

# HEDLAND®



## *In-Line Flow Meters*

Improve your productivity,  
reduce maintenance costs  
through reliable flow  
metering and process  
control technology.



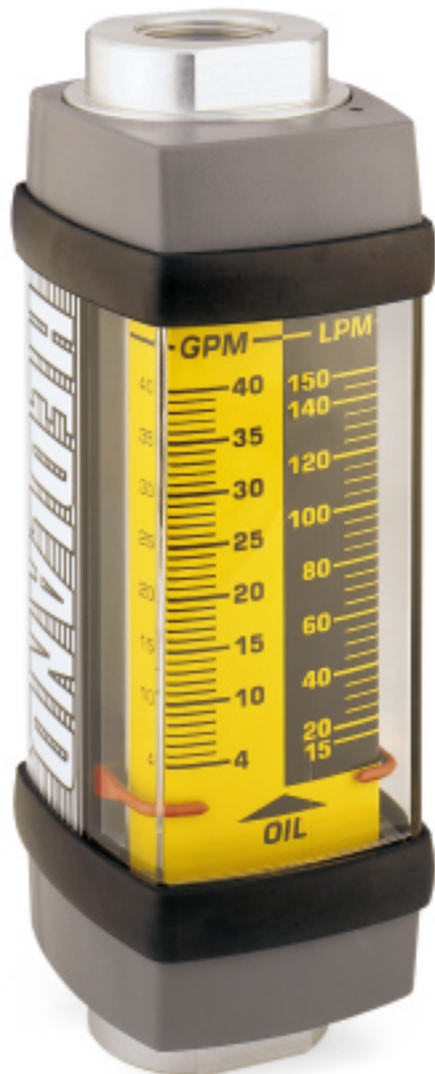
**1-800-HEDLAND**



# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available



### SPECIFICATIONS:

#### MATERIALS:

2024 - T351 Anodized aluminum body, piston and cone  
C360 Brass body, piston and cone<sup>①</sup>

T303 Stainless body, 2024 - T351 Anodized aluminum piston and cone

**COMMON PARTS:**  
**Retaining Ring:** SAE 1070/1090 Carbon Steel  
**Spider Plate:** T316 SS  
**Retaining Spring:** SAE 1070/1090 Carbon Steel  
**Spring:** T302 SS  
**Indicator and Internal Magnet:** PPS / Ceramic  
**Fasteners:** T303 SS  
**Guard Seal / Bumper:** Buna N  
**Pressure Seals:** Viton  
**Scale Support:** 6063 - T6 Aluminum  
**Guard:** Polycarbonate  
**End Caps:** Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 61 and Code 62: SAEJ518

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C) for higher temp. meters, see page 13

#### 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.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

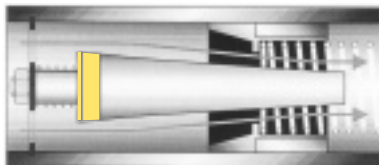
**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 10. For detailed differential pressure charts, see page 51.

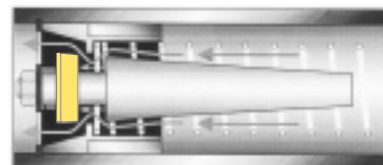
**ACCURACY:**  $\pm 2\%$  of full scale reading

**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

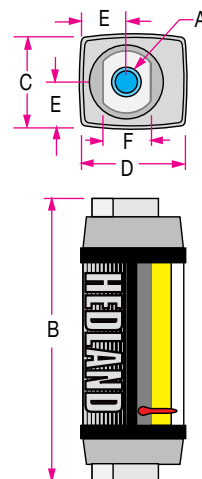


Reverse Flow By-Pass

### 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)
1/4 (SAE 6)	4.8 (122)	1.68 (43)	1.90 (48)	.84 (21)	.88 (22)
1/2 (SAE10)	6.6 (168)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)
3/4 (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)	1.50 (38)
1-1/4 (SAE 20)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)
1-1/2 (SAE 24)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)

**NOTE:** Dimensions for 1-1/2" Code 62, 3" and 3" Code 61 can be found on page 50. Weights for all sizes can be found on page 57.



① 3 inch models have celcon piston/piston ring

# 3500/6000 PSI Flow Meters

## For Petroleum Fluids

### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP <sup>②</sup>	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/4 SAE 6	.02 - .20	.01 - 0.75	3.5 (.24)	4.0 (.28)		H200 * - 002 - †	H201 * - 002 - †	H202 * 002 - †	A	B	S	6000 PSI Not Available
	.05 - .50	.02 - 1.8	3.0 (.21)	5.0 (.35)		H200 * - 005 - †	H201 * - 005 - †	H202 * 005 - †				
	.10 - 1.0	.04 - 3.75	4.0 (.28)	9.0 (.62)		H200 * - 010 - †	H201 * - 010 - †	H202 * 010 - †				
	.20 - 2.0	1 - 7.5	6.0 (.41)	13 (.90)		H200 * - 020 - †	H201 * - 020 - †	H202 * 020 - †				
1/2 SAE 10	0.1 - 1.0	.05 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H600 * - 001 - †	H601 * - 001 - †	H602 * 001 - †	A	B	S	6000 PSI 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	4 - 37	4.0 (.28)	9.5 (.66)	23.0 (1.6)	H600 * - 010 - †	H601 * - 010 - †	H602 * 010 - †				
	1 - 15	4 - 56	6.5 (.45)	18.5 (1.3)	55.2 (3.8)	H600 * - 015 - †	H601 * - 015 - †	H602 * 015 - †				
3/4 SAE 12	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H700 * - 002 - †	H701 * - 002 - †	H702 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H700 * - 010 - †	H701 * - 010 - †	H702 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H700 * - 020 - †	H701 * - 020 - †	H702 * 020 - †				
1 SAE 16	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H760 * - 002 - †	H761 * - 002 - †	H762 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H760 * - 010 - †	H761 * - 010 - †	H762 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H760 * - 020 - †	H761 * - 020 - †	H762 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H760 * - 030 - †	H761 * - 030 - †	H762 * 030 - †				
1-1/4 SAE 20	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H760 * - 002 - †	H761 * - 002 - †	H762 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H760 * - 010 - †	H761 * - 010 - †	H762 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H760 * - 020 - †	H761 * - 020 - †	H762 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H760 * - 030 - †	H761 * - 030 - †	H762 * 030 - †				
1-1/2 SAE 24	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H760 * - 002 - †	H761 * - 002 - †	H762 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H760 * - 010 - †	H761 * - 010 - †	H762 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H760 * - 020 - †	H761 * - 020 - †	H762 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H760 * - 030 - †	H761 * - 030 - †	H762 * 030 - †				
1-1/2 Code 62	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H760 * - 002 - †	H761 * - 002 - †	H762 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H760 * - 010 - †	H761 * - 010 - †	H762 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H760 * - 020 - †	H761 * - 020 - †	H762 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H760 * - 030 - †	H761 * - 030 - †	H762 * 030 - †				
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 - †						

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

② 3 inch models have BSPT (BS21) threads

(example) H 701 <sup>\*</sup>A - 030 - <sup>†</sup>RF



**PETROLEUM TEST KITS**  
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**HIGH TEMP. FLOW METERS**  
PAGE 13



**FLOW ALERT FLOW SWITCHES**  
PAGE 39



**FLOW TRANSMITTERS**  
PAGE 41

# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

### SPECIFICATIONS:

#### 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:**  
**Retaining Ring:** SAE 1070/1090 Carbon steel  
**Spider Plate:** T316 SS **Retaining Spring:** SAE 1070/1090 Carbon steel  
**Spring:** T302 SS **Indicator and Internal Magnet:** PPS/Ceramic  
**Fasteners:** T303 SS **Guard Seal / Bumper:** Buna N  
**Pressure Seals:** Viton **Scale Support:** 6063 - T6 Aluminum  
**Guard:** Polycarbonate **End Caps:** Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C)

#### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max. with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 12. For detailed differential pressure charts, see page 51.

**ACCURACY:**  $\pm 2\%$  of full scale reading

**REPEATABILITY:**  $\pm 1\%$

**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.

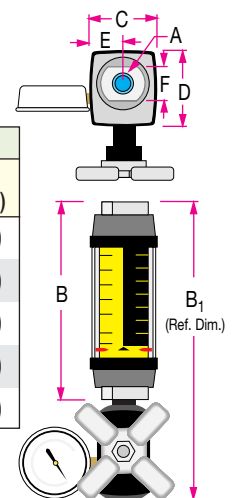
**LOAD VALVE:** 1/2", 3/4" and 1" series - needle valve; 1-1/4" and 1-1/2" series ball valve. Produce  $\Delta P$  up to 3,500 psi/241 bar PSID and 6,000 psi/414 bar PSID.

### DIMENSIONS:

	A	B	B <sub>1</sub>	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)
1/2 (SAE10)	6.6 (168)	10.3 (262)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)	
3/4 (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)	1.50 (38)	
1-1/4 (SAE 20)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	
1-1/2 (SAE 24)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	

**NOTE:** Weights for all sizes can be found on page 57.

SAE and BSPP Test Kits include inlet adapter.



