

# Positive Displacement Flow Meter

## Model B1750 Meter

### DESCRIPTION

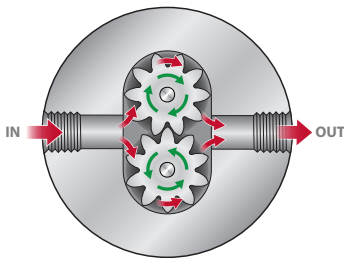
The Blancett Model B1750 positive displacement flow meter provides high measurement accuracy, trouble-free operation and long service life for fluids over a wide viscosity range. Applications include lubricants, fuels, chemicals, solvents, oils, and greases. The B1750 meter is bi-directional (using appropriate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

### FEATURES

- Accuracy of  $\pm 0.5$  percent of reading and repeatability of  $\pm 0.1$  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.



### K-FACTOR

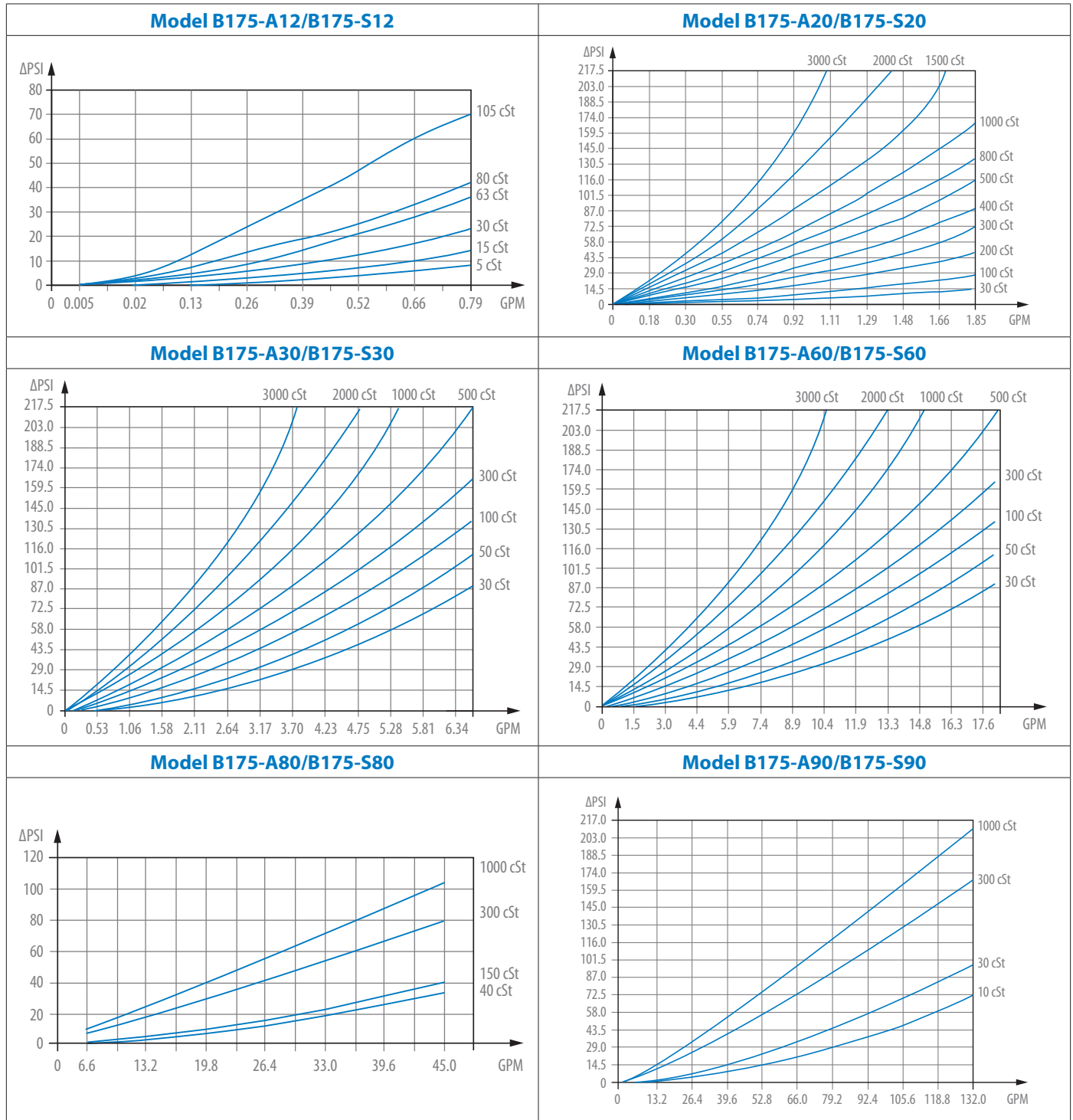
The K-factor represents the number of output pulses transmitted per unit volume of liquid passing through the positive displacement meter. Each meter has a unique K-factor that is determined during factory calibration. The K-factor is very constant and linear over the published flow range when liquid 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.



