

Orifice Carrier Assemblies

Data sheet : RTJ/2012

- Design to BS EN ISO 5167
- Range of Carrier Types
 - Single Ring, Corner Tappings
 - Double Ring, Flange Tappings
 - Double Ring, Corner Tappings
 - Double Ring, Annular Chambers
- Wide range of materials
- Proven technology
- Suitable for 1" lines and above
- Orifice sizing on request

General Description

The orifice plate is the most common differential pressure flow primary element. It is based on proven technology, has no moving parts and is suitable for high temperature and pressure applications. Orifice plates are recommended for clean liquids, gases and low velocity steam flows. Flow measurement using orifice plates requires the accurate location of upstream and downstream pressure tapings. Various types of orifice carrier assemblies are available to suit a wide range of applications.

Orifice flange assemblies in accordance with ANSI B16.36 are also available.

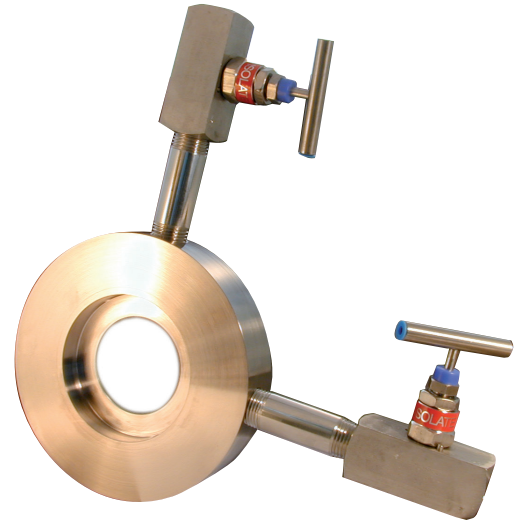
Pressure Connections

The style of the pressure tapings may be as follows:-

- Flange Tappings** - located 25.4 mm upstream and 25.4 mm downstream from the corresponding face of the orifice plate.
- Corner Tappings** - single tapings located flush with the upstream and downstream faces of the orifice plates.
- Annular Chambers** - slots located flush with the upstream and downstream faces of the orifice plate.

Flange tapings are recommended for general applications. Corner tapings or annular chambers are particularly recommended for use in small lines (less than 50 mm diameter) and when the orifice plate is either of quarter circle, conical entrance or eccentric in design. Common carrier ring/gasket materials include Stainless Steel and soft iron. To ensure correct sealing when installed between flanges, the hardness of the carrier ring/gasket material is limited to a maximum value, typically 120HB for soft iron rings and 160HB for Stainless Steel Rings.

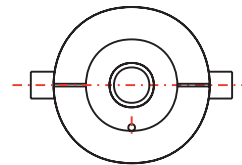
Please contact the sales office for other grades.



Pressure Tapping Orientation

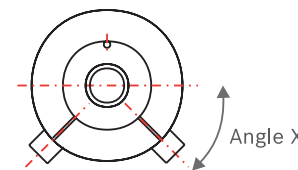
For vapours, dirty or condensable gases in a horizontal line, the tapings should be located at the side of the pipe, with no more than a $\pm 45^\circ$ orientation from the horizontal.

Horizontal



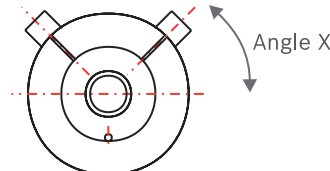
For liquid flows in a horizontal pipe the tapings should be in the lower half of the pipe, with no more than a $\pm 45^\circ$ orientation from the horizontal.

Inclined Down



For horizontal clean gas flows, the tapings should be in the upper half of the pipe, with no more than a $\pm 45^\circ$ orientation from the vertical.

Inclined Up



For vertical pipe installations, the pressure taps can be at any radial position around the pipe circumference.