# 3500/6000 PSI Test Kits

## For Petroleum Fluids

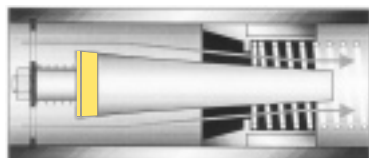
### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/2 SAE 10	0.1 - 1.0	.05 - 3.75	3.0 (.21)	4.75 (.33)	7.2 (.50)	H600 * - 001 - TK	H601 * - 001 - TK	H602 * 001 - TK	A	B	S	6000 PSI 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	4 - 37	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	0.1 - 2.0	0.5 - 7.5	1.5 (.10)	3.0 (.21)	3.9 (.27)	H700 * - 002 - TK	H701 * - 002 - TK	H702 * 002 - TK	A	B	S	5000 PSI 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 - 37	6.5 (.45)	16.0 (1.1)	15.8 (1.1)	H700 * - 010 - TK	H701 * - 010 - TK	H702 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H700 * - 020 - TK	H701 * - 020 - TK	H702 * 020 - TK				
	3 - 30	10 - 110	18.0 (1.2)	47.5 (3.3)	76.1 (5.2)	H700 * - 030 - TK	H701 * - 030 - TK	H702 * 030 - TK				
1 SAE 16	0.1 - 2.0	0.5 - 7.5	1.5 (.10)	3.0 (.21)	3.9 (.27)	H760 * - 002 - TK	H761 * - 002 - TK	H762 * 002 - TK	A	B	S	5000 PSI 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 - 37	6.5 (.45)	16.0 (1.1)	15.8 (1.1)	H760 * - 010 - TK	H761 * - 010 - TK	H762 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H760 * - 020 - TK	H761 * - 020 - TK	H762 * 020 - TK				
	3 - 30	10 - 110	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				
1-1/4 SAE 20	3 - 30	10 - 110	3.4 (.23)	7.8 (.54)	5.6 (.39)	H800 * - 030 - TK	H801 * - 030 - TK	H802 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (.30)	8.8 (.61)	14.3 (.99)	H800 * - 050 - TK	H801 * - 050 - TK	H802 * 050 - TK				
	10 - 75	40 - 280	6.3 (.43)	14.3 (9.9)	35.7 (2.5)	H800 * - 075 - TK	H801 * - 075 - TK	H802 * 075 - TK				
	10 - 100	50 - 370	8.3 (.57)	21.3 (1.5)	45.3 (3.1)	H800 * - 100 - TK	H801 * - 100 - TK	H802 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H800 * - 150 - TK	H801 * - 150 - TK	H802 * 150 - TK				
1-1/2 SAE 24	3 - 30	10 - 110	3.4 (.23)	7.8 (.54)	5.6 (.39)	H860 * - 030 - TK	H861 * - 030 - TK	H862 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (.30)	8.8 (.61)	14.3 (.99)	H860 * - 050 - TK	H861 * - 050 - TK	H862 * 050 - TK				
	10 - 75	40 - 280	6.3 (.43)	14.3 (9.9)	35.7 (2.5)	H860 * - 075 - TK	H861 * - 075 - TK	H862 * 075 - TK				
	10 - 100	50 - 370	8.3 (.57)	21.3 (1.5)	45.3 (3.1)	H860 * - 100 - TK	H861 * - 100 - TK	H862 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H860 * - 150 - TK	H861 * - 150 - TK	H862 * 150 - TK				

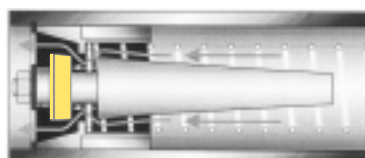
(example) H 701 \* A - 030 - RT



**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

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

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

**PHOSPHATE ESTER TEST KITS**

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**WATER-BASED TEST KITS**

PAGE 23



**FLOW-ALERT FLOW SWITCHES**

PAGE 39



**FLOW TRANSMITTERS**

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# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 500°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

## SPECIFICATIONS:

### 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

**Scale:** Polyimide

**Retaining Ring:** SAE 1070/1090 Carbon Steel

**Retaining Spring:** SAE 1070/1090 Carbon Steel

**Indicator:** T410 SS

**Internal Magnet:** Teflon Coated Alnico 8

**Bumper:** 2011 - T3 Anodized Aluminum

**Guard:** Cylindrical Pyrex™ Glass

**End Caps:** 2011 - T3 Anodized Aluminum

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, and Code 62: SAEJ518

**TEMPERATURE RANGE:** -20 to 400°F (-29 to 205°C) Continuous

400 to 500°F (205 to 260°C) Intermittent

For detailed "Pressure vs. Temperature" correlation information, see page 14.

### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max. with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max.

for 3/4 to 1-1/2" series) with a 3:1 safety factor.

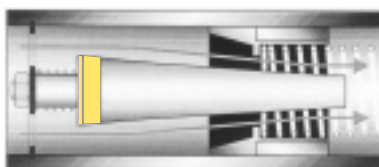
**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 14. For detailed differential pressure charts, see page 51.

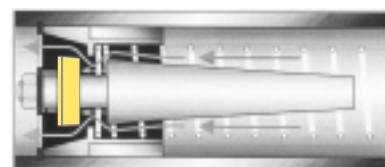
**ACCURACY:**  $\pm 2\%$  of full scale reading

**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, which allows the fluid to flow freely in the reverse direction.



Normal Flow Direction



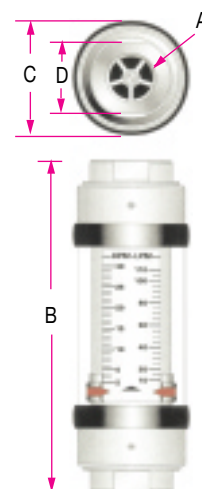
Reverse Flow By-Pass

## DIMENSIONS:

	A	B	C	D
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	FLATS in (mm)	
1/4 (SAE 6)	6.60 (168)	2.01 (53)	1.25 (32)	
1/2 (SAE10)	6.60 (168)	2.01 (53)	1.25 (32)	
3/4 (SAE 12)	7.20 (183)	2.48 (63)	1.50 (38)	
1 (SAE 16)	7.20 (183)	2.48 (63)	1.50 (38)	
1-1/4 (SAE 20)	12.20 (310)	4.20 (105)	2.75 (70)	
1-1/2 (SAE 24)	12.20 (310)	4.20 (105)	2.75 (70)	

**NOTE:** Dimensions for 1-1/2" Code 62 can be found on page 50.

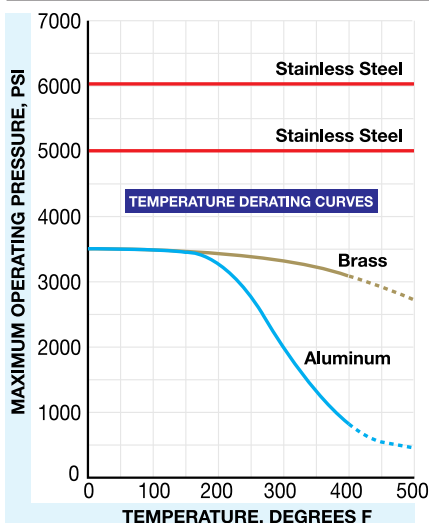
Weights for all sizes can be found on page 57.



# 3500/6000 PSI High Temperature Flow Meters For Petroleum Fluids

## ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPB	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	
1/4 SAE 6	.02 - .20	.10 - 0.75	3.5 (.24)	4.0 (.28)		H200 * - 002 - HT	H201 * - 002 - HT	H202 * 002 - HT	A	B	S	6000 PSI Not Available
	.05 - .50	.20 - 1.8	3.0 (.21)	5.0 (.35)		H200 * - 005 - HT	H201 * - 005 - HT	H202 * 005 - HT				
	.10 - 1.0	.50 - 3.75	4.0 (.28)	9.0 (.62)		H200 * - 010 - HT	H201 * - 010 - HT	H202 * 010 - HT				
	.20 - 2.0	1.0 - 7.5	6.0 (.41)	13 (.90)		H200 * - 020 - HT	H201 * - 020 - HT	H202 * 020 - HT				
1/2 SAE 10	0.1 - 1.0	.50 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H600 * - 001 - HT	H601 * - 001 - HT	H602 * 001 - HT	A	B	S	6000 PSI 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	4 - 37	4.0 (.28)	9.5 (.66)	23.0 (1.6)	H600 * - 010 - HT	H601 * - 010 - HT	H602 * 010 - HT				
	1 - 15	4 - 56	6.5 (.45)	18.5 (1.3)	55.2 (3.8)	H600 * - 015 - HT	H601 * - 015 - HT	H602 * 015 - HT				
3/4 SAE 12	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H700 * - 002 - HT	H701 * - 002 - HT	H702 * 002 - HT	A	B	S	5000 PSI HR
	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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H700 * - 010 - HT	H701 * - 010 - HT	H702 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H700 * - 020 - HT	H701 * - 020 - HT	H702 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H700 * - 030 - HT	H701 * - 030 - HT	H702 * 030 - HT				
1 SAE 16	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H760 * - 002 - HT	H761 * - 002 - HT	H762 * 002 - HT	A	B	S	5000 PSI HR
	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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H760 * - 010 - HT	H761 * - 010 - HT	H762 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H760 * - 020 - HT	H761 * - 020 - HT	H762 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H760 * - 030 - HT	H761 * - 030 - HT	H762 * 030 - HT				
	4 - 40	15 - 150	9.0 (.62)	24 (1.7)	87.5 (6.04)	H760 * - 040 - HT	H761 * - 040 - HT	H762 * 040 - HT				
	5 - 50	19 - 189	12.5 (.86)	34 (2.3)	150 (10.4)	H760 * - 050 - HT	H761 * - 050 - HT	H762 * 050 - HT				
1-1/4 SAE 20	3 - 30	30 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H800 * - 030 - HT	H801 * - 030 - HT	H802 * 030 - HT	A	B	S	5000 PSI HR
	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				
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H800 * - 100 - HT	H801 * - 100 - HT	H802 * 100 - HT				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H800 * - 150 - HT	H801 * - 150 - HT	H802 * 150 - HT				
1-1/2 SAE 24	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H860 * - 030 - HT	H861 * - 030 - HT	H862 * 030 - HT	A	B	S	5000 PSI HR
	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				
	10 - 100	50 - 370	6.5 (.45)	15.0 (1.0)	39.0 (2.7)	H860 * - 100 - HT	H861 * - 100 - HT	H862 * 100 - HT				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H860 * - 150 - HT	H861 * - 150 - HT	H862 * 150 - HT				
1-1/2 Code 62	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H808 * - 030 - HT			A	B	S	5000 PSI HR
	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						
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H808 * - 100 - HT						
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H808 * - 150 - HT						



