System Dynamics

Product Catalogue

SYSTEM DYNAMICS

Orifice Plates

ORIFICE PLATES

Basic Differential Pressure Theory

Differential pressure flow meters work on the principle of partially obstructing the flow in a pipe. This obstruction creates a difference in the static pressure between the upstream and downstream side of the device. This difference in the static pressure (referred to as the differential pressure) is measured and used to determine the flowrate.

Advantages

- Their performance is well understood
- They are cheap, compared with other meters
- They can be used in any orientation
- They can be used for most gases and liquids

Disadvantages

- Rangeability (Turndown 1) is less than for most other types of flowmeter
- Significant pressure losses may occur
- Long straight run requirements

Materials Available

- ASTM 304/304LSS
- ASTM 316/316LSS
- UNS S31803/32205
- HASTELLOY C276
- HASTELLOY X
- MONEL 400
- INCONEL 600
- TANTALUM
- PTFE
- Other materials on request

In general, orifice plates have an accuracy of +/-4.0%

CATALOGUE Orifice Plates

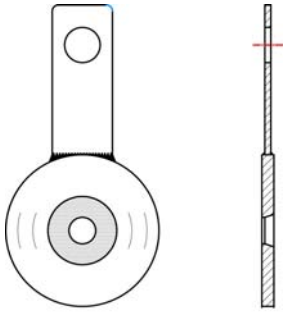
Square Edge Orifice Plate

FSD – 2238

Design: As per ISO 5167-2

Nominal Pipe Size: ≥ ½"

Nominal Pressure Rating: ≥ 150#



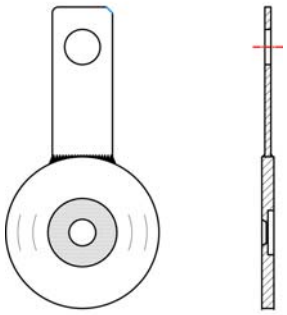
Conical Entrance Orifice Plate

FSD – 3238

Design: As per ISO

Nominal Pipe Size: ≥ ½"

Nominal Pressure Rating: ≥ 150#



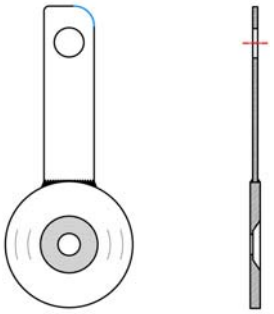
Quarter Circle Orifice Plate

FSD – 4238

Design: As per ISO

Nominal Pipe Size: ≥ ½"

Nominal Pressure Rating: ≥ 150#



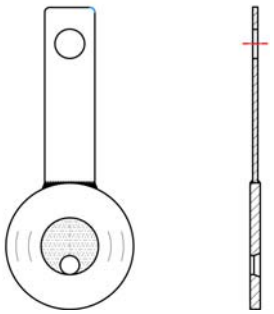
Eccentric Orifice Plate

FSD – 5238

Design: As per TR15377

Nominal Pipe Size: ≥ 4"

Nominal Pressure Rating: ≥ 150#



Sealing face for flanges with raised face

Description

Raised face is the most common sealing and can be used under critical pressure and tempertature conditions.

Surface finishing

125 ~ 250 AARH

The ANSI accredited ASME standard B 16.5 requires that the flange face and the sealing face of the orifice plate have a specified roughness to ensure the compatibility of the surface with the gasket and a high quality seal.

Ring joint gasket

Description

This solution is used under high temperature and pressure conditions

Designs

- Octagonal
- Oval

Surface finishing and ring dimensions

The ring joint gasket can be manufactured in accordance with all relevant standards to suit the following flange standards:

