

## Tab Handled Orifice Plates

- Design to BS EN ISO 5167
- Range of Orifice Types
  - Concentric Square Edge
  - Conical Entrance
  - Quarter Circle
  - Segmental
  - Eccentric
- 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.

### Dimensions

The outside diameter of the orifice plate is equal to the bolt circle diameter of the connecting flanges minus the diameter of the bolt. This ensures that the plate is centred accurately in the line.

Plate thicknesses depend on line size and differential pressure, and should be sufficient to prevent the plate from bending under operating conditions. Recommended plate thicknesses are shown in Figure 1.

Thermocouple Instruments Ltd standard plate dimensions are shown in Figure 2. Orifice plates can be made in accordance with customer drawings as required.

Pipe Diameter	Standard Plate Thickness (mm) for Differential Pressure $\Delta P$		
	$\Delta P = 250$ mbar	$\Delta P = 251 - 500$ mbar	$\Delta P = 501 - 2500$ mbar
$D \leq 150$ mm	3	3	3
$200 \leq D \leq 250$	3	3	6
$300 \leq D \leq 500$	6	6	10
$600 \leq D \leq 900$			
$\beta \leq 0.5$	10	10	12
$\beta > 0.5$	6	10	12

Figure 1 - Recommended Orifice Plate Thicknesses



Measuring the Orifice Diameter

### Materials

Standard material grades include 316 Stainless Steel, 304 Stainless Steel, 310 Stainless Steel, Hastelloy<sup>®</sup> C276, Hastelloy<sup>®</sup> B3, Duplex Stainless Steel, Super Duplex Stainless Steel, Monel<sup>®</sup> 400, Carbon Steel, Titanium, Incoloy<sup>®</sup> 800, Incoloy<sup>®</sup> 825, Inconel<sup>®</sup> 600, Inconel<sup>®</sup> 625, Tantalum, PTFE and PVDF.

Please contact the sales office for other grades.

### Orifice Bore Sizing

Orifice calculations are performed to the latest revision of BS EN ISO 5167, when requested.

Refer to Technical Data Sheet TD-FM/QU1A for data required for calculation.

The Thermocouple Instruments Ltd sizing program, DPCalc, is also available for purchase. Refer to Product Data Sheet FM-SW/DPCA.

