AP-I Series

All Plastic Flowmeters

Description

The patented, highly accurate Flow Technology AP-I Series positive displacement flowmeter utilizes engineered thermoplastics to handle many aggressive or ultra-pure liquids. The AP-I Series is ideal for critical liquid flow applications such as acids, caustics, ultra-pure fluids, specialty chemicals, and DI water.

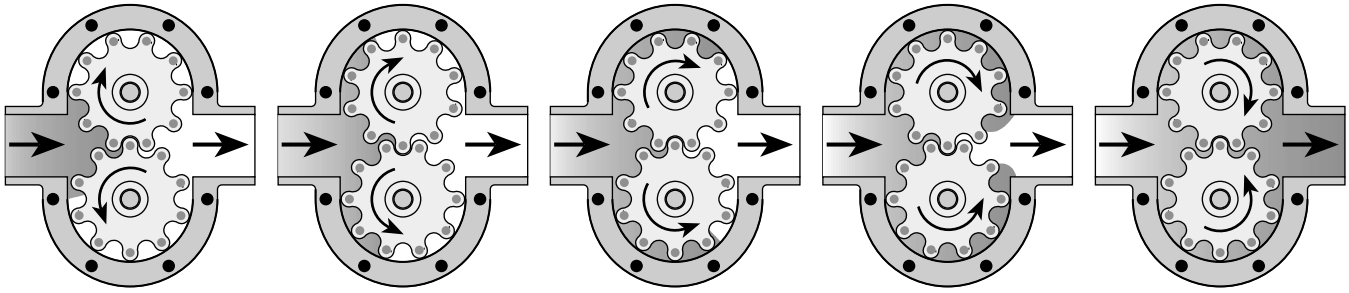
AP-I Series
All Plastic Flowmeters

Features

- 1/8" to 2" line sizes
- Many thermoplastic materials available
- Reference accuracy ±0.05% of rate
- Only two moving parts
- Bearingless design
- Easy to install and maintain
- Handles viscosities up to 1,000,000 cP+
- Operating temperatures of +25°F to +125°F (-4° C to +52° C), standard
- Wide range of applications
- Non-intrusive sensor
- Up to 1000:1 turndown

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

Principle of Operation

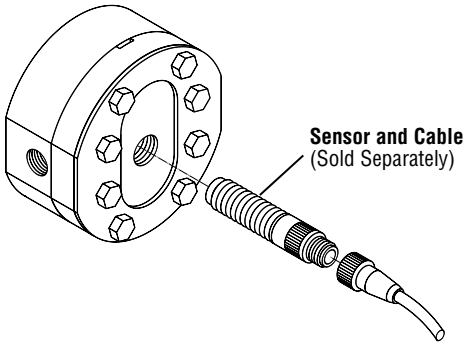


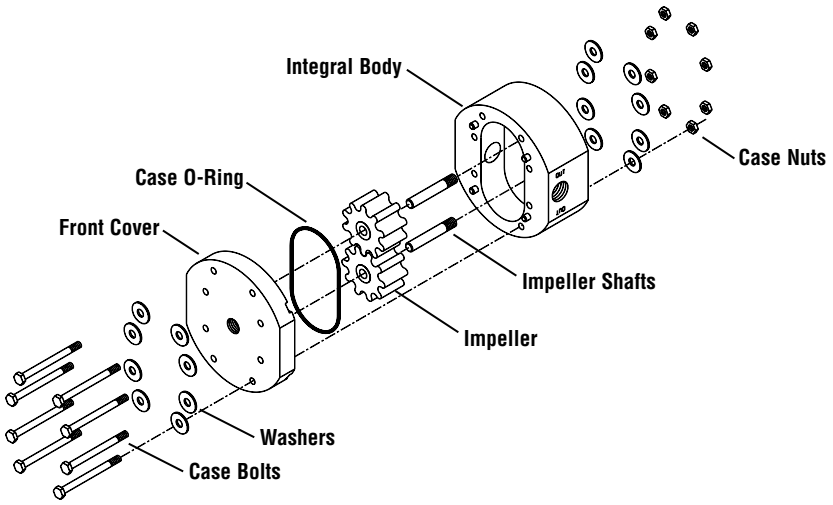
Flow Technology flowmeters use two rotating, thermoplastic impellers driven by the flowing liquid. Magnets imbedded in the impellers activate a non-intrusive sensor which generates a pulsed output signal. Each pulse represents a known volume of liquid that is captured in between the lobes of the impellers.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

Flowmeter Assembly Diagrams

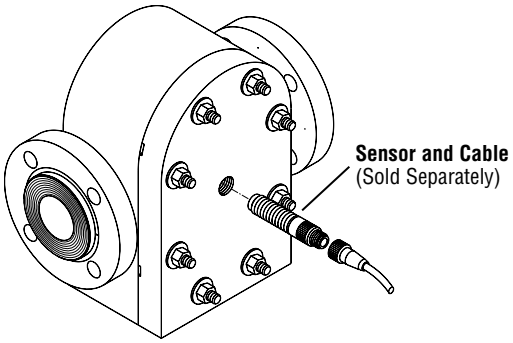
Parts and configurations will vary depending on the flowmeter size and the application. The flat bottom design (shown with the flanges below) is used on both the NPT and Split Ring Flange versions of the Size 15 and 20 flowmeters.

