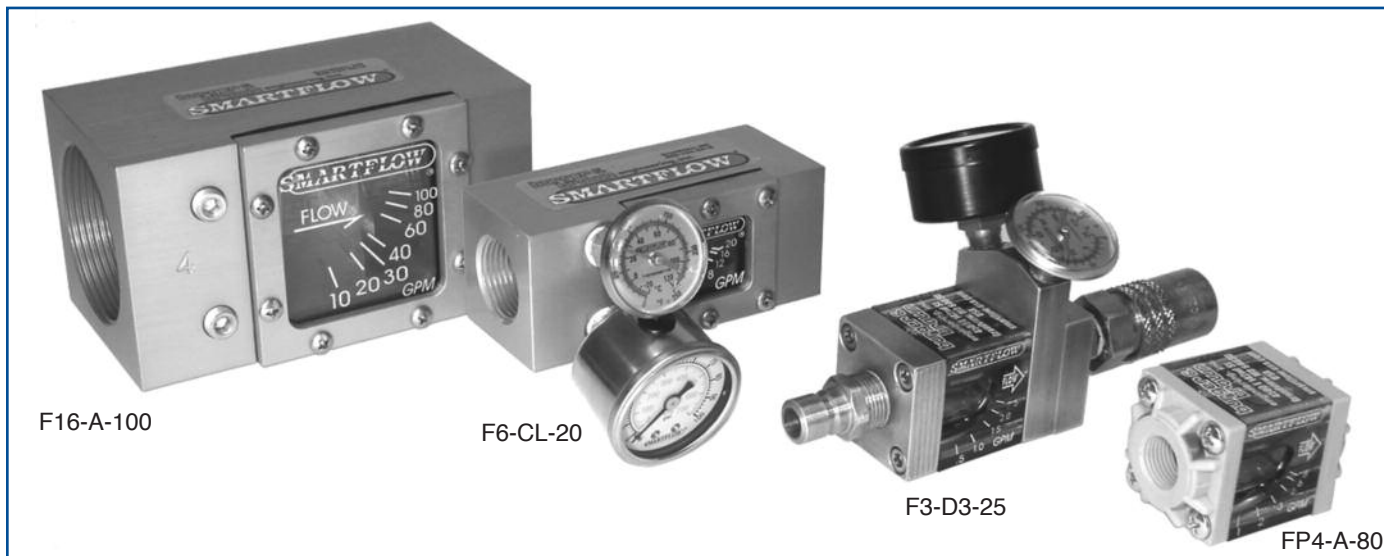


SMARTFLOW® Mechanical Flowmeters



General Description

Smartflow® mechanical flowmeters are durable, vane-operated devices that provide visual indication of flow rate in many different styles and sizes. Rugged wetted parts are compatible with many process liquids.

Optional temperature and pressure gauges add functionality and flexibility to Smartflow® flowmeters. Brass quick-connect fittings are available on the smaller flowmeters to create an excellent, portable tool for determining flow and locating clogged lines.

Features and Benefits

- ◆ **Compact size** works well in restricted-space locations.
- ◆ **Rugged construction** gives years of dependable service.
- ◆ **Variety of inlet sizes** provides exactly the right connection.
- ◆ **210°F (99°C) Temperature Rating** allows installation into a wide range of applications.
- ◆ **Optional Temperature and Pressure Gauges** give instant access to pressure and temperature information in addition to flow in one unit.
- ◆ **No Mounting Restrictions** ease installation in any position without extra brackets or hardware.

Galvanic corrosion may occur in anodized aluminum components when installed in electrical connection with more noble metals such as copper. Use appropriate installation practices.

For best performance, mechanical flowmeters should be installed in the vertical position with the flow moving upwards.

Design and specifications are subject to change without notice.

Turbulent Flow

Injection molders know that a certain rate of flow is needed to achieve turbulent flow in cooling lines. This concept applies to most cooling applications using a water-based coolant mixture. Charts below are for reference only. Turbulent Flow Rate is approximate based on Reynolds Number of 4000.

