



**Flow Monitors**  
**Excess Flow Valves**  
**Flow Meters**



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# LPH Series

## Non-Adjustable Flow Monitor

01

### Key Features

Compact, Dependable, Economical

### Features

- Close On-Off Differential
- Visual Indication of Flow with Acrylic Model
- No Seals
- In Line Vertical Plumbing
- Materials: Acrylic, Brass, 316SS or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

### Applications

- Analyzers
- Kidney Dialysis Machines
- Micro Biomedical Machines
- Laser Cooling Systems
- Bubbler Systems
- Pollution Sampling Equipment

### FNPT Port Sizes

- LPH 125 - 1/8"
- LPH 250 - 1/8"
- LPH 375 - 1/4"

### Operation

When air/water flows through the unit it causes the magnetic piston to move up at the calibration point. This displacement is caused by the pressure differential from the air/water flowing through the unit. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. Decreasing the flow below the calibration point causes the reed switch to de-actuate.

- Actuation points for air at 68°F and 14.7 PSIA with increasing flow.
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow).
- Calibration accuracy  $\pm 10\%$  of calibration points shown.
- Repeatability  $\pm 1\%$ .
- Unit will pass greater flows.

### Pressure Loss

$\Delta P$  AT SET POINT  
MBARS (INCHES OF WATER)  
ALL UNITS 11.2 (4.5)

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.



### Calibration Table

Model	Air SCC/M (SCFH)	Water ML/M (GPH)
LPH-125		
0	50 (0.105)	1 (0.016)
-1	120 (0.254)	2 (0.03171)
-2	560 (1.187)	16 (0.25369)
-3	750 (1.589)	30 (0.47567)
-4	1300 (2.755)	45 (0.71350)
-5	1400 (2.966)	50 (0.79278)
-6	1900 (4.026)	65 (1.0306)
-7	2500 (5.297)	85 (1.3477)
-8	2700 (5.721)	90 (1.4270)
-9	3300 (6.992)	105 (1.6648)
-10	3600 (7.628)	120 (1.9027)
-11	5200 (11.02)	170 (2.6955)
-12	6000 (12.71)	200 (3.1711)
LPH-250		
-1	350 (0.742)	7 (0.111)
-2	6000 (12.71)	200 (3.171)
-3	7500 (15.89)	250 (3.964)
-4	9500 (20.12)	315 (4.994)
-5	10500 (22.25)	346 (5.486)
-6	12500 (26.49)	400 (6.342)
-7	15200 (32.21)	500 (7.928)
-8	24000 (50.85)	760 (12.05)
LPH-375		
-1	3000 (6.36)	70 (1.110)
-2	15200 (32.21)	475 (7.531)
-3	30300 (64.20)	950 (15.06)
-4	37000 (78.40)	1425 (22.59)**
-5	45300 (95.99)	2200 (34.88)**

\*\*Teflon® encapsulated piston not available



### Specifications

Body Material	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts
Acrylic	4 (113.4)	100 (6.89)	Acrylic, 316SS, Epoxy
Brass	8 (226.8)	1500 (103.42)	Brass, 316SS, Epoxy
316SS	8 (226.8)	3000 (206.84)	316SS, Epoxy
Teflon	4 (113.4)	80 (5.52)	Teflon®

### Temperature Operating Range



- 0° to 220°F (-17° to 104°C) for 316SS, Brass and Teflon®
  - 32° to 160°F (0° to 71°C) for Acrylic
- For other temperature ranges consult factory.

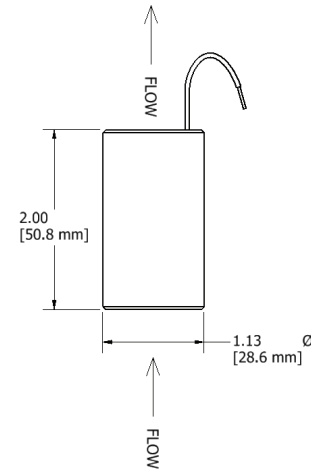
# LPH Series

Non-Adjustable Flow Monitor

02

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>	



## Installation

Mount with the inlet port down vertically. A 10 micron filter is recommended.

Leads Up;  
Leads Down;  
Conduit;

Normally Open  
Normally Closed  
N.O. Conduit Offset Down  
N.C. Conduit Offset Up

## How to Order

[Sales@ChemTec.com](mailto:Sales@ChemTec.com) | 800.222.2177

Model	Size	Calibration	Materials	Electrical Conduit	Media	Switch	Options
LPH	125 250 375	See Cal. Table	A Acrylic B Brass S 316SS T Teflon®  (TFE piston standard in Teflon units)	C (Metallic Bodies Only) (1/2" FNPT)	W Water A Air	<p>N.O. Single Pole Single Throw Normally Open</p> <p>N.C. Single Pole Single Throw Normally Closed</p> <p>SPDT Single Pole Double Throw</p> <p>DSNONO Double Switch N.O./N.O.</p> <p>DSNONC Double Switch N.O./N.C.</p> <p>DSNCNC Double Switch N.C./N.C.</p> <p>DCNONO Double Conduit N.O./N.O.</p> <p>DCNONC Double Conduit N.O./N.C.</p> <p>DCNCNC Double Conduit N.C./N.C.</p>	<p>TFE Teflon® Encapsulated Piston (Standard in Teflon Units)</p> <p>02 Oxygen Cleaned</p> <p>HT High Temperature Options 340°F (171°C) metallic body only</p> <p>HV High Voltage Switch (220 VAC)</p>

### Key Features

Economical Liquid Flow Sensor

### Features

- Non-Adjustable Flow Monitor
- Low Maintenance
- Close On-Off Differential
- No Seals
- Single Moving Part
- In Line Vertical Plumbing
- Materials: 316 SS, Brass or PVC
- Confirms: Normal Flow Condition
- Senses: High Flow or Low Flow Conditions
- Output: Switch Contact

### Applications

- Laser Cooling Systems
- Heat Pumps
- Cooling Systems



### Operation

As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the magnetic piston's resistance (mass). The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. This is a snap action and occurs in the decreasing mode as well.

- Actuation Points for increasing flow
- Calibration Accuracy  $\pm 10\%$  of actuation point
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

### Temperature Operating Range

- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
- 32° to 120° F (0° to 49°C) for PVC

For other temperature ranges consult factory.

### Specifications

Body Material	Weight	Max Working Pressure PSIG (barg)	Wetted Parts
PVC	1/2" 0.2lb	100 (6.89)	PVC, Epoxy
Brass	1/2" 0.7lb	250 (17.22)	Brass, Epoxy
316SS	1/2" 0.7lb	500 (34.45)	316SS, Epoxy
PVC	3/4" 0.3lb	100 (6.89)	PVC, Epoxy
Brass	3/4" 1.0lb	250 (17.22)	Brass, Epoxy
316SS	3/4" 0.1lb	500 (34.45)	316SS, Epoxy
PVC	1" 0.4lb	100 (6.89)	PVC, Epoxy
Brass	1" 1.2lb	250 (17.22)	Brass, Epoxy
316SS	1" 1.2lb	500 (34.45)	316SS, Epoxy

### Calibration Table

Model	PVC LPM (GPM)	Brass or 316SS LPM (GPM)
FS-50		
-A	0.57 (0.15)	0.95 (0.25)
-B	0.95 (0.25)	1.89 (0.50)
-C	1.89 (0.50)	3.79 (1.00)
-D	2.84 (0.75)	5.68 (1.50)
-E	3.79 (1.00)	7.57 (2.00)
-F	4.73 (1.25)	9.46 (2.50)
FS-75		
-A	0.76 (0.20)	1.89 (0.50)
-B	1.89 (0.50)	3.79 (1.00)
-C	2.84 (0.75)	7.57 (2.00)
-D	3.79 (1.00)	11.4 (3.00)
-E	3.68 (1.50)	15.1 (4.00)
-F	7.57 (2.00)	21.8 (5.75)
FS-1		
-A	0.95 (0.25)	7.57 (2.00)
-B	2.84 (0.75)	9.46 (2.50)
-C	3.79 (1.00)	11.4 (3.00)
-D	7.57 (2.00)	15.1 (4.00)
-E	11.4 (3.00)	22.7 (6.00)
-F	15.1 (4.00)	32.2 (8.50)

### Pressure Loss

$\Delta P$  to atmosphere at set point PSID (BARD)

Water PVC Units

All set points - 0.50 (0.034)

Metal Units

All set points - 1.00 (0.069)





# FS Series

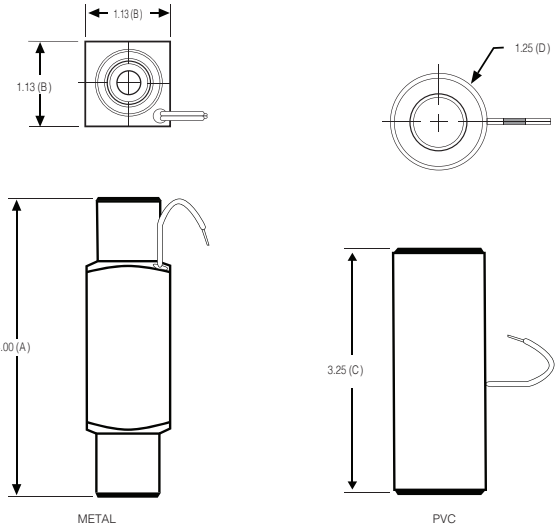
Non-Adjustable Flow Monitor

04

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>	

Fluid	Ports: Inlet/Outlet	Ports Inches
Model	FNPT (PVC)	MNPT (Brass or 316SS)
FS-50	1/2"	1/2"
FS-75	3/4"	3/4"
FS-1	1"	1"



## Installation

Mount vertically, inlet down.  
Filtration - 100 Micron Filter Recommended.

