

➤ Orifice Plates

Model : WZ 100 Series

○ 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 opening gate valve.



Orifice plates can be installed directly to flange of pipe, flow measurement by this orifice plates with rings, and it is generally suited for large diameter pipe. As for large diameter pipes of 24 inch (600 mm) or greater, these orifice plates are used to measure average of pressure by marking some differential pressure tapping holes around the pipe and connecting there to loop from pressure equalizing pipe.

○ SPECIFICATION

■ Orifice Bore Type :

- Concentric Square Edged Orifice
- Quadrant Circle Edged
- Eccentric Square Edge
- Segmental Square Edge

■ Flow Calculation Standards :

- ISO 5167, AGA report #3
- ASME MFC 3M, 14M
- Gulf Inst (R.W Miller)

■ Flange Rating :

- ANSI Class 300, 600, 900, 1500, 2500.

■ Plate Thicknesses :

- 3.0, 6.0, 9.0, 12.0, 15.0mm

■ Pressure Taps :

- Flange Taps
- Corner Taps
- Vena Contracta taps
- 1D and 1/2D (Radius) Taps

■ Markings :

- Upstream side of tab handle stamped "UPSTREAM" and with Model No, Tag No, Line size & rating, bore size, Orifice material and serial No.

■ Plate Material :

- Standard : 316LSS
- Special : Monel, Hastelloy C, Titanium etc.

■ Vent & Drain Hole :

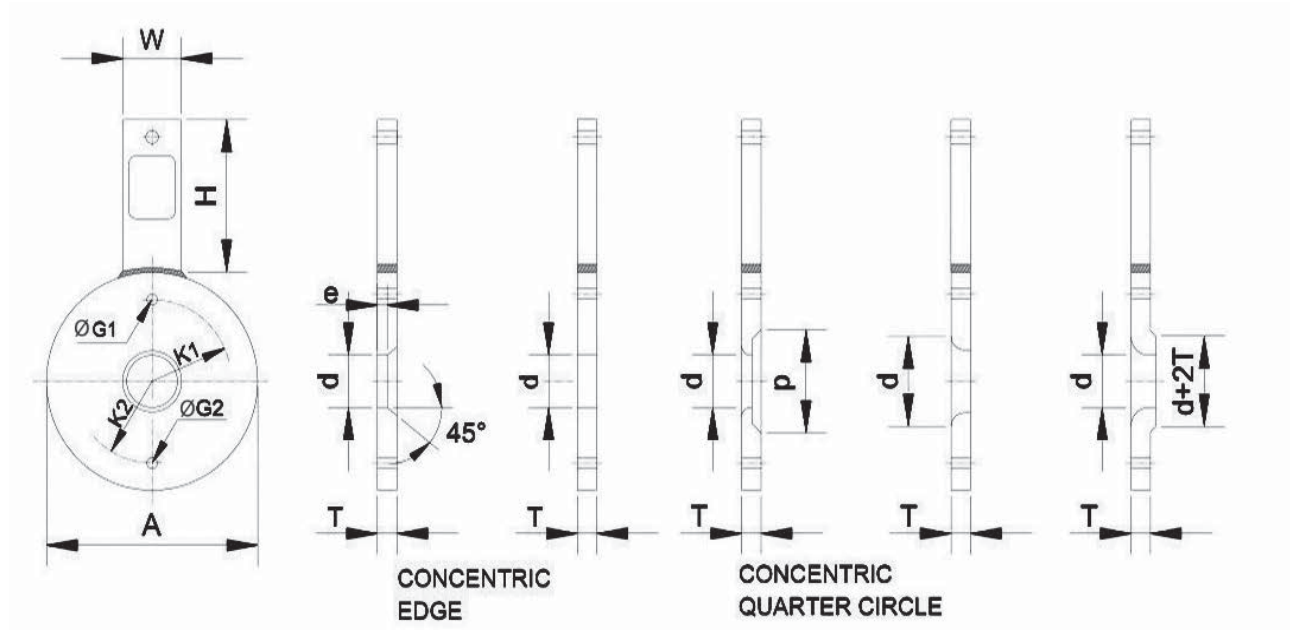
- Not drilled for orifice bores smaller than 25.4mm.

