Quick Start Guide

00825-0100-4686, Rev FB April 2021

Rosemount[™] 1195 Integral Orifice Assembly





ROSEMOUNT

NOTICE

This document provides basic installation guidelines for the Rosemount 1195 Integral Orifice Assembly. For comprehensive instructions for detailed configuration, diagnostics, maintenance, service, installation, or troubleshooting refer to the Rosemount 1195 Reference Manual. The manual and this guide are also available electronically on www.emerson.com.

If the Rosemount 1195 Integral Orifice was ordered assembled to a Rosemount Pressure Transmitter, refer to the following Quick Start Guides for information on configuration and hazardous locations certifications:

- 1. Rosemount 3051S Quick Start Guide
- 2. Rosemount 3051SMV Quick Start Guide
- 3. Rosemount 3051 Quick Start Guide

WARNING

Process leaks could result in death or serious injury.

To avoid process leaks, only use the gasket designed to seal with the corresponding flange adapter. To avoid process leaks, only use the O-ring designed to seal with the corresponding flange adapter.

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1 Rosemount 1195 Integral Orifice Assembly View

Figure 1-1: Enhanced Support Body ⁽¹⁾



- A. Manifold
- B. Gaskets
- C. Studs
- D. Nuts
- E. Transmitter
- F. Rosemount 1195 enhanced support body
- G. Enhanced support orifice plate

⁽¹⁾ Transmitter and housing are shown for clarity purposes - only supplied if ordered.

2 Location and orientation

Install the Rosemount 1195 Integral Orifice in the correct location within the piping branch to prevent inaccurate measurement caused by flow disturbances.

2.1 Straight pipe length

Use the upstream (U) and downstream (D) lengths provided below in conjunction with figures below to determine the appropriate upstream (U) and downstream (D) pipe lengths. For example, for a 1-in. line size with a beta ratio (×) of 0.4 using installation of , the straight length of upstream piping required is $25 \times 1 = 25$ -in., and downstream $10 \times 1 = 10$ -in.

Note

The Rosemount 1195 Integral Orifice comes with the associated pipe lengths (18D upstream and 8D downstream) when ordered with process pipe-end connections.

Straight run requirements (2)

Figure 2-1: Reducer



(2 d to d over a length of 1.5 d to 3 d)

Figure 2-2: Single 90° Bend Flow from One Branch



Figure 2-3: Two or More 90° Bends in Same Planes



(2) For dimensions, see Table 2-1

Figure 2-4: Two or More 90° Bends in Different Planes



Figure 2-5: Expander



(0.5 d to d over a length of d to 2 d)

Figure 2-6: Ball/Gate Valve Fully Open



Table 2-1: Straight Run Requirements (in Pipe Diameters)

β ⁽¹⁾	Figure 2-1 up- stream (U)	Figure 2-2 up- stream (U)	Figure 2-3 up- stream (U)	Figure 2-4 up- stream (U)	Figure 2-5 up- stream (U)	Figure 2-6 up- stream (U)	Figures 2-1 through 2-6 On down- stream (D) ⁽²⁾
0.20	20	24	25	30	22	22	10
0.40	20	25	27	31	22	22	10
0.50	20	25	28	33	23	23	10
0.60	20	27	31	37	25	25	10
0.70	23	32	35	42	28	28	10
0.75	25	35	38	45	30	30	10

(1) Interpolation of intermediate β values can be used.

(2) All straight lengths are expressed as multiples of the pipe inside diameter (d) and shall be measured from the upstream face of orifice plate.

3 Primary element orientation

Figure 3-1: Rosemount 1195 Flowmeter Orientation with Traditional Style Manifold





Figure 3-2: Rosemount 1195 Flowmeter Orientation with Flange by Flange Manifold



Gas (horizontal)	Gas (vertical)
Steam (horizontal)	Steam (vertical)
1. A. 120° recommended zone	1. D. 360° recommended zone
2. B. Horizontal plane	2. E. Block valves
3. C. Vertical plane	3. F. Vent valves

Note

For saturated steam that is not high quality, it is recommended to mount in a vertical line to avoid damming effect of the liquid.

4 Primary element installation

Table 4-1: Stud and Nut Torque Specifications ^{(1) (2)}

Manifold studs	Torque
All line sizes and gasket types	32 lb-ft.(44 N-m)
Orifice body studs	Torque
All line sizes and gasket types	60 lb-ft.(82 N-m)

(1) Studs and nuts should be tightened to specification in two to three steps following a cross pattern.

(2) Never reuse gaskets. Always replace gaskets after disassembly to ensure proper seal.