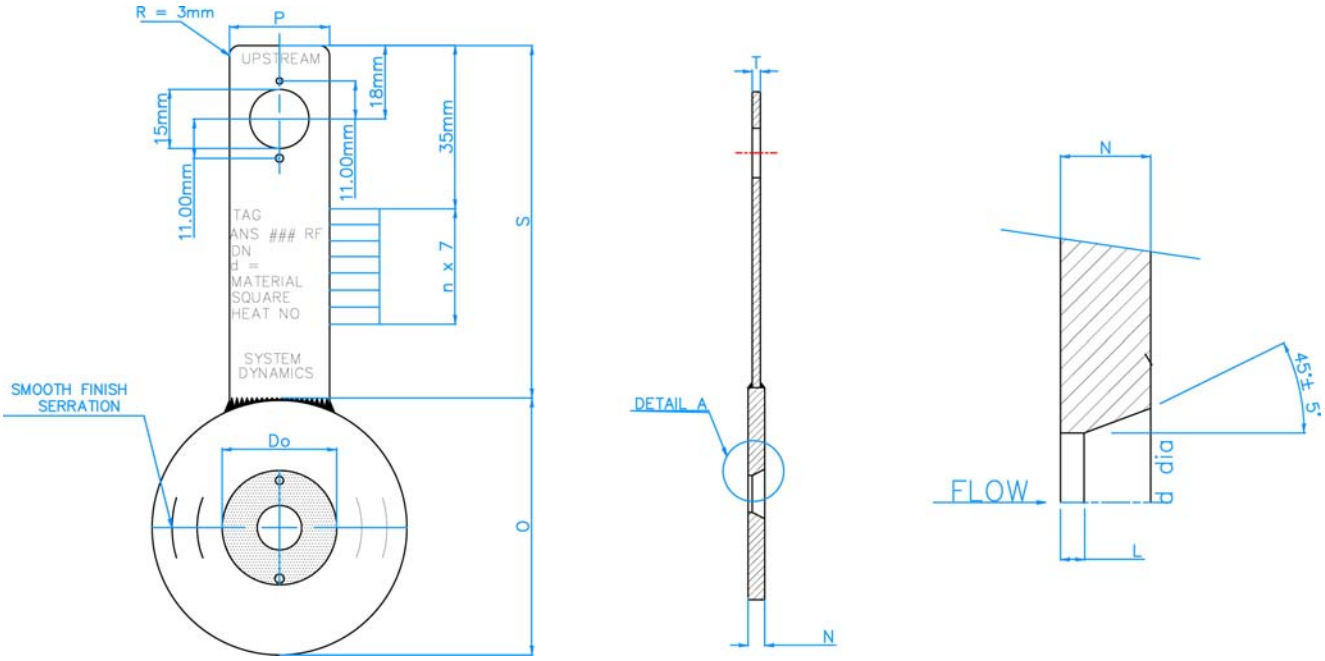
- API 6A
- ASME/ANSI B16.5
- MSS SP44 (ASME B16.47 series A)
- BS 1560

The surface finishing of the ring joint gasket (<63 AARH) complies with these flange standards.

Drain or vent hole (option)

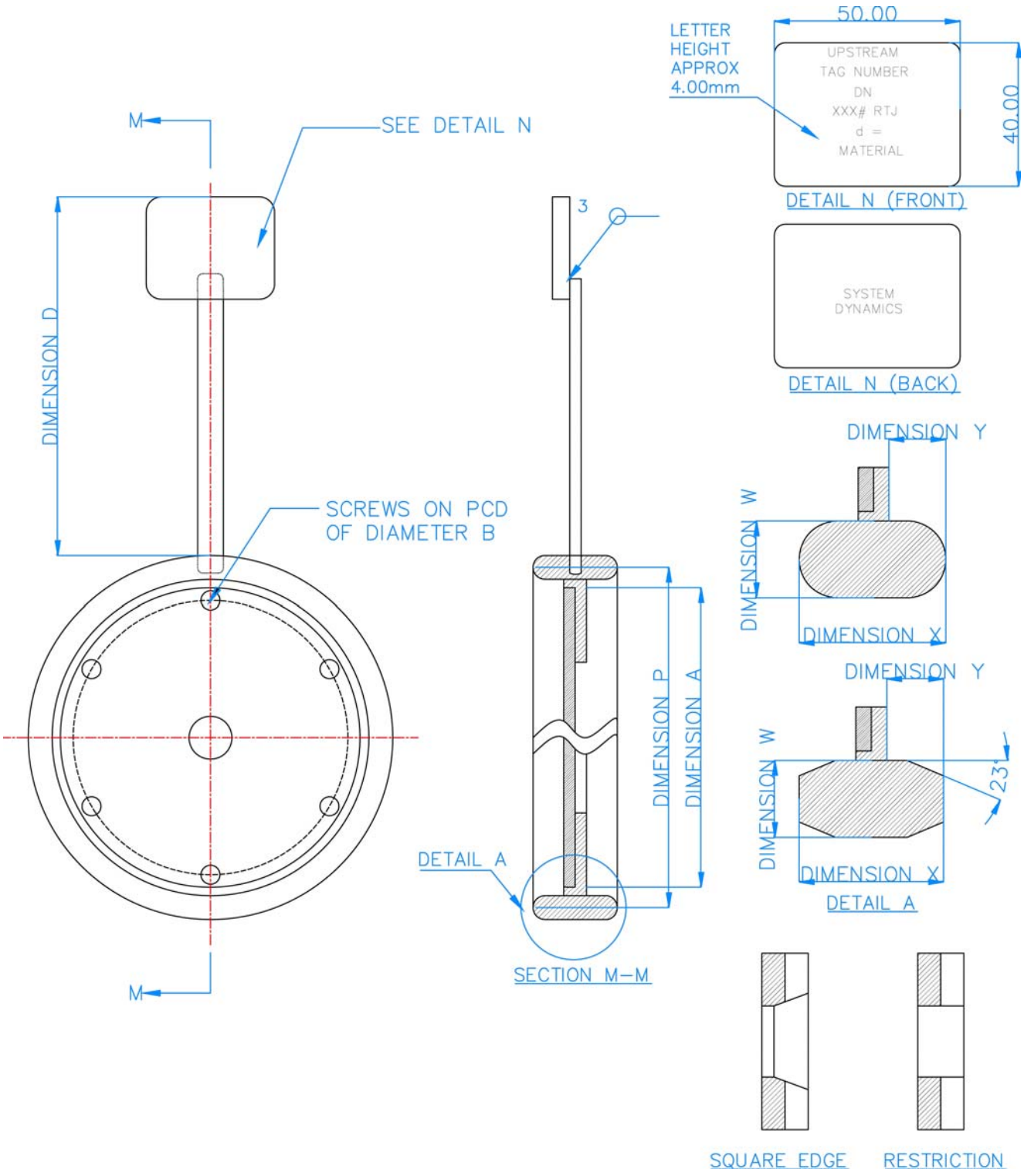
Depending on the medium, a drain or vent hole may be required. The hole is manufactured in accordance with ISA RP 3.2, unless otherwise specified.

