

Orifice plate with ring

Model : F200

Spec. sheet no. **FD02-01**

Description

Orifice ring assemblies are used for flow measurement of smaller or medium sized pipes at lower pressure. Each assembly consists of one orifice plate and two orifice rings. Differential pressure is taken out in a corner tap system. Orifice block, which are of a unit-construction type and provide higher pressure ratings than the orifice ring assemblies, also are available.



Specification

Orifice bore type

Concentric square edged orifice
Quadrant edged orifice
Minimum quadrant edged orifice diameter 4.5 mm
Minimum quadrant edged radius 0.5 mm

Flow calculation standards

ISO 5167-1 and 2 2003
AGA-3
ASME MFC-3M and 14M
JIS Z 8762
BS 1042

Flange ratings

JIS 5, 10, 16, and 20K
ANSI (or JPI) 150 and 300 Lb
(Note: ANSI and JPI ring dimensions are identical)

Pressure taps

Corner taps

Plate thickness

3, 6, 9 and 12 mm

Tab handle

Welded to orifice plate

Pressure tab nipples

Pipe size : 15 mm ($\frac{1}{2}$ inch), Sch 40 and 80
Length : 75 and 150 mm
Tap connections : $\frac{1}{2}$ PT and $\frac{1}{2}$ NPT male
socket welding and butt welding
flange connection

Drain and vent hole

Per ASME recommendations
Not drilled for orifice bores smaller than 25.4 mm

Markings

Upstream side of tab handle stamped "Upstream" and with bore type and size, line size, tag number and flange rating.

Special markings

Special marking may be furnished to meet special requirements

Materials

Ring and pressure tap nipple : 304SS and 316SS
Plate : 304SS, 316L SS, Monel and other
Tab handle : 304SS and 316L SS

Gaskets

Material : Non-Asbestos and Teflon
Thickness : 1.5, 2.0 and 3.0 mm

Main order

Ordering information

1. Base model

F200 Orifice plate with ring

2. Type

P2 Orifice plate with ring

3. Line size

JIS	mm	ANSI	inch	DIN	mm
J015	15A	A001	½B	D015	15A
J020	20A	A002	¾B	D020	20A
J025	25A	A003	1B	D025	25A
J040	40A	A004	1½B	D040	40A
J050	50A	A005	2B	D050	50A
J065	65A	A006	2½B	D065	65A
J080	80A	A007	3B	D080	80A
J100	100A	A008	4B	D100	100A
J125	125A	A009	5B	D125	125A
J150	150A	A010	6B	D150	150A
J200	200A	A011	8B	D200	200A
J250	250A	A012	10B	D250	250A
J300	300A	A013	12B	D300	300A
J350	350A	A014	14B	D350	350A
J400	400A	A015	16B	D400	400A
J450	450A	A016	18B	D450	450A
J500	500A	A017	20B	D500	500A
J600	600A	A018	24B	D600	600A
J700	700A	A019	28B	D700	700A
J800	800A	A020	32B	D800	800A
J000	1,000A	A021	40B	D000	1,000A
XXXX	Other				

4. Bore type

C Concentric edge
E Eccentric
Q Quadrant edge
S Segmental

5. Flange rating

JIS	ANSI	DIN
J010 JIS 10K	A010 ANSI 150 Lb	P010 PN 10
J016 JIS 16K	A020 ANSI 300 Lb	P016 PN 16
J020 JIS 20K	A030 ANSI 600 Lb	P025 PN 25
J030 JIS 30K	A040 ANSI 900 Lb	P040 PN 40
J040 JIS 40K	A050 ANSI 1,500 Lb	
J063 JIS 63K	A060 ANSI 2,500 Lb	

6. Plate material

4 304SS
6 316L SS
H Hastelloy-C
M Monel
O Other

7. Ring material

4 304SS
6 316L SS
0 Option

8. Drain / vent

D Drain (Not drilled for orifice bores smaller than 25.4 mm)
V Vent (Not drilled for orifice bores smaller than 25.4 mm)
N None