Double Ring Orifice Carriers

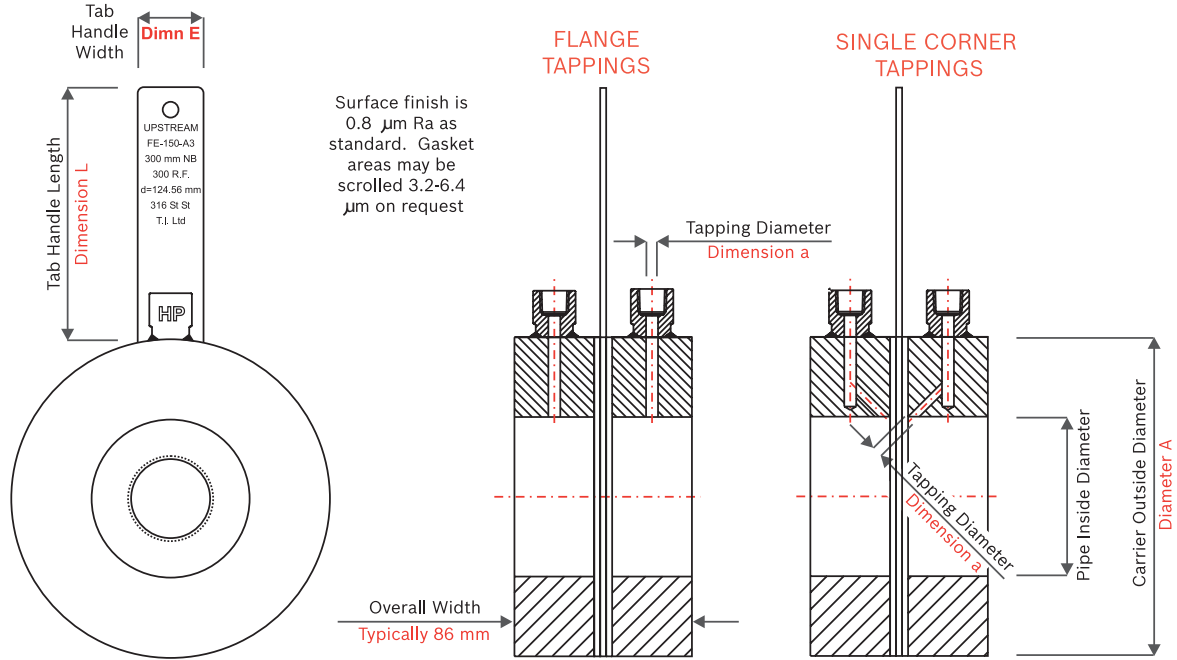
Double ring orifice carrier are designed to be mounted between standard pipe flanges. Versions are available to suit all common flange standards, including ANSI B16.5.

Double ring orifice carriers may be provided with flange tappings, single corner tappings or annular chambers.

Double ring orifice carriers use a standard tab handled plate, which al-

lows for easy replacement of the plate if it is damaged, or changes in process data necessitate a change of orifice bore.

Standard material of construction is 316L Stainless Steel, but a wide range of alternative common and exotic materials are available. Gas-kets are provided - 1.5 mm thick non asbestos type, unless requested otherwise.