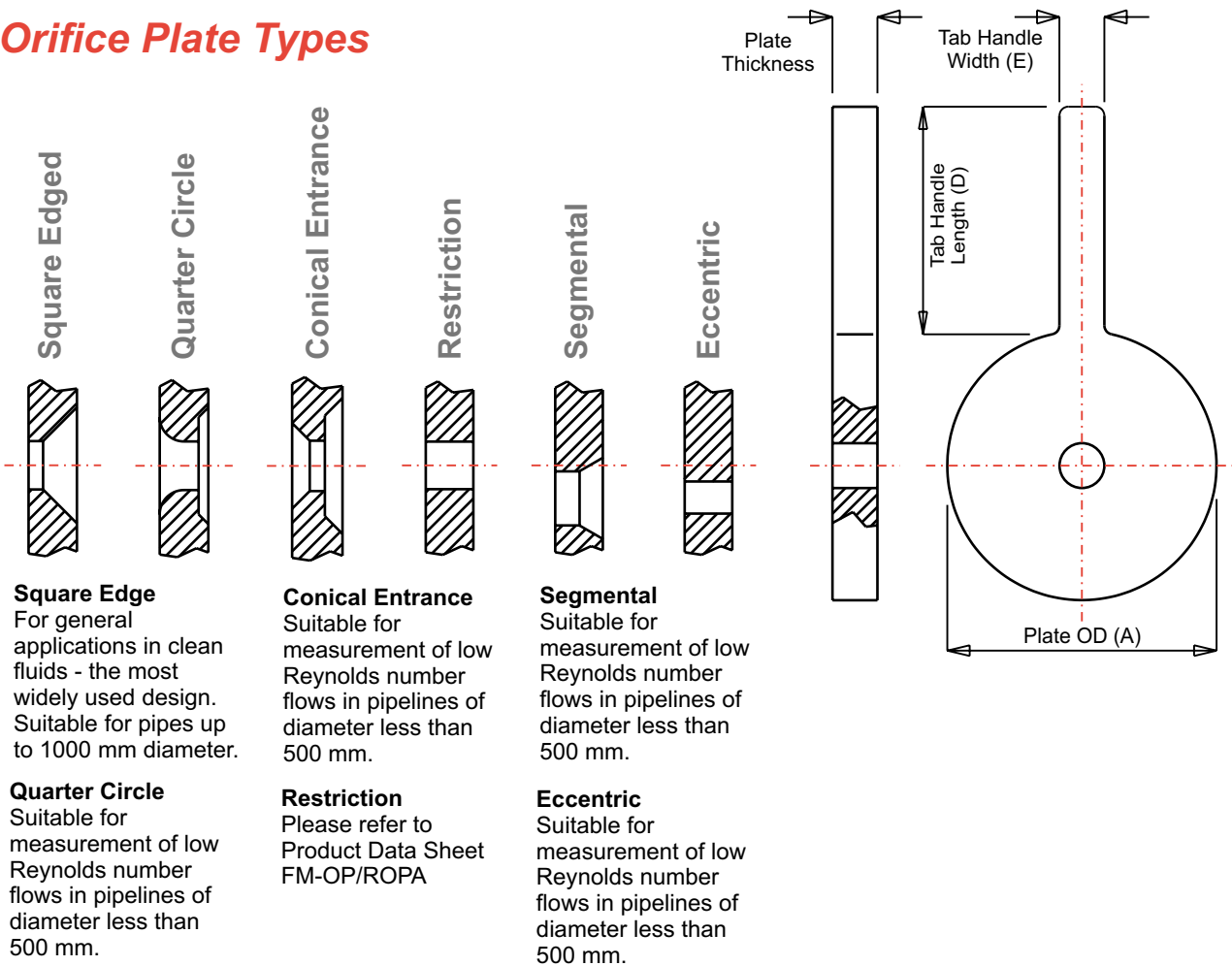
### Orifice Carrier Assemblies

Orifice plates can be supplied complete with one or two piece orifice carriers, or ANSI B16.36 orifice flanges.

Orifice meter runs are also available.

See individual Product Data Sheets for further details.

## Orifice Plate Types



NOMINAL LINE SIZE		150 LB			300 LB			400 LB			600 LB			900 LB			1500 LB			2500 LB		
mm	IN	A	D	E	A	D	E	A	D	E	A	D	E	A	D	E	A	D	E	A	D	E
15	1/2"	47.6	125	25	54	125	28	54	125	28	54	125	28	63.5	125	32	63.5	125	32	69.9	125	32
20	3/4"	57.2	125	32	66.7	125	32	66.7	125	32	66.7	125	32	69.9	125	32	69.9	125	32	76.2	125	32
25	1"	66.7	125	32	73	125	32	73	125	32	73	125	32	79.4	125	32	79.4	125	32	85.7	150	32
30	1 1/4"	76.2	125	32	82.6	125	32	82.6	125	32	82.6	125	32	88.9	125	32	88.9	125	32	104.8	150	32
40	1 1/2"	85.7	125	32	95.3	125	32	95.3	125	32	95.3	125	32	98.4	125	32	98.4	125	32	117.5	150	32
50	2"	104.8	125	32	111.1	125	28	111.1	125	28	111.1	125	28	142.9	150	32	142.9	150	32	146	150	32
65	2 1/2"	123.8	125	32	130.2	125	32	130.2	125	32	130.2	125	32	165.1	150	32	165.1	150	32	168.3	150	32
80	3"	136.5	125	32	149.2	125	32	149.2	125	32	149.2	125	32	168.3	150	32	174.6	150	32	196.9	150	32
100	4"	174.6	150	32	181	150	32	177.8	150	32	193.7	150	32	206.4	150	32	209.6	150	32	235	150	32
125	5"	196.9	150	32	215.9	150	32	212.7	150	32	241.3	150	32	247.7	150	32	254	150	32	279.4	175	32
150	6"	222.3	150	32	250.8	150	32	247.7	150	32	266.7	150	32	288.9	150	32	282.6	150	32	317.5	175	32
200	8"	279.4	150	32	308	150	32	304.8	150	32	320.7	150	32	358.8	175	32	352.4	175	32	387.4	175	32
250	10"	339.7	150	32	362	150	32	358.8	150	32	400	150	32	435	175	32	435	175	32	476.3	200	32
300	12"	409.6	150	32	422.3	150	32	419.1	150	32	457.2	150	32	498.5	175	32	520.7	175	32	549.3	200	32
350	14"	450.9	150	32	485.8	150	32	482.6	150	32	492.1	150	32	520.7	175	32	577.9	175	32	-	-	-
400	16"	514.4	150	32	539.8	150	32	536.6	150	32	565.2	150	32	574.7	200	32	641.4	200	32	-	-	-
450	18"	546.1	175	32	593.7	175	32	587.4	175	32	609.6	175	32	635	200	32	701.7	200	32	-	-	-
500	20"	603.3	175	32	650.9	175	32	644.5	175	32	679.5	175	32	695.3	200	32	752.5	200	32	-	-	-

Figure 2 - Standard Orifice Plate Dimensions for ANSI Flanges

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