Figure 4-1: Rosemount 1195 Assembly Fastener Naming Convention



- A. Transmitter bolts 4x
- B. Manifold studs 4x
- C. Orifice body studs 2x
- D. Orifice body studs 4x

Procedure

1. Ensure that the side of the orifice plate marked inlet is facing upstream.

This stamping is found on the part of the orifice plate that extends beyond the orifice bodies.

2. Before pressurizing the line, ensure that the torque values are met.

See and for torque requirements of manifold studs and orifice body studs. See the appropriate transmitter manual for torque requirements of transmitter bolts.

3. Install the unit.

Option	Description
Units with flanged process connections.	a. Install the flanges in the process pipe. The distance between flanges should be equal to the overall length of the flowmeter, plus clearance for gaskets.
	 b. Install the unit between the flanges, using studs, nuts, and gaskets appropriate for the flange size/rating and process conditions. Proper support is needed at the flange connections see .
Units with threaded process connections.	Install the unit using the appropriate threaded connection hardware.
Units with socketweld bodies.	a. To ensure perpendicularity of the pipe to the orifice fitting, the socket diameter is smaller than the standard pipe OD. The pipe OD must be machined-to-fit prior to welding.
	b. To prevent damage, remove the transmitter prior to welding.

4. Once the Rosemount 1195 is installed ensure that it is supported properly and take precautions to ensure that it is not used as a step. Refer to for support locations.



Figure 4-2: Recommended Support Locations for Installation

5 Preparing for operation

Note

Serious injury can occur by opening the valves when the pipes are pressurized. Do not bleed or vent process fluid if it is toxic or harmful to health or environment.

5.1 Direct mount for liquid applications 450 °F (232 °C) or less

Procedure

- 1. Pressurize line.
- 2. Open the equalizer valve.
- 3. Open the high and low side valves.
- 4. Bleed drain/vent valves until no gas is apparent in the liquid.
- 5. Close the vent/drain valves.
- 6. Close the low side valve.
- 7. Check the transmitter zero according to the transmitter product manual.
- 8. Close the equalizer valve.
- 9. Open the low side valve. The system is now operational.

5.2 Direct mount for gas applications 450 °F (232 °C) or less

Procedure

- 1. Pressurize line.
- 2. Open the equalizer valve.
- 3. Open the high and low side valves.
- 4. Open drain/vent valves to ensure no liquid is present.
- 5. Close the vent/drain valves.
- 6. Close the low side valve.
- 7. Check the transmitter zero according to the transmitter product manual.
- 8. Close the equalizer valve.
- 9. Open the low side valve. The system is now operational.

5.3 Direct mount for steam applications 450 °F (232 °C) or less

Procedure

1. Remove pressure from line.

- 2. Open equalizer, high, and low side valves.
- 3. Fill manifold and transmitter with water via drain vents.
- 4. Close low side valve.
- 5. Pressurize line.
- 6. Gently tap electronics body, manifold head, and integral orifice body with a small wrench to dislodge any entrapped air.
- 7. Check the transmitter zero according to the transmitter product manual.
- 8. Close equalizer valve.
- 9. Open the low side valve. The system is now operational.

5.4 Remote mount 850 °F (454 °C) or less

5.4.1 Liquid applications-transmitter located below Rosemount 1195 Taps

Procedure

- 1. Pressurize line.
- 2. Open equalizer valve on transmitter manifold. Close equalizer valve at integral orifice, if one is used.
- 3. Open high and low side transmitter manifold valves and high and low block valves at integral orifice.
- 4. Bleed drain/vent valves on transmitter manifold until no air is present.
- 5. Close transmitter manifold drain vent valves, then bleed vent valves at the integral orifice block valves until no air is present.
- 6. Close vent valves at integral orifice block valves.
- 7. Close equalizer valve at transmitter manifold.
- 8. Close low and high side block valves at integral orifice.
- 9. Open vent valves at integral orifice block valves.
- 10. Check transmitter zero according to transmitter manual.
- 11. Close vent valves at integral orifice block valves.
- 12. Open high and low side block valves at integral orifice. The system is now operational.

5.4.2 Gas applications-transmitter located above Rosemount 1195 Taps



Figure 5-1: Remote Gas Service ⁽³⁾

- A. High valve
- B. Vent
- C. Low valve
- D. Equalizer valve

Procedure

- 1. Pressurize line.
- 2. Open equalizer valve on transmitter manifold.
- 3. Open high and low side transmitter manifold valves.
- 4. Open drain/vent valves on transmitter manifold to ensure no liquids are present.
- 5. Close drain/vent valves.
- 6. Close low side transmitter manifold valve.
- 7. Check transmitter zero according to transmitter manual.
- 8. Close equalizer on transmitter manifold.
- 9. Open low side valve on transmitter manifold. The system is now operational.

