



Variable area flow meters

and flow switches



Great versatility with low cost alternatives

Hedland® variable area flow meters (rotameters) are the industry benchmark. This product line has grown to over 15.000 flow meters constructed of aluminium, brass or stainless steel with variable measuring area for liquids, oil, water, compressed air and many other fluids and gases. Hedland® meters are recommended for use in machine cooling and lubrication, packaging, semiconductor production, high pressure and hose applications, automotive and aviation industry as well as in the mining industry.

EZ-View®

Low cost meters for oil, water and other liquids:

- Rugged construction
- Installation in any position
- Shock and vibration resistant
- Instantaneous direct reading

Standard meters

- Variable area in-line flow meters.
- Rugged, durable construction in aluminium, brass or stainless steel
- Installation in any position
- Available from 1/4" to 2" and 3"
- Direct reading
- 360° rotatable guard scale

MR Transmitter and Flow-Alert

For fluids, air and compressed gases

- Mounting in any position
- Electronic signal output
- Digital display (MR only)
- IP 52 and 54 housings (NEMA 12/13)



Measuring principle

The variable area (rotameter) flow measurement method allows fluids (liquids and gases) volume streams to be determined. A moving sharp-edged orifice is located within the piston assembly, forming an annular opening with the contoured metering cone. The piston assembly carries a cylindrical PPS/ceramic magnet that is magnetically coupled to an external flow indicator that moves precisely in direct response to movement for the piston therefore providing a visual display for the flow rate.



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General design features

Operating principle

Hedland® flow meters are variable area (rotameter) instruments. A precision machined, sharp-edged orifice ① located within the piston assembly ② forms an annular opening with the contoured metering cone ③. The piston assembly carries a cylindrical PPS/ceramic magnet ④ that is magnetically coupled to an external flow indicator that moves precisely, in direct response to movement of the piston. A calibrated spring ⑤ opposes flow in the forward direction. This spring decreases viscosity sensitivity and allows the flow meter to be used in any position, including inverted.

Bi-directional flow capability

If required, a reverse flow by-pass option is available and is depicted on individual product pages.

NOTE: Flow is measured in the forward direction only.

Operates in any position

The Hedland® in-line flow meter's unique spring-loaded variable area design allows meters to be installed in any position without affecting accuracy. An optional inverted flow scale is also available.

Easier to read linear scale

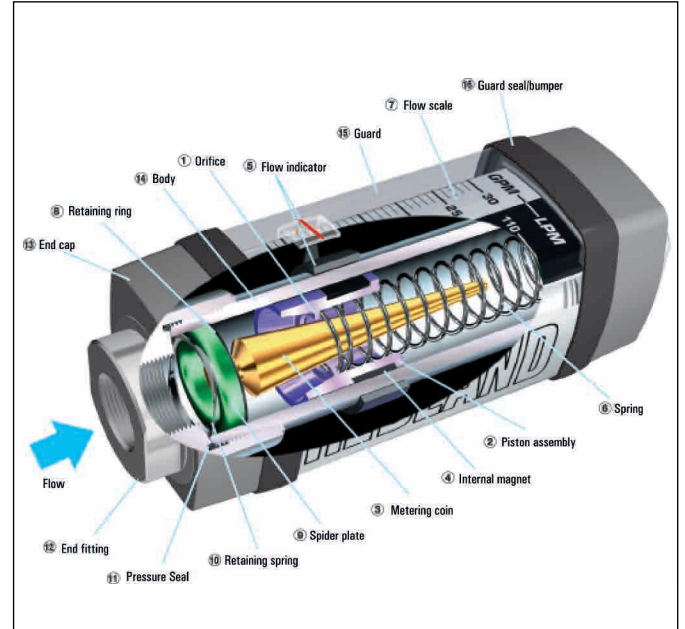
This flow meter is the most readable product in its class. Brightly colored indicators move over the graduated, linear flow scale ⑦ which contains bold, easy-to-read numerals and gauge marks. This enhanced resolution virtually eliminates parallax problems associated with competitive, direct reading flow meters.

360° rotatable guard/scale

The unique design allows the meter to be installed in any orientation without regard to scale direction. Once the meter is permanently installed, the guard/scale can be rotated 360° to optimize readability.

Rugged construction

Flow meters are available in anodized aluminum, brass, T303 and T316 stainless steel, with SAE, NPTF, BSPP, Code 61 and Code 62 4-bolt flanged ports. This easy-to-read flow meter is a reliable and trouble-free flow rate indicator, monitoring a variety of liquids and gases (including aggressive chemicals), under a wide range of pressures, temperatures and rigorous conditions encountered in industrial applications.



No flow straighteners or special piping: The Hedland® design does not require special plumbing or accessories to stabilize turbulent flow. Flow meters can be installed immediately adjacent to 90-degree elbows or other components to provide greatest system design flexibility, while saving installation time and money.

Relatively insensitive to shock and vibration: This unique design is inherently less sensitive to shock and vibration than other variable area flow meters. The improved coupling forces between the internal and external magnets greatly reduce the chance of decoupling the flow indicator under high flow and pressure transients. The magnetic coupling also eliminates the need for mechanical linkages that wear, loosen and leak over the functional life of other meters.

Technical information

Liquid & gas flow meters

Repeatability within $\pm 1\%$

Flow meter repeatability is within $\pm 1\%$. This is particularly important in cyclical applications, which require consistent readings.

Operating temperature

Standard operating temperature range is -29 to $+116$ °C (-20 to $+240$ °F). High temperature flow meter range is -29 to $+204$ °C (-20 to $+400$ °F) continuous, and $+204$ to $+260$ °C ($+400$ to $+500$ °F) intermittent. Maximum operating pressure of aluminum and brass body flow meters is reduced for temperatures over 240 °F (116 °C).

Stainless steel flow meters do not require derating. Refer to pressure derating charts in the High Temperature flow meter section.

Operating pressure

Liquids: Maximum operating pressure of aluminum and brass flow meters is 241 bar (3,500 psi) in $\frac{1}{4}$ to $\frac{1}{2}$ inch sizes and 55 bar (800 psi) for 3 inch meters. Type 303 and 316 stainless steel flow meters have a 414 bar (6,000 psi) maximum operating pressure in $\frac{1}{4}$ and $\frac{1}{2}$ inch models and 345 bar (5,000 psi) maximum operating pressure in $\frac{3}{4}$ to 1 $\frac{1}{2}$ inch models. All liquid flow meters are designed with a 3:1 safety factor. High temperature affects maximum operating pressure. Refer to pressure derating charts in the High Temperature flow meter section.

Air/Gases: Maximum operating pressure of aluminum and brass flow meters is 69 bar (1,000 psi) in $\frac{1}{4}$ to $\frac{1}{2}$ inch sizes and 17 bar (250 psi) for 3 inch meters. Type 303 and 316 stainless steel flow meters have a 103 bar (1,500 psi) maximum operating pressure. All air/gas flow meters are designed with a 10:1 safety factor. All pneumatic test kits are limited to a maximum operating pressure of 41 bar (600 psi) by the control valve pressure rating. Consult factory for high pressure use.

Fatigue Rating: per NFPA T2.6.1R1-1991 - C/90
(see page 8 for further details).

Pressure drop (ΔP)

Refer to pages 62 to 67 for Flow vs. Pressure Drop data for oil, phosphate ester, water-based fluids, water, and air.

Filtration

Although Hedland® flow meters are more contamination tolerant than most fluid system components, 200 mesh (74 micron) or better filtration is required to ensure reliable performance.

Calibration

Oil, PE and WBF flow meters are calibrated with 0.876 specific gravity, 140 SUS (32cSt) hydraulic oil, irrespective of final fluid use. After calibration, PE and WBF flow meters are computer corrected for 1.18 s.g. and 1.0 s.g. respectively. Water meters are calibrated with water at 1.0 specific gravity. Air and gas meters are calibrated with air at 1.0 specific gravity (70 °F at 100 psi).



Flow meter certification

There are three (3) types of certificates available with the Hedland® flow meter:

1. Certificate of conformance
2. Calibration certificate
3. Certified drawing

Certificate of conformance: This document states that the specified Hedland® flow meter meets the performance standards indicated in the Hedland® catalog. The certificate is signed by the Corporate Quality Assurance Manager or authorized delegate and should meet most needs for performance certification.

Calibration certificate: This document contains the actual flow vs. indicated flow of a specific flow meter. It documents the error of each flow point relative to the stated tolerance limit. The master meters used to calibrate flow meters are traceable to the National Institute for Standards and Testing (NIST).

| Meter type | Traceable range |
|-----------------|----------------------------------|
| Petroleum-based | 0.02 to 400 GPM/0.08 to 1514 LPM |
| Water-based | 0.02 to 325 GPM/0.08 to 1230 LPM |
| Air/gas | 0.5 to 1000 SCFM/0.24 to 472 LPS |

Certified drawings: Certified assembly prints are available and contain

1. Final meter assembly with part number and dimensions
2. Parts list by part number and description
3. Authorized drawing signatures

Reproducible ANSI A-D size drawings are available on standard bond paper. Large size drawings can also be reduced to ANSI A or B sizes. ACAD R13 and 2000 drawings can be sent by electronic format when requested.

Certificate of origin and flow meter tags also available upon request.

Note: All gallon units indicated in this catalogue are US gallons.

Liquid flow meter

Application information

Standard flow scales

Standard liquid flow scales are calibrated in gpm and lpm at 0.876 specific gravity for petroleum-based fluids, 1.18 s.g. for phosphate ester based fluids and 1.0 s.g. for water and water-based fluids. For field conversion of the standard scale to other fluids, see liquid propane example below.

Special flow scales

Special scales are available for liquids and gases in any measurement unit, and other fluid viscosities and/or specific gravities.

Viscosity effect (SUS/cSt)

Hedland®'s design utilizes a precision machined, sharp-edged orifice and biasing calibration spring that ensures operating stability and accuracy over the wide viscosity range common to many fluids. Generally, high flow models of each meter size provide good accuracy over a viscosity range of 40 to 500 SUS (4.2 to 108 cSt)

Density effect (specific gravity)

Any fluid density change from stated standards has a proportional effect on meter accuracy. Special scales can be supplied if actual specific gravity decreases accuracy beyond application limits.

Corrections for more or less dense fluids can be made to standard scales using the following correction factor:

$$\sqrt{1.0 / \text{specific gravity, for water/water-based meters}}$$

$$\sqrt{0.876 / \text{specific gravity, for petroleum-based meters}}$$

Example: Measuring liquid propane with petroleum meter

Fluid ~ Liquid Propane (LPG)

Scale Measured Flow ~ 28.5 gpm

1. Select (LPG) specific gravity from the Fluid Selection Chart = 0.51
2. Since petroleum meter is utilized, select petroleum formula
3. Divide 0.876 by 0.51 = 1.72
4. Take square root of 1.72 = 1.31 (correction factor)
5. Multiply scale reading by 1.31, 28.5 (indicated flow) x 1.31 (correction factor) = 37.3 gpm (actual flow of liquid propane)

This correction may be ignored for petroleum-based hydraulic fluids.



Fluid selection chart

| Fluid | Specific Gravity | Correction factor of standard scale | | Internal body material | | | | External press. seals | | Dust guard | | |
|----------------------------|------------------|-------------------------------------|-------|------------------------|-------|----------|----------|-----------------------|-----|---------------|-------|--------|
| | | Oil | Water | Aluminum | Brass | T316 SST | T303 SST | Vitron® | EPR | Polycarbonate | Nylon | Pyrex® |
| Acetic acid (air free) | 1.06 | 0.909 | 0.971 | C | N | R | R | R | R | C | N | R |
| Acetone | 0.79 | 1.053 | 1.125 | R | R | R | R | N | R | N | R | R |
| Alcohol butyl (butanol) | 0.83 | 1.027 | 1.098 | C | C | R | C | R | R | R | R | R |
| Alcohol ethyl (ethanol) | 0.83 | 1.027 | 1.098 | C | C | R | R | C | R | R | N | R |
| Ammonia | 0.89 | 0.992 | 1.060 | R | C | R | R | N | R | N | C | R |
| Benzene | 0.69 | 1.127 | 1.204 | C | R | R | C | R | N | N | R | R |
| Carbon disulphide | 1.26 | 0.834 | 0.891 | R | N | R | R | R | N | N | R | R |
| Castor oil | 0.97 | 0.950 | 1.015 | C | R | R | C | R | N | C | C | R |
| Cotton seed oil | 0.93 | 0.970 | 1.037 | C | R | R | R | R | N | R | R | R |
| Ethylene glycol 50/50 | 1.12 | 0.884 | 0.945 | R | R | R | R | R | R | R | C | R |
| Freon II | 1.46 | 0.774 | 0.828 | R | R | R | R | R | N | R | R | R |
| Gasoline | 0.70 | 1.119 | 1.195 | R | R | R | R | R | N | C | R | R |
| Glycerin | 1.26 | 0.834 | 0.891 | R | R | R | R | R | R | R | C | R |
| Kerosene | 0.82 | 1.033 | 1.104 | R | R | R | R | R | N | R | R | R |
| Liquid propane (LPG) | 0.51 | 1.310 | 1.400 | R | R | R | R | R | N | N | R | R |
| Mineral oil | 0.92 | 0.976 | 1.042 | R | N | R | R | R | N | R | R | R |
| Naphtha | 0.76 | 1.074 | 1.147 | R | N | R | R | R | N | C | R | R |
| Perchloroethylene | 1.62 | 0.735 | 0.786 | C | N | R | R | R | N | N | N | R |
| Petroleum oil | 0.876 | 1.000 | 1.068 | R | R | R | R | R | N | R | R | R |
| Phosphate ester | 1.18 | 0.862 | 0.921 | R | R | R | R | N | R | N | R | R |
| Phosphate ester base | 1.26 | 0.833 | 0.891 | R | R | R | R | R | N | N | R | R |
| Phosphoric acid (air free) | 1.78 | 0.701 | 0.749 | N | N | R | N | R | N | R | N | R |
| Sea water | 1.03 | 0.922 | 0.985 | N | N | C | C | N | R | R | R | R |
| Synthetic petroleum base | 1.00 | 0.936 | 1.000 | R | C | R | R | R | N | R | R | R |
| Water | 1.00 | 0.936 | 1.000 | N | R | R | R | N | R | R | R | R |
| Water glycol 50/50 | 1.07 | 0.905 | 0.967 | R | R | R | R | R | N | R | R | R |
| Water-in-oil | 0.93 | 0.970 | 1.037 | R | R | R | R | N | R | R | R | R |

R - Recommended N - Not Recommended C - Consult Factory

Pneumatic flow meter

Application information

Selecting a Hedland® pneumatic flow meter

Flow meters are offered in aluminum, brass, T303 and T316 stainless steel. This wide alloy selection allows for applications from relatively benign dry compressed air to corrosive gases such as hydrogen chloride or sulfur dioxide.

Aluminum, brass and type 303 stainless steel are available in four configurations: Standard inlet and outlet ports, an extended inlet cap fitted with a pressure gauge, an extended inlet cap with a ¼ inch NPTF plugged gauge port, and a test kit with an extended inlet cap fitted with a 160 psi pressure gauge and control valve on the outlet.

Consult the factory for the configuration best suited to your application.

Standard flow rate scales - Air/Gases

The Hedland® pneumatic flow meter is offered with a standard Multi-Pressure Flow Scale.

The **Multi-Pressure Flow Scale** (figure 1) has a vertically graduated scale, calibrated for air in standard cubic feet per minute (scfm) at 1.0 s.g. (70 °F at 100 psi), or liters per second (lps) at 1.0 s.g. (21 °C at 6.9 bar). The multi-pressure scale design allows for use at line pressures from 40 to 130 psi in 10 psi increments (3.0 to 9.0 bar in 1 bar increments). This configuration requires that a pressure gauge be installed at the meter inlet.

To use, the operator reads the inlet gauge pressure and selects the appropriate vertical line or interpolated value closest to the gauge reading and follows the line until it intersects the brightly colored horizontal indicator bar. The flow rate in scfm/lps is read by taking the intersection point and following the slope of the closest diagonal line to a scale value and interpolating the scfm/lps flow rate. No further calculations are required.

A special Single Pressure Flow Scale is available in U.S. and metric units for an additional charge. This is a graduated scale, calibrated for air in standard cubic feet per minute (scfm) at 1.0 s.g. (70 °F at 100 psi), or liters per second (lps) at 1.0 s.g. (21 °C at 6.9 bar), see figure 2, Single Pressure Flow Scale, for further details. A standard cubic foot of air is defined as a cubic foot of air at 70 °F, at atmospheric pressure 14.7 psia at sea level. Since it is impossible to flow air at “standard” conditions the scale is calibrated for an inlet condition of 100 psi (6.9 bar) at 70 °F (21 °C). A correction factor must be calculated to determine the actual air volume. Each meter is supplied with the Conversion Chart.

A specially calibrated scale for higher or lower fixed pressures in any measurement unit, and other fluid specific gravities can be supplied upon request. Consult factory for details.

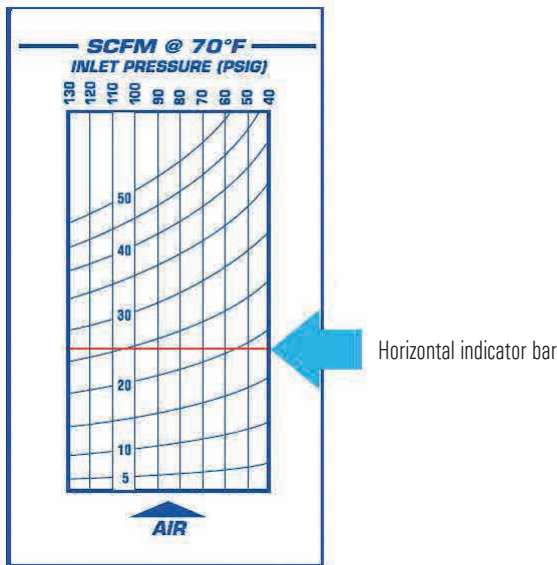


Figure 1: Multi-pressure flow scale

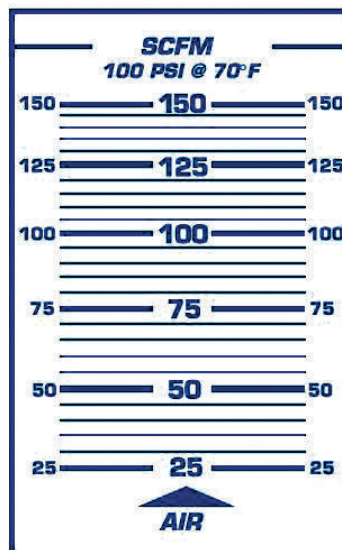


Figure 2: Single pressure flow scale

Conversion information

Chart calculations and flow meter sizing (SCFM applications)

Compressibility of gases

Since gases are significantly compressible, their density varies with pressure and temperature. Tables 1 & 2 of the conversion chart shown in figure 3 are used to convert "indicated" scfm flow rates to "actual" scfm flow rates for your application.

Effects of specific gravity

Standard scales are calibrated for air with a specific gravity of 1.0. Table 3 of the conversion chart shown in figure 3 is used to calculate "actual" scfm flow rates of gases with a specific gravity other than 1.0.

Example: Measuring natural gas with air meter

Operating parameters

- Fluid ~ Natural gas
- Line pressure ~ 140 psig
- Temperature ~ 40 °F
- Desired maximum flow ~ 85 scfm
- Pressure drop ~ 10 psiD maximum
- Port size ~ ½ inch NPTF desired

1. Pressure correction for 140 psi

$$f_1 = \sqrt{\frac{114.7}{14.7 + 140}} = \sqrt{\frac{114.7}{154.7}} = .861$$

2. Temperature correction for 40° F

$$f_2 = \sqrt{\frac{460 + 40}{530}} = \sqrt{\frac{500}{530}} = .971$$

3. Specific gravity correction for natural gas, s.g. = 0.60

$$f_3 = \sqrt{.60} = .775$$

4. Make total correction calculation. f_{total}

$$f_{total} = f_1 \times f_2 \times f_3 = .861 \times .971 \times .775 = .648$$

DETERMINE FLOW RATES USING DIFFERENT PRESSURES & TEMPERATURES

scfm (actual) = $\frac{\text{scfm (indicated)}}{f_1 \times f_2 \times f_3}$ Where f_1 = Conversion factor for inlet pressure
 f_2 = Conversion factor for temperature
 f_3 = Conversion factor for specific gravity

TABLE 1 PRESSURE CORRECTION FACTOR (f1) Operating Pressure

| | | | | | | | | | | |
|------|-------|-------|-------|------|------|------|------|------|------|------|
| psig | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| BAR | 1.7 | 3.5 | 5.2 | 6.9 | 8.6 | 10.4 | 12.1 | 13.8 | 15.5 | 17.2 |
| kPa | 172 | 345 | 517 | 689 | 862 | 1034 | 1207 | 1379 | 1551 | 1724 |
| f1 | 1.700 | 1.331 | 1.131 | 1.00 | .902 | .835 | .778 | .731 | .692 | .658 |

$$f_1 = \sqrt{\frac{114.7}{14.7 + \text{psig}}} \quad f_1 = \sqrt{\frac{7.914}{1.014 + \text{BAR}}} \quad f_1 = \sqrt{\frac{790.857}{101.357 + \text{kPa}}}$$

TABLE 2 TEMPERATURE CORRECTION FACTOR (f2)

| | | | | | | | | | | |
|----|-------|------|------|-------|-------|-------|-------|-------|-------|-------|
| °F | +10 | +30 | +50 | +70 | +90 | +110 | +130 | +150 | +170 | +190 |
| °C | -12.2 | -1.1 | +9.9 | +21.0 | +32.1 | +43 | +54 | +65 | +76 | +88 |
| f2 | .942 | .962 | .981 | 1.00 | 1.018 | 1.037 | 1.055 | 1.072 | 1.090 | 1.107 |

$$f_2 = \sqrt{\frac{460 + \text{°F}}{530}} \quad f_2 = \sqrt{\frac{273 + \text{°C}}{293}}$$

TABLE 3 SPECIFIC GRAVITY CORRECTION FACTOR (f3)

$$f_3 = \sqrt{\text{Sp. Gr.}}$$



5. To determine actual flow vs. indicated flow: read indicated flow at 100 psi vertical line on the multipressure scale (see Figure 1) and apply correction factor.

$$\text{scfm (actual)} = 55 \text{ scfm (indicated)} \div .648 (f_{total}) = 84.9$$

6. 10 psiD maximum

See page 69 for pressure drop (DP) to find the appropriate size/flow range to meet the 10 psiD requirements.

7. To determine which standard Hedland® meter is required to achieve desired maximum flow of 85 scfm.

$$85 \text{ scfm (max flow)} \times .648 (f_{total}) = 55.1 \text{ scfm}$$

8. From the example – model H671A-100 or H771A-100 can be selected. Both meet the 55.1 scfm flow requirement and operate with less than 10 psiD. The actual scale range can be calculated as follows:

$$10 \text{ scfm (standard)} \div .648 (f_{total}) = 15.4 \text{ scfm (actual)}$$

$$100 \text{ scfm (standard)} \div .648 (f_{total}) = 154.3 \text{ scfm (actual)}$$

Fluid selection chart

| Fluid | Specific Gravity | Correction Factor of Standard Scale | Internal body material | | External press. seals | | Dust guard | | | |
|--|------------------|-------------------------------------|------------------------|-------|-----------------------|----------|------------|-----|---------------|-------|
| | | | Aluminum | Brass | T316 SST | T303 SST | Viton® | EPR | Polycarbonate | Nylon |
| Air | 1.0 | 1000 | R | R | R | R | R | R | R | R |
| Argon | 1.38 | 1.175 | R | R | R | R | R | R | R | R |
| Carbon dioxide (CO ₂) | 1.53 | 1.237 | R | R | R | R | R | R | R | R |
| Freon 11 (CCl ₃ F) | 4.92 | 2.218 | R | R | R | R | R | R | R | R |
| Freon 12 (CCl ₂ F) | 4.26 | 2.060 | R | R | R | R | R | R | R | R |
| Helium (HE) | 0.14 | 0.374 | R | R | R | R | R | R | R | R |
| Hydrogen (H ₂) | 0.07 | 0.265 | R | R | R | R | R | R | R | R |
| Natural gas | 0.60 | 0.775 | C | C | R | C | R | N | C | R |
| Nitrogen (N ₂) | 0.97 | 0.985 | C | C | R | R | R | R | C | R |
| Oxygen (O ₂) | 1.10 | 1.049 | R | R | R | R | R | R | R | R |
| Propane (C ₃ H ₈) | 1.57 | 1.253 | R | R | R | R | R | N | N | R |

R - Recommended N - Not Recommended C - Consult Factory

Figure 4: Specific Gravity and Correction Factor for Common Gases

Figure 3: Conversion chart



Conversion information

Chart calculations and flow meter sizing (ACFM applications)

Example:

Operating parameters

Fluid ~ Air

Line pressure ~ 35 psig

Temperature ~ 70 °F

Desired maximum flow ~ 20 acfm

Since acfm measurements are not relative to the standard 1 atmosphere condition (14.7 psia), the volume of a cubic foot at 35 psig must first be related to the volume it would occupy at 1 atmosphere. The two volumes are related through Boyle's Law.

Since, $V \propto \frac{1}{P_{atm}}$, then $V_1 P_1 = V_2 P_2$, and
 $\times \text{Atm}$

$$V_1 = 20 \text{ acfm}$$

$$P_1 = 35 \text{ psig} + 14.7 \text{ psig}$$

$$V_2 = \text{scfm}$$

$$P_2 = 14.7 \text{ psia}$$

$$V_2 = \frac{V_1 P_1}{P_2} = \frac{20 \times (35 + 14.7)}{14.7} = 67.62 \text{ scfm}$$

To correct for density at 35 psig; use figure 3 (tables 1, 2 & 3) on page 7.

$$f_1 = \sqrt{\frac{14.7 + 35}{14.7}} = 1.52$$

$$f_2 = 1.0$$

$$f_3 = 1.0$$

$$f_1 \times f_2 \times f_3 = 1.52 \times 1.0 \times 1.0 = 1.52 = f_{total}$$

$$V_2 \times f_{total} = \text{Hedland}^\circledast \text{ indicated flow}$$

$$67.62 \times 1.52 = 102.78 \text{ scfm indicated}$$

A Hedland[®] meter installed in this system would indicate 103 scfm. A custom calibrated scale for higher or lower fixed pressures in any measurement unit, and other fluid specific gravities can be supplied upon request.



High cycle/High pressure fatigue rating:

per NFPA/T2.6.1 R1 - 1991, C/90

The method of verifying rated fatigue pressure (or establishing the rated burst pressure, or both) of the pressure containing envelope conforms to NFPA/T2.6.1 R1, Fluid power systems and products – Method for verifying the fatigue and establishing the burst pressure ratings of the pressure containing envelope of a metal fluid power component.

| Meter | Aluminum | | Brass | | Stainless steel | |
|-------|--------------|---|-------|--------|-----------------|---------------------|
| | RFP* | Cycles | RFP* | Cycles | RFP* | Cycles |
| ¼ | 2000 | 1 x 10 ⁶ | ** | | 3000 | 1 x 10 ⁶ |
| ½ | 2000 | 1 x 10 ⁶ | ** | | 3000 | 1 x 10 ⁶ |
| ¾ | 1500 | 1 x 10 ⁶ | ** | | 3000 | 1 x 10 ⁶ |
| 1 | 1500 | 1 x 10 ⁶ | ** | | 3000 | 1 x 10 ⁶ |
| 1¼ | 1000 1500 | 1 x 10 ⁶ 70 x 10 ³ | ** | | 3000 | 1 x 10 ⁶ |
| 1½ | 1000 1500 | 1 x 10 ⁶ 70 x 10 ³ | ** | | 3000 | 1 x 10 ⁶ |

* RFP = Rated Fatigue Pressure, psi

** Consult factory

Common conversions

| To Convert | Into... | Multiply by... |
|----------------------|-----------------------|------------------------|
| Barrel (U.S. liquid) | Gallons | 31.5 |
| Bars | Kgs/sq meter | 10,200 |
| Bars | Pounds/sq in | 14.50 |
| Centigrade | Fahrenheit | (C° x 9.5) + 32 |
| Cubic centimeters | Cu feet | .00003521 |
| Cubic centimeters | Cu inches | 0.06102 |
| Cubic centimeters | Cu meters | .000001 |
| Cubic centimeters | Gallons (U.S. liquid) | .0002642 |
| Cubic centimeters | Liters | 0.001 |
| Cubic feet | Cu cms | 28,320 |
| Cubic feet | Cu inches | 1,728 |
| Cubic feet | Cu meters | 0.02832 |
| Cubic feet | Gallons (U.S. liquid) | 7.48052 |
| Cubic feet | Imperial gallons | 6.23210 |
| Cubic feet | Liters | 28.317 |
| Cubic feet/min | Cu cms/min | 28,317 |
| Cubic feet/min | Gallons/min | 7.481 |
| Cubic feet/min | Liters/min | 28.32 |
| Cubic feet/sec | Gallons/min | 448.83 |
| Cubic inches | Cu cms | 16.39 |
| Cubic inches | Cu feet | .0005787 |
| Cubic inches | Cu meters | .00001639 |
| Cubic inches | Gallons (U.S. liquid) | .004329 |
| Cubic inches | Imperial gallons | .0036065 |
| Cubic inches | Liters | 0.01639 |
| Cubic meters | Cu cms | 1,000,000 |
| Cubic meters | Cu feet | 35.31 |
| Cubic meters | Cu inches | 61,023 |
| Cubic meters | Gallons (U.S. liquid) | 264.2 |
| Cubic meters | Liters | 1,000 |
| Degree Fahrenheit | Degree Celsius | t °C = (t °F - 32)/1.8 |
| Feet/min | Cms/sec | 0.5080 |

| To Convert | Into... | Multiply by... |
|--------------------|-----------------------|----------------|
| Feet/min | Meters/min | 0.3048 |
| Gallons/min | Cu cms/min | 3,785.412 |
| Gallons/min | Cu feet/min | .1337 |
| Gallons/min | Liters/min | 3.785 |
| Imperial gallons | Cu feet | .160459 |
| Imperial gallons | Cu inches | 277.274 |
| Imperial gallons | Liters | 4.54374 |
| Imperial gallons | U.S. gallons | 1.20032 |
| Kilograms/sq cm | Pounds/sq ft | 2,048 |
| Kilograms/sq cm | Pounds/sq in | 14.22 |
| Kilograms/sq meter | Bars | .00009807 |
| Kilograms/sq meter | Pounds/sq in | .001422 |
| Liters | Cu cm | 1,000 |
| Liters | Cu feet | 0.0353145 |
| Liters | Cu inches | 61.0234 |
| Liters | Cu meters | 0.001 |
| Liters | Gallons (U.S. liquid) | 0.264170 |
| Liters | Imperial gallons | .220083 |
| Liters/min | Cu cms/min | 1000 |
| Liters/min | Cu feet/min | .035 |
| Liters/min | Gallons/min | .264 |
| Pascal (Pa) | Bar | .00001 |
| Pascal (Pa) | Pounds/sq in | .000145 |
| Pounds/sq inch | Kgs/sq meter | 703.1 |
| Pounds/sq inch | Pascal (Pa) | 6,895 |
| Pounds/sq inch | Bar | .069 |
| U.S. gallons | Imperial gallons | .83267 |
| U.S. gallons | Cu cms | 3785 |
| U.S. gallons | Cu feet | .133681 |
| U.S. gallons | Cu inches | 231 |
| U.S. gallons | Cu meters | .3785 |
| U.S. gallons | Liters | 3.785 |

Viscosity Conversion Table

| | Saybolt Universal Seconds (SSU) | ISO-VG | CentiStoke | CentiPoise* | Typical Brands/Liquids at 100 °F |
|------------------|---------------------------------|--------|------------|--------------------------------|---|
| Standard Range | 31 | 2 | 1.0 | 0.876 | Water |
| | 35 | 3 | 2.5 | 2.19 | - |
| | 40 | 5 | 4.2 | 3.68 | - |
| | 45 | 5/7 | 5.9 | 5.17 | - |
| | 50 | 7 | 7.5 | 6.57 | Kerosene |
| | 55 | 7/10 | 8.8 | 7.71 | Atlantic Richfield/Duro 55 Hyd. Oil |
| | 60 | 10 | 10.5 | 9.20 | Monsanto/Skydrol - 500 A |
| | 70 | 10/15 | 13.2 | 11.56 | Mobil/Aero HFA Hydraulic Oil |
| | 80 | 15 | 15.7 | 13.75 | No 4 Fuel Oil |
| | 90 | 22 | 18.2 | 15.94 | Stauffer Chemical/Fyrquel 90 |
| | 100 | 22 | 20.6 | 18.05 | Conoco/Syncon Synthetic AW Hyd. Oil |
| | 150 | 32 | 32.0 | 28.03 | Mobil/DTE 24 Hydraulic Oil |
| | 200 | 46 | 43.2 | 37.84 | Citco/Glycol FR-40XD (Oil in Water) |
| | 300 | 68 | 65.0 | 56.94 | SAE 20 Crankcase Oil |
| 400 | 68/100 | 86.0 | 75.34 | Sunoco/Sunvis 41 Hydraulic Oil | |
| Extended Range** | 500 | 100 | 108 | 94.61 | SAE 30 Crankcase Oil |
| | 750 | 150 | 162 | 141.91 | SAE 40 Crankcase Oil |
| | 1000 | 220 | 216 | 189.22 | Mobil/Paper Machine Oil - Type K |
| | 1500 | 320 | 323 | 282.95 | SAE 50 Crankcase Oil |
| | 2000 | 460 | 431 | 377.56 | Amoco/American Industrial Oil - No. 460 |
| | 3000 | 680 | 648 | 567.65 | SAE 140 Gear Oil |
| 4000 | 1000 | 862 | 755.11 | SAE 250 Gear Oil | |

* Centipoise are given for oil of 0.876 specific gravity. Relationship: centistokes x specific gravity = centipoise

** Meters measuring fluid within this range may require custom scales. Consult factory for details.

3500/6000 PSI flow meters

For petroleum fluids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116 °C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for .876 S.G.



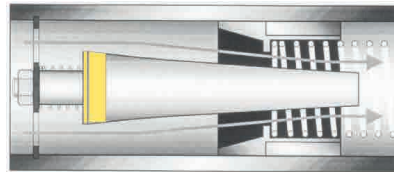
Technical data

| | |
|-----------------------------------|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Guard: Polycarbonate |
| Threads | SAE J1926-1*, NPTF ANSI B2.2, BSPP ISO1179, Code 61 and Code 62: SAEJ518 |
| Temperature range | -29 °C to +116 °C (-20 °F to +240 °F) for higher temp. meters, see page 16-17 |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. (800 psi/55 bar max. for 3" series) with a 3:1 safety factor. For high cycle applications: See conversion information |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see conversion information |
| Pressure drop | See ordering information table, see next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |

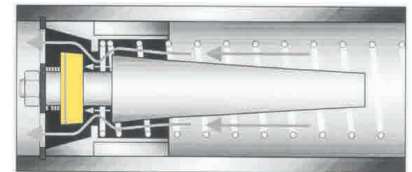
* SAE ports will accept both light-duty (SAE J1926-3) and heavy-duty (SAE J1926-2) stud ends, except 1/4 (SAE 6) size, which will accept only light-duty (SAE J1926-3) studs ends.

Reverse flow by-pass option:

Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design. Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



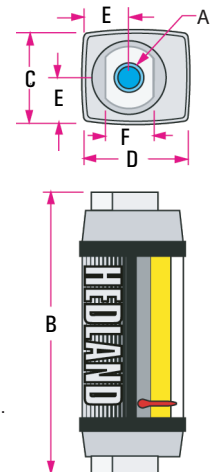
Normal flow direction



Reverse flow by-pass

Dimensions

| | A | B | C | D | E | F |
|--------------------------------|----------------|---------------|---------------|----------------|---------------|---|
| Nominal port size ¹ | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | |
| ¼ (SAE 6) | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) | |
| ½ (SAE 10) | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) | |
| ¾ (SAE 12) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) | |
| 1 (SAE 16) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) | |
| 1¼ (SAE 20) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | |
| 1½ (SAE 24) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | |



NOTE: Dimensions for 1½" Code 62, 3" and 3" Code 61 can be found on page 79.

Weights for all sizes can be found on page 80.

① 3 inch models have Celcon® piston/piston ring

3500/6000 PSI flow meters

For petroleum fluids

Ordering information

| Nominal port size ^② | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ⌘ | | | Options ⬥ |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|------------------|-------------------|--------------------|----------------|-----------------|---------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP ^③ | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| 1/4" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | 3.5 (.24) | 4.0 (.28) | | H200 ⌘ - 002 - ⬥ | H201 ⌘ - 002 - ⬥ | H202 ⌘ - 002 - ⬥ | A | B | 6000 psi S | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | 3.0 (.21) | 5.0 (.35) | | H200 ⌘ - 005 - ⬥ | H201 ⌘ - 005 - ⬥ | H202 ⌘ - 005 - ⬥ | | | | |
| | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | | H200 ⌘ - 010 - ⬥ | H201 ⌘ - 010 - ⬥ | H202 ⌘ - 010 - ⬥ | | | | |
| | 0.2 - 2.0 | 1 - 7.5 | 6.0 (.41) | 13 (.90) | | H200 ⌘ - 020 - ⬥ | H201 ⌘ - 020 - ⬥ | H202 ⌘ - 020 - ⬥ | | | | |
| 1/2" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | 5.2 (.36) | H600 ⌘ - 001 - ⬥ | H601 ⌘ - 001 - ⬥ | H602 ⌘ - 001 - ⬥ | A | B | 6000 psi S | RF |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | 9.6 (.66) | H600 ⌘ - 002 - ⬥ | H601 ⌘ - 002 - ⬥ | H602 ⌘ - 002 - ⬥ | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | 4.8 (.33) | H600 ⌘ - 005 - ⬥ | H601 ⌘ - 005 - ⬥ | H602 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | 23.0 (1.6) | H600 ⌘ - 010 - ⬥ | H601 ⌘ - 010 - ⬥ | H602 ⌘ - 010 - ⬥ | | | | |
| 3/4" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H700 ⌘ - 002 - ⬥ | H701 ⌘ - 002 - ⬥ | H702 ⌘ - 002 - ⬥ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H700 ⌘ - 005 - ⬥ | H701 ⌘ - 005 - ⬥ | H702 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H700 ⌘ - 010 - ⬥ | H701 ⌘ - 010 - ⬥ | H702 ⌘ - 010 - ⬥ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H700 ⌘ - 020 - ⬥ | H701 ⌘ - 020 - ⬥ | H702 ⌘ - 020 - ⬥ | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H760 ⌘ - 002 - ⬥ | H761 ⌘ - 002 - ⬥ | H762 ⌘ - 002 - ⬥ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H760 ⌘ - 005 - ⬥ | H761 ⌘ - 005 - ⬥ | H762 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H760 ⌘ - 010 - ⬥ | H761 ⌘ - 010 - ⬥ | H762 ⌘ - 010 - ⬥ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H760 ⌘ - 020 - ⬥ | H761 ⌘ - 020 - ⬥ | H762 ⌘ - 020 - ⬥ | | | | |
| 1 1/4" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H800 ⌘ - 030 - ⬥ | H801 ⌘ - 030 - ⬥ | H802 ⌘ - 030 - ⬥ | A | B | 5000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H800 ⌘ - 050 - ⬥ | H801 ⌘ - 050 - ⬥ | H802 ⌘ - 050 - ⬥ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H800 ⌘ - 075 - ⬥ | H801 ⌘ - 075 - ⬥ | H802 ⌘ - 075 - ⬥ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15 (1.0) | 39.0 (2.7) | H800 ⌘ - 100 - ⬥ | H801 ⌘ - 100 - ⬥ | H802 ⌘ - 100 - ⬥ | | | | |
| 1 1/2" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H860 ⌘ - 030 - ⬥ | H861 ⌘ - 030 - ⬥ | H862 ⌘ - 030 - ⬥ | A | B | 5000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H860 ⌘ - 050 - ⬥ | H861 ⌘ - 050 - ⬥ | H862 ⌘ - 050 - ⬥ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H860 ⌘ - 075 - ⬥ | H861 ⌘ - 075 - ⬥ | H862 ⌘ - 075 - ⬥ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H860 ⌘ - 100 - ⬥ | H861 ⌘ - 100 - ⬥ | H862 ⌘ - 100 - ⬥ | | | | |
| 1 1/2" Code 62 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H808 ⌘ - 030 - ⬥ | | | A | B | 4000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H808 ⌘ - 050 - ⬥ | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H808 ⌘ - 075 - ⬥ | | | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15 (1.0) | 39.0 (2.7) | H808 ⌘ - 100 - ⬥ | | | | | | |
| 3" | 10 - 200 | 50 - 750 | 11 (.76) | 17 (1.1) | | Not available | H901 ⌘ - 200 - ⬥ | H902 ⌘ - 200 - ⬥ | A | B | 800 psi | Not available |
| | 20 - 300 | 100 - 1100 | 11 (.76) | 18 (1.2) | | | H901 ⌘ - 300 - ⬥ | H902 ⌘ - 300 - ⬥ | | | | |
| 3" Code 61 | 10 - 200 | 50 - 750 | 11 (.76) | 17 (1.1) | | H909 ⌘ - 200 - ⬥ | | | A | B | 800 psi | Not available |
| | 20 - 300 | 100 - 1100 | 11 (.76) | 18 (1.2) | | H909 ⌘ - 300 - ⬥ | | | | | | |

(Example) H 701 A - 030 - RF



NOTE: RF option is not available with standard brass flow meters.

② Fractional sizes apply to NPTF and BSPP.

③ 3 inch models have BSPT (BS21) threads

3500/6000 PSI test kits

For petroleum fluids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for .876 S.G.



