



Accurate Measurement for High Pressure
and Wide Viscosity Applications



Badger Meter

B1750 Positive Displacement

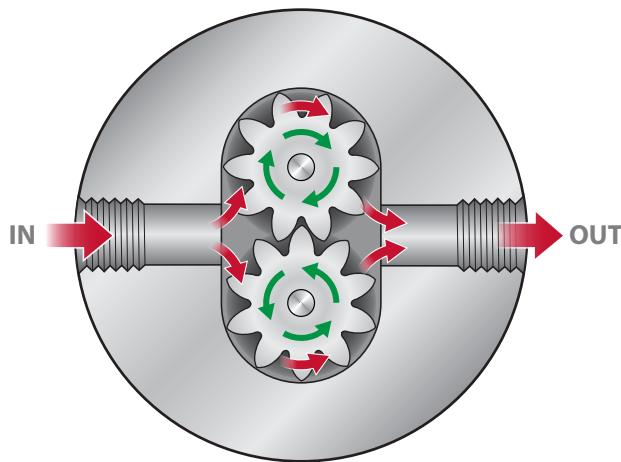
Introduction

The Blancett® Model B1750 positive displacement flow meter provides high measurement accuracy, trouble-free operation and long service life for fluids over a wide viscosity range. Applications include lubricants, fuels, chemicals and solvents, oils and greases. The B1750 meter is bi-directional (using appropriate electronics) and has an extremely large turndown ratio – up to 400:1 in some models – with full accuracy at extremely low flow rates.

- Accuracy of ± 0.5 percent of reading and repeatability of ± 0.1 percent.
- No need for additional straight run piping.
- Designed for fluids with a wide range of viscosities, as well as low flow rates.
- Available in high strength aluminum or stainless steel housing.

Operating Principle

Fluid entering the meter drives two gears. A non-intrusive sensor detects the movement of the gears and produces a sine wave pulse for each gear tooth that passes the path of the sensor face. The resulting pulse frequency is proportional to the actual flow rate, and it provides a highly accurate representation of the fluid flow. The meter is relatively insensitive to changes in viscosity and there is no need for straight run piping.



Specifications

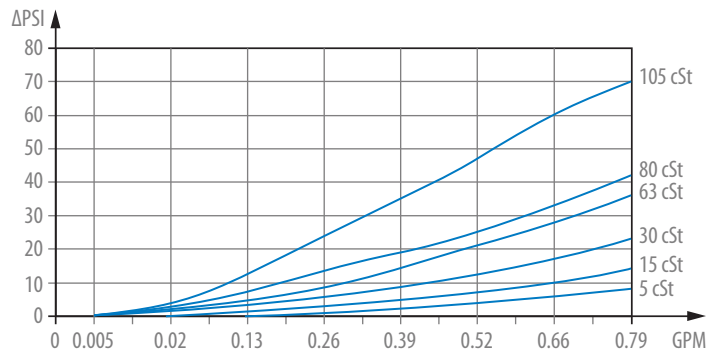
Accuracy	±0.5% over the published flow range with fluids >100 cP; over a 10:1 turndown (from maximum flow) with fluids <30 cP
Repeatability	±0.1%
Pressure Rating	5000 psi (345 bar) maximum
Operating Temperature	–20...185° F (–29...85° C) aluminum –20...400° F (–29...204° C) stainless steel
Connections	Female NPT: 1/4 in., 3/4 in. or 1-1/4 in. (depending on meter size)
Material of Construction	Stainless steel (gears and bearings)
O-ring	Teflon®, Viton® (optional)
Housing	6061-T6 aluminum or 303 stainless steel