⁽³⁾ Applicable to both body assemblies.

5.4.3 Steam service-transmitter located below Rosemount 1195 Taps



Figure 5-2: Remote Steam and Liquid Service⁽⁴⁾

- C. Equalizer valve
- D. Vent valves
- E. Low valve

Procedure

- 1. Remove pressure from line or close block valves at integral orifice.
- 2. Open equalizer valves, high and low side valves on the transmitter manifold. Close equalize valve at integral orifice, if one is used.
- 3. Open vent valves at integral orifice block valves. To vent sensing lines.
- 4. Fill transmitter manifold and instrument lines with water via low side vent at integral orifice block valves.
- 5. Open and close vent valves at transmitter to bleed out trapped air.
- 6. Close the equalizer valve at transmitter manifold.
- 7. Complete filling the low side and high side sensing lines.

⁽⁴⁾ Applicable to both body assemblies.

- 8. Gently tap electronics body, transmitter manifold, instrument lines, and integral orifice with a small wrench to dislodge any trapped air.
- 9. Check transmitter zero according to transmitter manual.
- 10. Close vent valves at integral orifice block valves.
- 11. If block valves at integral orifice had been closed they should now be opened. System is now operational for steam flow measurement.

6 Product certifications

6.1 Approved Manufacturing Locations

Emerson — Shakopee, Minnesota USA Rosemount DP Flow Design and Operations — Boulder, Colorado USA Emerson GmbH & Co. OHG — Wessling, Germany Emerson Asia Pacific Private Limited — Singapore Emerson Beijing Instrument Co., Ltd — Beijing, China

6.2 European Directive Information

The EU declaration of conformity for all applicable European directives for this product can be found on Emerson.com/Rosemount. A hard copy may be obtained by contacting our local sales office.

European Pressure Equipment Directive PED (2014/68/EU)

Refer to EU declaration of conformity for conformity assessment.

Pressure Transmitter – See appropriate Pressure Transmitter QSG:

Nameplate indicated design conditions shall never be exceeded.

- Rosemount 3051S with HART Protocol Quick Start Guide
- Rosemount 3051SMV Flowmeter Quick Start Guide
- Rosemount 3051 Quick Start Guide

6.3 Hazardous Locations Certifications

For information regarding the transmitter product certification, see the appropriate transmitter QSG:

- Rosemount 3051S with HART Protocol Quick Start Guide
- Rosemount 3051SMV Flowmeter Quick Start Guide
- Rosemount 3051 Quick Start Guide

Figure 6-1: Rosemount 1195 Declaration of Conformity Revision V

N/P	
Rosemount / Dieterich Standard, Inc.	
5601 North 71st Street	
USA	
declare under our sole responsibility that the pro	ducts,
Rosemount Primary Elements: 40 Rosemount DP Flowmeters: 2051	5, 485, 585, 1195, 1495, 1595, 9295 CFx, 3051CFx, 3051SFx
to which this declaration relates, is in conformity pressure equipment directive 2014/68/EU as sho	with the provisions of the European Union with the attached schedule.
Assumption of conformity is based on the applic applicable or required, a European Union notifie attached schedule. The object of the declaration relevant Union harmonization legislation.	ation of the harmonized standards and, when ed body certification, as shown below and in th described above is in conformity with the
Harmonized Standards applied: E Module of conformity assessment applied: N	INID B51.5 INI0204, EN 15614-1, LVD-2014/25/EU Aodule H
Serial Number(s):	
Year Manufactured:	
- A	
Butter	General Managar
(signature)	(function)
V	
Brian Fieser	April 1st, 2020
(name)	(date of issue)
Pressure Equipment Directive Not	tified Body:
Trebbare Equipment Directive 110	
Bureau Veritas Services SAS	