Dimensions Inches (mm)				
		FS-50	FS-75	FS-1
METAL	A	4.00 (101.6)	4.50 (114.3)	4.50 (114.3)
METAL	B	1.125 (28.70)	1.25 (31.75)	1.50 (38.10)
PVC	C	3.25 (88.52)	3.75 (95.25)	4.50 (114.3)
PVC	D	1.25 (31.75)	1.50 (38.10)	1.75 (44.45)

## How to Order

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Model	Size	Calibration	Materials	Switch	Options
FS	-50 -75 -1	A B C D E F	P PVC B Brass S 316SS	N.O. Single Pole Single Throw Normally Open  SPDT Single Pole Double Throw	HT High Temperature Option 340°F (171°C) (metallic body only)

Note: All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# LFS Series

Non-Adjustable Flow Monitor

05

## Key Features

Chemically inert, Non-restrictive at higher flows.

## Features

- Close On-Off Differential
- In Line Vertical Plumbing
- Confirms: Normal Flow Conditions
- Senses: High Flow or Low Flow Conditions
- Material: Polypropylene
- Output: Switch Contact

## Applications

- Deionized Water
- Chemical Process Systems
- Cooling Systems
- Heat Pump Systems
- Laser Cooling Systems

## Operation

As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the magnetic piston's resistance (mass). The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. This is a snap action and occurs in the decreasing mode as well.

- Actuation Points for increasing flow
- Calibration Accuracy  $\pm 10\%$  of actuation point
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

## Temperature Operating Range

- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
  - 32° to 120°F (0° to 49°C) for Polypropylene
- For other temperature ranges consult factory.

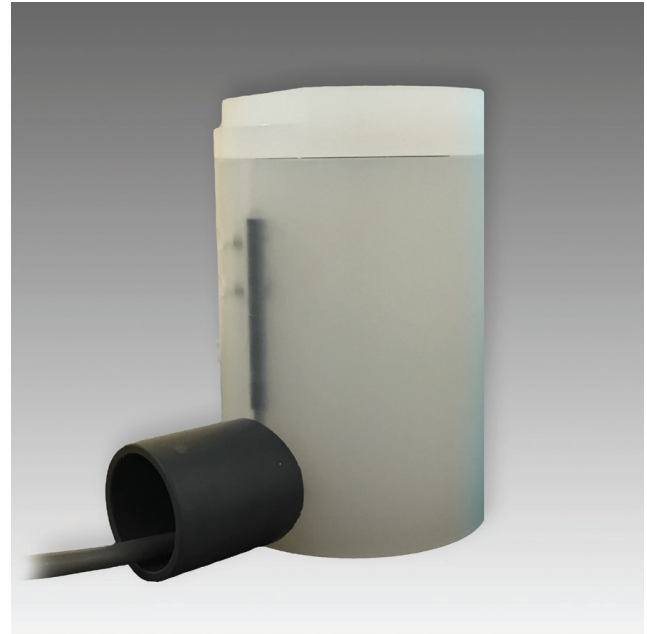
Specifications				
Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Polypropylene	10.469 (0.213)	100 (6.89)	PP, Epoxy	Viton

## Pressure Loss

$\Delta P$  at 5 GPM (18.925) PSID (BARD)

All set points - 1.00 (0.069)

CE



## Calibration Table

Model	Water LPM (GPM)
LFS-500-PP-C	
-1	0.38 (0.10)
-2	1.89 (0.50)
-4	3.78 (1.00)
-6	5.68 (1.50)
-8	7.57 (2.00)



Corrections must be made for other liquids, line pressures and temperatures. Please consult your representative or the factory.

# LFS Series

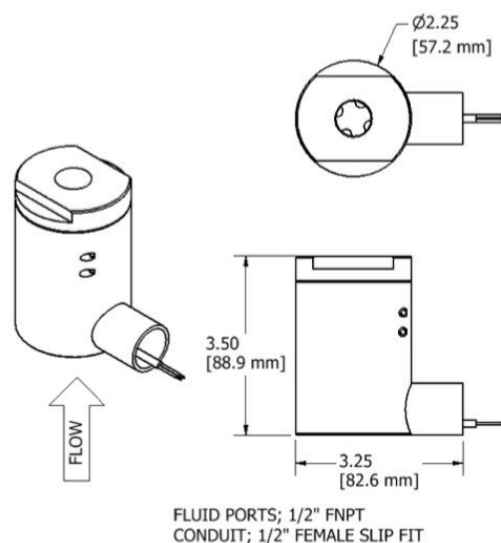
Non-Adjustable Flow Monitor

06

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	100
AC (V)	150	100
Contact Rating		
DC (W)	50	3
DC (VA)	70	3
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 39 in. min. from body 22 AWG, PVC jacketed wire, red, black</p>	 <p>leads 39 in. min. from body 22 AWG PVC jacketed wired,</p> <ul style="list-style-type: none"> <li>• red - N.C.</li> <li>• black - N.O.</li> <li>• white - Common</li> </ul>	

Fluid	Ports: Inlet/Outlet	Ports Inches
Model	FNPT	Electrical Conduit
LFS	1/2"	1/2" Female Slip Fitting



## Installation

Mount with inlet port down vertically. A 100 micron filter is recommended.

## How to Order

[Sales@ChemTec.com](mailto:Sales@ChemTec.com) | 800.222.2177

Model	Calibration	Switch
LFS 500 PPC	-1 -2 -4 -6 -8	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw

Note: All dimensions are subject to change for quality improvement. Not responsible for printing errors.  
Viton®



# 125 Series

## Standard Unobtrusive Adjustable Flow Monitor

07

### Key Features

Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or greater, minimal pressure drop.

### Features

- Broad Range of Adjustability
- Compact Size
- High Resolution
- Materials: 316SS, Brass or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

### Applications

- Welding Systems
- Analyzers
- Vacuum Systems
- Cooling Systems
- Chillers
- Biochemical Instruments
- Process Flows

### Operation

A magnetic piston is suspended by the repulsion of a fixed magnet. When fluid flows through the unit it causes the magnetic piston to move against the repulsion of the fixed magnet. The magnet piston actuates an encapsulated hermetically-sealed reed switch out of the fluid path. Decreasing the flow below the calibration point causes the reed switch to de-actuate. Set point is adjustable.

- Actuation Points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 30% less than actuation (increasing flow).
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

### Temperature Operating Range

- 0° to 220°F (-17° to 104°C)
- For other temperature ranges consult factory.

Specifications				
Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	4 (113.4)	80 (5.52)	Teflon®	Teflon®
Brass	12 (340.2)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	12 (340.2)	3000 (206.84)	316SS, Epoxy	Viton®



### Calibration Table

Model		Air SCC/M (SCFH)	Water ML/M (GPH)	Ports FNPT
125	Minimum	30 (0.063)	1 (0.016)	1/8"
	Minimum	16000 (33.90)	500 (7.93)	

### Pressure Loss

Air Flowrate SCC/M (SCFH)	Water Flowrate ML/M (GPH)	$\Delta P$ to Atmosphere MBARS (Inches of Water)
30 (.064)	1 (0.016)	8.71 (3.50)
310 (.657)	30 (0.48)	25.8 (10.38)
1500 (3.178)	300 (4.76)	29.7 (11.92)
16000 (33.9)	500 (7.93)	63.8 (25.63)





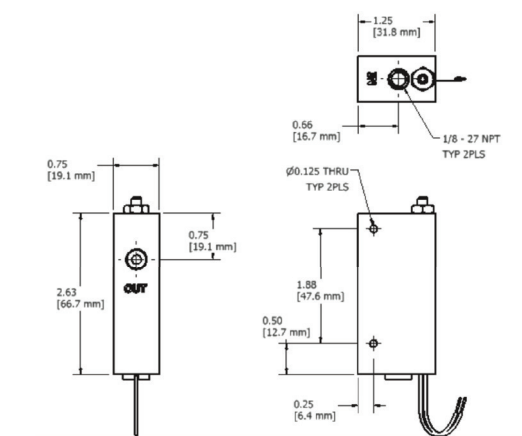
# 125 Series

Standard Unobtrusive Adjustable Flow Monitor

08

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>	



## Installation

Mount with the inlet port up vertically. Inlet port down changes the adjustable range of the unit. A 10 micron filter is recommended.

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Materials	Electrical Conduit (Optional)	Switch	Options
125	T Teflon® B Brass 316 Stainless	C (Metallic Bodies Only) (1/2" FNPT)	N.O. Single Pole Single Throw Normally Open  SPDT Single Pole Double Throw	TFE Teflon Encapsulated Piston**  02 Oxygen Cleaned  HT High Temperature Options 340°F (171°C) metallic body only  KZ FFKM Perfluoroelastomer EPR EPR Seals BN Buna N Seals FP Factory Preset

\*Consult Factory \*\*Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# 125 BP Series

Bypass Adjustable Flow Monitor

09

## Key Features

Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or less.

## Features

- Broad Range of Adjustability
- Compact Size
- High Resolution
- Close On-Off Differential
- Ease of Customer Setting
- Monitors Gases or Liquids
- Materials: 316SS, Brass or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

## Applications

- Vacuum Systems
- Wet Stations
- Gas Analyzers
- Cooling Systems
- Industrial Fluid Lines
- Process Flows

## Operation

When no flow is present the free magnetic piston rests on the bottom of the bore, which is in a bypass off the main line. Adjustment of the orifice in the main line creates a small bypass flow to lift the magnetic piston and actuate the reed switch. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. When flow decreases, the piston moves downward and the reed switch deactuates.