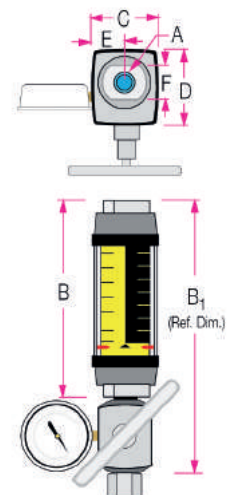
Technical data

| | |
|--|---|
| Materials | 2024 – T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 – T351 anodized aluminum piston and cone |
| Common parts | |
| Spider Plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Guard: Polycarbonate |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications: See page conversion information |
| Stainless steel operating: | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information |
| Pressure drop | See ordering information table, next page and differential pressure charts on page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range available on stainless steel test kits. |
| Load valve | ½", ¾" and 1" series - needle valve; ¼" and 1½" series - ball valve. Produce ΔP up to 3,500 psi/241 bar psiD and 6,000 psi/414 bar psiD. |

Dimensions

| A | B | B1 | C | D | E | F |
|-------------------|----------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ½ (SAE 10) | 6.6 (168) | 10.3 (262) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ (SAE 12) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 (SAE 16) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |

Note: Weights for all sizes can be found on page 80.
SAE and BSPP test kits include inlet adapter.



3500/6000 PSI test kits

For petroleum fluids

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ☒ | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|----------------------------|----------------------------------|-------------------|-------------------|--------------------|----------------|-----------------|---------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Revers 100% flow psi (bar) | SAE | NPTF | BSPB | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | |
| 1/2" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 3.0 (.21) | 4.75 (.33) | 7.2 (.50) | H600 ☒ - 001 - TK | H601 ☒ - 001 - TK | H602 ☒ - 001 - TK | A | B | 6000 psi S | RT |
| | 0.2 - 2.0 | 1 - 7.5 | 5.0 (.34) | 9.0 (.62) | 15.6 (1.1) | H600 ☒ - 002 - TK | H601 ☒ - 002 - TK | H602 ☒ - 002 - TK | | | | |
| | 0.5 - 5.0 | 2 - 19 | 10.0 (.69) | 26.0 (1.8) | 24.8 (1.7) | H600 ☒ - 005 - TK | H601 ☒ - 005 - TK | H602 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 24.0 (1.7) | 71.5 (4.9) | 85 (5.9) | H600 ☒ - 010 - TK | H601 ☒ - 010 - TK | H602 ☒ - 010 - TK | | | | |
| | 1 - 15 | 4 - 56 | 39.0 (2.7) | 155 (10.7) | 210 (14.5) | H600 ☒ - 015 - TK | H601 ☒ - 015 - TK | H602 ☒ - 015 - TK | | | | |
| 3/4" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (1.0) | 3.0 (.21) | 3.9 (.27) | H700 ☒ - 002 - TK | H701 ☒ - 002 - TK | H702 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H700 ☒ - 005 - TK | H701 ☒ - 005 - TK | H702 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H700 ☒ - 010 - TK | H701 ☒ - 010 - TK | H702 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H700 ☒ - 020 - TK | H701 ☒ - 020 - TK | H702 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H700 ☒ - 030 - TK | H701 ☒ - 030 - TK | H702 ☒ - 030 - TK | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (1.0) | 3.0 (.21) | 3.9 (.27) | H760 ☒ - 002 - TK | H761 ☒ - 002 - TK | H762 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H760 ☒ - 005 - TK | H761 ☒ - 005 - TK | H762 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H760 ☒ - 010 - TK | H761 ☒ - 010 - TK | H762 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H760 ☒ - 020 - TK | H761 ☒ - 020 - TK | H762 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H760 ☒ - 030 - TK | H761 ☒ - 030 - TK | H762 ☒ - 030 - TK | | | | |
| | 4 - 40 | 15 - 150 | 26.0 (1.8) | 75.0 (5.2) | 139 (9.6) | H760 ☒ - 040 - TK | H761 ☒ - 040 - TK | H762 ☒ - 040 - TK | | | | |
| 5 - 50 | 20 - 190 | 63.5 (4.4) | 114 (7.9) | 230 (15.9) | H760 ☒ - 050 - TK | H761 ☒ - 050 - TK | H762 ☒ - 050 - TK | | | | | |

① Fractional sizes apply to NPTF and BSPB.

Note: TK suffix represents standard testkit configuration. For reverse flow by-pass test kit, replace TK suffix with RT suffix.

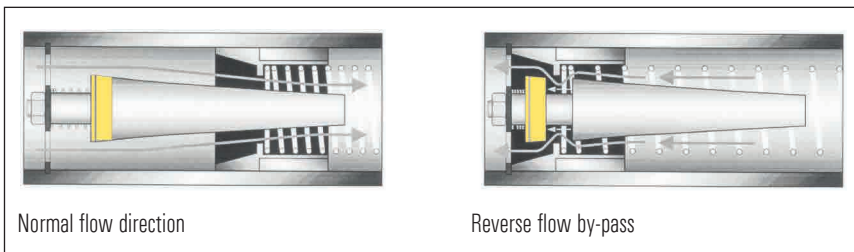
Note: RT option is not available with standard brass flow meters.

Example: H 701 A - 030 - RT



Reverse flow by-pass options

Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design. Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



3500/5000 PSI test kits

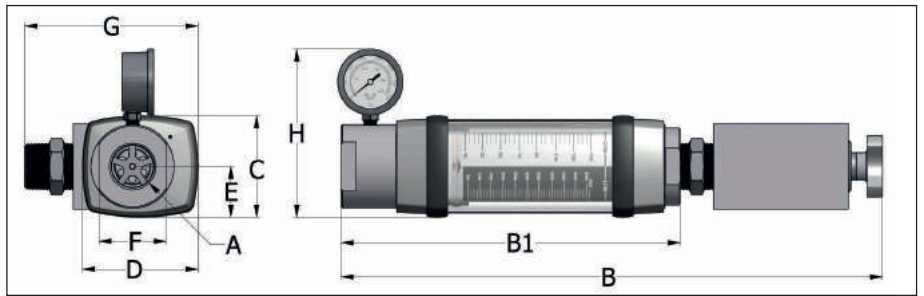
For petroleum fluids (1 1/4" and 1 1/2")

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for .876 S.G.



Technical data

| | |
|--|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider Plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Guard: Polycarbonate |
| Threads | NPT |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications: See conversion information |
| Stainless steel operating: | 5,000 psi/345 bar max. with a 3:1 safety factor For high cycle applications, see page conversion information |
| Pressure drop | See ordering information table, next page and differential pressure charts on page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum test kits. Glycerin dampened, 0 - 5,000 psi / 0 - 345 bar pressure range available on stainless steel test kits. |
| Load valve | Produce ΔP up to 3,500 psi/241 bar psiD and 5,000 psi/345 bar psiD. |



Dimensions

| A | B | B1 | C | D | E | F | G | H |
|-------------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | Depth in (mm) | Width in (mm) |
| 1-1/4 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |
| 1-1/2 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |

NOTE: Weights for all sizes can be found on page 80.

Pressures above 7500 psi will pop the rupture disc, allowing fluid flow to continue. This is a fail safe mechanism.

3500/5000 PSI test kits

For petroleum fluids (1 1/4" and 1 1/2")

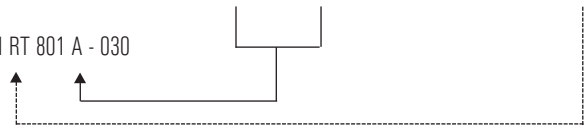
Ordering information

| Nominal port size | Flow range | | Pressure drop | | | Model number (see example below) | Material ⌘ | | Options |
|-------------------|------------|----------|-----------------------|------------------------|-----------------------------------|-------------------------------------|--------------------|--------------------|--------------|
| | gal/min | l/min | 50% Flow psi (bar) | 100% Flow psi (bar) | Reverse 100% Flow psi (bar) | NPT | Aluminium 3500 PSI | Stainless 5000 PSI | Reverse flow |
| 1 1/4" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 801 ⌘ - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 801 ⌘ - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 801 ⌘ - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 801 ⌘ - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (.99) | 41.3 (2.8) | 124 (8.6) | H TK 801 ⌘ - 150 | | | |
| 1 1/2" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 861 ⌘ - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 861 ⌘ - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 861 ⌘ - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 861 ⌘ - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (.99) | 41.3 (2.8) | 124 (8.6) | H TK 861 ⌘ - 150 | | | |

NOTE: TK suffix represents standard test kit configuration.

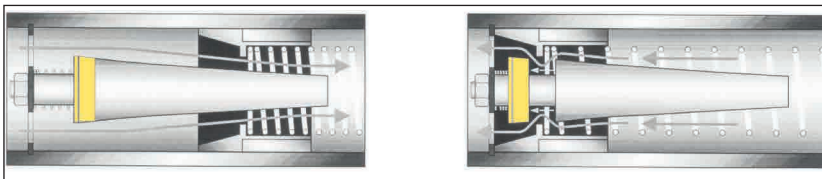
For reverse flow by-pass test kit, replace TK suffix with RT suffix.

(Example) H RT 801 A - 030



Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

Reverse flow by-pass

3500/6000 PSI high temperature Flow meters for petroleum fluids

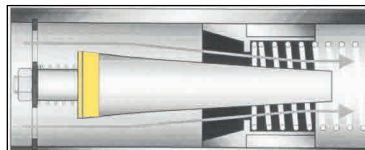
- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 205°C (500 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for .876 S.G.



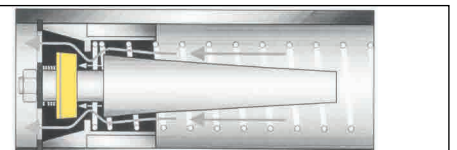
Technical data

| | |
|---|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Seals: Viton® Guard: Cylindrical Pyrex® glass Scale support: T316 SS Scale: Polyimide | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator: Nickel-plated carbon steel Internal magnet: Teflon® coated Alnico 8 Bumper: 2011 - T3 anodized aluminum End Caps: 2011 - T3 anodized aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 62: SAE J518 |
| Temperature range | -29 to +205 °C (-20 to +400 °F) continuous +205 to +260 °C (+400 to +500 °F) intermittent For detailed "Pressure vs. temperature" correlation information, see next page. |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Pressure drop | See ordering information table, next page and differential pressure charts on page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design. Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice, which allows the fluid to flow freely in the reverse direction.



Normal flow direction

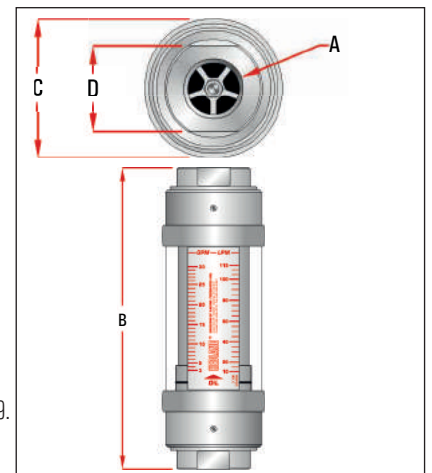


Reverse flow by-pass

Dimensions

| A | B | C | D |
|-------------------|----------------|---------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ½ (SAE 10) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ¾ (SAE 12) | 7.20 (183) | 2.48 (63) | 1.50 (38) |
| 1 (SAE 16) | 7.20 (183) | 2.48 (63) | 1.75 (44) |
| 1¼ (SAE 20) | 12.20 (310) | 4.20 (105) | 2.75 (70) |
| 1½ (SAE 24) | 12.20 (310) | 4.20 (105) | 2.75 (70) |

NOTE: Dimensions for 1½" Code 62 can be found on page 79.
Weights for all sizes can be found on page 80.



3500/6000 PSI high temperature Flow meters for petroleum fluids

Ordering information

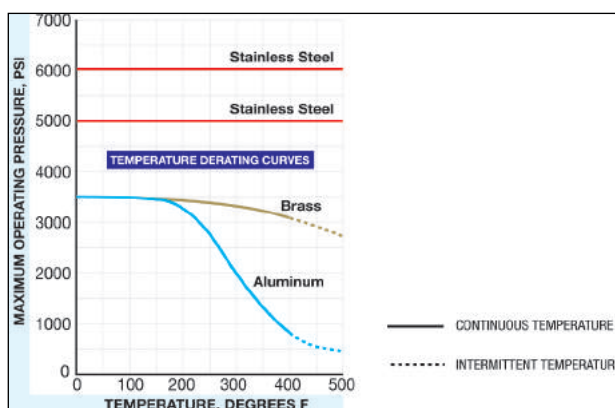
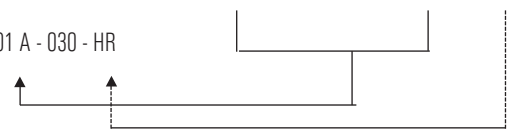
| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ⌘ | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|------------------|------------------|--------------------|----------------|-----------------|---------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | | H200 ⌘ -010 - HT | H201 ⌘ -010 - HT | H202 ⌘ -010 - HT | A | B | 6000 psi S | Not available |
| | 0.2 - 2.0 | 1.0 - 7.5 | 6.0 (.41) | 13 (.90) | | H200 ⌘ -020 - HT | H201 ⌘ -020 - HT | H202 ⌘ -020 - HT | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | 5.2 (.36) | H600 ⌘ -001 - HT | H601 ⌘ -001 - HT | H602 ⌘ -001 - HT | A | B | 6000 psi S | HR |
| | 0.2 - 2.0 | 1.0 - 7.5 | 2.0 (.14) | 3.0 (.21) | 9.6 (.66) | H600 ⌘ -002 - HT | H601 ⌘ -002 - HT | H602 ⌘ -002 - HT | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | 4.8 (.33) | H600 ⌘ -005 - HT | H601 ⌘ -005 - HT | H602 ⌘ -005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | 23.0 (1.6) | H600 ⌘ -010 - HT | H601 ⌘ -010 - HT | H602 ⌘ -010 - HT | | | | |
| ¾" SAE 12 | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | 55.2 (3.8) | H600 ⌘ -015 - HT | H601 ⌘ -015 - HT | H602 ⌘ -015 - HT | A | B | 5000 psi S | HR |
| | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H700 ⌘ -002 - HT | H701 ⌘ -002 - HT | H702 ⌘ -002 - HT | | | | |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H700 ⌘ -005 - HT | H701 ⌘ -005 - HT | H702 ⌘ -005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H700 ⌘ -010 - HT | H701 ⌘ -010 - HT | H702 ⌘ -010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H700 ⌘ -020 - HT | H701 ⌘ -020 - HT | H702 ⌘ -020 - HT | | | | |
| 1" SAE 16 | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H700 ⌘ -030 - HT | H701 ⌘ -030 - HT | H702 ⌘ -030 - HT | A | B | 5000 psi S | HR |
| | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H760 ⌘ -002 - HT | H761 ⌘ -002 - HT | H762 ⌘ -002 - HT | | | | |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H760 ⌘ -005 - HT | H761 ⌘ -005 - HT | H762 ⌘ -005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H760 ⌘ -010 - HT | H761 ⌘ -010 - HT | H762 ⌘ -010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H760 ⌘ -020 - HT | H761 ⌘ -020 - HT | H762 ⌘ -020 - HT | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H760 ⌘ -030 - HT | H761 ⌘ -030 - HT | H762 ⌘ -030 - HT | | | | |
| 1½" SAE 20 | 4 - 40 | 15 - 150 | 9.0 (.62) | 24.0 (1.7) | 87.5 (6.04) | H760 ⌘ -040 - HT | H761 ⌘ -040 - HT | H762 ⌘ -040 - HT | A | B | 5000 psi S | HR |
| | 5 - 50 | 20 - 190 | 12.5 (.86) | 34.0 (2.3) | 150 (10.4) | H760 ⌘ -050 - HT | H761 ⌘ -050 - HT | H762 ⌘ -050 - HT | | | | |
| | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H800 ⌘ -030 - HT | H801 ⌘ -030 - HT | H802 ⌘ -030 - HT | | | | |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H800 ⌘ -050 - HT | H801 ⌘ -050 - HT | H802 ⌘ -050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H800 ⌘ -075 - HT | H801 ⌘ -075 - HT | H802 ⌘ -075 - HT | | | | |
| 1½" SAE 24 | 10 - 100 | 50 - 380 | 6.5 (.45) | 15 (1.0) | 39.0 (2.7) | H800 ⌘ -100 - HT | H801 ⌘ -100 - HT | H802 ⌘ -100 - HT | A | B | 4000 psi S | HR |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H800 ⌘ -150 - HT | H801 ⌘ -150 - HT | H802 ⌘ -150 - HT | | | | |
| | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H860 ⌘ -030 - HT | H861 ⌘ -030 - HT | H862 ⌘ -030 - HT | | | | |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H860 ⌘ -050 - HT | H861 ⌘ -050 - HT | H862 ⌘ -050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H860 ⌘ -075 - HT | H861 ⌘ -075 - HT | H862 ⌘ -075 - HT | | | | |
| 1½" Code 62 | 10 - 100 | 50 - 380 | 6.5 (.45) | 15 (1.0) | 39.0 (2.7) | H860 ⌘ -100 - HT | H861 ⌘ -100 - HT | H862 ⌘ -100 - HT | A | B | 4000 psi S | HR |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H860 ⌘ -150 - HT | H861 ⌘ -150 - HT | H862 ⌘ -150 - HT | | | | |
| | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H808 ⌘ -030 - HT | | | | | | |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H808 ⌘ -050 - HT | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H808 ⌘ -075 - HT | | | | | | |

① Fractional sizes apply to NPTF and BSPP.

Note: HT suffix represents standard high temperature configuration. For reverse flow high temperature, replace HT with HR suffix.

Note: HR option is not available with brass flow meters.

Example: H 701 A - 030 - HR



3500/6000 PSI flow meters

For phosphate ester fluids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.18 S.G.

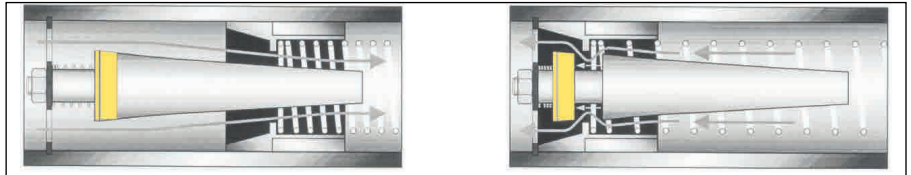


Technical data

| | |
|---|--|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: EPR Guard: Nylon End caps: Nylon ST | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Guard seal / bumper: EPR Scale support: 6063 - T6 aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, code 62: SAE J518 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) for higher temp. meters, see page 24-25. |
| Pressure rating - | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications: See page conversion information |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¼" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications: See page conversion information |
| Pressure drop: | See ordering information table, next page and detailed differential pressure charts on page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

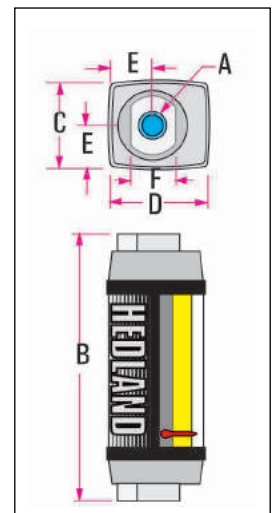
Reverse flow by-pass

Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |
| ½ (SAE 10) | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ (SAE 12) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 (SAE 16) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |
| 1¼ (SAE 20) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |
| 1½ (SAE 24) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |

Note: Dimensions for 1-½" Code 62 can be found on page 79.

Weights for all sizes can be found on page 80.



3500/6000 PSI flow meters

For phosphate ester fluids

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ☒ | | | Options ◆ |
|--------------------------------|------------|------------|-----------------------|------------------------|-----------------------------------|----------------------------------|------------------|------------------|-----------------------|-------------------|--------------------|------------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| 1/4" SAE 6 | 0.2 - 0.2 | 0.1 - 0.75 | 3.5 (.24) | 4.0 (.28) | | H294 ☒ - 002 - ◆ | H295 ☒ - 002 - ◆ | H296 ☒ - 002 - ◆ | A | B | 6000 psi S | Not available |
| | 0.5 - 0.5 | 0.2 - 1.9 | 3.0 (.21) | 5.0 (.35) | | H294 ☒ - 005 - ◆ | H295 ☒ - 005 - ◆ | H296 ☒ - 005 - ◆ | | | | |
| | 1.0 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | | H294 ☒ - 010 - ◆ | H295 ☒ - 010 - ◆ | H296 ☒ - 010 - ◆ | | | | |
| | 2.0 - 2.0 | 1.0 - 7.5 | 6.0 (.41) | 13 (.90) | | H294 ☒ - 020 - ◆ | H295 ☒ - 020 - ◆ | H296 ☒ - 020 - ◆ | | | | |
| 1/2" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | 5.2 (.36) | H694 ☒ - 001 - ◆ | H695 ☒ - 001 - ◆ | H696 ☒ - 001 - ◆ | A | B | 6000 psi S | RF |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | 9.6 (.66) | H694 ☒ - 002 - ◆ | H695 ☒ - 002 - ◆ | H696 ☒ - 002 - ◆ | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | 4.8 (.33) | H694 ☒ - 005 - ◆ | H695 ☒ - 005 - ◆ | H696 ☒ - 005 - ◆ | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | 23.0 (1.6) | H694 ☒ - 010 - ◆ | H695 ☒ - 010 - ◆ | H696 ☒ - 010 - ◆ | | | | |
| | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | 55.2 (3.8) | H694 ☒ - 015 - ◆ | H695 ☒ - 015 - ◆ | H696 ☒ - 015 - ◆ | | | | |
| 3/4" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H794 ☒ - 002 - ◆ | H795 ☒ - 002 - ◆ | H796 ☒ - 002 - ◆ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H794 ☒ - 005 - ◆ | H795 ☒ - 005 - ◆ | H796 ☒ - 005 - ◆ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H794 ☒ - 010 - ◆ | H795 ☒ - 010 - ◆ | H796 ☒ - 010 - ◆ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H794 ☒ - 020 - ◆ | H795 ☒ - 020 - ◆ | H796 ☒ - 020 - ◆ | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H794 ☒ - 030 - ◆ | H795 ☒ - 030 - ◆ | H796 ☒ - 030 - ◆ | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H764 ☒ - 002 - ◆ | H765 ☒ - 002 - ◆ | H766 ☒ - 002 - ◆ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H764 ☒ - 005 - ◆ | H765 ☒ - 005 - ◆ | H766 ☒ - 005 - ◆ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H764 ☒ - 010 - ◆ | H765 ☒ - 010 - ◆ | H766 ☒ - 010 - ◆ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H764 ☒ - 020 - ◆ | H765 ☒ - 020 - ◆ | H766 ☒ - 020 - ◆ | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H764 ☒ - 030 - ◆ | H765 ☒ - 030 - ◆ | H766 ☒ - 030 - ◆ | | | | |
| | 4 - 40 | 15 - 150 | 9.0 (.62) | 24.0 (1.7) | 87.5 (6.04) | H764 ☒ - 040 - ◆ | H765 ☒ - 040 - ◆ | H766 ☒ - 040 - ◆ | | | | |
| 1 1/4" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H894 ☒ - 030 - ◆ | H895 ☒ - 030 - ◆ | H896 ☒ - 030 - ◆ | A | B | 5000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H894 ☒ - 050 - ◆ | H895 ☒ - 050 - ◆ | H896 ☒ - 050 - ◆ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H894 ☒ - 075 - ◆ | H895 ☒ - 075 - ◆ | H896 ☒ - 075 - ◆ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H894 ☒ - 100 - ◆ | H895 ☒ - 100 - ◆ | H896 ☒ - 100 - ◆ | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H894 ☒ - 150 - ◆ | H895 ☒ - 150 - ◆ | H896 ☒ - 150 - ◆ | | | | |
| 1 1/2" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H864 ☒ - 030 - ◆ | H865 ☒ - 030 - ◆ | H866 ☒ - 030 - ◆ | A | B | 4000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H864 ☒ - 050 - ◆ | H865 ☒ - 050 - ◆ | H866 ☒ - 050 - ◆ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H864 ☒ - 075 - ◆ | H865 ☒ - 075 - ◆ | H866 ☒ - 075 - ◆ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H864 ☒ - 100 - ◆ | H865 ☒ - 100 - ◆ | H866 ☒ - 100 - ◆ | | | | |
| 1 1/2" Code 62 | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H864 ☒ - 150 - ◆ | H865 ☒ - 150 - ◆ | H866 ☒ - 150 - ◆ | A | B | 4000 psi S | RF |
| | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H898 ☒ - 030 - ◆ | | | | | | |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H898 ☒ - 050 - ◆ | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H898 ☒ - 075 - ◆ | | | | | | |

①Fractional sizes apply to NPTF and BSPP.

Note: RF option is not available with standard brass flow meters.

Example: H 795 A - 030 - RF



3500/6000 PSI test kits

For phosphate ester fluids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.18 S.G.



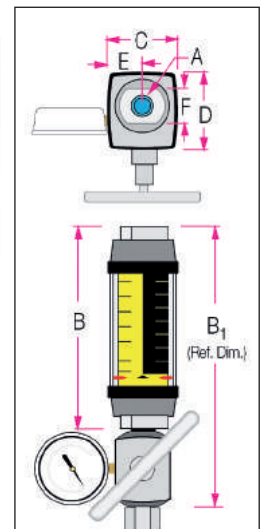
Technical data

| | |
|--|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts: | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: EPR End caps: Nylon ST | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Guard seal / bumper: EPR Scale support: 6063-T6 aluminum Guard: Nylon |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor For high cycle applications, see page conversion information |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max.or ¾" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information |
| Pressure drop | See ordering information table on next page, detailed differential pressure charts, page 62. |
| Accuracy | ± 2% of full scale |
| Repeatability | ± 1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range available on stainless steel test kits. |
| Load valve | ½", ¾" and 1" series - needle valve; Produce ΔP up to 3,500 psi/241 bar psiD and 6,000 psi/414 bar psiD |

Dimensions

| A | B | B1 | C | D | E | F |
|-------------------|----------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ½ (SAE 10) | 6.6 (168) | 10.3 (262) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ (SAE 12) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 (SAE 16) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |

Note: Weights for all sizes can be found on page 80.
SAE and BSPP test kits include inlet adapter.



3500/6000 PSI test kits

For phosphate ester fluids

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ☒ | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|-------------------|-------------------|--------------------|----------------|-----------------|---------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | |
| 1/2" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 3.0 (.21) | 4.75 (.33) | 7.2 (.50) | H694 ☒ - 001 - TK | H695 ☒ - 001 - TK | H696 ☒ - 001 - TK | A | B | 6000 psi S | RT |
| | 0.2 - 2.0 | 1 - 7.5 | 5.0 (.34) | 9.0 (.62) | 15.6 (1.1) | H694 ☒ - 002 - TK | H695 ☒ - 002 - TK | H696 ☒ - 002 - TK | | | | |
| | 0.5 - 5.0 | 2 - 19 | 10.0 (.69) | 26.0 (1.8) | 24.8 (1.7) | H694 ☒ - 005 - TK | H695 ☒ - 005 - TK | H696 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 24.0 (1.7) | 71.5 (4.9) | 85.0 (5.9) | H694 ☒ - 010 - TK | H695 ☒ - 010 - TK | H696 ☒ - 010 - TK | | | | |
| | 1 - 15 | 4 - 56 | 39.0 (2.7) | 155 (10.7) | 210 (14.5) | H694 ☒ - 015 - TK | H695 ☒ - 015 - TK | H696 ☒ - 015 - TK | | | | |
| 3/4" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (.10) | 3.0 (.21) | 3.9 (.27) | H794 ☒ - 002 - TK | H795 ☒ - 002 - TK | H796 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H794 ☒ - 005 - TK | H795 ☒ - 005 - TK | H796 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H794 ☒ - 010 - TK | H795 ☒ - 010 - TK | H796 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H794 ☒ - 020 - TK | H795 ☒ - 020 - TK | H796 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H794 ☒ - 030 - TK | H795 ☒ - 030 - TK | H796 ☒ - 030 - TK | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (.10) | 3.0 (.21) | 3.9 (.27) | H764 ☒ - 002 - TK | H765 ☒ - 002 - TK | H766 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H764 ☒ - 005 - TK | H765 ☒ - 005 - TK | H766 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H764 ☒ - 010 - TK | H765 ☒ - 010 - TK | H766 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H764 ☒ - 020 - TK | H765 ☒ - 020 - TK | H766 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H764 ☒ - 030 - TK | H765 ☒ - 030 - TK | H766 ☒ - 030 - TK | | | | |
| | 4 - 40 | 15 - 150 | 26.0 (1.8) | 75.0 (5.2) | 139 (9.6) | H764 ☒ - 040 - TK | H765 ☒ - 040 - TK | H766 ☒ - 040 - TK | | | | |
| | 5 - 50 | 20 - 190 | 63.5 (4.4) | 114 (7.9) | 230 (15.9) | H764 ☒ - 050 - TK | H765 ☒ - 050 - TK | H766 ☒ - 050 - TK | | | | |

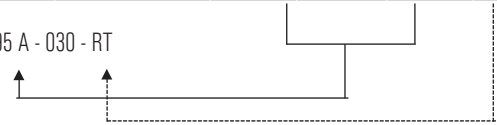
① Fractional sizes apply to NPTF and BSPP.

Note: RT option is not available with standard brass flow meters.

Note: TK suffix represents standard test kit configuration.

For reverse flow by-pass test kit, replace TK suffix with RT suffix.

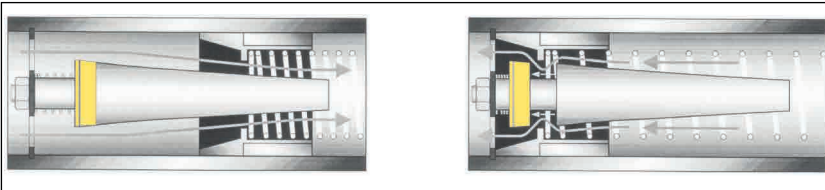
Example: H 795 A - 030 - RT



Reverse flow by-pass option:

Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

Reverse flow by-pass

3500/5000 PSI test kits

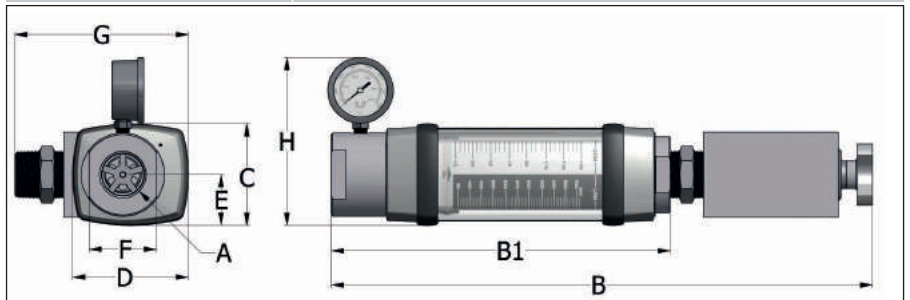
For phosphate ester fluids (1 1/4" and 1 1/2")

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.18 S.G.



Technical data

| | |
|--|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts: | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: EPR End caps: Nylon ST | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Guard seal / bumper: EPR Scale support: 6063-T6 aluminum Guard: Nylon |
| Threads | NPT |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for 3/4" to 1 1/2" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Pressure drop | See ordering information table on next page, detailed differential pressure charts, page 62. |
| Accuracy | ± 2% of full scale |
| Repeatability | ± 1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range available on stainless steel test kits. |
| Load valve | Produce ΔP up to 3,500 psi/241 bar psiD and 6,000 psi/414 bar psiD |



Dimensions

| A | B | B1 | C | D | E | F | G | H |
|-------------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | Depth in (mm) | Width in (mm) |
| 1-1/4 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |
| 1-1/2 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |

NOTE: Weights for all sizes can be found on page 80.

Pressures above 7500 psi will pop the rupture disc, allowing fluid flow to continue. This is a fail safe mechanism.

3500/5000 PSI test kits

For phosphate ester fluids

Ordering information

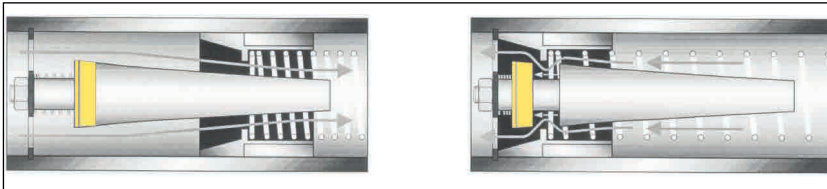
| Nominal port size | Flow range | | Pressure drop | | | Model number (see example below) | Material ☒ | | Options |
|-------------------|------------|----------|-----------------------|------------------------|-----------------------------------|-------------------------------------|-----------------------|-----------------------|--------------|
| | gal/min | l/min | 50% Flow psi (bar) | 100% Flow psi (bar) | Reverse 100% Flow psi (bar) | NPT | Aluminium 3500 psi | Stainless 5000 psi | Reverse flow |
| 1 1/4" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 895 ☒ - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 895 ☒ - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 895 ☒ - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 895 ☒ - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (.99) | 41.3 (2.8) | 124 (8.6) | H TK 895 ☒ - 150 | | | |
| 1 1/2" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 865 ☒ - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 865 ☒ - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 865 ☒ - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 865 ☒ - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (.99) | 41.3 (2.8) | 124 (8.6) | H TK 865 ☒ - 150 | | | |

Note: TK suffix represents standard test kit configuration. For reverse flow by-pass test kit, replace TK suffix with RT suffix.



Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

Reverse flow by-pass

3500/6000 PSI high temperature Flow meters for phosphate ester fluids

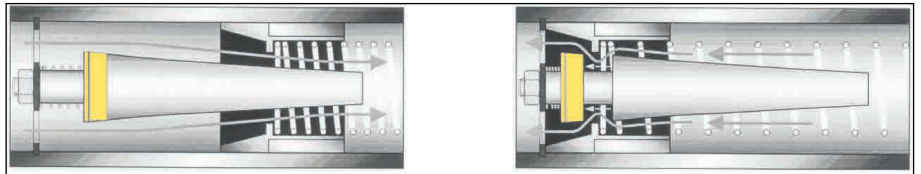
- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 205°C (500 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.18 S.G.



Technical data

| | |
|--|---|
| Materials | 2024 - T351 Anodized aluminum body, piston and cone 360 brass body, piston and cone T303 stainless body, 2024, T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Seals: EPR Scale support: T316 SS Scale: Polyimide Guard: Cylindrical Pyrex® glass | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator: Nickel-plated carbon steel Internal magnet: Teflon® coated Alnico 8 Bumper: 2011 - T3 anodized aluminum End caps: 2011 - T3 anodized aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 62: SAE J518 |
| Temperature range | -29 to +205 °C (-20 to +400 °F) continuous +205 to +260 °C (+400 to +500 °F) intermittent For detailed "pressure vs. temperature" correlation information, see next page. |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see page conversion information |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see page conversion information |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design. Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice, which allows the fluid to flow freely in the reverse direction.



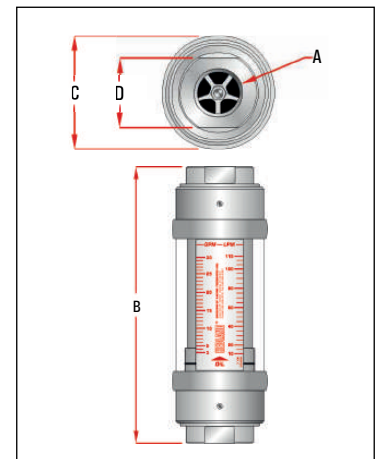
Normal flow direction

Reverse flow by-pass

Dimensions

| A | B | C | D |
|-------------------|----------------|---------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ½ (SAE 10) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ¾ (SAE 12) | 7.20 (183) | 2.48 (63) | 1.50 (38) |
| 1 (SAE 16) | 7.20 (183) | 2.48 (63) | 1.75 (44) |
| 1¼ (SAE 20) | 12.20 (310) | 4.20 (105) | 2.75 (70) |
| 1½ (SAE 24) | 12.20 (310) | 4.20 (105) | 2.75 (70) |

NOTE: Dimensions for 1½" Code 62 can be found on page 79.
Weights for all sizes can be found on page 80.



3500/6000 PSI high temperature

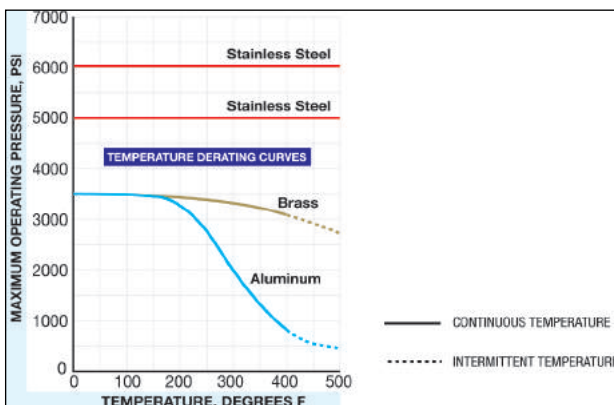
Flow meters for phosphate ester fluids

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ⌘ | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|-------------------|-------------------|--------------------|----------------|-----------------|---------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (2.8) | 9.0 (6.2) | | H294 ⌘ - 010 - HT | H295 ⌘ - 010 - HT | H296 ⌘ - 010 - HT | A | B | 6000 psi S | Not available |
| | 0.2 - 2.0 | 1.0 - 7.5 | 6.0 (4.1) | 13 (9.0) | | H294 ⌘ - 020 - HT | H295 ⌘ - 020 - HT | H296 ⌘ - 020 - HT | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (1.4) | 2.75 (1.9) | 5.2 (3.6) | H694 ⌘ - 001 - HT | H695 ⌘ - 001 - HT | H696 ⌘ - 001 - HT | A | B | 6000 psi S | HR |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (1.4) | 3.0 (2.1) | 9.6 (6.6) | H694 ⌘ - 002 - HT | H695 ⌘ - 002 - HT | H696 ⌘ - 002 - HT | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (2.1) | 6.0 (4.1) | 4.8 (3.3) | H694 ⌘ - 005 - HT | H695 ⌘ - 005 - HT | H696 ⌘ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (2.8) | 9.5 (6.6) | 23.0 (1.6) | H694 ⌘ - 010 - HT | H695 ⌘ - 010 - HT | H696 ⌘ - 010 - HT | | | | |
| | 1 - 15 | 4 - 56 | 6.5 (4.5) | 18.5 (1.3) | 55.2 (3.8) | H694 ⌘ - 015 - HT | H695 ⌘ - 015 - HT | H696 ⌘ - 015 - HT | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (0.7) | 2.0 (1.4) | 2.9 (2.0) | H794 ⌘ - 002 - HT | H795 ⌘ - 002 - HT | H796 ⌘ - 002 - HT | A | B | 5000 psi S | HR |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (1.7) | 3.5 (2.4) | 5.3 (3.7) | H794 ⌘ - 005 - HT | H795 ⌘ - 005 - HT | H796 ⌘ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (2.4) | 9.0 (6.2) | 8.8 (6.1) | H794 ⌘ - 010 - HT | H795 ⌘ - 010 - HT | H796 ⌘ - 010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (2.8) | 9.0 (6.2) | 18.0 (1.24) | H794 ⌘ - 020 - HT | H795 ⌘ - 020 - HT | H796 ⌘ - 020 - HT | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (4.8) | 16.5 (1.1) | 45.1 (3.11) | H794 ⌘ - 030 - HT | H795 ⌘ - 030 - HT | H796 ⌘ - 030 - HT | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (0.7) | 2.0 (1.4) | 2.9 (2.0) | H764 ⌘ - 002 - HT | H765 ⌘ - 002 - HT | H766 ⌘ - 002 - HT | A | B | 5000 psi S | HR |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (1.7) | 3.5 (2.4) | 5.3 (3.7) | H764 ⌘ - 005 - HT | H765 ⌘ - 005 - HT | H766 ⌘ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (2.4) | 9.0 (6.2) | 8.8 (6.1) | H764 ⌘ - 010 - HT | H765 ⌘ - 010 - HT | H766 ⌘ - 010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (2.8) | 9.0 (6.2) | 18.0 (1.24) | H764 ⌘ - 020 - HT | H765 ⌘ - 020 - HT | H766 ⌘ - 020 - HT | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (4.8) | 16.5 (1.1) | 45.1 (3.11) | H764 ⌘ - 030 - HT | H765 ⌘ - 030 - HT | H766 ⌘ - 030 - HT | | | | |
| | 4 - 40 | 15 - 150 | 9.0 (6.2) | 24.0 (1.7) | 87.5 (6.04) | H764 ⌘ - 040 - HT | H765 ⌘ - 040 - HT | H766 ⌘ - 040 - HT | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (2.1) | 4.0 (2.8) | 4.8 (3.3) | H894 ⌘ - 030 - HT | H895 ⌘ - 030 - HT | H896 ⌘ - 030 - HT | A | B | 5000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (2.4) | 7.0 (4.8) | 12.5 (8.6) | H894 ⌘ - 050 - HT | H895 ⌘ - 050 - HT | H896 ⌘ - 050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (3.5) | 10.5 (7.2) | 31.9 (2.2) | H894 ⌘ - 075 - HT | H895 ⌘ - 075 - HT | H896 ⌘ - 075 - HT | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (4.5) | 15.0 (1.0) | 39.0 (2.7) | H894 ⌘ - 100 - HT | H895 ⌘ - 100 - HT | H896 ⌘ - 100 - HT | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (7.2) | 27.5 (1.9) | 110 (7.6) | H894 ⌘ - 150 - HT | H895 ⌘ - 150 - HT | H896 ⌘ - 150 - HT | | | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (2.1) | 4.0 (2.8) | 4.8 (3.3) | H864 ⌘ - 030 - HT | H865 ⌘ - 030 - HT | H866 ⌘ - 030 - HT | A | B | 5000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (2.4) | 7.0 (4.8) | 12.5 (8.6) | H864 ⌘ - 050 - HT | H865 ⌘ - 050 - HT | H866 ⌘ - 050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (3.5) | 10.5 (7.2) | 31.9 (2.2) | H864 ⌘ - 075 - HT | H865 ⌘ - 075 - HT | H866 ⌘ - 075 - HT | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (4.5) | 15.0 (1.0) | 39.0 (2.7) | H864 ⌘ - 100 - HT | H865 ⌘ - 100 - HT | H866 ⌘ - 100 - HT | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (7.2) | 27.5 (1.9) | 110 (7.6) | H864 ⌘ - 150 - HT | H865 ⌘ - 150 - HT | H866 ⌘ - 150 - HT | | | | |
| 1½" Code 62 | 3 - 30 | 10 - 110 | 3.0 (2.1) | 4.0 (2.8) | 4.8 (3.3) | H898 ⌘ - 030 - HT | | | A | B | 4000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (2.4) | 7.0 (4.8) | 12.5 (8.6) | H898 ⌘ - 050 - HT | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (3.5) | 10.5 (7.2) | 31.9 (2.2) | H898 ⌘ - 075 - HT | | | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (4.5) | 15.0 (1.0) | 39.0 (2.7) | H898 ⌘ - 100 - HT | | | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (7.2) | 27.5 (1.9) | 110 (7.6) | H898 ⌘ - 150 - HT | | | | | | |

① Fractional sizes apply to NPTF and BSPP.

