

BL Series

High Pressure Boltless Flowmeters

Description

The patented, highly accurate Flow Technology BL Series positive displacement flowmeter is ideal for high pressure applications, such as methanol injection. By eliminating the need for high-strength fasteners, Flow Technology's unique "boltless" pressure vessel design provides inherent corrosion resistance in a compact, easy-to-maintain package.

Features

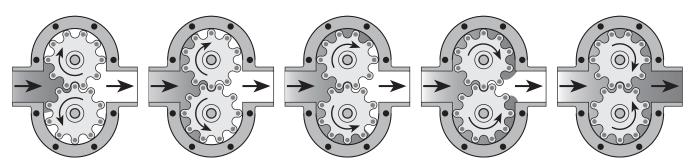
- · Unique "boltless" pressure vessel design
- · Metal seals standard
- · Corrosion-resistant by design
- 6k to 15k psig operating pressure dependent on end fitting and size
- 1/16" to 1" line sizes
- Reference accuracy ±0.05% of rate
- Only two moving parts
- · Bearingless design
- · Easy to install and maintain
- Handles viscosities from 0.3 to 1,000,000 cP+
- Operating temperatures up to 400° F (204° C)
- Wide range of applications
- Non-intrusive sensor
- Up to 1000:1 turndown on viscous fluids
- Handles pulsating flow



BL Series
High Pressure Boltless Flowmeters

Protected by one or more U.S. Patents: 4641522, 4815318, 4911010, 4996888, 5027653, 5325715

Principle of Operation

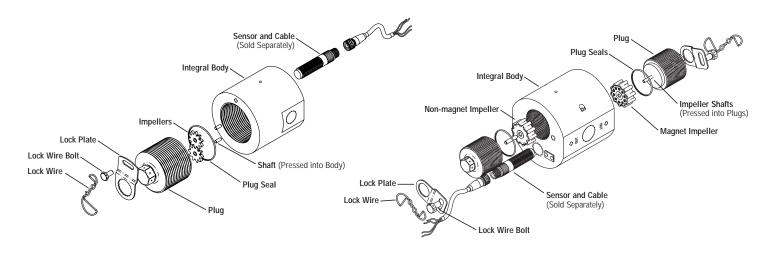


Flow Technology's positive displacement flowmeters use two rotating, thermoplastic impellers driven by the flowing liquid. Magnets imbedded in the impellers activate a non-intrusive sensor which generates a pulsed output signal. Each pulse represents a known volume of liquid that is captured in between the lobes of the impellers. A K-factor converts the pulses into engineering units for remote data collection and digital display.

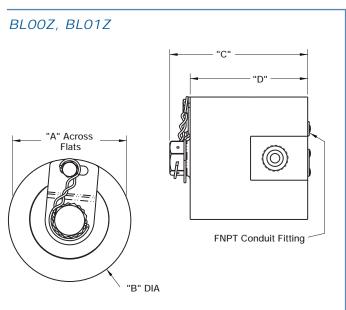
Flowmeter Assembly Diagrams

BLOOZ, BLO1Z

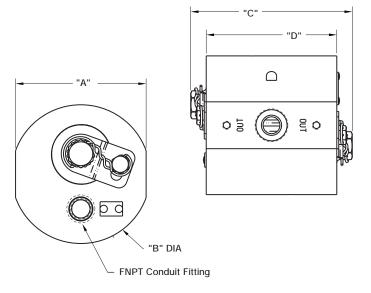
BL02Z, BL03Z, BL05Z, BL10Z



Dimensions







Dimensions

Basic Model No.	A inches	mm	B inches	mm	C inches	mm	D inches	mm	Conduit Fitting FNPT
BL00Z	3.5	89	3.75	95	4.23	107	3.60	91	3/4"
BL01Z	3.5	89	3.75	95	4.23	107	3.60	91	3/4"
BL02Z	4.0	102	4.25	108	4.95	126	4.00	102	3/4"
BL03Z	5.0	127	5.25	133	6.65	169	5.40	137	3/4"
BL05Z	6.0	152	6.25	159	7.90	201	6.65	169	3/4"
BL10Z	7.5	191	7.75	197	10.05	255	8.55	217	3/4"

Specifications

Process Temperature Up to 400° F (204° C)

based on impeller materials Temperatures above 100° F (38° C) reduce pressure rating (consult factory).