Passage Diameter	Nominal Pipe Size	Minimum Flow in GPM by Temperature		
		40°F	120°F	200°F
.44"	1/4"	0.88	0.31	0.18
.59"	3/8"	1.16	0.42	0.24
.72"	1/2"	1.41	0.51	0.29

Passage Diameter	Nominal Pipe Size	Minimum Flow in LPM by Temperature		
		4°C	49°C	93°C
11mm	1/4"	3.3	1.2	0.7
15mm	3/8"	4.4	1.6	0.9
18mm	1/2"	5.3	1.9	1.1

Use our on-line turbulent flow calculator to input additional sizes and cooling variables:

**[www.Smartflow-usa.com/
Turbulent-Flow-Rate-Calculator](http://www.Smartflow-usa.com/Turbulent-Flow-Rate-Calculator)**

SMARTFLOW[®] IceCube™ Flowmeters with Brass or Nylon Ends

Model Number

F3 - D3 - 25

Inlet Size	Brass Ends	Flow Range
		15 0.2 - 1.5 gpm (gallons per minute)
		25 0.5 - 2.5 gpm
		80 1.0 - 8.0 gpm
		100 2 - 10 lpm (liters per minute)
		200 5 - 20 lpm
		300 4 - 30 lpm

Nylon Ends	
1/4"NPT(F)	FP2
1/4"BSPP(F)	FP2B
3/8"NPT(F)	FP3
3/8"BSPP(F)	FP3B
1/2"NPT(F)	FP4
1/2"BSPP(F)	FP4B

Accessories

- A** Flowmeter only
- B** Thermometer
- C1** Thermometer and 30 psi Pressure Gauge
- C2** Thermometer and 60 psi Pressure Gauge
- C3** Thermometer and 100 psi Pressure Gauge
- CL** Thermometer and Liquid-Filled Pressure Gauge (100 psi)
- D1** *Thermometer, 30 psi Pressure Gauge, Quick Change Socket and Plug
- D2** *Thermometer, 60 psi Pressure Gauge, Quick Change Socket and Plug
- D3** *Thermometer, 100 psi Pressure Gauge, Quick Change Socket and Plug
- DL** *Thermometer, liquid-filled Pressure Gauge (100 psi), Quick Change Socket and Plug
- E** *Thermometer and Quick Change Socket and Plug
- F1** 30 psi Pressure Gauge
- F2** 60 psi Pressure Gauge
- F3** 100 psi Pressure Gauge
- FL** Liquid-Filled Pressure Gauge (100 psi)

* Not available with 3/4" inlet or BSPP threads

Wetted Parts and Materials

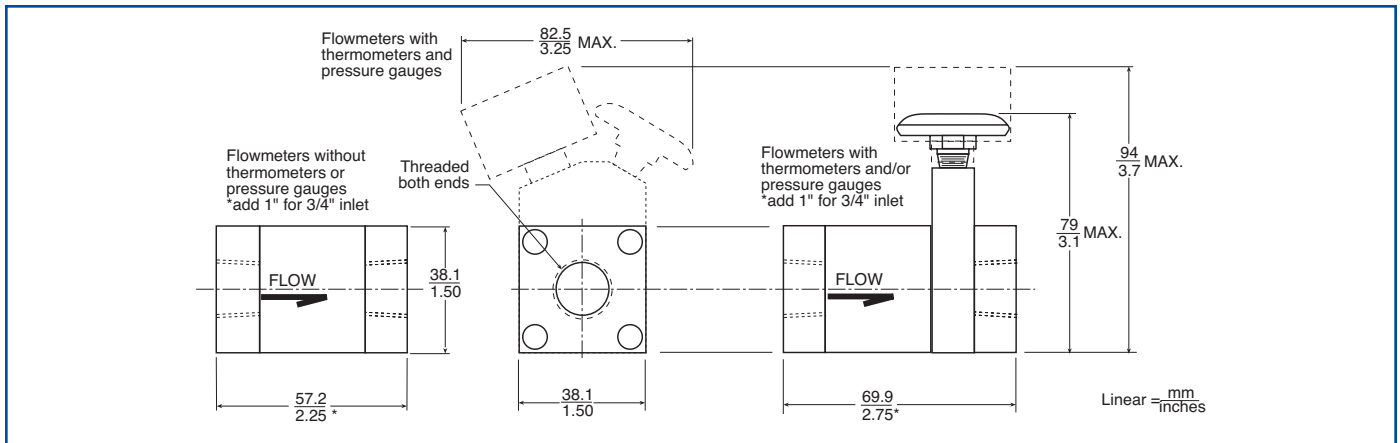
End CapsBrass or Glass-Filled Nylon
 BodyPolysulfone
 VaneGlass-Filled Nylon
 Spring302 Stainless Steel
 O-RingsEPDM
 Cap ScrewsStainless Steel
 Optional Gauge BlockBrass
 Optional Quick-Connect Fittings.....Brass