Example: H 795 A - 030 - HR



NOTE: HT suffix represents standard high temperature configuration. For reverse flow high temperature, replace HT with HR suffix.

NOTE: HR option is not available with brass flow meters.

3500/6000 PSI flow meters

For water-based fluids (water/oil emulsions)

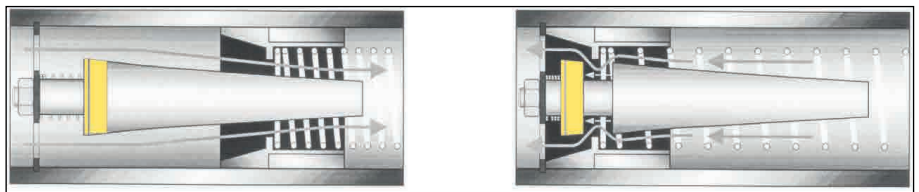
- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.
- For 80/20 and other water/oil emulsions



Technical data

| | |
|---|--|
| Materials | 2024 - T351 Anodized aluminum body, piston and cone C360 brass body, piston and cone ^① T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Guard: Polycarbonate End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Scale support: 6063 - T6 aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 61 and Code 62: SAE J518 |
| Temperature range | -29 to +116 °C (-20 to +240 °F), for higher temp. meters, see page 32. |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. (800 psi/55 bar max. for 3" series) with a 3:1 safety factor For high cycle applications, see page conversion information |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see page conversion information |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1 |

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design. Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

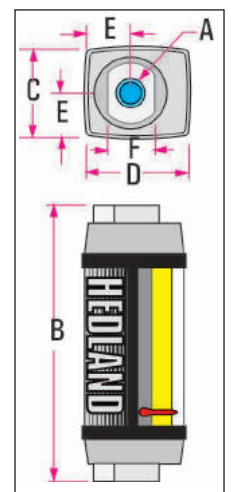
Reverse flow by-pass

Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |
| ½ (SAE 10) | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ (SAE 12) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 (SAE 16) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |
| 1¼ (SAE 20) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |
| 1½ (SAE 24) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |

^①3 inch models have Celcon® piston/piston ring

Note: Dimensions for 1½" Code 62, 3" and 3" code 61 can be found on page 79. Weights for all sizes can be found on page 80.



3500/6000 PSI flow meters

For water-based fluids (water/oil emulsions)

Ordering information

| Nominal port size ^② | Flow range | | Pressure drop | | | Model number (see example below) | | | Material | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|------------------|-------------------|--------------------|----------------|-----------------|---------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP ^③ | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | 3.5 (.24) | 4.0 (.28) | | H212 ⌘ - 002 - ⬥ | H213 ⌘ - 002 - ⬥ | H214 ⌘ - 002 - ⬥ | A | B | 6000 psi S | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | 3.0 (.21) | 5.0 (.35) | | H212 ⌘ - 005 - ⬥ | H213 ⌘ - 005 - ⬥ | H214 ⌘ - 005 - ⬥ | | | | |
| | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | | H212 ⌘ - 010 - ⬥ | H213 ⌘ - 010 - ⬥ | H214 ⌘ - 010 - ⬥ | | | | |
| | 0.2 - 2.0 | 1 - 7.5 | 6.0 (.41) | 13 (.90) | | H212 ⌘ - 020 - ⬥ | H213 ⌘ - 020 - ⬥ | H214 ⌘ - 020 - ⬥ | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | 5.2 (.36) | H612 ⌘ - 001 - ⬥ | H613 ⌘ - 001 - ⬥ | H614 ⌘ - 001 - ⬥ | A | B | 6000 psi S | RF |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | 9.6 (.66) | H612 ⌘ - 002 - ⬥ | H613 ⌘ - 002 - ⬥ | H614 ⌘ - 002 - ⬥ | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | 4.8 (.33) | H612 ⌘ - 005 - ⬥ | H613 ⌘ - 005 - ⬥ | H614 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | 23.0 (1.6) | H612 ⌘ - 010 - ⬥ | H613 ⌘ - 010 - ⬥ | H614 ⌘ - 010 - ⬥ | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H712 ⌘ - 002 - ⬥ | H713 ⌘ - 002 - ⬥ | H714 ⌘ - 002 - ⬥ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H712 ⌘ - 005 - ⬥ | H713 ⌘ - 005 - ⬥ | H714 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H712 ⌘ - 010 - ⬥ | H713 ⌘ - 010 - ⬥ | H714 ⌘ - 010 - ⬥ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H712 ⌘ - 020 - ⬥ | H713 ⌘ - 020 - ⬥ | H714 ⌘ - 020 - ⬥ | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H782 ⌘ - 002 - ⬥ | H783 ⌘ - 002 - ⬥ | H784 ⌘ - 002 - ⬥ | A | B | 5000 psi S | RF |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H782 ⌘ - 005 - ⬥ | H783 ⌘ - 005 - ⬥ | H784 ⌘ - 005 - ⬥ | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H782 ⌘ - 010 - ⬥ | H783 ⌘ - 010 - ⬥ | H784 ⌘ - 010 - ⬥ | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H782 ⌘ - 020 - ⬥ | H783 ⌘ - 020 - ⬥ | H784 ⌘ - 020 - ⬥ | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H782 ⌘ - 030 - ⬥ | H783 ⌘ - 030 - ⬥ | H784 ⌘ - 030 - ⬥ | A | B | 5000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H812 ⌘ - 030 - ⬥ | H813 ⌘ - 030 - ⬥ | H814 ⌘ - 030 - ⬥ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H812 ⌘ - 075 - ⬥ | H813 ⌘ - 075 - ⬥ | H814 ⌘ - 075 - ⬥ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H812 ⌘ - 100 - ⬥ | H813 ⌘ - 100 - ⬥ | H814 ⌘ - 100 - ⬥ | | | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H882 ⌘ - 030 - ⬥ | H883 ⌘ - 030 - ⬥ | H884 ⌘ - 030 - ⬥ | A | B | 5000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H882 ⌘ - 050 - ⬥ | H883 ⌘ - 050 - ⬥ | H884 ⌘ - 050 - ⬥ | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H882 ⌘ - 075 - ⬥ | H883 ⌘ - 075 - ⬥ | H884 ⌘ - 075 - ⬥ | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H882 ⌘ - 100 - ⬥ | H883 ⌘ - 100 - ⬥ | H884 ⌘ - 100 - ⬥ | | | | |
| 1½" Code 62 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H818 ⌘ - 030 - ⬥ | | | A | B | 4000 psi S | RF |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H818 ⌘ - 050 - ⬥ | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H818 ⌘ - 075 - ⬥ | | | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H818 ⌘ - 100 - ⬥ | | | | | | |
| 3" | 20 - 180 | 100 - 650 | 11 (.76) | 17 (1.1) | | Not available | H913 ⌘ - 180 - ⬥ | H914 ⌘ - 180 - ⬥ | A | B | 800 psi | Not available |
| | 20 - 275 | 100 - 1000 | 11 (.76) | 18 (1.2) | | | H913 ⌘ - 275 - ⬥ | H914 ⌘ - 275 - ⬥ | | | | |
| 3" Code 61 | 10 - 200 | 50 - 750 | 11 (.76) | 17 (1.1) | | H919 ⌘ - 180 - ⬥ | | | A | B | 800 psi | Not available |
| | 20 - 300 | 100 - 1100 | 11 (.76) | 18 (1.2) | | H919 ⌘ - 275 - ⬥ | | | | | | |

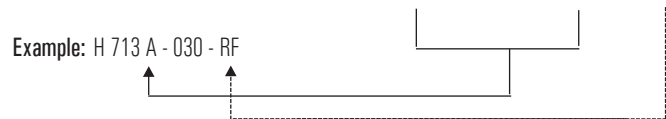
② Fractional sizes apply to NPTF and BSPP.

③ 3 inch models have BSPT (BS21) threads

Note: RF option is not available with standard brass flow meters.



Caution: For emulsions with less than 20% oil, factory recommends the brass body meter.



3500/6000 PSI test kits

For water-based fluids (water/oil emulsions)

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.
- For 80/20 and other water/oil emulsions



Technical data

| | |
|--|---|
| Materials | 2024 - T351 Anodized aluminum body, piston and cone C360 Brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Guard: Polycarbonate |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for 3/4" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range available on stainless steel test kits. |
| Load valve | ½", ¾" and 1" series - needle valve; Produce ΔP up to 3,500 psi/241 bar psiD and 6,000 psi/414 bar psiD. |

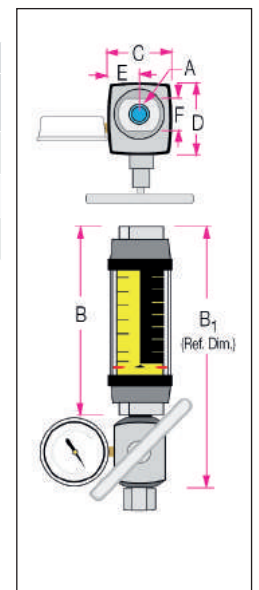
Dimensions

| | A | B | B1 | C | D | E | F |
|-------------------|----------------|----------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ½ (SAE 10) | 6.6 (168) | 10.3 (262) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) | |
| ¾ (SAE 12) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) | |
| 1 (SAE 16) | 7.2 (183) | 11.3 (287) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) | |

Note: Weights for all sizes can be found on page 80.

SAE and BSPP test kits include inlet adapter.

Pressure above 7500 psi will pop the rupture disc, allowing fluid flow to continue. This is a fail safe mechanism.



3500/6000 PSI test kits

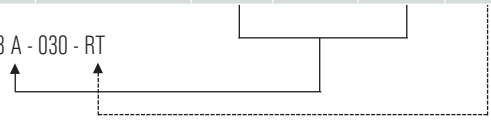
For water-based fluids (water/oil emulsions)

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material ☒ | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|-------------------|-------------------|--------------------|----------------|-----------------|--------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 3.0 (.21) | 4.75 (.33) | 7.2 (.50) | H612 ☒ - 001 - TK | H613 ☒ - 001 - TK | H614 ☒ - 001 - TK | A | B | 6000 psi S | RT |
| | 0.2 - 2.0 | 1 - 7.5 | 5.0 (.34) | 9.0 (.62) | 15.6 (1.1) | H612 ☒ - 002 - TK | H613 ☒ - 002 - TK | H614 ☒ - 002 - TK | | | | |
| | 0.5 - 5.0 | 2 - 19 | 10.0 (.69) | 26.0 (1.8) | 24.8 (1.7) | H612 ☒ - 005 - TK | H613 ☒ - 005 - TK | H614 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 24.0 (1.7) | 71.5 (4.9) | 85.0 (5.9) | H612 ☒ - 010 - TK | H613 ☒ - 010 - TK | H614 ☒ - 010 - TK | | | | |
| | 1 - 15 | 4 - 56 | 39.0 (2.7) | 155 (10.7) | 210 (14.5) | H612 ☒ - 015 - TK | H613 ☒ - 015 - TK | H614 ☒ - 015 - TK | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (1.0) | 3.0 (.21) | 3.9 (.27) | H712 ☒ - 002 - TK | H713 ☒ - 002 - TK | H714 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H712 ☒ - 005 - TK | H713 ☒ - 005 - TK | H714 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H712 ☒ - 010 - TK | H713 ☒ - 010 - TK | H714 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H712 ☒ - 020 - TK | H713 ☒ - 020 - TK | H714 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H712 ☒ - 030 - TK | H713 ☒ - 030 - TK | H714 ☒ - 030 - TK | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.5 (1.0) | 3.0 (.21) | 3.9 (.27) | H782 ☒ - 002 - TK | H783 ☒ - 002 - TK | H784 ☒ - 002 - TK | A | B | 5000 psi S | RT |
| | 0.5 - 5.0 | 2 - 19 | 4.0 (.28) | 6.5 (.45) | 8.3 (.57) | H782 ☒ - 005 - TK | H783 ☒ - 005 - TK | H784 ☒ - 005 - TK | | | | |
| | 1 - 10 | 5 - 38 | 6.5 (.45) | 16.0 (1.1) | 15.8 (1.1) | H782 ☒ - 010 - TK | H783 ☒ - 010 - TK | H784 ☒ - 010 - TK | | | | |
| | 2 - 20 | 10 - 76 | 11.0 (.76) | 26.0 (1.8) | 35.0 (2.4) | H782 ☒ - 020 - TK | H783 ☒ - 020 - TK | H784 ☒ - 020 - TK | | | | |
| | 3 - 30 | 10 - 115 | 18.0 (1.2) | 47.5 (3.3) | 76.1 (5.2) | H782 ☒ - 030 - TK | H783 ☒ - 030 - TK | H784 ☒ - 030 - TK | | | | |

① Fractional sizes apply to NPTF and BSPP.

Example: H 713 A - 030 - RT



Note: TK suffix represents standard test kit configuration. For reverse flow by-pass test kit, replace TK suffix with RT suffix.

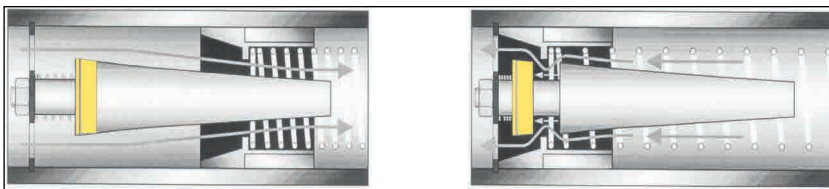
Note: RT option is not available with standard brass flow meters.



Caution: For emulsions with less than 20% oil, factory recommends the brass body meter.

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

Reverse flow by-pass

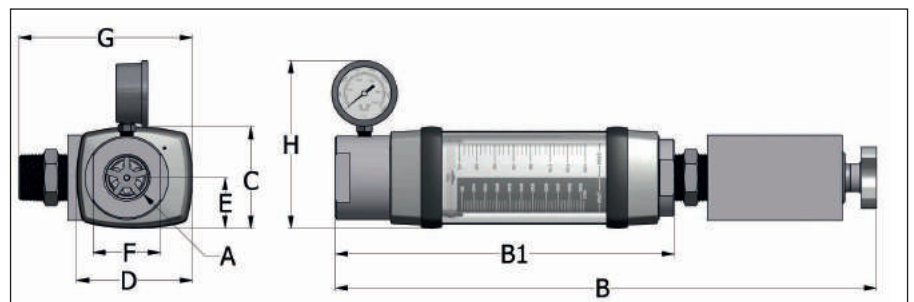
3500/5000 PSI test kits

For water-based fluids (water/oil emulsions) (1 1/4" and 1 1/2")

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.
- For 80/20 and other water/oil emulsions

Technical data

| | |
|--|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Guard: Polycarbonate |
| Threads | NPT |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for 3/4" to 1 1/2" series, 4000psi for code 62) with a 3:1 safety factor. For high cycle applications, see conversion information. |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |
| Pressure gauge | Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range available on aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range available on stainless steel test kits. |
| Load valve | Produce ΔP up to 3,500 psi/241 bar psiID and 6,000 psi/414 bar psiID. |



Dimensions

| A | B | B1 | C | D | E | F | G | H |
|-------------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|---------------|
| Nominal port size | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | Depth in (mm) | Width in (mm) |
| 1-1/4 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |
| 1-1/2 | 22.1 (561) | 13.9 (353) | 4.15 (105) | 4.75 (121) | 2.08 (53) | 2.75 (70) | 7.1 (180) | 6.9 (175) |

Note: Weights for all sizes can be found on page 80.

3500/5000 PSI test kits

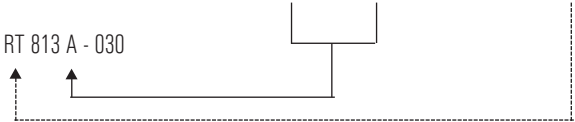
For water-based fluids (water/oil emulsions) (1 1/4" and 1 1/2")

Ordering information

| Nominal port size | Flow range | | Pressure drop | | | Model number (see example below) | Material | | Options |
|-------------------|------------|----------|-----------------------|------------------------|-----------------------------------|-------------------------------------|----------------------|--------------------|--------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | NPT | Aluminum 3500 psi | Stainless 5000 psi | Reverse flow |
| 1 1/4" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 813 * - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 813 * - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 813 * - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 813 * - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (1.99) | 41.3 (2.8) | 124 (8.6) | H TK 813 * - 150 | | | |
| 1 1/2" | 3 - 30 | 10 - 110 | 3.4 (.23) | 7.8 (.54) | 5.6 (.39) | H TK 883 * - 030 | A | S | RT |
| | 5 - 50 | 20 - 190 | 4.3 (.30) | 8.8 (6.1) | 14.3 (.99) | H TK 883 * - 050 | | | |
| | 10 - 75 | 40 - 280 | 6.3 (.43) | 14.3 (9.9) | 35.7 (2.5) | H TK 883 * - 075 | | | |
| | 10 - 100 | 50 - 380 | 8.3 (.57) | 21.3 (1.5) | 45.3 (3.1) | H TK 883 * - 100 | | | |
| | 10 - 150 | 50 - 560 | 14.3 (1.99) | 41.3 (2.8) | 124 (8.6) | H TK 883 * - 150 | | | |

Note: TK suffix represents standard test kit configuration. For reverse flow by-pass test kit, replace TK suffix with RT suffix.

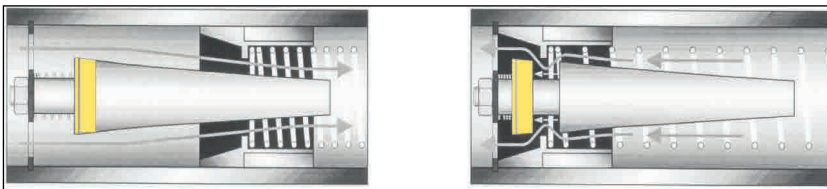
(Example) H RT 813 A - 030



Caution: For emulsions with less than 20% oil, factory recommends the brass body meter.

Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice. This shift creates a gap which allows the fluid to flow freely in the reverse direction.



Normal flow direction

Reverse flow by-pass

3500/6000 PSI high temperature

Flow meters for water-based fluids (water/oil emulsions)

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 260°C (500 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.
- For 80/20 and other water/oil emulsions

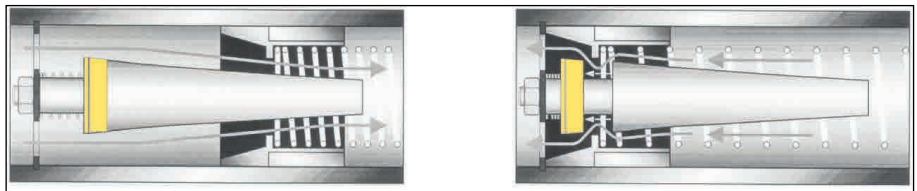
Technical data

| | |
|---|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Seals: Viton® Scale support: T316 SS Guard: Cylindrical Pyrex® glass Scale: Polyimide | Retaining ring: T316 SS Retaining spring: T316 SS Indicator: Nickel-plated carbon steel Internal magnet: Teflon® coated Alnico 8 Bumper: 2011 - T3 anodized aluminum End caps: 2011 - T3 anodized aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 62: SAE J518 |
| Temperature range | -29 to +205 °C (-20 to +400 °F) continuous +205 to +260 °C (+400 to +500 °F) intermittent Detailed "Pressure vs. temperature" correlation information, see next page. |
| Pressure rating | |
| Aluminum / brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¾" to 1½" series, 4000 psi for code 62) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table, next page For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale |
| Repeatability | ±1% |



Reverse flow by-pass option: Features a two-piece cone that responds to flow in the primary flow direction in the same manner as the standard design.

Flow in the reverse direction causes the lower cone shuttle to shift, moving it below the sharp-edged piston orifice, which allows the fluid to flow freely in the reverse direction.

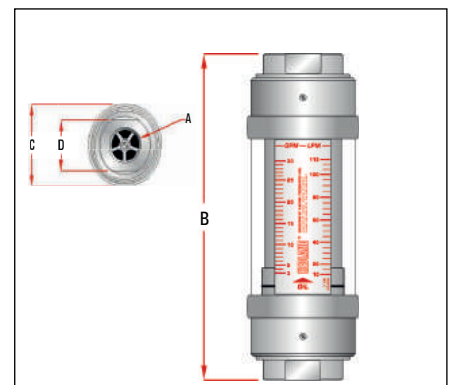


Normal flow direction

Reverse flow by-pass

Dimensions

| A | B | C | D |
|-------------------|----------------|---------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ½ (SAE 10) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ¾ (SAE 12) | 7.20 (183) | 2.48 (63) | 1.50 (38) |
| 1 (SAE 16) | 7.20 (183) | 2.48 (63) | 1.75 (44) |
| 1¼ (SAE 20) | 12.20 (310) | 4.20 (105) | 2.75 (70) |
| 1½ (SAE 24) | 12.20 (310) | 4.20 (105) | 2.75 (70) |



Note: Dimensions for 1½" Code 62 can be found on page 79. Weights for all sizes can be found on page 80.

3500/6000 PSI high temperature

Flow meters for water-based fluids (water/oil emulsions)

Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | | Model number (see example below) | | | Material | | | Options |
|--------------------------------|------------|------------|--------------------|---------------------|-----------------------------|----------------------------------|-------------------|-------------------|--------------------|----------------|-----------------|---------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | Reverse 100% flow psi (bar) | SAE | NPTF | BSPB | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Reverse flow |
| 1/4" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | | H212 ☹ - 010 - HT | H213 ☹ - 010 - HT | H214 ☹ - 010 - HT | A | B | 6000 psi S | Not available |
| | 0.2 - 2.0 | 1.0 - 7.5 | 6.0 (.41) | 13 (.90) | | H212 ☹ - 020 - HT | H213 ☹ - 020 - HT | H214 ☹ - 020 - HT | | | | |
| 1/2" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | 5.2 (.36) | H612 ☹ - 001 - HT | H613 ☹ - 001 - HT | H614 ☹ - 001 - HT | A | B | 6000 psi S | HR |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | 9.6 (.66) | H612 ☹ - 002 - HT | H613 ☹ - 002 - HT | H614 ☹ - 002 - HT | | | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | 4.8 (.33) | H612 ☹ - 005 - HT | H613 ☹ - 005 - HT | H614 ☹ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | 23.0 (1.6) | H612 ☹ - 010 - HT | H613 ☹ - 010 - HT | H614 ☹ - 010 - HT | | | | |
| | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | 55.2 (3.8) | H612 ☹ - 015 - HT | H613 ☹ - 015 - HT | H614 ☹ - 015 - HT | | | | |
| 3/4" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H712 ☹ - 002 - HT | H713 ☹ - 002 - HT | H714 ☹ - 002 - HT | A | B | 5000 psi S | HR |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H712 ☹ - 005 - HT | H713 ☹ - 005 - HT | H714 ☹ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H712 ☹ - 010 - HT | H713 ☹ - 010 - HT | H714 ☹ - 010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H712 ☹ - 020 - HT | H713 ☹ - 020 - HT | H714 ☹ - 020 - HT | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H712 ☹ - 030 - HT | H713 ☹ - 030 - HT | H714 ☹ - 030 - HT | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 2.9 (.20) | H782 ☹ - 002 - HT | H783 ☹ - 002 - HT | H784 ☹ - 002 - HT | A | B | 5000 psi S | HR |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | 5.3 (.37) | H782 ☹ - 005 - HT | H783 ☹ - 005 - HT | H784 ☹ - 005 - HT | | | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | 8.8 (.61) | H782 ☹ - 010 - HT | H783 ☹ - 010 - HT | H784 ☹ - 010 - HT | | | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | 18.0 (1.24) | H782 ☹ - 020 - HT | H783 ☹ - 020 - HT | H784 ☹ - 020 - HT | | | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | 45.1 (3.11) | H782 ☹ - 030 - HT | H783 ☹ - 030 - HT | H784 ☹ - 030 - HT | | | | |
| | 4 - 40 | 15 - 150 | 9.0 (.62) | 24.0 (1.7) | 87.5 (6.04) | H782 ☹ - 040 - HT | H783 ☹ - 040 - HT | H784 ☹ - 040 - HT | | | | |
| 1 1/4" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H812 ☹ - 030 - HT | H813 ☹ - 030 - HT | H814 ☹ - 030 - HT | A | B | 5000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H812 ☹ - 050 - HT | H813 ☹ - 050 - HT | H814 ☹ - 050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H812 ☹ - 075 - HT | H813 ☹ - 075 - HT | H814 ☹ - 075 - HT | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H812 ☹ - 100 - HT | H813 ☹ - 100 - HT | H814 ☹ - 100 - HT | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H812 ☹ - 150 - HT | H813 ☹ - 150 - HT | H814 ☹ - 150 - HT | | | | |
| 1 1/2" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H882 ☹ - 030 - HT | H883 ☹ - 030 - HT | H884 ☹ - 030 - HT | A | B | 5000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H882 ☹ - 050 - HT | H883 ☹ - 050 - HT | H884 ☹ - 050 - HT | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H882 ☹ - 075 - HT | H883 ☹ - 075 - HT | H884 ☹ - 075 - HT | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H882 ☹ - 100 - HT | H883 ☹ - 100 - HT | H884 ☹ - 100 - HT | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H882 ☹ - 150 - HT | H883 ☹ - 150 - HT | H884 ☹ - 150 - HT | | | | |
| 1 1/2" Code 62 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 4.8 (.33) | H818 ☹ - 030 - HT | | | A | B | 4000 psi S | HR |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | 12.5 (.86) | H818 ☹ - 050 - HT | | | | | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | 31.9 (2.2) | H818 ☹ - 075 - HT | | | | | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | 39.0 (2.7) | H818 ☹ - 100 - HT | | | | | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | 110 (7.6) | H818 ☹ - 150 - HT | | | | | | |

① Fractional sizes apply to NPTF and BSPB.

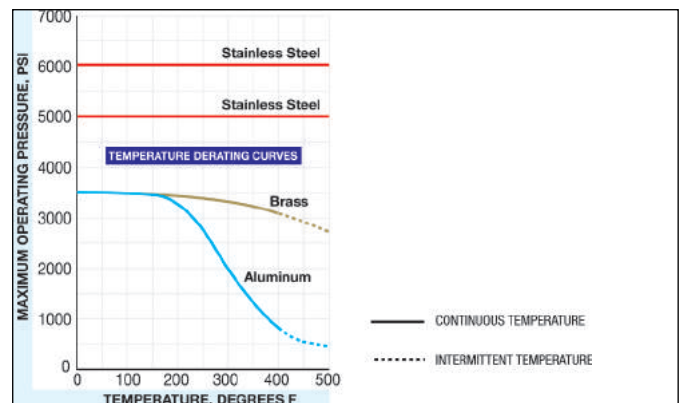
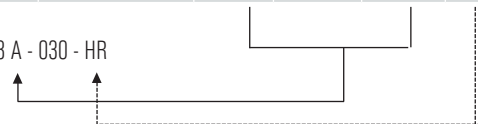
Note: HT suffix represents standard high temperature configuration. For reverse flow high temperature, replace HT with HR suffix.

Note: HR option is not available with brass flow meters.



Caution: For emulsions with less than 20% oil, factory recommends the Brass body meter.

Example: H 713 A - 030 - HR



3500/6000 PSI flow meters

For water and other liquids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.



Technical data

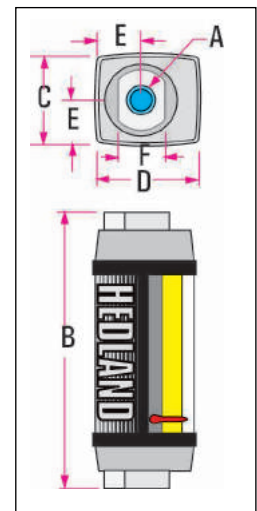
| | |
|---|--|
| Materials | C360 Brass body, piston and cone ^① T303 Stainless body, C360 brass piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Guard seal / bumper: Buna N Guard: Polycarbonate End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Pressure seals: Viton® Scale support: 6063 - T6 aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) For higher temp. meters, see page 36. |
| Pressure rating | |
| Brass operating | 3,500 psi/241 bar max. (800 psi/55 bar max. for 3" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¼" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |

Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |
| ½ (SAE 10) | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ (SAE 12) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 (SAE 16) | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |
| 1¼ (SAE 20) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |
| 1½ (SAE 24) | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |

^①3 inch models have Celcon® piston/piston ring

Note: Dimensions for 3" can be found on page 79.
Weights for all sizes can be found on page 80.



3500/6000 PSI flow meters

For water and other liquids

Ordering information

| Nominal port size ^② | Flow range | | Pressure drop | | Model number (see example below) | | | Material ⌘ | |
|--------------------------------|------------|------------|--------------------|---------------------|----------------------------------|--------------|-------------------|----------------|-----------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | SAE | NPTF | BSPP ^③ | Brass 3500 psi | Stainless steel |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | 3.5 (.24) | 4.0 (.28) | H204 ⌘ - 002 | H205 ⌘ - 002 | H206 ⌘ - 002 | B | 6000 psi S |
| | .05 - 0.5 | 0.2 - 1.9 | 3.0 (.21) | 5.0 (.35) | H204 ⌘ - 005 | H205 ⌘ - 005 | H206 ⌘ - 005 | | |
| | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | H204 ⌘ - 010 | H205 ⌘ - 010 | H206 ⌘ - 010 | | |
| | 0.2 - 2.0 | 1 - 7.5 | 6.0 (.41) | 13 (.90) | H204 ⌘ - 020 | H205 ⌘ - 020 | H206 ⌘ - 020 | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | H604 ⌘ - 001 | H605 ⌘ - 001 | H606 ⌘ - 001 | B | 6000 psi S |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | H604 ⌘ - 002 | H605 ⌘ - 002 | H606 ⌘ - 002 | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | H604 ⌘ - 005 | H605 ⌘ - 005 | H606 ⌘ - 005 | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | H604 ⌘ - 010 | H605 ⌘ - 010 | H606 ⌘ - 010 | | |
| | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | H604 ⌘ - 015 | H605 ⌘ - 015 | H606 ⌘ - 015 | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | H704 ⌘ - 002 | H705 ⌘ - 002 | H706 ⌘ - 002 | B | 5000 psi S |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H704 ⌘ - 005 | H705 ⌘ - 005 | H706 ⌘ - 005 | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H704 ⌘ - 010 | H705 ⌘ - 010 | H706 ⌘ - 010 | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H704 ⌘ - 020 | H705 ⌘ - 020 | H706 ⌘ - 020 | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | H704 ⌘ - 030 | H705 ⌘ - 030 | H706 ⌘ - 030 | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | H754 ⌘ - 002 | H755 ⌘ - 002 | H756 ⌘ - 002 | B | 5000 psi S |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H754 ⌘ - 005 | H755 ⌘ - 005 | H756 ⌘ - 005 | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H754 ⌘ - 010 | H755 ⌘ - 010 | H756 ⌘ - 010 | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H754 ⌘ - 020 | H755 ⌘ - 020 | H756 ⌘ - 020 | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | H754 ⌘ - 030 | H755 ⌘ - 030 | H756 ⌘ - 030 | | |
| | 4 - 40 | 15 - 150 | 9.0 (.62) | 24 (1.7) | H754 ⌘ - 040 | H755 ⌘ - 040 | H756 ⌘ - 040 | | |
| | 5 - 50 | 20 - 190 | 12.5 (.86) | 34 (2.3) | H754 ⌘ - 050 | H755 ⌘ - 050 | H756 ⌘ - 050 | | |
| | | | | | | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | H804 ⌘ - 030 | H805 ⌘ - 030 | H806 ⌘ - 030 | B | 5000 psi S |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H804 ⌘ - 050 | H805 ⌘ - 050 | H806 ⌘ - 050 | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H804 ⌘ - 075 | H805 ⌘ - 075 | H806 ⌘ - 075 | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | H804 ⌘ - 100 | H805 ⌘ - 100 | H806 ⌘ - 100 | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | H804 ⌘ - 150 | H805 ⌘ - 150 | H806 ⌘ - 150 | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | H854 ⌘ - 030 | H855 ⌘ - 030 | H856 ⌘ - 030 | B | 5000 psi S |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H854 ⌘ - 050 | H855 ⌘ - 050 | H856 ⌘ - 050 | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H854 ⌘ - 075 | H855 ⌘ - 075 | H856 ⌘ - 075 | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | H854 ⌘ - 100 | H855 ⌘ - 100 | H856 ⌘ - 100 | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | H854 ⌘ - 150 | H855 ⌘ - 150 | H856 ⌘ - 150 | | |
| 3" | 5 - 50 | 20 - 190 | .50 (.03) | .75 (.05) | Not available | H905 ⌘ - 050 | H906 ⌘ - 050 | 800 psi B | Not available |
| | 10 - 100 | 40 - 360 | 1.40 (.10) | 2.25 (1.6) | | H905 ⌘ - 100 | H906 ⌘ - 100 | | |
| | 30 - 150 | 125 - 575 | 3.25 (.22) | 5.25 (3.6) | | H905 ⌘ - 150 | H906 ⌘ - 150 | | |
| | 20 - 275 | 100 - 1000 | 11.0 (.76) | 18 (1.2) | | H905 ⌘ - 275 | H906 ⌘ - 275 | | |

② Fractional sizes apply to NPTF and BSPP.

③ 3 inch models have BSPT (BS21) threads.

Example: H 705 B - 030



3500/6000 PSI high temperature

Flow meters for water and other liquids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 240°C (500 °F)
- Accuracy $\pm 2\%$ full scale
- Repeatability $\pm 1\%$
- Special scales available
- Calibrated for 1.0 S.G.

Technical data

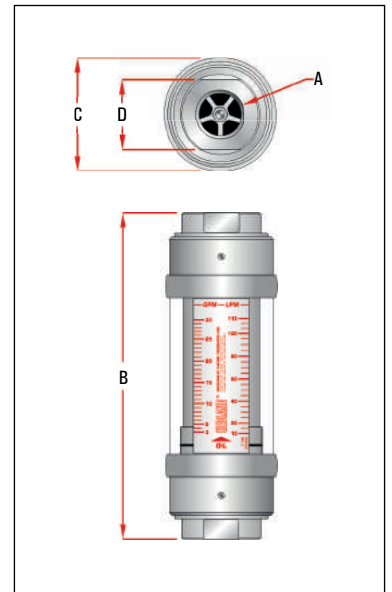
| | |
|--|---|
| Materials: | C360 Brass body, piston and cone T303 stainless body, C360 brass piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Seals: Viton® Scale support: T316 SS Guard: cylindrical Pyrex® glass End caps: 2011 - T3 anodized aluminum | Retaining ring: T316 SS Retaining spring: T316 SS Indicator: Nickel-plated carbon steel Internal magnet: Teflon® coated Alnico 8 Bumper: 2011 - T3 anodized aluminum Scale: Polymide |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -20 to +400 °F (-29 to +205 °C) continuous +205 to +260 °C (+400 to +500 °F) intermittent Detailed "Pressure vs. temperature" correlation information, see next page. |
| Pressure rating | |
| Brass operating | 3,500 psi/241 bar max. with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max. for ¼" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table, next page. For detailed differential pressure charts, see page 62. |
| Accuracy | $\pm 2\%$ of full scale |
| Repeatability | $\pm 1\%$ |



Dimensions

| A | B | C | D |
|-------------------|----------------|---------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ½ (SAE 10) | 6.60 (168) | 2.01 (53) | 1.25 (32) |
| ¾ (SAE 12) | 7.20 (183) | 2.48 (63) | 1.50 (38) |
| 1 (SAE 16) | 7.20 (183) | 2.48 (63) | 1.75 (44) |
| 1¼ (SAE 20) | 12.20 (310) | 4.20 (105) | 2.75 (70) |
| 1½ (SAE 24) | 12.20 (310) | 4.20 (105) | 2.75 (70) |

Note: Weights for all sizes can be found on page 80.



3500/6000 PSI high temperature

Flow meters for water and other liquids

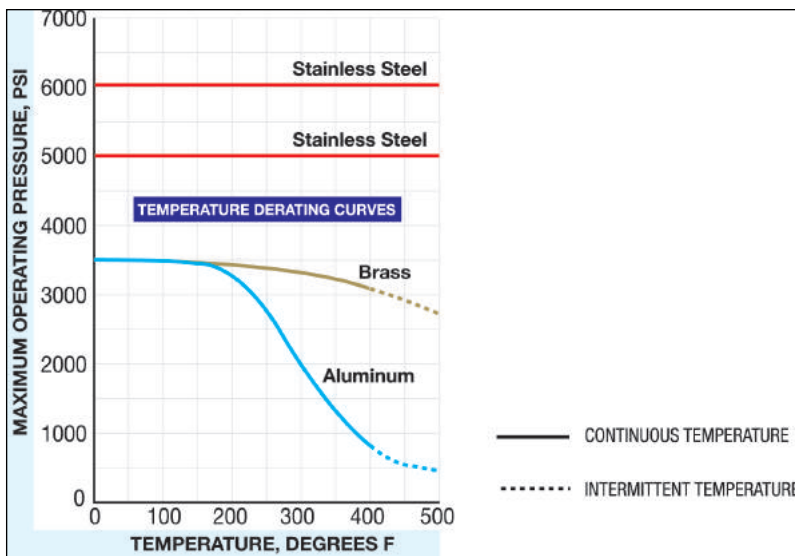
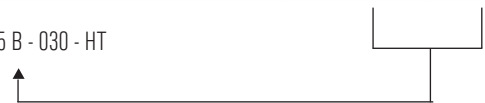
Ordering information

| Nominal port size ^① | Flow range | | Pressure drop | | Model number (see example below) | | | Material ☒ | |
|--------------------------------|------------|------------|--------------------|---------------------|----------------------------------|-------------------|-------------------|----------------|-----------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | SAE | NPTF | BSPP ^③ | Brass 3500 psi | Stainless steel |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | H204 ☒ - 010 - HT | H205 ☒ - 010 - HT | H206 ☒ - 010 - HT | B | 6000 psi |
| | 0.2 - 2.0 | 1 - 7.5 | 6.0 (.41) | 13.0 (.90) | H204 ☒ - 020 - HT | H205 ☒ - 020 - HT | H206 ☒ - 020 - HT | | S |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | 2.0 (.14) | 2.75 (.19) | H604 ☒ - 001 - HT | H605 ☒ - 001 - HT | H606 ☒ - 001 - HT | B | 6000 psi |
| | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | H604 ☒ - 002 - HT | H605 ☒ - 002 - HT | H606 ☒ - 002 - HT | | |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | H604 ☒ - 005 - HT | H605 ☒ - 005 - HT | H606 ☒ - 005 - HT | | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | H604 ☒ - 010 - HT | H605 ☒ - 010 - HT | H606 ☒ - 010 - HT | | |
| | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | H604 ☒ - 015 - HT | H605 ☒ - 015 - HT | H606 ☒ - 015 - HT | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | H704 ☒ - 002 - HT | H705 ☒ - 002 - HT | H706 ☒ - 002 - HT | B | 5000 psi |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H704 ☒ - 005 - HT | H705 ☒ - 005 - HT | H706 ☒ - 005 - HT | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H704 ☒ - 010 - HT | H705 ☒ - 010 - HT | H706 ☒ - 010 - HT | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H704 ☒ - 020 - HT | H705 ☒ - 020 - HT | H706 ☒ - 020 - HT | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | H704 ☒ - 030 - HT | H705 ☒ - 030 - HT | H706 ☒ - 030 - HT | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | H754 ☒ - 002 - HT | H755 ☒ - 002 - HT | H756 ☒ - 002 - HT | B | 5000 psi |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H754 ☒ - 005 - HT | H755 ☒ - 005 - HT | H756 ☒ - 005 - HT | | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H754 ☒ - 010 - HT | H755 ☒ - 010 - HT | H756 ☒ - 010 - HT | | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H754 ☒ - 020 - HT | H755 ☒ - 020 - HT | H756 ☒ - 020 - HT | | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | H754 ☒ - 030 - HT | H755 ☒ - 030 - HT | H756 ☒ - 030 - HT | | |
| | 4 - 40 | 15 - 150 | 9.0 (.62) | 24.0 (1.7) | H754 ☒ - 040 - HT | H755 ☒ - 040 - HT | H756 ☒ - 040 - HT | | |
| 1½" SAE 20 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | H804 ☒ - 030 - HT | H805 ☒ - 030 - HT | H806 ☒ - 030 - HT | B | 5000 psi |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H804 ☒ - 050 - HT | H805 ☒ - 050 - HT | H806 ☒ - 050 - HT | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H804 ☒ - 075 - HT | H805 ☒ - 075 - HT | H806 ☒ - 075 - HT | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | H804 ☒ - 100 - HT | H805 ☒ - 100 - HT | H806 ☒ - 100 - HT | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | H804 ☒ - 150 - HT | H805 ☒ - 150 - HT | H806 ☒ - 150 - HT | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | H854 ☒ - 030 - HT | H855 ☒ - 030 - HT | H856 ☒ - 030 - HT | B | 5000 psi |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H854 ☒ - 050 - HT | H855 ☒ - 050 - HT | H856 ☒ - 050 - HT | | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H854 ☒ - 075 - HT | H855 ☒ - 075 - HT | H856 ☒ - 075 - HT | | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | H854 ☒ - 100 - HT | H855 ☒ - 100 - HT | H856 ☒ - 100 - HT | | |
| | 10 - 150 | 50 - 560 | 10.5 (.72) | 27.5 (1.9) | H854 ☒ - 150 - HT | H855 ☒ - 150 - HT | H856 ☒ - 150 - HT | | |

①Fractional sizes apply to NPTF and BSPP.

