



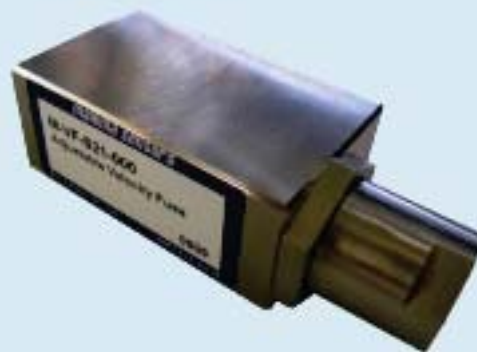
Safety Excess Flow Valves

M-VF Series

Prevents uncontrolled flows of corrosive and non-corrosive fluids
(Standard Version)

Key Features

- High reliability
- Field adjustable
- Low pressure drop
- All mechanical
- Right angle flow



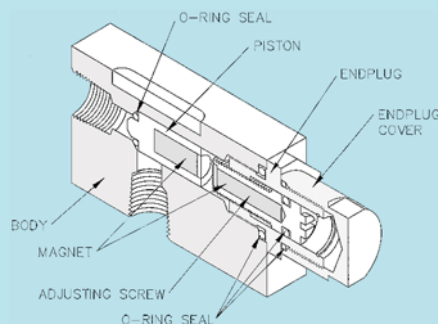
The M-VF Series Safety Excess Flow Valves are engineered for fast automatic shut-off in case of line, hose, or fitting failures protecting plant, personnel, and instruments. Designed for protection of systems handling corrosive, toxic, radioactive, and flammable materials; the valve will instantly detect surges in the system and stop fluid flow. When the break is repaired and pressure equalized in the system, the valve will open to allow the fluid to flow through the system. The M-VF operates effectively with all fluids, liquids, or gases.

Operating Principle

As the fluid (liquid or gas) enters the valve, the pressure differential across the piston creates a venturi effect, accelerating the flow through the valve. At a preset flow rate, when the differential exceeds the magnetic attraction between the piston magnet and the adjusting screw magnet, the piston travels instantaneously over towards the output port, thereby shutting off the flow. When the pressure is equalized between both sides of the valve, the piston automatically returns to its previous adjusted flow set-point. The shut off set point is field adjustable and this is achieved by turning the adjusting screw.

In the case of positive shut-off models, an elastomer o-ring fitted on the nose of the piston completely shuts off the flow once it rests on the seat and results in bubble tight closure. For resetting, bleed the upstream line to atmosphere to equalize the pressure as specified in the installation section.

In the case of the automatic reset model (controlled bleed), there is a controlled bleed as there is no o-ring present between the piston and the valve seat. When the flow of medium is turned off at the source, this controlled bleed permits equalization on the two sides, and the piston travels back to its original position.



Illustrated is the M-VF model with 1/4" ports.

Applications

- Compressed air and gas systems
- Pollution control
- Leak detection
- Gas analyzers
- Hydraulic lines
- Sampling station operator protection
- Regulator protection
- Catastrophic failure protection

Custom Version Available

Malema welcomes the opportunity to apply its flow sensor experience to work for its customers. Please contact the factory for any special requirements; such as ports, extreme temperature and pressure capabilities, etc....

Material Versions

- Brass
- 316 Stainless Steel

Other materials available upon request.

Calibration range

Air	0.0177 - 130 scfm
Water	0.0026 - 20 gpm

These ranges are over different valves sizes

Specifications

Set Point Accuracy	± 10% maximum
Repeatability	± 3%

Port size

- 1/8"
- 1/4"
- 3/8"
- 1/2"
- 3/4"

Safety Excess Flow Valves

Installation and Flow Rate Adjustment

1. The preferred mounting orientation for the valve is in the horizontal position, although it can be mounted vertically.
2. Turn the adjusting screw fully counter-clockwise.
3. Connect hose or piping to outlet and operate at maximum flow rate (liquid or gas).
4. Turn the adjusting screw clockwise until the valve actuates and shuts off the flow.
5. Turn the flow off. The valve will automatically reset because of its controlled bleed. For positive shut-off models, equalize the pressure on both sides of the valves. The valve will reset as the pressure is equalized and automatically return to its previous adjusted flow setting.
6. Turn the adjusting screw (one turn) counter-clockwise and system is ready to function.