○ ORIFICE PLATE APPLICATION SUMMARY

Orifice Bore Type	Fluid Type					Nominal line size normally used	
	Gas (Vapor)		Liquid				
	Clean	Dirty	Clean	Dirty	Viscous	inch	mm
Concentric Square Edge	E	X	E	O	X	1-1/2" to 60"	40 to 1500
Concentric Quadrant Edge	X	X	E	O	E	1-1/2" to 10"	40 to 250
Eccentric Square Edge	O	O	O	E	X	4" to 14"	100 to 350
Segmental Square Edge	O	O	O	E	X	4" to 14"	100 to 350

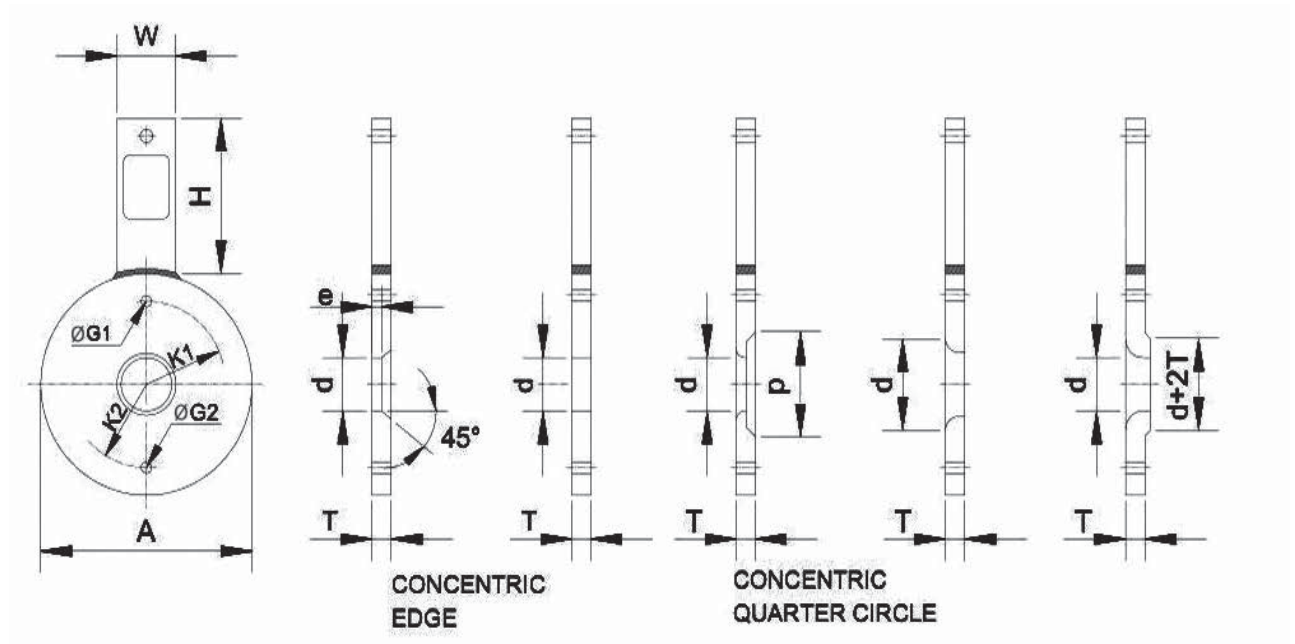
Notes E : Designed for this application O : Norminally applicable for this applicable X : Not designed for this applicable

DIMENSION



Nominal Pipe size	Plate Outdia A						Plate Thick. T	Edge e	Tap handle	
	150#	300#	600#	900#	1500#	2500#			W	H
1/2 B	47.8	53.8	53.8	63.6	1/2	69.9	3.0	1/2	25	95
3/4 B	57.2	66.7	66.7	69.9	3/4	76.3	3.0	3/4	25	95
1 B	66.5	73.0	73.0	79.4	1	85.8	3.0	1	25	95
1-1/2 B	85.9	95.3	95.3	98.6	1-1/2	117.5	3.0	1-1/2	25	95
2 B	104.8	111.1	111.1	142.9	2	146.1	3.0	2	25	95
2-1/2 B	123.8	130.4	130.4	165.1	2-1/2	168.3	3.0	2-1/2	25	95
3 B	136.5	149.1	149.1	168.3	3	196.9	3.0	3	25	95
4 B	174.6	181.2	193.8	206.4	4	235.0	3.0	4	38	120
5 B	197.0	216.0	241.5	247.7	5	279.5	3.0	5	38	120
6 B	222.3	250.7	266.7	288.9	6	317.5	3.0	6	38	120
8 B	279.5	308.0	320.7	358.8	8	387.4	3.0	8	38	120
10 B	339.8	362.0	400.1	435.0	10	476.5	6.0	10	38	140
12 B	409.6	422.3	457.3	498.5	12	549.5	6.0	12	38	140
14 B	450.9	485.9	492.2	520.7	14	-	6.0	14	38	140
16 B	514.4	539.8	565.2	574.7	16	-	6.0	16	38	160
18 B	549.3	597.0	612.8	638.2	18	-	9.0	18	38	160
20 B	606.4	654.1	682.6	698.5	20	-	9.0	20	38	190
24 B	717.6	774.7	790.6	838.2	24	-	9.0	24	38	190