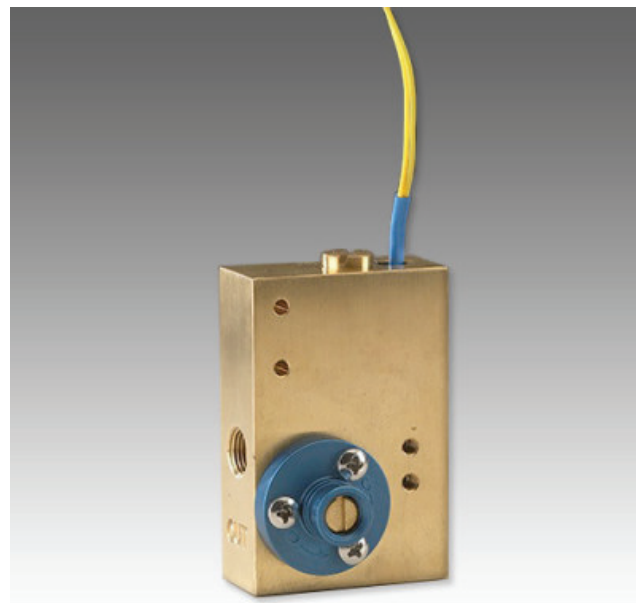
- Actuation Points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Temperature Operating Range

- 0° to 220°F (-17° to 104°C)
- For other temperature ranges consult factory.

Specifications				
Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	4.4 (123.5)	100 (6.89)	Teflon®	Teflon®
Brass	16 (453.6)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	16 (453.6)	3000 (206.84)	316SS, Epoxy	Viton®



## Calibration Table

Model		Air SCC/M (SCFH)	Water ML/M (GPH)	Ports FNPT
125 BP	Minimum	100 (0.21)	3 (0.048)	1/8"
	Maximum	20000 (42.4)	500 (7.93)	
125 BPHF	Minimum	200 (0.42)	5 (0.079)	1/8"
	Maximum	60000 (127)*	950 (15.105)	

## Pressure Loss

Air Flowrate SCC/M (SCFH)	Water Flowrate ML/M (GPH)	$\Delta P$ to Atmosphere MBARS (Inches of Water)
100 (.21)	3 (0.048)	1.2 (0.5)
5500 (11.7)	200 (3.17)	9.3 (3.71)
7000 (14.8)	400 (6.34)	11.7 (4.71)
20000 (42.4)	500 (7.93)	24.7 (9.93)
60000 (127.1)	950 (15.10)	69.7 (28.0)



\*At 60 PSIG (4.137 BARG)

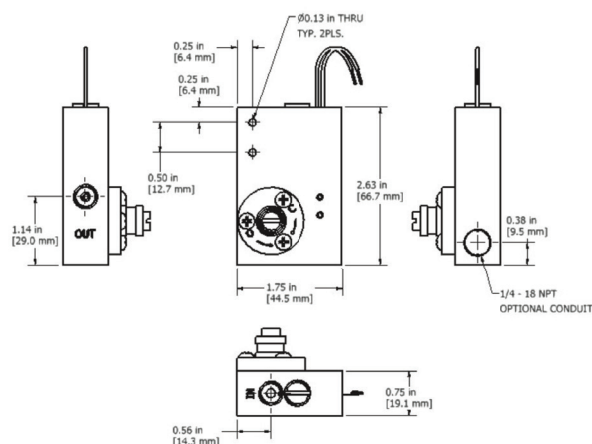
# 125 BP Series

Bypass Adjustable Flow Monitor

10

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	<p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>



## Installation

Mount vertically with the inlet port at bottom. A 10 micron filter is recommended.

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Materials		By Pass Design		Electrical Conduit	Switch		Options	
125 BP	T	Teflon®	BP	Bypass	C (1/4 FNPT)	N.O.	Single Pole	TFE	Teflon Encapsulated
	B	Brass			Blank for		Single Throw		Piston**
	316	Stainless	BPHF	Bypass High Flow	Standard Unit		Normally Open		
						SPDT	Single Pole	O2	Oxygen Cleaned
							Double Throw	HT	High Temperature Options 340°F (171°C) metallic body only
								KZ	FFKM Perfluoroelastomer
								EPR	EPR Seals
								BN	Buna N Seals
								FP	Factory Preset

\*Consult Factory \*\*Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# 500 BP Series

Bypass Adjustable Flow Monitor

11

## Key Features

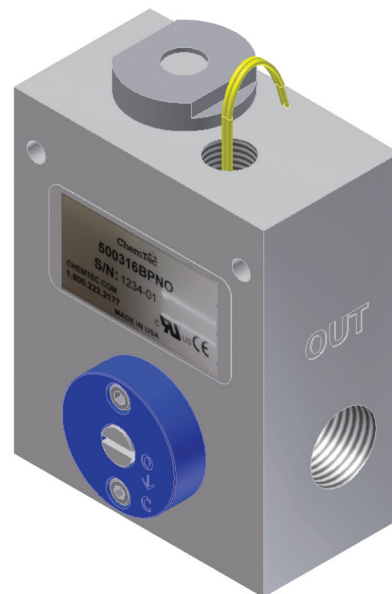
Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or less.

## Features

- Low Minimum Operating Pressure
- Close On-Off Differential
- Ease of adjustability
- In Line 180 Degree Porting
- Monitors Gases or Liquids
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Water or Explosion Proof Covers
- Materials: 316SS, Brass
- Output: Switch Contact

## Applications

- Vacuum Systems
- Wet Stations
- Shipboard Water Systems
- CVD Furnaces Cooling Water
- Biomedical Instruments
- Coolant Failure Alarm



## Operation

With no flow present, the magnetic piston rests on the bottom of the bypass bore. When flow is established the piston is forced upward by the bypass flow and actuates the reed switch. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. The bypass flow is controlled by manual adjustment of the flow control vane. When flow decreases the piston moves downward and the reed switch deactuates.

- Actuation Points for air at 68° F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Temperature Operating Range

- 0° to 220°F (-17° to 104°C)
- For other temperature ranges consult factory.

Specifications				
Unit	Weight Lb (kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	1.5 (0.68)	80 (5.51)	Teflon®	Teflon®
Brass	4 (1.81)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	4 (1.81)	3000 (206.84)	316SS, Epoxy	Viton®

## Calibration Table

Model		Air SLPM (SCFM)	Water LPM (GPM)	Ports FNPT
500 BP	Minimum	6 (0.20)	0.11 (0.03)	1/2"
	Maximum	991 (35)	15.14 (4)	
500 BPHF	Minimum	23 (0.80)	0.38 (0.10)	1/2"
	Maximum	2124 (75)	37.85 (10)	

## Pressure Loss

Air Flowrate SLPM (SCFM)	Water Flowrate LPM (GPM)	$\Delta P$ to Atmosphere MBARS (PSID)
84.9 (3)	3.8 (1)	17.2 (0.25)
566 (20)	15.1 (4)	51.7 (0.75)
1,557 (55)	30.3 (8)	233 (3.38)
1925.5 (68)	37.9 (10)	362 (5.25)
2265.3 (80)	64.4 (17)	517 (7.50)





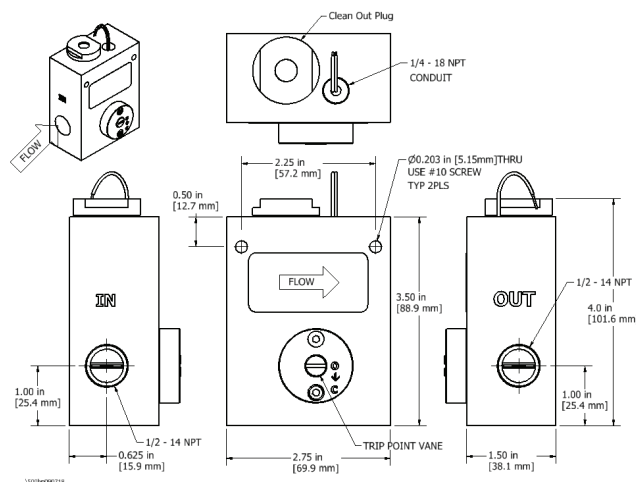
# 500 BP Series

Bypass Adjustable Flow Monitor

12

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	<p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>



## Installation

Mount vertically (leads up) with horizontal piping. A 100 micron filter is recommended.

## How to Order

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Model	Size	Materials	By Pass Design		Switch		Options	
500	T B 316	Teflon®** Brass 316SS	BP	Bypass	N.O.	Single Pole Single Throw Normally Open	TFE	Teflon® Encapsulated Piston **
				BPHF			02	Oxygen Cleaned
					SPDT	Single Pole Double Throw	HT	High Temperature Options 340°F (171°C) metallic body only
							KZ	FFKM Perfluoroelastomer
							EPR	EPR Seals
							BN	Buna N Seals
							FP	Factory Preset

\*Consult Factory \*\*Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

### Key Features

Best for applications where the ratio (Normal Flow/ Set Point) is 10:1 or Greater, Minimal Pressure Drop.