9. Options

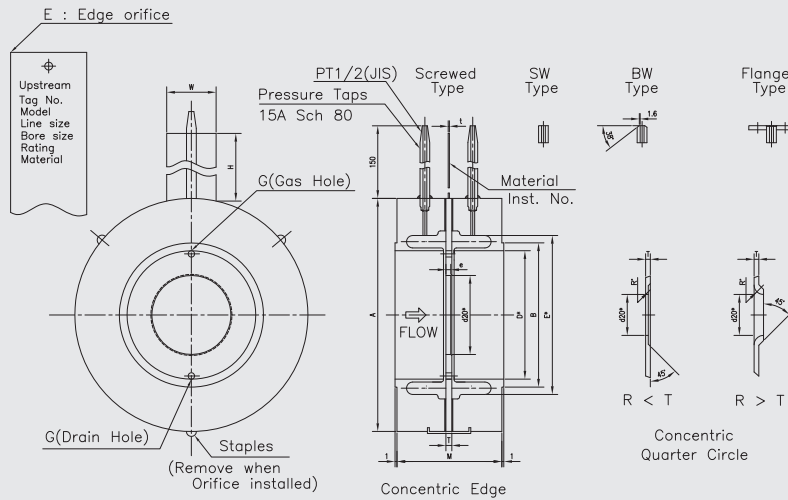
1 Nipple (75L + 150L)
2 Nipple (150L + 150L)
3 Tap valve
N None

1	2	3	4	5	6	7	8	9	Sample ordering code
F200	P2	A005	C	A020	6	4	V	2	



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Dimension



*d20 : Orifice Dia.AT 20°C : Refer to orifice calculated sheet

D : Inside dia. of ring

E : Inside dia. of gasket

Ring orifices for FOR JIS 5K Flange

UNIT : mm

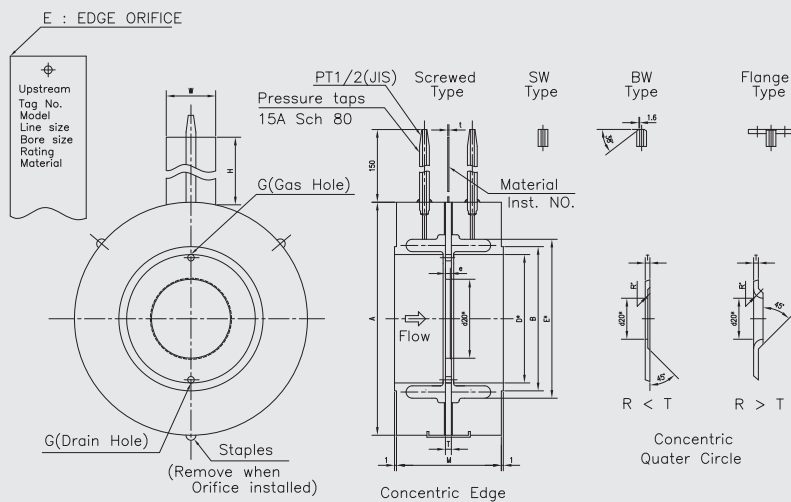
NOMINAL PIPE SIZE	OUTSIDE DIAM. OF RINGS AND PLATE A	DIAM OF GASKET STAY B	THICKNESS OF EDGES e	DIAM OF HOLE G	FACE TO FACE M	THICKNESS OF PLATE T	WIDTH OF TAB HANDLE W	HIGHT OF TAB HANDLE H	THICKNESS OF TAB HANDLE t
15	—	—	—	—	—	—	—	—	—
20	—	—	—	—	—	—	—	—	—
25	65	33	0.2~0.4	—	75	2	25	100	3
32	78	42	0.3~0.5	1.6	75	2	25	100	3
40	83	48	0.3~0.5	1.6	75	2	25	100	3
50	93	60	0.5~0.8	1.6	75	2	25	100	3
65	118	73	0.5~0.8	1.6	75	3	25	100	3
80	129	88	0.5~0.8	1.6	75	3	25	100	3
90	139	101	0.5~0.8	1.6	75	3	25	100	3
100	149	114	0.8~1.2	1.6	75	3	38	100	3
125	184	141	0.8~1.2	1.6	75	3	38	130	3
150	214	168	0.8~1.2	1.6	75	3	38	130	3
175	240	196	1.5~2.0	1.6	76	4	38	130	3
200	260	219	1.5~2.0	1.6	76	4	38	130	3
225	285	246	1.5~2.0	1.6	76	4	38	160	6
250	325	273	e = T	2.0	76	4	38	160	6
300	370	323	e = T	2.5	76	4	38	160	6