Note: In high pressure environments, step 4 may need to be done iteratively under no flow conditions, after which flow can be resumed to test for valve actuation.

Maintenance

It is beneficial to have adequate filtration in the system prior to the valve as otherwise, its functioning may be hampered by large particles interfering with the travel of the piston. Using an adjustable wrench, gently remove the end-plug from the valve body. Examine the piston, the o-rings, and the surfaces of the valve bore and clean with trichloroethene if necessary, prior to reassembling (Replacement parts are available on request).

Adequate sealing methods must be used at all connections to the valve to prevent leakage.

Standard Specifications by Materials

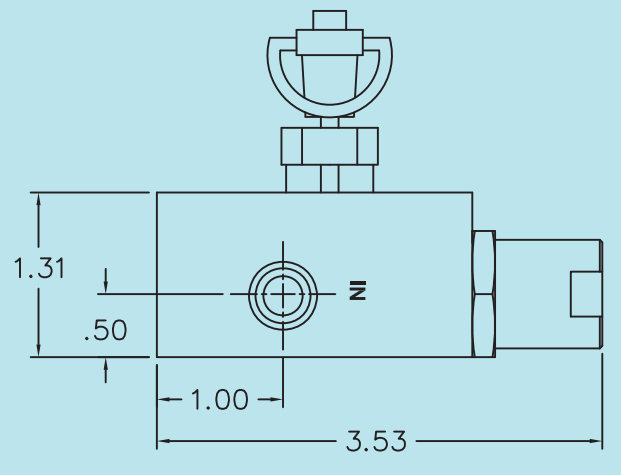
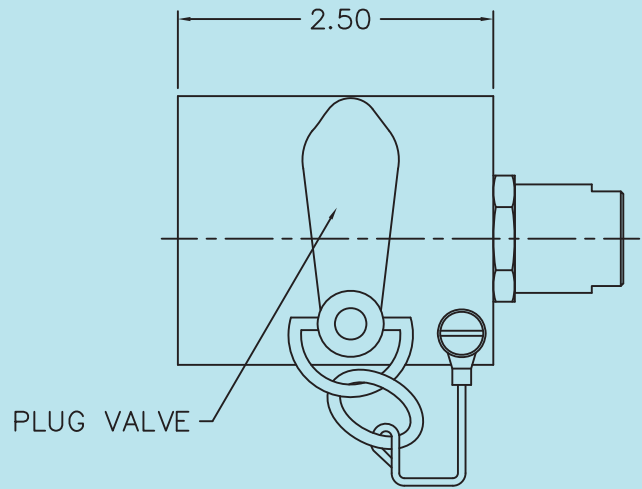
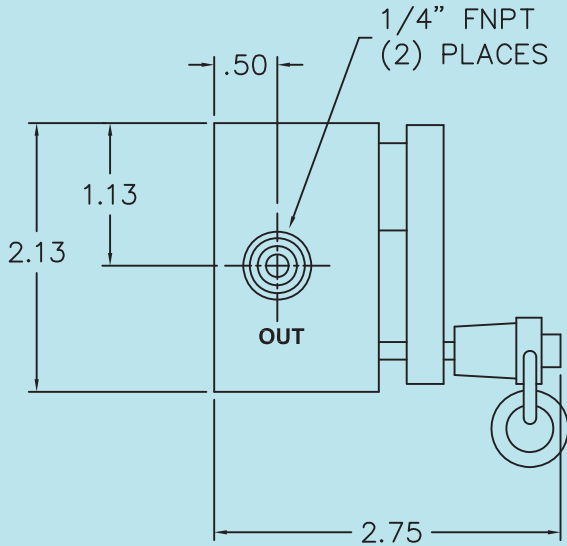
Part Name	Material	
Housing, End Plug, & Adjusting Screw	Brass	316SS
Magnets in Adjusting Screw & Pistons	Alnico 5	
O-rings	Viton	
Piston	316SS	316SS
Pressure and Temperature Specifications	1500	3000
Maximum Operating (psig)	3000	5000
Burst (psig)	149 C	149 C (300°F)
Maximum Operating Temperature	(300°F)	

