

ORIFICE FLOW SENSORS

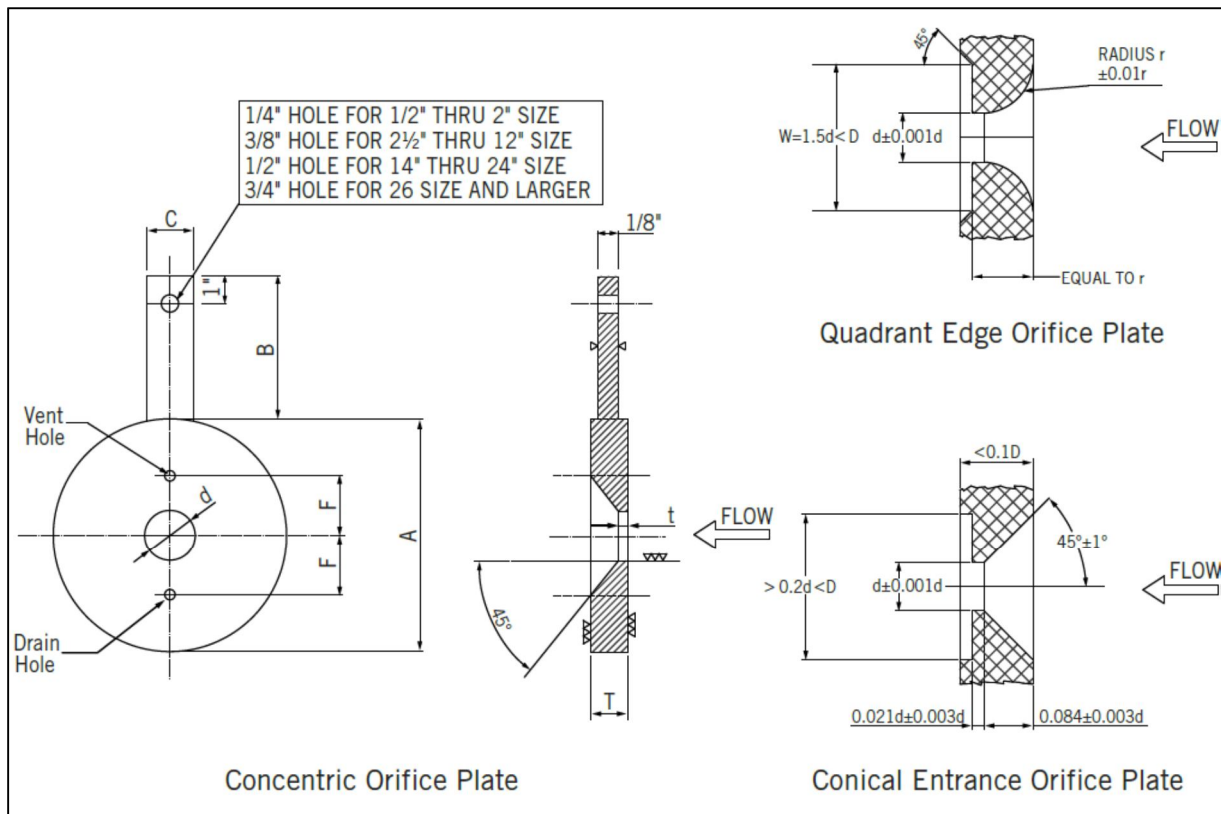
All the Bass Instrument orifice unions are manufactured according to the software by Flow Soft inc. The following is a list of commonly used standards and references used in flow measurement calculations;

- Flow Measurement Engineering Handbook. 2nd edition. R.W. Miller.
- Principles and practice of Flow Meter Engineering. 9th edition. L.K. Spink.
- Fluid Meters, Their Theory and Application. 6th edition, Howard S. Bean.
- Measurement of Fluid Flow in Pipes Using Orifice, Nozzle, and Venturi, ASME MFC-3M-1985.
- Measurement of fluid flow by means of pressure differential devices- Orifice plates, inserted in circular cross section conduits running full, ISO 5167-2-2003.
- Orifice Metering of Natural Gas and Other Related Hydrocarbon Fluids, AGA Report 3, API 2000,2003.