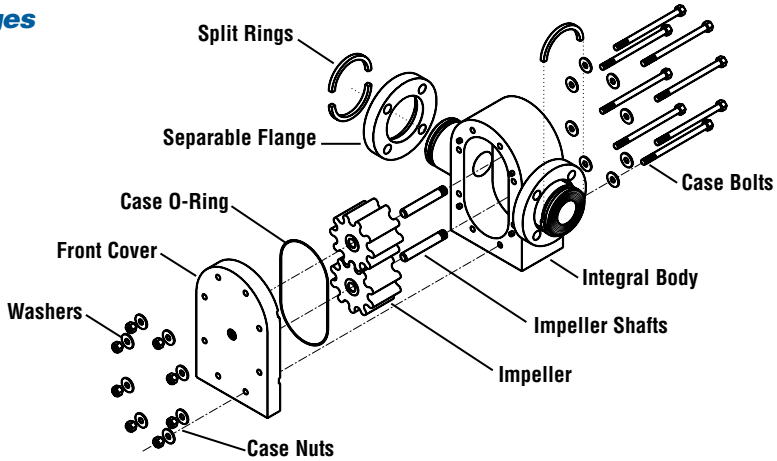
Round Body Style with NPT Connections





Flat Bottom Body Style with Split Ring Flanges





Flowmeter Body Styles

Body Style / Connection Type	Flowmeter Model AP01I NPT	AP01I SRF	AP02I NPT	AP02I SRF	AP05I NPT	AP05I SRF	AP10I NPT	AP10I SRF	AP15I NPT	AP15I SRF	AP20I NPT	AP20I SRF
Round Body Style	✔		✔		✔		✔					
Flat Bottom Style		✔		✔		✔		✔	✔	✔	✔	✔

NPT: Pipe Thread Connections *SRF:* Split Ring Flange Connections

Model Specifications

Basic Model No.	Nominal Size	Maximum Flow Rate		Recommended Mesh Size		Weight	
	Standard Connection	GPM	L/min	Mesh	[Particle Dia.]	lbs	kg
AP01I	1/8"	1	3.79	100	[0.006"]	4	1.8
AP02I	1/4"	3	11.4	100	[0.006"]	5	2.3
AP05I	1/2"	12	45.4	80	[0.007"]	10	4.5
AP10I	1"	25	94.6	60	[0.009"]	14	6.4
AP15I	1-1/2"	50	189	60	[0.009"]	20	9.1
AP20I	2"	100	379	40	[0.015"]	52	24

Typical Flowmeter assemblies are shown above. The chart above indicates the body style for each flowmeter size. Sizes 05, 10, 15, and 20 flowmeter designs that have a flat bottom surface are equipped with four 3/8-16UNC mounting holes on that bottom surface.

Specifications

Operating Temperature

Standard	+25° F to +125° F (-4° C to +52° C)
Cleaning Cycles	Up to +185° F (+85° C)

Operating Pressure

Standard	125 psig max. (862 kPa)

Turndown Ratio

(Ratios based on maximum rated flow)

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 (repeatability)

Note: Each flowmeter is individually calibrated on a ballistic calibrator traceable to NIST in the flow lab on a liquid representing the specific application.

Linearity

Typical	±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

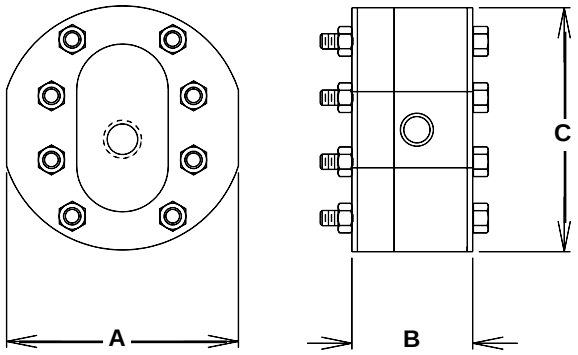
Hall Effect Sensor:	4.75 to 24 VDC square-wave pulse depending on supply, 3-wire FM Approved, intrinsically safe
Magnetic Pick-up Sensor:	10 mV to 10 V sine-wave pulse depending on flow rate, 2-wire Explosion-proof optional
Signal Conditioners and Transmitters	Refer to individual product sheets, available from Flow Technology

Materials of Construction

Body and Front Cover	PVDF, UHMWPE standard
Shafts	PPS, Hastelloy C, Tantalum or others
Impellers	See Model Numbering System
O-Rings	Viton® standard; other materials available
Bolts, Nuts, Torque Plates and Split Rings	316 stainless steel, standard; other materials available
Washers	316 stainless steel when available; other materials available

Note: Due to the specialized nature of aggressive fluid applications, some customizing is often required. A completed Application Questionnaire is used to select the best materials and connections for each application.