K factor

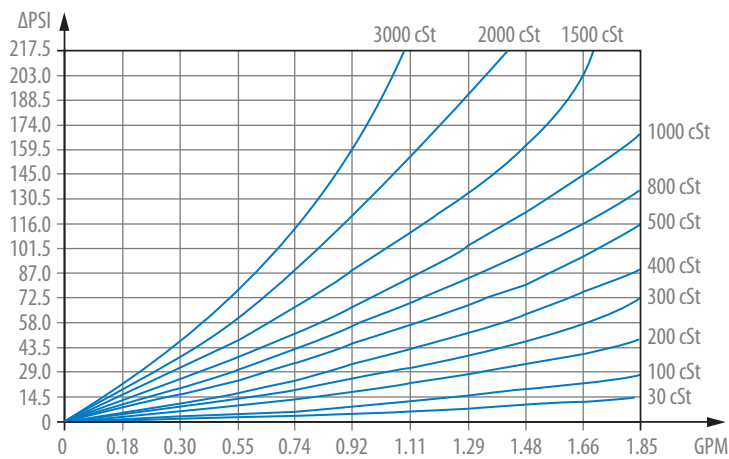
The K factor represents the number of output pulses transmitted per unit volume of liquid passing through the positive displacement meter. Each meter has a unique K factor that is determined during factory calibration. The K factor is very constant and linear over the published flow range when liquid viscosity is greater than 100 CentiPois. When liquid viscosity is less than 100 CentiPois, positive displacement meters can experience “fluid slip” in the measuring chamber due to migration of liquid around the internal moving parts. As a result, the linear (constant K factor portion) measuring range of the flow meter is reduced. At viscosities less than 30 CentiPois, positive displacement meters maintain published linearity over a 10:1 turndown range from the maximum published flow rate.

