm)	11.0 ft. (3353 mm)	5.50 ft. (1676 mm)	13.250-in. (336.6 mm)
16-in. (406 mm)	12.7 ft. (3871 mm)	6.40 ft. (1951 mm)	15.250-in. (393.7 mm)
18-in. (457 mm)	14.4 ft. (4389 mm)	7.20 ft. (2195 mm)	17.250-in. (438.1 mm)
20-in. (508 mm)	16.0 ft. (4877 mm)	8.00 ft. (2438 mm)	19.250-in. (488.9 mm)
24-in. (610 mm)	19.4 ft. (5913 mm)	9.70 ft. (2957 mm)	23.250-in. (590.5 mm)

NOTE

The Rosemount 1595 can be used with Rosemount 1496 Orifice Flange Unions and Rosemount 1497 Meter Sections. For product offering see document number 00813-0100-4792.

INSTALLATION

Rosemount 1595 Types:



Rosemount 1496 Types:

1496 WN

1496 SO

1496 RJ

Step 1: Determine the Proper Orientation

See "Location and Orientation" on page 2-3.

Step 2: Weld the Flange Union.

Follow these steps to weld the orifice flanges to the pipe.

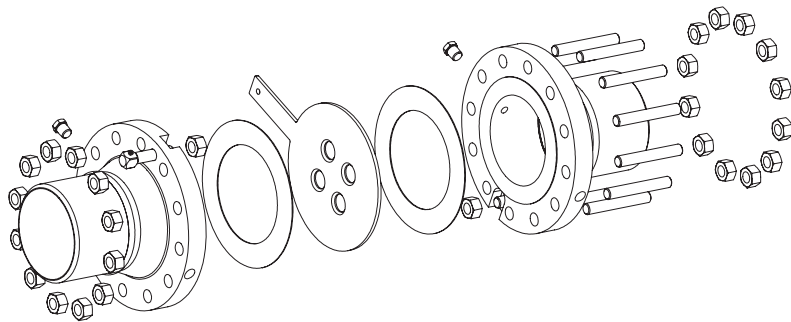
1. Depressurize the line using site-specific requirements
2. Prepare the pipe ends.
 - a. For flanged models, ensure the pipe mounting flange is the same size or rating.
 - a. For threaded models, ensure the pipe union or coupling is the same size pipe thread as the meter section
3. Ensure that the pipe mounting flange is the correct size and rating.
4. Ensure that the flange taps are aligned and level.
5. Weld the orifice flange to the pipe. To avoid serious burns, allow the orifice flanges to cool before continuing.

Step 3: Install the Orifice Plate:

1. Depressurize the line using site-specific requirements
2. Loosen all studs and nuts.
3. Remove the studs in one-half of the flange union.
4. Spread flange union by turning jackscrews clockwise.
5. Install the new plate or remove the existing plate for replacement or inspection.
6. Install the new gaskets when installing the plate. It is recommended that new gaskets be installed each time the orifice flange union is separated.
7. Center the plate in the pipe I.D.
8. Release the flange union by turning the jackscrews counter-clockwise.
9. Replace the studs.
10. Tighten studs in a star pattern.

Rosemount 1497 Types:

1497 WN
1497 RJ
1497SO



1595/01-49406-999AB.EPS

Step 1: Determine the Proper Orientation

See "Location and Orientation" on page 2-3.

Step 2: Install the Meter Section

Follow these steps to weld the orifice flanges to the pipe.

1. Depressurize the line using site-specific requirements
2. Remove the section of pipe that will be replaced by the meter section using site-specific requirements
3. Ensure that the pipe mounting flange is the correct size and rating

- a. For flanged models, ensure the pipe mounting flange is the same size or rating.
- b. For threaded models, ensure the pipe union or coupling is the same size pipe thread as the meter section
4. Orient the assembly appropriately for the type of service (liquid, gas, or steam).
5. Ensure that the I.D. of the meter section and the I.D. of the pipe are concentric.
6. Complete assembly to the appropriate connections. To avoid serious burns, allow the orifice flanges to cool before continuing.