Example: H 705 B - 030 - HT

Note: HT suffix represents standard high temperature configuration.



6000 PSI flow meters

For A.P.I. oil / Caustic and corrosive liquids

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Good viscosity stability
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available



Technical data

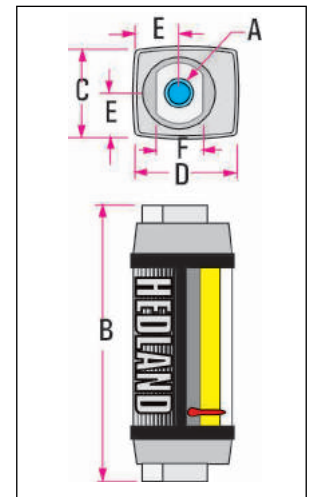
| | |
|---|---|
| Materials | T316 Stainless body, piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Guard seal / Bumper: Buna N Guard: Polycarbonate End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic pressure Seals: Viton® Scale support: 6063 - T6 aluminum |
| Threads | NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) for higher temperatures, consult factory |
| Pressure rating | |
| Oil / liquids operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max for ¾" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. Detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |
| Hostile environment option specifications | |
| Materials | T316 stainless body, piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Bumper: T316 SS Seals: Viton® End caps: T316 SS | Retaining ring: T316 SS Retaining spring: T316 SS Indicator: T416 SS Scale support: T316 SS Guard: Cylindrical Pyrex® glass Internal magnet: Teflon® Coated Alnico 8 |
| Temperature range | -29 to +205 °C (-20 to +400 °F) continuous +205 to +260 °C (+400 to +500 °F) intermittent For detailed "Pressure vs. temperature" correlation information, see next page. |



Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |
| ½ | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |
| 1¼ | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |
| 1½ | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |

Note: Weights for all sizes can be found on page 80.



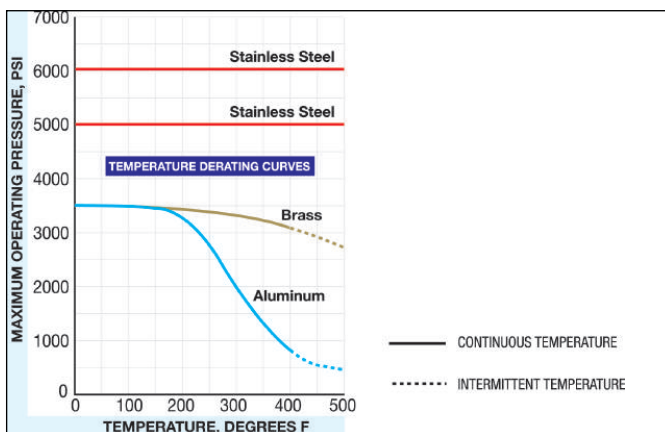
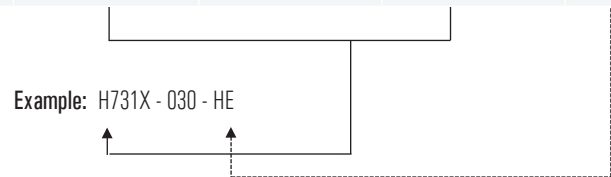
6000 PSI flow meters

For A.P.I. oil / Caustic and corrosive liquids

Ordering information

| Nominal port size | Flow range | | Pressure drop | | Model number (see example below) | | | | Hostile environment option ♦ |
|-------------------|------------|------------|--------------------|---------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------|
| | gal/min | l/min | 50% flow psi (bar) | 100% flow psi (bar) | API - oil .876 (S.G.) | | Liquids 1.0 (S.G.) | | |
| | | | | | NPTF | BSPP | NPSF | BSPP | |
| ¼" | 0.1 - 1.0 | 0.5 - 3.75 | 4.0 (.28) | 9.0 (.62) | 6000 psi | | 6000 psi | | HE |
| | 0.2 - 2.0 | 1 - 7.5 | 6.0 (.41) | 13.0 (.90) | H231X - 010 - ♦ H231X - 020 - ♦ | H232X - 010 - ♦ H232X - 020 - ♦ | H234X - 010 - ♦ H234X - 020 - ♦ | H235X - 010 - ♦ H235X - 020 - ♦ | |
| ½" | 0.2 - 2.0 | 1 - 7.5 | 2.0 (.14) | 3.0 (.21) | 6000 psi | | 6000 psi | | HE |
| | 0.5 - 5.0 | 2 - 19 | 3.0 (.21) | 6.0 (.41) | H631X - 002 - ♦ H631X - 005 - ♦ | H632X - 002 - ♦ H632X - 005 - ♦ | H634X - 002 - ♦ H634X - 005 - ♦ | H635X - 002 - ♦ H635X - 005 - ♦ | |
| | 1 - 10 | 5 - 38 | 4.0 (.28) | 9.5 (.66) | H631X - 010 - ♦ H631X - 015 - ♦ | H632X - 010 - ♦ H632X - 015 - ♦ | H634X - 010 - ♦ H634X - 015 - ♦ | H635X - 010 - ♦ H635X - 015 - ♦ | |
| | 1 - 15 | 4 - 56 | 6.5 (.45) | 18.5 (1.3) | | | | | |
| ¾" | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 5000 psi | | 5000 psi | | HE |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H731X - 002 - ♦ H731X - 005 - ♦ | H732X - 002 - ♦ H732X - 005 - ♦ | H734X - 002 - ♦ H734X - 005 - ♦ | H735X - 002 - ♦ H735X - 005 - ♦ | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H731X - 010 - ♦ H731X - 020 - ♦ | H732X - 010 - ♦ H732X - 020 - ♦ | H734X - 010 - ♦ H734X - 020 - ♦ | H735X - 010 - ♦ H735X - 020 - ♦ | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H731X - 020 - ♦ H731X - 030 - ♦ | H732X - 020 - ♦ H732X - 030 - ♦ | H734X - 020 - ♦ H734X - 030 - ♦ | H735X - 020 - ♦ H735X - 030 - ♦ | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | | | | | |
| 1" | 0.2 - 2.0 | 1 - 7.5 | 1.0 (.07) | 2.0 (.14) | 5000 psi | | 5000 psi | | HE |
| | 0.5 - 5.0 | 2 - 19 | 2.5 (.17) | 3.5 (.24) | H741X - 002 - ♦ H741X - 005 - ♦ | H742X - 002 - ♦ H742X - 005 - ♦ | H744X - 002 - ♦ H744X - 005 - ♦ | H745X - 002 - ♦ H745X - 005 - ♦ | |
| | 1 - 10 | 5 - 38 | 3.5 (.24) | 9.0 (.62) | H741X - 010 - ♦ H741X - 020 - ♦ | H742X - 010 - ♦ H742X - 020 - ♦ | H744X - 010 - ♦ H744X - 020 - ♦ | H745X - 010 - ♦ H745X - 020 - ♦ | |
| | 2 - 20 | 10 - 76 | 4.0 (.28) | 9.0 (.62) | H741X - 020 - ♦ H741X - 030 - ♦ | H742X - 020 - ♦ H742X - 030 - ♦ | H744X - 020 - ♦ H744X - 030 - ♦ | H745X - 020 - ♦ H745X - 030 - ♦ | |
| | 3 - 30 | 10 - 115 | 7.0 (.48) | 16.5 (1.1) | H741X - 030 - ♦ H741X - 040 - ♦ | H742X - 030 - ♦ H742X - 040 - ♦ | H744X - 030 - ♦ H744X - 040 - ♦ | H745X - 030 - ♦ H745X - 040 - ♦ | |
| 1¼" | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 5000 psi | | 5000 psi | | HE |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H831X - 030 - ♦ H831X - 050 - ♦ | H832X - 030 - ♦ H832X - 050 - ♦ | H834X - 030 - ♦ H834X - 050 - ♦ | H835X - 030 - ♦ H835X - 050 - ♦ | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H831X - 075 - ♦ H831X - 100 - ♦ | H832X - 075 - ♦ H832X - 100 - ♦ | H834X - 075 - ♦ H834X - 100 - ♦ | H835X - 075 - ♦ H835X - 100 - ♦ | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | | | | | |
| 1½" | 3 - 30 | 10 - 110 | 3.0 (.21) | 4.0 (.28) | 5000 psi | | 5000 psi | | HE |
| | 5 - 50 | 20 - 190 | 3.5 (.24) | 7.0 (.48) | H841X - 030 - ♦ H841X - 050 - ♦ | H842X - 030 - ♦ H842X - 050 - ♦ | H844X - 030 - ♦ H844X - 050 - ♦ | H845X - 030 - ♦ H845X - 050 - ♦ | |
| | 10 - 75 | 40 - 280 | 5.0 (.35) | 10.5 (.72) | H841X - 075 - ♦ H841X - 100 - ♦ | H842X - 075 - ♦ H842X - 100 - ♦ | H844X - 075 - ♦ H844X - 100 - ♦ | H845X - 075 - ♦ H845X - 100 - ♦ | |
| | 10 - 100 | 50 - 380 | 6.5 (.45) | 15.0 (1.0) | | | | | |

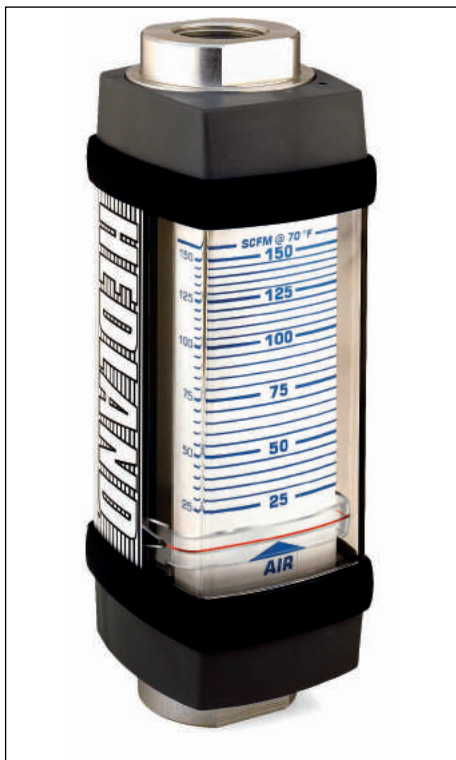
Note: Consult factory for availability.



1500 PSI flow meters

For air / Caustic and corrosive gases

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available



Technical data

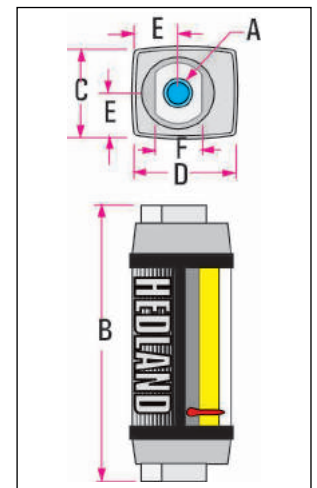
| | |
|---|---|
| Materials | T316 Stainless body, piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Guard seal / Bumper: Buna N Guard: Polycarbonate End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic pressure Seals: Viton® Scale support: 6063 - T6 aluminum |
| Threads | NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) for higher temperatures, consult factory. |
| Pressure rating | |
| Oil / liquids operating | 6,000 psi/414 bar max. (5,000 psi/345 bar max for ¼" to 1½" series) with a 3:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. Detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |
| Hostile environment option specifications | |
| Materials | T316 stainless body, piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Bumper: T316 SS Seals: Viton® End caps: T316 SS | Retaining ring: T316 SS Retaining spring: T316 SS Indicator: T416 SS Scale support: T316 SS Guard: Cylindrical Pyrex® glass Internal magnet: Teflon® Coated Alnico 8 |
| Temperature range | -29 to +205 °C (-20 to +400 °F) continuous +205 to +260 °C (+400 to +500 °F) intermittent For detailed "Pressure vs. temperature" correlation information, see next page. |



Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |
| ½ | 6.6 (168) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) |
| ¾ | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) |
| 1 | 7.2 (183) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) |
| 1¼ | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |
| 1½ | 12.2 (310) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) |

Note: Weights for all sizes can be found on page 80.



1500 PSI flow meters

For air / Caustic and corrosive gases

Ordering information

| Nominal port size | Flow range | | Pressure drop | | Model number (see example below) | | Hostile environment option ♦ |
|-------------------|------------|------------|--------------------|---------------------|----------------------------------|-----------------|------------------------------|
| | ① SCFM | ② l/sec | 50% flow psi (bar) | 100% flow psi (bar) | Gases 1.0 (S.G.) | | |
| | | | | | NPTF | BSPP | |
| ¼" | 2 - 20 | 1 - 9 | 10.15 (0.70) | 18.71 (1.29) | H237X - 020 - ♦ | H238X - 020 - ♦ | n/a |
| | 3 - 30 | 1.5 - 14 | 13.75 (0.95) | 26.23 (1.81) | H237X - 030 - ♦ | H238X - 030 - ♦ | |
| ½" | 3 - 25 | 2 - 12 | 3.73 (0.26) | 6.10 (0.42) | H637X - 025 - ♦ | H638X - 025 - ♦ | HE |
| | 5 - 50 | 3 - 22 | 6.04 (0.42) | 10.35 (0.71) | H637X - 050 - ♦ | H638X - 050 - ♦ | |
| | 10 - 100 | 5 - 47 | 7.18 (0.50) | 13.85 (0.95) | H637X - 100 - ♦ | H638X - 100 - ♦ | |
| | 15 - 150 | 7 - 70 | 8.06 (0.56) | 18.49 (1.27) | H637X - 150 - ♦ | H638X - 150 - ♦ | |
| ¾" | 3 - 25 | 1.5 - 11.5 | 2.99 (0.21) | 5.90 (0.41) | H737X - 025 - ♦ | H738X - 025 - ♦ | HE |
| | 5 - 50 | 2 - 23 | 2.00 (0.14) | 3.58 (0.25) | H737X - 050 - ♦ | H738X - 050 - ♦ | |
| | 10 - 100 | 5 - 47.5 | 7.19 (0.50) | 12.87 (0.89) | H737X - 100 - ♦ | H738X - 100 - ♦ | |
| | 15 - 150 | 7 - 70 | 4.44 (0.31) | 9.52 (0.66) | H737X - 150 - ♦ | H738X - 150 - ♦ | |
| | 25 - 250 | 10 - 118 | 6.27 (0.43) | 15.38 (1.06) | H737X - 250 - ♦ | H738X - 250 - ♦ | |
| 1" | 3 - 25 | 1.5 - 11.5 | 2.99 (0.21) | 5.90 (0.41) | H747X - 025 - ♦ | H748X - 025 - ♦ | HE |
| | 5 - 50 | 2 - 23 | 2.00 (0.14) | 3.58 (0.25) | H747X - 050 - ♦ | H748X - 050 - ♦ | |
| | 10 - 100 | 5 - 47.5 | 7.19 (0.50) | 12.87(0.89) | H747X - 100 - ♦ | H748X - 100 - ♦ | |
| | 15 - 150 | 7 - 70 | 4.44 (0.31) | 9.52 (0.66) | H747X - 150 - ♦ | H748X - 150 - ♦ | |
| | 25 - 250 | 10 - 118 | 6.27(0.43) | 15.38 (1.06) | H747X - 250 - ♦ | H748X - 250 - ♦ | |
| 1¼" | 20 - 200 | 10 - 95 | 1.89 (0.13) | 3.16 (0.22) | H837X - 200 - ♦ | H838X - 200 - ♦ | HE |
| | 40 - 400 | 20 - 180 | 2.53 (0.17) | 5.49 (0.38) | H837X - 400 - ♦ | H838X - 400 - ♦ | |
| | 60 - 600 | 30 - 280 | 4.47 (0.31) | 10.71 (0.74) | H837X - 600 - ♦ | H838X - 600 - ♦ | |
| | 80 - 800 | 50 - 350 | 6.13 (0.42) | 17.14 (1.18) | H837X - 800 - ♦ | H838X - 800 - ♦ | |
| 1½" | 20 - 200 | 10 - 95 | 1.89 (0.13) | 3.16 (0.22) | H847X - 200 - ♦ | H848X - 200 - ♦ | HE |
| | 40 - 400 | 20 - 180 | 2.53 (0.17) | 5.49 (0.38) | H847X - 400 - ♦ | H848X - 400 - ♦ | |
| | 60 - 600 | 30 - 280 | 4.47 (0.31) | 10.71 (0.74) | H847X - 600 - ♦ | H848X - 600 - ♦ | |
| | 80 - 800 | 50 - 350 | 6.13 (0.42) | 17.14 (1.18) | H847X - 800 - ♦ | H848X - 800 - ♦ | |

Note: Consult factory for availability.

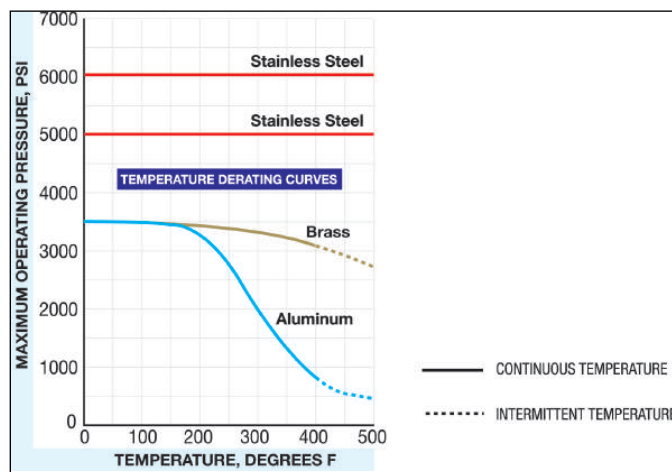
- ① SCFM/PSI multipressure scales are standard.
- ② l/sec/bar multipressure scales are available at no extra charge. Consult factory for other options.

Example: H 737X - 250 - HE



Note: When ordering a l/sec/bar scale, add "S1" suffix to part number

(Example) H737 X - 250 - S1 or H737 X - 250 - HE - S1



1000/1500 PSI flow meters

For air and other compressed gases

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.

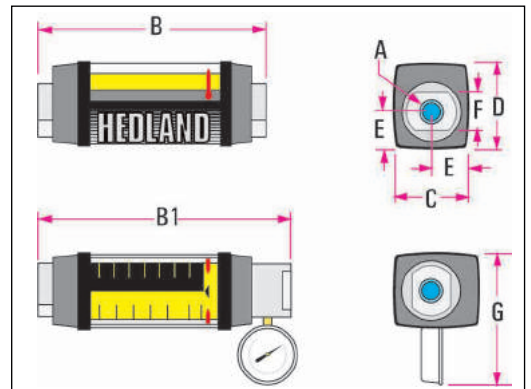


Technical data

| | |
|---|--|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body piston and cone ^① , T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: Viton [®] Guard: Polycarbonate | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum End caps: Nylon ST |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) For higher temperatures, consult factory. |
| Pressure rating | |
| Aluminum / brass operating | 1,000 psi/69 bar max. (250 psi/17 bar max. for 3" series) with a 10:1 safety factor. For high cycle applications see page conversion information. |
| Stainless steel operating | 1,500 psi/103 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |

Standard product

Standard product with EP & EG option



Dimensions

| | A | B | B1 | C | D | E | F | G |
|-------------------|----------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | Height in (mm) |
| ¼ (SAE 6) | 4.8 (122) | 6.12 (155) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) | 5.0 (127) | |
| ½ (SAE 10) | 6.6 (168) | 8.00 (203) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) | 5.4 (137) | |
| ¾ (SAE 12) | 7.2 (183) | 8.9 (226) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) | 5.9 (150) | |
| 1 (SAE 16) | 7.2 (183) | 8.9 (226) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) | 5.9 (150) | |
| 1¼ (SAE 20) | 12.2 (310) | 13.8 (351) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | 7.2 (183) | |
| 1½ (SAE 24) | 12.2 (310) | 13.8 (351) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | 7.2 (183) | |

Note: Dimensions for 3" meters can be found on page 79.

Weights for all sizes can be found on page 80.

^① 3 inch models have Celcon[®] piston/piston ring

1000/1500 PSI flow meters

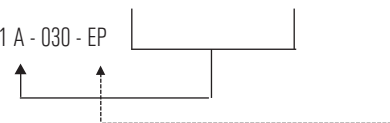
For air and other compressed gases

Ordering information

| Nominal port size ^② | Flow range | | Pressure drop | | Model number (see example below) | | | Material [⊗] | | | Options [◆] | | | | | |
|--------------------------------|------------|------------|--------------------|---------------------|----------------------------------|------------------|-------------------|-----------------------|----------------|--------------------|------------------------------------|--------------------------------------|---------|---|---------------|--|
| | ③ SCFM | ④ l/sec | 50% flow psi (bar) | 100% flow psi (bar) | SAE | NPTF | BSPP [Ⓞ] | Aluminium 1000 psi | Brass 1000 psi | Stainless 1500 psi | Ex-tended cap plugged [Ⓞ] | Extended cap with gauge [Ⓞ] | | | | |
| ¼" SAE 6 | 0.5 - 5 | 0.2 - 2.2 | 2.51 (0.17) | 4.45 (0.31) | H270 ☒ - 005 - ◆ | H271 ☒ - 005 - ◆ | H272 ☒ - 005 - ◆ | A | B | S | EP | EG | | | | |
| | 1 - 10 | 0.5 - 4.75 | 9.29 (0.64) | 16.46 (1.13) | H270 ☒ - 010 - ◆ | H271 ☒ - 010 - ◆ | H272 ☒ - 010 - ◆ | | | | | | | | | |
| | 2 - 20 | 1 - 9 | 10.15 (0.70) | 18.71 (1.29) | H270 ☒ - 020 - ◆ | H271 ☒ - 020 - ◆ | H272 ☒ - 020 - ◆ | | | | | | | | | |
| | 3 - 30 | 1.5 - 14 | 13.75 (0.95) | 26.23 (1.81) | H270 ☒ - 030 - ◆ | H271 ☒ - 030 - ◆ | H272 ☒ - 030 - ◆ | | | | | | | | | |
| ½" SAE 10 | 3 - 25 | 2 - 12 | 3.73 (0.26) | 6.10 (0.42) | H670 ☒ - 025 - ◆ | H671 ☒ - 025 - ◆ | H672 ☒ - 025 - ◆ | A | B | S | EP | EG | | | | |
| | 5 - 50 | 3 - 22 | 6.04 (0.42) | 10.35 (0.71) | H670 ☒ - 050 - ◆ | H671 ☒ - 050 - ◆ | H672 ☒ - 050 - ◆ | | | | | | | | | |
| | 10 - 100 | 5 - 47 | 7.18 (0.50) | 13.85 (0.95) | H670 ☒ - 100 - ◆ | H671 ☒ - 100 - ◆ | H672 ☒ - 100 - ◆ | | | | | | | | | |
| | 15 - 150 | 7 - 70 | 8.06 (0.56) | 18.49 (1.27) | H670 ☒ - 150 - ◆ | H671 ☒ - 150 - ◆ | H672 ☒ - 150 - ◆ | | | | | | | | | |
| ¾" SAE 12 | 3 - 25 | 1.5 - 11.5 | 2.99 (0.21) | 5.90 (0.41) | H770 ☒ - 025 - ◆ | H771 ☒ - 025 - ◆ | H772 ☒ - 025 - ◆ | A | B | S | EP | EG | | | | |
| | 5 - 50 | 2 - 23 | 2.00 (0.14) | 3.58 (0.25) | H770 ☒ - 050 - ◆ | H771 ☒ - 050 - ◆ | H772 ☒ - 050 - ◆ | | | | | | | | | |
| | 10 - 100 | 5 - 47.5 | 7.19 (0.50) | 12.87 (0.89) | H770 ☒ - 100 - ◆ | H771 ☒ - 100 - ◆ | H772 ☒ - 100 - ◆ | | | | | | | | | |
| | 15 - 150 | 7 - 70 | 4.44 (0.31) | 9.52 (0.66) | H770 ☒ - 150 - ◆ | H771 ☒ - 150 - ◆ | H772 ☒ - 150 - ◆ | | | | | | | | | |
| 1" SAE 16 | 3 - 25 | 1.5 - 11.5 | 2.99 (0.21) | 5.90 (0.41) | H790 ☒ - 025 - ◆ | H791 ☒ - 025 - ◆ | H792 ☒ - 025 - ◆ | A | B | S | EP | EG | | | | |
| | 5 - 50 | 2 - 23 | 2.00 (0.14) | 3.58 (0.25) | H790 ☒ - 050 - ◆ | H791 ☒ - 050 - ◆ | H792 ☒ - 050 - ◆ | | | | | | | | | |
| | 10 - 100 | 5 - 47.5 | 7.19 (0.50) | 12.87 (0.89) | H790 ☒ - 100 - ◆ | H791 ☒ - 100 - ◆ | H792 ☒ - 100 - ◆ | | | | | | | | | |
| | 15 - 150 | 7 - 70 | 4.44 (0.31) | 9.52 (0.66) | H790 ☒ - 150 - ◆ | H791 ☒ - 150 - ◆ | H792 ☒ - 150 - ◆ | | | | | | | | | |
| 1¼" SAE 20 | 20 - 200 | 10 - 95 | 1.89 (0.13) | 3.16 (0.22) | H870 ☒ - 200 - ◆ | H871 ☒ - 200 - ◆ | H872 ☒ - 200 - ◆ | A | B | S | EP | EG | | | | |
| | 40 - 400 | 20 - 180 | 2.53 (0.17) | 5.49 (0.38) | H870 ☒ - 400 - ◆ | H871 ☒ - 400 - ◆ | H872 ☒ - 400 - ◆ | | | | | | | | | |
| | 60 - 600 | 30 - 280 | 4.47 (0.31) | 10.71 (0.74) | H870 ☒ - 600 - ◆ | H871 ☒ - 600 - ◆ | H872 ☒ - 600 - ◆ | | | | | | | | | |
| | 80 - 800 | 50 - 350 | 6.13 (0.42) | 17.14 (1.18) | H870 ☒ - 800 - ◆ | H871 ☒ - 800 - ◆ | H872 ☒ - 800 - ◆ | | | | | | | | | |
| 1½" SAE 24 | 100 - 1000 | 50 - 475 | 9.84 (0.68) | 28.45 (1.96) | H870 ☒ - 999 - ◆ | H871 ☒ - 999 - ◆ | H872 ☒ - 999 - ◆ | A | B | S | EP | EG | | | | |
| | 20 - 200 | 10 - 95 | 1.89 (0.13) | 3.16 (0.22) | H890 ☒ - 200 - ◆ | H891 ☒ - 200 - ◆ | H892 ☒ - 200 - ◆ | | | | | | | | | |
| | 40 - 400 | 20 - 180 | 2.53 (0.17) | 5.49 (0.38) | H890 ☒ - 400 - ◆ | H891 ☒ - 400 - ◆ | H892 ☒ - 400 - ◆ | | | | | | | | | |
| | 60 - 600 | 30 - 280 | 4.47 (0.31) | 10.71 (0.74) | H890 ☒ - 600 - ◆ | H891 ☒ - 600 - ◆ | H892 ☒ - 600 - ◆ | | | | | | | | | |
| 3" | 80 - 800 | 50 - 350 | 6.13 (0.42) | 17.14 (1.18) | H890 ☒ - 800 - ◆ | H891 ☒ - 800 - ◆ | H892 ☒ - 800 - ◆ | A | B | S | EP | EG | | | | |
| | 100 - 1000 | 50 - 475 | 9.84 (0.68) | 28.45 (1.96) | H890 ☒ - 999 - ◆ | H891 ☒ - 999 - ◆ | H892 ☒ - 999 - ◆ | | | | | | | | | |
| | 100 - 1400 | 75 - 750 | 10.0 (0.69) | 16.0 (1.10) | Not available | H971 ☒ - 140 - ◆ | H972 ☒ - 140 - ◆ | | | | | | 250 psi | | Not available | |
| | 200 - 2200 | 75 - 1130 | 10.0 (0.69) | 16.0 (1.10) | Not available | H971 ☒ - 220 - ◆ | H972 ☒ - 220 - ◆ | | | | | | A | B | | |

- ② Fractional sizes apply to NPTF and BSPP.
- ③ SCFM/psi multipressure scales are standard.
- ④ l/sec/bar multipressure
- ⑤ Scales are available at no extra charge.
- ⑥ 3 inch models have BSPT (BS21) threads
EP and EG options are only available with NPTF and BSPP models.

Example: H 771 A - 030 - EP



Note: When ordering a l/sec/bar scale, add "S1" suffix to part number.

Example: H771 A - 250 - S1 or H771 A - 250 - EG - S1

600 PSI test kits

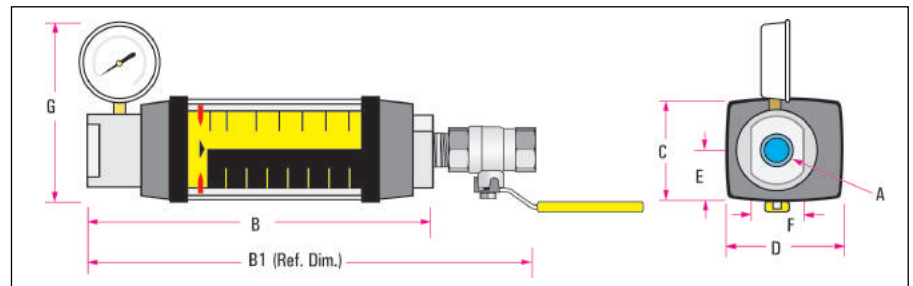
For air and other compressed gases

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Temperature up to 116°C (240 °F)
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available



Technical data

| | |
|--|---|
| Materials | 2024 - T351 anodized aluminum body, piston and cone, C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone |
| Common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: Viton® Guard: Polycarbonate End caps: Nylon ST | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Guard seal / bumper: Buna N Scale support: 6063 - T6 aluminum |
| Threads | NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | 600 psi/41 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | 600 psi/41 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Pressure drop | See ordering information table next page. For detailed differential pressure charts, see page 62. |
| Accuracy | ±2% of full scale, ±7% of full scale for ¼" meters |
| Repeatability | ±1% |
| Pressure gauge | Glycerin dampened, 0 - 160 psi / 0 - 10 bar pressure range available on all test kits. |
| Load valve | ½" to 1½" nickel-plated brass ball valve with chrome-plated brass ball and Teflon® seals. |
| Silencer (optional) | Brass body with 40 micron porous sintered bronze filter. |



Dimensions

| | A | B | B1 | C | D | E | F | G |
|-------------------|----------------|----------------|----------------|---------------|---------------|----------------|---------------|----------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) | Height in (mm) |
| ¼ | 6.12 (155) | 8.38 (213) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) | 5.0 (127) | |
| ½ | 8.00 (203) | 11.0 (279) | 2.07 (53) | 2.40 (61) | 1.04 (26) | 1.25 (32) | 5.4 (137) | |
| ¾ | 8.90 (226) | 12.38 (315) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.50 (38) | 5.9 (150) | |
| 1 | 8.90 (226) | 12.38 (315) | 2.48 (63) | 2.85 (72) | 1.24 (32) | 1.75 (44) | 5.9 (150) | |
| 1¼ | 13.80 (351) | 18.39 (465) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | 7.2 (183) | |
| 1½ | 13.80 (351) | 18.39 (465) | 4.12 (105) | 4.72 (120) | 2.06 (52) | 2.75 (70) | 7.2 (183) | |

Note: Weights for all sizes can be found on page 80.
BSPP Test Kits include outlet adapter.

600 PSI test kits

For air and other compressed gases

Ordering information

| Nominal port size | Flow range | | Pressure drop | | Model number (see example below) | | Material ⌘ | | |
|-------------------|------------|------------|--------------------|---------------------|----------------------------------|-------------------|-------------------|---------------|-------------------|
| | ① SCFM | ② l/sec | 50% flow psi (bar) | 100% flow psi (bar) | NPTF | BSPP | Aluminium 600 psi | Brass 600 psi | Stainless 600 psi |
| ¼" | 0.5 - 5 | 0.2 - 2.2 | 3.38 (0.23) | 5.32 (0.37) | H271 ⌘ - 005 - TK | H272 ⌘ - 005 - TK | A | B | S |
| | 1 - 10 | 0.5 - 4.75 | 8.08 (0.56) | 17.33 (1.19) | H271 ⌘ - 010 - TK | H272 ⌘ - 010 - TK | | | |
| | 2 - 20 | 1 - 9 | 11.02 (0.76) | 19.64 (1.35) | H271 ⌘ - 020 - TK | H272 ⌘ - 020 - TK | | | |
| | 3 - 30 | 1.5 - 14 | 14.62 (1.01) | 27.10 (1.87) | H271 ⌘ - 030 - TK | H272 ⌘ - 030 - TK | | | |
| ½" | 3 - 25 | 2 - 12 | 4.60 (0.32) | 6.97 (0.48) | H671 ⌘ - 025 - TK | H672 ⌘ - 025 - TK | A | B | S |
| | 5 - 50 | 3 - 22 | 6.91 (0.48) | 11.22 (0.77) | H671 ⌘ - 050 - TK | H672 ⌘ - 050 - TK | | | |
| | 10 - 100 | 5 - 47 | 8.67 (0.60) | 14.72 (1.01) | H671 ⌘ - 100 - TK | H672 ⌘ - 100 - TK | | | |
| | 15 - 150 | 7 - 70 | 8.93 (0.62) | 19.36 (1.33) | H671 ⌘ - 150 - TK | H672 ⌘ - 150 - TK | | | |
| ¾" | 3 - 25 | 1.5 - 11.5 | 3.86 (0.27) | 6.77 (0.47) | H771 ⌘ - 025 - TK | H772 ⌘ - 025 - TK | A | B | S |
| | 5 - 50 | 2 - 23 | 2.87 (0.20) | 4.45 (0.31) | H771 ⌘ - 050 - TK | H772 ⌘ - 050 - TK | | | |
| | 10 - 100 | 5 - 47.5 | 8.06 (0.56) | 13.74 (0.95) | H771 ⌘ - 100 - TK | H772 ⌘ - 100 - TK | | | |
| | 15 - 150 | 7 - 70 | 5.31 (0.37) | 10.39 (0.72) | H771 ⌘ - 150 - TK | H772 ⌘ - 150 - TK | | | |
| | 25 - 250 | 10 - 118 | 7.14 (0.49) | 16.25 (1.12) | H771 ⌘ - 250 - TK | H772 ⌘ - 250 - TK | | | |
| 1" | 3 - 25 | 1.5 - 15 | 3.86 (0.27) | 6.77 (0.47) | H791 ⌘ - 025 - TK | H792 ⌘ - 025 - TK | A | B | S |
| | 5 - 50 | 2 - 23 | 2.87 (0.20) | 4.45 (0.31) | H791 ⌘ - 050 - TK | H792 ⌘ - 050 - TK | | | |
| | 10 - 100 | 5 - 47.5 | 8.06 (0.56) | 13.74 (0.95) | H791 ⌘ - 100 - TK | H792 ⌘ - 100 - TK | | | |
| | 15 - 150 | 7 - 70 | 5.31 (0.37) | 10.39 (0.72) | H791 ⌘ - 150 - TK | H792 ⌘ - 150 - TK | | | |
| | 25 - 250 | 10 - 118 | 7.14 (0.49) | 16.25 (1.12) | H791 ⌘ - 250 - TK | H792 ⌘ - 250 - TK | | | |
| 1¼" | 20 - 200 | 10 - 95 | 2.76 (0.19) | 4.03 (0.28) | H871 ⌘ - 200 - TK | H872 ⌘ - 200 - TK | A | B | S |
| | 40 - 400 | 20 - 180 | 3.40 (0.23) | 6.36 (0.44) | H871 ⌘ - 400 - TK | H872 ⌘ - 400 - TK | | | |
| | 60 - 600 | 30 - 280 | 5.34 (0.37) | 11.58 (0.80) | H871 ⌘ - 600 - TK | H872 ⌘ - 600 - TK | | | |
| | 80 - 800 | 50 - 350 | 7.00 (0.48) | 18.01(1.24) | H871 ⌘ - 800 - TK | H872 ⌘ - 800 - TK | | | |
| | 100 - 1000 | 50 - 475 | 10.71 (0.74) | 29.32 (2.02) | H871 ⌘ - 999 - TK | H872 ⌘ - 999 - TK | | | |
| 1½" | 20 - 200 | 10 - 95 | 2.76 (0.19) | 4.03 (0.28) | H891 ⌘ - 200 - TK | H892 ⌘ - 200 - TK | A | B | S |
| | 40 - 400 | 20 - 180 | 3.40 (0.23) | 6.36 (0.44) | H891 ⌘ - 400 - TK | H892 ⌘ - 400 - TK | | | |
| | 60 - 600 | 30 - 280 | 5.34 (0.37) | 11.58 (0.80) | H891 ⌘ - 600 - TK | H892 ⌘ - 600 - TK | | | |
| | 80 - 800 | 50 - 350 | 7.00 (0.48) | 18.01(1.24) | H891 ⌘ - 800 - TK | H892 ⌘ - 800 - TK | | | |
| | 100 - 1000 | 50 - 475 | 10.71 (0.74) | 29.32 (2.02) | H891 ⌘ - 999 - TK | H892 ⌘ - 999 - TK | | | |

① SCFM/psi multipressure scales are standard.

Example: H 771 A - 250 - TK

② L/sec-bar multipressure scales are available at no extra charge.



Note: Consult factory for other options.

Note: When ordering a L/sec-bar scale, add "S1" suffix to part number.

Example: H771 A - 250 - TK - S1

Flow-Alert flow switches (microswitch)

For liquids / Air and other compressed gases

- Automatically signals alarm if flow is too high or too low
- Automatically opens or closes electrical circuits
- Triggers warning lights, buzzers and other devices
- Shuts down pumps and/or other equipment to protect your operation against permanent damage
- Available from 1/4" to 1 1/2" sizes in aluminum, brass and stainless
- Installs in any position
- Easier-to-read linear scale
- No flow straighteners or special piping requirements
- Relatively insensitive to shock and vibration
- Special scales available



Technical data

| | |
|--|--|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone 303 stainless body, 2024 - T351 anodized aluminum piston and cone Oil, PE, WBF, & air meters T303 stainless body, C360 brass piston and cone (water meters) T316 stainless body, piston and cone |
| Petroleum (oil) common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: Viton® Lens: Polycarbonate | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Enclosure seal: Silicone gasket Scale support: 6063 - T6 aluminum |
| Phosphate ester (PE) common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: EPR Lens: Polycarbonate | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Indicator and internal magnet: PPS / ceramic Enclosure seal: Silicone gasket Scale support: 6063 - T6 aluminum |
| Water-based (WBF), water, air common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: Viton® Lens: Polycarbonate | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Enclosure seal: Silicone gasket Scale support: 6063 - T6 aluminum |
| API oil / air / caustic and corrosive liquids and gases | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Pressure seals: Viton® Lens: Polycarbonate | Retaining ring: T316 SS Retaining spring: T316 SS Indicator and internal magnet: PPS / ceramic Enclosure seal: Silicone gasket Scale support: 6063 - T6 aluminum |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | |
| Liquids | 3,500 psi/241 bar max. with a 3:1 safety factor. |
| Gases | 1,000 psi/69 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | |
| Liquids | 6,000 psi/414 bar max. with a 3:1 safety factor. |
| Gases | 1,500 psi/103 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Accuracy | ± 2% of full scale |
| Repeatability | ± 1% |

Flow-Alert flow switches (microswitch)

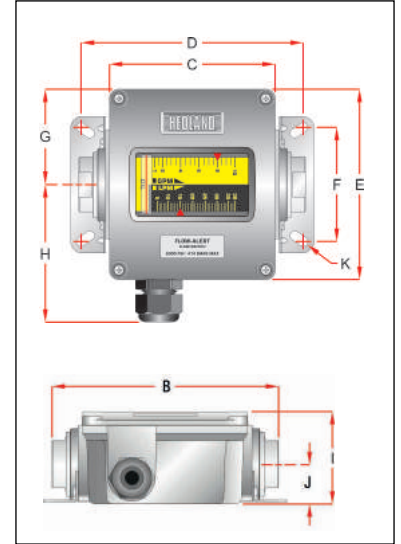
For liquids / Air and other compressed gases

Dimensions

| A | B | C | D | E | F | G | H | I | J | K |
|-------------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|----------------|------------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Hole dia in (mm) |
| ¼ (SAE 6) | 6.6 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ½ (SAE 10) | 6.6 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ¾ (SAE 12) | 7.2 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1 (SAE 16) | 7.2 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1¼ (SAE 20) | 12.2 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |
| 1½ (SAE 24) | 12.2 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |

Enclosure

| | |
|-------------------|--|
| Material | Anodized and epoxy powder-coated aluminum with polycarbonate lens. |
| Seals | Silicone gasket between enclosure and lens. Viton® O-rings between enclosure and flow meter body. |
| Connection | Pig-tail conductor (standard) with water-tight strain relief. Other connections, including quick-disconnect, are available – consult factory for details. |
| Fastener | T303 SS |
| Rating | NEMA 12 & 13 (IP52/54) |



Electrical circuitry

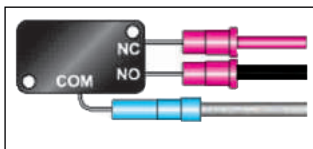
Adjustable flow-alert signal: Single (1) or double (2) switch, pre-wired single-pole, double-throw (SPDT)
UL recognized and CSA certified with high or low flow limit setting, adjustable over the entire flow measuring range. Other switches are available – consult factory for details. Optional 2,4 m (8 ft) cables are available – consult factory for details.

