



# Assembly Solutions

Johnstone Dispensing Systems

364-412 1/4 NPT

## High Pressure Flowmeters

### Description

The patented, highly accurate Ingersoll-Rand HP-I Series positive displacement flowmeter is ideal for liquid flow applications where process pressure is above 1,000 psig. Applications may include hydraulics, polymers, polyurethanes, plastics, and adhesives.

### Features

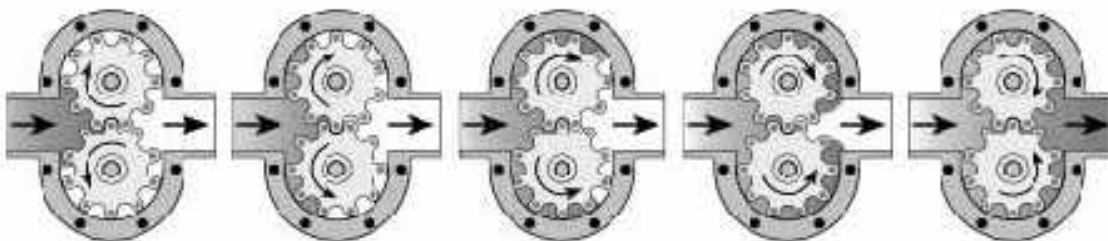
- Up to 3,000 psig operating pressure
- 1/8" to 2" line sizes, larger sizes available
- Reference accuracy  $\pm 0.05\%$  of rate
- Only two moving parts
- Bearingless design
- Easy to install and maintain
- Handles viscosities up to 1,000,000 cP
- Operating temperatures up to 400° F (204° C)
- Wide range of applications
- Non-intrusive sensor
- Up to 1000:1 turndown
- Handles pulsating flow



**HP-I Series**  
High Pressure Flowmeters

Protected by one or more U.S. Patents:  
4611522, 4813318, 4913010, 4996888, 5027653, Patents Pending

### Principle of Operation



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



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Ingersoll-Rand  
1872 Enterprise Drive  
Rochester Hills MI 48309

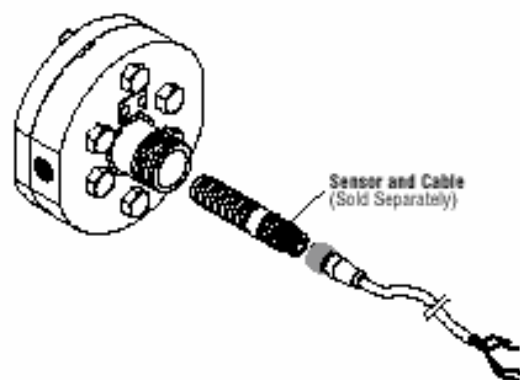
Phone (248) 293-5700  
Tech Support (866) 284-5509

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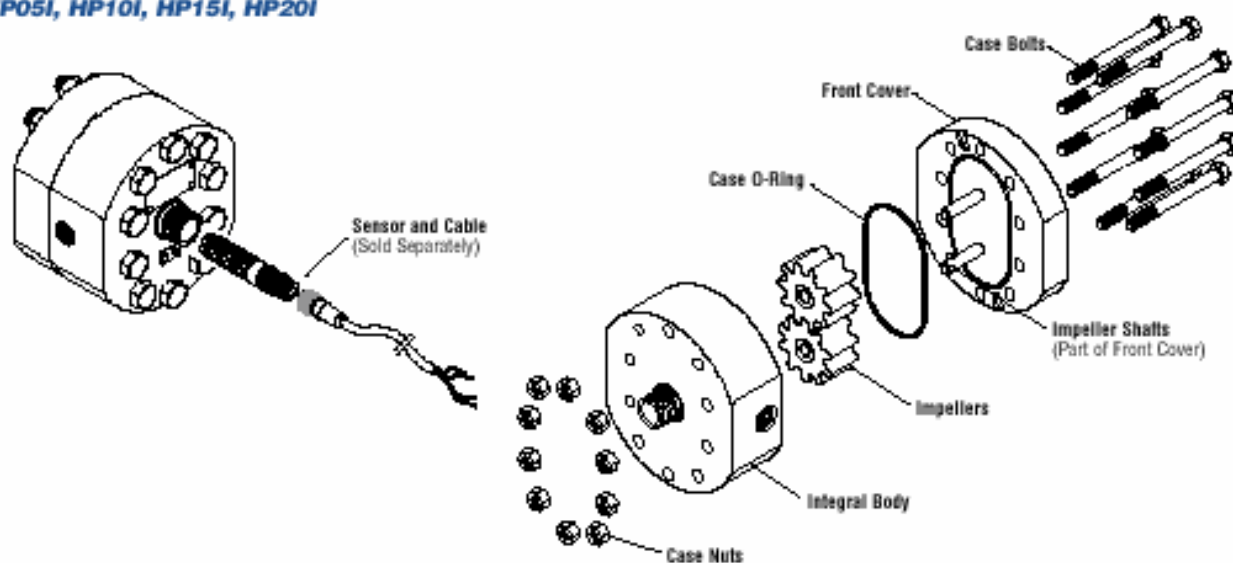
## Flowmeter Assembly Diagrams