For commissioning, operation and maintenance, refer to the appropriate transmitter reference manual

- Rosemount 3051C Pressure Transmitter Reference Manual (document number 00809-0100-4001)
- Rosemount 3051S Series Pressure Transmitter Reference Manual (document number 00809-0100-4801)
- Rosemount 3095MV Mass Flow Transmitter Reference Manual (document number 00809-0100-4716)

Appendix A Reference Data

Specification	page A-1
Dimensional Drawings	page A-4
Ordering Information	page A-8

SPECIFICATION

The Rosemount 1595 can be used with Rosemount 1496 Orifice Flange Unions and Rosemount 1497 Meter Sections. For product offering see document number 00813-0100-4792.

Performance

Flow Coefficient Uncertainty

Table A-1. Discharge Coefficient Uncertainty

Beta Ratio ⁽¹⁾	Accuracy
$\beta = 0.20$	0.50%
$\beta = 0.40$	0.50%
$\beta = 0.65$	0.75%

(1) For 0.65 beta and $ReD < 10,000$ add an additional 0.5% to the Discharge Coefficient Uncertainty.

Sizing

Perform a flow calculation using the Instrument Toolkit™ software package. Alternatively, contact an Emerson Process Management representative. The Configuration Data Sheet is required prior to order for application verification.

Straight Pipe Requirement

Use the appropriate lengths of straight pipe upstream and downstream of the 1595 to minimize the effects of moderate flow disturbances in the pipe. Table A-2 lists recommended lengths of straight pipe.

Table A-2. 1595 Straight Pipe Requirements^{(1) (2)}

Beta		0.20	0.40	0.65
Upstream (inlet) side of primary	Single 90° bend or tee	2	2	2
	Two or more 90° bends in the same plane	2	2	2
	Two or more 90° bends in different plane	2	2	2
	Up to 10° of swirl	2	2	2
	Reducer (1 line size)	2	2	2
	Butterfly valve (75% open)	2	2	2
Downstream (outlet) side of primary		2	2	2

(1) Consult an Emerson Process Management representative if disturbance is not listed.

(2) Refer to ISO 5167 for recommended lengths when using flow straighteners.

Pressure Tap Orientation

Orient the 1595 Conditioning Orifice Plate to the effect that the pressure taps are centered between any 2 (of 4) orifice bore holes.

Centering Requirements

The 1595 should be installed so that it is centered in the pipes as recommended by ISO-5167.

Functional

Service and Flow Range

Liquid, gas or vapor turbulent flow, for pipe Reynold's Numbers greater than 2,000. For pipe Reynold's Numbers less than 10,000 add an additional +0.5% uncertainty to the discharge coefficient uncertainty.

Pipe Sizes

2 to 24-in. (50 to 600 mm). Contact Emerson Process Management for other pipe sizes.

Operating Limits

Temperature Range: -320 to 1200 °F (-196 to 649 °C)

- - 320 to 800 °F (-196 to 427 °C) and differential pressure up to 800 inH₂O
- 800 to 1200 °F (427 to 649 °C) and differential pressure up to 400 inH₂O

Maximum Working Pressure

- Flange rating per ANSI B16.5.

Physical Specifications

Materials of Construction

Orifice Plate
Table A-3.

Code	Description	ASTM	UNS	DIN (W.-Nr.)
S	316/316L SST	A240 Gr 316/316L	S31600 / S31603	1.4401/1.4404 (1.4436/1.4435)
L	304/304L SST	A240 Gr 304/304L	S30400 / S30403	1.4301 / 1.4306
H	Hastelloy C-276	B575 Gr N10376	N10276	2.4819
M	Monel 400	B127 Gr N04400	N04400	2.4360

Flange Mounting Hardware

- The 1595 can be tailored for use in conjunction with the Rosemount 1496 Flange Union and, if required, the Rosemount 1497 Meter Section. See page A-4, A-5, A-6 and Product Data Sheet 00813-0100-4792 for more information regarding the Rosemount 1496 and 1497.