	rom 19 July 20	016
Summary of Classifications - Group 1 Dangerou	e Fluide	
Summary of Classifications - Group T Dangerou	Hazard Cl	assification
Model/Range	Gas	Liquid
5855 (Flanged): CL150/PN16 to CL900/PN160 (Sensor 11, 22 & 44)	SEP	SEP
5855 (Flanged): CL1500/PN250 to CL2500/PN400 (Sensor 11 & 22)	CAT I*	SEP
585S (Flanged): CL1500/PN250 & CL2500/PN400 (Sensor 44	CAT III	SEP
405A, 405C, 405P Compact Primary Element (x051xFC)	SEP	SEP
1195, x051xFP: 1/2" & 1" (All types & Ratings)	SEP	SEP
1195, x051xFP: CL150/PN16 1-1/2"	CAT I*	SEP
1195, x051xFP: CL300/PN40 1-1/2"	CAT II*	SEP
1195, x051xFP: CL600/PN100 to CL900/PN160 1-1/2"	CAT II*	CAT II
1195, x051xFP: 1-1/2" Threaded & Welded	CAT II*	CAT II
1495 Orifice Plate	SEP	SEP
1595 Conditioning Orifice Plate	SEP	SEP
Pak-Lok - 485/x051xFA: All (CL600/PN100 Rating) All Lines	SEP	SEP
Flanged - 485/x051xFA: CL150/PN16 to CL900/PN160 All Lines	SEP	SEP
Flanged - 485/x051xFA: CL1500/PN250 & CL2500/PN400 All Lines	CAT I*	SEP
Flange-Lok - 485/x051xFA: CL150/PN16 to CL600/PN100 All Lines	SEP	SEP
Flo-Tap - 485/x051xFA: Sensor Size 1 CL150/PN16 to CL600/PN100 2" to 8" Line	SEP	SEP
Flo-Tap - 485/x051xFA : Sensor Size 2 CL150/PN16 6" to 24" Line	CAT I*	SEP
Flo-Tap - 485/x051xFA : Sensor Size 2 CL150/PN16 30" to 36" Line	CAT II*	SEP
Flo-Tap - 485/x051xFA : Sensor Size 2 CL300/PN40 6" to 36" Line	CAT II*	SEP
Flo-Tap - 485/x051xFA : Sensor Size 2 CL600/PN100 6" to 14" Line	CAT II*	SEP
Flo-Tap - 485/x051xFA : Sensor Size 2 CL600/PN100 16" to 36" Line	CAT III	CAT II
Flo-Tap - 485/x051xFA : Sensor Size 3 CL150/PN16 12" to 36" Line	CAT II*	SEP
Flo-Tap – 485/x051xFA: Sensor Size 3 CL150/PN16 42" to 72" Line	CAT III	CAT II
F10-Tap = 485/x05TxFA: Sensor Size 3 CL300/PN40 12 to 72" Line	CATII	CATI
Fio-Tap = 485/x051xFA : Sensor Size 3 CL 600/PN100 12 to 30 Line	N/A	CATI
Flo-Tap - 585: Sensor Size 44 CL150/PN16 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL150/PN16 (Line Size Code > 420, <=720)	CAT I*	SEP
Flo-Tap - 585: Sensor Size 44 CL300/PN40 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL300/PN40 (Line Size Code > 420, <=720)	CAT II*	SEP
Flo-Tap - 585: Sensor Size 44 CL600/PN10 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL600/PN100 (Line Size Code > 420, <=720)	CAT II*	SEP
585M: Sensor Size 44	CAT III*	SEP
9295, CL150/PN16, 2"	CAT I*	SEP
9295, CL150/PN16, 3" & 4"	CAT II*	SEP
9295, CL150/PN16, 6"	CAT II*	CAT II
9295, CL300/PN40 to CL900/PN160, 2"	CAT II*	SEP
9295, CL300/PN40 to CL900/PN160, 3" & 4"	CAT II*	CAT II
9295, CL300/PN40 to CL900/PN160, 6"	CAT III	CAT II

