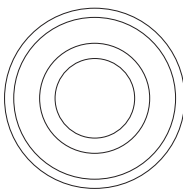


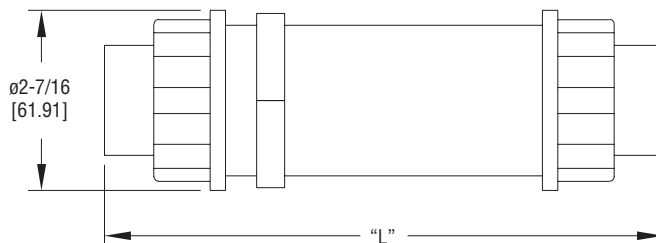


## Series HFPC & HFPS Plastic Flow Meters

### Specifications - Installation and Operating Instructions



| METER SIZE | DIM "L"          |
|------------|------------------|
| 1/2 MALE   | 7-11/16 [195.26] |
| 1/2 FEMALE | 7-5/32 [181.76]  |
| 3/4 MALE   | 8-1/32 [204.00]  |
| 3/4 FEMALE | 7-9/16 [192.09]  |
| 1 MALE     | 8-3/32 [205.58]  |
| 1 FEMALE   | 7-9/16 [192.09]  |



The New HFPC & HFPS Series Flowmeters are made of injection molded, polycarbonate and polysulfone bodies. Series HFPC and HFPS flowmeters have dual scales measuring in both GPM and LPM with  $\pm 5\%$  full scale accuracy. Models are available with 1/2", 3/4" or 1" male or female NPT connections. Female 1/2", 3/4" and 1" BSPP connections are also available. Rugged construction allows these meters to handle maximum pressures of 325 PSIG and 200 F. Units can be mounted in any position, even applications with downward flow.

**CAUTION:** Series HFPC & HFPS Flowmeters are for indoor use only or areas without direct sunlight. Polycarbonate & polysulfone are adversely affected by ultraviolet light.

#### INSTALLATION

The casing and union retainers are made of either Polycarbonate or Polysulfone materials permitting use with a variety of media. Use of mild detergent to clean the meter body is encouraged to prevent damaging the label or associated components.

The meters are mounted in-line and are direct reading. The meters can be mounted in a vertical or horizontal position as long as the fluid is flowing in the direction of the arrow on the flow scale. No straight pipe is required before or after the meter. In fact, 90° elbows can be installed on both ends without any noticeable flow variation. When installing a meter, apply "Plumbers Tape" or "Liquid Plumber's Sealant" on pipe threads. If tape is used, be sure to leave 1/8" (3 mm) of pipe thread exposed on end of pipe. Position filter in front of meter and in a location that allows easy access for routine maintenance.

The meter should not be mounted in a manner such that piping misalignment or other system components can exert force or produce a bending moment on the pressure vessel.

To retain accuracy and repeatability internal moving parts are closely toleranced and require filtration of at least 74 micron or a 200 mesh screen. When installing meters onto threaded pipe caution should be taken not to over tighten the pipe connections or introduce torque on the main body of the meter. The meter main body may rupture if over-tightened.

#### SPECIFICATIONS

**Service:** Compatible liquids.

**Wetted Materials:** HFPC: Polycarbonate body, Buna-N seals, Stainless Steel spring, Polysulfone connections. HFPS: Polysulfone body, Buna-N seals, Stainless Steel spring, Polysulfone connections.

**Maximum Pressure:** 325 PSIG (22.4 bar).

**Maximum Temperature:** HFPC: 200° F (93° C) HFPS: 250° F (121° C).

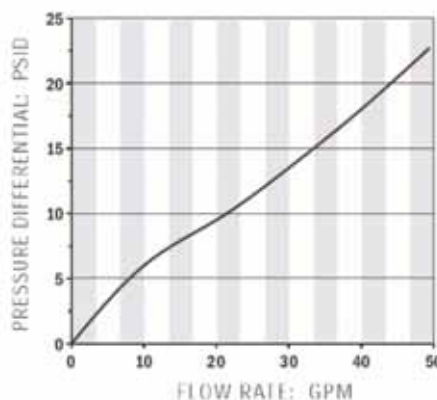
**Accuracy:**  $\pm 5\%$  FS.