Pressure Drop vs Flow Rate

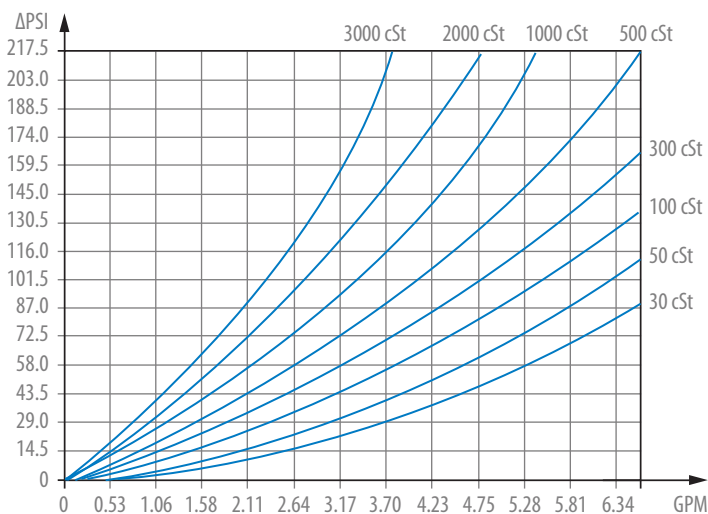
Model B175-A12/B175-S12



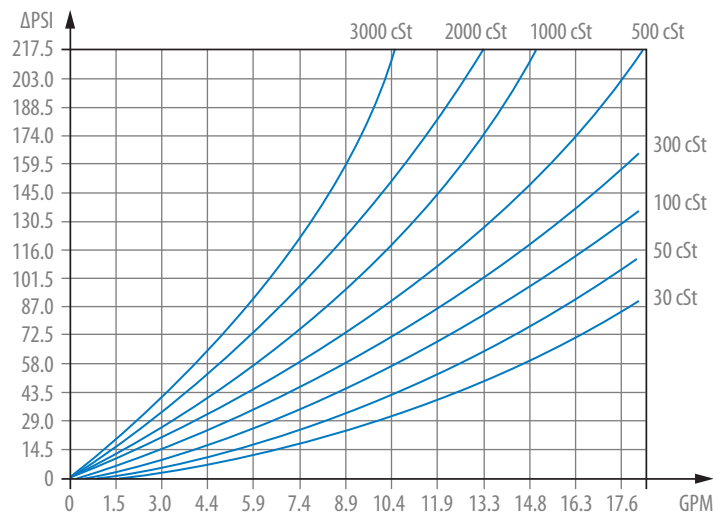
Model B175-A20/B175-S20



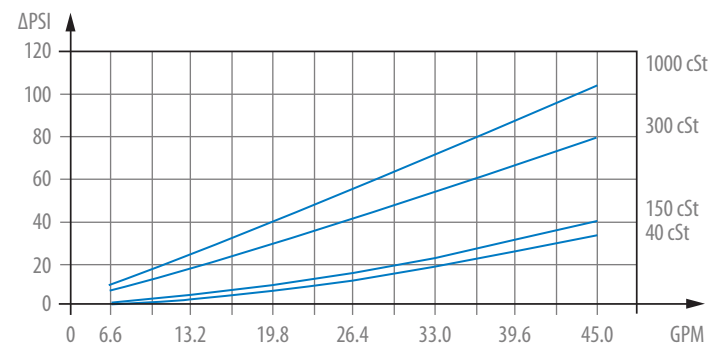
Model B175-A30/B175-S30