Raised-Face Orifice Plates



Line Size		Do (±1.00mm)	L (±0.10mm)	N	Outer Diameter (0) (-0.40mm)						P	Handle Length (±1.00mm)					
					ASME Class Rating							ASME Class Rating					
DN	NPS	DIA	EDGE	Plate T	150	300	600	900	1500	2500		150	300	600	900	1500	2500
15	1/2	13.00	1.00	3.175	47.60	54.00	54.00	63.50	63.50	70.00	30.00	110.00	110.00	110.00	110.00	115.00	120.00
20	3/4	19.00			57.00	66.70	66.70	70.00	70.00	76.00							
25	1	25.00			66.70	73.00	73.00	79.50	79.50	58.50			115.00	115.00	120.00	120.00	125.00
40	1 – 1/2	40.00	1.5		85.50	95.30	95.30	98.50	98.50	117.50			120.00	120.00	125.00	125.00	130.00
50	2	51.00			105.00	111.10	111.10	143.00	143.00	146.00			115.00	115.00			
80	3	76.00			137.00	149.20	149.20	168.00	174.50	197.00	40.00	115.00	120.00	120.00		135.00	140.00
100	4	102.00			175.00	181.00	194.00	207.00	209.50	235.00			125.00	125.00	130.00	140.00	150.00
150	6	152.00			222.00	251.00	267.00	289.00	282.50	317.50			120.00	130.00	135.00	145.00	170.00
200	8	202.00	3.50	6.35	279.50	308.00	321.00	359.00	353.00	387.50		120.00	125.00	135.00		155.00	
250	10	253.00			340.00	362.00	400.00	435.00	435.00	476.00			130.00	145.00	145.00	165.00	190.00
300	12	302.00			410.00	422.50	457.00	498.50	520.50	595.50	45.00	125.00	135.00	140.00			195.00
350	14	341.00			451.00	486.00	492.00	521.00	578.00				140.00	145.00	150.00	175.00	
400	16	392.00	6.00	9.53	514.50	540.00	565.00	575.00	641.50			130.00	145.00	150.00	155.00	180.00	
450	18	443.00			549.50	597.00	613.00	638.00	705.00		50.00			155.00	160.00	195.00	
500	20	494.00			606.50	654.00	682.50	698.50	755.50			135.00	150.00		165.00	205.00	
600	24	595.00	8.00	12.70	717.50	768.50	790.50	838.00	901.50		60.00		160.00	165.00	7	225.00	
Dimensions: Millimetres (mm)					Raised Face Orifice Plates							FSD – 2238					