10A @ 250 VAC maximum, 0.5A @ 125 VDC maximum.

All flow-alert sizes (¼ to 1½ inch series) are offered in single (1) switch or double (2) switch models.

The single switch model is supplied with a 34" length of 4-wire #18 AWG jacketed cable.

The double switch model is supplied with an 18" length of 7-wire #16 AWG jacketed cable.



One (1) switch 4-wire cable

| | |
|-------|----------------------|
| Red | Normally closed (NC) |
| Black | Normally open (NO) |
| White | Common (COM) |
| Green | Ground |

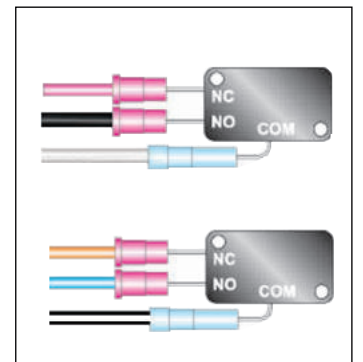
Two (2) switch 7-wire cable

Switch #1

| | |
|-------|----------------------|
| Red | Normally closed (NC) |
| Black | Normally open (NO) |
| White | Common (COM) |

Switch #2

| | |
|-------------|----------------------|
| Orange | Normally closed (NC) |
| Blue | Normally open (NO) |
| White/black | Common (COM) |
| Green | Ground |



Note: Weights for all sizes can be found on page 80.

Flow-Alert flow switches (reed switch)

For liquids / Air and other compressed gases

- No mechanical linkage
- Automatically signals alarm if flow is too high or too low
- Available from 1/4" to 1 1/2" sizes in aluminum, brass and stainless
- Installs in any position
- Easier-to-read linear scale
- No flow straighteners or special piping requirements
- Relatively insensitive to shock and vibration
- Special scales available



Technical data

| | |
|--|--|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 T351 anodized aluminum piston and cone (Oil, PE, WBF, & air meters) T303 stainless body, C360 brass piston and cone (water meters) T316 stainless body, piston and cone |
| Petroleum common parts | |
| Spider plate: T316 SS | Retaining ring: SAE 1070/1090 carbon steel |
| Spring: T302 SS | Retaining spring: SAE 1070/1090 carbon steel |
| Fasteners: T303 SS | Indicator: T400 series stainless |
| Pressure seals: Viton® | Internal magnet: Teflon® coated Alnico 8 |
| Lens: Polycarbonate | Switch carrier: Aluminum |
| Enclosure seal: Silicone gasket | Scale support: 6063 - T6 aluminum |
| Phosphat ester (PE) common parts | |
| Spider plate: T316 SS | Retaining ring: SAE 1070/1090 carbon steel |
| Spring: T302 SS | Retaining spring: SAE 1070/1090 carbon steel |
| Fasteners: T303 SS | Indicator: T400 series stainless |
| Pressure seals: EPR | Internal magnet: Teflon® coated Alnico 8 |
| Lens: Polycarbonate | Switch carrier: Aluminum |
| Scale support: 6063 - T6 aluminum | Enclosure seal: Silicone gasket |
| Water based (WBF), water, air, common parts: | |
| Spider plate: T316 SS | Retaining ring: T316 SS |
| Spring: T302 SS | Retaining spring: T316 SS |
| Fasteners: T303 SS | Indicator: T400 series stainless |
| Pressure seals: Viton® | Internal magnet: Teflon® coated Alnico 8 |
| Switch carrier: Aluminum | Lens: Polycarbonate |
| Scale support: 6063 - T6 aluminum | Enclosure seal: Silicone gasket |
| API oil / air / caustic and corrosive liquids and gases | |
| Spider plate: T316 SS | Retaining ring: T316 SS |
| Spring: T316 SS | Retaining spring: T316 SS |
| Fasteners: T316 SS | Indicator: T400 series stainless |
| Pressure seals: Viton® | Internal magnet: Teflon® coated Alnico 8 |
| Lens: Polycarbonate | Switch carrier: Aluminum |
| Scale support: 6063 - T6 aluminum | Enclosure seal: Silicone gasket |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -29 to +116 °C (-20 to +240 °F) |
| Pressure rating | |
| Aluminum / brass operating | |
| Liquids | 3,500 psi/241 bar max. with a 3:1 safety factor. |
| Gases | 1,000 psi/69 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | |
| Liquids | 6,000 psi/414 bar max. with a 3:1 safety factor. |
| Gases | 1,500 psi/103 bar max. with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Accuracy | ± 2% of full scale, ± 7% of full scale for 4.8" (122 mm) length 1/4" meters. |
| Repeatability | ± 1% |

Flow-Alert flow switches (reed switch)

For liquids / Air and other compressed gases

Dimensions

| A | B | C | D | E | F | G | H | I | J | K |
|-------------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|----------------|-------------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Hole dia. in (mm) |
| ¼ (SAE 6) | 6.6 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ½ (SAE 10) | 6.6 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ¾ (SAE 12) | 7.2 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1 (SAE 16) | 7.2 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1¼ (SAE 20) | 12.2 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |
| 1½ (SAE 24) | 12.2 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |

Dimensions

| A | B | C | D | E | F |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| Nominal port size | Length in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Flats in (mm) |
| ¼ (SAE 6) | 4.8 (122) | 1.68 (43) | 1.90 (48) | .84 (21) | .88 (22) |

Enclosure

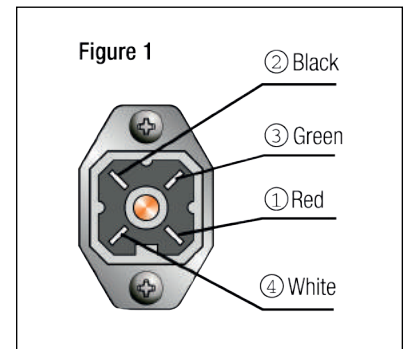
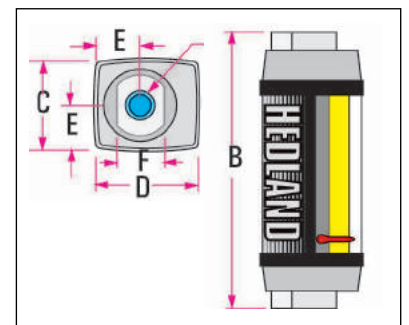
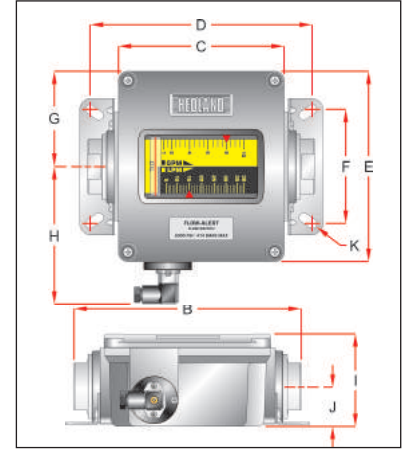
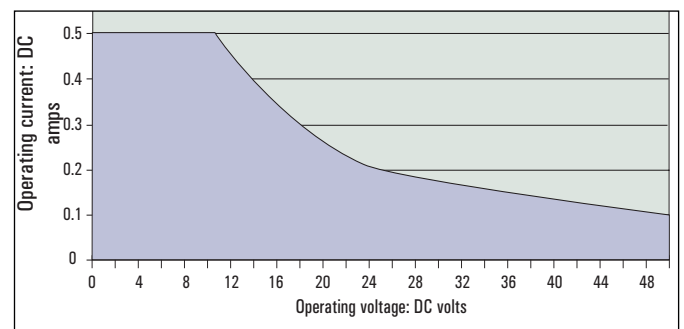
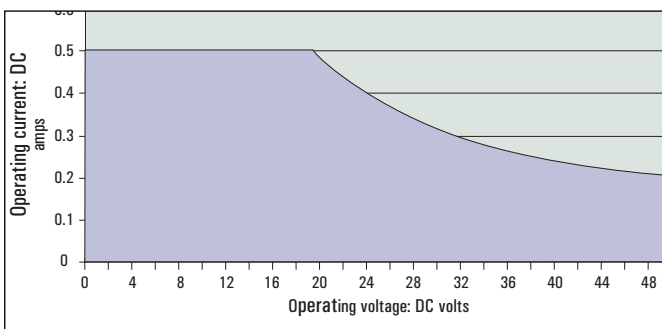
| | |
|-------------------|---|
| Material | Anodized and epoxy powder-coated aluminum with polycarbonate lens. |
| Seals | Silicone gasket between enclosure and lens. Viton® O-rings between enclosure and flow meter body. |
| Connection | 4-pin (IP65) |
| Fastener | T303 SS |
| Rating | NEMA 12 & 13 (IP 52/54) |

Electrical specifications

Adjustable flow-alert signal: Single (1) or double (2) reed switch, pre-wired single-pole, single-throw (SPST-NO) normally open; or single-pole, single-throw (SPST-NC) normally closed. UL recognized and CSA certified with high or low flow limit setting, adjustable over the entire flow measuring range.

| Contact form | SPST-NO | SPST-NC |
|---------------------------------------|-----------------------------------|-----------------------------------|
| Electrical specification | | |
| Contact rating | 10 Watts max | 5 Watts max |
| Voltage, switching | 50 VDC max | 50 VDC max |
| Current (resistive), switching | 0.500 A max | 0.500 A max |
| Operating specification | | |
| Contact resistance, initial | 0.100 Ω max | 0.100 Ω max |
| Operating temperature | -20 to +116 °C (20 to +240 °F) | -20 to +116 °C (20 to +240 °F) |

Note: Weights for all sizes can be found on page 80.



Electrical circuitry

The low switch is supplied with 15 feet of shielded, 4-wire #22 AWG PVC jacketed cable, color coded as follows: 1) red, 2) black, 3) green, 4) white for double (2) reed switch.

MR flow transmitters

For liquids / Air and other compressed gases

- Full line of multi-functional remote flow indicators and transmitters
- Operate as part of a totally integrated electronic process control/data acquisition system
- Non-contact sensor electronics
- Electronic signal conditioning circuit
- Digital flow rate and total flow indication
- Proportional analog output
- In-field compensation for:
 - Specific gravity of all fluids
 - Viscosity of petroleum based fluids
 - Specific gravity, pressure, and temperature of pneumatic systems
- CE compliant
- Exceeds US and meets European standards for EMI/EMC
- US patent 7,130,750



Technical data

| | |
|--|--|
| Materials | 2024 - T351 anodized aluminum body, piston and cone C360 brass body, piston and cone T303 stainless body, 2024 - T351 anodized aluminum piston and cone (Oil, PE, WBF, & air meters) T303 stainless body, C360 brass piston and cone (Water meters) T316 stainless body, piston and cone |
| Petroleum (oil) common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: Viton® Lens: Polycarbonate | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Internal magnet: Teflon® coated Alnico 8 Enclosure seal: Silicone gasket |
| Phosphate ester (PE) common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Pressure seals: EPR Lens: Polycarbonate | Retaining ring: SAE 1070/1090 carbon steel Retaining spring: SAE 1070/1090 carbon steel Internal magnet: Teflon® coated Alnico 8 Enclosure seal: Silicone gasket |
| Water based (WBF), water, air common parts | |
| Spider plate: T316 SS Spring: T302 SS Fasteners: T303 SS Lens: Polycarbonate Pressure seals: Viton® | Retaining ring: T316 SS Retaining spring: T316 SS Internal magnet: Teflon® coated Alnico 8 Enclosure seal: Silicone gasket |
| API oil, air, caustic and corrosive liquids and gases | |
| Spider plate: T316 SS Spring: T316 SS Fasteners: T316 SS Pressure seals: Viton® Lens: Polycarbonate | Retaining ring: T316 SS Retaining spring: T316 SS Internal magnet: Teflon® coated Alnico 8 Enclosure seal: Silicone gasket |
| Threads | SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179 |
| Temperature range | -20 to +240 °F (-29 to +116 °C) |
| Pressure range | |
| Aluminum / brass operating | |
| Liquids | 3,500 psi/241 bar maximum with a 3:1 safety factor. |
| Gases | 1,000 psi/69 bar maximum with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Stainless steel operating | |
| Liquids | (1/4" to 1/2") - 6,000 psi/414 bar maximum with a 3:1 safety factor |
| Liquids | (3/4" to 1 1/2") - 5,000 psi/345 bar maximum with a 3:1 safety factor |
| Gases | 1,500 psi/103 bar maximum with a 10:1 safety factor. For high cycle applications, see page conversion information. |
| Accuracy | ±2% of full scale |
| Repeatability | 1% |

MR flow transmitters

For liquids / Air and other compressed gases

Schematics

The transmitter can be wired in various configurations to allow interface with many different types of data collection and control instrumentation.

Schematics 1 & 2 represent typical wiring for a target powered by either AC power or DC supply. Schematics 3 & 4 will be utilized when the flow transmitter is operated with loop-powered process indicators or dataloggers that do not have external sensor excitation available.

Enclosure

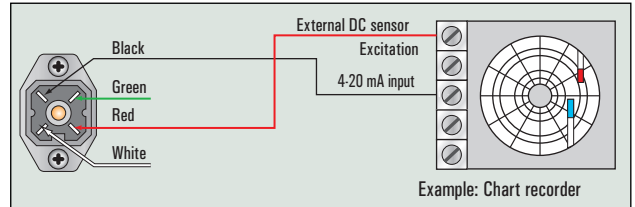
| | |
|-------------------|---|
| Material | Anodized and epoxy powder-coated aluminum with polycarbonate lens |
| Seals | Silicone gaskets between enclosure and lens Viton® O-rings between enclosure and flow meter body. |
| Connection | 4-pin standard, see figure 2. Other connections available, consult factory for details. |
| Fasteners | T303 SS |
| Rating | NEMA 12 & 13 (IP 52/54) |

Electrical specification

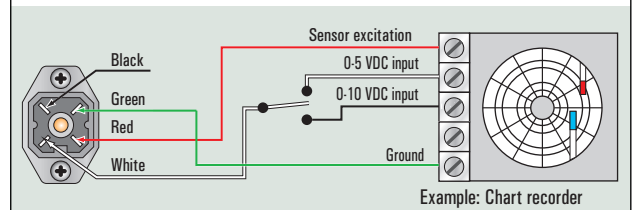
| | |
|---------------------------|---|
| Power requirement | 0-5 VDC output: 10-30 VDC at 0.75W maximum 0-10 VDC output: 12-30 VDC at 0.75W maximum 4-20 mA output: loop-powered, 30 VDC maximum |
| Power consumption | 25 mA maximum |
| Analog outputs | 0-5 VDC and 0-10 VDC into 10,000 ohms minimum 4-20 mA into 1000 ohms maximum, see figure 1 |
| Circuit protection | Reverse polarity and current limiting |
| Transmission | |
| Distance | 4-20 mA limited by cable resistance 0-5 VDC and 0-10 VDC 300 m (1000 ft) maximum |
| Isolation | Inherently isolated from the piping system |
| Display | Fixed or toggle modes of operation for rate and totalizer display 8 digit, 0.70" high numeric display for rate and total 8 digit, 0.35" high alphanumeric display for units and setup |
| Temperature drift | 50 ppm / °C (max) |
| Analog output | Resolution - 1:4000 |
| Transient | |
| Over-voltages | Category 3, in accordance with IEC 664 |
| Pollution degree | Category 2, in accordance with IEC 664 |
| Approvals | EMC directive 89/336/EEC |

| | DC output connection | Loop power connection |
|-----------------|----------------------------|-----------------------|
| 2 Black: | No connection | (-) 4-20 mA out |
| 3 Green: | 0 VDC | No connection |
| 1 Red: | (+) DC power | (+) 4-20 mA in |
| 4 White: | 0-5 VDC or 0-10 VDC output | No connection |

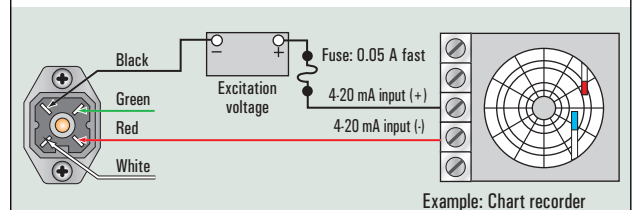
Figure 2: Electrical 4-pin connection



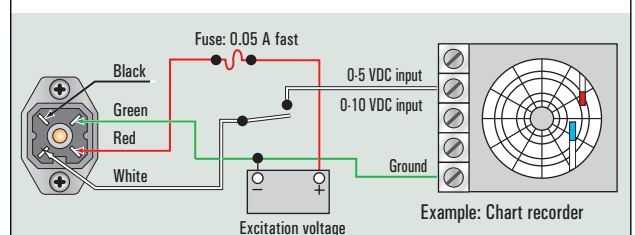
Schematic 1: 4-20 mA connection using target power supply



Schematic 2: 0-5 Vdc or 0-10 Vdc connection using target power supply



Schematic 3: 4-20 mA connection using target external power supply



Schematic 4: 0-5 Vdc or 0-10 Vdc connection using target external power supply

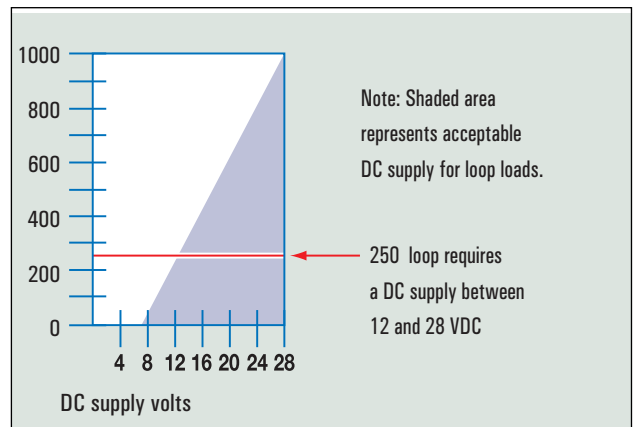


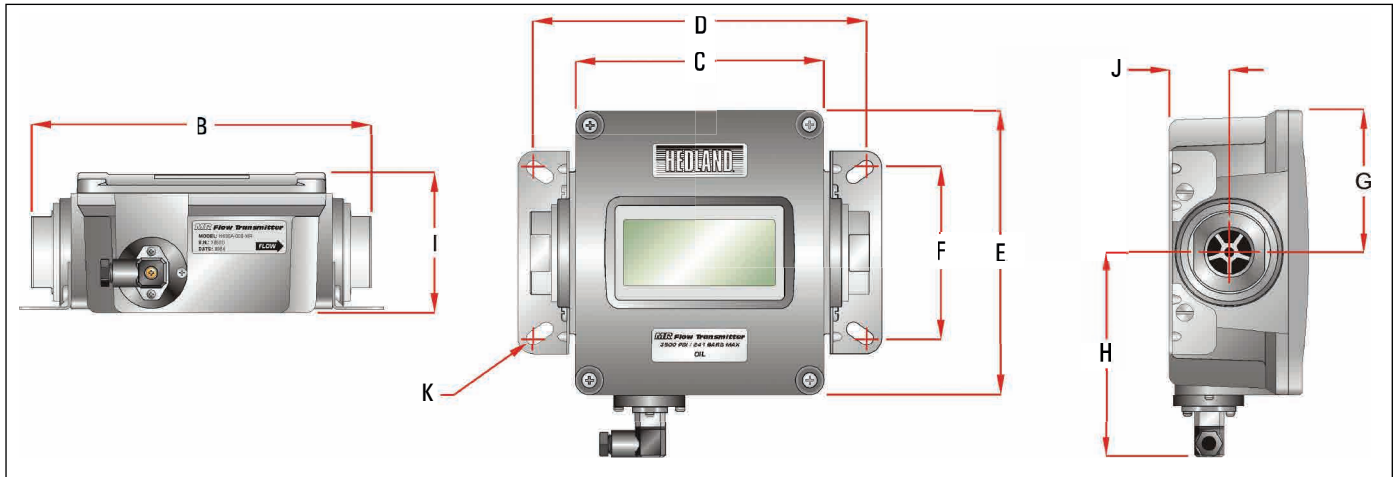
Figure 1: Load limitations (4-20 mA output only)

MR flow transmitters

For liquids / Air and other compressed gases

Dimensions

| A | B | C | D | E | F | G | H | I | J | K |
|-------------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|----------------|-------------------|
| Nominal port size | Length in (mm) | Length in (mm) | Length in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Width in (mm) | Depth in (mm) | Offset in (mm) | Hole dia. in (mm) |
| ¼ (SAE 6) | 6.60 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ½ (SAE 10) | 6.60 (168) | 5.27 (134) | 6.41 (163) | 6.00 (152) | 3.23 (82) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.51 (38) | .31 (8) |
| ¾ (SAE 12) | 7.20 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1 (SAE 16) | 7.20 (183) | 5.27 (134) | 7.04 (179) | 6.00 (152) | 3.60 (91) | 3.00 (76) | 4.20 (107) | 2.94 (75) | 1.27 (32) | .31 (8) |
| 1¼ (SAE 20) | 12.20 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |
| 1½ (SAE 24) | 12.20 (310) | 10.68 (271) | 11.65 (296) | 7.63 (194) | 4.84 (123) | 3.82 (97) | 5.02 (128) | 4.50 (114) | 2.20 (56) | .31 (8) |



Optional remote display and signal processor

We also offer the F6700/F6750 series digital display with integrated signal processor capabilities to further enhance the utility of the MR flow transmitters. In addition to remote flow monitoring, these units can be configured to provide alarm processing and communication options including RS232, RS485, ModBus®, Profibus and DeviceNet.



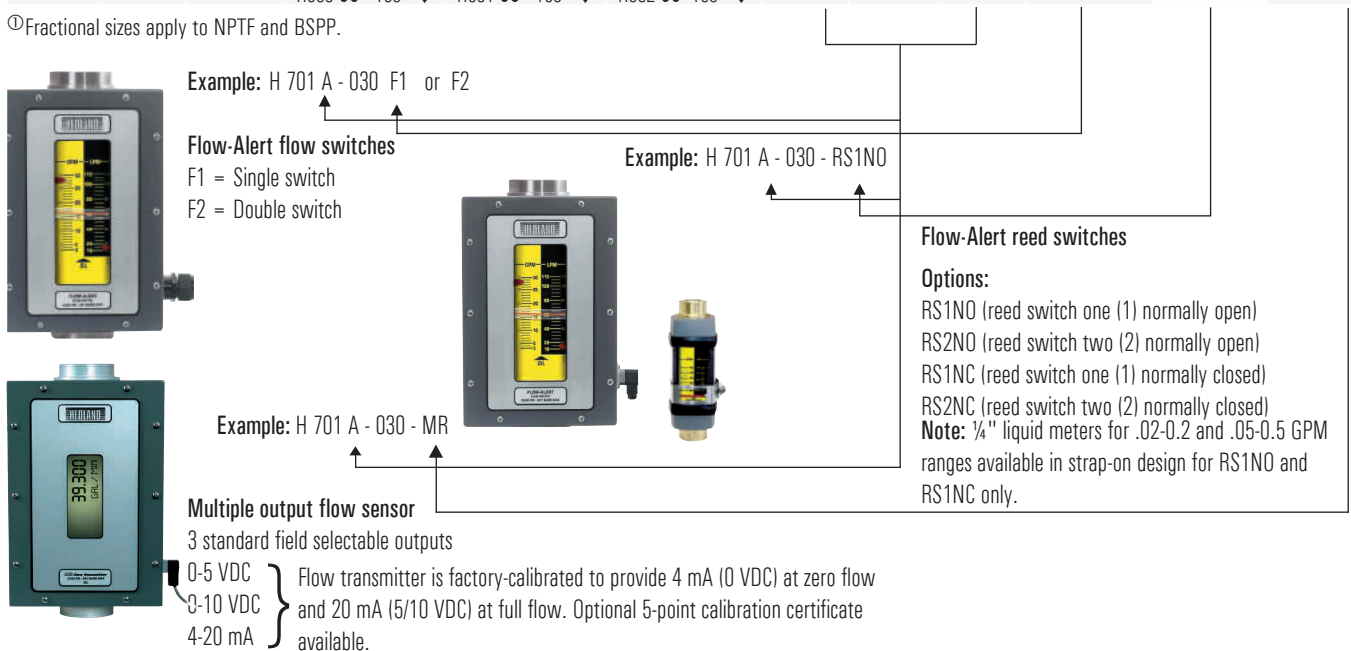
Flow-Alert flow switches and flow transmitters

For petroleum fluids

Ordering information

| Nominal port size ^① | Flow range | | Model number (see example below) | | | Material ⌘ | | | Options ♦ | | |
|--------------------------------|------------|------------|----------------------------------|------------------|------------------|--------------------|----------------|-----------------|--------------------------------|------------------------|------------------------|
| | gal/min | l/min | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Flow-Alert 1 switch / 2 switch | Flow-Alert reed switch | Multiple output sensor |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | H200 ⌘ - 002 - ♦ | H201 ⌘ - 002 - ♦ | H202 ⌘ - 002 - ♦ | A | B | 6000 psi S | Not available | | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | H200 ⌘ - 005 - ♦ | H201 ⌘ - 005 - ♦ | H202 ⌘ - 005 - ♦ | | | | | | |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | H200 ⌘ - 010 - ♦ | H201 ⌘ - 010 - ♦ | H202 ⌘ - 010 - ♦ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1.0 - 7.5 | H200 ⌘ - 020 - ♦ | H201 ⌘ - 020 - ♦ | H202 ⌘ - 020 - ♦ | | | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | H600 ⌘ - 001 - ♦ | H601 ⌘ - 001 - ♦ | H602 ⌘ - 001 - ♦ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H600 ⌘ - 002 - ♦ | H601 ⌘ - 002 - ♦ | H602 ⌘ - 002 - ♦ | | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H600 ⌘ - 005 - ♦ | H601 ⌘ - 005 - ♦ | H602 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H600 ⌘ - 010 - ♦ | H601 ⌘ - 010 - ♦ | H602 ⌘ - 010 - ♦ | | | | | | |
| | 1 - 15 | 4 - 56 | H600 ⌘ - 015 - ♦ | H601 ⌘ - 015 - ♦ | H602 ⌘ - 015 - ♦ | | | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | H700 ⌘ - 002 - ♦ | H701 ⌘ - 002 - ♦ | H702 ⌘ - 002 - ♦ | A | B | 5000 psi S | F1/F2 | See options below | MR |
| | 0.5 - 5.0 | 2 - 19 | H700 ⌘ - 005 - ♦ | H701 ⌘ - 005 - ♦ | H702 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H700 ⌘ - 010 - ♦ | H701 ⌘ - 010 - ♦ | H702 ⌘ - 010 - ♦ | | | | | | |
| | 2 - 20 | 10 - 76 | H700 ⌘ - 020 - ♦ | H701 ⌘ - 020 - ♦ | H702 ⌘ - 020 - ♦ | | | | | | |
| | 3 - 30 | 10 - 115 | H700 ⌘ - 030 - ♦ | H701 ⌘ - 030 - ♦ | H702 ⌘ - 030 - ♦ | | | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | H760 ⌘ - 002 - ♦ | H761 ⌘ - 002 - ♦ | H762 ⌘ - 002 - ♦ | A | B | 5000 psi S | F1/F2 | See options below | MR |
| | 0.5 - 5.0 | 2 - 19 | H760 ⌘ - 005 - ♦ | H761 ⌘ - 005 - ♦ | H762 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H760 ⌘ - 010 - ♦ | H761 ⌘ - 010 - ♦ | H762 ⌘ - 010 - ♦ | | | | | | |
| | 2 - 20 | 10 - 76 | H760 ⌘ - 020 - ♦ | H761 ⌘ - 020 - ♦ | H762 ⌘ - 020 - ♦ | | | | | | |
| | 3 - 30 | 10 - 115 | H760 ⌘ - 030 - ♦ | H761 ⌘ - 030 - ♦ | H762 ⌘ - 030 - ♦ | | | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | H800 ⌘ - 030 - ♦ | H801 ⌘ - 030 - ♦ | H802 ⌘ - 030 - ♦ | A | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H800 ⌘ - 050 - ♦ | H801 ⌘ - 050 - ♦ | H802 ⌘ - 050 - ♦ | | | | | | |
| | 10 - 75 | 40 - 280 | H800 ⌘ - 075 - ♦ | H801 ⌘ - 075 - ♦ | H802 ⌘ - 075 - ♦ | | | | | | |
| | 10 - 100 | 50 - 380 | H800 ⌘ - 100 - ♦ | H801 ⌘ - 100 - ♦ | H802 ⌘ - 100 - ♦ | | | | | | |
| | 10 - 150 | 50 - 560 | H800 ⌘ - 150 - ♦ | H801 ⌘ - 150 - ♦ | H802 ⌘ - 150 - ♦ | | | | | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | H860 ⌘ - 030 - ♦ | H861 ⌘ - 030 - ♦ | H862 ⌘ - 030 - ♦ | A | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H860 ⌘ - 050 - ♦ | H861 ⌘ - 050 - ♦ | H862 ⌘ - 050 - ♦ | | | | | | |
| | 10 - 75 | 40 - 280 | H860 ⌘ - 075 - ♦ | H861 ⌘ - 075 - ♦ | H862 ⌘ - 075 - ♦ | | | | | | |
| | 10 - 100 | 50 - 380 | H860 ⌘ - 100 - ♦ | H861 ⌘ - 100 - ♦ | H862 ⌘ - 100 - ♦ | | | | | | |
| | 10 - 150 | 50 - 560 | H860 ⌘ - 150 - ♦ | H861 ⌘ - 150 - ♦ | H862 ⌘ - 150 - ♦ | | | | | | |

① Fractional sizes apply to NPTF and BSPP.



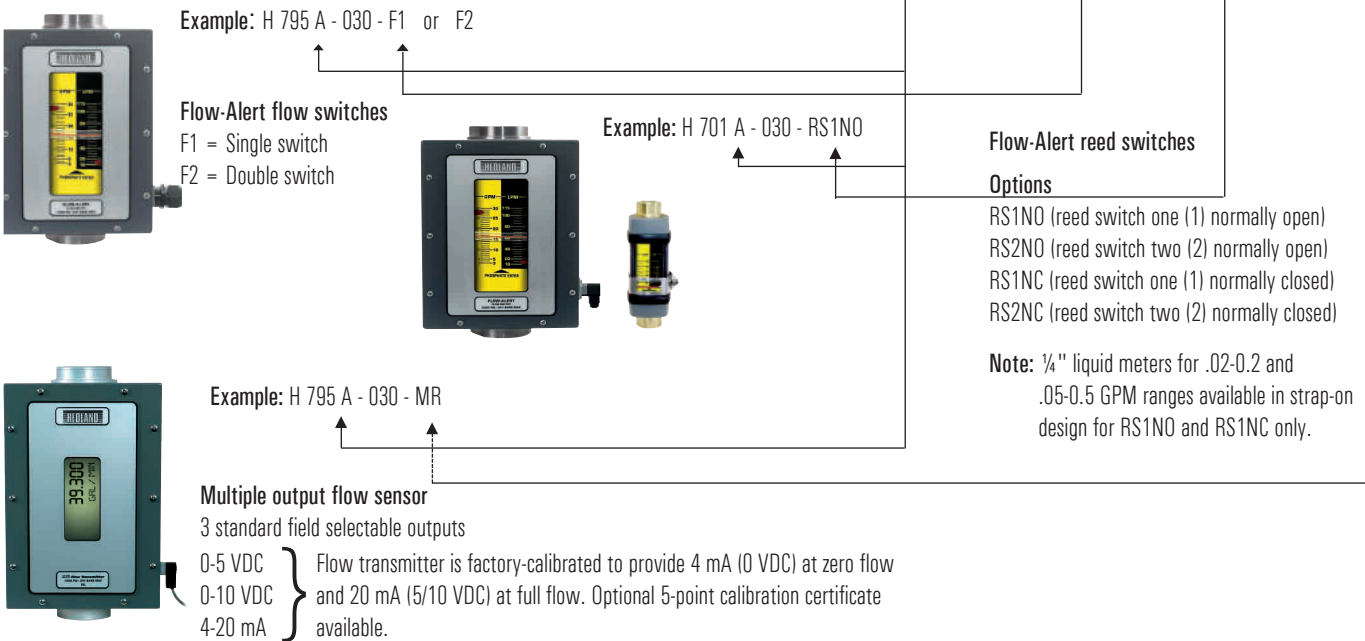
Flow-Alert flow switches and flow transmitters

For phosphate ester fluids

Ordering information

| Nominal port size ① | Flow range | | Model number (see Example below) | | | Material ⌘ | | | Options ♦ | | |
|---------------------|------------|------------|----------------------------------|------------------|------------------|--------------------|----------------|-----------------|------------------------------|------------------------|------------------------|
| | gal/min | l/min | SAE | NPTF | BSPF | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Flow-Alert 1 switch 2 switch | Flow-Alert reed switch | Multiple output sensor |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | H294 ⌘ - 002 - ♦ | H295 ⌘ - 002 - ♦ | H296 ⌘ - 002 - ♦ | A | B | 6000 psi S | Not available | | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | H294 ⌘ - 005 - ♦ | H295 ⌘ - 005 - ♦ | H296 ⌘ - 005 - ♦ | | | | | | |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | H294 ⌘ - 010 - ♦ | H295 ⌘ - 010 - ♦ | H296 ⌘ - 010 - ♦ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1.0 - 7.5 | H294 ⌘ - 020 - ♦ | H295 ⌘ - 020 - ♦ | H296 ⌘ - 020 - ♦ | | | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | H694 ⌘ - 001 - ♦ | H695 ⌘ - 001 - ♦ | H696 ⌘ - 001 - ♦ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H694 ⌘ - 002 - ♦ | H695 ⌘ - 002 - ♦ | H696 ⌘ - 002 - ♦ | | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H694 ⌘ - 005 - ♦ | H695 ⌘ - 005 - ♦ | H696 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H694 ⌘ - 010 - ♦ | H695 ⌘ - 010 - ♦ | H696 ⌘ - 010 - ♦ | | | | | | |
| ¾" SAE 12 | 1 - 15 | 4 - 56 | H694 ⌘ - 015 - ♦ | H695 ⌘ - 015 - ♦ | H696 ⌘ - 015 - ♦ | A | B | 5000 psi S | F1/F2 | See | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H794 ⌘ - 002 - ♦ | H795 ⌘ - 002 - ♦ | H796 ⌘ - 002 - ♦ | | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H794 ⌘ - 005 - ♦ | H795 ⌘ - 005 - ♦ | H796 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H794 ⌘ - 010 - ♦ | H795 ⌘ - 010 - ♦ | H796 ⌘ - 010 - ♦ | | | | | | |
| | 2 - 20 | 10 - 76 | H794 ⌘ - 020 - ♦ | H795 ⌘ - 020 - ♦ | H796 ⌘ - 020 - ♦ | | | | | | |
| 1" SAE 16 | 3 - 30 | 10 - 115 | H794 ⌘ - 030 - ♦ | H795 ⌘ - 030 - ♦ | H796 ⌘ - 030 - ♦ | A | B | 5000 psi S | F1/F2 | options below | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H764 ⌘ - 002 - ♦ | H765 ⌘ - 002 - ♦ | H766 ⌘ - 002 - ♦ | | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H764 ⌘ - 005 - ♦ | H765 ⌘ - 005 - ♦ | H766 ⌘ - 005 - ♦ | | | | | | |
| | 1 - 10 | 5 - 38 | H764 ⌘ - 010 - ♦ | H765 ⌘ - 010 - ♦ | H766 ⌘ - 010 - ♦ | | | | | | |
| | 2 - 20 | 10 - 76 | H764 ⌘ - 020 - ♦ | H765 ⌘ - 020 - ♦ | H766 ⌘ - 020 - ♦ | | | | | | |
| | 3 - 30 | 10 - 115 | H764 ⌘ - 030 - ♦ | H765 ⌘ - 030 - ♦ | H766 ⌘ - 030 - ♦ | | | | | | |
| 1 ¼" SAE 20 | 4 - 40 | 15 - 150 | H764 ⌘ - 040 - ♦ | H765 ⌘ - 040 - ♦ | H766 ⌘ - 040 - ♦ | A | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H764 ⌘ - 050 - ♦ | H765 ⌘ - 050 - ♦ | H766 ⌘ - 050 - ♦ | | | | | | |
| | 3 - 30 | 10 - 110 | H894 ⌘ - 030 - ♦ | H895 ⌘ - 030 - ♦ | H896 ⌘ - 030 - ♦ | | | | | | |
| | 5 - 50 | 20 - 190 | H894 ⌘ - 050 - ♦ | H895 ⌘ - 050 - ♦ | H896 ⌘ - 050 - ♦ | | | | | | |
| 1 ½" SAE 24 | 10 - 100 | 50 - 380 | H894 ⌘ - 100 - ♦ | H895 ⌘ - 100 - ♦ | H896 ⌘ - 100 - ♦ | A | B | 5000 psi S | F1/F2 | | MR |
| | 10 - 150 | 50 - 560 | H894 ⌘ - 150 - ♦ | H895 ⌘ - 150 - ♦ | H896 ⌘ - 150 - ♦ | | | | | | |
| | 3 - 30 | 10 - 110 | H864 ⌘ - 030 - ♦ | H865 ⌘ - 030 - ♦ | H866 ⌘ - 030 - ♦ | | | | | | |
| | 5 - 50 | 20 - 190 | H864 ⌘ - 050 - ♦ | H865 ⌘ - 050 - ♦ | H866 ⌘ - 050 - ♦ | | | | | | |

① Fractional sizes apply to NPTF and BSPF.



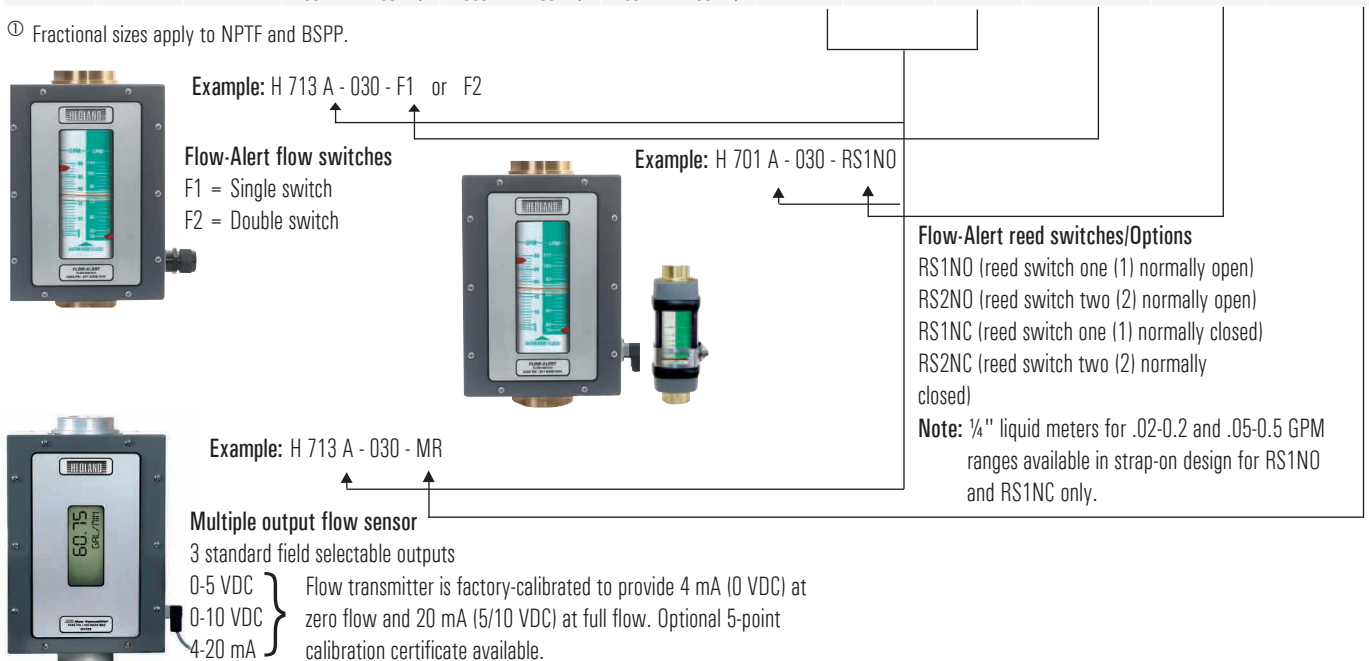
Flow-Alert flow switches and flow transmitters

For water-based fluids (water/oil emulsions)

Ordering information

| Nominal port size ^① | Flow range | | Model number (see example: below) | | | Material ☒ | | | Options ◆ | | |
|--------------------------------|------------|------------|-----------------------------------|------------------|------------------|--------------------|----------------|-----------------|--------------------------------|------------------------|------------------------|
| | gal/min | l/min | SAE | NPTF | BSPP | Aluminium 3500 psi | Brass 3500 psi | Stainless steel | Flow-alert 1 switch / 2 switch | Flow-alert reed switch | Multiple output sensor |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | H212 ☒ - 002 - ◆ | H213 ☒ - 002 - ◆ | H214 ☒ - 002 - ◆ | A | B | 6000 psi S | Not available | | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | H212 ☒ - 005 - ◆ | H213 ☒ - 005 - ◆ | H214 ☒ - 005 - ◆ | | | | | | |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | H212 ☒ - 010 - ◆ | H213 ☒ - 010 - ◆ | H214 ☒ - 010 - ◆ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1.0 - 7.5 | H212 ☒ - 020 - ◆ | H213 ☒ - 020 - ◆ | H214 ☒ - 020 - ◆ | | | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | H612 ☒ - 001 - ◆ | H613 ☒ - 001 - ◆ | H614 ☒ - 001 - ◆ | A | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H612 ☒ - 002 - ◆ | H613 ☒ - 002 - ◆ | H614 ☒ - 002 - ◆ | | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H612 ☒ - 005 - ◆ | H613 ☒ - 005 - ◆ | H614 ☒ - 005 - ◆ | | | | | | |
| | 1 - 10 | 5 - 38 | H612 ☒ - 010 - ◆ | H613 ☒ - 010 - ◆ | H614 ☒ - 010 - ◆ | | | | | | |
| | 1 - 15 | 4 - 56 | H612 ☒ - 015 - ◆ | H613 ☒ - 015 - ◆ | H614 ☒ - 015 - ◆ | | | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | H712 ☒ - 002 - ◆ | H713 ☒ - 002 - ◆ | H714 ☒ - 002 - ◆ | A | B | 5000 psi S | F1/F2 | See | MR |
| | 0.5 - 5.0 | 2 - 19 | H712 ☒ - 005 - ◆ | H713 ☒ - 005 - ◆ | H714 ☒ - 005 - ◆ | | | | | | |
| | 1 - 10 | 5 - 38 | H712 ☒ - 010 - ◆ | H713 ☒ - 010 - ◆ | H714 ☒ - 010 - ◆ | | | | | | |
| | 2 - 20 | 10 - 76 | H712 ☒ - 020 - ◆ | H713 ☒ - 020 - ◆ | H714 ☒ - 020 - ◆ | | | | | | |
| | 3 - 30 | 10 - 115 | H712 ☒ - 030 - ◆ | H713 ☒ - 030 - ◆ | H714 ☒ - 030 - ◆ | | | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | H782 ☒ - 002 - ◆ | H783 ☒ - 002 - ◆ | H784 ☒ - 002 - ◆ | A | B | 5000 psi S | F1/F2 | options below | MR |
| | 0.5 - 5.0 | 2 - 19 | H782 ☒ - 005 - ◆ | H783 ☒ - 005 - ◆ | H784 ☒ - 005 - ◆ | | | | | | |
| | 1 - 10 | 5 - 38 | H782 ☒ - 010 - ◆ | H783 ☒ - 010 - ◆ | H784 ☒ - 010 - ◆ | | | | | | |
| | 2 - 20 | 10 - 76 | H782 ☒ - 020 - ◆ | H783 ☒ - 020 - ◆ | H784 ☒ - 020 - ◆ | | | | | | |
| | 3 - 30 | 10 - 115 | H782 ☒ - 030 - ◆ | H783 ☒ - 030 - ◆ | H784 ☒ - 030 - ◆ | | | | | | |
| | 4 - 40 | 15 - 150 | H782 ☒ - 040 - ◆ | H783 ☒ - 040 - ◆ | H784 ☒ - 040 - ◆ | | | | | | |
| | 5 - 50 | 20 - 190 | H782 ☒ - 050 - ◆ | H783 ☒ - 050 - ◆ | H784 ☒ - 050 - ◆ | | | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | H812 ☒ - 030 - ◆ | H813 ☒ - 030 - ◆ | H814 ☒ - 030 - ◆ | A | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H812 ☒ - 050 - ◆ | H813 ☒ - 050 - ◆ | H814 ☒ - 050 - ◆ | | | | | | |
| | 10 - 75 | 40 - 280 | H812 ☒ - 075 - ◆ | H813 ☒ - 075 - ◆ | H814 ☒ - 075 - ◆ | | | | | | |
| | 10 - 100 | 50 - 380 | H812 ☒ - 100 - ◆ | H813 ☒ - 100 - ◆ | H814 ☒ - 100 - ◆ | | | | | | |
| | 10 - 150 | 50 - 560 | H812 ☒ - 150 - ◆ | H813 ☒ - 150 - ◆ | H814 ☒ - 150 - ◆ | | | | | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | H882 ☒ - 030 - ◆ | H883 ☒ - 030 - ◆ | H884 ☒ - 030 - ◆ | A | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H882 ☒ - 050 - ◆ | H883 ☒ - 050 - ◆ | H884 ☒ - 050 - ◆ | | | | | | |
| | 10 - 75 | 40 - 280 | H882 ☒ - 075 - ◆ | H883 ☒ - 075 - ◆ | H884 ☒ - 075 - ◆ | | | | | | |
| | 10 - 100 | 50 - 380 | H882 ☒ - 100 - ◆ | H883 ☒ - 100 - ◆ | H884 ☒ - 100 - ◆ | | | | | | |
| | 10 - 150 | 50 - 560 | H882 ☒ - 150 - ◆ | H883 ☒ - 150 - ◆ | H884 ☒ - 150 - ◆ | | | | | | |

① Fractional sizes apply to NPTF and BSPP.