## SPECIFICATIONS

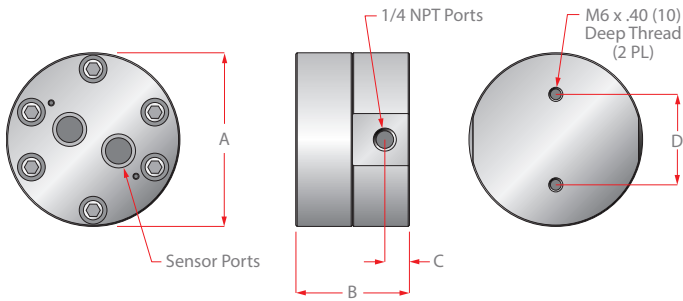
<b>Material of Construction</b>	<b>Body</b>	6061-T6 aluminum or 303 Stainless steel
	<b>Rotor</b>	—
	<b>Bearings</b>	Stainless steel
	<b>Rotor Shaft</b>	—
	<b>Rotor Support</b>	—
	<b>O-ring</b>	Teflon®, Viton® (optional)
	<b>Housing</b>	6061-T6 aluminum or 303 stainless steel
<b>Operating Temperature</b>	<b>Aluminum</b>	-20...185° F (-29...85° C)
	<b>Stainless steel</b>	-20...400° F (-29...204° C)
<b>Pressure Rating</b>	5000 psi (345 bar) maximum	
<b>End Connections</b>	Female NPT: 1/4 in., 3/4 in. or 1-1/4 in. (depending on meter size)	
<b>Turndown Ratio</b>	10:1	
<b>Accuracy</b>	±0.5% over the published flow range with fluids >100 cP; over a 10:1 turndown (from maximum flow) with fluids <30 cP	
<b>Repeatability</b>	±0.1%	
<b>Calibration</b>	Oil (NIST traceable)	
<b>Pickup</b>	Optional	
<b>Certifications</b>	—	

**PRESSURE DROP VS FLOW RATE**



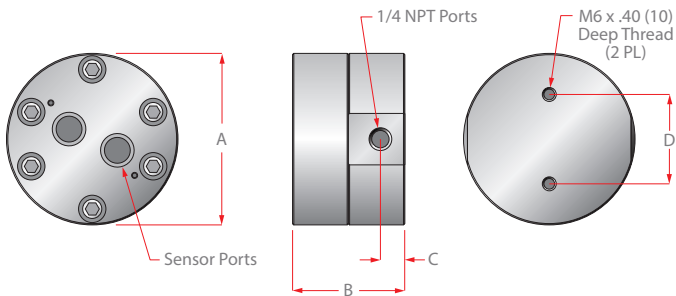
## DIMENSIONS

### Model B175-A12/B175-S12



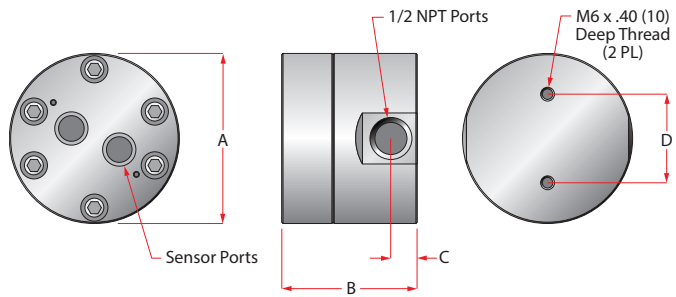
	Inches	Millimeters
<b>A (diameter)</b>	2.83	72.0
<b>B</b>	2.17	55.0
<b>C</b>	0.47	12.0
<b>D</b>	1.73	44.0

### Model B175-A20/B175-S20



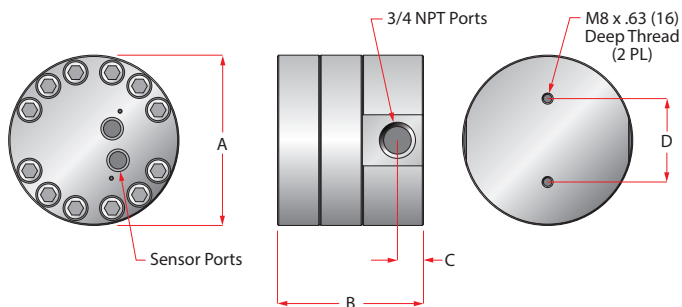
	Inches	Millimeters
<b>A (diameter)</b>	3.32	84.0
<b>B</b>	2.17	55.0
<b>C</b>	0.47	12.0
<b>D</b>	1.73	44.0