Ring Type Joint Orifice Plate



Ring Type Joint Orifice Plate

Rating and Line Size (Inches)				Ring Number	Diameter P	Dimension W	Dimension X	Dimension Y	Diameter Z	Dimension F	Diameter A	Diameter B	Dimension D
300 # 600 #	900 #	1500 #	2500 #										
1	1	1		R 16	50.8	7.9	23.8	10.3	25.4	0.5	41.3	33.3	125
			1	R 18	60.2	7.9	23.8	10.3	25.4	0.5	41.3	33.3	150
1.5	1.5	1.5		R 20	68.3	7.9	23.8	10.3	38.1	0.5	54	46	125
			1.5	R 23	82.5	11.1	27	10.3	38.1	0.5	54	46	150
2				R 23	82.5	11.1	27	11.9	50.8	0.75	69.8	60.3	125
	2	2		R 24	95.3	11.1	27	11.9	50.8	0.75	82.55	66.6	150
			2	R 26	101.6	11.1	27	11.9	50.8	0.75	82.55	66.6	150
2.5				R 26	101.6	11.1	27	11.9	63.5	0.75	85.5	69.5	125
	2.5	2.5		R 27	107.9	11.1	27	11.9	63.5	0.75	91.8	75.8	150
			2.5	R 28	111.1	12.7	27	11.9	63.5	0.75	83.4	77.4	150
3	3			R 31	123.8	11.1	27	11.9	76.2	1	107.9	92	150
			3	R 32	127	12.7	28.6	12.7	76.2	1	107.9	92	150
		3		R 35	136.0	11.1	27	11.9	76.2	1	107.9	92	150
4	4			R 37	149.2	11.1	27	11.9	104	1.5	136.5	120.6	150
			4	R 38	157.2	15.9	31.7	14.3	104	1.5	136.5	120.6	150
		4		R 39	162	11.1	27	11.9	104	1.5	136.5	120.6	150
6	6			R 45	211.1	11.1	27	11.9	158.7	1.5	190.5	174.6	150
		6		R 46	211.1	12.7	34.9	12.7	158.7	1.5	190.5	174.6	150
			6	R 47	228.6	19.1	27	15.9	158.7	1.5	190.5	174.6	175
8	8			R 49	269.9	11.1	27	11.9	209.5	3.5	241.3	225.4	175
		8		R 50	269.9	15.9	31.7	14.3	209.5	3.5	241.3	225.4	175
			8	R 51	279.4	22.2	38.1	17.5	209.5	3.5	241.3	225.4	175
10	10			R 53	323.8	11.1	27	11.9	260.3	3.5	292.1	276.2	175
		10		R 54	323.8	15.9	31.7	14.3	260.3	3.5	292.1	276.2	175
			10	R 55	342.9	28.6	46	21.4	260.3	3.5	292.1	276.2	200
12	12			R 57	381	11.1	27	11.9	311.2	3.5	342.9	327	175
		12		R 58	381	22.2	38.1	17.5	311.2	3.5	342.9	327	175
			12	R 60	406.4	31.7	49.2	23	311.2	3.5	342.9	327	200
14 0D				R 61	419.1	11.1	27	11.9	343	5	374.6	358.8	150
	14 0D			R 62	419.1	15.9	31.7	14.3	343	5	374.6	358.8	175
		14 0D		R 63	419.1	25.4	27	19.8	343	5	374.6	358.8	175
16 0D				R 65	469.9	11.1	27	11.9	393.7	5	425.4	409.6	150
	16 0D			R 66	469.9	15.9	31.7	14.9	393.7	5	425.4	409.6	200
		16 0D		R 67	469.9	28.6	46	21.4	393.7	5	425.4	409.6	200
18 0D				R 69	533.4	11.1	27	11.9	444.5	5	476.2	460.4	175
	18 0D			R 70	533.4	19.1	34.9	15.9	444.5	5	476.2	460.4	200
		18 0D		R 71	533.4	28.6	46	21.4	444.5	5	476.2	460.4	200
20 0D				R 73	584.2	12.7	28.6	12.7	495.3	8	517.5	501.6	175
Dimensions: Millimetres (mm)				Ring Type Joint Orifice Plate (RTJ)						FSD – 7238			

System Dynamics Product Catalogue No. 2
Orifice Plates Product Catalogue

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