Flow-Alert flow switches and flow transmitters

For water fluids

Ordering information

| Nominal port size ^① | Flow range | | Model number (see example below) | | | Material ☒ | | Options ◆ | | |
|--------------------------------|------------|------------|----------------------------------|------------------|------------------|----------------|-----------------|--------------------------------|------------------------|------------------------|
| | gal/min | l/min | SAE | NPTF | BSPF | Brass 3500 psi | Stainless steel | Flow-Alert 1 switch / 2 switch | Flow-Alert reed switch | Multiple output sensor |
| ¼" SAE 6 | .02 - 0.2 | 0.1 - 0.75 | H204 ☒ - 002 - ◆ | H205 ☒ - 002 - ◆ | H206 ☒ - 002 - ◆ | B | 6000 psi S | Not available | | Not available |
| | .05 - 0.5 | 0.2 - 1.9 | H204 ☒ - 005 - ◆ | H205 ☒ - 005 - ◆ | H206 ☒ - 005 - ◆ | | | | | |
| ¼" SAE 6 | 0.1 - 1.0 | 0.5 - 3.75 | H204 ☒ - 010 - ◆ | H205 ☒ - 010 - ◆ | H206 ☒ - 010 - ◆ | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1.0 - 7.5 | H204 ☒ - 020 - ◆ | H205 ☒ - 020 - ◆ | H206 ☒ - 020 - ◆ | | | | | |
| ½" SAE 10 | 0.1 - 1.0 | 0.5 - 3.75 | H604 ☒ - 001 - ◆ | H605 ☒ - 001 - ◆ | H606 ☒ - 001 - ◆ | B | 6000 psi S | F1/F2 | | MR |
| | 0.2 - 2.0 | 1 - 7.5 | H604 ☒ - 002 - ◆ | H605 ☒ - 002 - ◆ | H606 ☒ - 002 - ◆ | | | | | |
| | 0.5 - 5.0 | 2 - 19 | H604 ☒ - 005 - ◆ | H605 ☒ - 005 - ◆ | H606 ☒ - 005 - ◆ | | | | | |
| | 1 - 10 | 5 - 38 | H604 ☒ - 010 - ◆ | H605 ☒ - 010 - ◆ | H606 ☒ - 010 - ◆ | | | | | |
| | 1 - 15 | 4 - 56 | H604 ☒ - 015 - ◆ | H605 ☒ - 015 - ◆ | H606 ☒ - 015 - ◆ | | | | | |
| ¾" SAE 12 | 0.2 - 2.0 | 1 - 7.5 | H704 ☒ - 002 - ◆ | H705 ☒ - 002 - ◆ | H706 ☒ - 002 - ◆ | B | 5000 psi S | F1/F2 | See | MR |
| | 0.5 - 5.0 | 2 - 19 | H704 ☒ - 005 - ◆ | H705 ☒ - 005 - ◆ | H706 ☒ - 005 - ◆ | | | | | |
| | 1 - 10 | 5 - 38 | H704 ☒ - 010 - ◆ | H705 ☒ - 010 - ◆ | H706 ☒ - 010 - ◆ | | | | | |
| | 2 - 20 | 10 - 76 | H704 ☒ - 020 - ◆ | H705 ☒ - 020 - ◆ | H706 ☒ - 020 - ◆ | | | | | |
| | 3 - 30 | 10 - 115 | H704 ☒ - 030 - ◆ | H705 ☒ - 030 - ◆ | H706 ☒ - 030 - ◆ | | | | | |
| 1" SAE 16 | 0.2 - 2.0 | 1 - 7.5 | H754 ☒ - 002 - ◆ | H755 ☒ - 002 - ◆ | H756 ☒ - 002 - ◆ | B | 5000 psi S | F1/F2 | options | MR |
| | 0.5 - 5.0 | 2 - 19 | H754 ☒ - 005 - ◆ | H755 ☒ - 005 - ◆ | H756 ☒ - 005 - ◆ | | | | | |
| | 1 - 10 | 5 - 38 | H754 ☒ - 010 - ◆ | H755 ☒ - 010 - ◆ | H756 ☒ - 010 - ◆ | | | | | |
| | 2 - 20 | 10 - 76 | H754 ☒ - 020 - ◆ | H755 ☒ - 020 - ◆ | H756 ☒ - 020 - ◆ | | | | below | |
| | 3 - 30 | 10 - 115 | H754 ☒ - 030 - ◆ | H755 ☒ - 030 - ◆ | H756 ☒ - 030 - ◆ | | | | | |
| | 4 - 40 | 15 - 150 | H754 ☒ - 040 - ◆ | H755 ☒ - 040 - ◆ | H756 ☒ - 040 - ◆ | | | | | |
| 1¼" SAE 20 | 3 - 30 | 10 - 110 | H804 ☒ - 030 - ◆ | H805 ☒ - 030 - ◆ | H806 ☒ - 030 - ◆ | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H804 ☒ - 050 - ◆ | H805 ☒ - 050 - ◆ | H806 ☒ - 050 - ◆ | | | | | |
| | 10 - 75 | 40 - 280 | H804 ☒ - 075 - ◆ | H805 ☒ - 075 - ◆ | H806 ☒ - 075 - ◆ | | | | | |
| | 10 - 100 | 50 - 380 | H804 ☒ - 100 - ◆ | H805 ☒ - 100 - ◆ | H806 ☒ - 100 - ◆ | | | | | |
| | 10 - 150 | 50 - 560 | H804 ☒ - 150 - ◆ | H805 ☒ - 150 - ◆ | H806 ☒ - 150 - ◆ | | | | | |
| 1½" SAE 24 | 3 - 30 | 10 - 110 | H854 ☒ - 030 - ◆ | H855 ☒ - 030 - ◆ | H856 ☒ - 030 - ◆ | B | 5000 psi S | F1/F2 | | MR |
| | 5 - 50 | 20 - 190 | H854 ☒ - 050 - ◆ | H855 ☒ - 050 - ◆ | H856 ☒ - 050 - ◆ | | | | | |
| | 10 - 75 | 40 - 280 | H854 ☒ - 075 - ◆ | H855 ☒ - 075 - ◆ | H856 ☒ - 075 - ◆ | | | | | |
| | 10 - 100 | 50 - 380 | H854 ☒ - 100 - ◆ | H855 ☒ - 100 - ◆ | H856 ☒ - 100 - ◆ | | | | | |
| | 10 - 150 | 50 - 560 | H854 ☒ - 150 - ◆ | H855 ☒ - 150 - ◆ | H856 ☒ - 150 - ◆ | | | | | |

① Fractional sizes apply to NPTF and BSPF.



Example: H 705 B - 030 - F1 or F2

Flow-Alert flow switches

F1 = Single switch
F2 = Double switch



Example: H 701 A - 030 - RS1NO

Flow-Alert reed switches

Options:

- RS1NO (reed switch one (1) normally open)
- RS2NO (reed switch two (2) normally open)
- RS1NC (reed switch one (1) normally closed)
- RS2NC (reed switch two (2) normally closed)

Note: ¼" liquid meters for .02-0.2 and .05-0.5 GPM ranges available in strap-on design for RS1NO and RS1NC only.



Example: H 705 B - 030 - MR

Multiple output flow sensor

3 standard field selectable outputs

0-5 VDC } Flow transmitter is factory-calibrated to provide 4 mA (0 VDC) at zero flow and 20 mA (5/10 VDC) at full flow. Optional 5-point calibration certificate available
0-10 VDC }
4-20 mA }

Flow-Alert flow switches and flow transmitters

For API oil / Caustic and corrosive liquids

Ordering information

| Nominal port size | Flow range | | Model number (see example below) | | | | Options ♦ | | |
|-------------------|------------|------------|----------------------------------|-----------------|--------------------|-----------------|--------------------------------|------------------------|------------------------|
| | gal/min | l/min | API - oil .876 (S.G.) | | Liquids 1.0 (S.G.) | | Flow-Alert 1 switch / 2 switch | Flow-Alert reed switch | Multiple output sensor |
| | | | NPTF | BSPP | NPSF | BSPP | | | |
| ¼" | 0.1 - 1.0 | 0.5 - 3.75 | 6000 psi | 6000 psi | 6000 psi | 6000 psi | Not available | | Not available |
| | | | H231X - 010 - ♦ | H232X - 010 - ♦ | H234X - 010 - ♦ | H235X - 010 - ♦ | | | |
| ¼" | 0.2 - 2.0 | 1 - 7.5 | 6000 psi | 6000 psi | 6000 psi | 6000 psi | F1/F2 | | MR |
| | | | H231X - 020 - ♦ | H232X - 020 - ♦ | H234X - 020 - ♦ | H235X - 020 - ♦ | | | |
| ½" | 0.2 - 2.0 | 1 - 7.5 | 6000 psi | 6000 psi | 6000 psi | 6000 psi | F1/F2 | | MR |
| | | | H631X - 002 - ♦ | H632X - 002 - ♦ | H634X - 002 - ♦ | H635X - 002 - ♦ | | | |
| | | | H631X - 005 - ♦ | H632X - 005 - ♦ | H634X - 005 - ♦ | H635X - 005 - ♦ | | | |
| | | | H631X - 010 - ♦ | H632X - 010 - ♦ | H634X - 010 - ♦ | H635X - 010 - ♦ | | | |
| ¾" | 0.2 - 2.0 | 1 - 7.5 | 5000 psi | 5000 psi | 5000 psi | 5000 psi | F1/F2 | See | MR |
| | | | H731X - 002 - ♦ | H732X - 002 - ♦ | H734X - 002 - ♦ | H735X - 002 - ♦ | | | |
| | | | H731X - 005 - ♦ | H732X - 005 - ♦ | H734X - 005 - ♦ | H735X - 005 - ♦ | | | |
| | | | H731X - 010 - ♦ | H732X - 010 - ♦ | H734X - 010 - ♦ | H735X - 010 - ♦ | | | |
| 1" | 0.2 - 2.0 | 1 - 7.5 | 5000 psi | 5000 psi | 5000 psi | 5000 psi | F1/F2 | options below | MR |
| | | | H741X - 002 - ♦ | H742X - 002 - ♦ | H744X - 002 - ♦ | H745X - 002 - ♦ | | | |
| | | | H741X - 005 - ♦ | H742X - 005 - ♦ | H744X - 005 - ♦ | H745X - 005 - ♦ | | | |
| | | | H741X - 010 - ♦ | H742X - 010 - ♦ | H744X - 010 - ♦ | H745X - 010 - ♦ | | | |
| 1¼" | 3 - 30 | 10 - 110 | 5000 psi | 5000 psi | 5000 psi | 5000 psi | F1/F2 | | MR |
| | | | H831X - 030 - ♦ | H832X - 030 - ♦ | H834X - 030 - ♦ | H835X - 030 - ♦ | | | |
| | | | H831X - 050 - ♦ | H832X - 050 - ♦ | H834X - 050 - ♦ | H835X - 050 - ♦ | | | |
| | | | H831X - 075 - ♦ | H832X - 075 - ♦ | H834X - 075 - ♦ | H835X - 075 - ♦ | | | |
| 1½" | 3 - 30 | 10 - 110 | 5000 psi | 5000 psi | 5000 psi | 5000 psi | F1/F2 | | MR |
| | | | H841X - 030 - ♦ | H842X - 030 - ♦ | H844X - 030 - ♦ | H845X - 030 - ♦ | | | |
| | | | H841X - 050 - ♦ | H842X - 050 - ♦ | H844X - 050 - ♦ | H845X - 050 - ♦ | | | |
| | | | H841X - 075 - ♦ | H842X - 075 - ♦ | H844X - 075 - ♦ | H845X - 075 - ♦ | | | |

Example: H 734 X - 030 - F1 or F2



Flow-Alert flow switches

F1 = Single switch
F2 = Double switch



Example: H 734 X - 030 - RS1NO

Flow-Alert reed switches

Options:

- RS1NO (reed switch one (1) normally open)
- RS2NO (reed switch two (2) normally open)
- RS1NC (reed switch one (1) normally closed)
- RS2NC (reed switch two (2) normally closed)

Note: ¼" liquid meters for 0.1-1.0 gal/min range available in strap-on For detailed flow/pressure drop charts, see page 62.



Example: H 734 X - 030 - MR

Multiple output flow sensor

3 standard field selectable outputs
0-5 VDC } Flow transmitter is factory-calibrated to provide 4 mA
0-10 VDC } (0 VDC) at zero flow and 20 mA (5/10 VDC) at full flow.
4-20 mA } Optional 5-point calibration certificate available

Flow-Alert flow switches and flow transmitters

For air / Caustic and corrosive gases

Ordering information

| Nominal port size | Flow range | | Model number (see example below) | | Options ♦ | | |
|-------------------|------------|------------|----------------------------------|-----------------|--------------------------------|------------------------|------------------------|
| | SCFM | l/sec | Gases 1.0 (S.G.) | | Flow-Alert 1 switch / 2 switch | Flow-Alert reed switch | Multiple output sensor |
| | | | NPTF | BSPF | | | |
| ¼" | 2.0 - 20 | 1 - 9 | H237X - 020 - ♦ | H238X - 020 - ♦ | Not available | | Not available |
| | 3.0 - 30 | 1.5 - 14 | H237X - 030 - ♦ | H238X - 030 - ♦ | | | |
| ¼" | 3 - 25 | 2 - 12 | H237X - 025 - ♦ | H238X - 025 - ♦ | F1/F2 | | MR |
| | 5 - 50 | 3 - 22 | H237X - 050 - ♦ | H238X - 050 - ♦ | | | |
| ½" | 3 - 25 | 2 - 12 | H637X - 025 - ♦ | H638X - 025 - ♦ | F1/F2 | | MR |
| | 5 - 50 | 3 - 22 | H637X - 050 - ♦ | H638X - 050 - ♦ | | | |
| | 10 - 100 | 5 - 47 | H637X - 100 - ♦ | H638X - 100 - ♦ | | | |
| | 15 - 150 | 7 - 70 | H637X - 150 - ♦ | H638X - 150 - ♦ | | | |
| ¾" | 3 - 25 | 1.5 - 11.5 | H737X - 025 - ♦ | H738X - 025 - ♦ | F1/F2 | See options below | MR |
| | 5 - 50 | 2 - 23 | H737X - 050 - ♦ | H738X - 050 - ♦ | | | |
| | 10 - 100 | 5 - 47.5 | H737X - 100 - ♦ | H738X - 100 - ♦ | | | |
| | 15 - 150 | 7 - 70 | H737X - 150 - ♦ | H738X - 150 - ♦ | | | |
| 1" | 3 - 25 | 1.5 - 11.5 | H747X - 025 - ♦ | H748X - 025 - ♦ | F1/F2 | | MR |
| | 5 - 50 | 2 - 23 | H747X - 050 - ♦ | H748X - 050 - ♦ | | | |
| | 10 - 100 | 5 - 47.5 | H747X - 100 - ♦ | H748X - 100 - ♦ | | | |
| | 15 - 150 | 7 - 70 | H747X - 150 - ♦ | H748X - 150 - ♦ | | | |
| 1 ¼" | 20 - 200 | 10 - 95 | H837X - 200 - ♦ | H838X - 200 - ♦ | F1/F2 | | MR |
| | 40 - 400 | 20 - 180 | H837X - 400 - ♦ | H838X - 400 - ♦ | | | |
| | 60 - 600 | 30 - 280 | H837X - 600 - ♦ | H838X - 600 - ♦ | | | |
| | 80 - 800 | 50 - 350 | H837X - 800 - ♦ | H838X - 800 - ♦ | | | |
| 1 ½" | 20 - 200 | 10 - 95 | H847X - 200 - ♦ | H848X - 200 - ♦ | F1/F2 | | MR |
| | 40 - 400 | 20 - 180 | H847X - 400 - ♦ | H848X - 400 - ♦ | | | |
| | 60 - 600 | 30 - 280 | H847X - 600 - ♦ | H848X - 600 - ♦ | | | |
| | 80 - 800 | 50 - 350 | H847X - 800 - ♦ | H848X - 800 - ♦ | | | |



Example: H 737 X - 250 - F1 or F2

Flow-Alert flow switches

F1 = Single switch
F2 = Double switch



Example: H 737 X - 250 - RS1NO

Flow-Alert reed switches

Options

RS1NO (reed switch one (1) normally open)
RS2NO (reed switch two (2) normally open)
RS1NC (reed switch one (1) normally closed)
RS2NC (reed switch two (2) normally closed)

Note: ¼" air meters for 2.0-20 and 3.0-30 SCFM ranges available in strap-on design for RS1NO and RS1NC only.



Example: H 737 X - 250 - MR

Multiple output flow sensor

3 standard field selectable outputs

0-5 VdV } Flow transmitter is factory-calibrated to provide 4 mA
0-10 VDC } (0 VDC) at zero flow and 20 mA (5/10 VDC) at full flow.
4-20 mA } Optional 5-point calibration certificate available.



Caution: High flow gas shock may decouple indicator.


Flow-Alert flow switches and flow transmitters

For air / Compressed gases

Ordering information


| Nominal port size ① | Flow range | | Model number (see example below) | | | Material ⌘ | | | Options ◆ | | |
|---------------------|------------|------------|----------------------------------|------------------|------------------|--------------------|----------------|--------------------|--------------------------------|------------------------|------------------------|
| | SCFM | l/sec | SAE | NPTF | BSPP | Aluminium 1000 psi | Brass 1000 psi | Stainless 1500 psi | Flow-Alert 1 switch / 2 switch | Flow-Alert reed switch | Multiple output sensor |
| ¼" SAE 6 | 0.5 - 5 | 0.2 - 2.2 | H270 ⌘ - 005 - ◆ | H271 ⌘ - 005 - ◆ | H272 ⌘ - 005 - ◆ | A | B | S | Not available | | Not available |
| | 1 - 10 | 0.5 - 4.75 | H270 ⌘ - 010 - ◆ | H271 ⌘ - 010 - ◆ | H272 ⌘ - 010 - ◆ | | | | | | |
| | 2 - 20 | 1 - 9 | H270 ⌘ - 020 - ◆ | H271 ⌘ - 020 - ◆ | H272 ⌘ - 020 - ◆ | | | | | | |
| | 3 - 30 | 1.5 - 14 | H270 ⌘ - 030 - ◆ | H271 ⌘ - 030 - ◆ | H272 ⌘ - 030 - ◆ | | | | | | |
| ¼" SAE 6 | 3 - 25 | 2 - 12 | H270 ⌘ - 025 - ◆ | H271 ⌘ - 025 - ◆ | H272 ⌘ - 025 - ◆ | A | B | S | F1/F2 | | MR |
| | 5 - 50 | 3 - 22 | H270 ⌘ - 050 - ◆ | H271 ⌘ - 050 - ◆ | H272 ⌘ - 050 - ◆ | | | | | | |
| ½" SAE 10 | 3 - 25 | 2 - 12 | H670 ⌘ - 025 - ◆ | H671 ⌘ - 025 - ◆ | H672 ⌘ - 025 - ◆ | A | B | S | F1/F2 | | MR |
| | 5 - 50 | 3 - 22 | H670 ⌘ - 050 - ◆ | H671 ⌘ - 050 - ◆ | H672 ⌘ - 050 - ◆ | | | | | | |
| | 10 - 100 | 5 - 47 | H670 ⌘ - 100 - ◆ | H671 ⌘ - 100 - ◆ | H672 ⌘ - 100 - ◆ | | | | | | |
| | 15 - 150 | 7 - 70 | H670 ⌘ - 150 - ◆ | H671 ⌘ - 150 - ◆ | H672 ⌘ - 150 - ◆ | | | | | | |
| ¾" SAE 12 | 3 - 25 | 1.5 - 11.5 | H770 ⌘ - 025 - ◆ | H771 ⌘ - 025 - ◆ | H772 ⌘ - 025 - ◆ | A | B | S | F1/F2 | See options below | MR |
| | 5 - 50 | 2 - 23 | H770 ⌘ - 050 - ◆ | H771 ⌘ - 050 - ◆ | H772 ⌘ - 050 - ◆ | | | | | | |
| | 10 - 100 | 5 - 47.5 | H770 ⌘ - 100 - ◆ | H771 ⌘ - 100 - ◆ | H772 ⌘ - 100 - ◆ | | | | | | |
| | 15 - 150 | 7 - 70 | H770 ⌘ - 150 - ◆ | H771 ⌘ - 150 - ◆ | H772 ⌘ - 150 - ◆ | | | | | | |
| | 25 - 250 | 10 - 118 | H770 ⌘ - 250 - ◆ | H771 ⌘ - 250 - ◆ | H772 ⌘ - 250 - ◆ | | | | | | |
| 1" SAE 16 | 3 - 25 | 1.5 - 11.5 | H790 ⌘ - 025 - ◆ | H791 ⌘ - 025 - ◆ | H792 ⌘ - 025 - ◆ | A | B | S | F1/F2 | See options below | MR |
| | 5 - 50 | 2 - 23 | H790 ⌘ - 050 - ◆ | H791 ⌘ - 050 - ◆ | H792 ⌘ - 050 - ◆ | | | | | | |
| | 10 - 100 | 5 - 47.5 | H790 ⌘ - 100 - ◆ | H791 ⌘ - 100 - ◆ | H792 ⌘ - 100 - ◆ | | | | | | |
| | 15 - 150 | 7 - 70 | H790 ⌘ - 150 - ◆ | H791 ⌘ - 150 - ◆ | H792 ⌘ - 150 - ◆ | | | | | | |
| | 25 - 250 | 10 - 118 | H790 ⌘ - 250 - ◆ | H791 ⌘ - 250 - ◆ | H792 ⌘ - 250 - ◆ | | | | | | |
| 1¼" SAE 20 | 20 - 200 | 10 - 95 | H870 ⌘ - 200 - ◆ | H871 ⌘ - 200 - ◆ | H872 ⌘ - 200 - ◆ | A | B | S | F1/F2 | | MR |
| | 40 - 400 | 20 - 180 | H870 ⌘ - 400 - ◆ | H871 ⌘ - 400 - ◆ | H872 ⌘ - 400 - ◆ | | | | | | |
| | 60 - 600 | 30 - 280 | H870 ⌘ - 600 - ◆ | H871 ⌘ - 600 - ◆ | H872 ⌘ - 600 - ◆ | | | | | | |
| | 80 - 800 | 50 - 350 | H870 ⌘ - 800 - ◆ | H871 ⌘ - 800 - ◆ | H872 ⌘ - 800 - ◆ | | | | | | |
| | 100 - 1000 | 50 - 475 | H870 ⌘ - 999 - ◆ | H871 ⌘ - 999 - ◆ | H872 ⌘ - 999 - ◆ | | | | | | |
| 1½" SAE 24 | 20 - 200 | 10 - 95 | H890 ⌘ - 200 - ◆ | H891 ⌘ - 200 - ◆ | H892 ⌘ - 200 - ◆ | A | B | S | F1/F2 | | MR |
| | 40 - 400 | 20 - 180 | H890 ⌘ - 400 - ◆ | H891 ⌘ - 400 - ◆ | H892 ⌘ - 400 - ◆ | | | | | | |
| | 60 - 600 | 30 - 280 | H890 ⌘ - 600 - ◆ | H891 ⌘ - 600 - ◆ | H892 ⌘ - 600 - ◆ | | | | | | |
| | 80 - 800 | 50 - 350 | H890 ⌘ - 800 - ◆ | H891 ⌘ - 800 - ◆ | H892 ⌘ - 800 - ◆ | | | | | | |
| | 100 - 1000 | 50 - 475 | H890 ⌘ - 999 - ◆ | H891 ⌘ - 999 - ◆ | H892 ⌘ - 999 - ◆ | | | | | | |

① Fractional sizes apply to NPTF and BSPP.




Example: H 771 A - 250 - F1 or F2

Flow-Alert flow switches
F1 = Single switch
F2 = Double switch




Example: H 701 A - 030

Flow-Alert reed switches
Options
RS1NO (reedswitch one (1) normally open)
RS2NO (reedswitch two (2) normally open)
RS1NC (reedswitch one (1) normally closed)
RS2NC (reedswitch two (2) normally closed)
NOTE: ¼" air meters for .05-5, 1-10, 2-20 and 3-30 SCFM ranges available in strap-on design for RS1NO and RS1NC only.



Example: H 771 A - 250 - MR

Multiple output flow sensor
3 standard field selectable outputs
0-5 VDC } Flow transmitter is factory-calibrated to provide 4 mA (0 VDC)
0-10 VDC } at zero flow and 20 mA (5/10 VDC) at full flow. Optional 5-point
4-20 mA } calibration certificate available



Caution: High flow gas shock may decouple indicator.

Digital display

For Hedland® MR flow transmitters

Applications

- Remote flow meter monitoring
- Totalizing
- Alarm processing
- Process control

Features

- 5-digit rate display
- 5-digit totalizer with 4-digit overcarry
- Input, 4-20 mA or 0-10 VDC
- Built-in transmitter power supply
- Three plug-in card slots
- Optional setpoint alarm cards
- AC and DC powered versions
- NEMA 4X/IP65 rated



Introduction

The F6700/F6750 series digital display with integrated signal processor accepts a 4-20 mA or 0-10 VDC signal from Hedland's MR flow transmitters as well as any other 4-20 mA or 0-10 VDC source. These 5-digit displays can be scaled to most engineering units and are easily programmed using the front panel buttons or available programming software. To meet your specific requirements, each display accepts up to three optional plug-in cards. One card for each of the following function types can be installed in each display:

Analog outputs

A linear DC output signal card will be set up to provide either 4-20 mA, 0-20 mA or 0-10 VDC signals and can be scaled independent of the input range.

Communications

Optional plug-in cards to facilitate digital communications include: RS232, RS485, ModBus®, Profibus and DeviceNet.

Setpoint alarms

Select from dual FORM-C relays (5 Amp), quad FORM-A relays (3 Amp) or either sinking or sourcing quad open collector logic outputs.

The analog output and communication cards will be installed by the factory at time of order, or they may be installed by the customer at a later date. The setpoint alarm cards are available for customer installation and setup only.

Technical data

| | |
|-----------------------|---|
| Display | 5-digit, 0.56" sunlight-readable red LED |
| Power | |
| AC | 85 to 250 VAC, 50/60 Hz, 15 VA |
| DC | 11 to 36 VDC, 11 W |
| A/D converter | 16-bit resolution |
| A/D conversion rate | 20 readings/sec |
| Display update rate | 1 to 20 updates/sec |
| Sensor inputs | 4-20 mA or 0-10 VDC |
| Transmitter power | 24 VDC, ±5%, regulated 50 mA maximum |
| Totalizer time base | Second, minute, hour or day |
| Total | 9 digits, display alternates between high order and low order readouts |
| Linearization data | |
| Point pairs | Selectable from 2 to 16 |
| Operating temperature | 0 °C to 50 °C (32 °F to 122 °F) 0 °C to 45 °C (32 °F to 113 °F with all three plug-in cards installed) |

Digital display

For Hedland® MR flow transmitters

Ordering example

| | |
|-------------|--|
| F6700-X-X-G | AC powered, displays GPM |
| F6700-A-A-L | AC powered + 4-20 mA Out + RS232, displays LPM |
| F6750-C-X-S | DC powered + 0-10 VDC Out, displays SCFM |

Ordering information

| Power version | Display | Analog output | Communications | | Display units | |
|---------------|---------|---------------|----------------|-----|---------------|-----|
| | | | | | | |
| AC | F6700 | 4-20 mA - A | RS232 | - A | GPM | - G |
| DC | F6750 | 0-20 mA - B | RS485 | - B | LPM | - L |
| | | 0-10 VDC - C | Modbus | - C | SCFM | - S |
| | | None - X | Profibus | - D | LPS | - T |
| | | | DeviceNet | - E | | |
| | | | None | - X | | |

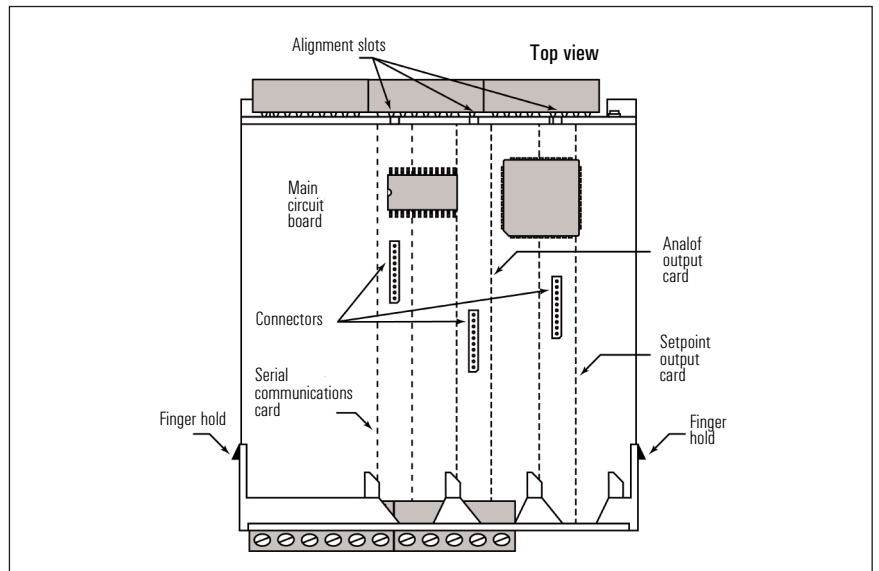
Note: Select one option from each category

Form C relay plug-in option card

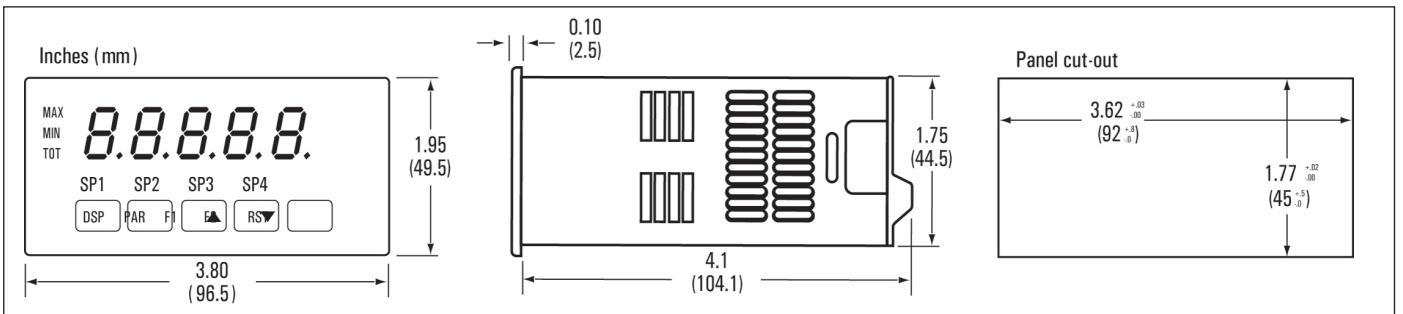
Part number F6542

This optional plug-in card requires customer installation and setup. To facilitate setup, it is recommended that this feature be utilized with a display that includes a serial communication card (RS232 or RS485) and programming software.

Note: For additional setpoint alarm options, consult factory for information.

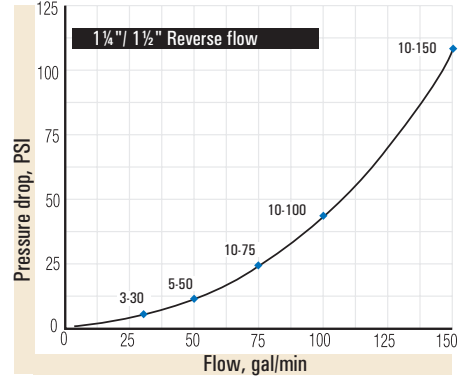
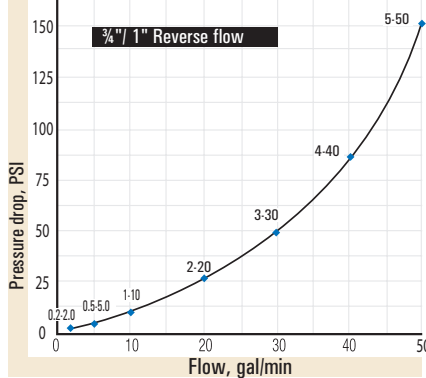
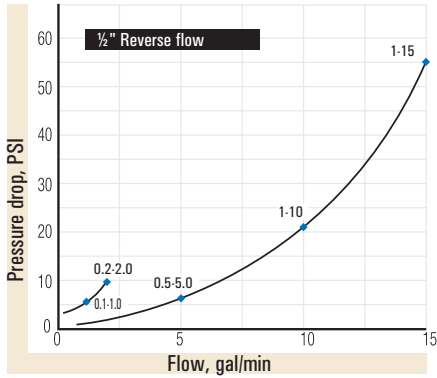
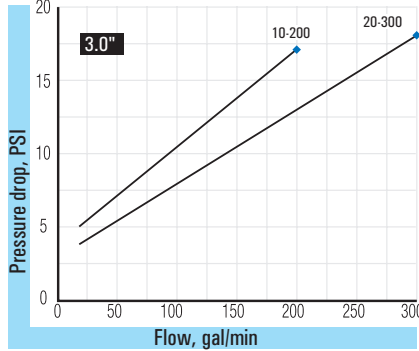
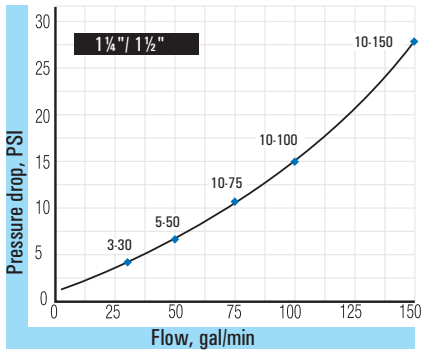
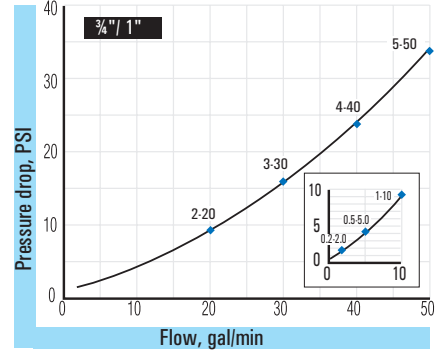
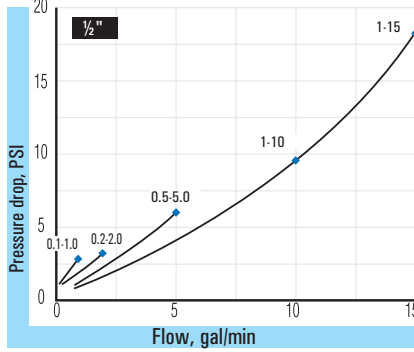
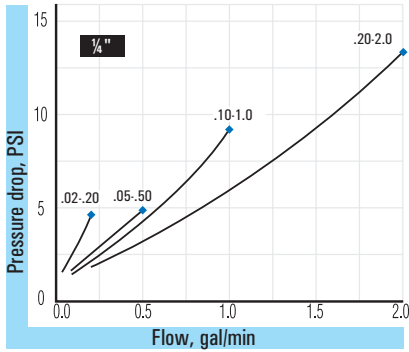


Dimensions

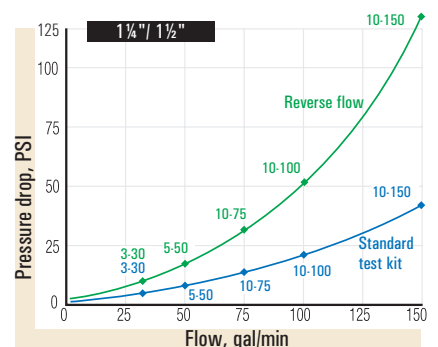
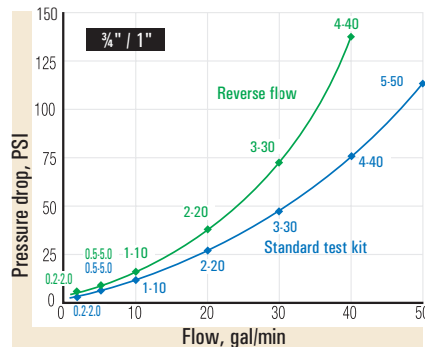
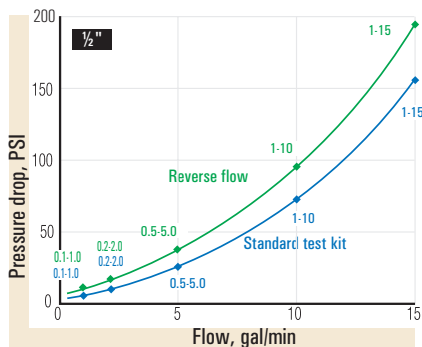


