

Model OP Chemical and Sanitary Industrial Oscillating Piston Meter

Technical Brief

GENERAL

Badger's positive displacement meter, Model OP is one of the most cost effective methods for metering process fluids in the chemical, pharmaceutical and food industries. The simple but efficient design of the OP meter generates high accuracy and repeatability over the entire meter flow range. Magnetic, "through the wall" transmission, prevents operator exposure to corrosive fluids and protects the fluid from external contamination.

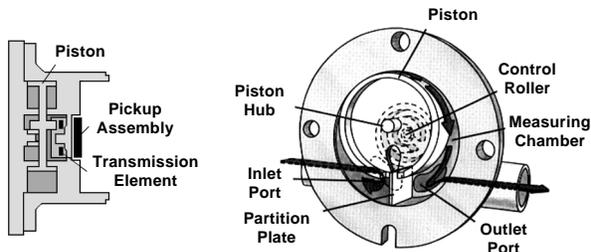
Offered in three sizes, 1/2", 1" and 2", for flows up to 100 GPM, these meters are extremely rugged, reliable and need little maintenance and calibration. With only three internal moving parts, maintenance is seldom required. If necessary, it takes but a few minutes.

All parts are designed and built of materials recommended for your application, providing you with a long life, trouble-free, precision flow meter. All sizes of the meter are offered in chemical and sanitary, (3A approved), configurations with a wide variety of end fittings to match your piping. The meter's compact design and mode of operation allows for installation in tight spaces and in any position.

To complement the OP meter line, Badger offers a complete line of accessories that includes mechanical, pneumatic, electromechanical and electronic transmitters, totalizers, indicators and batch/process controllers.

OPERATION

The meter function is based on the continuous filling and discharging of the measuring chamber (positive displacement). Controlled clearances between the piston and the chamber insure minimum gap leakage for precise measurement of each volume cycle. As the piston oscillates, its' center hub rotates a magnet, whose movement is sensed through the meter wall by electromagnetic sensors or by a follower magnet. Each revolution of the magnet is equivalent to a fixed volume of fluid, which is converted to any engineering unit of measure for totalization, indication or process control.

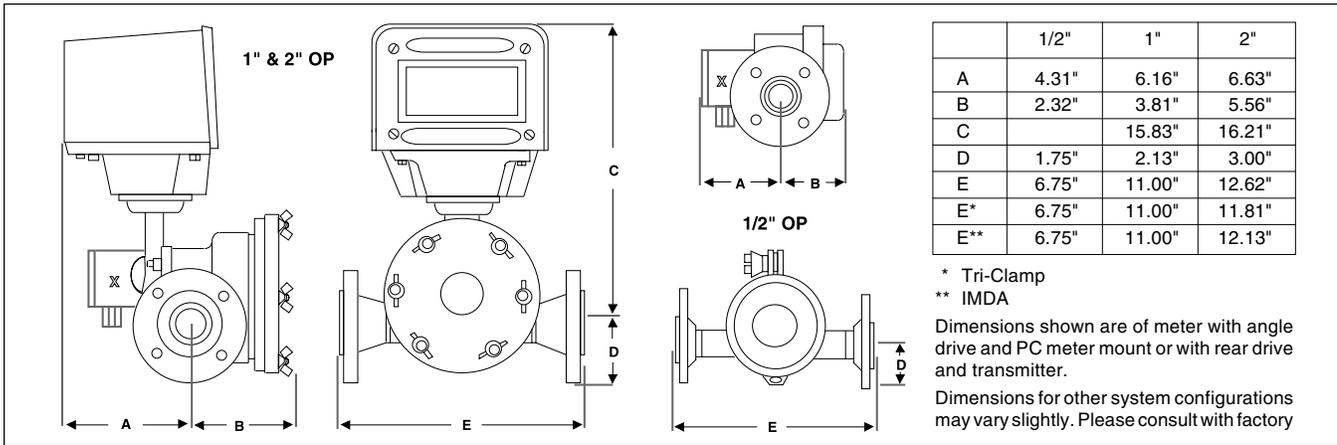


Meters shown with optional accessories.