Orifice Bore Sizes

Beta (β) is calculated by $2 \times d$ / pipe size.

Table A-4.

Line Size	Beta (β) = 0.20	Beta (β) = 0.40	Beta (β) = 0.65
2-in. (50.8 mm)	0.207 (5.26)	0.413 (10.49)	0.620 (15.75)
3-in. (76.2 mm)	0.307 (7.80)	0.614 (15.60)	0.997 (25.32)
4-in. (101.6 mm)	0.403 (10.25)	0.805 (20.45)	1.308 (32.22)
6-in. (152.4 mm)	0.607 (15.42)	1.213 (30.81)	1.971 (50.06)
8-in. (203.2 mm)	0.798 (20.27)	1.596 (40.54)	2.594 (65.89)
10-in. (254.0 mm)	1.002 (25.45)	2.004 (50.90)	3.257 (82.73)
12-in. (304.8 mm)	1.200 (30.48)	2.400 (60.96)	3.900 (99.06)
14-in. (355.0 mm)	1.312 (33.32)	2.625 (66.68)	4.265 (108.33)
16-in. (406.4 mm)	1.500 (38.10)	3.000 (76.20)	4.875 (123.83)
18-in. (457.2 mm)	1.688 (42.88)	3.375 (85.73)	5.485 (139.32)
20-in. (508.0 mm)	1.881 (47.78)	3.762 (95.55)	6.114 (155.30)
24-in. (609.6 mm)	2.262 (57.45)	4.525 (114.94)	7.353 (186.77)

Orifice Type

- Paddle, square-edge, concentric
- Universal, square-edge, concentric

DIMENSIONAL DRAWINGS

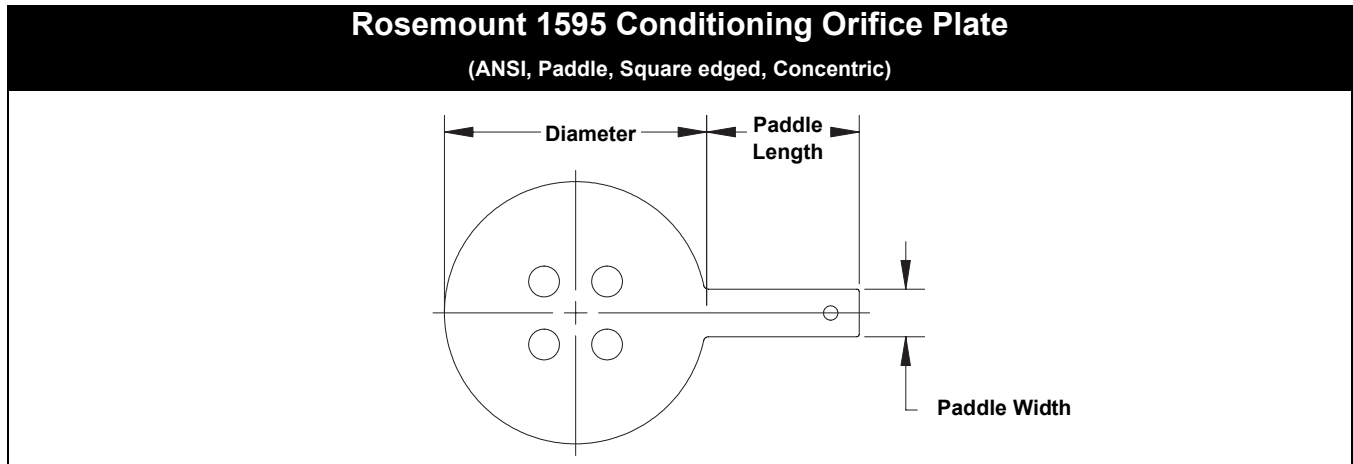


Table A-5. Orifice Plate Dimensions in inches (millimeters)