Flow vs. Pressure drop

Petroleum fluids

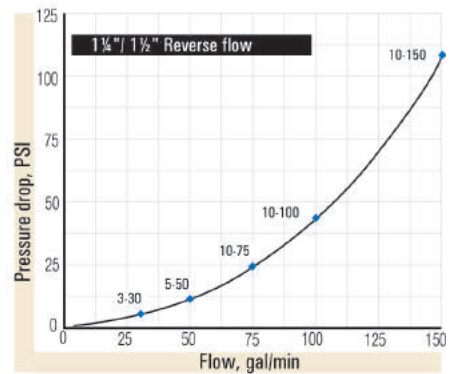
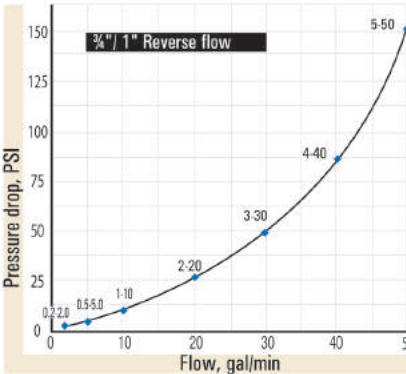
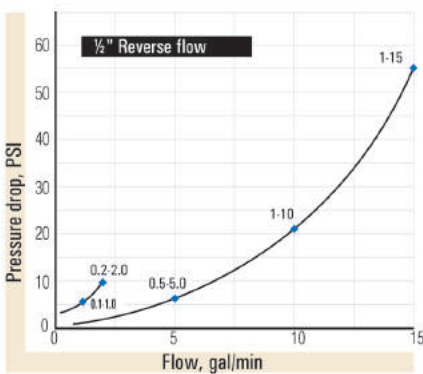
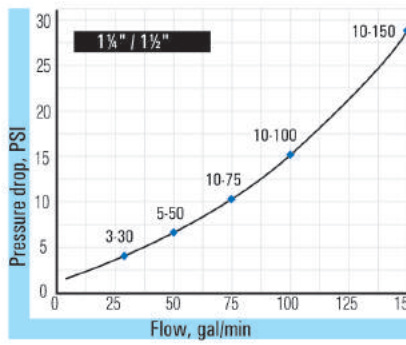
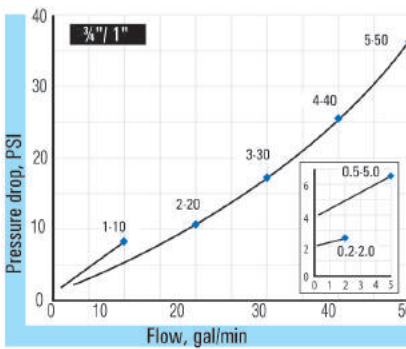
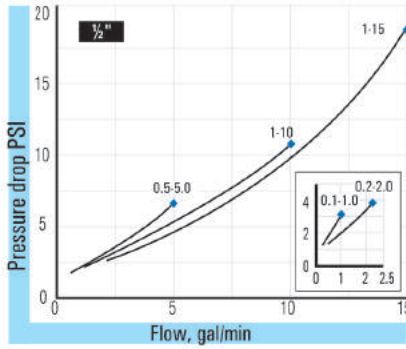
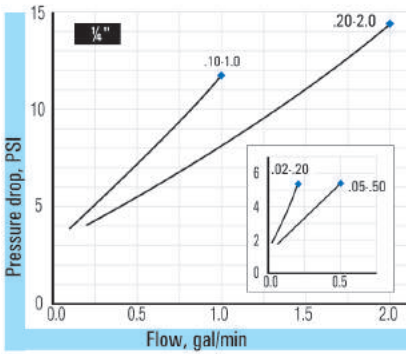


Petroleum test kits

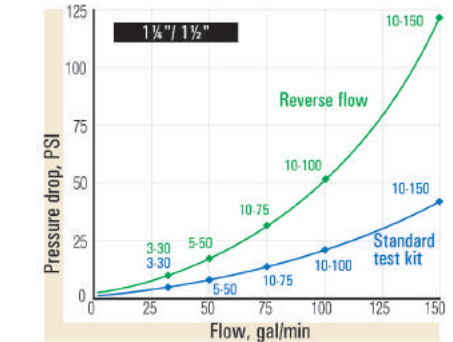
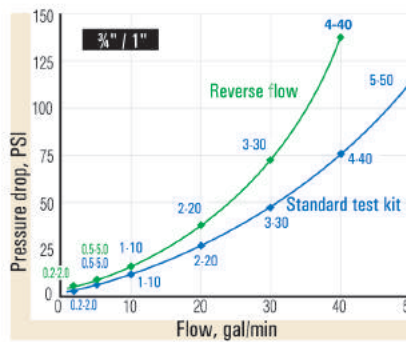
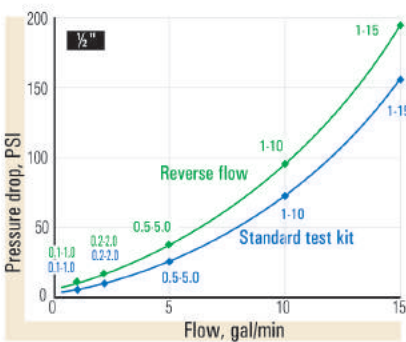


Flow vs. Pressure drop

Phosphate ester

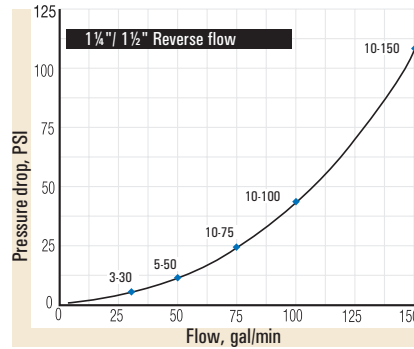
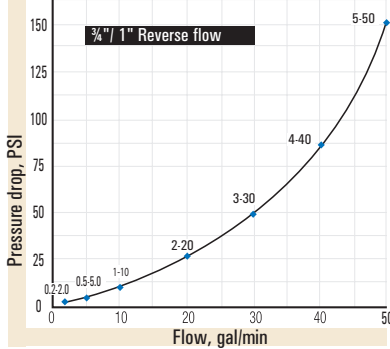
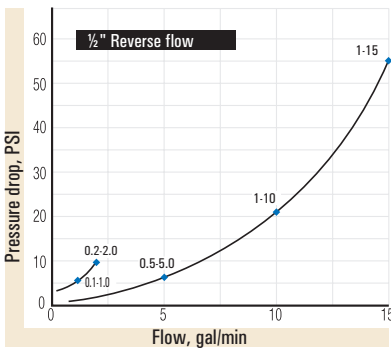
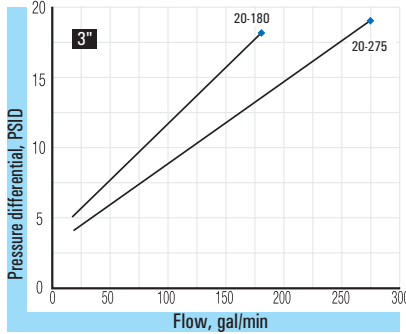
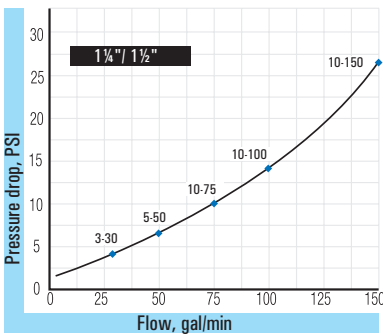
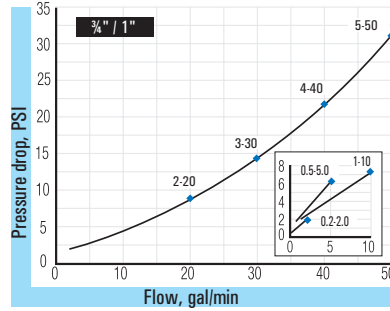
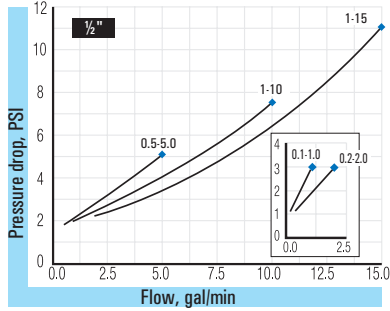
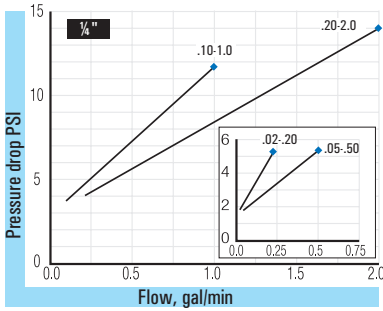


Phosphate ester test kits

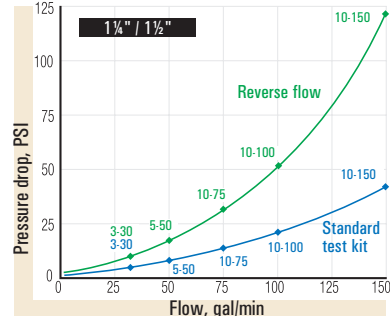
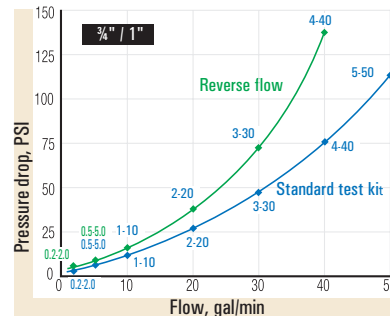
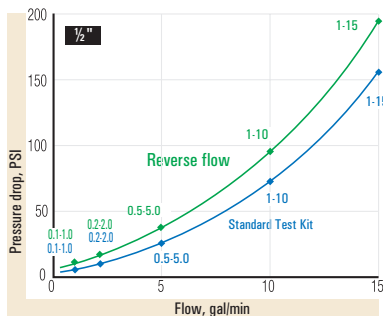


Flow vs. Pressure drop

Water-based fluids

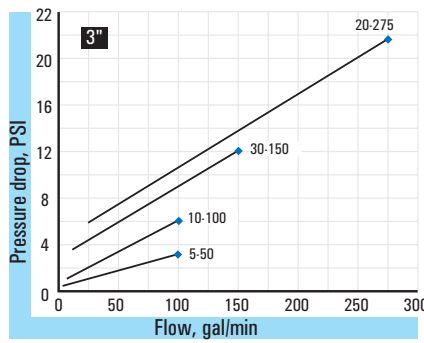
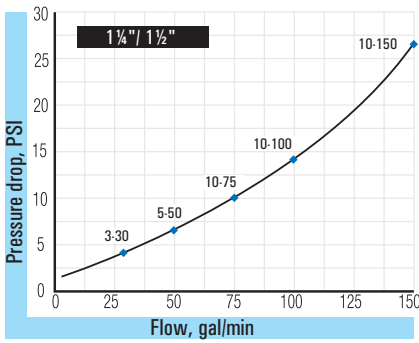
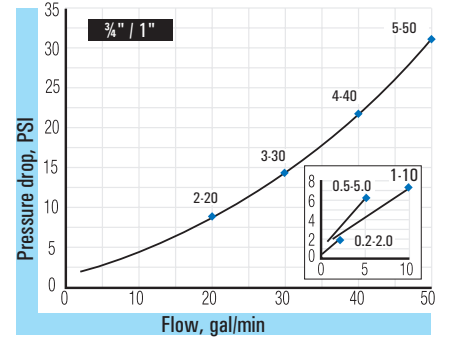
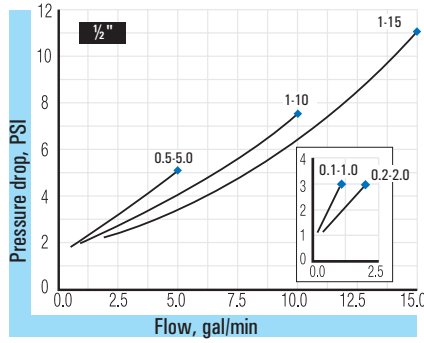
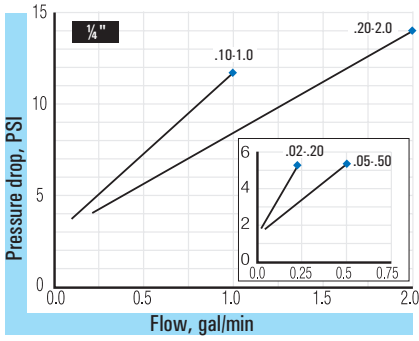


Water-based fluid test kits

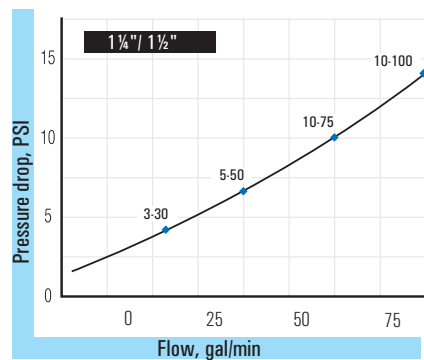
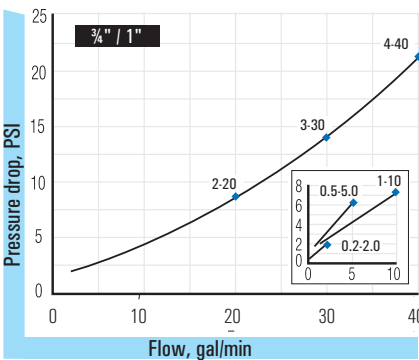
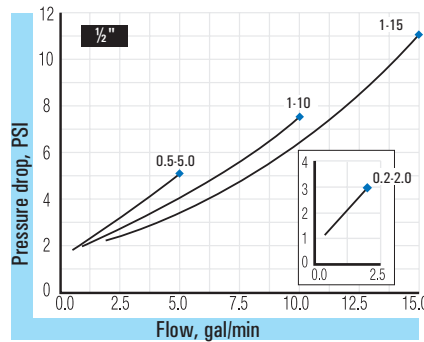
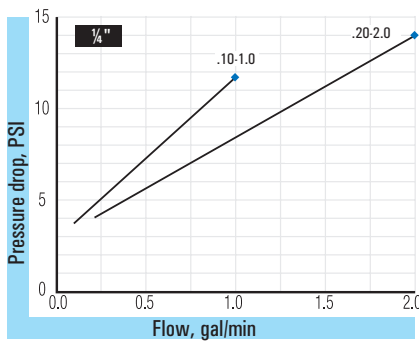


Flow vs. Pressure drop

Water



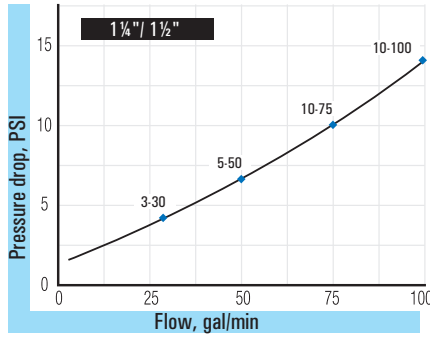
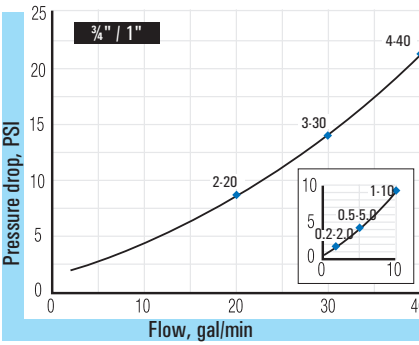
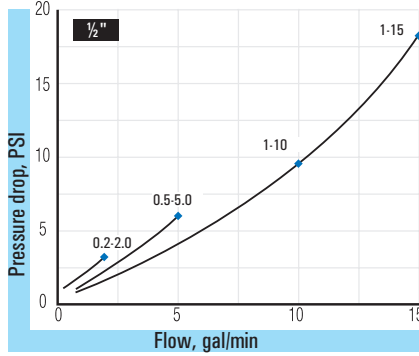
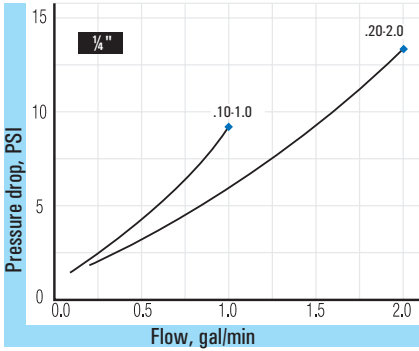
Caustic and corrosive liquids



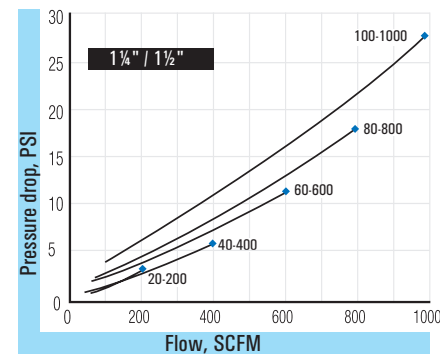
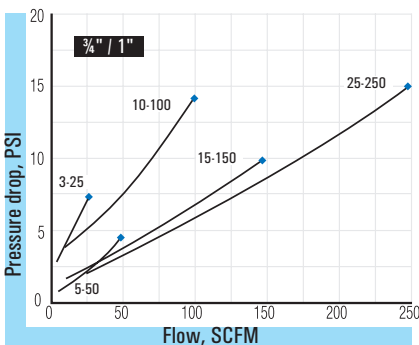
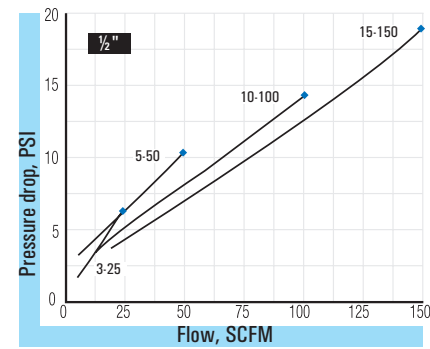
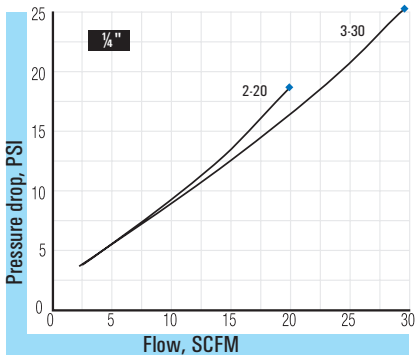
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Flow vs. Pressure drop

A.P.I. oil

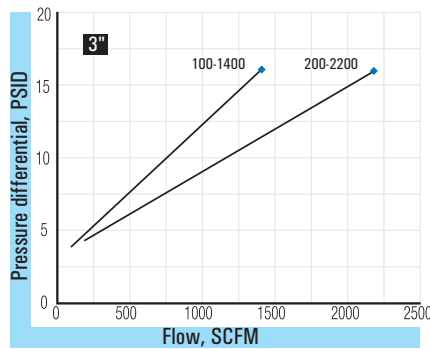
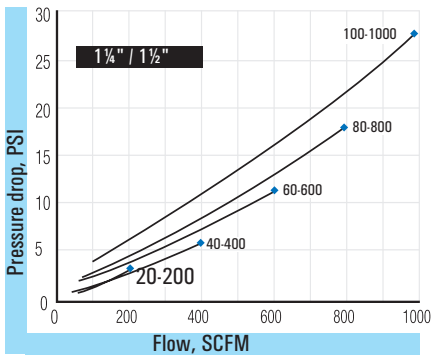
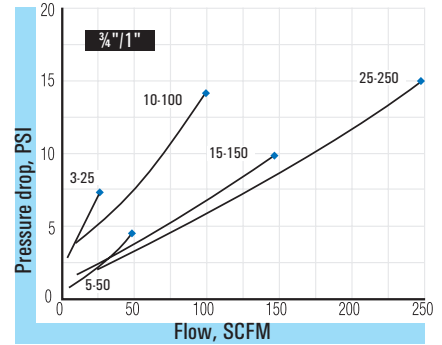
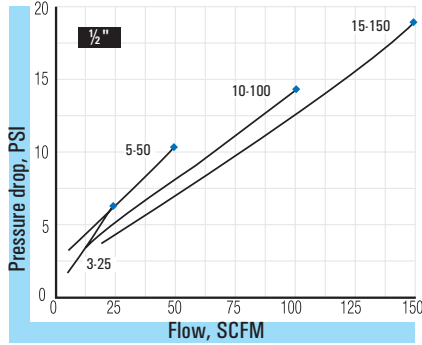
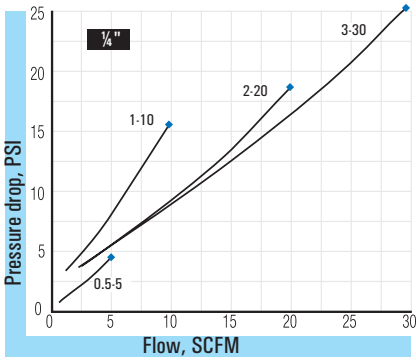


Air, caustic and corrosive gases

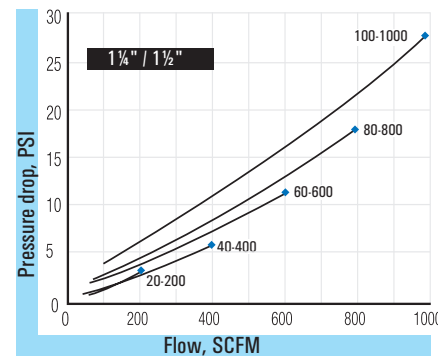
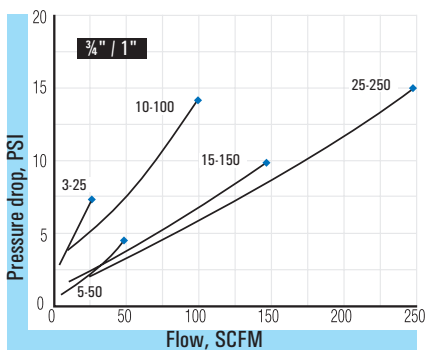
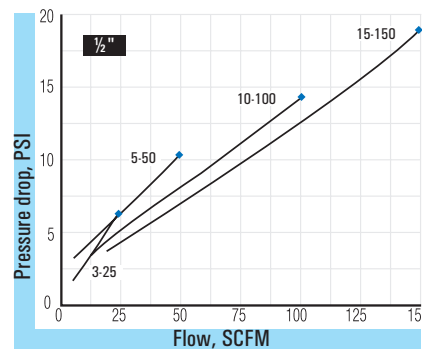
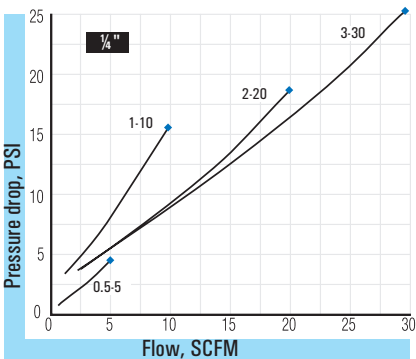


Flow vs. Pressure drop

Air and compressed gases



Air and compressed gas test kits



EZ-View[®] flow meters

General design features

Operating principle

The EZ-View[®] flow meter is a variable area instrument. A precision molded, sharp-edged orifice^① located within the piston assembly^②, forms an annular opening with the metering cone^③. Flow through the meter creates a pressure differential across the sharp-edged orifice, moving the piston against the spring^④. The piston moves precisely, in direct proportion to the rate of flow. The calibrated spring opposes flow in the forward direction. This spring decreases viscosity sensitivity and allows the flow meters to be used in any position, including inverted. The indicated flow rate is measured by viewing the red flow indicator^⑤ line on the piston relative to the precalibrated numerical scale, mounted on the outer surface of the transparent flow meter body.

Note: The piston assembly carries a cylindrical magnet on all EZ-View[®] Flow-Alert models. This magnet is necessary to activate the AC, DC or reed switch modules when flow conditions are too high or too low.

Operates in any position

The in-line flow meter's unique spring loaded variable area design allows meters to be installed in any position without effecting accuracy. It can be installed into horizontal or vertical lines, or with an optional inverted flow scale, this meter can monitor flow in a downward flowing (i.e. gravity feed) line.

Easy-to-read scale

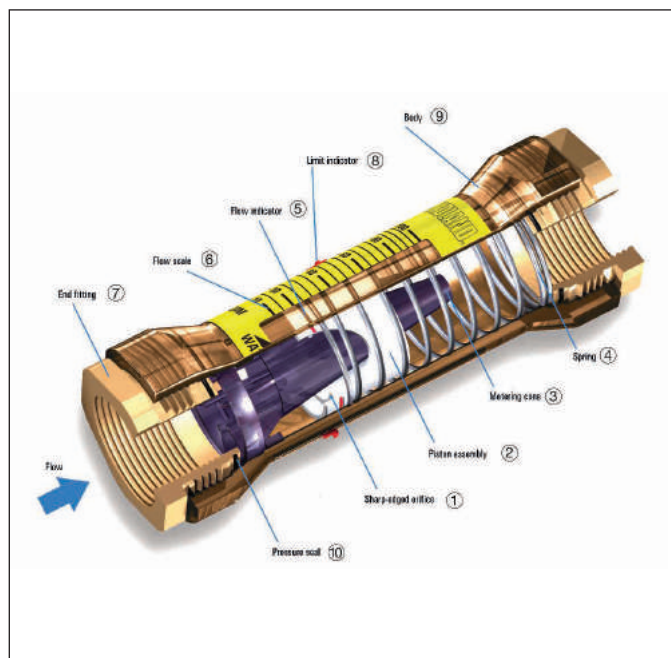
This flow meter is the most readable product in its class. A brightly colored flow scale^⑥ contains bold, easy-to-read numerals and gauge marks. This enhanced resolution virtually eliminates parallax problems associated with competitive, direct reading flow meters.

Accuracy within ±5% full scale

The EZ-View[®] flow meter accuracy is within ±5% of full scale while monitoring liquids with viscosity and specific gravity similar to factory calibrated fluids.

Repeatability

This is particularly important in cyclical applications, which require consistent readings.



Operating temperature

Maximum operating temperature is 121 °C (250 °F).

Operating pressure

Maximum operating pressure is 325 psi/22.4 bar.

Rugged construction

Flow meters are available in brass, stainless, and PVC fittings, with NPT or BSP ports (see ordering information tables). Constructed of high-impact polysulfone plastic, this simple variable area flow meter contains a minimum number of moving parts, offering a reliable, trouble-free flow rate indicator to monitor a wide range of liquids and gases.

Note: Inlet and outlet

EZ-View[®] flow meters

General design features

No flow straighteners or special piping

The design does not require special plumbing or accessories to stabilize turbulent flow. Flow meters can be installed immediately adjacent to 90-degree elbows or other components providing system design flexibility.

Filtration

The flow meters are more contamination tolerant than most fluid system components, 200 mesh (74 micron) or better filtration is required to assure reliable performance.

Standard flow scales

Standard flow scales are calibrated in gallons per minute (gpm) and liters per minute (lpm) at 0.876 specific gravity for petroleum-based fluids, 1.0 specific gravity for water and water-based emulsions.

Special flow scales

Special scales are available in any measurement unit and/or specific gravity.

Viscosity effect (SUS/cSt)

The design utilizes a precision-molded, sharp-edged orifice and biasing calibration spring that ensures operating stability and accuracy over the wide viscosity range common to many fluids. Generally, high flow models provide good accuracy over a viscosity range of 40 to 500 SUS (4.2 to 108 cSt).

Density effect (specific gravity)

Any fluid density change from stated standards has a square-root effect on meter accuracy. Special scales can be supplied if actual specific gravity decreases accuracy beyond application limits.

Corrections for more or less dense fluids can be made to standard scales using correction equations. Refer to pages 5-7.

Fluid selection chart

| Fluid | Specific gravity | Correction factor of standard scale | | Internal components | | | | Fittings | | |
|----------------------------|------------------|-------------------------------------|-------|---------------------|-----------------------|--------|------------------------------------|------------|--------------|----------------|
| | | | | Polysulfone | T300 stainless spring | Buna N | PH15 7 MO stainless retaining ring | C360 brass | PVC - type 1 | T303 stainless |
| | | Oil | Water | | | | | | | |
| Acetic acid (air free) | 1.06 | 0.909 | 0.971 | R | R | C | R | N | R | R |
| Acetone | 0.79 | 1.053 | 1.125 | N | R | N | R | R | N | R |
| Alcohol butyl (Butanol) | 0.83 | 1.027 | 1.098 | R | R | R | R | C | R | R |
| Alcohol ethyl (Ethanol) | 0.83 | 1.027 | 1.098 | R | R | N | R | C | R | R |
| Ammonia | 0.89 | 0.992 | 1.060 | R | R | C | R | C | R | R |
| Benzene | 0.69 | 1.127 | 1.204 | N | N | N | N | R | N | N |
| Carbon disulphide | 1.26 | 0.834 | 0.891 | N | R | N | R | N | N | R |
| Castor oil | 0.97 | 0.950 | 1.015 | C | C | R | C | R | C | C |
| Cotton seed oil | 0.93 | 0.970 | 1.037 | R | R | R | R | R | N | R |
| Ethylene glycol 50/50 | 1.12 | 0.884 | 0.945 | R | R | R | R | R | R | R |
| Freon II | 1.46 | 0.774 | 0.828 | N | R | N | R | R | N | R |
| Gasoline | 0.70 | 1.119 | 1.195 | R | R | R | R | R | C | R |
| Glycerin | 1.26 | 0.834 | 0.891 | R | R | R | R | R | R | R |
| Kerosene | 0.82 | 1.033 | 1.104 | R | R | R | R | R | R | R |
| Liquid propane (LPG) | 0.51 | 1.310 | 1.400 | N | R | R | R | R | R | R |
| Mineral oil | 0.92 | 0.976 | 1.042 | R | R | R | R | R | R | R |
| Naphtha | 0.76 | 1.074 | 1.147 | N | R | R | R | N | N | R |
| Perchloroethylene | 1.62 | 0.735 | 0.786 | N | R | R | R | N | N | R |
| Petroleum oil | 0.876 | 1.000 | 1.068 | R | R | R | R | R | R | R |
| Phosphate ester | 1.18 | 0.862 | 0.921 | N | R | N | R | R | N | R |
| Phosphate ester base | 1.26 | 0.833 | 0.891 | N | R | N | R | R | N | R |
| Phosphoric acid (air free) | 1.78 | 0.701 | 0.749 | R | N | C | N | N | R | N |
| Sea water | 1.03 | 0.922 | 0.985 | R | N | R | N | N | R | N |
| Synthetic petroleum base | 1.00 | 0.936 | 1.000 | R | R | R | R | C | R | R |
| Water | 1.00 | 0.936 | 1.000 | R | R | R | R | R | R | R |
| Water glycol 50/50 | 1.07 | 0.905 | 0.967 | R | R | R | R | R | R | R |
| Water-in-oil | 0.93 | 0.970 | 1.037 | R | R | R | R | R | R | R |

R – Recommended N – Not recommended C – Consult factory

EZ-View[®] flow meters

For oil and water

- ½ to 1 inch ports
- EZ to install, in any position
- Polysulfone bodies for standard applications or Radel[®] R for more aggressive media
- No special piping or flow straighteners needed
- No electrical connections
- Direct reading indication
- Accuracy within 5% full scale
- Relatively insensitive to shock and vibration



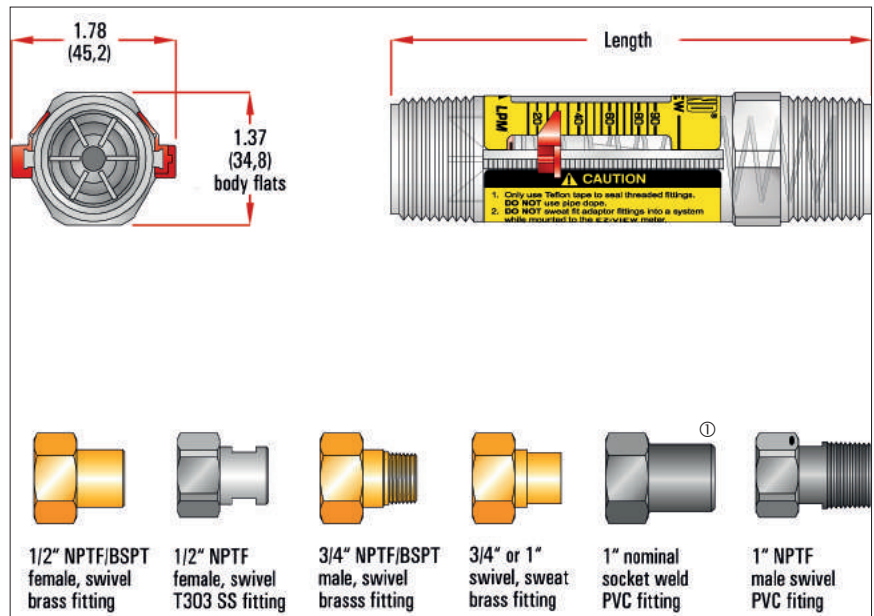
EZ-View[®] with Polysulfone body



EZ-View[®] with Radel[®] R body

Technical data

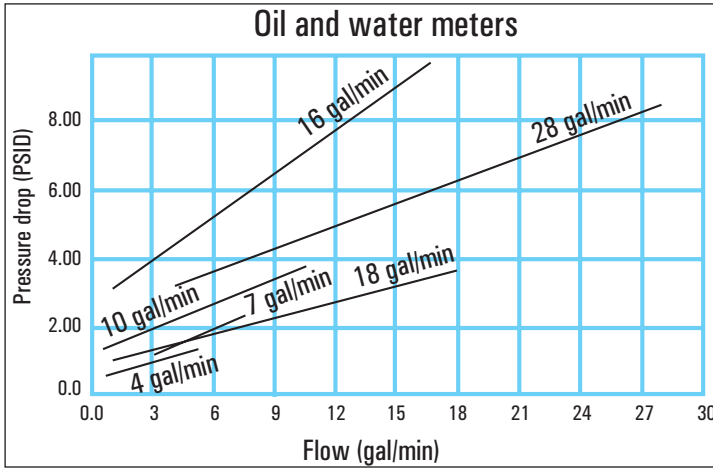
| | |
|----------------------------|---|
| Materials | Polysulfone plastic body, piston and cone Radel [®] R plastic body and cone, polysulfone piston |
| Common parts | |
| Spring | T300-series stainless |
| Indicator ring | Buna N |
| Pressure seals | Buna N |
| Fittings | C360 brass, PVC, or T303 stainless steel |
| Limit indicator | Polypropylene |
| Retaining ring | PH15 – 7MO stainless |
| Optional (consult factory) | Spring + retaining ring: Teflon [®] coated |
| Fittings/ threads | NPT ANSI/ASME B1.20.1, BSPT ISOR7 See ordering information table next page. |
| Temperature range | 0 °C to +121 °C (+32 °F to +250 °F) |
| Pressure rating | 325 psi / 22.4 bar maximum |
| Pressure drop | See differential pressure charts. |
| Accuracy | ±5% of full scale |
| Repeatability | ±1% |
| Dimensions | See ordering information table next page. |



① Meters with type 1 PVC fittings: Pressure rating psi normal PVC system specification. Temperature range 0 °C to +60 °C (+32 °F to +140 °F)

EZ-View[®] flow meters

For oil and water



Ordering information

| Fluid media | Flow range | | ½" NPTF female, swivel brass fitting | ½" NPTF female, swivel T303 SS fitting | ½" BSPT female, swivel brass fitting | ¾" NPTF male, swivel brass fitting | ¾" BSPT male, swivel brass fitting | ¾" or 1" ① nominal, swivel sweat brass fitting | 1" NPTF ② male, plastic polysulfone fitting | 1" nominal ③ socket weld PVC fitting | 1" NPTF male, swivel PVC fitting | Material | |
|-------------------|-----------------------|----------|--------------------------------------|--|--------------------------------------|------------------------------------|------------------------------------|--|---|--------------------------------------|----------------------------------|-------------|---------|
| | gal/min | l/min | | | | | | | | | | Polysulfone | Radel R |
| Oil 0.876 s.g. | 0.5 - 4 | 2 - 15 | H624-104 | H626-104 | H627-104 | H625-104 | H630-104 | | H621-104 | H628-104 | H629-104 | STD | -R |
| | 1.0 - 7 | 4 - 26 | H624-107 | H626-107 | H627-107 | H625-107 | H630-107 | | H621-107 | H628-107 | H629-107 | | |
| | 1.0 - 10 | 4 - 35 | H624-110 | H626-110 | H627-110 | H625-110 | H630-110 | | H621-110 | H628-110 | H629-110 | | |
| | 1.0 - 16 | 5 - 60 | H624-116 | H626-116 | H627-116 | H625-116 | H630-116 | | H621-116 | H628-116 | H629-116 | | |
| | 3.0 - 18 | 15 - 65 | | | | H625-118 | H630-118 | | H621-118 | H628-118 | H629-118 | | |
| | 4.0 - 28 | 20 - 100 | | | | H625-128 | H630-128 | | H621-128 | H628-128 | H629-128 | | |
| Water 1.0 s.g. | 0.5 - 4 | 2 - 15 | H624-004 | H626-004 | H627-004 | H625-004 | H630-004 | H620-004 | H621-004 | H628-004 | H629-004 | STD | -R |
| | 1.0 - 7 | 4 - 26 | H624-007 | H626-007 | H627-007 | H625-007 | H630-007 | H620-007 | H621-007 | H628-007 | H629-007 | | |
| | 1.0 - 10 | 4 - 35 | H624-010 | H626-010 | H627-010 | H625-010 | H630-010 | H620-010 | H621-010 | H628-010 | H629-010 | | |
| | 1.0 - 16 | 5 - 60 | H624-016 | H626-016 | H627-016 | H625-016 | H630-016 | H620-016 | H621-016 | H628-016 | H629-016 | | |
| | 3.0 - 18 | 15 - 65 | | | | H625-018 | H630-018 | H620-018 | H621-018 | H628-018 | H629-018 | | |
| | 4.0 - 28 | 20 - 100 | | | | H625-028 | H630-028 | H620-028 | H621-028 | H628-028 | H629-028 | | |
| Dimensions | Length ④ in (mm) | | 7.75 (196.8) | 7.75 (196.8) | 7.75 (196.8) | 8.25 (209.5) | 8.25 (209.5) | 7.75 (196.8) | 5.25 (133.3) | 8.46 (214.9) | 8.86 (225.0) | | |
| | Fitting flats in (mm) | | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | N/A | 1.54 (39.1) | 1.50 (38.1) | | |
| | Weight lb (kg) | | 0.95 (0.43) | 0.85 (0.39) | 0.95 (0.43) | 0.90 (0.41) | 0.90 (0.41) | 0.75 (0.34) | 0.20 (0.09) | 0.35 (0.16) | 0.55 (0.25) | | |

① Fits ¾" copper tube types K, L, M; 1" copper tube type M only

② DO NOT use pipe dope. Use Teflon[®] tape only. Use with plastic fittings only.

③ Fits 1" Sch 40/80 PVC, CPVC pipe. Requires 1" pipe coupling.

④ Length includes end fittings.

Example: Polysulfone model = H 624 - 104 Radel[®] R model = H 624 - 104-R

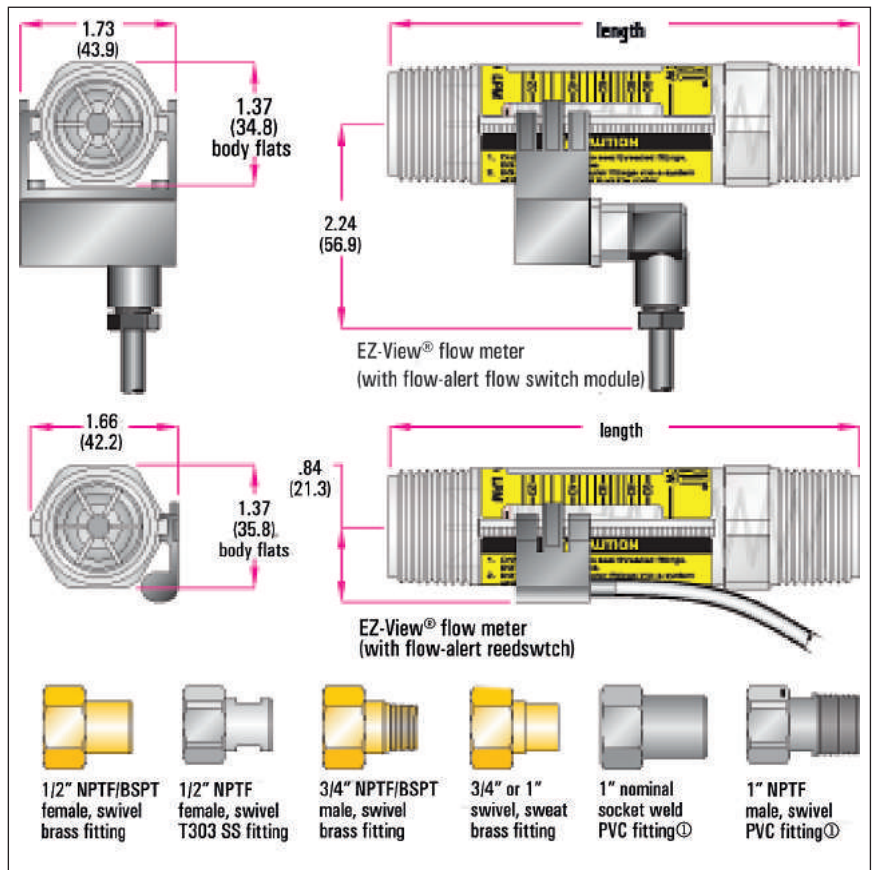
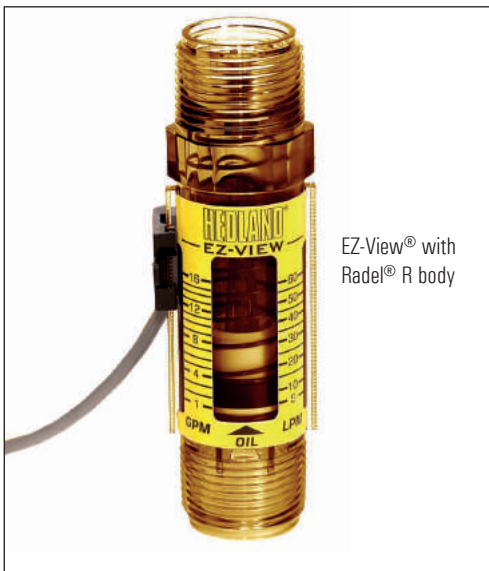
EZ-View[®] flow meters

With Flow-Alert flow switch

- Reeds witch and latching models
- Automatically signals alarm if flow is too high or too low
- Models available for AC or DC power supply
- Latching models include Hirschmann type electrical connector
- Polysulfone bodies for standard applications or Radel[®] R for more aggressive media
- Easy to install
- Easy flow limit adjustment
- Operates in any position
- Relatively insensitive to shock and vibration
- Repeatability within $\pm 1\%$
- Low cost

Technical data

| | |
|--------------------------|---|
| Material | Polysulfone plastic body, piston and cone Radel [®] R plastic body and cone, polysulfone piston |
| Common parts | |
| Spring | T300-series stainless |
| Indicator ring | Buna N |
| Pressure seals | Buna N |
| Fittings | C360 Brass, PVC, or T303 stainless steel |
| Limit indicators | Polypropylene |
| Magnet | Strontium ferrite |
| Retaining ring | PH15 – 7MO stainless |
| Fittings/ threads | NPT ANSI/ASME B1.20.1, BSPT ISOR7 See ordering information table next page. |
| Temperature range | 0 °C to +121 °C (+32 °F to +250 °F) |
| Pressure rating | 325 psi / 22.4 bar maximum |
| Pressure drop | See differential pressure chart |
| Accuracy | $\pm 5\%$ of full scale |
| Repeatability | $\pm 1\%$ |
| Dimensions | See ordering information table next page. |



^①Meters with type 1 PVC fittings: Pressure rating per normal PVC system specifications. Temperature range 0 °C to +60 °C (+32 °F to +140°F)

EZ-View[®] flow meters

With Flow-Alert flow switch

Flow switch options and specifications:

The AC and DC powered flow-alert flow switch modules consist of a latching relay circuit housed in a sealed polypropylene enclosure. The modules have a normally open dry relay contact that can be used to directly control alarms, warning lights, relays or be used to interface to a PLC. The relay will be latched on as the magnet inside the flow meter passes by the module, and remain latched on until the magnet passes in the other direction or power is interrupted. The set point is adjustable from 0 to 100% of full scale.