### Features

- Broad Range of Adjustability
- Compact Size
- High Resolution
- Materials: 316S S, Brass or Teflon®

### Applications

- Welding Systems
- Analyzers
- Vacuum Systems
- Cooling Systems

### Operation

When flow is increased, the magnetic piston is forced against a bias spring. As the magnet comes near the adjustable reed switch it actuates, indicating proper flow. When flow decreases the spring forces the piston in the opposite direction deactuating the reed switch an indicating a reduced or no flow situation. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- All models field adjustable
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability  $\pm$  2%
- Correction must be made for attitudes other than horizontal
- Unit will pass greater flows



Specifications			
Model	Weight Lbs (kg)	Max Working Pressure PSIG (barg)	Wetted Parts
LCA-250-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-250-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-250-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-375-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-375-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-375-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-500-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-500-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-500-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-750-P	0.625 (0.283)	100 (6.89)	PVC, Epoxy, 316SS
LCA-750-B	1.7 (0.771)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-750-S	1.7 (0.771)	3000 (206.84)	316SS, Epoxy

### Calibration Range

Model	Adjustable Range Increasing Flow Water LPM (GPM)	Air LPM (SCFM)	Inlet/Outlet FNPT Port Inches
LCA-250*	0.38-15.1 (0.10 - 4)	14.16 (0.5) 1416 (5)	1/4"
LCA-375*	1.89-15.1 (0.5 - 4)	14.16 (0.5) 1416 (5)	3/8"
LCA-500*	1.89 - 37.9 (0.5 - 10)	28.32 (1) 2124 (75)	1/2"
LCA-750*	3.79 - 56.8 (1 - 15)	114.60 (5) 3398 (120)	3/4"



### Pressure Loss

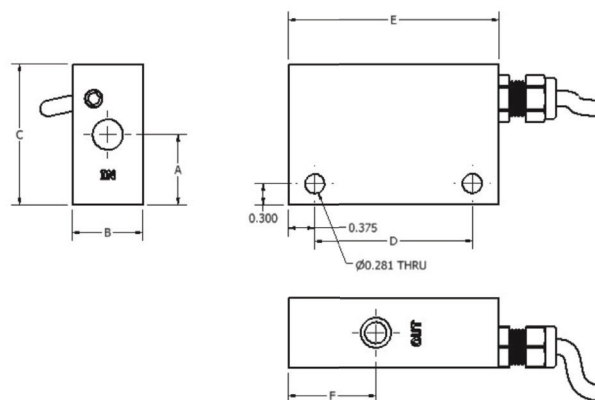
Model	Water LPM (GPM)	$\Delta$ P BARD (PSID)
LCA-250/375		
Minimum	0.38 (0.10)	0.34 (0.5)
Maximum	15.14 (4)	0.21 (3)
LCA-500		
Minimum	1.89 (0.5)	0.069 (1)
Maximum	37.85 (10)	0.689 (10)
LCA-750		
Minimum	3.79 (1)	0.10 (1.5)
Maximum	56.8 (15)	0.62 (9)

### Temperature Operating Range

- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
  - 32° to 120°F (0° to 49°C) for PVC
  - 32° to 120°F for Acrylic
- For other temperature ranges consult factory

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 39 in. min. from body 22 AWG, PVC Jacketed Wired</p>	 <p>leads 39 in. min. from body 22 AWG, PVC Jacketed Wired</p>	<p>leads 39 in. min. from body 22 AWG PVC jacketed wired</p> <ul style="list-style-type: none"> <li>• red - N.C.</li> <li>• green - N.O.</li> <li>• black - Common</li> </ul>



### Installation

Mount with the inlet port on the side horizontally. Other attitudes change the adjustable range of the unit. A 100 micron filter is recommended.

Dimensions						
Model	A	B	C	D	E	F
LCA-250	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-375	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-500	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-750	1.63 (41.4)	1.25 (31.8)	2.75 (69.9)	3.25 (82.55)	4.0 (101.6)	1.63 (41.4)

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Materials	Type of Service	Switch
LCA 250	P PVC	W Water	N.O. Normally Open
375	A Acrylic	G Gas	SPDT Single Pole Double Throw
500	B Brass		FP* Factory Preset
750	S 316SS		

\*Consult Factory

All dimensions are subject to change for quality improvement. Not responsible for printing errors.



# FAV Series

Adjustable Flow Monitor

15

## Key Features

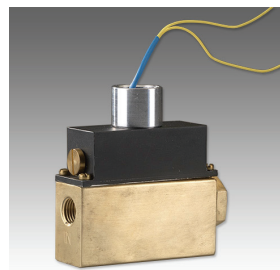
Best for applications where the normal flow to set point is 10:1 or greater.

## Features

- Adjustable Flow Monitor
- Monitors both Gases and Liquids
- Materials: Brass or 316SS
- Confirms: Normal Flow Conditions
- Senses: High Flow or Low Flow Conditions
- Output: Switch Contact

## Applications

- Process Controls
- Fire Control Systems
- Water Treatment Chemicals
- Cooling Systems
- Heat Pumps
- Hydraulic Lifts
- Industrial Analyzers
- Plant Safety



## Operation

When flow is increased, the magnetic piston is forced against a bias spring. As the magnet comes near the adjustable reed switch it actuates, indicating proper flow. When flow decreases the spring forces the piston in the opposite direction deactuating the reed switch and indicating a reduce or no flow condition. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- Actuation points for air at 68 F and 14.7 PSIA with increasing flow.
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Specifications

Model	Air Flow Rate SLPM (SCFM)	Water Flowrate LPM (GPM)	$\Delta P$ to Atmosphere BARD (PSID)
FAV-250/375			
Minimum	14.2 (0.5)	0.38 (0.10)	0.34 (0.5)
Maximum	1416 (50)	15.14 (4)	0.21 (3)
FAV-500			
Minimum	28.32 (1)	1.89 (0.5)	0.069 (1)
Maximum	2124 (75)	37.85 (10)	0.689 (10)
FAV-750			
Minimum	141.6 (5)	3.78 (1)	0.10 (1.5)
Maximum	3398 (120)	75.7 (20)	0.62 (9)

## Temperature Operating Range

- 0° to 220°F (-17° to 104°C) for Brass and Stainless Steel
- For other temperature ranges consult factory.

## Calibration Range

Model	Weight Lbs (kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
FAV-250-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS	Viton®
FAV-250-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy	Viton®
FAV-375-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS	Viton®
FAV-375-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy	Viton®
FAV-500-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS	Viton®
FAV-500-S	1.7 (0.635)	3000 (206.84)	316SS, Epoxy	Viton®
FAV-750-B	1.7 (0.771)	1500 (103.42)	Brass, Epoxy, 316SS	Viton®
FAV-750-S	1.7 (0.771)	3000 (206.84)	316SS, Epoxy	Viton®

## Pressure Loss

Model	Air SLPM (SCFM)	Water LPM (GPM)	Inlet/Outlet FNPT Port Inches
FAV-250			
Minimum	14.16 (0.5)	0.38 (0.10)	1/4"
Maximum	1416 (50)	15.14 (4)	
FAV-375			
Minimum	14.16 (0.5)	0.38 (0.10)	3/8"
Maximum	1416 (50)	15.14 (4)	
FAV-500			
Minimum	28.32 (1)	1.89 (0.5)	1/2"
Maximum	2124 (75)	37.85 (10)	
FAV-750			
Minimum	141.6 (5)	3.78 (1)	3/4"
Maximum	3398 (120)	75.7 (20)	





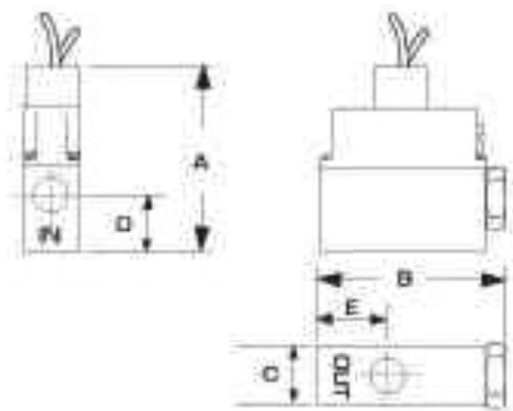
# FAV Series

Adjustable Flow Monitor

16

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.C.</li> <li>• blue - N.O.</li> <li>• white - Common</li> </ul>	



## Installation

Mount with the inlet port on the side horizontally. Other attitudes change the adjustable range of the unit. A 100 micron filter is recommended.

## Dimensions

Model	A	B	C	D	E
FAV-250	3.25 (82.6)	3.25 (82.6)	1 (25.4)	1 (25.4)	1.25 (31.8)
FAV-375	3.25 (82.6)	3.25 (82.6)	1 (25.4)	1 (25.4)	1.25 (31.8)
FAV-500	3.25 (82.6)	3.25 (82.6)	1 (25.4)	1 (25.4)	1.25 (31.8)
FAV-750	3.97 (100.8)	4.28 (108.7)	1.25 (31.8)	1.63 (41.4)	1.63 (41.4)

## How to Order

[Sales@ChemTec.com](mailto:Sales@ChemTec.com) | 800.222.2177

Model	Materials	Type of Service	Switch	Options
FAV 250 375 500 750	B Brass S 316SS	W Water G Gas	N.O. Normally Open SPDT Single Pole Double Throw	HT High Temperature Options 340 ° F (171°C) KZ FFKM Perfluoroelastomer EPR EPR Seals BN Buna N Seals FP* Factory Preset

\*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# CCM Series

Standard Unobtrusive Adjustable Flow Monitor

17

## Key Features

Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or Greater, Minimal Pressure Drop.

## Features

- Adjustable Flow Monitor
- High Resolution
- Works in Very Low Flow Environments
- Minimal Pressure Drop
- Gas and Liquid Flow Sensor
- Materials: PVC
- Confirms: Normal Flow Conditions
- Senses: High Flow, Low Flow
- Output: Switch Contact

## Applications

- Gas Chromatography
- Analyzers
- Filter Maintenance
- Metering Equipment
- Corrosive Chemicals
- Gas Generators

## Operation

With no flow present, the magnetic piston is held at the flow tube inlet by magnetic repulsion of the fixed magnet at the opposite end. As flow is established the piston is displaced toward the magnetic end plug and a major portion of the flow is bypassed through the flow tube orifice into the annular space. At the adjustment point the magnetic piston actuates the reed switch. On decreasing flow the switch deactuates. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- Actuation points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability  $\pm 2\%$
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Operation

Inlet 1/8" FNPT|Outlet 1/4" FNPT

## Temperature Operating Range

- 32° to 140°F (0° to 60°C) for PVC
- For other temperature ranges consult factory.



