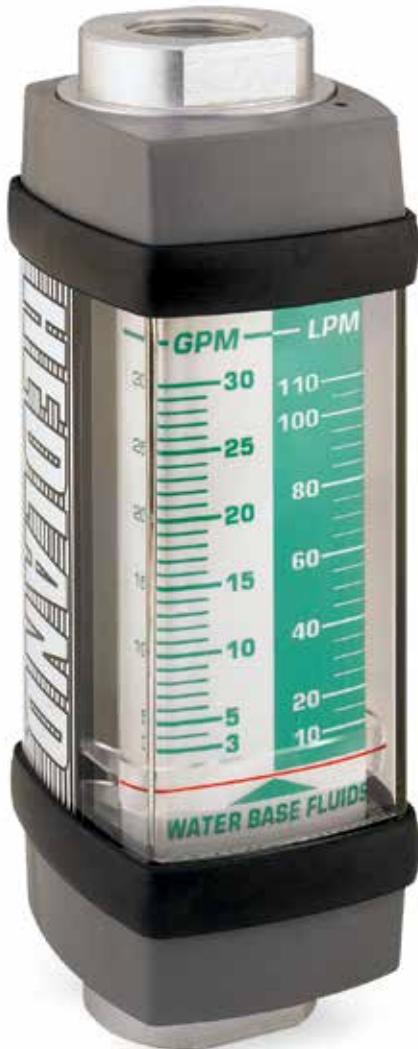


# 3500/6000 PSI Flow Meters

## 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 240 °F
- Accuracy  $\pm 2\%$  full scale
- Repeatability  $\pm 1\%$
- Special scales available
- Calibrated for 1.0 S.G.
- For 80/20 and other water/oil emulsions



### SPECIFICATIONS:

#### MATERIALS:

2024 - T351 Anodized aluminum body, piston and cone

C360 Brass body, piston and cone<sup>®</sup>

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<sup>®</sup>

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, **Code 61** and **Code 62:** SAE J518

**TEMPERATURE RANGE:** -20 to +240 °F (-29 to +116 °C) for higher temp. meters, see page 31.

#### 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 7

**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 7

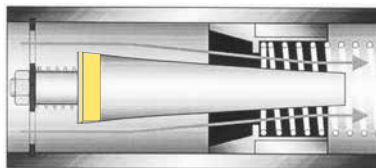
**PRESSURE DROP:** See Ordering Information Table, page 26.

For detailed differential pressure charts, see page 63.

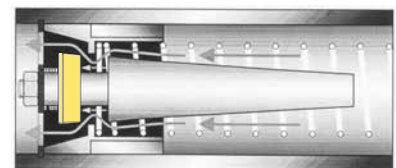
**ACCURACY:**  $\pm 2\%$  of full scale,  $\pm 7\%$  of full scale for ¼" meters **REPEATABILITY:**  $\pm 1\%$

**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:

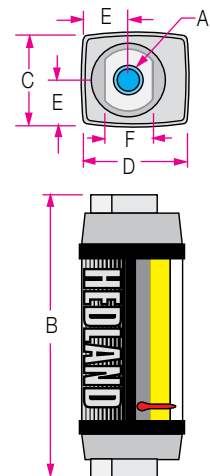
| A                 | B              | C             | D             | E              | F             |
|-------------------|----------------|---------------|---------------|----------------|---------------|
| NOMINAL PORT SIZE | LENGTH in (mm) | WIDTH in (mm) | DEPTH in (mm) | OFFSET in (mm) | FLATS 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 1½" Code 62, 3" and 3" Code 61 can be found on page 78.

Weights for all sizes can be found on page 79.

<sup>®</sup>3 inch models have Celcon<sup>®</sup> piston/piston ring

Celcon is a registered trademark of Hoechst Celanese Corp. Viton is a registered trademark of DuPont Dow Elastomers



# Flow-Alert™ Flow Switches and Flow Transmitters For Water-based Fluids (Water/Oil Emulsions)

## ORDERING INFORMATION:

| NOMINAL<br>PORT<br>SIZE <sup>①</sup> | FLOW RANGE |            | MODEL NUMBER (see example below)                                                                                                                                                     |                                                                                                                                                                                      |                                                                                                                                                                                          | MATERIAL             |                   |           | OPTIONS                              |                                  |                           |
|--------------------------------------|------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------|-----------|--------------------------------------|----------------------------------|---------------------------|
|                                      | GPM        | LPM        | SAE                                                                                                                                                                                  | NPTF                                                                                                                                                                                 | BSPP                                                                                                                                                                                     | ALUMINUM<br>3500 PSI | BRASS<br>3500 PSI | STAINLESS | Flow-Alert<br>1 SWITCH /<br>2 SWITCH | Flow-Alert<br>REED SWITCH        | MULTIPLE<br>OUTPUT SENSOR |
| <b>¼" SAE 6</b>                      | .02 - 0.2  | 0.1 - 0.75 | H212  - 002 -      | H213  - 002 -      | H214  - 002 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | Not Available                        | <b>SEE<br/>OPTIONS<br/>BELOW</b> | Not Available             |
|                                      | .05 - 0.5  | 0.2 - 1.9  | H212  - 005 -      | H213  - 005 -      | H214  - 005 -      |                      |                   |           |                                      |                                  |                           |
| <b>¼" SAE 6</b>                      | 0.1 - 1.0  | 0.5 - 3.75 | H212  - 010 -      | H213  - 010 -      | H214  - 010 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 0.2 - 2.0  | 1.0 - 7.5  | H212  - 020 -      | H213  - 020 -      | H214  - 020 -      |                      |                   |           |                                      |                                  |                           |
| <b>½" SAE 10</b>                     | 0.1 - 1.0  | 0.5 - 3.75 | H612  - 001 -      | H613  - 001 -      | H614  - 001 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 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 -      |                      |                   |           |                                      |                                  |                           |
| <b>¾" SAE 12</b>                     | 0.2 - 2.0  | 1 - 7.5    | H712  - 002 -      | H713  - 002 -      | H714  - 002 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 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 -      |                      |                   |           |                                      |                                  |                           |
| <b>1" SAE 16</b>                     | 0.2 - 2.0  | 1 - 7.5    | H782  - 002 -      | H783  - 002 -      | H784  - 002 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 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 -      |                      |                   |           |                                      |                                  |                           |
| <b>1¼" SAE 20</b>                    | 3 - 30     | 10 - 110   | H812  - 030 -      | H813  - 030 -      | H814  - 030 -      | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 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 -  |                      |                   |           |                                      |                                  |                           |
| <b>1½" SAE 24</b>                    | 3 - 30     | 10 - 110   | H882  - 030 -  | H883  - 030 -  | H884  - 030 -  | <b>A</b>             | <b>B</b>          | <b>S</b>  | <b>F1/F2</b>                         |                                  | <b>MR</b>                 |
|                                      | 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.

(example) **H 713 A - 030 - F1** or **F2**



### Flow-Alert Flow Switches

F1 = Single Switch  
F2 = Double Switch

(example) **H 713 A - 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  
0-10 VDC } and 20 mA (5/10 VDC) at full flow. Optional 5-point calibration certificate available  
4-20 mA } (see Price and Availability Digest for details).

(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.

**NOTE:** For 50% and 100% flow/pressure drop information, see page 32.  
For detailed flow/pressure drop charts, see page 63.