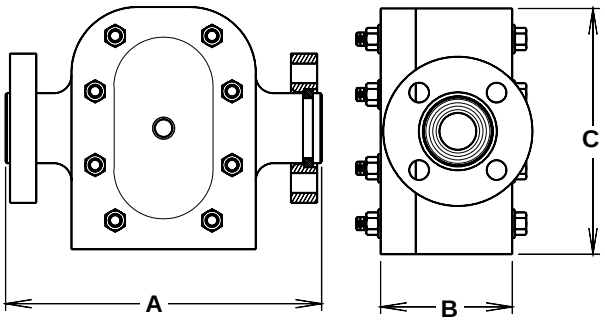
Dimensions — NPT



NPT End Connections

Basic Model No.	Fitting Size	A in.	A mm	B in.	B mm	C in.	C mm
AP01I	1/8"-NPT	3.3	84	1.4	36	3.3	84
AP02I	1/4"-NPT	3.8	97	2.0	51	4.0	102
AP05I	1/2"-NPT	5.0	127	3.0	76	6.0	152
AP10I	1"-NPT	6.5	165	3.8	97	7.0	178
AP15I	1.5"-NPT	5.6	142	4.3	109	8.6	218
AP20I	2"-NPT	7.0	178	5.0	127	11.0	279

Dimensions — SRF



Split Ring Flanges (SRF) – 150# Raised-Face Style

Basic Model No.	Fitting Size	A in.	A mm	B in.	B mm	C in.	C mm
AP01I	1/2" SRF	6.8	173	1.6	41	3.5	89
AP02I	1/2" SRF	6.8	173	2.2	56	3.5	89
AP05I	1/2" SRF	7.5	191	3.1	79	5.7	145
AP10I	1" SRF	9.0	229	3.8	97	7.0	178
AP15I	1.5" SRF	9.8	249	4.3	109	8.6	218
AP20I	2" SRF	11.7	297	5.0	127	11.0	279

Model Numbering System

A P ☐ ☐ I – ☐ ☐ ☐ ☐ – ☐ ☐ ☐ ☐ – ☐ ☐ ☐

Basic Model No.

Nominal Size
- 01 = 1/8" ‡
- 02 = 1/4" ‡
- 05 = 1/2"
- 10 = 1"
- 15 = 1 1/2"
- 20 = 2"

Case Material
- 1 = PVDF *
- 3 = UHMWPE

Shaft Material
- 1 = 316 SS
- 2 = PPS
- 7 = Hastelloy C
- 8 = Tantalum
- 0 = Specify

O-Ring Material
- 1 = Viton® *
- 2 = Buna N
- 3 = Chemraz®
- 4 = Kalrez®
- 6 = EPDM
- 9 = Teflon®
- 0 = Specify

Special Designator
- 000 = Standard Meter*

Connection Size
- 01 = 1/8"
- 02 = 1/4"
- 05 = 1/2"
- 10 = 1"
- 15 = 1 1/2"
- 20 = 2"
- 00 = Specify

Connection Type
- 1 = NPT
- 8 = Split Ring, Raised Face Flange‡
- 0 = Specify

Impeller Style
- 5 = Normal Temperature*
- A = Normal Temperature, Grooved☼
- 0 = Specify

Impeller Material
- 3 = UHMWPE †
- 5 = PPS
- 9 = PTFE*
- 0 = Specify

Material Guide

Name	Description
316 SS	316 Stainless Steel
Buna N	Nitrile
Chemraz®	Elastomeric PTFE by Greene, Tweed & Co. Inc
EPDM	Ethylene Propylene
Hastelloy C	Shaft Material
Kalrez®	Perfluorinated Elastomer, by DuPont
PPS	Polyphenylene Sulfide, Ryton® by Phillips Petroleum
PTFE	Polytetrafluoroethylene, Teflon® by DuPont (Impeller)
PVDF	Polyvinylidene Fluoride, Kynar®
Tanatalum	Commercially Pure (97.5%) Tantalum
Teflon®	Polytetrafluoroethylene, by DuPont (O-Ring Material)
UHMWPE	Ultra High Molecular Weight Polyethylene
Viton®	Fluorocarbon, by DuPont

Key

*	Standard Configuration. Standard meters use Connection Sizes that match the Nominal Size (Exceptions are noted. Custom configurations are available.)
☼	Grooved impellers are only available in Sizes 05 to 20. Grooving helps reduce wear on some high solid applications.
‡	Size 01 and 02 flowmeters will use 1/2" Split Ring Flanges, standard
†	UHMWPE not offered on 1/8" or 1/4" meters

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

Local Representative:

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ISO 9001 REGISTERED

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