

General Purpose Flowmeter



Measure liquid, gas or steam flow rates in horizontal or vertical pipelines. Armor-Flo™ meters handle fluids that cannot be measured with the See-Flo® due to clarity, pressure or compatibility with wetted materials.

The wedge shape of the meter body housing provides the Armor-Flo™ with the same self-cleaning characteristics as the See-Flo®. Teflon® encapsulated cobalt magnets are used to couple the flow isolated indicator with the vane. These features emphasize simplicity and reduce maintenance.

Features

- Instantaneous rate measurement.
- Measure opaque fluids.
- More exotic materials of construction.
- Use in horizontal or vertical piping systems.
- Individually calibrated for fluid and operating conditions.
- User selectable 10:1 turndown flow ranges. (See "Meter Rangeability Sizing Tables")
- User selectable units of measure-including dual units of measure.
- No floats to get stuck, tubes to break or dynamic seals to leak.
- Low pressure loss.
- Simple design with few parts for long service life.

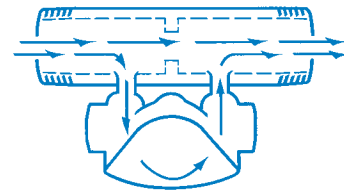
Principle of Operation

Armor-Flo™ meters are variable area flow rate meters ("rotameter"). The Armor-Flo™ body housing has a variable internal volume which enlarges from the inlet to the outlet.



The primary sensor is a tempered alloy vane with one end affixed to the apex of the meter housing. As the flow rate changes, the vane is flexed in direct proportion. A Teflon® encapsulated magnet links the vane with the pointer in a large indicator housing for easy viewing.

The ½", ¾" and 1" connections typically have female threaded ends. Sizes 1¼" through 12" utilize an integral bypass housing permitting larger connection sizes in the format of a spool with a constant 12" end to end dimension.



In addition, it permits a wide variety of connection types which include threaded, flanged, grooved ends and tri-clamp.

Applications

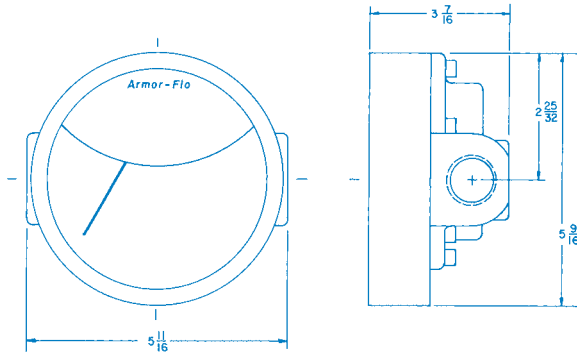
- Water
- Liquids with viscosity up to 300 cSt.
- Air and other gases
- Vacuum service
- Steam

Specifications

| | |
|-----------------------------------|---|
| Accuracy: | ±2% full scale |
| Repeatability: | ±1% full scale |
| Scales: | Direct reading |
| Resolution: | Maximum-30 division/Minimum-15 divisions |
| Rangeability: | 10 to 1 turndown |
| Materials of Construction: | |
| Housing: | Aluminum, brass, 70/30 copper/nickel, 316 stainless steel |
| Shunt: | As housing or carbon steel |
| Window: | Tempered glass or polycarbonate |
| Vane: | Cobalt/chromium/nickel alloy with Teflon® encapsulated magnet |
| "O" rings: | buna-n, ethylene propylene, Vitor® or perfluoroelastomer |
| Piping Connections: | |
| | ½" to 1" NPT Female |
| | 1¼" to 4" NPT male |
| | 1½" to 3" Tri-clamp |
| | 1¼" to 6" Grooved |
| | 1¼" to 6" Beveled |
| | ½" to 8" 150# /300# RF/FF ANSI Flanges (carbon stl) |
| | ½" to 8" 150# RF ANSI Flanges (stainless stl) |
| | ½" to 6" 150# RF ANSI Flanges (aluminum) |
| | ½" to 6" 150# FF ANSI Flanges (brass) |