(example) H 701 \* A - 030 - HR

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

**CAUTION:** HR option is not available with brass flow meters.

# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available



### SPECIFICATIONS:

#### 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

<b>COMMON PARTS:</b>	<b>Retaining Ring:</b> SAE 1070/1090 Carbon Steel
<b>Spider Plate:</b> T316 SS	<b>Retaining Spring:</b> SAE 1070/1090 Carbon Steel
<b>Spring:</b> T302 SS	<b>Indicator and Internal Magnet:</b> PPS / Ceramic
<b>Fasteners:</b> T303 SS	<b>Guard Seal / Bumper:</b> EPR
<b>Pressure Seals:</b> EPR	<b>Scale Support:</b> 6063 - T6 Aluminum
<b>Guard:</b> Nylon	<b>End Caps:</b> Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, **Code 62:** SAEJ518

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C) for higher temp. meters, see page 19

#### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max., with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

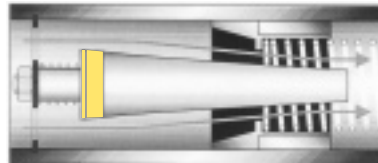
**PRESSURE DROP:** See Ordering Information Table, page 16. For detailed differential pressure charts, see page 52.

**ACCURACY:**  $\pm 2\%$  of full scale reading

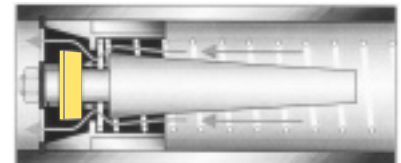
**REPEATABILITY:**  $\pm 1\%$

**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



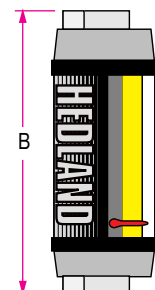
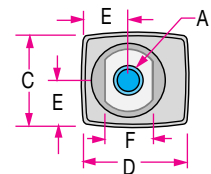
Reverse Flow By-Pass

#### 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)
1/4 (SAE 6)	4.8 (122)	1.68 (43)	1.90 (48)	.84 (21)	.88 (22)
1/2 (SAE10)	6.6 (168)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)
3/4 (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)	1.50 (38)
1-1/4 (SAE 20)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)
1-1/2 (SAE 24)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)

**NOTE:** Dimensions for 1-1/2" Code 62 can be found on page 50.

Weights for all sizes can be found on page 57.





# 3500/6000 PSI Flow Meters

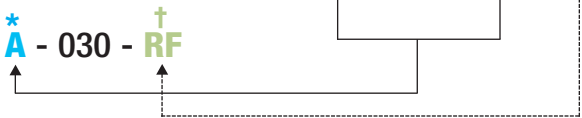
## For Phosphate Ester Fluids

### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/4 SAE 6	.02 - .20	.01 - 0.75	3.5 (.24)	4.0 (.28)		H294 * - 002 - †	H295 * - 002 - †	H296 * 002 - †	A	B	S	6000 PSI Not Available
	.05 - .50	0.2 - 1.8	3.0 (.21)	5.0 (.35)		H294 * - 005 - †	H295 * - 005 - †	H296 * 005 - †				
	.10 - 1.0	.50 - 3.75	4.0 (.28)	9.0 (.62)		H294 * - 010 - †	H295 * - 010 - †	H296 * 010 - †				
	.20 - 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	.50 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H694 * - 001 - †	H695 * - 001 - †	H696 * 001 - †	A	B	S	6000 PSI 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	4 - 37	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	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H794 * - 002 - †	H795 * - 002 - †	H796 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H794 * - 010 - †	H795 * - 010 - †	H796 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H794 * - 020 - †	H795 * - 020 - †	H796 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H794 * - 030 - †	H795 * - 030 - †	H796 * 030 - †				
1 SAE 16	0.1 - 2.0	0.5 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H764 * - 002 - †	H765 * - 002 - †	H766 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H764 * - 010 - †	H765 * - 010 - †	H766 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H764 * - 020 - †	H765 * - 020 - †	H766 * 020 - †				
	3 - 30	10 - 110	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 (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	S	5000 PSI 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 - 370	6.5 (.45)	15 (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	S	5000 PSI 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 - 370	6.5 (.45)	15.0 (1.0)	39.0 (2.7)	H864 * - 100 - †	H865 * - 100 - †	H866 * 100 - †				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H864 * - 150 - †	H865 * - 150 - †	H866 * 150 - †				
1-1/2 Code 62	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H898 * - 030 - †			A	B	S	5000 PSI RF
	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 - †						
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H898 * - 100 - †						
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H898 * - 150 - †						

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

(example) H 795 <sup>\*</sup>A - 030 - <sup>†</sup>RF



#### PHOSPHATE ESTER TEST KITS

PAGE 17



#### HIGH TEMP. FLOW METERS

PAGE 19



#### FLOW ALERT FLOW SWITCHES

PAGE 39



#### FLOW TRANSMITTERS

PAGE 41



# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

### SPECIFICATIONS:

#### 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

<b>COMMON PARTS:</b>	<b>Retaining Ring:</b> SAE 1070/1090 Carbon steel
<b>Spider Plate:</b> T316 SS	<b>Retaining Spring:</b> SAE 1070/1090 Carbon steel
<b>Spring:</b> T302 SS	<b>Indicator and Internal Magnet:</b> PPS / Ceramic
<b>Fasteners:</b> T303 SS	<b>Guard Seal / Bumper:</b> EPR
<b>Pressure Seals:</b> EPR	<b>Scale Support:</b> 6063-T6 Aluminum
<b>Guard:</b> Nylon	<b>End Caps:</b> Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C)

#### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max., with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 18. For detailed differential pressure charts, see page 52.

**ACCURACY:**  $\pm 2\%$  of full scale reading

**REPEATABILITY:**  $\pm 1\%$

**PRESSURE GAUGE:** Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range. Available in aluminum and brass test kits.  
Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range. Available on stainless steel test kits.

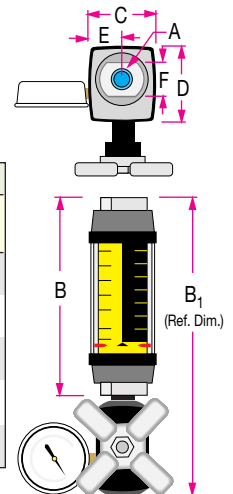
**LOAD VALVE:** 1/2", 3/4" and 1" series - needle valve; 1-1/4" and 1-1/2" series ball valve. Produce  $\Delta P$  up to 3,500 psi/241 bar PSID and 6,000 psi/414 bar PSID.



### DIMENSIONS:

	A	B	B <sub>1</sub>	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)
1/2 (SAE10)	6.6 (168)	10.3 (262)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)	
3/4 (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)	1.50 (38)	
1-1/4 (SAE 20)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	
1-1/2 (SAE 24)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	