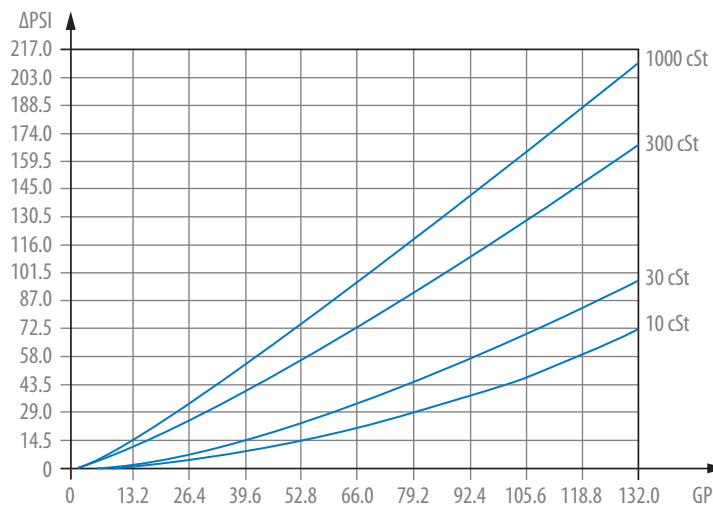
Model B175-A60/B175-S60



Model B175-A80/B175-S80



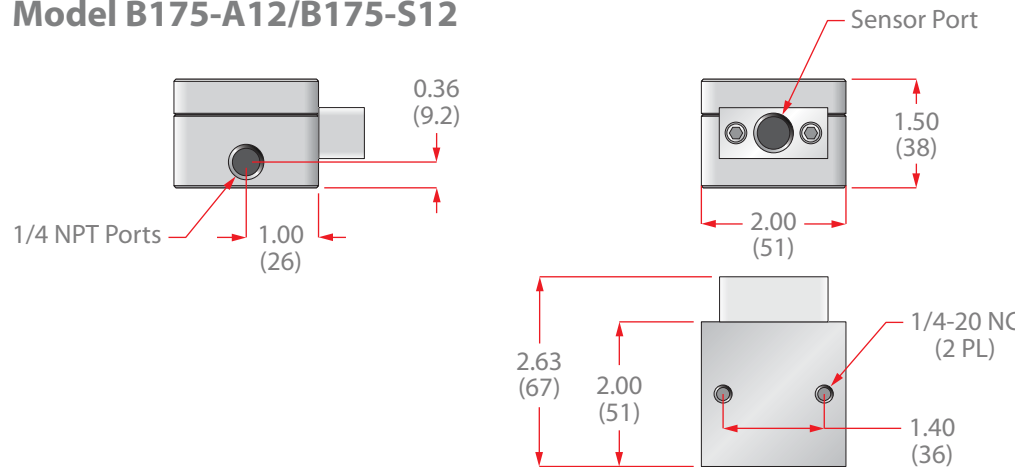
Model B175-A90/B175-S90



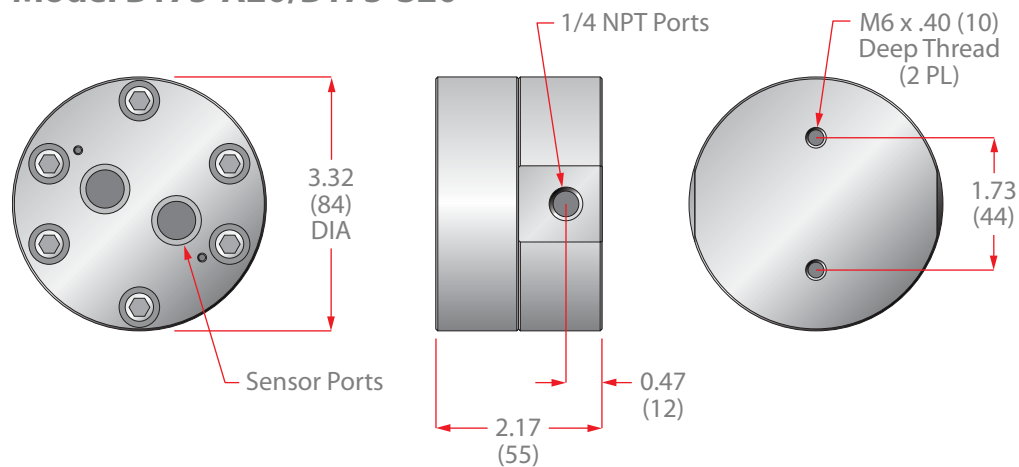
Dimensions:

Inches (mm)