Specifications

Flow Accuracy±10% full scale
 Operating Temperature max.210°F (99°C)
 Operating Pressure max.100 psi (6.9 bar)
 Optional Thermometer0° to 250°F (-20° to 120°C)
 ±2% accuracy (full scale)
 Optional Pressure Gauge±3% accuracy (full scale)

**For Custom Manifold Assemblies
and 3D CAD files of Standard
Components Visit**

**www.
ManifoldBuilder.com**



SMARTFLOW® Medium Mechanical Flowmeters

Model Number

F6 - B - 20

Inlet Size

3/4"NPT(F)	F6
3/4"BSPP(F)	F6B
1"NPT(F)	F8
1"BSPP(F)	F8B

Flow Range

20	2 - 20 gpm (gallons per minute)
75	7 - 75 lpm (liters per minute)

Accessories

- A** Flowmeter only
- B** Thermometer
- C1** Thermometer and 30 psi Pressure Gauge
- C2** Thermometer and 60 psi Pressure Gauge
- C3** Thermometer and 100 psi Pressure Gauge
- CL** Thermometer and Liquid-Filled Pressure Gauge (100 psi)
- F1** 30 psi Pressure Gauge
- F2** 60 psi Pressure Gauge
- F3** 100 psi Pressure Gauge
- FL** Liquid-Filled Pressure Gauge (100 psi)

Wetted Parts and Materials

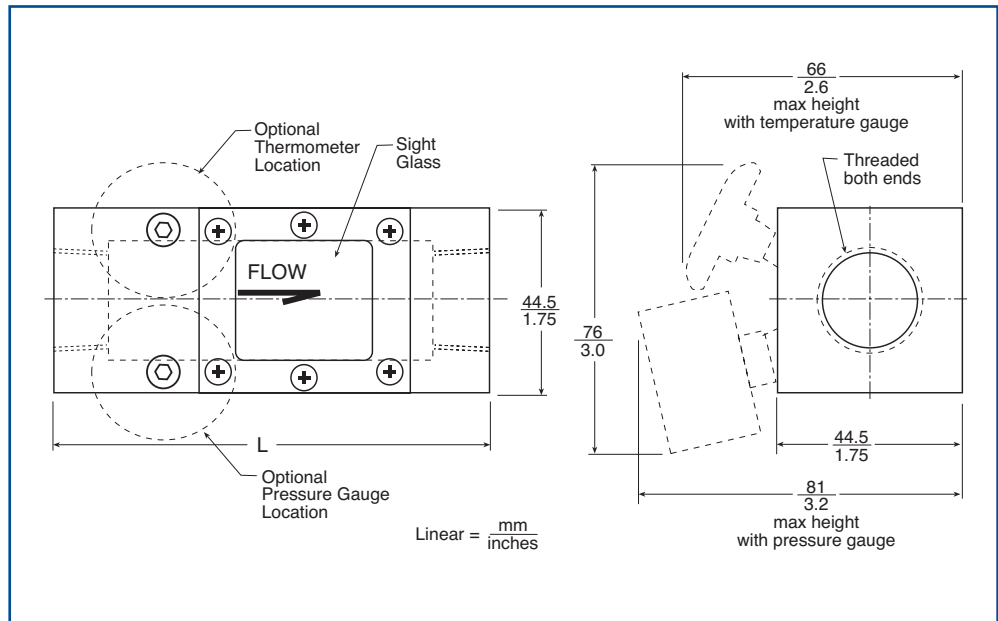
Body	Anodized Aluminum
Sight Glass	Polysulfone
Vane	Stainless Steel
Spring	Stainless Steel
Pin	Stainless Steel
Gasket	Neoprene

Specifications

Operating Temperature max.	210°F (99°C)
Operating Pressure max.	100 psi (6.9 bar)
Accuracy	±10%
Optional Thermometer	0° to 250°F (-20° to 120°C) ±2% accuracy (full scale)
Optional Pressure Gauge	±3% accuracy (full scale)

Galvanic corrosion may occur in anodized aluminum components when installed in electrical connection with more noble metals such as copper. Use appropriate installation practices.