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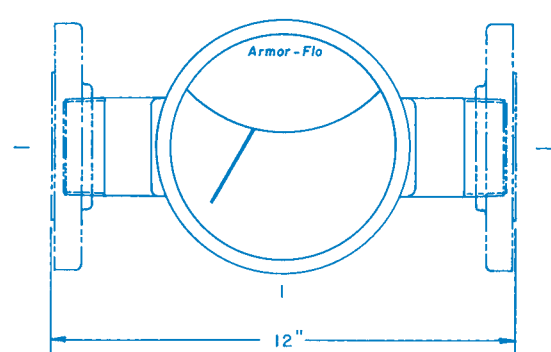
3400 Series 1/2", 3/4", & 1" connections



- 15 to 25 mm DIN 2999/BS21/ISO R7
Female threaded
- 15 to 150 mm DIN PN 10 Flanges
(316 stainless stl & carbon stl)

- Pressure Limits:**
- 1 Housing (aluminum)
 - 0, 1 or 5 Shunt-200 psig (13.8 bar)
 - 2 Housing (brass)
 - 0 Shunt-400 psig (27.6 bar)
 - 2 or 5 Shunt-200 psig (13.8 bar)
 - 6 Housing (316 stainless stl)
 - 0 Shunt-400 psig (27.6 bar)
 - 5 or 6 Shunt-200 psig (13.8 bar)
 - 7 or 8 Shunt-400 psig (27.6 bar)
 - 8 Housing (high pressure 316 stainless stl)
 - 0 Shunt-1000 psig (69 bar)

3400 Series 1 1/4" to 6" connections



Temperature Limits:

- 23 to 121°C (-10 to 250°F)
with buna-n o-ring
- 23 to 204°C (-10 to 400°F)
with Viton®, or ethylene propylene or perfluoroelastomer o-ring

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Model Number System

The example **3461-12F5-11** describes a 3400 Armor-Flo™ meter with a stainless steel body/carbon steel shunt for left to right flow. Connections are 3" 150# raised carbon steel flanges.

| <u>34</u> | <u>6</u> | <u>1</u> | <u>12</u> | <u>F</u> | <u>5</u> | <u>1</u> | <u>1</u> |
|-----------|--|--|--|---|---|--|--|
| Series | Housing Material | Flow Direction | Size | Type | Shunt Material | Window | O-Ring |
| 34 -3400 | 1-Aluminum 2-Brass 6-Stainless Stl 8-Stainless Stl 1000 psig | 1-L to R 2-R to L 3-Up 4-Down | <u>02</u> - 1/2" (15mm) <u>03</u> - 3/4" (20mm) <u>04</u> - 1" (25mm) <u>05</u> - 1 1/4" (32mm) <u>06</u> - 1 1/2" (40mm) <u>08</u> - 2" (50mm) <u>10</u> - 2 1/2" (65mm) <u>12</u> - 3" (80mm) <u>16</u> - 4" (100mm) <u>20</u> - 5" (125mm) <u>24</u> - 6" (150mm) * <u>32</u> - 8" | T -NPT End F -Flange 150#RF G -Grooved H -Flange 150#FF J -Flange 300#RF K -Flange 300#FF L -Flange DIN PN 10/15 M-BSP Thread End N-BSP Thread Back P-Flange 600#RF R-NPT Back S-Tri-clamp W-Socket End 1/2"-1" | 0-None 1-Aluminum 2-Brass 5-Carbon Steel 6-Stainless Steel 7-Carbon Steel 400 psig 8-Stainless Steel 400 psig | 1 Glass 2 Polycarbonate 3 Max Flow Indicator | 1 EPM 2 Viton 3 Buna-N 4 Perfluoroelastomer |

*gas applications only

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