Line Size	Diameter for Paddle Type					Paddle Length	Paddle Width
	300#	600#	900#	1500#	2500#		
2-in. (50.8 mm)	4.375-in. (111.13 mm)	4.375-in. (111.13 mm)	5.625-in. (142.875 mm)	5.625-in. (142.875 mm)	5.750-in. (146.050mm)	4-in. (101.6 mm)	1-in. (25.4 mm)
3-in. (76.2 mm)	5.875-in. (149.23 mm)	5.875-in. (149.23 mm)	6.625-in. (168.275 mm)	6.875-in. (174.625 mm)	7.750-in. (196.85 mm)	4-in. (101.6 mm)	1 1/4-in. (31.75 mm)
4-in. (101.6 mm)	7.125-in. (180.98 mm)	7.125-in. (180.98 mm)	8.125-in. (206.35 mm)	8.250-in. (209.550 mm)	9.250-in. (234.95 mm)	4-in. (101.6 mm)	1 1/4-in. (31.75 mm)
6-in. (152.4 mm)	9.875-in. (250.83 mm)	10.500-in. (266.7 mm)	11.375-in. (288.925 mm)	11.125-in. (282.575 mm)		5-in. (127 mm)	1 1/2-in. (38.1 mm)
8-in. (203.2 mm)	12.125-in. (307.98 mm)	12.625-in. (320.675 mm)	14.125-in. (358.775 mm)			5-in. (127 mm)	1 1/2-in. (38.1 mm)
10-in. (254.0 mm)	14.250-in. (361.95 mm)	15.750-in. (400.05 mm)	17.125-in. (434.975 mm)			6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
12-in. (304.8 mm)	16.625-in. (422.26 mm)	18.000-in. (457.2 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
14-in. (355.6 mm)	19.125-in. (485.78 mm)	13.375-in. (339.725 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
16-in. (406.4 mm)	21.250-in. (539.75 mm)	22.250-in. (565.15 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
18-in. (457.2 mm)	23.375-in. (593.725 mm)	24.000-in. (609.6 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
20-in. (508.0 mm)	25.625-in. (650.875 mm)	26.750-in. (679.45 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)
24-in. (609.6 mm)	30.375-in. (771.525 mm)	31.000-in. (787.4 mm)				6-in. (152.4 mm)	1 1/2-in. (38.1 mm)

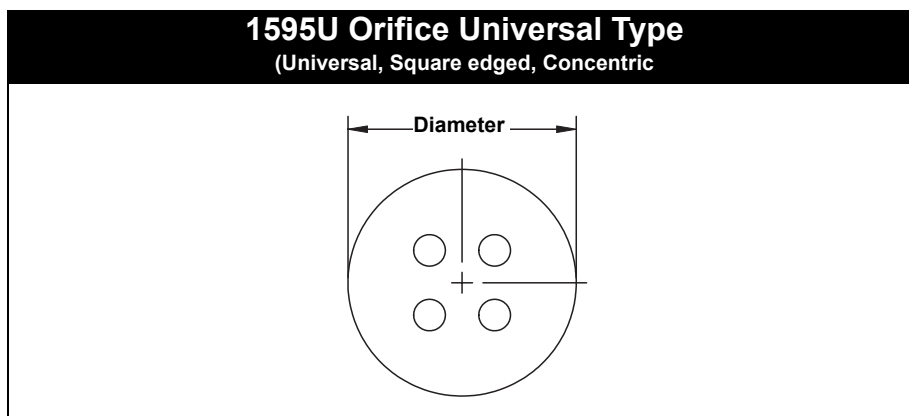


Table A-6. Orifice Plate Dimensions in inches (millimeters)

Line Size ⁽¹⁾	Diameter for Universal Type
2-in.	2.437-in. (61.8998 mm)
3-in.	3.437-in. (87.2998 mm)
4-in.	4.406-in. (111.912 mm)
6-in.	6.437-in. (163.5 mm)
8-in.	8.437-in. (214.3 mm)
10-in.	10.687-in. (271.45 mm)

(1) Consult Factory for sizes larger than 10-inch.