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HP01I, HP02I

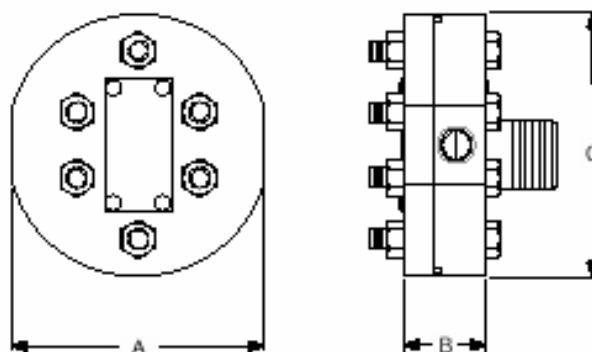


HP05I, HP10I, HP15I, HP20I



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## Dimensions



## Specifications

### Process Temperature

Up to 400° F (204° C) (Based on impeller materials)  
Temperatures above 100° F (8° C) reduce pressure rating - consult factory.

### Operating Pressure

Standard 3,000 psi (20.68 MPa)  
(For higher pressure rating, see BL series product sheet)

### Turndown Ratio

(Ratios based on maximum rated flow)

Low viscosity fluids 10:1 standard  
Medium viscosity fluids 100:1  
High viscosity fluids Up to 1000:1

### Repeatability (Reference Accuracy)

±0.05% of rate

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

### Accuracy (Linearity)

Typical ±0.5% of rate over upper 80% of full span  
With enhanced signal conditioning Up to ±0.1% of rate over full turndown range

### Output

(Refer to individual product sheets for complete specifications)  
Sensors (1 required per meter)  
Hall Effect Sensor: 5-24 VDC square-wave pulse depending on supply voltage, 3 wire

Signal Conditioners and Transmitters

Refer to individual product sheets, available from Flow Technology

### Materials of Construction

Integral Body (Case), Cover(s) 316 stainless steel, standard  
Other materials available  
Shafts 316 stainless steel, standard  
Tungsten Carbide, optional  
Impellers See Flowmeter Ordering on last page  
O-Rings Viton® or Teflon® standard  
Other materials available  
Bolts and Nuts Zinc Plated Grade 8, standard  
Other materials and plating available

Scale factor cc per pulse = 0.0079

## Model Specifications

| Basic Model No. | Nominal Meter Size | Standard Connection | Maximum Flow Rate |       | Recommended Mesh Size | Weight |     |
|-----------------|--------------------|---------------------|-------------------|-------|-----------------------|--------|-----|
|                 |                    |                     | GPM               | L/min |                       | lbs    | kg  |
| HP02I           | 1/4"               | 1/4" NPT            | 3                 | 11.4  | 100                   | 8      | 3.6 |

## Dimensions

| Basic Model No. | A      |    | B      |    | C      |     |
|-----------------|--------|----|--------|----|--------|-----|
|                 | Inches | mm | Inches | mm | Inches | mm  |
| HP02I           | 3.8    | 97 | 1.8    | 46 | 4.0    | 102 |