### Model B175-A30/B175-S30



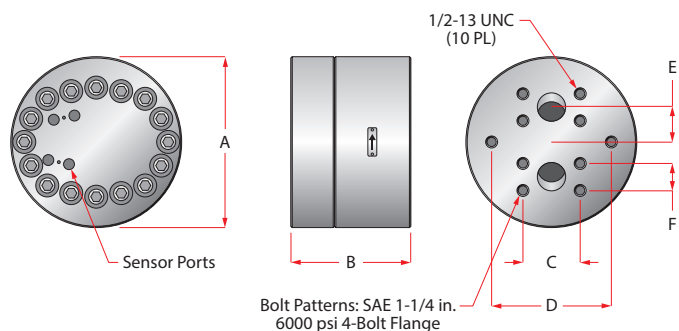
	Inches	Millimeters
<b>A (diameter)</b>	3.32	84.0
<b>B</b>	2.64	55.0
<b>C</b>	0.51	13.0
<b>D</b>	1.73	44.0

### Model B175-A60/B175-S60



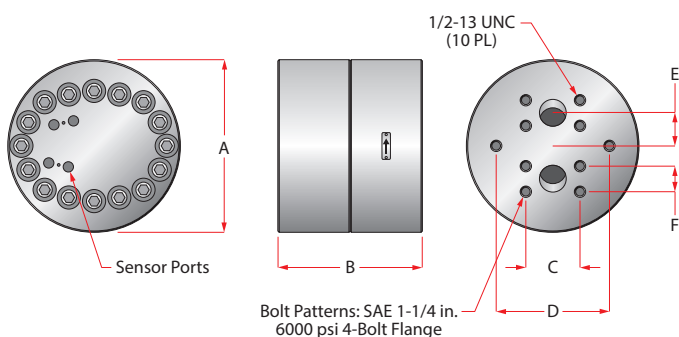
	Inches	Millimeters
<b>A (diameter)</b>	4.92	125.0
<b>B</b>	4.21	107.0
<b>C</b>	0.75	19.0
<b>D</b>	2.36	60.0

### Model B175-A80/B175-S80



	Inches	Millimeters
<b>A (diameter)</b>	7.85	199.0
<b>B</b>	5.50	140.0
<b>C</b>	2.63	67.0
<b>D</b>	5.50	140.0
<b>E</b>	1.61	41.0
<b>F</b>	1.25	32.0

### Model B175-A90/B175-S90



	Inches	Millimeters
<b>A (diameter)</b>	8.40	213.0
<b>B</b>	7.00	178.0
<b>C</b>	2.63	67.0
<b>D</b>	5.5	140.0
<b>E</b>	1.61	41.0
<b>F</b>	1.25	32.0

## PART NUMBER INFORMATION

### Aluminum Housing – 185° F Maximum Fluid Temperature

Part Number <sup>1</sup>	Bore Size in.	End Connection	Max PSI	Flow Ranges <sup>3</sup> gpm (lpm)	Strainer Mesh	K factor <sup>2</sup> Pulse/Gallon	Weight	End to End Length in. (mm)	Seal Material
<b>B175-A12</b>	1/4	1/4 in. Female NPT	5000	0.003...0.8 (0.011...3.03)	—	53,000	—	2.17 (55.0)	Teflon Standard
<b>B175-A20</b>	1/4	1/4 in. Female NPT	5000	0.01...2 (0.04...7.6)	—	15,900	—	2.17 (55.0)	Teflon Standard
<b>B175-A30</b>	1/2	1/2 in. Female NPT	5000	0.03...7 (0.11...26.5)	—	6600	—	2.64 (55.0)	Teflon Standard
<b>B175-A60</b>	3/4	3/4 in. Female NPT	5000	0.05...20 (0.19...75.7)	—	1800	—	4.21 (107.0)	Teflon Standard
<b>B175-A80<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	0.5...60 (1.9...227)	—	1600*	—	5.50 (140.0)	Teflon Standard
<b>B175-A90<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	1...120 (3.8...454)	—	800*	—	7.00 (178.0)	Teflon Standard
<b>B175-A12-V</b>	1/4	1/4 in. Female NPT	5000	0.003...0.8 (0.011...3.03)	—	53,000	—	2.17 (55.0)	Viton
<b>B175-A20-V</b>	1/4	1/4 in. Female NPT	5000	0.01...2 (0.04...7.6)	—	15,900	—	2.17 (55.0)	Viton
<b>B175-A30-V</b>	1/2	1/2 in. Female NPT	5000	0.03...7 (0.11...26.5)	—	6600	—	2.64 (55.0)	Viton
<b>B175-A60-V</b>	3/4	3/4 in. Female NPT	5000	0.05...20 (0.19...75.7)	—	1800	—	4.21 (107.0)	Viton
<b>B175-A80-V<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	0.5...60 (1.9...227)	—	1600*	—	5.50 (140.0)	Viton
<b>B175-A90-V<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	1...120 (3.8...454)	—	800*	—	7.00 (178.0)	Viton

<sup>1</sup> Does NOT include pickup.