Flow Range Table

Port Size (FNPT)	Shut Off Range (Air/scfm)	Shut Off Range (Water/gpm)
1/8"	0.0177 - 5	0.00264 - 0.8
1/4"	0.12 - 35	0.0264 - 3.5
3/8"	3 - 60	0.1 - 4
1/2"	5 - 75	0.5 - 10
3/4"	15 - 130	1.0 - 20

Safety Excess Flow Valves

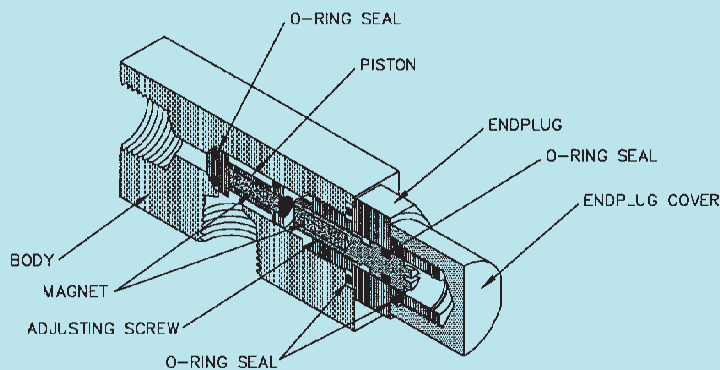
Dimensional Drawings



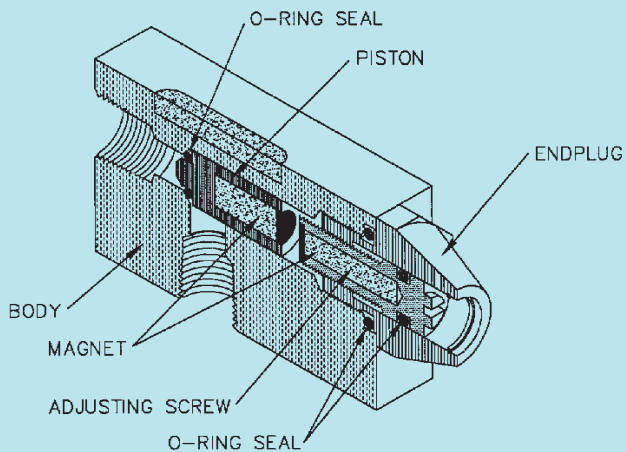
		Port Size				
		1/8"	1/4"	3/8"	1/2"	3/4"
"A"	IN	2 7/8"	3 1/2"	3 1/2"	4 3/4"	5 3/4"
	MM	73.03	88.90	88.90	120.65	146.05
"B"	IN	1 1/4"	1 1/2"	1 1/2"	2"	2 1/4"
	MM	31.75	38.1	38.1	50.8	57.15
"C"	IN	1 1/16"	1"	1"	1 1/4"	1 5/8"
	MM	17.46	25.4	25.4	31.75	41.28
"D"	IN	3/8"	1/2"	1/2"	5/8"	5/8"
	MM	9.53	12.7	12.7	15.88	15.88
"E"	IN	3/4"	1"	1"	1 1/4"	1 1/4"
	MM	19.05	25.4	25.4	31.75	31.75
"F"	IN	5/8"	1"	1"	1 3/8"	1 5/8"
	MM	15.88	25.4	25.4	34.93	41.28