The reed switch Flow-Alert modules are housed in a sealed polypropylene enclosure. The reed switch module does not provide the latching function like the AC and DC powered units. When the magnet inside the flow meter comes within proximity of the module, the reed switch will change state. The set point is adjustable from 0 to 100% full scale. Two reed switches providing low flow and high flow set points may be installed on a single flow meter.

| | AC latching | DC latching | Reed switch form-A normally open (NO) | Reed switch form-B normally closed (NC) | Reed switch form-C |
|-----------------------|---|---|--|---|---|
| Operating voltage | 115 VAC ±10% | 10-30 VDC | - | - | - |
| Operating current | 25 mA maximum | 25 mA maximum | - | - | - |
| Contact rating | 1A @ 30 VDC 0.5A @ 125 VAC Resistive load | 1A @ 30 VDC 0.5A @ 125 VAC Resistive load | 1A max 200 VDC max 15 watts max Resistive load | 0.25A max 175 VDC max 5 watts max Resistive load | 0.25A max 175 VDC max 5 watts max Resistive load |
| Operating temperature | +32 to +158 °F (0 to +70 °C) | +32 to +158 °F (0 to +70 °C) | +32 to +250 °F (0 to +121 °C) | +32 to +250 °F (0 to +121 °C) | +32 to +250 °F (0 to +121 °C) |
| Connector | 4-pin connector (protection class IP65) | 4-pin connector (protection class IP65) | - | - | - |
| Cable | Not included | Not included | 3 foot, 2-wire #24 AWG black PVC Jacketed pig-tail | 3 foot, 2-wire #20 AWG grey PVC Jacketed pig-tail | 3 foot, 3-wire #24 AWG grey PVC Jacketed pig-tail |
| Rating | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) |
| Certification | N/A | EMC directive 89/336/EEC | EMC directive 89/336/EEC | EMC directive 89/336/EEC | EMC directive 89/336/EEC |
| Model number | H526-003 | H526-005 | H526-008-NO | H526-008-NC | H526-008 |

Note: Flow switches and flow meters sold separately

Ordering information

| Fluid media | Flow range | | ½" NPTF female, swivel brass fitting | ½" NPTF female, swivel T303 SS fitting | ½" BSPT female, swivel brass fitting | ¾" NPTF male, swivel brass fitting | ¾" BSPT male, swivel brass fitting | ¾" or 1" nominal, swivel sweat brass fitting | 1" NPTF male, plastic polysulfone fitting | 1" nominal socket weld PVC fitting | 1" NPTF male, swivel PVC fitting | Material | |
|-------------------|-----------------------------|----------|--------------------------------------|--|--------------------------------------|------------------------------------|------------------------------------|--|---|------------------------------------|----------------------------------|-------------|----------------------|
| | gal/min | l/min | | | | | | | | | | Polysulfone | Radel [®] R |
| Oil 0.876 s.g. | 0.5 - 4 | 2 - 15 | | | | H625-704 | H630-704 | | H621-704 | H628-704 | H629-704 | STD | -R |
| | 1.0 - 7 | 4 - 26 | H624-704 | H626-704 | H627-704 | H625-707 | H630-707 | | H621-707 | H628-707 | H629-707 | | |
| | 1.0 - 10 | 4 - 35 | H624-707 | H626-707 | H627-707 | H625-710 | H630-710 | | H621-710 | H628-710 | H629-710 | | |
| | 1.0 - 16 | 5 - 60 | H624-710 | H626-710 | H627-710 | H625-716 | H630-716 | | H621-716 | H628-716 | H629-716 | | |
| | 3.0 - 18 | 15 - 65 | H624-716 | H626-716 | H627-716 | H625-718 | H630-718 | | H621-718 | H628-718 | H629-718 | | |
| | 4.0 - 28 | 20 - 100 | | | | H625-728 | H630-728 | | H621-728 | H628-728 | H629-728 | | |
| Water 1.0 s.g. | 0.5 - 4 | 2 - 15 | | | | H625-604 | H630-604 | H620-604 | H621-604 | H628-604 | H629-604 | STD | -R |
| | 1.0 - 7 | 4 - 26 | H624-604 | H626-604 | H627-604 | H625-607 | H630-607 | H620-607 | H621-607 | H628-607 | H629-607 | | |
| | 1.0 - 10 | 4 - 35 | H624-607 | H626-607 | H627-607 | H625-610 | H630-610 | H620-610 | H621-610 | H628-610 | H629-610 | | |
| | 1.0 - 16 | 5 - 60 | H624-610 | H626-610 | H627-610 | H625-616 | H630-616 | H620-616 | H621-616 | H628-616 | H629-616 | | |
| | 3.0 - 18 | 15 - 65 | H624-616 | H626-616 | H627-616 | H625-618 | H630-618 | H620-618 | H621-618 | H628-618 | H629-618 | | |
| | 4.0 - 28 | 20 - 100 | | | | H625-628 | H630-628 | H620-628 | H621-628 | H628-628 | H629-628 | | |
| Dimensions: | Length ^④ in (mm) | | 7.75 (196.8) | 7.75 (196.8) | 7.75 (196.8) | 8.25 (209.5) | 8.25 (209.5) | 7.75 (196.8) | 5.25 (133.3) | 8.46 (214.9) | 8.86 (225.0) | | |
| | Fitting flats in (mm) | | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | 1.50 (38.1) | N/A | 1.54 (39.1) | 1.50 (38.1) | | |
| | Weight lb (kg) | | 0.95 (0.43) | 0.85 (0.39) | 0.95 (0.43) | 0.90 (0.41) | 0.90 (0.41) | 0.75 (0.34) | 0.20 (0.09) | 0.35 (0.16) | 0.55 (0.25) | | |

① Fits ¾" copper tube types K, L, M; 1" copper tube type M only

② Do not use pipe dope. Use Teflon[®] tape only. Use with plastic fittings only.

③ Fits 1" Sch 40/80 PVC, CPVC pipe. Requires 1" pipe coupling.

④ Length includes end fittings.

Example: Polysulfone model = H 624 - 704 Radel[®] R model = H 624 - 704 -R

EZ-View[®] flow meters

For oil and water

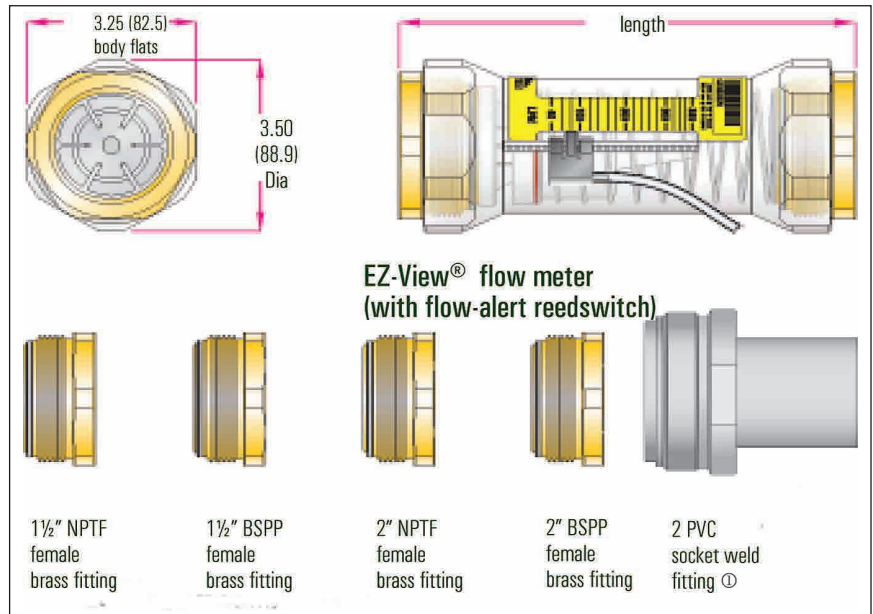
- 1½ to 2 inch ports
- No special piping or flow straighteners needed
- EZ to install, in any position
- No electrical connections
- Direct reading indication
- Accuracy within ±5% full scale
- Relatively insensitive to shock and vibration

Technical data

| | |
|---------------------------|--|
| Materials | Radel [®] R plastic body; polysulfone piston and cone T300-series stainless spring Buna N flow indicator ring and pressure seals 360 Brass or PVC fittings Polypropylene limit indicators |
| Fittings / threads | NPT ANSI/ASME B1.20.1, BSPP ISO228 See ordering information table next page. |
| Temperature range | 0 °C to +121 °C (+32 °F to +250 °F) |
| Pressure rating | 325 psi / 22.4 bar maximum |
| Pressure drop | See differential pressure chart |
| Accuracy | ±5% of full scale |
| Repeatability | ±1% |
| Dimensions | See ordering information table next page. |



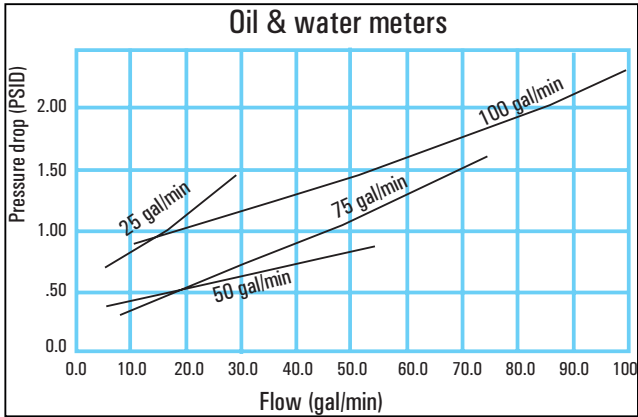
EZ-View[®] with Radel[®] R body



①Meters with type 1 PVC fittings: Pressure rating per normal PVC system specifications.
Temperature range 0 °C to +60 °C (+32 °F to +140°F)

EZ-View[®] flow meters

For oil and water



Ordering information

| Fluid media | Flow range | | 1½" NPTF female, brass fitting | 1½" BSPP female, brass fitting | 2" NPTF female, brass fitting | 2" BSPP female, brass fitting | 2" PVC socket weld fitting ^① |
|-------------------|-----------------------------|----------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|---|
| | gal/min | l/min | | | | | |
| Oil 0.876 s.g. | 2 – 25 | 10 – 95 | H615-125-R | H616-125-R | H617-125-R | H618-125-R | |
| | 5 – 50 | 20 – 190 | H615-150-R | H616-150-R | H617-150-R | H618-150-R | |
| | 7 – 75 | 30 – 280 | H615-175-R | H616-175-R | H617-175-R | H618-175-R | |
| | 10 – 100 | 40 – 380 | H615-110-R | H616-110-R | H617-110-R | H618-110-R | |
| Water 1.0 s.g. | 2 – 25 | 10 – 95 | H615-025-R | H616-025-R | H617-025-R | H618-025-R | H619-025-R |
| | 5 – 50 | 20 – 190 | H615-050-R | H616-050-R | H617-050-R | H618-050-R | H619-050-R |
| | 7 – 75 | 30 – 280 | H615-075-R | H616-075-R | H617-075-R | H618-075-R | H619-075-R |
| | 10 – 100 | 40 – 380 | H615-010-R | H616-010-R | H617-010-R | H618-010-R | H619-010-R |
| Dimensions | Length ^② in (mm) | | 8.72 (221.5) | 8.72 (221.5) | 8.72 (221.5) | 8.72 (221.5) | 11.48 (291.6) |
| | Fitting Flats in (mm) | | 3.00 (76.2) | 3.00 (76.2) | 3.00 (76.2) | 3.00 (76.2) | N/A |
| | Weight lb (kg) | | 4.10 (1.86) | 4.10 (1.86) | 3.10 (1.41) | 3.10 (1.41) | 1.70 (0.77) |

① Fits 2" Sch 40/80 PVC, CPVC pipe.

② Length includes end fitting.

EZ-View[®] flow meters

With Flow-Alert flow switch

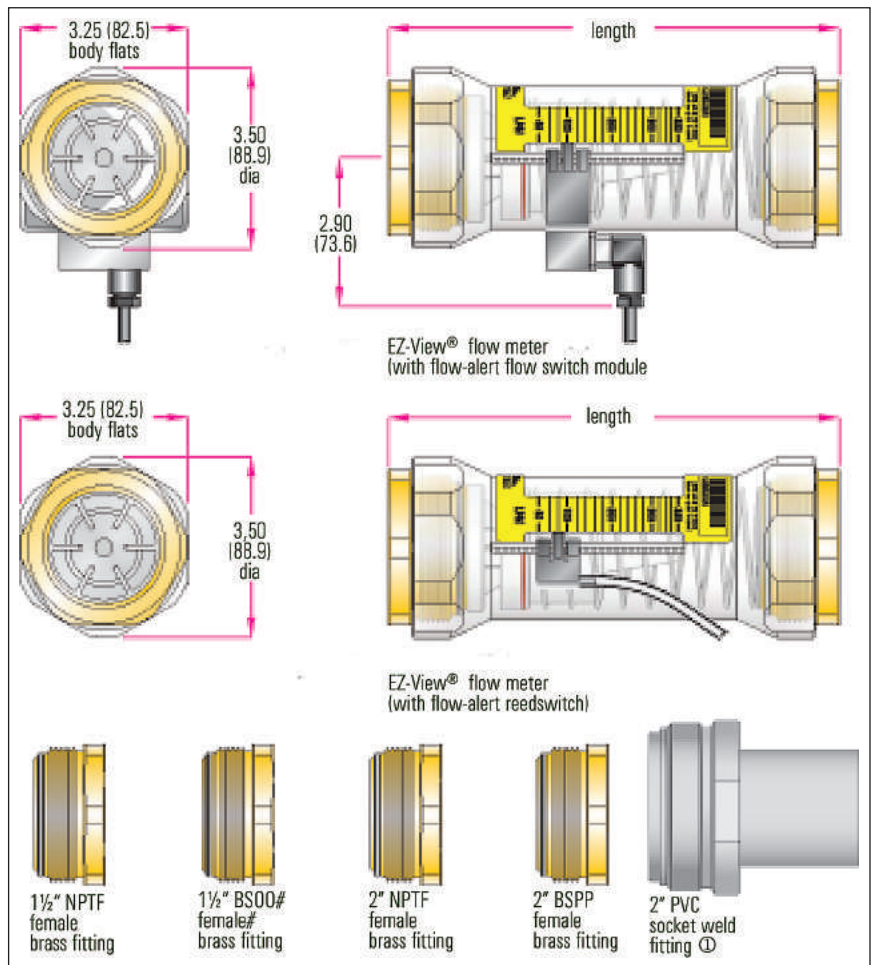
- Reed switch and latching models
- Automatically signals alarm, if flow is too high or too low
- Models available for AC or DC power supply
- Latching model includes Hirschmann type electrical connector
- Easy to install
- Easy flow limit adjustment
- Operates in any position
- Relatively insensitive to shock and vibration
- Repeatability within $\pm 1\%$
- Low cost

Technical data

| | |
|---------------------------|---|
| Materials | Radel [®] R plastic body; polysulfone piston and cone T300-series stainless spring Buna N flow indicator ring and pressure seals C360 brass or PVC fittings Polypropylene limit indicators Strontium ferrite magnet |
| Fittings / threads | NPT ANSI/ASME B1.20.1, BSPP ISO228 See ordering information table next page. |
| Temperature range | 0 °C to +121 °C (+32 °F to +250 °F) |
| Pressure rating | 325 psi / 22.4 bar maximum |
| Pressure drop | See differential pressure chart, page 62. |
| Accuracy | $\pm 5\%$ of full scale |
| Repeatability | $\pm 1\%$ |
| Dimensions | See ordering information table next page. |



EZ-View[®] with Radel[®] R body



① Meters with type 1 PVC fittings: Pressure rating per normal PVC system specifications. Temperature range 0 °C to +60 °C (+32 °F to +140 °F)

EZ-View[®] flow meters

With Flow-Alert flow switch

Flow switch options and specifications

The AC and DC powered Flow-Alert flow switch modules consist of a latching relay circuit housed in a sealed polypropylene enclosure. The modules have a normally open dry relay contact that can be used to directly control alarms, warning lights, relays or be used to interface to a PLC. The relay will be latched on as the magnet inside the flow meter passes by the module, and remain latched on until the magnet passes in the other direction or power is interrupted. The set point is adjustable from 0 to 100 % of full scale.

The reed switch Flow-Alert modules are housed in a sealed polypropylene enclosure. The reed switch module does not provide the latching function like the AC and DC powered units. When the magnet inside the flow meter comes within proximity of the module, the reed switch will change state. The set point is adjustable from 0 to 100 % full scale. Two reed switches providing low flow and high flow set points may be installed on a single flow meter.

| | AC latching | DC latching |
|-----------------------|---|---|
| Operating voltage | 115 VAC ± 10% | 10-30 VDC |
| Operating current | 25 mA maximum | 25 mA maximum |
| Contact rating | 1A @ 30 VDC 0.5A @ 125 VAC Resistive load | 1A @ 30 VDC 0.5A @ 125 VAC Resistive load |
| Operating temperature | +32 to +158 °F (0 to +70 °C) | +32 to +158 °F (0 to +70 °C) |
| Connector | 4-pin connector (protection class IP65) | 4-pin connector (protection class IP65) |
| Cable | Not included | Not included |
| Rating | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) |
| Certification | N/A | EMC directive 89/336/EEC |
| Model number | H526-004 | H526-006 |

| Reed switch form-A normally open (NO) | Reed switch form-B normally closed (NC) | Reed switch form-C |
|--|---|---|
| - | - | - |
| - | - | - |
| 1A max 200 VDC max 15 watts max Resistive load | 0.25A max 175 VDC max 5 Watts max Resistive load | 0.25A max 175 VDC max 5 watts max Resistive load |
| +32 to +250 °F (0 to +121 °C) | +32 to +250 °F (0 to +121 °C) | +32 to +250 °F (0 to +121 °C) |
| - | - | - |
| 3 foot, 2-wire #24 AWG black PVC Jacketed pig-tail | 3 foot, 2-wire #20 AWG grey PVC Jacketed pig-tail | 3 foot, 3-wire #24 AWG grey PVC Jacketed pig-tail |
| NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) | NEMA 12 & 13 (IP65) |
| EMC directive 89/336/EEC | EMC directive 89/336/EEC | EMC directive 89/336/EEC |
| H526-008-NO | H526-008-NC | H526-008 |

Note: Flow switches and flow meters sold separately

Ordering information

| Fluid media | Flow range | | 1½" NPTF female, brass fitting | 1½" BSPP female, brass fitting | 2" NPTF female, brass fitting | 2" BSPP female, brass fitting | 2" PVC socket weld fitting ^① |
|-------------------|-----------------------------|----------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|---|
| | gal/min | l/min | | | | | |
| Oil 0.876 s.g. | 2 – 25 | 10 – 95 | H615-725-R | H616-725-R | H617-725-R | H618-725-R | |
| | 5 – 50 | 20 – 190 | H615-750-R | H616-750-R | H617-750-R | H618-750-R | |
| | 7 – 75 | 30 – 280 | H615-775-R | H616-775-R | H617-775-R | H618-775-R | |
| | 10 – 100 | 40 – 380 | H615-710-R | H616-710-R | H617-710-R | H618-710-R | |
| Water 1.0 s.g. | 2 – 25 | 10 – 95 | H615-625-R | H616-625-R | H617-625-R | H618-625-R | H619-625-R |
| | 5 – 50 | 20 – 190 | H615-650-R | H616-650-R | H617-650-R | H618-650-R | H619-650-R |
| | 7 – 75 | 30 – 280 | H615-675-R | H616-675-R | H617-675-R | H618-675-R | H619-675-R |
| | 10 – 100 | 40 – 380 | H615-610-R | H616-610-R | H617-610-R | H618-610-R | H619-610-R |
| Dimensions | Length ^② in (mm) | | 8.72 (221.5) | 8.72 (221.5) | 8.72 (221.5) | 8.72 (221.5) | 11.48 (291.6) |
| | Fitting Flats in (mm) | | 3.00 (76.2) | 3.00 (76.2) | 3.00 (76.2) | 3.00 (76.2) | N/A |
| | Weight lbs (kg) | | 4.10 (1.86) | 4.10 (1.86) | 3.10 (1.41) | 3.10 (1.41) | 1.70 (0.77) |

① Fits 2" Sch 40/80 PVC, CPVC pipe.

② Length includes end fitting.

Note: Flow switches and flow meters sold separately

EZ-View[®] flow meters

In-Line test kits

- Simultaneously monitors in-line flow & pressure
- Compact & self-contained
- Mounts in any position
- Easily carried in tool kit

Here is a convenient, low-cost diagnostic tool to help you check flow and pressure simultaneously. The EZ-View[®] in-line test kits were designed to measure flow from 0.5 to 28 GPM (2 to 106 l/min), and operating pressures up to 160 psi (11 bar).

This compact, self-contained unit is easy to install, and can be used as a permanent monitoring indicator, or as a temporary troubleshooting tool to help: Check pump leakage under load, verify proper flow, pressure or control settings, locate line restrictions, verify pressure drops and balance multi-line systems.



EZ-View[®] with Polysulfone body



EZ-View[®] with Radel[®] R body

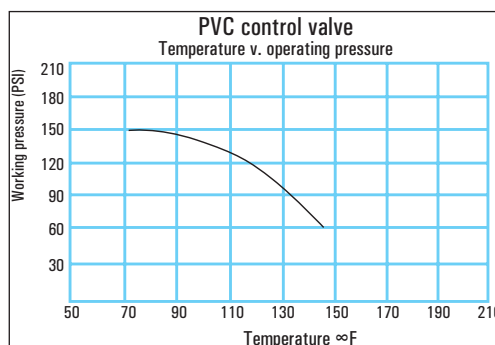
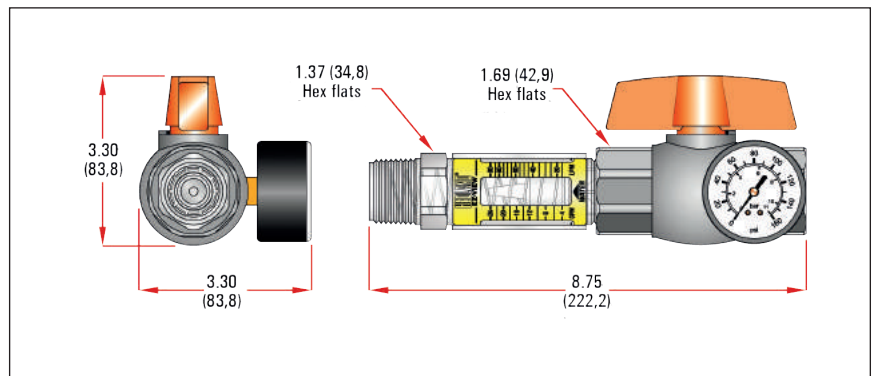
Ordering information

| Fluid media | Flow range | | 1" NPTF male/female fitting | |
|-------------------|------------|----------|-----------------------------|----------------------|
| | gal/min | l/min | Polysulfone | Radel [®] R |
| Oil 0.876 s.g. | 0.5 - 4 | 3 - 13 | H623-104 | H623-104-R |
| | 1.0 - 7 | 2 - 26 | H623-107 | H623-107-R |
| | 1.0 - 10 | 5 - 40 | H623-110 | H623-110-R |
| | 1.0 - 16 | 5 - 60 | H623-116 | H623-116-R |
| | 3.0 - 18 | 10 - 70 | H623-118 | H623-118-R |
| Water 1.0 s.g. | 4.0 - 28 | 20 - 100 | H623-128 | H623-128-R |
| | 0.5 - 4 | 3 - 16 | H623-004 | H623-004-R |
| | 2.0 - 7 | 4 - 26 | H623-007 | H623-007-R |
| | 2.0 - 10 | 5 - 35 | H623-010 | H623-010-R |
| | 6.0 - 16 | 5 - 60 | H623-016 | H623-016-R |
| | 4.0 - 18 | 15 - 65 | H623-018 | H623-018-R |
| | 4.0 - 28 | 20 - 100 | H623-028 | H623-028-R |

Weight lbs (kg) 0.80 (0.36)

Technical data

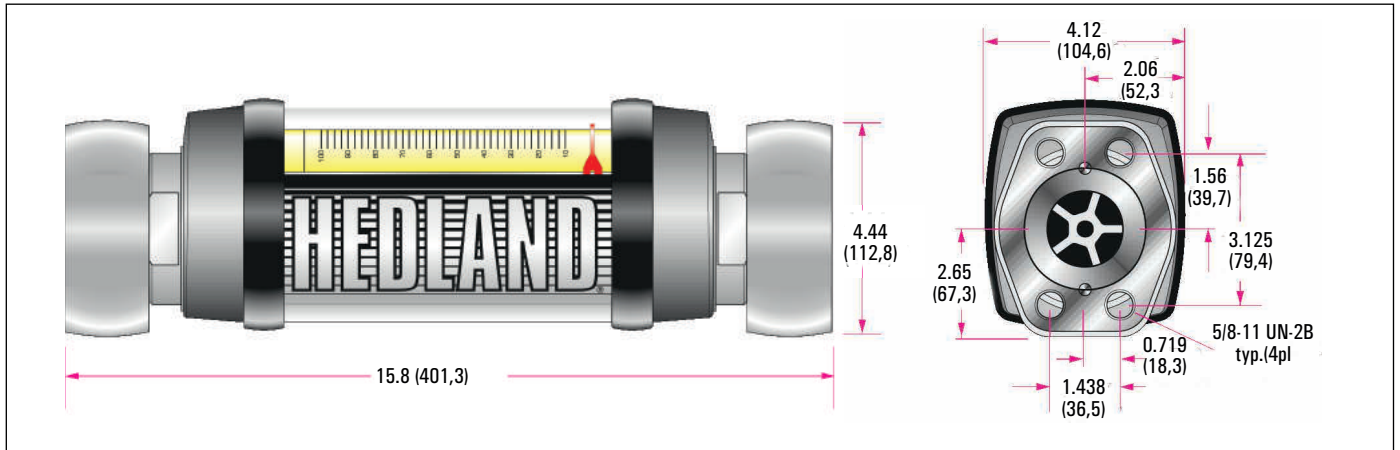
| | |
|----------------------------|--|
| Materials | Polysulfone plastic body, piston and cone Radel [®] R plastic body and cone, polysulfone piston |
| Common parts | |
| Spring | T300-series stainless |
| Indicator ring | Buna N |
| Pressure seals | Buna N |
| Fittings | C360 brass, PVC, or T303 stainless steel |
| Limit indicators | Polypropylene |
| Retaining ring | PH15 - 7MO stainless |
| Optional (consult factory) | |
| Spring and retaining ring | Teflon [®] coated |
| Load valve | Polyvinyl chloride (PVC) - 1 body Polypropylene ball Teflon [®] ball seat Ethylene propylene (EPDM) O-ring |
| Fittings / threads | |
| Flow meter | NPT - 1 inch male / ANSI/ASME B1.20.1 |
| Load valve: | NPT - 1 inch female / ANSI/ASME B1.20.1 |
| Temperature range | 0 °C to +65 °C (+32 °F to +150 °F) |
| Pressure rating | 325 psi / 22.4 bar maximum |
| Pressure gauge | 0 to 160 psi (0 to 11.0 bar) with internal shock damp |
| Pressure drop | See differential pressure chart, page 62. |
| Accuracy | ±5% of full scale |
| Repeatability | ±1% |



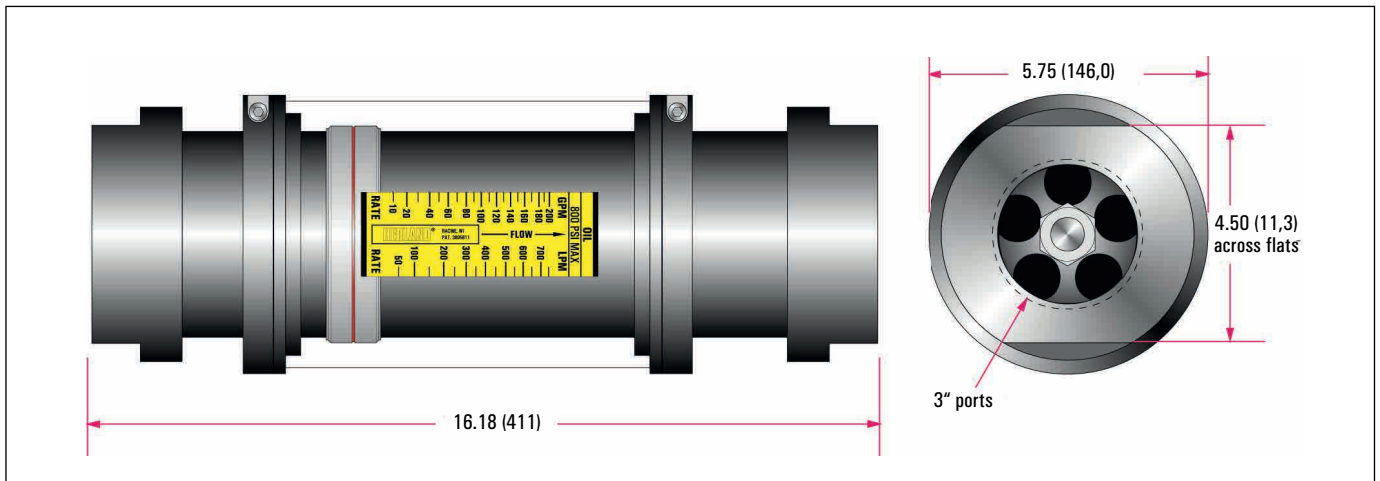
Dimensional information

For standard 1½ inch C62, 3 inch; SAE, NPTF, BSPP and 3 inch C61

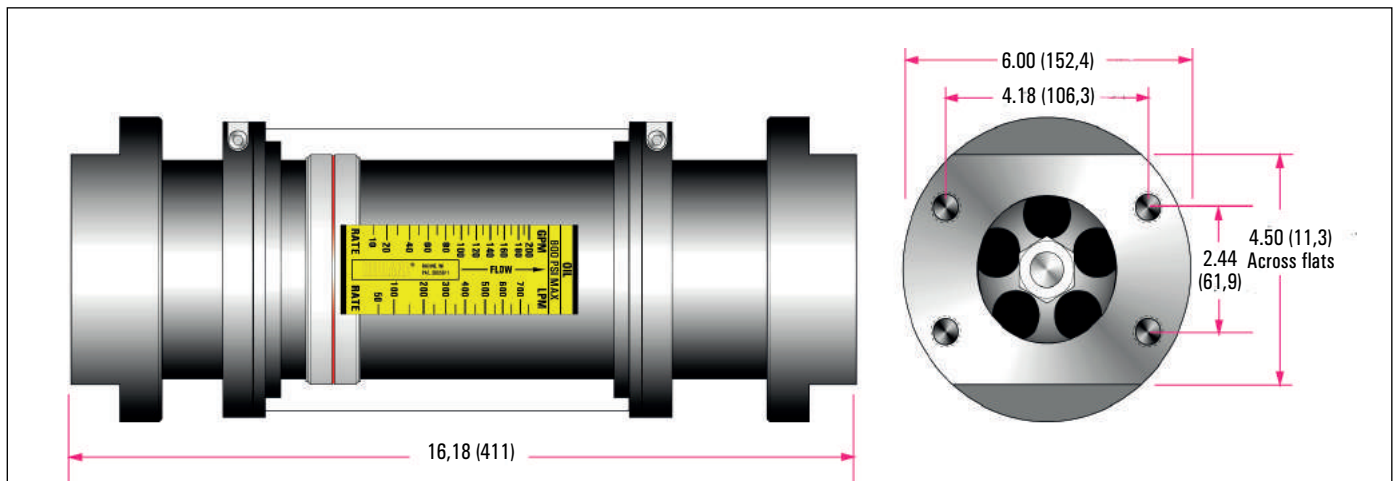
1½ inch; C62 flange - Inches (mm)



3 inch; NPTF, BSPP - Inches (mm)



3 inch; C61 flange - Inches (mm)



| Weights for all flow meter models | Aluminium with aluminum internals | Brass with brass internals | T303 SS with aluminum internals | T303 SS with brass internals | T316 SS with T316 SS internals | Hostile environment T316 SS with T316 internals lbs (kg) |
|--|---|----------------------------------|---------------------------------------|------------------------------------|--------------------------------------|--|
| | lbs (kg) | lbs (kg) | lbs (kg) | lbs (kg) | lbs (kg) | lbs (kg) |
| ¼" Standard meter | .55 (.25) | 1.05 (.48) | .9 (.41) | 1.05 (.48) | ~ | ~ |
| ¼" High temperature | 1.35 (.61) | 2.75 (1.25) | CF | 2.75 (1.25) | 2.75 (1.25) | ~ |
| ¼" API oil, caustic & corrosive liquids & gases | ~ | ~ | ~ | ~ | 3.00 (1.36) | 3.00 (1.36) |
| ¼" Pneumatic meter with extended cap | .7 (.32) | 1.6 (.73) | 1.5 (.68) | ~ | ~ | ~ |
| ¼" Pneumatic meter with extended cap with gauge | 1.2 (.55) | 2.1 (1.0) | 2.0 (.91) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 1.6 (.73) | 2.5 (1.2) | 2.3 (1.1) | ~ | ~ | ~ |
| ¼" Flow-Alert flow switch | 4.30 (1.95) | 5.65 (2.56) | 5.15 (2.34) | 5.50 (2.50) | 5.80 (2.63) | ~ |
| ¼" Flow transmitter | 4.25 (1.93) | 5.60 (2.54) | 5.10 (2.31) | 5.45 (2.47) | 5.75 (2.61) | ~ |
| ½" Standard meter | 1.25 (.57) | 2.60 (1.18) | 2.1 (.95) | 2.45 (1.11) | ~ | ~ |
| ½" Liquid test kit | 4.9 (2.2) | 5.7 (2.6) | 5.3 (2.4) | ~ | ~ | ~ |
| ½" High temperature | 1.35 (.61) | 2.75 (1.25) | CF | 2.75 (1.25) | 2.75 (1.25) | ~ |
| ½" API oil, caustic & corrosive liquids & gases | 3.0 (1.4) | ~ | ~ | ~ | 2.95 (1.34) | 2.95 (1.34) |
| ½" Pneumatic meter with extended cap | 2.1 (1.0) | 3.8 (1.7) | 3.3 (1.5) | ~ | ~ | ~ |
| ½" Pneumatic meter with extended cap with gauge | 2.7 (1.2) | 4.3 (2.0) | 3.8 (1.7) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 3.2 (1.5) | 4.8 (2.2) | 4.3 (2.0) | ~ | ~ | ~ |
| ½" Flow-Alert flow switch | 4.30 (1.95) | 5.65 (2.56) | 5.15 (2.34) | 5.50 (2.50) | 5.80 (2.63) | ~ |
| ½" Flow transmitter | 4.25 (1.93) | 5.60 (2.54) | 5.10 (2.31) | 5.45 (2.47) | 5.75 (2.61) | ~ |
| ¾" Standard meter | 2.0 (.9) | 4.0 (1.8) | 3.5 (1.6) | 3.9 (1.8) | ~ | ~ |
| ¾" Liquid test kit | 7.0 (3.2) | 9.0 (4.1) | 8.5 (3.9) | ~ | ~ | ~ |
| ¾" High temperature | 2.1 (1.0) | 4.40 (2.00) | 4.00 (1.81) | 4.40 (2.00) | 4.40 (2.00) | ~ |
| ¾" API oil, caustic & corrosive liquids & gases | ~ | ~ | ~ | ~ | 4.40 (2.00) | 4.6 (2.1) |
| ¾" Pneumatic meter with extended cap | 3.0 (1.4) | 6.6 (3.0) | 6.2 (2.8) | ~ | ~ | ~ |
| ¾" Pneumatic meter with extended cap with gauge | 3.5 (1.6) | 7.1 (3.2) | 6.7 (3.1) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 4.4 (2.0) | 7.9 (3.6) | 7.5 (3.4) | ~ | ~ | ~ |
| ¾" Flow-Alert flow switch | 4.95 (2.25) | 6.95 (3.15) | 6.60 (3.00) | 6.85 (3.11) | 7.35 (3.33) | ~ |
| ¾" Flow transmitter | CF | CF | CF | CF | CF | ~ |
| 1" Standard meter | 1.85 (.84) | 3.75 (1.70) | 2.7 (1.3) | 3.4 (1.5) | ~ | ~ |
| 1" Liquid test kit | 6.8 (3.1) | 8.7 (4.0) | 7.7 (3.5) | ~ | ~ | ~ |
| 1" High temperature | 3.0 (1.4) | 4.40 (2.00) | 4.00 (1.81) | 4.40 (2.00) | 4.40 (2.00) | ~ |
| 1" API oil, caustic & corrosive liquids & gases | ~ | ~ | ~ | ~ | 4.40 (2.00) | 4.60 (2.10) |
| 1" Pneumatic meter with extended cap | 2.8 (1.3) | 6.3 (2.9) | 5.4 (2.5) | ~ | ~ | ~ |
| 1" Pneumatic meter with extended cap with gauge | 3.3 (1.5) | 6.8 (3.1) | 5.9 (2.7) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 4.2 (1.9) | 7.6 (3.5) | 6.7 (3.1) | ~ | ~ | ~ |
| 1" Flow-Alert flow switch | 4.95 (2.25) | 6.85 (3.11) | 5.80 (2.63) | 6.50 (2.95) | 7.50 (3.40) | ~ |
| 1" Flow transmitter | CF | CF | CF | CF | CF | ~ |
| 1¼" Standard meter | 7.3 (3.3) | 16.8 (7.6) | 14.6 (6.6) | 16.8 (7.6) | ~ | ~ |
| 1¼" Liquid test kit | 18.7 (8.5) | 28.2 (12.8) | 26.0 (11.8) | ~ | ~ | ~ |
| 1¼" High temperature | 9.6 (4.4) | 21.40 (9.71) | CF | 21.40 (9.71) | 21.40 (9.71) | ~ |
| 1¼" API oil, caustic & corrosive liquids & gases | ~ | ~ | ~ | ~ | 21.40 (9.71) | CF |
| 1¼" Pneumatic meter with extended cap | 9.9 (4.5) | 24.3 (11.0) | 21.1 (9.6) | ~ | ~ | ~ |
| 1¼" Pneumatic meter with extended cap with gauge | 10.4 (4.7) | 24.8 (11.2) | 21.7 (9.8) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 12.5 (5.7) | 27.0 (12.3) | 23.8 (10.8) | ~ | ~ | ~ |
| 1¼" Flow-Alert flow switch | 13.55 (6.15) | 23.05 (10.46) | 20.85 (9.46) | 23.05 (10.46) | 27.65 (12.54) | ~ |
| 1¼" Flow transmitter | CF | CF | CF | CF | CF | ~ |
| 1½" Standard meter | 7.3 (3.3) | 16.4 (7.5) | 14.1 (6.4) | 15.8 (7.2) | ~ | ~ |
| 1½" Standard meter with C62 flange | 19.0 (8.6) | 28.2 (12.8) | 25.8 (11.7) | ~ | ~ | ~ |
| 1½" Liquid test kit | 18.7 (8.5) | 27.8 (12.6) | 25.5 (11.6) | ~ | ~ | ~ |
| 1½" High temperature | 9.6 (4.4) | 21.40 (9.71) | CF | 21.40 (9.71) | 21.40 (9.71) | ~ |
| 1½" High temperature with C62 flange | CF | 21.8 (9.9) | CF | CF | CF | ~ |
| 1½" API oil, caustic & corrosive liquids & gases | ~ | ~ | ~ | ~ | 21.40 (9.71) | CF |
| 1½" Pneumatic meter with extended cap | 9.9 (4.5) | 23.9 (10.8) | 20.6 (9.4) | ~ | ~ | ~ |
| 1½" Pneumatic meter with extended cap with gauge | 10.4 (4.7) | 24.4 (11.1) | 21.2 (9.6) | ~ | ~ | ~ |
| Test kit with extended cap/gauge/valve | 12.5 (5.7) | 26.6 (12.1) | 23.3 (10.6) | ~ | ~ | ~ |
| 1½" Flow-alert flow switch | 13.55 (6.15) | 22.65 (10.27) | 20.35 (9.23) | 22.05 (10.00) | 27.65 (12.54) | ~ |
| 1½" Flow transmitter | CF | CF | CF | CF | CF | ~ |
| 3" Standard meter | 17.5 (8.0) | 52.5 (23.8) | ~ | ~ | ~ | ~ |
| 3" Standard meter with C61 flange | 20.0 (9.1) | 55.0 (25.0) | ~ | ~ | ~ | ~ |

~ : Not available as standard option

CF: Consult factory for weights



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