Dim	Body Size	
	3/4"	1"
L	$\frac{105}{4.125}$	$\frac{111}{4.375}$



SMARTFLOW[®] Large Mechanical Flowmeters

Model Number

F8 - B - 40

Inlet Size	Flow Range
1" NPT(F) F8	40 2.5 - 40 gpm (excludes 3" inlet)
1" BSPP(F) F8B	100 10 - 100 gpm (1-1/2" or 2" inlets only)
1-1/4" NPT(F) F10	150G 50 - 150 gpm (2" or 3" inlets only)
1-1/2" NPT(F) F12	150 19 - 150 lpm (1" or 1-1/4" inlets only)
1-1/2" BSPP(F) F12B	375 38 - 375 lpm (1-1/2" or 2" inlets only)
2" NPT(F) F16	
2" BSPP(F) F16B	
3" NPT(F) F24	

Accessories

Flowmeter only	A
Thermometer	B
Thermometer and 30 psi Pressure Gauge	C1
Thermometer and 60 psi Pressure Gauge	C2
Thermometer and 100 psi Pressure Gauge	C3
Thermometer and Liquid-Filled Pressure Gauge (100 psi)	CL
30 psi Pressure gauge	F1
60 psi Pressure gauge	F2
100 psi Pressure gauge	F3
Liquid-Filled Pressure Gauge (100 psi)	FL

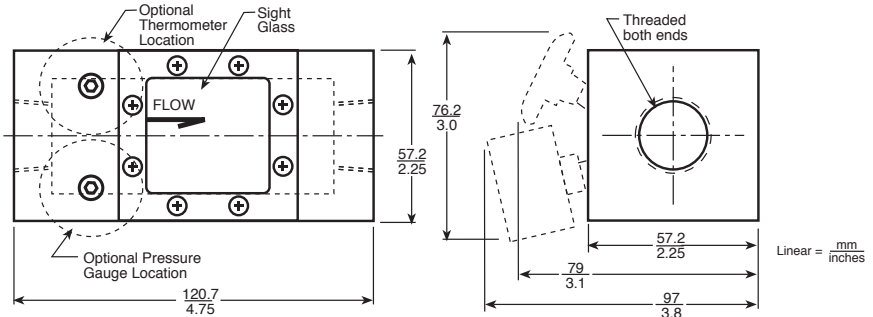
Wetted Parts and Materials

Body	Anodized Aluminum
Sight Glass	Polysulfone
Vane	Stainless Steel
Spring	Stainless Steel
Pin	Stainless Steel
Gasket	Neoprene
Thermometer	0° to 250°F (-20° to 120°C)
Pressure Gauge	0 to 100 psi (0 to 700 kg/cm ²)

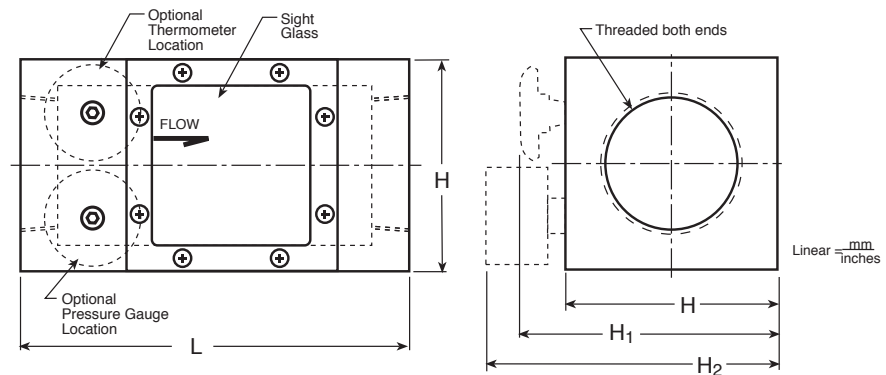
Specifications

Operating Temperature max.	210°F (99°C)
Operating Pressure max.	100 psi (6.9 bar)
Accuracy	±10%
Optional Thermometer	0° to 250°F (-20° to 120°C) ±2% accuracy (full scale)
Optional Pressure Gauge	±3% accuracy (full scale)

1" and 1-1/4" Flowmeters 40 gpm & 150 lpm



1-1/2", 2" & 3" Flowmeters 40, 100, & 150 gpm, 150, 375 lpm



Dim	Body Size	
	1-1/2" or 2"	3"
L	$\frac{139.7}{5.5}$	$\frac{165.1}{6.5}$
H	$\frac{76.2}{3.0}$	$\frac{101.6}{4.0}$
H ₁	$\frac{99}{3.9}$	$\frac{124.5}{4.9}$
H ₂	$\frac{114}{4.5}$	$\frac{139.7}{5.5}$

Galvanic corrosion may occur in anodized aluminum components when installed in electrical connection with more noble metals such as copper. Use appropriate installation practices.