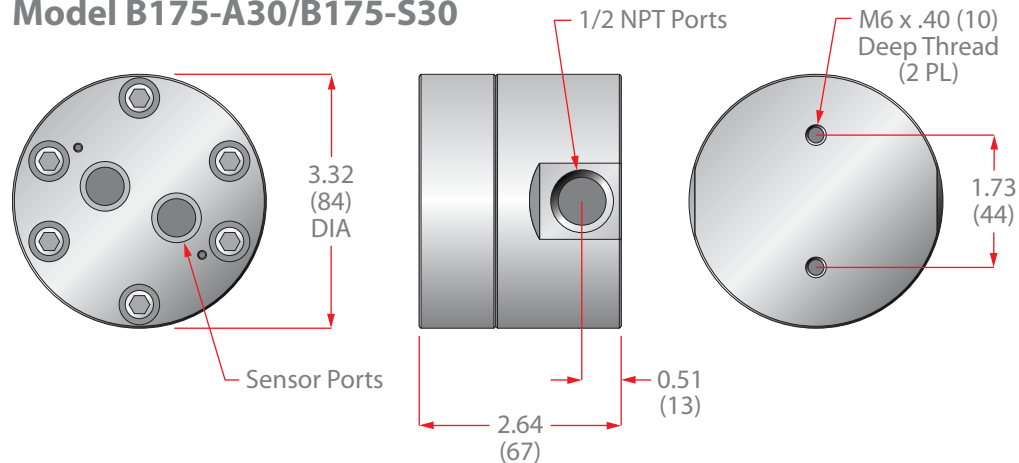
Model B175-A12/B175-S12



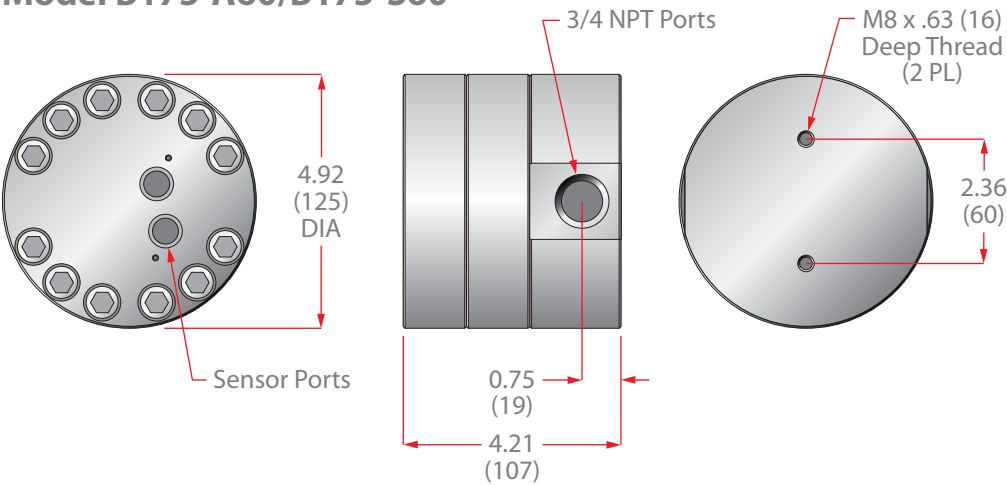
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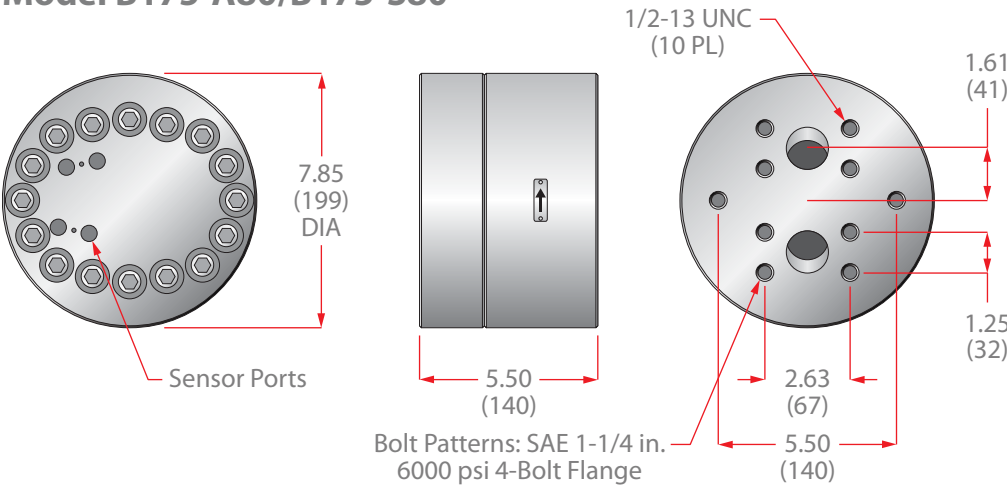
Model B175-A30/B175-S30