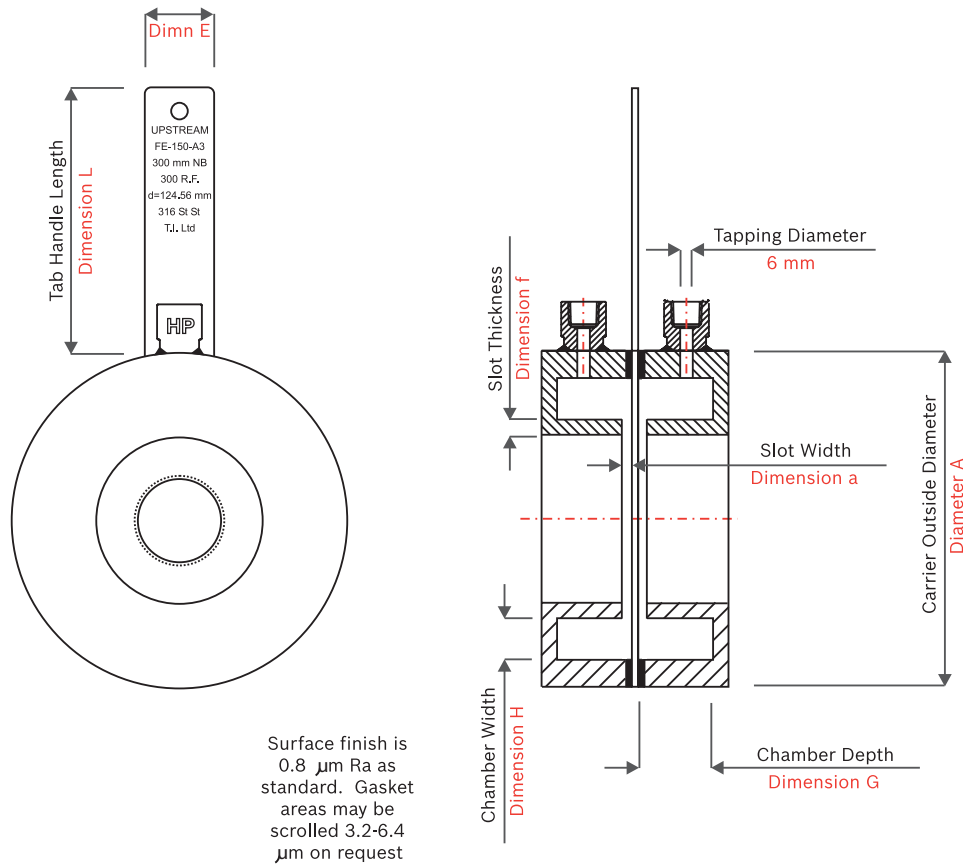


Line Size		150 LB			300 LB			600 LB			900 LB			1500 LB			Pressure Tapping Diameter a				
mm	IN	A	L	E	A	L	E	A	L	E	A	L	E	A	L	E	Flange	Cover			
25	1	66.7	125	32	73	125	32	73	125	32	79.4	150	32	79.4	150	32	6	10			
30	1 1/4	76.2			82.6			82.6			88.9			125					88.9	125	3
40	1 1/2	85.7			95.3			95.3			98.4			125					98.4	5	
50	2	104.8			111.1			111.1			142.9			150					142.9	1.25	
65	2 1/2	123.8			130.2			130.2			165.1			150					165.1	1.5	
80	3	136.5	149.2	149.2	168.3	150	174.6	2													
100	4	174.6	150	32	181	150	32	193.7	175	32	206.4	200	32	209.6	175	32	10	8			
125	5	196.9			215.9			241.3			247.7			150					254	2.5	
150	6	222.3			250.8			266.7			288.9			150					282.6	3	
200	8	279.4			308			320.7			358.8			175					352.4	4	
250	10	339.7			362			400			435			175					435	5	
300	12	409.6	422.3	457.2	498.5	200	520.7	6													
350	14	450.9	485.8	492.1	520.7	200	577.9	7													
400	16	514.4	539.8	565.2	574.7	200	641.4	8													
450	18	546.1	593.7	609.6	635	200	701.7	9													
500	20	603.3	650.9	679.5	695.3	200	752.5	10													

Annular Chamber Orifice Carriers

Annular chamber type orifice carriers are a special form of corner tappings. The annular slots break through to the pipe over the entire perimeter.

The table below shows typical dimensions for some common sizes. Versions to suit other flange sizes and ratings are available on request.



