Orifice plate
Model : F100

Spec. sheet no. FD01-01

Description

Orifice plates are widely used for flow measurement as they provide the simplest and the most economical means of flow detection. Orifice plates are available in the concentric type that the round opening (Bore) of the orifice plate is positioned concentrically with the center of the pipe and the opening edge (Bore edge) is available either in the concentric square edge type (Sharp, square edge type) or in the quadrant edge type (Round edge type). Orifice plates are also available in the eccentric type that the opening of the orifice is shifted from the center of the pipe. They also are available in the segmental type that the opening is a circular segment and the orifice is comparable to a partially opened gate valve.

Specification

Orifice bore type
Concentric square edged orifice
Quadrant edged orifice
Eccentric orifice
Segmental orifice

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

Flange ratings
JIS 10, 16, 20, 30, 40, and 63K
ANSI class 150, 300, 600, 900, 1,500 and 2,500 Lb

Pressure taps
Flange taps
Corner taps
1D and ½D (Radius) taps
Pipe taps (2½D and 8D)

Plate thickness
3, 6, 9, 12 mm and Over

Plate material
Standard : 304SS and 316L SS
Non-standard : Monel, Hastelloy C, Teflon and etc.

Drain and vent hole
Per ASME/ISA 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 requirement

Orifice plate application summary

Flowmeter		Pipe size in (mm)	Gases (Vapors)		Liquid				Slurries	
			Clean	Dirty	Clean	Viscous	Dirty	Corrosive	Fiborous	Abrasive
Orifice	Concentric - Square edged	>1½ (40)	O	X	O	X	▲	▲	X	X
	Meter tun	0.5 ~ 1.5 (15 ~ 40)	O	X	O	▲	X	▲	X	X
	Quadrant edge	>1½ (40)	X	X	O	O	▲	▲	X	X
	Eccentic	>2 (50)	▲	O	▲	X	X	▲	X	X
	Segmantal	>4 (100)	▲	O	▲	X	X	▲	X	X

Main order — Ordering information

1. Base model

F100	Orifice plate

2. Line size

A01	½"	**J01**	15A
A02	¾"	**J02**	20A
A03	1"	**J03**	25A
A04	1½"	**J04**	40A
A05	2"	**J05**	50A
A06	3"	**J06**	80A
A07	4"	**J07**	100A
A08	6"	**J08**	150A
A09	8"	**J09**	200A
A10	10"	**J10**	250A
A11	12"	**J11**	300A
A12	14"	**J12**	350A
A13	16"	**J13**	400A
A14	18"	**J14**	450A
A15	20"	**J15**	500A
A16	24"	**J16**	600A
ZZZ	Other		

3. Connection

A01	150Lb RF	**J01**	10K RF
A02	300Lb RF	**J02**	16K RF
A03	600Lb RF	**J03**	20K RF
A04	900Lb RF	**J04**	30K RF
A05	1500Lb RF	**J05**	40K RF
A06	2500Lb RF	**J06**	63K RF
A11	150Lb FF	**J11**	10K FF
A12	300Lb FF	**J12**	16K FF
A13	600Lb FF	**J13**	20K FF
A14	900Lb FF	**J14**	30K FF
A15	1500Lb FF	**J15**	40K FF
A16	2500Lb FF	**J16**	63K FF
ZZZ	Other		

4. Element type

1	Concentric
2	Quadrant
3	Conditioning
4	Eccentric
5	Segmental
O	Other

5. Element material

6	316L SS
O	Other

6. Drain / Vent hole

D	Drain hole
V	Vent hole
N	None (Bore size < 25.4 mm or Required)