**NOTE:** Weights for all sizes can be found on page 57.  
SAE and BSPP Test Kits include inlet adapter.



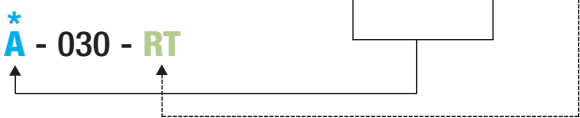
# 3500/6000 PSI Test Kits

## For Phosphate Ester Fluids

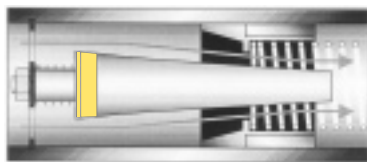
### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/2 SAE 10	0.1 - 1.0	.50 - 3.75	3.0 (.21)	4.75 (.33)	7.2 (.50)	H694 * - 001 - TK	H695 * - 001 - TK	H696 * 001 - TK	A	B	S	6000 PSI 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	4 - 37	24.0 (1.7)	71.5 (4.9)	85 (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	0.1 - 2.0	0.5 - 7.5	1.5 (1.0)	3.0 (.21)	3.9 (.27)	H794 * - 002 - TK	H795 * - 002 - TK	H796 * 002 - TK	A	B	S	5000 PSI RT
	0.5 - 5.0	2 - 19	4.0 (2.8)	6.5 (.45)	8.3 (.57)	H794 * - 005 - TK	H795 * - 005 - TK	H796 * 005 - TK				
	1 - 10	5 - 37	6.5 (4.5)	16.0 (1.1)	15.8 (1.1)	H794 * - 010 - TK	H795 * - 010 - TK	H796 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H794 * - 020 - TK	H795 * - 020 - TK	H796 * 020 - TK				
	3 - 30	10 - 110	18.0 (1.2)	47.5 (3.3)	76.1 (5.2)	H794 * - 030 - TK	H795 * - 030 - TK	H796 * 030 - TK				
1 SAE 16	0.1 - 2.0	0.5 - 7.5	1.5 (1.0)	3.0 (.21)	3.9 (.27)	H764 * - 002 - TK	H765 * - 002 - TK	H766 * 002 - TK	A	B	S	5000 PSI RT
	0.5 - 5.0	2 - 19	4.0 (2.8)	6.5 (.45)	8.3 (.57)	H764 * - 005 - TK	H765 * - 005 - TK	H766 * 005 - TK				
	1 - 10	5 - 37	6.5 (4.5)	16.0 (1.1)	15.8 (1.1)	H764 * - 010 - TK	H765 * - 010 - TK	H766 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H764 * - 020 - TK	H765 * - 020 - TK	H766 * 020 - TK				
	3 - 30	10 - 110	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				
1-1/4 SAE 20	3 - 30	10 - 110	3.4 (2.3)	7.8 (.54)	5.6 (.39)	H894 * - 030 - TK	H895 * - 030 - TK	H896 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (3.0)	8.8 (6.1)	14.3 (.99)	H894 * - 050 - TK	H895 * - 050 - TK	H896 * 050 - TK				
	10 - 75	40 - 280	6.3 (4.3)	14.3 (9.9)	35.7 (2.5)	H894 * - 075 - TK	H895 * - 075 - TK	H896 * 075 - TK				
	10 - 100	50 - 370	8.3 (5.7)	21.3 (1.5)	45.3 (3.1)	H894 * - 100 - TK	H895 * - 100 - TK	H896 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H894 * - 150 - TK	H895 * - 150 - TK	H896 * 150 - TK				
1-1/2 SAE 24	3 - 30	10 - 110	3.4 (2.3)	7.8 (.54)	5.6 (.39)	H864 * - 030 - TK	H865 * - 030 - TK	H866 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (3.0)	8.8 (6.1)	14.3 (.99)	H864 * - 050 - TK	H865 * - 050 - TK	H866 * 050 - TK				
	10 - 75	40 - 280	6.3 (4.3)	14.3 (9.9)	35.7 (2.5)	H864 * - 075 - TK	H865 * - 075 - TK	H866 * 075 - TK				
	10 - 100	50 - 370	8.3 (5.7)	21.3 (1.5)	45.3 (3.1)	H864 * - 100 - TK	H865 * - 100 - TK	H866 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H864 * - 150 - TK	H865 * - 150 - TK	H866 * 150 - TK				

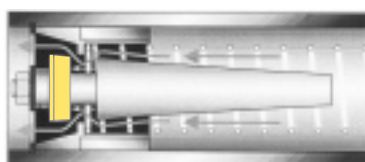
(example) H 795 \* **A** - 030 - **RT**



**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

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

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

**PETROLEUM TEST KITS**

PAGE **11**



**WATER-BASED TEST KITS**

PAGE **23**



**FLOW ALERT FLOW SWITCHES**

PAGE **39**



**FLOW TRANSMITTERS**

PAGE **41**



# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 500°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

## SPECIFICATIONS:

### 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

**Scale:** Polyimide

**Retaining Ring:** SAE 1070/1090 Carbon Steel

**Retaining Spring:** SAE 1070/1090 Carbon Steel

**Indicator:** T410 SS

**Internal Magnet:** Teflon Coated Alnico 8

**Bumper:** 2011 - T3 Anodized Aluminum

**Guard:** Cylindrical Pyrex™ Glass

**End Caps:** 2011 - T3 Anodized Aluminum

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, and Code 62: SAEJ518

**TEMPERATURE RANGE:** -20 to 400°F (-29 to 205°C) Continuous

400 to 500°F (205 to 260°C) Intermittent

For detailed "Pressure vs. Temperature" correlation information, see page 20.

### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max. with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max.

for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 20. For detailed differential pressure charts, see page 52.

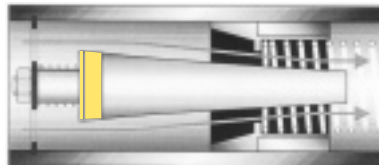
**ACCURACY:**  $\pm 2\%$  of full scale reading

**REPEATABILITY:**  $\pm 1\%$

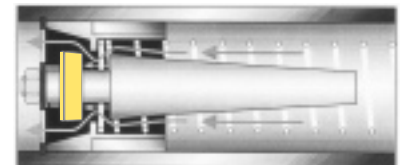
### REVERSE FLOW BY-PASS OPTION:

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, which allows the fluid to flow freely in the reverse direction.



Normal Flow Direction



Reverse Flow By-Pass

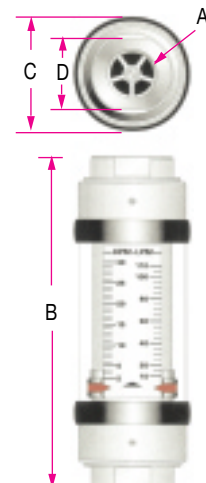


### DIMENSIONS:

A	B	C	D
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	FLATS in (mm)
1/4 (SAE 6)	6.60 (168)	2.01 (53)	1.25 (32)
1/2 (SAE10)	6.60 (168)	2.01 (53)	1.25 (32)
3/4 (SAE 12)	7.20 (183)	2.48 (63)	1.50 (38)
1 (SAE 16)	7.20 (183)	2.48 (63)	1.50 (38)
1-1/4 (SAE 20)	12.20 (310)	4.20 (105)	2.75 (70)
1-1/2 (SAE 24)	12.20 (310)	4.20 (105)	2.75 (70)

**NOTE:** Dimensions for 1-1/2" Code 62 can be found on page 50.

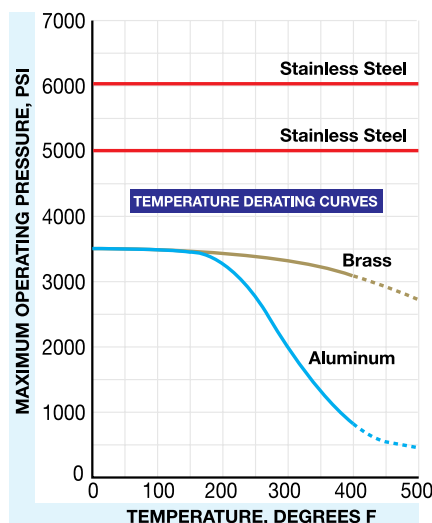
Weights for all sizes can be found on page 57.



# 3500/6000 PSI High Temperature Flow Meters For Phosphate Ester Fluids

## ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/4 SAE 6	.02 - .20	.10 - 0.75	3.5 (.24)	4.0 (.28)		H294 * - 002 - HT	H295 * - 002 - HT	H296 * 002 - HT	A	B	S	6000 PSI Not Available
	.05 - .50	.20 - 1.8	3.0 (.21)	5.0 (.35)		H294 * - 005 - HT	H295 * - 005 - HT	H296 * 005 - HT				
	.10 - 1.0	.05 - 3.75	4.0 (.28)	9.0 (.62)		H294 * - 010 - HT	H295 * - 010 - HT	H296 * 010 - HT				
	.20 - 2.0	1.0 - 7.5	6.0 (.41)	13 (.90)		H294 * - 020 - HT	H295 * - 020 - HT	H296 * 020 - HT				
1/2 SAE 10	0.1 - 1.0	.50 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H694 * - 001 - HT	H695 * - 001 - HT	H696 * 001 - HT	A	B	S	6000 PSI HR
	0.2 - 2.0	1.0 - 7.5	2.0 (.14)	3.0 (.21)	9.6 (.66)	H694 * - 002 - HT	H695 * - 002 - HT	H696 * 002 - HT				
	0.5 - 5.0	2 - 19	3.0 (.21)	6.0 (.41)	4.8 (.33)	H694 * - 005 - HT	H695 * - 005 - HT	H696 * 005 - HT				
	1 - 10	4 - 37	4.0 (.28)	9.5 (.66)	23.0 (1.6)	H694 * - 010 - HT	H695 * - 010 - HT	H696 * 010 - HT				
	1 - 15	4 - 56	6.5 (.45)	18.5 (1.3)	55.2 (3.8)	H694 * - 015 - HT	H695 * - 015 - HT	H696 * 015 - HT				
3/4 SAE 12	0.1 - 2.0	.50 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H794 * - 002 - HT	H795 * - 002 - HT	H796 * 002 - HT	A	B	S	5000 PSI HR
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	5.3 (.37)	H794 * - 005 - HT	H795 * - 005 - HT	H796 * 005 - HT				
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H794 * - 010 - HT	H795 * - 010 - HT	H796 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H794 * - 020 - HT	H795 * - 020 - HT	H796 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H794 * - 030 - HT	H795 * - 030 - HT	H796 * 030 - HT				
1 SAE 16	0.1 - 2.0	.50 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H764 * - 002 - HT	H765 * - 002 - HT	H766 * 002 - HT	A	B	S	5000 PSI HR
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	5.3 (.37)	H764 * - 005 - HT	H765 * - 005 - HT	H766 * 005 - HT				
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H764 * - 010 - HT	H765 * - 010 - HT	H766 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H764 * - 020 - HT	H765 * - 020 - HT	H766 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H764 * - 030 - HT	H765 * - 030 - HT	H766 * 030 - HT				
1-1/4 SAE 20	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H894 * - 030 - HT	H895 * - 030 - HT	H896 * 030 - HT	A	B	S	5000 PSI HR
	5 - 50	20 - 190	3.5 (.24)	7.0 (.48)	12.5 (.86)	H894 * - 050 - HT	H895 * - 050 - HT	H896 * 050 - HT				
	10 - 75	40 - 280	5.0 (.35)	10.5 (.72)	31.9 (2.2)	H894 * - 075 - HT	H895 * - 075 - HT	H896 * 075 - HT				
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H894 * - 100 - HT	H895 * - 100 - HT	H896 * 100 - HT				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H894 * - 150 - HT	H895 * - 150 - HT	H896 * 150 - HT				
1-1/2 SAE 24	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H864 * - 030 - HT	H865 * - 030 - HT	H866 * 030 - HT	A	B	S	5000 PSI HR
	5 - 50	20 - 190	3.5 (.24)	7.0 (.48)	12.5 (.86)	H864 * - 050 - HT	H865 * - 050 - HT	H866 * 050 - HT				
	10 - 75	40 - 280	5.0 (.35)	10.5 (.72)	31.9 (2.2)	H864 * - 075 - HT	H865 * - 075 - HT	H866 * 075 - HT				
	10 - 100	50 - 370	6.5 (.45)	15.0 (1.0)	39.0 (2.7)	H864 * - 100 - HT	H865 * - 100 - HT	H866 * 100 - HT				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H864 * - 150 - HT	H865 * - 150 - HT	H866 * 150 - HT				
1-1/2 Code 62	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H898 * - 030 - HT			A	B	S	5000 PSI HR
	5 - 50	20 - 190	3.5 (.24)	7.0 (.48)	12.5 (.86)	H898 * - 050 - HT						
	10 - 75	40 - 280	5.0 (.35)	10.5 (.72)	31.9 (2.2)	H898 * - 075 - HT						
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H898 * - 100 - HT						
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H898 * - 150 - HT						