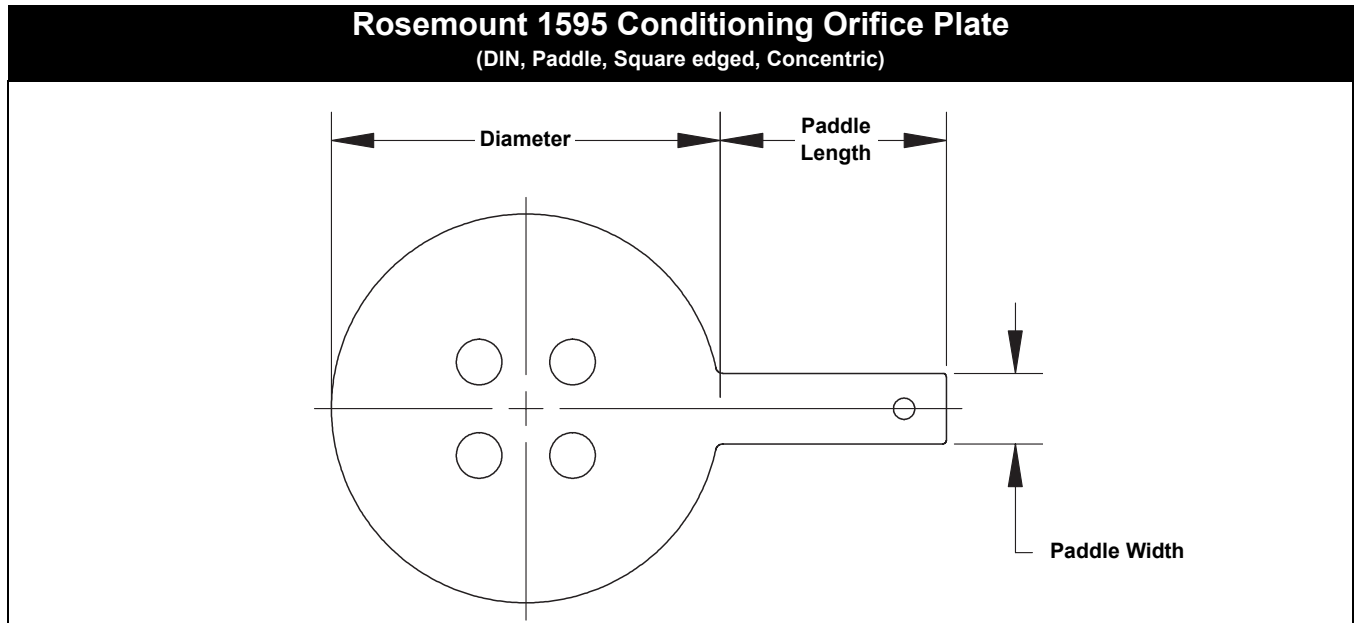


Table A-7. Orifice Plate Dimensions in millimeters (inches)

DN	Diameter (max) – by flange rating						Handle Length	Handle Width
	PN 10	PN 16	PN 25	PN 40	PN 63/64	PN 100		
DN 50 (2-in.)	107 (4.21)	107 (4.21)	107 (4.21)	107 (4.21)	113 (4.45)	119 (4.69)	160 (6.299)	40 (1.575)
DN 80 (3-in.)	142 (5.60)	142 (5.60)	142 (5.60)	142 (5.60)	148 (5.82)	154 (6.06)	160 (6.299)	40 (1.575)
DN 100 (4-in.)	162 (6.38)	162 (6.38)	168 (6.61)	168 (6.61)	174 (6.85)	180 (7.09)	160 (6.299)	40 (1.575)
DN 150 (6-in.)	218 (8.58)	218 (8.58)	224 (8.82)	224 (8.82)	247 (9.72)	257 (10.12)	160 (6.299)	40 (1.575)
DN 200 (8-in.)	273 (10.74)	273 (10.74)	284 (11.18)	290 (11.42)	309 (12.17)	324 (12.76)	160 (6.299)	40 (1.575)
DN 250 (10-in.)	329 (12.95)	329 (12.95)	340 (13.39)	352 (13.86)	364 (14.33)	391 (15.39)	160 (6.299)	40 (1.575)
DN 300 (12-in.)	378 (14.88)	384 (15.11)	400 (15.75)	417 (16.42)	424 (16.69)	458 (18.03)	160 (6.299)	40 (1.575)

NOTE:
Available with Paddle type (P) only up to DN 300 (12-in.) and PN100.