## Calibration Range

Model	Air SCC/M (SCFH)	Water ML/M (GPH)	$\Delta P$ to Atmosphere MBARS (Inches in Water)
CCM-00			
Minimum	10 (0.021)	1 (0.016)	2.49 (1.0)
Maximum	150 (0.32)	5 (0.08)	19.0 (8.0)
CCM-010			
Minimum	150 (0.32)	8 (0.13)	0.99 (0.4)
Maximum	1000 (2.12)	180 (2.9)	17.4 (7.0)
CCM-015			
Minimum	500 (1.06)	20 (0.32)	1.74 (0.7)
Maximum	6000 (12.7)	370 (5.9)	19.9 (8.0)
CCM-125			
Minimum	6000 (12.7)	65 (1.03)	3.73 (1.5)
Maximum	16000 (33.9)	5000 (7.9)	12.4 (5.0)

## Specifications



Body Material	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
PVC	6oz (170 gm)	100 (6.89)	PVC, Epoxy	Buna N

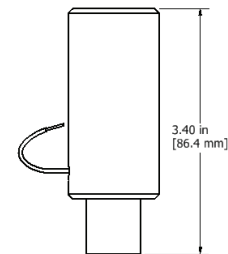
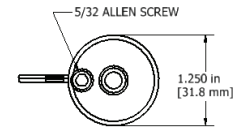
# CCM Series

Standard Unobtrusive Adjustable Flow Monitor

18

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>leads 18 in. min. from body 22 AWG, TFE insulation</p>	 <p>leads 18 in. min. from body 24 AWG, TFE insulation</p> <ul style="list-style-type: none"> <li>• green - N.O.</li> <li>• blue - N.C.</li> <li>• white - Common</li> </ul>	



## Installation

Mount with the inlet port up vertically. A 10 micron filter is recommended

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Switch	Options
CCM	-00 -010 -015 -125	N.C. Normally Closed SPDT Single Pole Double Throw	TFE Teflon® Encapsulated Piston KZ FFKM Perfluoroelastomer EPR EPR Seals FP Factory Preset

\*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

### Key Features

All Teflon® wetted parts model available. No seals. Undamaged by over ranging.

### Features

- No Bearings
- Single Moving Part
- In Line Metering
- No Rotating internals
- Materials: 316SS, Brass or Teflon®
- Output: Analog, Digital and Current loop
- Measures Low Flows

### Applications

- Wet Benches
  - Cooling Systems
  - Corrosive Chemical Dispensing
  - Materials Consumption Measurement
  - Process Controls
- Patent No's  
4,858,647  
4,905,844  
5,033,311  
Others may apply.



### Operation

When fluid flows through the unit it displaces the Teflon encapsulated magnetic piston. This displacement is proportional to the volumetric flow through the unit. A transducer, encapsulated in the body outside the fluid path, senses the displacement of the piston. The transducer's signal is converted by a microprocessor-based conditioning circuit then sends the signal to three types of outputs: voltage, pulse and current loop.

- Total accuracy:  $\pm 5\%$
- Repeatability:  $\pm 2\%$  full scale
- Linearity:  $\pm 2\%$  full scale

### Temperature Operating Range

- Ambient: 0° to 125°F (-18° to 52°C)
- Media: 0° to 180°F (-18° to 82°C)

### Specifications

Model	Weight Lbs. (Kg.)	Max Working Pressure PSIG (barg)	Wetted Parts
MAO-125/250-T	0.63 (0.29)	80 (5.51)	Teflon®
MAO-125/250-B	1.30 (0.59)	1500 (103.42)	Brass, Teflon®
MAO-125/250-S	1.30 (0.59)	3000 (206.84)	316SS, Teflon®

### Pressure Loss

Model	Min/Max	Linear Range ML/M (GPH)	$\Delta P$ MBARS (PSID)
MAO-125-AA	Minimum	20 (0.32)	24.82 (0.36)
	Maximum	70 (1.11)	42.06 (0.61)
MAO-125-BB	Minimum	50 (0.79)	8.27 (0.12)
	Maximum	150 (0.79)	10.34 (0.15)
MAO-250-AA	Minimum	100 (1.59)	8.27 (0.12)
	Maximum	500 (7.93)	9.65 (0.14)
MAO-250-BB	Minimum	260 (4.12)	10.34 (0.15)
	Maximum	1800 (28.54)	20 (0.29)

### Calibration in Water

Model	ML/MIN (GPH)	VDC	Hz	mA	Ports FNPT
MAO-125XAA	0	0	0	0	1/8"
	20 (0.317)	1	40	4	
	32.5 (0.5151)	2	80	8	
	45 (0.7133)	3	120	12	
	57.5 (0.9114)	4	160	16	
	70 (1.1095)	5	200	20	
MAO-125XBB	0	0	0	0	1/8"
	50 (0.7925)	1	40	4	
	75 (1.1888)	2	80	8	
	100 (1.585)	3	120	12	
	125 (1.9813)	4	160	16	
	150 (2.3775)	5	200	20	
MAO-250XAA	0	0	0	0	1/4"
	100 (1.585)	1	40	4	
	200 (3.1701)	2	80	8	
	300 (4.7551)	3	120	12	
	400 (6.3401)	4	160	16	
	500 (7.9252)	5	200	20	
MAO-250XBB	0	0	0	0	1/4"
	250 (3.9626)	1	40	4	
	638 (10.1125)	2	80	8	
	1025 (16.2466)	3	120	12	
	1413 (22.3965)	4	160	16	
	1800 (28.5306)	5	200	20	

### Electrical Specifications

#### POWER REQUIREMENTS:

Voltage: Regulated 15 – 30 VDC

Current: 250 mA

#### OUTPUTS:

ANALOG: 0 – 5 VDC

Minimum Load Impedance: 5k ohm in parallel with 250pf

#### DIGITAL:

200 Hz, Square wave 50% duty cycle TTL compatible output.

#### CURRENT LOOP:

Current Loop: 4 – 20 mA

Loop Load : 100Ω ±1% 1/4 watt

#### WIRE CONNECTION:

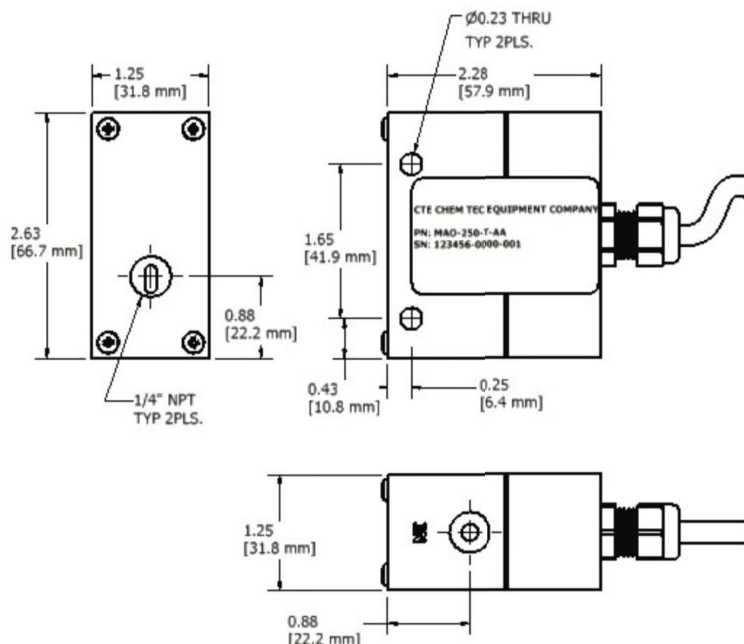
Red – (+)

Black – (Common)

White – (Frequency)

Green – (Voltage)

Brown – (Current)



### How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Switch	Options
MAO	125 250	T Teflon® B Brass S Stainless Steel	(See Chart) AA BB

### Installation

Control valves should be placed downstream of the MAO flow meter. The flow meter should never be installed so that it drains completely when flow ceases. When particles may be present in the media, a filter should be installed ahead of the flow meter. It is advisable to filter to 10 microns. The MAO flow meter should not be located near ferrous material or near strong electro-magnetic fields.

The MAO flow meter is sensitive to velocity profile disturbances in the flow stream. It is advisable that straight lengths of 10 inside diameters upstream and 5 inside diameters downstream be used. All lines should be completely purged of air before use. The use of pipe paste is not recommended. Use care when using Teflon tape to avoid shreds from entering the MAO flow meter.

### Mounting

MAO-125-X-AA; Mount with INLET vertical, INLET port up, OUTLET port horizontal. All other models mount with INLET port vertical, INLET port down, OUTLET port horizontal.

\*Consult Factory \*\*Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

### Key Features

All Teflon® wetted parts model available. No seals. Undamaged by over ranging.

### Features

- No Bearings
- Single Moving Part
- In Line Metering
- No Rotating internals
- Materials: 316SS, Brass or Teflon®
- Output: Analog, Digital and Current loop
- Measures Low Flows

### Applications

- Wet Benches
  - Cooling Systems
  - Corrosive Chemical Dispensing
  - Materials Consumption Measurement
  - Process Controls
- Patent No's  
4,858,647  
4,905,844  
5,033,311  
Others may apply.

### Operation

When fluid flows through the unit it displaces the Teflon encapsulated magnetic piston. This displacement is proportional to the volumetric flow through the unit. A transducer, encapsulated in the body outside the fluid path, senses the displacement of the piston. The transducer's signal is converted by a microprocessor-based conditioning circuit then sends the signal to three types of outputs: voltage, pulse and current loop.