Ring orifices for JIS 10K Flange

UNIT : mm

NOMINAL PIPE SIZE	OUTSIDE DIAM. OF RINGS AND PLATE A	DIAM OF GASKET STAY B	THICKNESS OF EDGES e	DIAM OF HOLE G	FACE TO FACE M	THICKNESS OF PLATE T	WIDTH OF TAB HANDLE W	HIGHT OF TAB HANDLE H	THICKNESS OF TAB HANDLE t
15	58	21	0.2~0.3	—	75	2	25	100	3
20	63	27	0.2~0.4	—	75	2	25	100	3
25	74	33	0.2~0.4	—	75	2	25	100	3
32	84	42	0.3~0.5	1.6	75	2	25	100	3
40	89	48	0.3~0.5	1.6	75	2	25	100	3
50	104	60	0.5~0.8	1.6	75	2	25	100	3
65	124	73	0.5~0.8	1.6	75	3	25	100	3
80	134	88	0.5~0.8	1.6	75	3	25	100	3
90	144	101	0.5~0.8	1.6	75	3	25	100	3
100	159	114	0.8~1.2	1.6	75	3	38	100	3
125	190	141	0.8~1.2	1.6	75	3	38	130	3
150	220	168	0.8~1.2	1.6	75	3	38	130	3
175	245	196	1.5~2.0	1.6	76	4	38	130	3
200	270	219	1.5~2.0	1.6	76	4	38	130	3
225	290	246	1.5~2.0	1.6	76	4	38	160	6
250	333	273	e = T	2.0	76	4	38	160	6
300	378	323	e = T	2.5	76	4	38	160	6

Dimension



*d20 : Orifice Dia.AT 20°C : Refer to orifice calculated sheet

D : Inside dia. of ring

E : Inside dia. of gasket

Ring orifices for JIS 16K 20K Flange

UNIT : mm

Nominal Pipe Size	Outside Dia. of Rings and Plate A	Dia. of Gasket Stry B	Thickness of Edges e	Dia. of Hole G	Face to Face M	Thickness of Pigle T	Width of Tab Handle W	Height of Tab Handle H	Thickness of Tab Handle t
15	58	21	0.2~0.3	—	75	2	25	100	3
20	63	27	0.2~0.4	—	75	2	25	100	3
25	74	33	0.2~0.4	—	75	2	25	100	3
32	84	42	0.3~0.5	1.6	75	2	25	100	3
40	89	48	0.3~0.5	1.6	75	2	25	100	3
50	104	60	0.5~0.8	1.6	75	2	25	100	3
65	124	73	0.5~0.8	1.6	75	3	25	100	3
80	140	88	0.5~0.8	1.6	75	3	25	100	3
90	150	101	0.5~0.8	1.6	75	3	25	100	3
100	165	114	0.8~1.2	1.6	75	3	38	100	3
125	203	141	0.8~1.2	1.6	75	3	38	130	3
150	238	168	0.8~1.2	1.6	75	3	38	130	3
200	283	219	1.5~2.0	1.6	76	4	38	130	3
250	356	273	e = T	2.0	76	4	38	130	3
300	406	323	e = T	2.5	76	4	38	160	6

Ring orifices JIS ^{ANSI}_{JPI} 150 Lb Flange

UNIT : mm

Nominal Pipe Size	Outside Dia. of Flange and Plate A	Dia. of Gasket Stud B	Thickness of Edge e	Dia. of Hole G	Face to Face M	Thickness of Plate T	Width of Tab Handle W	Height of Tab Handle H	Thickness of Tab Handle t
1/2	—	—	—	—	—	—	—	—	—
3/4	—	—	—	—	—	—	—	—	—
1	66.7	33	0.2-0.4	—	75	2	25	100	3
1 1/4	76.2	42	0.3-0.5	1.6	75	2	25	100	3
1 1/2	85.7	48	0.3-0.5	1.6	75	2	25	100	3
2	104.8	60	0.5-0.8	1.6	75	2	25	100	3
2 1/2	123.8	73	0.5-0.8	1.6	75	3	25	100	3
3	136.5	88	0.5-0.8	1.6	75	3	25	100	3
3 1/2	161.9	101	0.5-0.8	1.6	75	3	25	100	3
4	174.6	114	0.8-1.2	1.6	75	3	38	100	3
5	196.9	141	0.8-1.2	1.6	75	3	38	130	3
6	222.3	168	0.8-1.2	1.6	75	3	38	130	3
8	279.4	219	1.5-2.0	1.6	76	4	38	130	3
10	339.7	273	e = T	2.0	76	4	38	130	3
12	409.6	323	e = T	2.5	76	4	38	160	6