Table A-8. A.P.I Ring No.'s and Rating

Line Size	A.P.I Ring No.	Rating (lbs.)
02	R-23	300-600
02	R-24	900-1500
02	R-26	2500
03	R-31	300-600 & 900
03	R-35	1500
04	R-37	300-600 & 900
04	R-39	1500
06	R-45	300-600 & 900
06	R-46	1500
08	R-49	300-600 & 900
10	R-53	300-600 & 900

Line Size	A.P.I Ring No.	Rating (lbs.)
12	R-57	300-600 & 900
14	R-61	300-600
14	R-62	900
16	R-65	300-600
16	R-66	900
18	R-69	300-600
18	R-70	900
20	R-73	300-600
20	R-74	900
24	R-77	300-600
24	R-78	900

NOTE

Refer to Table A-5 for line size and pressure rating availability.

Table A-9. Available Beta Ratio (β)

The table below shows the available Beta Ratio (β) for line size vs. pipe schedule

Line Size	Pipe Schedule	Beta (β) Available
2	≤80	0.20, 0.40, 0.60
2	160	0.20
2	XXS	0.20
3	≤80	0.20, 0.40, 0.65
3	160	0.20, 0.40
3	XXS	0.20
4	≤80	0.20, 0.40, 0.65
4	120	0.20, 0.40
4	160	0.20, 0.40
4	XXS	0.20
6	≤80	0.20, 0.40, 0.65
6	120	0.20, 0.40
6	160	0.20, 0.40
6	XXS	0.20
8	≤80	0.20, 0.40, 0.65
8	100	0.20, 0.40, 0.65
8	120	0.20, 0.40
8	140	0.20, 0.40
8	160	0.20, 0.40
8	XXS	0.20, 0.40
10	≤80	0.20, 0.40, 0.65
10	100	0.20, 0.40, 0.65
10	120	0.20, 0.40
10	140	0.20, 0.40
10	160	0.20, 0.40
10	XXS	0.20, 0.40
12	≤80	0.20, 0.40, 0.65
12	100	0.20, 0.40
12	120	0.20, 0.40
12	140	0.20, 0.40
12	160	0.20, 0.40
12	XXS	0.20, 0.40

Line Size	Pipe Schedule	Beta (β) Available
14	≤80	0.20, 0.40, 0.65
14	100	0.20, 0.40
14	120	0.20, 0.40
14	140	0.20, 0.40
14	160	0.20, 0.40
14	XXS	0.20, 0.40
16	≤80	0.20, 0.40, 0.65
16	100	0.20, 0.40
16	120	0.20, 0.40
16	140	0.20, 0.40
16	160	0.20, 0.40
16	XXS	0.20, 0.40
18	≤80	0.20, 0.40, 0.65
18	100	0.20, 0.40, 0.65
18	120	0.20, 0.40
18	140	0.20, 0.40
18	160	0.20, 0.40
18	XXS	0.20, 0.40
20	≤80	0.20, 0.40, 0.65
20	100	0.20, 0.40, 0.65
20	120	0.20, 0.40
20	140	0.20, 0.40
20	160	0.20, 0.40
20	XXS	0.20, 0.40
24	≤80	0.20, 0.40, 0.65
24	100	0.20, 0.40
24	120	0.20, 0.40
24	140	0.20, 0.40
24	160	0.20, 0.40
24	XXS	0.20, 0.40