- Total Accuracy:  $\pm 5\%$
- Repeatability:  $\pm 2\%$  Full Scale
- Linearity:  $\pm 2\%$  Full Scale

### Temperature Operating Range

- AMBIENT: 0° to 125°F (-18° to 52°C)
- MEDIA: 0° to 180° F (-18° to 82°C)

Specifications			
Model	Weight Lbs. (Kg.)	Max Working Pressure PSIG (barg)	Wetted Parts
MAO-500-T	1.3 (0.6)	80 (5.51)	Teflon®
MAO-500-B	3.4 (1.54)	1500 (103.42)	Brass, Teflon®
MAO-500-S	3.4 (1.54)	3000 (206.84)	316SS, Teflon®

Pressure Loss		
Model	Linear Range LPM (GPM)	$\Delta P$ MBARS (PSID)
MAO-500-AA	1.89 (0.5)	247.58 (0.4)
	7.57 (2.0)	31.03 (0.45)
MAO-500-BB	3.79 (1.0)	27.58 (0.40)
	13.25 (3.5)	68.95 (1.0)



### Calibration in Water

Model	MLMIN (GPH)	VDC	Hz	mA	Ports FNPT
MAO-500XAA	0	0	0	0	1/2"
	0.5 (1.89)	1	40	4	
	0.75 (2.84)	2	80	8	
	1.25 (4.73)	3	120	12	
	1.75 (6.62)	4	160	16	
	2 (7.57)	5	200	20	
MAO-500XBB	0	0	0	0	1/2"
	1 (3.79)	1	40	4	
	1.6 (6.06)	2	80	8	
	2.2 (8.33)	3	120	12	
	2.8 (10.6)	4	160	16	
	3.5 (13.25)	5	200	20	

### Electrical Specifications

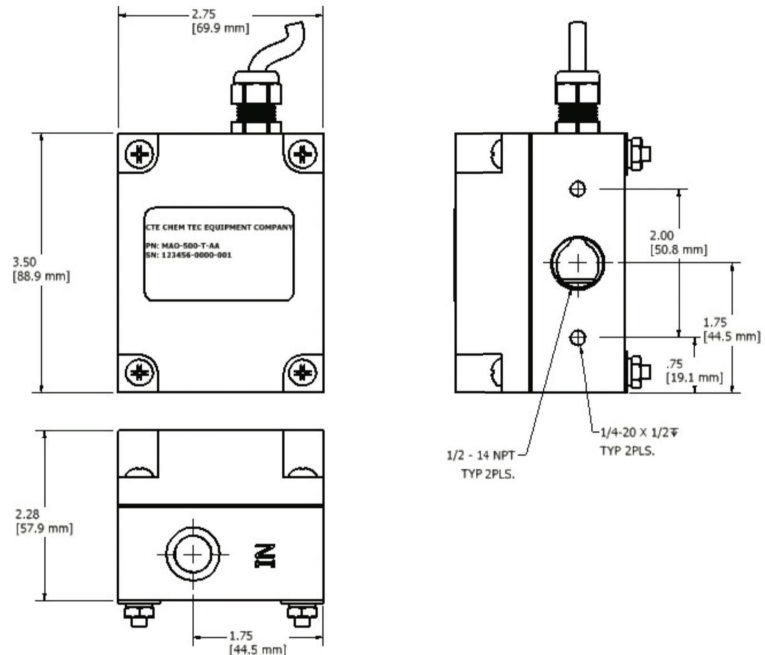
**POWER REQUIREMENTS:**  
Voltage: Regulated 15 – 30 VDC  
Current: 250 mA

**OUTPUTS:**  
ANALOG: 0 – 5 VDC  
Minimum Load Impedance: 5k ohm in parallel with 250pf

**DIGITAL:**  
200 Hz, Square wave 50% duty cycle TTL compatible output

**CURRENT LOOP:**  
Current Loop: 4 – 20 mA  
Loop Load : 100Ω ±1% 1/4 watt

**WIRE CONNECTION:**  
Red – (+)  
Black – (Common)  
White – (Frequency)  
Green – (Voltage)  
Brown – (Current)



### How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Switch	Options
MAO	500	T Teflon® B Brass S Stainless Steel	(See Chart) AA BB

\*Consult Factory \*\*Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

### Installation

Control valves should be placed downstream of the MAO flow meter. The flow meter should never be installed so that it drains completely when flow ceases.

When particles may be present in the media, a filter should be installed ahead of the flow meter. It is advisable to filter to 10 microns. The MAO flow meter should not be located near ferrous material or near strong electro-magnetic fields.

The MAO flow meter is sensitive to velocity profile disturbances in the flow stream. It is advisable that straight lengths of 10 inside diameters upstream and 5 inside diameters downstream be used.

All lines should be completely purged of air before use.

The use of pipe paste is not recommended. Use care when using Teflon tape to avoid shreds from entering the MAO flow meter.

### Mounting

Mount with INLET vertical, INLET port down, OUTLET port horizontal.



# EFV Series

Adjustable Excess Flow Valve

23

## Key Features

Controls excessive flows.

## Features

- Controlled Bleed, Resets Automatically
- Field Adjustable
- Positive Shut-off
- Function: Restricts or Shuts Off Flow
- Output: Switch Contact Optional
- Materials: 316SS or Brass Body

## Applications

- Fitting Failure
- Regulator failure
- Hydraulic control
- Gas Analyzers
- Toxic Gas and Liquid Releases



## Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed externally by turning the adjusting screw, thereby changing the piston's relationship with the flow stream. In this auto reset model after actuation, the piston rests on a metal to metal seat which allows a controlled bleed. To reset the unit, pressure must be equalized on both sides of the piston. If the source is turned off, either upstream or downstream, the bleed will equalize the pressure and the valve will automatically reopen by magnetic repulsion from the fixed magnet located in the valve body.

For positive shut-off an elastomer is used on the nose of the piston. When it comes to rest on the seat it provides a bubble tight closure. To reopen the valve there are two options.

1. The upstream pipeline must be led to atmosphere if the line downstream is at atmosphere.
  2. A by-pass line with an on/off valve must be installed to port the upstream pressure to the down-stream pipeline to equalize the pressure.
- Our MRS series is available with the by-pass system as an integral part of the unit.

- Actuation points for air at 68°F and 14.7 PSIA.

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Temperature Operating Range

- 0° to 220°F (-17° to 104°C)
- For other temperature ranges consult factory.

## Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
EFV-125	0.5 to 155.7 (0.018 to 5.5)	0.015 to 4.5 (0.004 to 1.2)	1/8"
EFV-250	4 to 1132 (0.14 to 40)	0.100 to 15.1 (0.026 to 4.0)	1/4"
EFV-375	85 to 1840 (3.0 to 65)	0.380 to 15.1 (0.100 to 4.0)	3/8"
EFV-500	142 to 2123 (5.0 to 75)	1.90 to 37.8 (0.50 to 10.0)	1/2"
EFV-750	425 to 3681 (15.0 to 130)	3.80 to 75.7 (1.0 to 20.0)	3/4"

## Pressure Loss

Model	Air SLPM (SCFM)	Water LPM (GPM)	$\Delta P$ to Atmosphere BARD (PSID)
EFV-125	0.50 (0.018)	0.015 (0.004)	0.08 (1.2)
	75 (2.63)	2.65 (0.70)	0.11 (1.6)
	155 (5.5)	4.50 (1.20)	0.21 (3.0)
EFV-250	4 (0.14)	0.1 (0.26)	0.21 (3.0)
	500 (17.50)	5.0 (1.32)	0.41 (6.0)
	1132 (39.62)	15.1 (3.99)	0.83 (12.0)
EFV-375	85 (2.98)	0.38 (0.10)	0.10 (1.5)
	900 (31.50)	10.0 (2.64)	0.28 (4.0)
	1840 (64.40)	15.1 (3.99)	0.83 (12.0)
EFV-500	142 (4.97)	1.9 (0.50)	0.07 (1.0)
	1000 (35.00)	25.0 (6.60)	0.28 (4.0)
	2123 (74.31)	37.8 (9.98)	0.48 (7.0)
EFV-750	425 (14.88)	3.8 (1.00)	0.14 (2.0)
	1800 (63.00)	4.7 (1.24)	0.21 (3.0)
	3681 (128.84)	75.7 (19.98)	0.34 (5.0)


CE

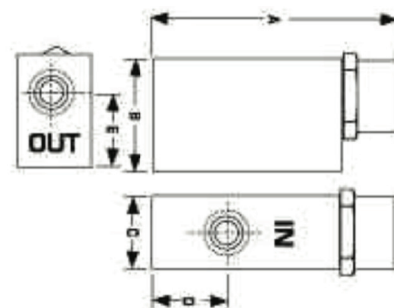
# EFV Series

Adjustable Excess Flow Valve

24

## ES - Option

Switch Data	SPST UL File #E70063	LEADS
Maximum Switching Voltage		
DC (V)	200	
AC (V)	150	
Contact Rating		leads 18 in. min. from body 22 AWG, TFE insulation
DC (W)	50	
DC (VA)	70	
Maximum Switching Current (A)		
DC (A)	1.0	
AC (A)	0.7	



Body Material	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Brass	1500 (103.42)	Brass, Epoxy, Delrin (Brass Piston in 125 Unit)	Viton ®
316SS	3000 (206.84)	316SS, Epoxy	Viton ®

## Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times normal flow rate should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

## Dimensions

Model	Weight	A	B	C	D	E
EFV-125	0.25 (113.4)	2.5 (64)	1 (25)	0.75 (19)	0.7 (17)	0.63 (16)
EFV-250	0.50 (226.8)	3.3 (84)	1.50 (38)	1 (25)	1 (25)	1 (25)
EFV-375	0.50 (226.8)	3.3 (84)	1.50 (38)	1 (25)	1 (25)	1 (25)
EFV-500	1 (453.6)	4.0 (102)	2 (50)	1.25 (31)	1.25 (31)	1.38 (35)
EFV-750	1.50 (680.4)	4.9 (124)	2.25 (57)	1.25 (31)	1.25 (31)	1.63 (41)

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Materials	Positive Shut-Off	Options
EFV	125 250 375 500 750	B Brass S 316SS  (Other Material available on request)	PSO  (Blank for Controlled Bleed Model)	ES Reed Switch (Not available on 125 models) O2 Oxygen Cleaned KZ FFKM Perfluoroelastomer EPR EPR Seals FP Factory Presetting (State flow rate, medium and line pressure) Required W/ES Option ESFP Normally Open Reed Switch Option Requires Factory Presetting

\*Consult Factory | Viton® - E.I. DuPont & Co | Teflon® - E.I. DuPont & Co | Kalrez® - E.I. DuPont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# EFV MRS Series

## Manual Reset Adjustable Excess Flow Valve

25

### Key Features

Controls excessive flows.