(example) H 795 <sup>\*</sup>A - 030 - <sup>†</sup>HR

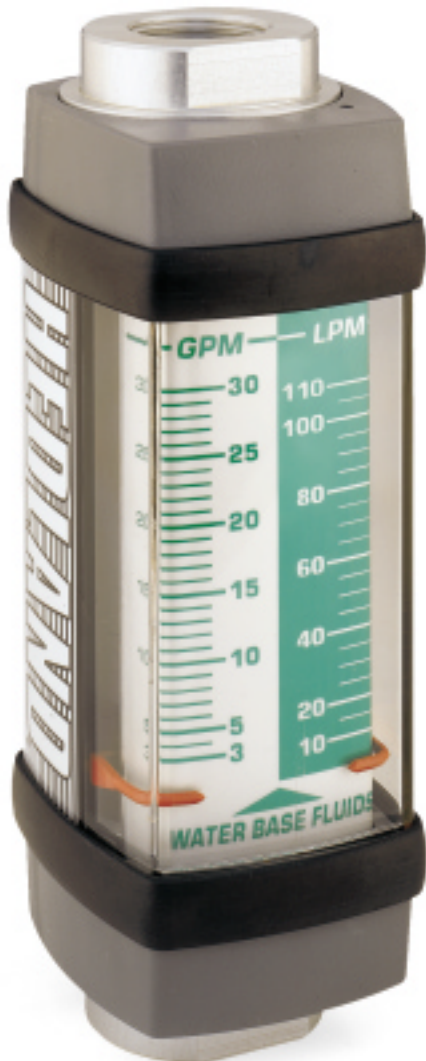
**NOTE:** HT suffix represents standard high temperature configuration. For reverse flow high temperature, replace HT with HR suffix.

**CAUTION:** HR option is not available with brass flow meters.

# 3500/6000 PSI Flow Meters

## For Water-based Fluids

- Direct reading
- Install in any position
- 360° Rotatable Guard/Scale
- Easier to Read Linear Scale
- No Flow Straighteners or Special Piping Required
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available



### SPECIFICATIONS:

#### MATERIALS:

2024 - T351 Anodized aluminum body, piston and cone

C360 Brass body, piston and cone<sup>①</sup>

T303 Stainless body, 2024 - T351 Anodized aluminum piston and cone

<b>COMMON PARTS:</b>	<b>Retaining Ring:</b> T316 SS
<b>Spider Plate:</b> T316 SS	<b>Retaining Spring:</b> T316 SS
<b>Spring:</b> T302 SS	<b>Indicator and Internal Magnet:</b> PPS / Ceramic
<b>Fasteners:</b> T303 SS	<b>Guard Seal / Bumper:</b> Buna N
<b>Pressure Seals:</b> Viton	<b>Scale Support:</b> 6063 - T6 Aluminum
<b>Guard:</b> Polycarbonate	<b>End Caps:</b> Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, Code 61 and Code 62: SAEJ518

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C) for higher temp. meters, see page 25.

#### 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.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

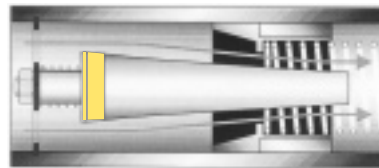
**PRESSURE DROP:** See Ordering Information Table, page 22. For detailed differential pressure charts, see page 53.

**ACCURACY:**  $\pm 2\%$  of full scale reading

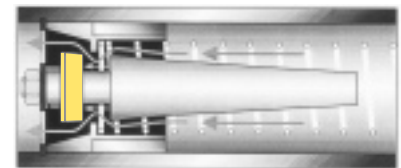
**REPEATABILITY:**  $\pm 1\%$

**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

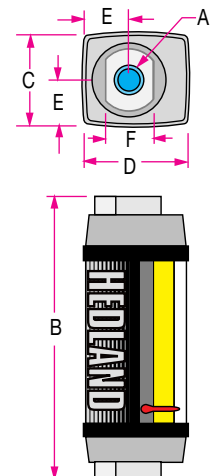
### DIMENSIONS:

A	B	C	D	E	F
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	DEPTH in (mm)	OFFSET in (mm)	FLATS in (mm)
1/4 (SAE 6)	4.8 (122)	1.68 (43)	1.90 (48)	.84 (21)	.88 (22)
1/2 (SAE10)	6.6 (168)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)
3/4 (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)	1.50 (38)
1-1/4 (SAE 20)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)
1-1/2 (SAE 24)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)

**NOTE:** Dimensions for 1-1/2" Code 62, 3" and 3" Code 61 can be found on page 50.

Weights for all sizes can be found on page 57.

① 3 inch models have celcon piston/piston ring



# 3500/6000 PSI Flow Meters

## For Water-based Fluids

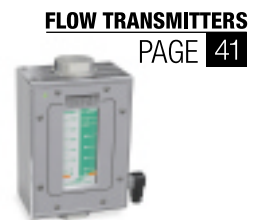
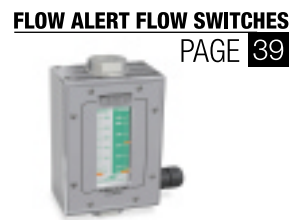
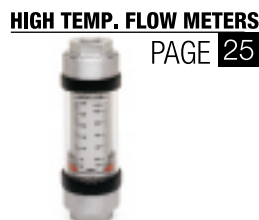
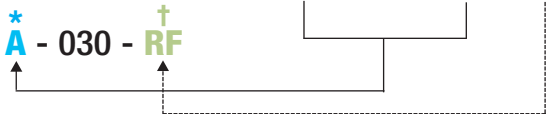
### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP <sup>②</sup>	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/4 SAE 6	.02 - .20	.10 - 0.75	3.5 (.24)	4.0 (.28)		H212 * - 002 - †	H213 * - 002 - †	H214 * 002 - †	A	B	S	6000 PSI Not Available
	.05 - .50	.20 - 1.8	3.0 (.21)	5.0 (.35)		H212 * - 005 - †	H213 * - 005 - †	H214 * 005 - †				
	.10 - 1.0	.50 - 3.75	4.0 (.28)	9.0 (.62)		H212 * - 010 - †	H213 * - 010 - †	H214 * 010 - †				
	.20 - 2.0	1 - 7.5	6.0 (.41)	13 (.90)		H212 * - 020 - †	H213 * - 020 - †	H214 * 020 - †				
1/2 SAE 10	0.2 - 1.0	.50 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H612 * - 001 - †	H613 * - 001 - †	H614 * 001 - †	A	B	S	6000 PSI 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	4 - 37	4.0 (.28)	9.5 (.66)	23.0 (1.6)	H612 * - 010 - †	H613 * - 010 - †	H614 * 010 - †				
	1 - 15	4 - 56	6.5 (.45)	18.5 (1.3)	55.2 (3.8)	H612 * - 015 - †	H613 * - 015 - †	H614 * 015 - †				
3/4 SAE 12	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H712 * - 002 - †	H713 * - 002 - †	H714 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H712 * - 010 - †	H713 * - 010 - †	H714 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H712 * - 020 - †	H713 * - 020 - †	H714 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H712 * - 030 - †	H713 * - 030 - †	H714 * 030 - †				
1 SAE 16	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	2.9 (.20)	H782 * - 002 - †	H783 * - 002 - †	H784 * 002 - †	A	B	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H782 * - 010 - †	H783 * - 010 - †	H784 * 010 - †				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H782 * - 020 - †	H783 * - 020 - †	H784 * 020 - †				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H782 * - 030 - †	H783 * - 030 - †	H784 * 030 - †				
	4 - 40	15 - 150	9.0 (.62)	24 (1.7)	87.5 (6.04)	H782 * - 040 - †	H783 * - 040 - †	H784 * 040 - †				
	5 - 50	19 - 189	12.5 (.86)	34 (2.3)	150 (10.4)	H782 * - 050 - †	H783 * - 050 - †	H784 * 050 - †				
1-1/4 SAE 20	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H812 * - 030 - †	H813 * - 030 - †	H814 * 030 - †	A	B	S	5000 PSI RF
	5 - 50	20 - 190	3.5 (.24)	7.0 (.48)	12.5 (.86)	H812 * - 050 - †	H813 * - 050 - †	H814 * 050 - †				
	10 - 75	40 - 280	5.0 (.35)	10.5 (.72)	31.9 (2.2)	H812 * - 075 - †	H813 * - 075 - †	H814 * 075 - †				
	10 - 100	50 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H812 * - 100 - †	H813 * - 100 - †	H814 * 100 - †				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H812 * - 150 - †	H813 * - 150 - †	H814 * 150 - †				
1-1/2 SAE 24	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H882 * - 030 - †	H883 * - 030 - †	H884 * 030 - †	A	B	S	5000 PSI 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 - 370	6.5 (.45)	15.0 (1.0)	39.0 (2.7)	H882 * - 100 - †	H883 * - 100 - †	H884 * 100 - †				
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H882 * - 150 - †	H883 * - 150 - †	H884 * 150 - †				
1-1/2 Code 62	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	4.8 (.33)	H818 * - 030 - †			A	B	S	5000 PSI 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 - 370	6.5 (.45)	15 (1.0)	39.0 (2.7)	H818 * - 100 - †						
	10 - 150	50 - 560	10.5 (.72)	27.5 (1.9)	110 (7.6)	H818 * - 150 - †						
3	20 - 180	50 - 650	11 (.76)	17 (1.1)			H913 * - 180 - †	H914 * - 180 - †	800 PSI		Not Available	
	20 - 275	100 - 1000	11 (.76)	18 (1.2)			H913 * - 275 - †	H914 * - 275 - †	A	B		
3 Code 61	20 - 180	50 - 650	11 (.76)	17 (1.1)		H919 * - 180 - †			800 PSI		Not Available	
	20 - 275	100 - 1000	11 (.76)	18 (1.2)		H919 * - 275 - †			A	B		