Rosemount 1595

ORDERING INFORMATION

Rosemount 1595 Orifice Plate Ordering Table

Model	Product Description
1595	Conditioning Orifice Plate
Code	Plate Type
P	Paddle, Square Edged
U ⁽¹⁾	Universal, Square Edge
Code	Line Size
020	2-in. (50 mm)
030	3-in. (76 mm)
040	4-in. (100 mm)
060	6-in. (150 mm)
080	8-in. (200 mm)
100	10-in. (250 mm)
120	12-in. (300 mm)
140	14-in. (350 mm)
160	16-in. (400 mm)
180	18-in. (450 mm)
200	20-in. (500 mm)
240	24-in. (600 mm)
260 ⁽²⁾	26-in. (650 mm)
280 ⁽²⁾	28-in. (700 mm)
300 ⁽²⁾	30-in. (750 mm)
Code	Flange Rating
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	ANSI Class 2500 Raised Face
D1	Flange DIN PN 10 (only available with Plate Type P)
D2	Flange DIN PN 16 (only available with Plate Type P)
D3	Flange DIN PN 25 (only available with Plate Type P)
D4	Flange DIN PN PN40 (only available with Plate Type P)
D5 ⁽³⁾	Flange DIN PN 63 (only available with Plate Type P)
D6	Flange DIN PN 100 (only available with Plate Type P)
R3	ANSI Class 300 Ring Joint (only available with Orifice Plate Type code U and requires Plate Holder code PH)
R6	ANSI Class 600 Ring Joint (only available with Orifice Plate Type code U and requires Plate Holder code PH)
R9	ANSI Class 900 Ring Joint (only available with Orifice Plate Type code U and requires Plate Holder code PH)
RF	ANSI Class 1500 Ring Joint (only available with Orifice Plate Type code U and requires Plate Holder code PH)
RT	ANSI Class 2500 Ring Joint (only available with Orifice Plate Type code U and requires Plate Holder code PH)
Code	Material Type
S	316/316L Stainless Steel
L	304/304L Stainless Steel
M	<i>Monel</i> [®]
H	<i>Hastelloy</i> [®] C-276
Code	Orifice Plate Thickness
A	0.125-in. (default for Line Sizes 2 to 4-in. (50 mm to 100 mm))
B ⁽⁴⁾	0.250-in. (default for Line Sizes 6 to 12-in. (150 to 300 mm))
C ⁽⁵⁾	0.375-in. (default for line sizes 14 to 20-in. (350 to 500 mm))
D	0.500-in. (default for line sizes 24-in. (600 mm))

Rosemount 1595 Orifice Plate Ordering Table

Code	Beta Ratio
020	0.20 Beta Ratio
040	0.40 Beta Ratio
065	0.65 Beta Ratio (0.60 beta ratio for Line Size option 020 only)
Code	Options
Flow Calibration	
WC	Discharge Coefficient Verification (3 points)
WD	Discharge Coefficient Verification (full 10 points)
Plate Holder	
PH	Plate Holder for Universal Type Orifice Plate for use with RTJ flange or section
Special Cleaning	
P2	Cleaning for special processes
Special Inspection	
QC1	Visual and dimensional Inspection with certification
QC7	Inspection and performance certificate
Material Traceability Certification	
Q8	Material Certification per ISO 10474 3.1-B and EN 10204 3.1.B
Code Conformance	
J5 ⁽⁶⁾	NACE MR-0175-91
Country Certification	
J1	Canadian Registration
Typical Model Number: 1595 P 060 A3 S A 040	

- (1) Available up to 10-in. (250 mm) line size.
- (2) Consult factory for availability.
- (3) Previously PN64.
- (4) For a Universal plate style in a 6-in. line size, the plate thickness is 0.125-in. and you will need to select code A.
- (5) For a Universal plate style in a 14-in. line size, the plate thickness is 0.250-in. and you will need to select code B.
- (6) Materials of Construction comply with recommendations per 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 1595

Reference Manual
00809-0100-4828, Rev CA
April 2005

Appendix B Installation Drawings

See the appropriate reference manual for 1496 Flange Unions and 1497 Meter sections being used in the assembly.

- Rosemount 1495 Orifice Plates (document number 00809-0100-4792)

Rosemount 1595

Reference Manual
00809-0100-4828, Rev CA
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