**Repeatability:**  $\pm 1\%$  FS.

**Pressure Loss:** See chart.

**Weight:** Standard models 1 lb (453.6 g). Models with optional brass connections 2 lb (907 g).

TYPICAL PRESSURE DIFFERENTIAL



## INSTALLATION DOS AND DON'TS

To obtain satisfactory operation from a HFPC & HFPS meters, the following points should be considered:

### DO:

- install a pressure gauge near the inlet of the meter
- place throttling valves at the outlet of the meter
- use pipe sealer on the connections
- install solenoid valves at meter outlet (as far downstream as possible)
- mount in any orientation: vertical, horizontal or upside down

### DO NOT:

- place restrictions between the meter's pressure gauge meter inlet
- use in systems where reverse flow is possible
- place meter in non-aligned piping
- over-flow the meter by more than 150% of maximum reading
- operate at pressures and temperatures greater than specified
- be mounted near hot pipes or equipment which can cause damage to the pressure vessel
- use in systems where the assembled piping is not supported. Externally applied piping forces may cause the meter to rupture or malfunction.

## OPERATION

The meters are tubular, with all internal wetted parts sealed within the body casing (5). Running through the center of the body casing is a tapered center shaft which is centered in the bore. Encircling the shaft is a sharp-edged, floating metering poppet (6). The metering poppet is held in the "no flow" position by the biased return spring (4). As the flow moves through the meter it creates a pressure differential across the floating orifice disk, forcing the disk and transfer magnet against the return spring. As flow increases, the pressure differential across the metering poppet increases, forcing poppet to move along the tapered center shaft. As flow decreases, the biased return spring forces the poppet down the tapered center shaft, returning to the "no flow" position.

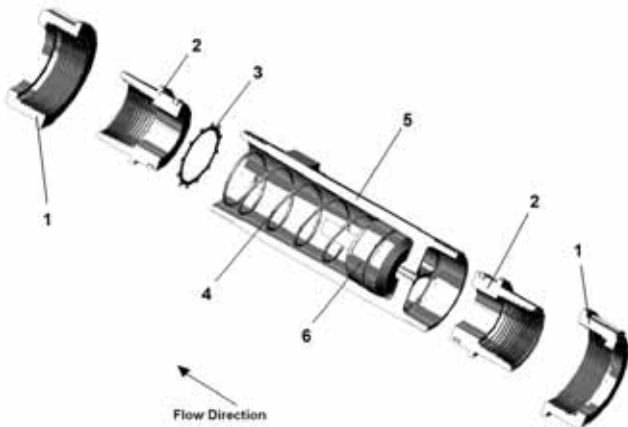


Figure 1 (Flow Meter Cross Section)

## Reading the Meter

Notice the black reference line which runs 360° around the metering poppet. This reference line moves under the scale in direct relation to the movement of the poppet. When fluid is flowing, the flow rate through the meter is read by lining up the black reference line with the closest rate line on the flow scale.

## Specific Gravity or Density Effect

Standard meters are calibrated for WATER with a specific gravity of 1.0. The floating disk meter is affected by fluid density as are most other similar type meters. HFPC & HFPS meters have less of this effect because of the sharpness of the floating orifice disks being used. The indicated flow reading will read high for heavier fluids and low for lighter fluids. A corrective factor can be applied to the standard scale or a special scale can be added at additional costs. When measuring fluids with other specific gravities, the basic equation below can be used to develop corrected readings.

For WATER Meters use:  $\sqrt{1.0/\text{Specific Gravity}} \times \text{scale reading}$

## CONTAMINATION AND FILTRATION

### Recommended Filtration

System filtration of at least a 74 micron filter or a 200 mesh screen is recommended. It has been found that if inadequate filtration has caused meter failure, it will normally fail in the open position. Some systems may require a magnetic filter. IMPORTANT: Meter damage caused by excessive contamination is not covered under warranty.

### Stabilized Contamination

The goal of filtration is to create effective protection from system contamination. Proper filtration stabilizes contamination to allow fluid components to function properly. A fluid system is considered stabilized when, "contamination in" equals "contamination out". Proper filtration must reduce initial contamination to a stabilized level within an acceptable time period. The system should be stabilized in time to prevent premature wear or damage to meter components.

## MAINTENANCE

Upon final installation of the Series HFPC and HFPS Plastic Flow Meters, no routine maintenance is required. A periodic check of the system calibration is recommended. The Series HFPC and HFPS is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.