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

② 3 inch models have BSPT (BS21) threads

(example) H 713 <sup>\*</sup>A - 030 - <sup>†</sup>RF



# 3500/6000 PSI Test Kits

## For Water-based Fluids

- Direct reading
- Install in any position
- 360° Rotatable Guard/Scale
- Easier to Read Linear Scale
- No Flow Straighteners or Special Piping Required
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

### SPECIFICATIONS:

#### 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

<b>COMMON PARTS:</b>	<b>Retaining Ring:</b> T316 SS
<b>Spider Plate:</b> T316 SS	<b>Retaining Spring:</b> T316 SS
<b>Spring:</b> T302 SS	<b>Indicator and Internal Magnet:</b> PPS / Ceramic
<b>Fasteners:</b> T303 SS	<b>Guard Seal / Bumper:</b> Buna N
<b>Pressure Seals:</b> Viton	<b>Scale Support:</b> 6063 - T6 Aluminum
<b>Guard:</b> Polycarbonate	<b>End Caps:</b> Nylon ST

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179

**TEMPERATURE RANGE:** -20 to 240°F (-29 to 116°C)

#### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max., with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 24. For detailed differential pressure charts, see page 53.

**ACCURACY:**  $\pm 2\%$  of full scale reading

**REPEATABILITY:**  $\pm 1\%$

**PRESSURE GAUGE:** Glycerin dampened, 0 - 3,500 psi / 0 - 240 bar pressure range. Available in aluminum and brass test kits. Glycerin dampened, 0 - 6,000 psi / 0 - 400 bar pressure range. Available on stainless steel test kits.

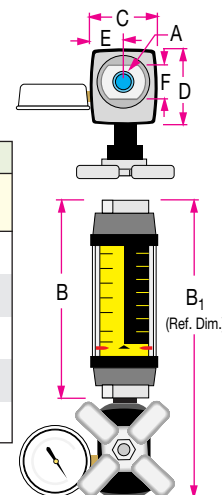
**LOAD VALVE:** 1/2", 3/4" and 1" series - needle valve; 1-1/4" and 1-1/2" series ball valve. Produce  $\Delta P$  up to 3,500 psi/241 bar PSID and 6,000 psi/414 bar PSID.



### DIMENSIONS:

	A	B	B <sub>1</sub>	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)
1/2 (SAE10)	6.6 (168)	10.3 (262)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)	
3/4 (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)	1.50 (38)	
1-1/4 (SAE 20)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	
1-1/2 (SAE 24)	12.2 (310)	20.5 (521)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	

**NOTE:** Weights for all sizes can be found on page 57.  
SAE and BSPP Test Kits include inlet adapter.





# 3500/6000 PSI Test Kits

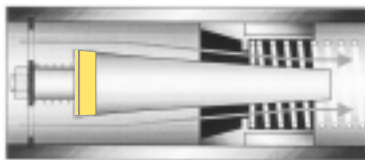
## For Water-based Fluids

### ORDERING INFORMATION:

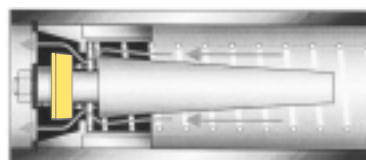
NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/2 SAE 10	0.2 - 1.0	.05 - 3.75	3.0 (.21)	4.75 (.33)	7.2 (.50)	H612 * - 001 - TK	H613 * - 001 - TK	H614 * 001 - TK	A	B	S	6000 PSI 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	4 - 37	24.0 (1.7)	71.5 (4.9)	85 (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				
3/4 SAE 12	.25 - 2.0	1 - 7.5	1.5 (.10)	3.0 (.21)	3.9 (.27)	H712 * - 002 - TK	H713 * - 002 - TK	H714 * 002 - TK	A	B	S	5000 PSI 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 - 37	6.5 (.45)	16.0 (1.1)	15.8 (1.1)	H712 * - 010 - TK	H713 * - 010 - TK	H714 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H712 * - 020 - TK	H713 * - 020 - TK	H714 * 020 - TK				
	3 - 30	10 - 110	18.0 (1.2)	47.5 (3.3)	76.1 (5.2)	H712 * - 030 - TK	H713 * - 030 - TK	H714 * 030 - TK				
1 SAE 16	.25 - 2.0	1 - 7.5	1.5 (.10)	3.0 (.21)	3.9 (.27)	H782 * - 002 - TK	H783 * - 002 - TK	H784 * 002 - TK	A	B	S	5000 PSI 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 - 37	6.5 (.45)	16.0 (1.1)	15.8 (1.1)	H782 * - 010 - TK	H783 * - 010 - TK	H784 * 010 - TK				
	2 - 20	10 - 74	11.0 (.76)	26.0 (1.8)	35.0 (2.4)	H782 * - 020 - TK	H783 * - 020 - TK	H784 * 020 - TK				
	3 - 30	10 - 110	18.0 (1.2)	47.5 (3.3)	76.1 (5.2)	H782 * - 030 - TK	H783 * - 030 - TK	H784 * 030 - TK				
1-1/4 SAE 20	3 - 30	10 - 110	3.4 (.23)	7.8 (.54)	5.6 (.39)	H812 * - 030 - TK	H813 * - 030 - TK	H814 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (.30)	8.8 (6.1)	14.3 (.99)	H812 * - 050 - TK	H813 * - 050 - TK	H814 * 050 - TK				
	10 - 75	40 - 280	6.3 (.43)	14.3 (9.9)	35.7 (2.5)	H812 * - 075 - TK	H813 * - 075 - TK	H814 * 075 - TK				
	10 - 100	50 - 370	8.3 (.57)	21.3 (1.5)	45.3 (3.1)	H812 * - 100 - TK	H813 * - 100 - TK	H814 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H812 * - 150 - TK	H813 * - 150 - TK	H814 * 150 - TK				
1-1/2 SAE 24	3 - 30	10 - 110	3.4 (.23)	7.8 (.54)	5.6 (.39)	H882 * - 030 - TK	H883 * - 030 - TK	H884 * 030 - TK	A	B	S	5000 PSI RT
	5 - 50	20 - 190	4.3 (.30)	8.8 (6.1)	14.3 (.99)	H882 * - 050 - TK	H883 * - 050 - TK	H884 * 050 - TK				
	10 - 75	40 - 280	6.3 (.43)	14.3 (9.9)	35.7 (2.5)	H882 * - 075 - TK	H883 * - 075 - TK	H884 * 075 - TK				
	10 - 100	50 - 370	8.3 (.57)	21.3 (1.5)	45.3 (3.1)	H882 * - 100 - TK	H883 * - 100 - TK	H884 * 100 - TK				
	10 - 150	50 - 560	14.3 (.99)	41.3 (2.8)	124 (8.6)	H882 * - 150 - TK	H883 * - 150 - TK	H884 * 150 - TK				

(example) H 713 <sup>\*</sup>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

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

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

#### PETROLEUM TEST KITS

PAGE 11



#### PHOSPHATE ESTER TEST KITS

PAGE 17



#### FLOW ALERT FLOW SWITCHES

PAGE 39



#### FLOW TRANSMITTERS

PAGE 41



# 3500/6000 PSI High Temperature

## Flow Meters For Water-based Fluids

- Direct reading
- Install in any position
- 360° Rotatable Guard/Scale
- Easier to Read Linear Scale
- No Flow Straighteners or Special Piping Required
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 500°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available



### SPECIFICATIONS:

#### 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

**Scale:** Polyimide

**Retaining Ring:** T316 SS

**Retaining Spring:** T316 SS

**Indicator:** T410 SS

**Internal Magnet:** Teflon Coated Alnico 8

**Bumper:** 2011 - T3 Anodized Aluminum

**Guard:** Cylindrical Pyrex™ Glass

**End Caps:** 2011 - T3 Anodized Aluminum

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179, and **Code 62:** SAE J518

**TEMPERATURE RANGE:** -20 to 400°F (-29 to 205°C) Continuous

400 to 500°F (205 to 260°C) Intermittent

For detailed "Pressure vs. Temperature" correlation information, see page 26.

#### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max. with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max.

for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

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

differential pressure charts, see page 53.

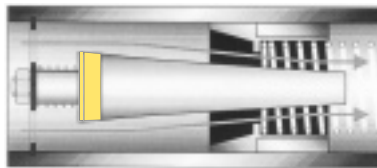
**ACCURACY:**  $\pm 2\%$  of full scale reading

**REPEATABILITY:**  $\pm 1\%$

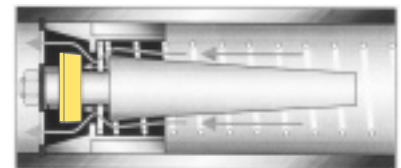
#### REVERSE FLOW BY-PASS OPTION:

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, which allows the fluid to flow freely in the reverse direction.



Normal Flow Direction



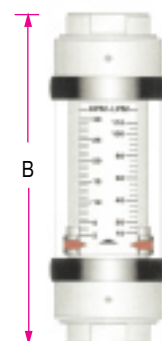
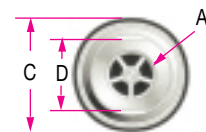
Reverse Flow By-Pass

#### DIMENSIONS:

A	B	C	D
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	FLATS in (mm)
1/4 (SAE 6)	6.60 (168)	2.01 (53)	1.25 (32)
1/2 (SAE10)	6.60 (168)	2.01 (53)	1.25 (32)
3/4 (SAE 12)	7.20 (183)	2.48 (63)	1.50 (38)
1 (SAE 16)	7.20 (183)	2.48 (63)	1.50 (38)
1-1/4 (SAE 20)	12.20 (310)	4.20 (105)	2.75 (70)
1-1/2 (SAE 24)	12.20 (310)	4.20 (105)	2.75 (70)

**NOTE:** Dimensions for 1-1/2" Code 62 can be found on page 50.

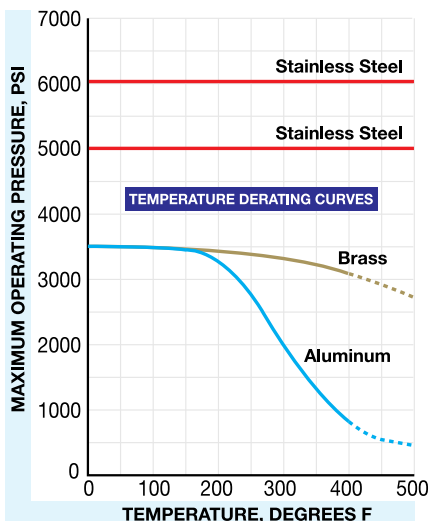
Weights for all sizes can be found on page 57.



# 3500/6000 PSI High Temperature Flow Meters For Water-based Fluids

## ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP			MODEL NUMBER <i>(see example below*)</i>			MATERIAL			OPTIONS
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	REVERSE 100% FLOW PSI (BAR)	SAE	NPTF	BSPP	ALUMINUM 3500 PSI	BRASS 3500 PSI	STAINLESS	REVERSE FLOW
1/4 SAE 6	.02 - .20	.10 - 0.75	3.5 (.24)	4.0 (.28)		H212 * - 002 - HT	H213 * - 002 - HT	H214 * 002 - HT	A	B	S	6000 PSI Not Available
	.05 - .50	.20 - 1.8	3.0 (.21)	5.0 (.35)		H212 * - 005 - HT	H213 * - 005 - HT	H214 * 005 - HT				
	.10 - 1.0	.50 - 3.75	4.0 (.28)	9.0 (.62)		H212 * - 010 - HT	H213 * - 010 - HT	H214 * 010 - HT				
	.20 - 2.0	1.0 - 7.5	6.0 (.41)	13 (.90)		H212 * - 020 - HT	H213 * - 020 - HT	H214 * 020 - HT				
1/2 SAE 10	0.2 - 1.0	.50 - 3.75	2.0 (.14)	2.75 (.19)	5.2 (.36)	H612 * - 001 - HT	H613 * - 001 - HT	H614 * 001 - HT	A	B	S	6000 PSI HR
	0.2 - 2.0	1.0 - 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	4 - 37	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	.25 - 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	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H712 * - 010 - HT	H713 * - 010 - HT	H714 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H712 * - 020 - HT	H713 * - 020 - HT	H714 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H712 * - 030 - HT	H713 * - 030 - HT	H714 * 030 - HT				
1 SAE 16	.25 - 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	S	5000 PSI 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 - 37	3.5 (.24)	9.0 (.62)	8.8 (.61)	H782 * - 010 - HT	H783 * - 010 - HT	H784 * 010 - HT				
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	18.0 (1.24)	H782 * - 020 - HT	H783 * - 020 - HT	H784 * 020 - HT				
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	45.1 (3.11)	H782 * - 030 - HT	H783 * - 030 - HT	H784 * 030 - HT				
	4 - 40	15 - 110	9.0 (.62)	24 (1.7)	87.5 (6.04)	H782 * - 040 - HT	H783 * - 040 - HT	H784 * 040 - HT				
	5 - 50	19 - 189	12.5 (.86)	34 (2.3)	150 (10.4)	H782 * - 050 - HT	H783 * - 050 - HT	H784 * 050 - 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	S	5000 PSI 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 - 370	6.5 (.45)	15 (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	S	5000 PSI 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 - 370	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	S	5000 PSI 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 - 370	6.5 (.45)	15 (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						



(example) H 713 <sup>\*</sup>A - 030 - HR

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

**CAUTION:** HR option is not available with brass flow meters.

# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 240°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available



### SPECIFICATIONS:

#### MATERIALS:

C360 Brass body, piston and cone<sup>①</sup>

T303 Stainless body, C360 Brass 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: -20 to 240°F (-29 to 116°C) for higher temp. meters, see page 29.

#### PRESSURE RATING:

Brass Operating: 3,500 psi/241 bar max. (800 psi/55 bar max. for 3" series) with a 3:1 safety factor.

Fatigue Rating: per NFPA T2.6.1R1-1991, (for details see page 7)

Stainless Steel Operating: 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

Fatigue Rating: per NFPA T2.6.1R1-1991, (for details see page 7)

PRESSURE DROP: See Ordering Information Table, page 28. For detailed differential pressure charts, see page 54.

ACCURACY:  $\pm 2\%$  of full scale reading

REPEATABILITY:  $\pm 1\%$

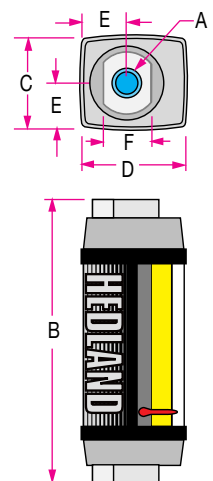
### DIMENSIONS:

A	B	C	D	E	F
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	DEPTH in (mm)	OFFSET in (mm)	FLATS in (mm)
1/4 (SAE 6)	4.8 (122)	1.68 (43)	1.90 (48)	.84 (21)	.88 (22)
1/2 (SAE10)	6.6 (168)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)
3/4 (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)	1.50 (38)
1-1/4 (SAE 20)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)
1-1/2 (SAE 24)	12.2 (310)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)

NOTE: Dimensions for 3" can be found on page 50.

Weights for all sizes can be found on page 57.