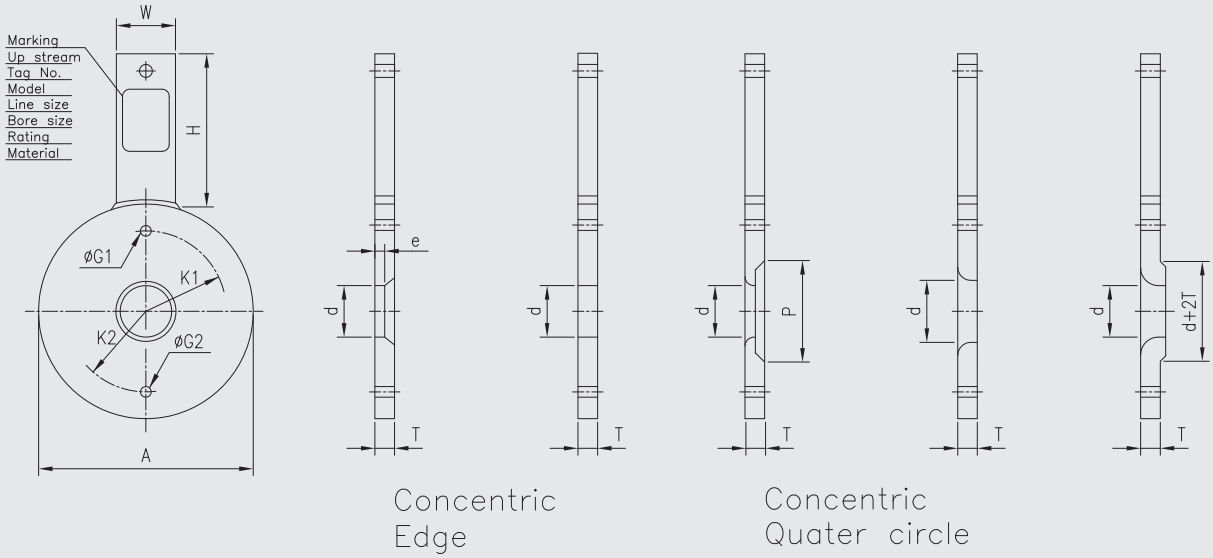
7. Option

C	Calibration test
O	Other
N	None

Sample ordering code

1	2	3	4	5	6	7
F100	**A01**	**A01**	**1**	**6**	**D**	**C**

Dimension



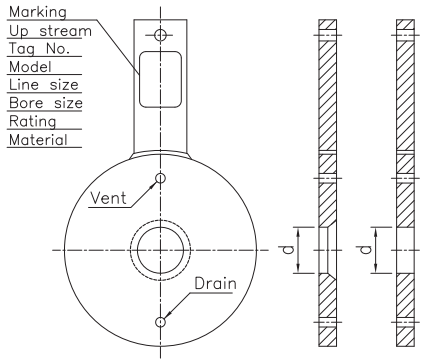
* d, K1, K2, G1, G2 : Reter to Specification Sheet

unit : mm

Nominal Dia	Plate O.D.A						Plate THK' T	Edge e	Tap Handle	
	150Ld	300Ld	600Ld	900Ld	1500Ld	2500Ld			W	H
1/2B	47.8	53.8	53.8	63.6	63.6	69.9	3.0	–	25	95
3/4B	57.3	66.7	66.7	69.9	69.9	76.3	3.0	–	25	95
1B	66.5	73.0	73.0	79.4	79.4	85.8	3.0	0.5	25	95
1–1/2B	85.8	95.3	95.3	98.6	98.6	117.5	3.0	0.5	25	95
2B	104.6	111.1	111.1	142.8	142.8	146.1	3.0	0.5	25	95
2–1/2B	123.6	130.4	130.4	165.1	165.1	168.3	3.0	0.5	25	95
3B	136.6	149.1	149.1	168.3	174.6	196.9	3.0	1.0	25	95
4B	174.6	181.0	193.7	206.4	209.6	235.0	3.0	1.0	38	120
5B	197.0	216.0	241.5	247.7	260.4	279.5	3.0	1.5	38	120
6B	222.5	250.7	266.7	288.9	282.6	317.5	3.0	1.5	38	120
8B	279.5	308.0	320.7	358.8	352.4	387.4	3.0	1.5	38	120
10B	339.8	361.9	400.1	435.0	435.0	476.5	6.0	–	38	140
12B	409.8	422.3	457.3	498.5	520.7	549.5	6.0	–	38	140
14B	450.6	485.8	492.2	520.0	577.9	–	6.0	–	38	140
16B	514.1	539.8	565.2	574.7	641.4	–	6.0	–	38	160
18B	549.4	597.0	612.8	637.9	704.9	–	9.0	–	38	160
20B	606.4	654.1	682.6	698.5	755.7	–	9.0	–	38	190
22B	660.5	704.9	733.5	–	–	–	9.0	–	38	190
24B	717.8	774.7	790.6	838.2	901.7	–	9.0	–	38	190

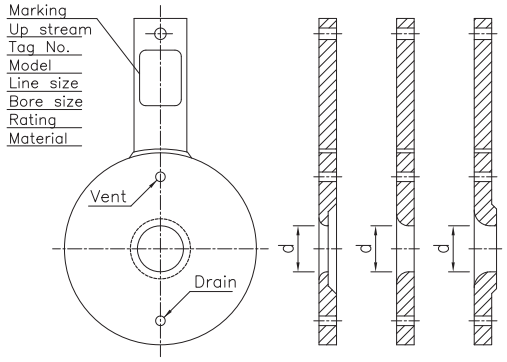
Concentric orifice plate

Simple-structured with high precision, this orifice plate can be easily mounted and dismounted. In strict conformance with applicable standards, it is precisely finished to have required shape, size, surface, roughness and flatness.
For differential pressure measurement, it is combined with flange taps or corner taps.



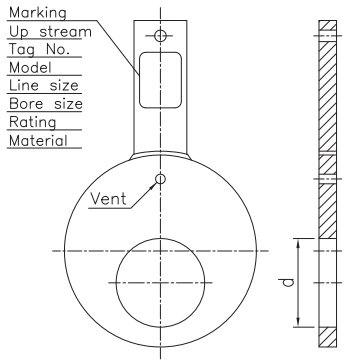
Quadrant edge orifice plate

The inlet edge of the bore of this orifice plate is rounded with a radius of a quarter circle. This orifice plate is principally used for measuring flow rates of low reynolds numbers.
Flange taps or corner taps are used.



Eccentric orifice plate

For liquids containing solid particles that are liable to settle, or for vapors liable to deposit water condensate, this orifice plate is installed with its eccentric bore bottom flush with the bore bottom of the piping, so that the sedimentation of such inclusions is avoided, Likewise, for gases or vapors, it may be installed with its eccentric bore top flush with the bore top of the piping to avoid the stay of gas or vapor in its vicinity.
Flange taps are used with.



Segmental orifice plate

The vertical section of the bore of this orifice plate is a semicircle to perform the same function as the eccentric orifice plate. Used for the similar purposes. Flange taps are employed to take out fluid pressures.