### Features

- Field Adjustable
- Manual Reset
- Materials: 316SS
- Detects Excess Flows
- Function: Shuts Off Flow
- Output: Switch Contact (Optional)

### Applications

- Plant Lines
- Regulator Failure
- Fitting Failure
- Toxic Gases & Liquids
- Gas Distribution Systems
- Gas Analyzers
- Loss Controls



### Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed by turning the adjusting screw, thereby changing the piston's relationship with the flow stream. The piston makes a bubble tight seal when it comes in contact with the seat. To reopen the unit, turn the balancing valve handle on the side. This ports the upstream pipeline to the downstream pipeline. When the pressure is equalized on each side of the piston, it will reset. The unit is returned to normal operation by closing the balancing valve.

- Actuation points for air at 68° F and 14.7 PSIA.

Corrections must be used for other gases, line pressure and temperatures.\* Please consult your representative or the factory.

### Temperature Operating Range

- AMBIENT: 0° to 125°F (-18° to 52° C)
- MEDIA: 0° to 180°F (-18° to 82° C)

### Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
EFV-125	0.5 to 155.7 (0.018 to 5.5)	0.015 to 4.5 (0.004 to 1.2)	1/8"
EFV-250	4 to 1132 (0.14 to 40)	0.100 to 15.1 (0.026 to 4.0)	1/4"
EFV-375	85 to 1840 (3.0 to 65)	0.380 to 15.1 (0.100 to 4.0)	3/8"
EFV-500	142 to 2123 (5.0 to 75)	1.90 to 37.8 (0.50 to 10.0)	1/2"
EFV-750	425 to 3681 (15.0 to 130)	3.80 to 75.7 (1.0 to 20.0)	3/4"

### Pressure Loss


Model	Air SLPM (SCFM)	Water LPM (GPM)	ΔP to Atmosphere BARD (PSID)
EFV-125	0.50 (0.018) 75 (2.63) 155 (5.5)	0.015 (0.004) 2.65 (0.70) 4.50 (1.20)	0.08 (1.2) 0.11 (1.6) 0.21 (3.0)
EFV-250	4 (0.14) 500 (17.50) 1132 (39.62)	0.1 (0.26) 5.0 (1.32) 15.1 (3.99)	0.21 (3.0) 0.41 (6.0) 0.83 (12.0)
EFV-375	85 (2.98) 900 (31.50) 1840 (64.40)	0.38 (0.10) 10.0 (2.64) 15.1 (3.99)	0.10 (1.5) 0.28 (4.0) 0.83 (12.0)
EFV-500	142 (4.97) 1000 (35.00) 2123 (74.31)	1.9 (0.50) 25.0 (6.60) 37.8 (9.98)	0.07 (1.0) 0.28 (4.0) 0.48 (7.0)
EFV-750	425 (14.88) 1800 (63.00) 3681 (128.84)	3.8 (1.00) 4.7 (1.24) 75.7 (19.98)	0.14 (2.0) 0.21 (3.0) 0.34 (5.0)

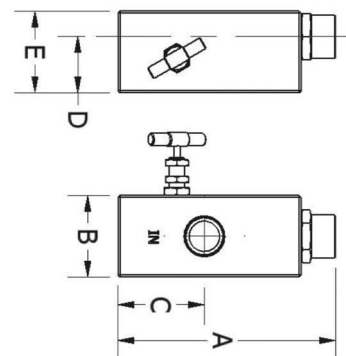
# EFV MRS Series

Manual Reset Adjustable Excess Flow Valve

26

## ES - Options

Switch Data	SPST UL File #E70063	LEADS
Maximum Switching Voltage		
DC (V)	200	
AC (V)	150	
Contact Rating		leads 18 in. min. from body 22 AWG, TFE insulation
DC (W)	50	
DC (VA)	70	
Maximum Switching Current (A)		
DC (A)	1.0	
AC (A)	0.7	



## Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times the normal Maximum flow rate at the lowest line pressure should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

## Dimensions

Model	316SS Weight (lbs/gm)	Brass Weight (lbs/gm)	A	B 316SS	B Brass	C	D	E
EFV-125	1.5 (680)	1.6 (726)	2.72 (69)	1.5 (38)	1.5 (38)	0.95 (24)	1.12 (28)	1.62 (41)
EFV-250	3.5 (1588)	3.3 (1497)	3.71 (95)	2 (50)	1.75 (45)	1.5 (38)	1.38 (35)	2 (51)
EFV-375	3.5 (1588)	3.2 (1452)	3.71 (95)	2 (50)	1.75 (45)	1.5 (38)	1.38 (35)	2 (51)
EFV-500	4 (1814)	3.6 (1633)	4.46 (114)	2 (50)	1.75 (45)	1.75 (45)	1.38 (35)	2 (51)
EFV-750	4.8 (2177)	4.4 (1996)	5.35 (136)	2 (50)	1.75 (45)	2.13 (54)	1.38 (35)	2 (51)

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Materials	Manual Reset	Options
EFV	125 250 375 500 750	B Brass S 316SS  (Other Material available on request)	MRS	ES* Reed Switch (Not available on 125 models) O2 Oxygen Cleaned HT High Temperature Unit 340°F (171°C) KZ FFKM Perfluoroelastomer EPR EPR Seals FP* Factory Presetting (State flow rate, medium and line pressure) Required W/ES Option ESFP Normally Open Reed Switch Option Requires Factory Presetting

\*Consult Factory | Viton® - E.I. DuPont & Co | Teflon® - E.I. DuPont & Co | Kalrez® - E.I. DuPont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

# HPEFV Series

Adjustable High Pressure Safety Excess Flow Valve

27

## Key Features

Controls high pressure excessive flows.

## Features

- Controlled Bleed Resets Automatically
- Field Adjustable
- Positive Shut-off Option
- Materials: 316SS
- Maximum Pressure 6000 PSIG
- Detects Excess Flows
- Output: Switch Contact (Optional)
- Function: Restricts or Shuts Off Flow

## Applications

- CNG Delivery
- High Pressure Plant Lines
- Hydraulic Systems



## Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed externally by turning the adjusting screw, thereby changing the piston's relationship with the flow stream. In the auto reset model after actuation, the piston resets on a metal to metal seat that allows a controlled bleed. To reset the unit, pressure must be equalized on both sides of the piston.

For positive shut-off an elastomer is used on the nose of the piston. When it comes to rest on the seat it provides a bubble tight closure. To reopen the valve there are two options.

1. The upstream pipeline must be bled to atmosphere if the line downstream is at atmosphere.
2. A by-pass line with an on/off valve must be installed to port the upstream pressure to the down-stream pipeline to equalize the pressure.

- Actuation points for air at 68°F and 14.7 PSIA.

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

## Temperature Operating Range

- 32° to 220°F (-0° to 104°C)
- For other temperature ranges consult factory.

## Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
HPEFV-250	4 to 1132 (0.14 to 40)	0.100 to 15.1 (0.026 to 4)	1/4"
HPEFV-500	142 to 2123 (5 to 75)	1.9 to 37.8 (0.5 to 10)	1/2"
HPEFV-750	425 to 3681 (15 to 130)	3.8 to 75.7 (1 to 20)	3/4"

## Pressure Loss


Model	Air SLPM (SCFM)	Water LPM (GPM)	ΔP to Atmosphere BARD (PSID)
HPEFV-250	4 (0.14)	0.1 (0.26)	0.21 (3.0)
	500 (17.5)	5 (1.32)	0.41 (6)
	1132 (39.62)	15.1 (3.99)	0.83 (12)
HPEFV-500	142 (4.97)	1.9 (0.5)	0.07 (1)
	1000 (35)	25 (6.6)	0.28 (4)
	2123 (74.31)	37.8 (9.98)	0.48 (7)
HPEFV-750	425 (14.88)	3.8 (1)	0.14 (2)
	1800 (63)	4.7 (12.4)	0.21 (3)
	3681 (128.84)	75.7 (19.98)	0.34 (5)

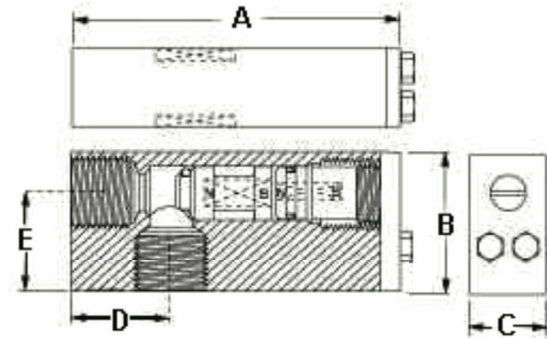
# HPEFV Series

Adjustable High Pressure Safety Excess Flow Valve

28

## ES - Option

Switch Data		SPST UL File #E70063	LEADS
Maximum Switching Voltage			
DC (V)	200		
AC (V)	150		
Contact Rating			leads 18 in. min. from body 22 AWG, TFE insulation
DC (W)	50		
DC (VA)	70		
Maximum Switching Current (A)			
DC (A)	1.0		
AC (A)	0.7		