① 3 inch models have celcon piston/piston ring



# 3500/6000 PSI Flow Meters

## For Water and Other Liquids

### ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP		MODEL NUMBER <i>(see example below*)</i>			MATERIAL	
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	SAE	NPTF	BSPP <sup>②</sup>	BRASS 3500 PSI	STAINLESS
<b>1/4 SAE 6</b>	.02 - .20	.10 - 0.75	3.5 (.24)	4.0 (.28)	H204 * - 002	H205 * - 002	H206 * - 002	<b>B</b>	6000 PSI <b>S</b>
	.05 - .50	0.2 - 1.8	3.0 (.21)	5.0 (.35)	H204 * - 005	H205 * - 005	H206 * - 005		
	.10 - 1.0	.50 - 3.75	4.0 (.28)	9.0 (.62)	H204 * - 010	H205 * - 010	H206 * - 010		
	.20 - 2.0	1.0 - 7.5	6.0 (.41)	13 (.90)	H204 * - 020	H205 * - 020	H206 * - 020		
<b>1/2 SAE 10</b>	0.2 - 1.0	0.5 - 3.75	2.0 (.14)	2.75 (.19)	H604 * - 001	H605 * - 001	H606 * - 001	<b>B</b>	6000 PSI <b>S</b>
	0.2 - 2.0	1.0 - 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	4 - 37	4.0 (.28)	9.5 (.66)	H604 * - 010	H605 * - 010	H606 * - 010		
	1 - 15	4.1 - 56	6.5 (.45)	18.5 (1.3)	H604 * - 015	H605 * - 015	H606 * - 015		
<b>3/4 SAE 12</b>	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	H704 * - 002	H705 * - 002	H706 * - 002	<b>B</b>	5000 PSI <b>S</b>
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	H704 * - 005	H705 * - 005	H706 * - 005		
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	H704 * - 010	H705 * - 010	H706 * - 010		
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	H704 * - 020	H705 * - 020	H706 * - 020		
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	H704 * - 030	H705 * - 030	H706 * - 030		
<b>1 SAE 16</b>	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	H754 * - 002	H755 * - 002	H756 * - 002	<b>B</b>	5000 PSI <b>S</b>
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	H754 * - 005	H755 * - 005	H756 * - 005		
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	H754 * - 010	H755 * - 010	H756 * - 010		
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	H754 * - 020	H755 * - 020	H756 * - 020		
	3 - 30	10 - 110	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	19 - 189	12.5 (.86)	34 (2.3)	H754 * - 050	H755 * - 050	H756 * - 050		
<b>1-1/4 SAE 20</b>	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	H804 * - 030	H805 * - 030	H806 * - 030	<b>B</b>	5000 PSI <b>S</b>
	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 - 370	6.5 (.45)	15 (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		
<b>1-1/2 SAE 24</b>	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	H854 * - 030	H855 * - 030	H856 * - 030	<b>B</b>	5000 PSI <b>S</b>
	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 - 370	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		
<b>3</b>	5 - 50	20 - 190	.50 (.03)	.75 (.05)		H905 * - 050	H906 * - 050	<b>B</b>	800 PSI Not Available
	10 - 100	40 - 360	1.40 (.10)	2.25 (.16)		H905 * - 100	H906 * - 100		
	15 - 150	125 - 575	3.25 (.22)	5.25 (.36)		H905 * - 150	H906 * - 150		

② 3 inch models have BSPT (BS21) threads

(example) H 705 <sup>\*</sup>**B** - 030

#### WATER-BASED FLUIDS



PAGE 21

#### HIGH TEMP. FLOW METERS



PAGE 29

#### FLOW ALERT FLOW SWITCHES



PAGE 39

#### FLOW TRANSMITTERS



PAGE 41

# 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
- Insensitive to Shock and Vibration
- Good Viscosity Stability
- Temperature up to 500°F
- Accuracy  $\pm 2\%$  Full Scale
- Repeatability  $\pm 1\%$
- Special Scales Available

## SPECIFICATIONS:

### MATERIALS:

C360 Brass body, piston and cone  
T303 Stainless body, C360 Brass Piston and Cone

### COMMON PARTS:

<b>Spider Plate:</b> T316 SS	<b>Retaining Ring:</b> T316 SS
<b>Spring:</b> T302 SS	<b>Retaining Spring:</b> T316 SS
<b>Fasteners:</b> T303 SS	<b>Indicator:</b> T410 SS
<b>Seals:</b> Viton	<b>Internal Magnet:</b> Teflon Coated Alnico 8
<b>Scale Support:</b> T316 SS	<b>Bumper:</b> 2011 - T3 Anodized Aluminum
<b>Scale:</b> Polymide	<b>Guard:</b> Cylindrical Pyrex™ Glass
	<b>End Caps:</b> 2011 - T3 Anodized Aluminum

**THREADS:** SAE J1926/1, NPTF ANSI B2.2, BSPP ISO1179

**TEMPERATURE RANGE:** -20 to 400°F (-29 to 205°C) Continuous  
400 to 500°F (205 to 260°C) Intermittent

For detailed "Pressure vs. Temperature" correlation information, see page 30.

### PRESSURE RATING:

**Aluminum / Brass Operating:** 3,500 psi/241 bar max. with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**Stainless Steel Operating:** 6,000 psi/414 bar max., (5,000 psi/345 bar max. for 3/4 to 1-1/2" series) with a 3:1 safety factor.

**Fatigue Rating:** per NFPA T2.6.1R1-1991, (for details see page 7)

**PRESSURE DROP:** See Ordering Information Table, page 30. For detailed differential pressure charts, see page 54.

**ACCURACY:**  $\pm 2\%$  of full scale reading

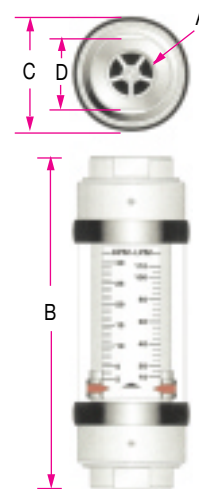
**REPEATABILITY:**  $\pm 1\%$



## DIMENSIONS:

	A	B	C	D
NOMINAL PORT SIZE	LENGTH in (mm)	WIDTH in (mm)	FLATS in (mm)	
1/4 (SAE 6)	6.60 (168)	2.01 (53)	1.25 (32)	
1/2 (SAE10)	6.60 (168)	2.01 (53)	1.25 (32)	
3/4 (SAE 12)	7.20 (183)	2.48 (63)	1.50 (38)	
1 (SAE 16)	7.20 (183)	2.48 (63)	1.50 (38)	
1-1/4 (SAE 20)	12.20 (310)	4.20 (105)	2.75 (70)	
1-1/2 (SAE 24)	12.20 (310)	4.20 (105)	2.75 (70)	

**NOTE:** Weights for all sizes can be found on page 57.



# 3500/6000 PSI High Temperature Flow Meters For Water and Other Liquids

## ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE		PRESSURE DROP		MODEL NUMBER <i>(see example below*)</i>			MATERIAL	
	GPM	LPM	50% FLOW PSI (BAR)	100% FLOW PSI (BAR)	SAE	NPTF	BSPP	BRASS 3500 PSI	STAINLESS
<b>1/4</b> SAE 6	.02 - .20	0.1 - 0.75	3.5 (.24)	4.0 (.28)	H204 * - 002 - HT	H205 * - 002 - HT	H206 * - 002 - HT	B	6000 PSI S
	.05 - .50	0.2 - 1.8	3.0 (.21)	5.0 (.35)	H204 * - 005 - HT	H205 * - 005 - HT	H206 * - 005 - HT		
	.10 - 1.0	0.5 - 3.75	4.0 (.28)	9.0 (.62)	H204 * - 010 - HT	H205 * - 010 - HT	H206 * - 010 - HT		
	.20 - 2.0	1.0 - 7.5	6.0 (.41)	13 (.90)	H204 * - 020 - HT	H205 * - 020 - HT	H206 * - 020 - HT		
<b>1/2</b> SAE 10	0.2 - 1.0	0.5 - 3.75	2.0 (.14)	2.75 (.19)	H604 * - 001 - HT	H605 * - 001 - HT	H606 * - 001 - HT	B	6000 PSI S
	0.2 - 2.0	1.0 - 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	4 - 37	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		
<b>3/4</b> SAE 12	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	H704 * - 002 - HT	H705 * - 002 - HT	H706 * - 002 - HT	B	5000 PSI S
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	H704 * - 005 - HT	H705 * - 005 - HT	H706 * - 005 - HT		
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	H704 * - 010 - HT	H705 * - 010 - HT	H706 * - 010 - HT		
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	H704 * - 020 - HT	H705 * - 020 - HT	H706 * - 020 - HT		
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	H704 * - 030 - HT	H705 * - 030 - HT	H706 * - 030 - HT		
<b>1</b> SAE 16	.25 - 2.0	1 - 7.5	1.0 (.07)	2.0 (.14)	H754 * - 002 - HT	H755 * - 002 - HT	H756 * - 002 - HT	B	5000 PSI S
	0.5 - 5.0	2 - 19	2.5 (.17)	3.5 (.24)	H754 * - 005 - HT	H755 * - 005 - HT	H756 * - 005 - HT		
	1 - 10	5 - 37	3.5 (.24)	9.0 (.62)	H754 * - 010 - HT	H755 * - 010 - HT	H756 * - 010 - HT		
	2 - 20	10 - 74	4.0 (.28)	9.0 (.62)	H754 * - 020 - HT	H755 * - 020 - HT	H756 * - 020 - HT		
	3 - 30	10 - 110	7.0 (.48)	16.5 (1.1)	H754 * - 030 - HT	H755 * - 030 - HT	H756 * - 030 - HT		
	4 - 40	15 - 150	9.0 (.62)	24 (1.7)	H754 * - 040 - HT	H755 * - 040 - HT	H756 * - 040 - HT		
	5 - 50	19 - 189	12.5 (.86)	34 (2.3)	H754 * - 050 - HT	H755 * - 050 - HT	H756 * - 050 - HT		
<b>1-1/4</b> SAE 20	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	H804 * - 030 - HT	H805 * - 030 - HT	H806 * - 030 - HT	B	5000 PSI S
	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 - 370	6.5 (.45)	15 (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		
<b>1-1/2</b> SAE 24	3 - 30	10 - 110	3.0 (.21)	4.0 (.28)	H854 * - 030 - HT	H855 * - 030 - HT	H856 * - 030 - HT	B	5000 PSI S
	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 - 370	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		

(example) H 705 \* B - 030 - HT

NOTE: HT suffix represents standard high temperature configuration.