Operating Pressure

FNPT end fittings, all meter sizes: 6,000 psig Autoclave end fittings, BL00 thru BL03: 15,000 psig Autoclave end fittings, BL05 and BL10: 10,000 psig Note: Based on 100° F (38° C) operating temperature

Turndown Ratio

(model's max. rated flow + its minimum flow rate)

Methanol 6:1 standard
Low viscosity fluids 10:1 standard
Medium viscosity fluids 100:1 standard
High viscosity fluids Up to 1000:1

Repeatability

(Reference Accuracy) ±0.05% of rate

Note: Each flowmeter is individually calibrated on a ballistic calibrator in the flow lab on a liquid representing the specific application. Minimum viscosity calibration fluid is 0.75 cP.

Linearity

Typical $\pm 0.5\%$ of rate over upper

80% of full span

With enhanced signal

conditioning Up to ±0.1% of rate over full

turndown range

Output

(Refer to individual product sheets for complete specifications)

Sensors (1 required per meter)

Hall Effect Sensor: 4.75 to 24 VDC square-wave

pulse depending on supply

voltage, 3-wire

FM Approved, intrinsically safe

Magnetic Pick-up Sensor: 10 mV to 10 V sine-wave

pulse depending on flow

rate, 2-wire

Explosion-proof optional

Surface Reference Pickup: (Size 00 only)

7–30 VDC square-wave pulse depending on supply voltage, 3-wire

FM Approved, intrinsically

safe available

Signal Conditioners

and Transmitters Refer to individual product

sheets available from Flow Technology

Materials of Construction

Integral Body (Case) 316 stainless steel Cover Plugs 316 stainless steel

Shafts

Standard: 316 stainless steel Size 00: Tungsten Carbide

Impellers

Standard: PPS Size 00: 440C

O-Rings Teflon® coated Inconel 718

Cover Plug Lock, Bolt 316 stainless steel

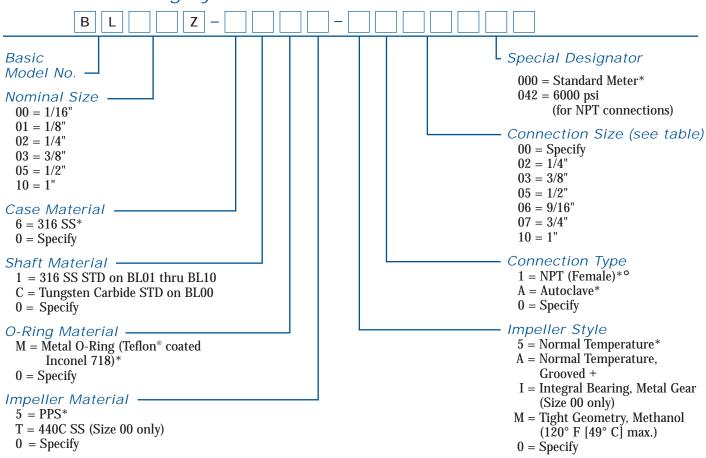
Model Specifications

Weight	
lbs.	kg
8.2	3.7
8.2	3.7
15.2	6.9
31.5	14.3
53	24
104	47
3	8.2 8.2 5.2 31.5 53

Sensors

Basic Model No.	Magnetic	Approved Magnetic	Hall Effect	SRP	Approved SRP
BL00Z	N/A	N/A	N/A	SRP-221-QD	IS 100-05
BL01Z	3030-S21	3090-A	PS-910-QD	N/A	N/A
BL02Z	3030-S21	3090-A	PS-910-QD	N/A	N/A
BL03Z	3030-L21	3090-AL	PS-910-QD	N/A	N/A
BL05Z	3030-L21	3090-AL	PS-910-QD	N/A	N/A
BL10Z	3030-L21	3090-AL	PS-910-QD	N/A	N/A
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Model Numbering System



Available End Fittings

Nominal Connection Size	Basic Dims		Nominal Meter Size					
NPT	Fitting OD	ID	00	01	02	03	05	10
1/4"	.540"	.438"	X	X	X			
3/8"	.675"	.578"			X	X		
1/2"	.840"	.466"	X	X	X	X		
3/4"	1.050"	.614"			X	X	X	
1"	1.315"	.599"					X	X
Autoclave								
3/8"	.375"	.203"	X	X				
9/16"	.563"	.312"	X	X	X			
3/4"	.750"	.438"			X	X		
1"	1.00"	.562"					X	X

Material Guide

Name	Description
316 SS	316 Stainless Steel
PPS	Polyphenylene Sulfide, Ryton® by Phillips Petroleum
Inconel 718	Teflon® coated Inconel 718 (O-Ring material)
440C SS	440C Stainless Steel

Key

*	Standard Configuration
CF	Consult Factory
0	Must use 042 special designator
+	Not available in size 01 and 02 meters

Specifications are for reference only and are subject to change without notice.

Local Representative:





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