## Specifications

Body Material	Max Working Pressure PSIG (barg)	Wetted Parts	Seal
316SS	6,000 (206.84)	316SS, Epoxy	Viton®

## Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times the normal Maximum flow rate at the lowest line pressure should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

## Dimensions

Model	Weight	A	B	C	D	E
HPEFV-250	1.47 (0.667)	3.75 (149)	1.5 (38)	1 (25)	1 (25)	1 (25)
HPEFV-500	2.625 (1.19)	4.25 (108)	2 (50)	1.25 (32)	1.25 (32)	1.37 (35)
HPEFV-750	3.44 (1.56)	5.25 (133)	2.25 (57)	1.25 (32)	1.625 (45)	1.625 (41)

## How to Order

Sales@ChemTec.com | 800.222.2177

Model	Size	Materials	Positive Shut-Off	Options
HPEFV	200 500 750	S 316SS  (Other Material available on request)	PSO (Blank for controlled bleed model)	O2 Oxygen Cleaned HT High Temperature Unit 340° F (171° C) KZ FFKM Perfluoroelastomer EPR EPR Seals FP* Factory Presetting (State flow rate, medium and line pressure) Required W/ES Option ESFP Normally Open Reed Switch Option Requires Factory Presetting

\*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co  
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

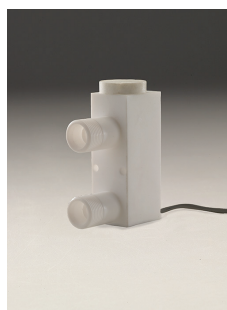
## ChemTec's Ultra High Purity Teflon® LPH Series Flow Monitors

Flow Range	50 ML to 5000 ML
Flared Fitting Ports	1/4", 3/8", 1/2"
Super-300 Type Nippon Pillar Fitting®	1/8", 1/4", 3/8", 1/2", 3/4"

\*\*More Custom Options Available, please contact the factory



Flared Fitting



NPS300

## ChemTec's Ultra High Purity Teflon® MAO Flow Meter

Calibration in Water Tables		VDC	Hz	mA	Ports FN
MAO 125/250	0 ML - 1800 ML	0-5	0-200	0-20	1/8" - 1/4"
MAO 500	0.5 GPM - 3.5 GPM	0-5	0-200	0-20	1/2"



MAO 125/250



MAO 500



# LPH UHP Series

for Ultra High Purity

30

## Applications

- Ultra High Purity Gases

## Key Features

- Compact Size
- 1/2" MVCR

## Features

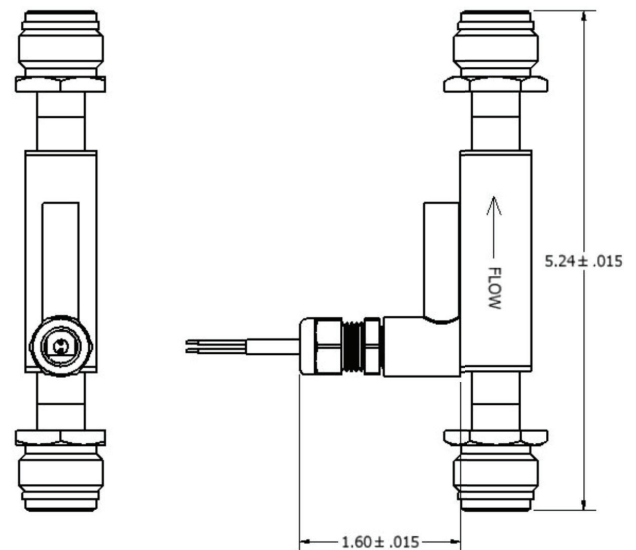
- Close On/Off Differential
- No Seals
- EP to 10RA
- 316L Stainless Steel Materials
- Senses High/Low Flow Conditions
- Switch Contact Output
- In-Line Vertical Plumbing
- Confirms Normal Flow Conditions

## Operations

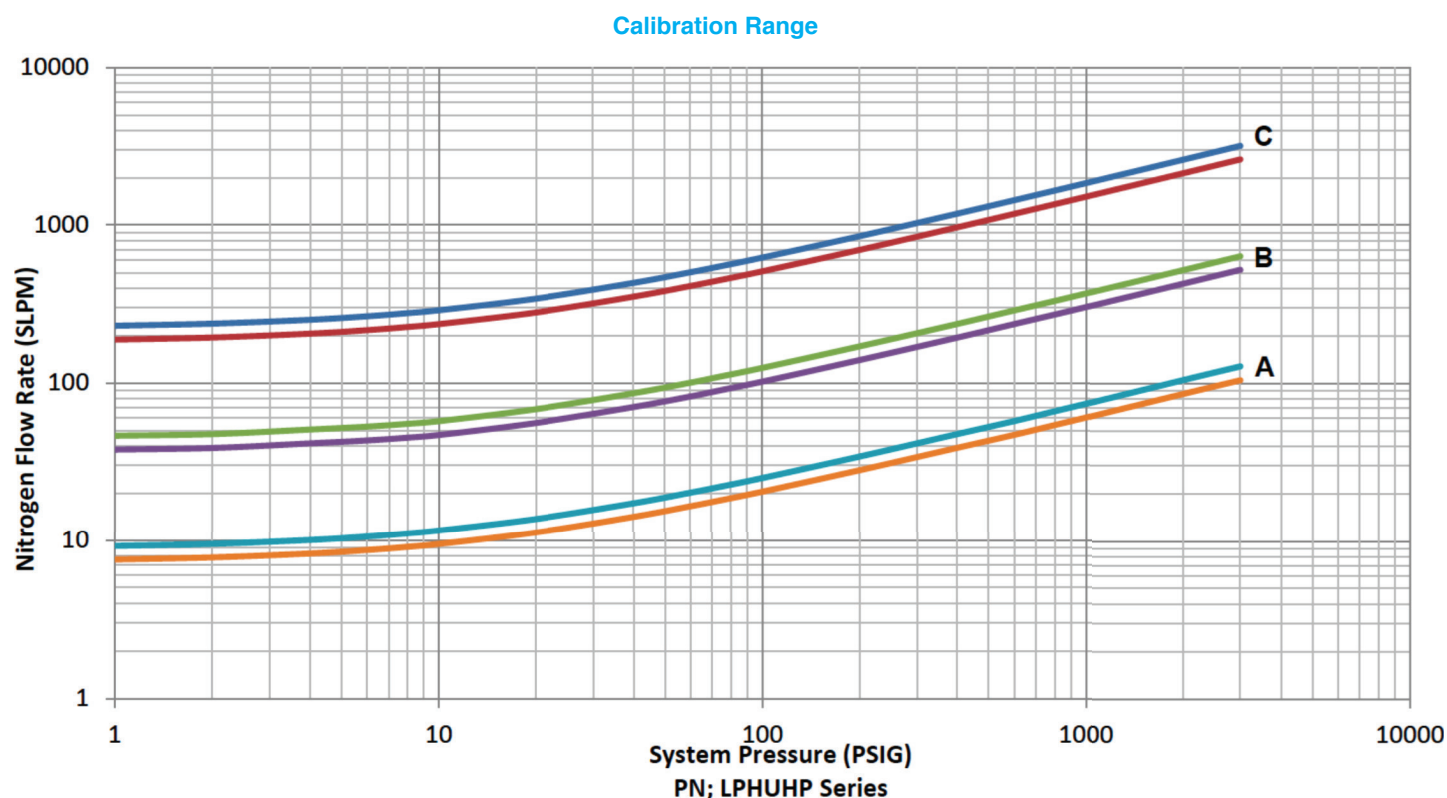
As flow is established upward through the unit and continues to increase, the pressure differential across the grooved magnetic piston increases until it overcomes the small piston's resistance. This causes it to progress fully upward which actuates the dry reed switch. This is a snap action and occurs in the decreasing mode as well.

## Features



- Actuation Points for Nitrogen on increasing flow (see graph)
- Deactuation Points averages 10% less than actuation point
- Flow Setting Accuracy  $\pm 10\%$  of actuation points shown
- Repeatability  $\pm 1\%$
- Unit will pass greater flows







Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	200	175
AC (V)	150	120
Contact Rating		
DC (W)	50	5
DC (VA)	70	5
Maximum Switching Current (A)		
DC (A)	1.0	0.25
AC (A)	0.7	0.25

Leads	SPST UL File #E70063	SPDT UL File #E471070
 <p>36" min. from body; 22 AWG PVC red, black jacketed wire</p>	 <p>36" min. from body; 24 AWG PVC jack- eted wire- black: N.O., red: N.C.; white: common</p>	

## Temperature Operating Range

- 40° to -220°F; (-40° to 105°C)
- For other temperature ranges consult factory.

## Calibration Range

Model	Weight Lbs. (Kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Fluid Ports	Leak Check
LPH- UHP-8	0.5 lb/ 0.23 kg	3000 PSIG (206.8 barg)	316L Stainless Steel	1/2" MVCR (8)	1x10 atm. ccHe/sec in board

## Installation

Mount vertical with inlet port down.

## How to Order

Model	Calibration Range	Switch
LPH UHP 8	A	N.C. Single Pole Single Throw Normally Closed
	B C	SPDT Single Pole Double Throw

\*Contact factory for more options.

# **Flow Monitors, Flow Meters, Excess Flow Valves**