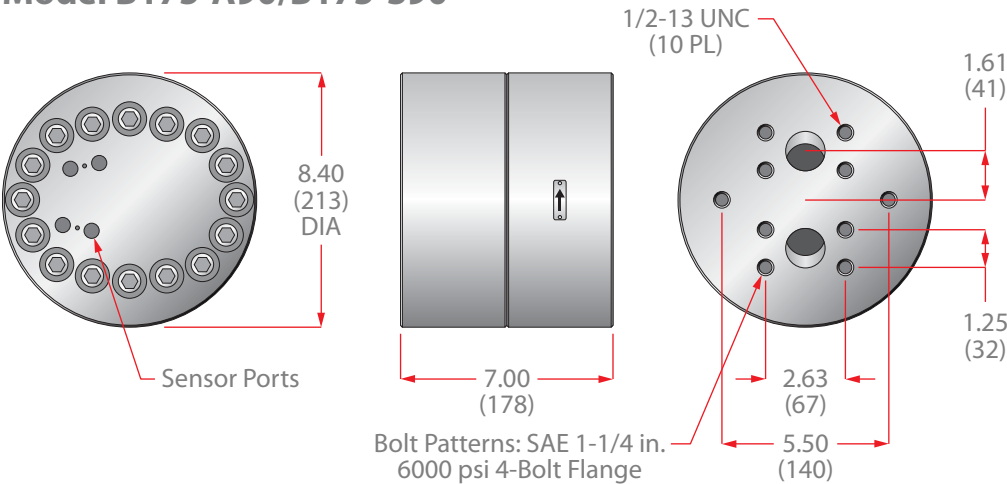
Model B175-A60/B175-S60



Model B175-A80/B175-S80



Model B175-A90/B175-S90



Ordering Information

Aluminum Housing – 185° F Maximum Fluid Temperature

Part Number ¹	Seal Material	End Connection	Flow Ranges ³		K factor ² Pulse/Gallon
			GPM	LPM	
B175-A12	Teflon Standard	1/4 in. Female NPT	0.003...0.8	0.011...3.03	53,000
B175-A20		1/4 in. Female NPT	0.01...2	0.04...7.6	15,900
B175-A30		1/2 in. Female NPT	0.03...7	0.11...26.5	6600
B175-A60		3/4 in. Female NPT	0.05...20	0.19...75.7	1800
B175-A80 ⁴		1-1/4 in. Female NPT	0.5...60	1.9...227	1600*
B175-A90 ⁴		1-1/4 in. Female NPT	1...120	3.8...454	800*
B175-A12-V	Viton	1/4 in. Female NPT	0.003...0.8	0.011...3.03	53,000
B175-A20-V		1/4 in. Female NPT	0.01...2	0.04...7.6	15,900
B175-A30-V		1/2 in. Female NPT	0.03...7	0.11...26.5	6600
B175-A60-V		3/4 in. Female NPT	0.05...20	0.19...75.7	1800
B175-A80-V ⁴		1-1/4 in. Female NPT	0.5...60	1.9...227	1600*
B175-A90-V ⁴		1-1/4 in. Female NPT	1...120	3.8...454	800*

¹ Does NOT include pickup – To order, see Optional Magnetic Pickups/Sensors on page 10.

² All K factors are approximate.

³ Accuracy: ± 0.5 percent over the published flow range with fluids greater than 100 CentiPoises; over a 10:1 turndown (from maximum flow) with fluids less than 30 CentiPoises.

⁴ 90-degree flange fittings required for installation, see page 24 of the Blacett Price List.

* Configured for Quad-4 sensor output (B170180).

303 Stainless Steel Housing – 400° F Maximum Fluid Temperature

Part Number ¹	Seal Material	End Connection	Flow Ranges ³		K factor ² Pulse/Gallon
			GPM	LPM	
B175-S12	Teflon Standard	1/4 in. Female NPT	0.003...0.8	0.011...3.03	53,000
B175-S20		1/4 in. Female NPT	0.01...2	0.04...7.6	15,900
B175-S30		1/2 in. Female NPT	0.03...7	0.11...26.5	6600
B175-S60		3/4 in. Female NPT	0.05...20	0.19...75.7	1800
B175-S80 ⁴		1-1/4 in. Female NPT	0.5...60	1.9...227	1600*
B175-S90 ⁴		1-1/4 in. Female NPT	1...120	3.8...454	800*
B175-S12-V	Viton	1/4 in. Female NPT	0.003...0.8	0.011...3.03	53,000
B175-S20-V		1/4 in. Female NPT	0.01...2	0.04...7.6	15,900
B175-S30-V		1/2 in. Female NPT	0.03...7	0.11...26.5	6600
B175-S60-V		3/4 in. Female NPT	0.05...20	0.19...75.7	1800
B175-S80-V ⁴		1-1/4 in. Female NPT	0.5...60	1.9...227	1600*
B175-S90-V ⁴		1-1/4 in. Female NPT	1...120	3.8...454	800*

¹ Does NOT include pickup – To order, see Optional Magnetic Pickups/Sensors on page 10.

² All K factors are approximate.

³ Accuracy: ± 0.5 percent over the published flow range with fluids greater than 100 CentiPoises; over a 10:1 turndown (from maximum flow) with fluids less than 30 CentiPoises.

⁴ 90-degree flange fittings required for installation, see page 24 of the Blacett Price List.

* Configured for Quad-4 sensor output (B170180).

Optional Magnetic Pickups/Sensors

Part Number	Description	For Use With
B170110	Pre-Amp Pickup	B175-A12, B175-S12
B170111	Magnetic Pickup	B175-A20...B175-A60, B175-S20...B175-S60
B170112	Pre-Amp Pickup	B175-A20...B175-A60, B175-S20...B175-S60
B170180	Quad-4 Sensor	B175-A80...B175-A90, B175-S80...B175-S90
B170310	Cable for Quad-4 Sensor; 10 ft	B175-A80...B175-A90, B175-S80...B175-S90
B170311	Connector for Quad-4 Cable	B175-A80...B175-A90, B175-S80...B175-S90
B175420	4-20 mA Sensor in Explosion-Proof Housing	B175-A12...B175-A60, B175-S12...B175-S60



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