DIMENSION

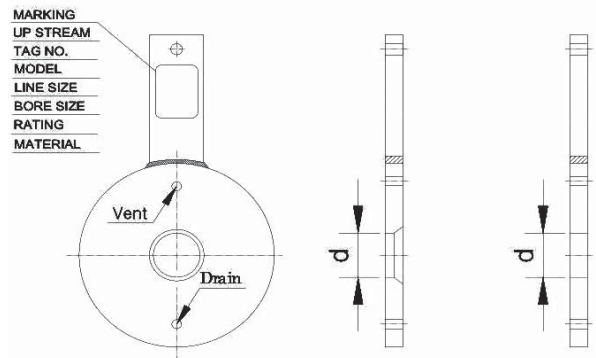


Nominal Pipe size	Plate Outdia A						Plate Thick.T	Edge e	Tap handle	
	10K	16K	20K	30K	40K	63K			W	H
15 A	58.0	58.0	58.0	64.0	64.0		3.0	-	25	95
20 A	63.0	63.0	63.0	69.0	69.0		3.0	-	25	95
25 A	74.0	74.0	74.0	79.0	79.0		3.0	0.5	25	95
40 A	89.0	89.0	89.0	100.0	100.0		3.0	0.5	25	95
50 A	104.0	104.0	104.0	114.0	114.0		3.0	0.5	25	95
65 A	124.0	124.0	124.0	140.0	140.0		3.0	0.5	25	95
80 A	134.0	140.0	140.0	150.0	150.0		3.0	1.0	25	95
100 A	159.0	165.0	165.0	173.0	183.0		3.0	1.0	38	120
125 A	190.0	203.0	203.0	208.0	226.0		3.0	1.5	38	120
150 A	220.0	238.0	238.0	251.0	265.0		3.0	1.5	38	120
200 A	270.0	283.0	283.0	296.0	315.0		3.0	1.5	38	120
250 A	333.0	356.0	356.0	360.0	380.0		6.0	-	38	140
300 A	378.0	406.0	406.0	420.0	-		6.0	-	38	140
350 A	423.0	450.0	450.0	465.0	-	-	6.0	-	38	140
400 A	486.0	510.0	510.0	524.0	-	-	6.0	-	38	160
450 A	541.0	575.0	575.0	-	-	-	9.0	-	38	160
500 A	596.0	630.0	630.0	-	-	-	9.0	-	38	190
550 A	596.0	684.0	684.0	-	-	-	9.0	-	38	190
600 A	700.0	734.0	734.0	-	-	-	9.0	-	38	190
650 A	750.0	784.0	805.0	-	-	-	9.0	-	38	210
700 A	810.0	836.0	855.0	-	-	-	12.0	-	38	210
750 A	870.0	896.0	918.0	-	-	-	12.0	-	38	210
800 A	920.0	950.0	978.0	-	-	-	12.0	-	38	230
1000 A	1124.0	1158.0	-	-	-	-	12.0	-	38	230

○ CONCENTRIC ORIFICE PLATE

Simple-structured with high precision, this orifice plate can be easily mounted and dismantled. In strict conformance with applicable standards, it is precisely finished to have required sharp, size, surface, roughness and flatness.

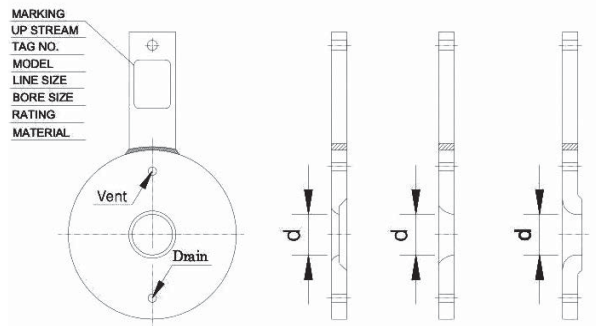
For differential pressure measurement, it is combined with flange taps, vena contract taps or corner taps, radius taps.



○ QUARTER-CIRCLE 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.

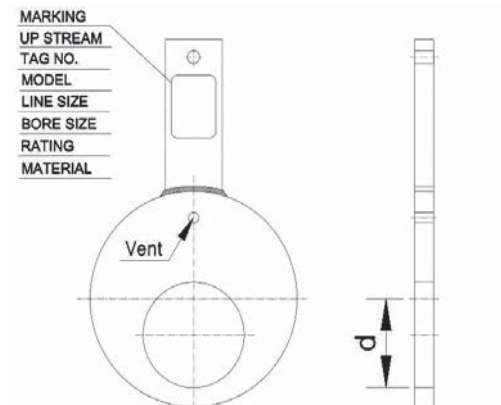
Flange taps or corner taps are used.



○ 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 or 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 gases or vapor in its vicinity.

Flange taps or vena contract 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 this eccentric orifice plate.

Used the similar purposes, Flange taps or vena contract taps are employed to take out fluid pressures.