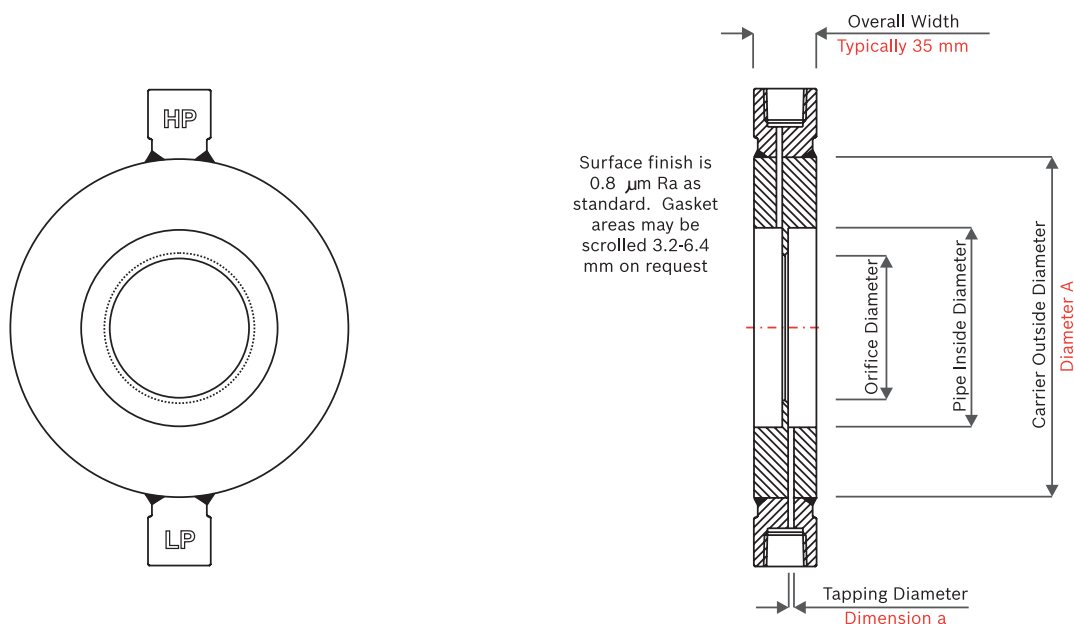
Nominal Size		150 LB			300 LB			600 LB			Dimension	
		OD	Chamber		OD	Chamber		OD	Chamber		a	f
mm	Inches	A	G	H	A	G	H	A	G	H		
25	1	66.7	10	12	73	10	12	73	10	12	1	2
30	1 1/4	76.2	10	12	82.6	10	12	82.6	10	12	1	2
40	1 1/2	85.7	12	12	95.3	12	12	95.3	12	12	1	2
50	2	104.8	12	12	111.1	12	12	111.1	12	12	1	2
65	2 1/2	123.8	15	12	130.2	15	12	130.2	15	12	1	2
80	3	136.5	18	12	149.2	18	12	149.2	18	12	1.5	3
100	4	174.6	20	20	181	20	20	193.7	20	20	1.5	3
125	5	196.9	25	20	215.9	25	20	241.3	25	20	1.5	3
150	6	222.3	26	20	250.8	26	20	266.7	26	20	1.75	3.5
200	8	279.4	33	23	308	28	30	320.7	28	30	2.25	4.5

Single Ring Orifice Carriers

The single ring orifice carrier is a simple, compact orifice carrier, which may be machined in one piece, or be provided with a screwed-on plate. This carrier occupies the minimum of space between the pipe-line flanges.

Standard material of construction is 316L Stainless Steel.

Due to its small thickness, the single ring orifice carrier is often a cost effective solution, and may be manufactured in a wide range of exotic materials including Hastelloy®, Monel®, Duplex Stainless Steel, Inconel® and Incoloy®



Nominal Line Size		150 LB		300 LB		600 LB		900 LB		1500 LB		2500 LB		Tapping Diameter
mm	Inches	A	X	A	X	A	X	A	X	A	X	A	X	a
25	1	66.7	-	73	-	73	-	79.4	-	79.4	-	85.7	-	1
30	1 1/4	76.2	-	82.6	-	82.6	-	88.9	-	88.9	-	104.8	-	1
40	1 1/2	85.7	-	95.3	-	95.3	-	98.4	-	98.4	-	117.5	-	1
50	2	104.8	-	111.1	45	111.1	45	142.9	45	142.9	45	146	45	1
65	2 1/2	123.8	-	130.2	45	130.2	45	165.1	45	165.1	45	168.3	45	1.25
80	3	136.5	-	149.2	45	149.2	45	168.3	45	174.6	45	196.9	45	1.5
100	4	174.6	45	181	45	193.7	45	206.4	45	209.6	45	235	45	2
125	5	196.9	45	215.9	45	241.3	45	247.7	45	254	45	279.4	45	2.5
150	6	222.3	45	250.8	30	266.7	30	288.9	30	282.6	30	317.5	45	3
200	8	279.4	45	308	30	320.7	30	358.8	30	352.4	30	387.4	30	4
250	10	339.7	30	362	45	400	45	435	45	435	30	476.3	30	5
300	12	409.6	30	422.3	45	457.2	36	498.5	36	520.7	45	549.3	30	6
350	14	450.9	30	485.8	36	492.1	36	520.7	36	577.9	45	-	-	7
400	16	514.4	45	539.8	36	565.2	36	574.7	36	641.4	45	-	-	8
450	18	546.1	45	593.7	30	609.6	36	635	36	701.7	45	-	-	9
500	20	603.3	36	650.9	30	679.5	30	695.3	36	752.5	45	-	-	10

Single orifice carriers to suit PN rated flanges and other flange standards are also available



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