<sup>2</sup> All K factors are approximate.

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

<sup>4</sup> 90-degree flange fittings required for installation, see the Blancett price list.

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

## 303 Stainless Steel Housing, 400° F Maximum Fluid Temperature

Part Number <sup>1</sup>	Bore Size	End Connection	Max PSI	Flow Ranges <sup>3</sup> gpm (lpm)	Strainer Mesh	K factor <sup>2</sup> Pulse/Gallon	Weight	End to End Length in. (mm)	Seal Material
<b>B175-S12</b>	1/4	1/4 in. Female NPT	5000	0.003...0.8 (0.011...3.03)	—	53,000	—	2.17 (55.0)	Teflon Standard
<b>B175-S20</b>	1/4	1/4 in. Female NPT	5000	0.01...2 (0.04...7.6)	—	15,900	—	2.17 (55.0)	Teflon Standard
<b>B175-S30</b>	1/2	1/2 in. Female NPT	5000	0.03...7 (0.11...26.5)	—	6600	—	2.64 (55.0)	Teflon Standard
<b>B175-S60</b>	3/4	3/4 in. Female NPT	5000	0.05...20 (0.19...75.7)	—	1800	—	4.21 (107.0)	Teflon Standard
<b>B175-S80<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	0.5...60 (1.9...227)	—	1600*	—	5.50 (140.0)	Teflon Standard
<b>B175-S90<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	1...120 (3.8...454)	—	800*	—	7.00 (178.0)	Teflon Standard
<b>B175-S12-V</b>	1/4	1/4 in. Female NPT	5000	0.003...0.8 (0.011...3.03)	—	53,000	—	2.17 (55.0)	Viton
<b>B175-S20-V</b>	1/4	1/4 in. Female NPT	5000	0.01...2 (0.04...7.6)	—	15,900	—	2.17 (55.0)	Viton
<b>B175-S30-V</b>	1/2	1/2 in. Female NPT	5000	0.03...7 (0.11...26.5)	—	6600	—	2.64 (55.0)	Viton
<b>B175-S60-V</b>	3/4	3/4 in. Female NPT	5000	0.05...20 (0.19...75.7)	—	1800	—	4.21 (107.0)	Viton
<b>B175-S80-V<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	0.5...60 (1.9...227)	—	1600*	—	5.50 (140.0)	Viton
<b>B175-S90-V<sup>4</sup></b>	1-1/4	1-1/4 in. Female NPT	5000	1...120 (3.8...454)	—	800*	—	7.00 (178.0)	Viton

<sup>1</sup> Does NOT include pickup.

<sup>2</sup> All K factors are approximate.

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

<sup>4</sup> 90-degree flange fittings required for installation, see the Blacett Price List.

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

## Optional Magnetic Pickups/Sensors

Part Number	Description	For Use With
<b>B170110</b>	Pre-Amp Pickup	B175-A12...-A30 & B175-S12...-S30
<b>B170210</b>	Magnetic Pickup with Pre-Amplifier	B175-A60 & B175-S60
<b>B170180</b>	Quad 4 Sensor	B175-A80...-A90 & B175-S80...-S90
<b>B175420</b>	4...20 mA Sensor in Explosion-proof housing	B175-A12...-A60 & B175-S12...-S60
<b>B175030</b>	*Adapter for 4...20 mA Sensor in X-proof housing	12, 20 AND 30 Series Meters
<b>B175060</b>	*Adapter for 4...20 mA Sensor in X-proof housing	60 Series Meters
<b>B175080</b>	*Adapter for 4...20 mA Sensor in X-proof housing	90 Series Meters
<b>*B170310</b>	Cable for Quad 4 Sensor; 10 ft	B175-A80...-A90 & B175-S80...-S90
<b>*B170311</b>	Connector for Quad 4 Cable	B175-A80...-A90 & B175-S80...-S90
<b>B170109</b>	Magnetic Pickup	B175-A60 & B175-S60
<b>B170111</b>	Magnetic Pickup	B175-A20...-A30 & B175-S20...-S30
<b>B170112</b>	Pre-amp Pickup	B175-A20...-A30 & B175-S20...-S30

\*Can be used with B170180 and B170110

**NOTE:** Cable B220-219 can be used with B175420

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