Summary of Classifications Group 2 All Oth	or Fluida	
Summary of Classifications – Oroup 2 All Our	Hazard Cls	ssification
Model/Range	Gas	Liquid
585S (Flanged): CL150/PN16 to CL2500/PN400 (Sensor 11, 22, &44)	SEP	SEP
405A, 405C, 405P Compact Primary Element (x051xFC)	SEP	SEP
1195, x051xFP: 1/2" & 1" (All Versions)	SEP	SEP
1195, x051xFP: CL150/PN16 1-1/2"	SEP	SEP
1195, x051xFP: CL300/PN40 - CL900/PN160 1-1/2"	I	SEP
1195, x051xFP: 1-1/2" Threaded & Welded	I	SEP
1495 Orifice Plate	SEP	SEP
1496 Orifice Flange Union	SEP	SEP
Pak-Lok - 485/x051xFA: All (CL600/PN100 Rating) All Lines	SEP	SEP
Flanged - 485/x051xFA: CL150/PN16 to CL900/PN160 All Lines	SEP	SEP
Flanged - 485/x051xFA: CL1500/PN250 & CL2500/PN400 All Lines	SEP	SEP
Flange-Lok - 485/x051xFA: CL150/PN16 to CL600/PN100 All Lines	SEP	SEP
Flo-Tap - 485/x051xFA: Sensor Size 1 CL150/PN16 to CL600/PN100 2" to 8" Line	SEP	SEP
Flo-Tap - 485/x051xFA: Sensor Size 2 CL150/PN16 6" to 24" Line	SEP	SEP
Flo-Tap - 485/x051xFA: Sensor Size 2 CL150/PN16 30" to 36" Line	CATI	SEP
Flo-Tap - 485/x051xFA: Sensor Size 2 CL300/PN40 6" to 36" Line	CATI	SEP
Flo-Tap - 485/x051xFA: Sensor Size 2 CL600/PN100 6" to 14" Line	CATI	SEP
Flo-Tap - 485/x051xFA: Sensor Size 2 CL600/PN100 16" to 36" Line	CAT II	SEP
Flo-Tap - 485/x051xFA: Sensor Size 3 CL150/PN16 12" to 36" Line	CATI	SEP
Flo-Tap - 485/x051xFA: Sensor Size 3 CL150/PN16 42" to 72" Line	CAT II	SEP
Flo-Tap - 485/x051xFA: Sensor Size 3 CL300/PN40 12 to 72" Line	CAT II	SEP
Flo-Tap - 485/x051xFA: Sensor Size 3 CL600/PN100 12" to 36" Line	CAT III	SEP
Flo-Tap - 485/x051xFA: Sensor Size 3 CL600/PN100 42" to 72" Line	CATIII	SEP
Flo-Tap - 585: Sensor Size 44 CL150/PN16 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL150/PN16 (Line Size Code > 420, <=720)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL300/PN40 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL300/PN40 (Line Size Code > 420, <=720)	CATI	SEP
Flo-Tap - 585: Sensor Size 44 CL600/PN10 (Line Size Code <= 420)	SEP	SEP
Flo-Tap - 585: Sensor Size 44 CL600/PN100 (Line Size Code > 420, <=720)	CATI	SEP
585M: Sensor Size 44	SEP	SEP
9295, CL150/PN16, 2"	SEP	SEP
9295, CL150/PN16, 3" to 6"	I	SEP
9295. CL300/PN40 to CL900/PN160, 2" to 4"	I	SEP
9295, CL300/PN40 to CL900/PN160, 6"	П	SEP



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危害物质成分表

罗斯蒙特产品型号 1195 7/1/2016

含有China RoHS管控物质超过最大欲度限值的部件型号列表 1195 List of 1195 Parts with China RoHS Concentration above MCVs						
		有害物质 / Hazardous Substances				
部件名称 Part Name	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	大价铬 Hexavalent Chromium (Cr +6)	多溴联苯 Polybrominated biphenyls (PBB)	多溴联苯醚 Polybrominated diphenyl ethers 多溴联苯醚 (PBDE)
铝制温度传 感器外壳组 件 Aluminum RTD Housing Assembly	0	0	0	х	0	0
本表格系依据 This table is p O: 意为该部件 O: Indicate this requirements	SJ/T11364 roposed ir 的所有均 at said haz if GB/T 26	4 約規定而制作 n accordance v 仮材料中该有智 zardous substa 572.	vith the provisio 序物质的含量均 ince in all of the	n of SJ/T11364 ∰∓GB/T 26572∄ homogeneous n	「 所規定的限量要求 naterials for this part is i	below the limit

- Sequence of General Content (1997年) X: 認力在该部件所使用的所有均质材料里, 空少有一类均质材料中该有害物质的含量高子GB/T 26572所规定的限量要求, X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

部件名称	组装备件说明
Part Name	Spare Parts Descriptions for Assemblies
壳体组件Housing Assembly	电子外壳 Electrical Housing

上述申明仅适用于选择铝制外壳组件的产品。其他所有差压流量一次元件的组件所含有的China RoHS 管控物 质浓度均低于GB/T 26572所规定的限量要求。关于差压流量计变送器组件的管控物质浓度的申明,请参看变 送器的快速安装指南。

The disclosure above applies to units supplied with aluminum connection heads. No other components supplied with DP Flow primary elements contain any restricted substances. Please consult the transmitter Quick Start Guide (QIG) for disclosure information on transmitter components.

Quick Start Guide 00825-0100-4686, Rev. FB April 2021

For more information: www.emerson.com

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