Safety Excess Flow Valves

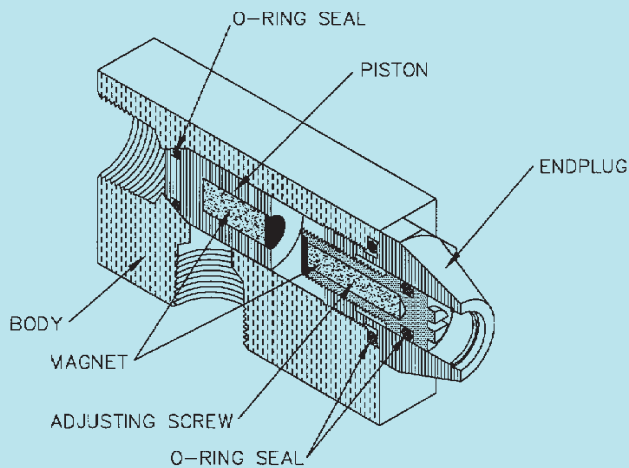
Cut Dimensional Drawings



Illustrated is the Standard M-VF Model with 1/8" ports.

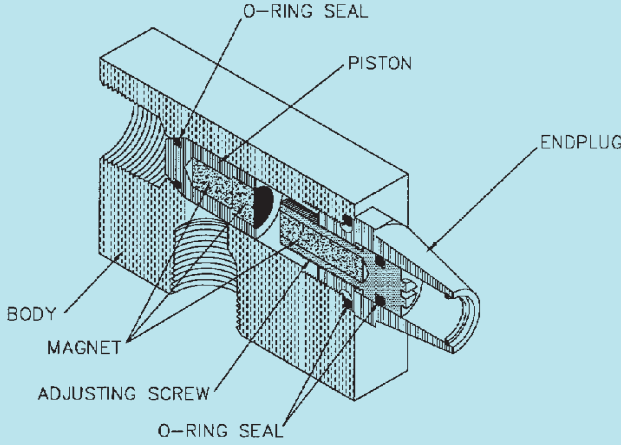


Illustrated is the Standard M-VF Model with 1/4" ports.

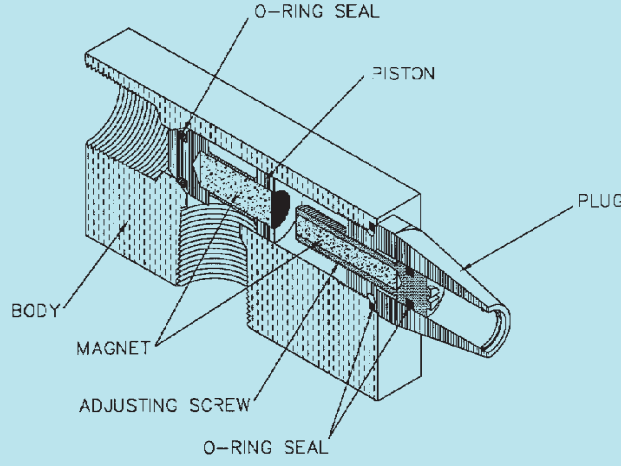


Illustrated is the Standard M-VF Model with 3/8" ports.

Safety Excess Flow Valves



Illustrated is the Standard M-VF Model with 1/2" ports.



Illustrated is the Standard M-VF Model with 3/4" ports.

Ordering Information

Standard Part Numbering						Options				
M	-	Model	-	Material	Port	Shutoff	-	Reset*	Piston	Seals
M	-	VF	-	S	1	1	-	0	0	1
				B - Brass S - 316 Stainless Steel	1 - 1/8" 2 - 1/4" 3 - 3/8" 4 - 1/2" 6 - 3/4"	1 - Positive Shut off 2 - Bleed		0 - Standard 1 - Bleed to Sample 2 - Bleed to Sample Container through Barbed Tube 3 - intrinsic Reset	0 - Standard (316 SS with epoxy) 1 - All 316 SS (no epoxy)	0 - Standard (Viton®) 1 - Kalrez® 3 - Teflon® 4 - Silicone 5 - EPDM 6 - Butyl 7 - Nitrile