MATERIALS OF CONSTRUCTION

ALL METER SIZES	CHEMICAL MODEL	SANITARY MODEL
HOUSING MATERIALS:	316 Stainless Steel	316 Stainless Steel
PISTON MATERIALS:	Ryton or Ultem, (one temp.) Kynar, (hi or low temp.)	Ultem, (one temp.)
"O" RING MATERIALS:	Buna N Viton Teflon EPR	Buna N Viton Teflon
BUSHING MATERIAL:	Standard: Rulon (white) Optional: Rulon (black) for abrasive applications	Rulon (white)
MAGNET CASING:	Alloy 20	Alloy 20
CONTROL ROLLER:	Alloy 20	Alloy 20

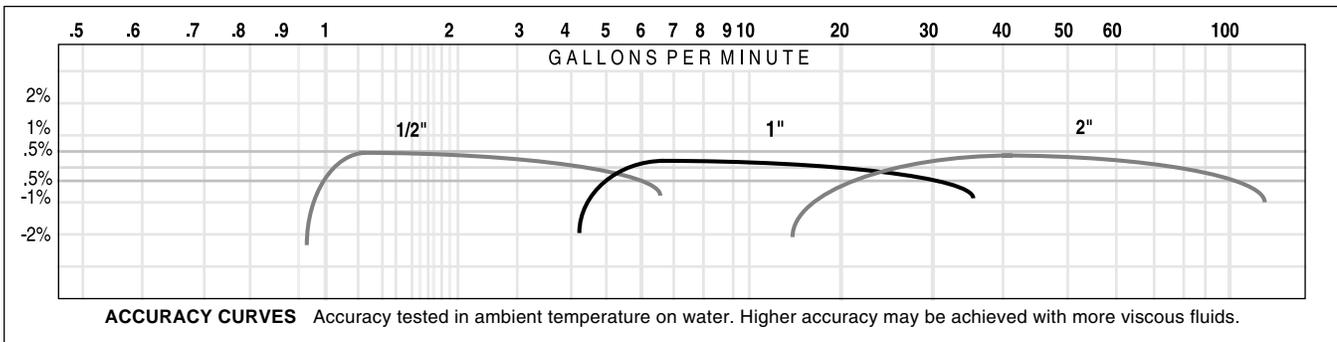




OPERATING & PERFORMANCE SPECIFICATIONS

	1/2"	1"	2"
● Minimum Flow Rate, Q Minimum:	1 gpm	5 gpm	20 gpm
● Continuous Operating Maximum Rate:	4 gpm	20 gpm	65 gpm
● Short Duration Maximum Flow, Q Maximum: Continuous operation is acceptable at these rates but accelerated wear of the piston and/or bushings may occur.	6 gpm	30 gpm	100 gpm
● Standard Flange Connections*, Chemical:	150* psi ANSI 16.5	150 psi ANSI 16.5	150 psi ANSI 16.5
	* 1/2" Chemical meter can be ordered with 1" flanges for low flow applications on 1" lines. All sizes available with optional 300 psi flanges.		
● Standard Connections, Sanitary: Sanitary OP meters have 3A approval, Uitem piston is required.	Tri-Clamp	Tri-Clamp IMDA threaded	Tri-Clamp IMDA threaded
● Pressure Drop at Maximum Continuous Operating Flow: (@ viscosity & specific gravity of water)	1.8 psi	6.3 psi	10.6 psi
	Pressure loss increases with fluid viscosity		
● Maximum Viscosity Limit:	10,000 cps (flow range is decreased as viscosity increases) - please contact factory for higher viscosities		
● Maximum Operating Pressure:	150 psi (300 psi optional)		
● Maximum Operating Temperature:	250° F		
● Minimum Operating Temperature**: **Minimum temperature for stated accuracy	40° F		
● Accuracy:	± 0.5% over entire meter flow range		
● Repeatability:	± 0.2% or better under similar repeatable batch operations		

Metric Conversion: psi x 0.0703 = BARS gpm x 3.785 = liters per minute °F - 32 x .555 = °C



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