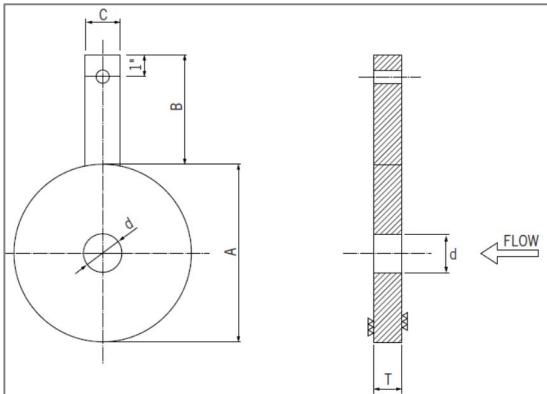


Technical Data

- Orifice Plate Series** : Restriction plate. Concentric orifice plate.
 Quadrant edge orifice plate.
 Conical entrance orifice plate. Large and small orifice plate.
 Eccentric orifice plate. Segmental orifice plate. Ring-joint orifice plate.
 Screw type ring-joint orifice plate. Corner type plate.
- Orifice Tap Series** : (a) flange taps. radius or D-D/2 taps, vena contract taps. and pipe taps.
 (b) corner tap-individual pressure tap and annular slot design.
- Orifice Flange Series** : 1. Raised face (RF type) 2. Ring-Joint (RJ type) 3. Slip-on (SO type) 4.Thread type



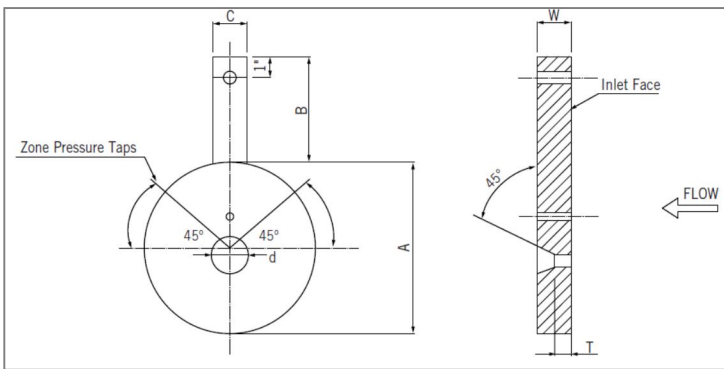
Restriction Plate



Segmental Plate



Eccentric Plate

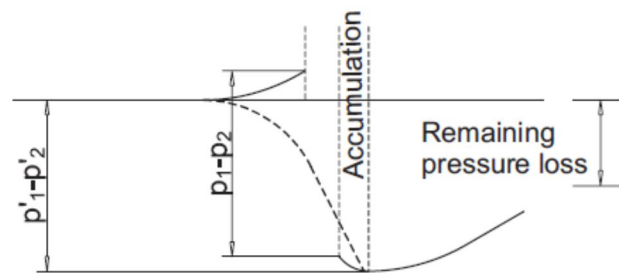
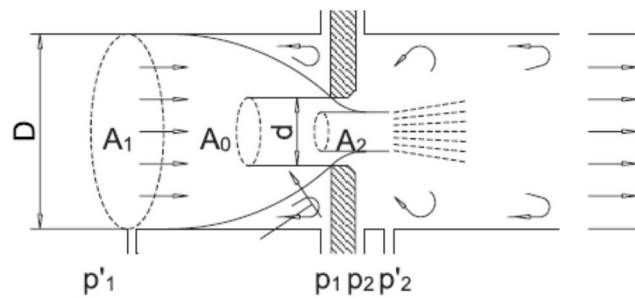


Measuring Principle

The principle of measuring the differential pressure is based on the fact that a differential pressure is created across that section of a pipe where its cross section is reduced. This is then taken as a measure for the flow. For the differential pressure produced (differential pressure p at the point where the pressure is read) and the flow q , the flowing equation applies:

$$q = k \cdot \sqrt{\Delta p}$$

This principle of measurement is so popular because related terms, definitions and equipment characteristics have been laid down by way of standards already at a very early stage. The agreement between theoretical calculations and measured values has been proven through comprehensive experiments. This has been the basis for wide-spread acceptance throughout the industry. Today, about 50% of all flow meters rely on the principle of measuring the differential pressure.



Pressure level in the middle of the pipe (dashed) at the wall of the pipe (solid)

Ordering Information

Individual Specification		Requirement		Requirement
1	MFR. & Model No.			
2	Service			
3	P & ID No.			
4	Type			
5	Size			
6	Pressure Taps			
7	Plate Material			
8	Plate Thickness			
9	Vent or Drain Hole			
10	Tab Handle			
11	Flange Type			
12	Flange Material			
13	Flange Rating			
14	Taps Connection			
15	Gasket Material			
16	Bolts & Nuts Material			
17	Condensate or Sealing Chamber			
18	Different Pressure			
19	Orifice Bore Diameter / Beta			
20	Hole Plugs			
21	Jack Screws			
22	Calculation STD			
Service Condition				
23		Phase		
24		Max.	Nor.	
25	Press. (kg/cm ²)	Max.	Nor.	
26	Temp. (deg C)	Max.	Nor.	
27	Max. Shut-off Dp (kg/cm ²)			
28	Diff. Pressure (kg/cm ²)	Viscosity @Cp		
29	SP. Gr. @Cp.	Mol. Wt.		
30	S.H (Deg C) or Cp/Cv	Pipe size/Sch.		
31	Viscosity @Cp			
32	Q'ty			
33	Tag No.			