MALEMA™

Excess Flow Valve
M-VF
(Also known as Velocity Fuse)

Operating Instructions
and
Quick Start Guide

Corporate Headquarters
1060 S Rogers Circle
Boca Roton, FL 33487
P: (561) 995-0595 F: (561) 995-0622

West Coast Headquarters
2329 Zanker Road
San Jose, CA 95131
P: (408) 970-3419 F: (408) 970-3426

South East Asia Headquarters
35, Marsiling Industrial Estate Road 3,
02-06, Singapore 739257
P: (65) 6482-3533 F: (65) 6484-4231

India Headquarters
3rd Floor Hanumathra Arcade, # 17&18,
60 Feet Road, Pattegarapalya Main Road,
Vijayanagar North, Bangalore 560079
P: (91) 80 2350-4361 F:(91) 802301 1205

Table of Contents

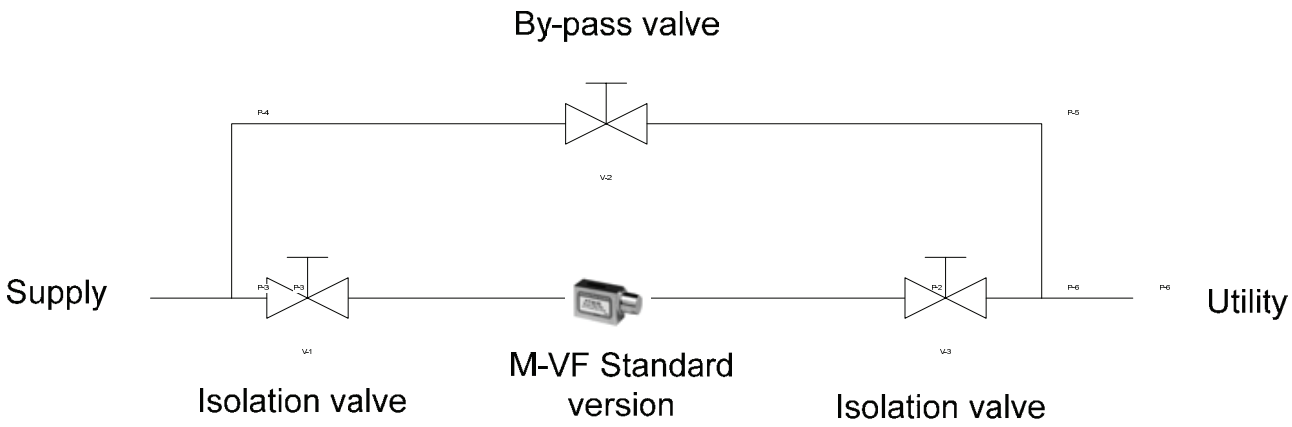
Operation

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. When the differential becomes great enough, it overcomes the magnetic attraction between the piston magnet and the adjusting screw magnet and instantly comes to rest on the valve seat closing off the flow. Adjustment is made by turning the adjusting screw clockwise to reduce the flow area, causing actuation at reduced flow. When the pressure is equalized between both sides of the valve, the piston automatically returns to its previously adjusted flow setting.

Standard Version

Standard version is available with positive shut off or bleed option. In the bleed option model, piston has controlled bleed, where it will reset itself after some time of shutting off the flow. The time required to reset may vary based on the operating pressure and volume of gas.

Typical installation of the standard version with positive shut off option is as follows:



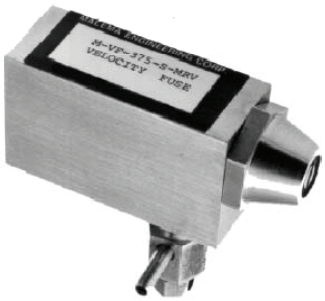
M-VF shuts the flow in the event of excess flow conditions. Close the isolation valves and attend to the problem that has caused the excess flow condition. After rectifying the problem open the isolation valves and open the by-pass valve for resetting the M-VF by equalizing pressure upstream and downstream.

M-VF with manual reset versions:

1. Bleed to Atmosphere option:

For applications where bleed to atmosphere is acceptable, such as air and nontoxic gases, the reset valve bleeds the gas behind the piston to atmosphere. This equalizes the pressure that is inside the valve and allows for a quick reset. The reset valve can then be turned off to allow the flow to resume.

2. Bleed to Sample container option:



For applications where the flow media must be contained, a bleed valve tube allows bleeding of the system to a sample container through a barbed tube.

3. Intrinsic Reset option:

The intrinsic reset version offers an internal bypass feature which allows for bleeding downstream that in turn, contains all of the medium within the valve.

A typical installation of M-VF valve with intrinsic reset feature:

Installation Instruction

The M-VF series velocity fuse is recommended to be mounted in horizontal position.

SHUT OFF FLOW RATE ADJUSTMENT

- Turn the adjusting screw fully counterclockwise.
- Connect hose or piping to outlet and operate at maximum flow rate (liquid or gas).
- Turn the adjusting screw clockwise until velocity fuse actuates and shuts off flow.
- Turn the flow off. In the case of the bleed type, the velocity fuse will automatically reset because of the controlled bleed.
- Turn the adjusting screw (one turn) counterclockwise and the system is ready to function.

NOTE: For positive shut-off models, equalize the pressure on both sides of the velocity fuse by turning the bleed valve screw counterclockwise to let the system fluid weep around the stem threads. However, before doing so, the main system valve should remain closed. The valve will reset as pressure is equalized and automatically return to its previously adjusted flow setting.

CAUTION: Operating personnel must protect themselves from exposure to system fluids.

INSTRUCTIONS RESETTING M-VF WITH INTRINSIC RESET:

- M-VF shuts if the downstream line breaks or excess flow condition occurs.
- Close the inlet isolation valve. Having an isolation valve at the outlet of M-VF is optional.
- Close the outlet isolation valve if available.
- After finding the reason for excess flow condition, arrest the leak or rectify the excess flow condition.
- Pull the lock pin in M-VF.
- Turn the reset valve on the M-VF clockwise (quarter turn).
- You will hear a pop sound indicating the piston has gone back to its original position. i.e. sticking to the magnet.
- This indicates the M-VF is reset. Bring back the reset valve to its original position.
- Lock the reset valve using the lock pin.
- When safe open the isolation valve in the inlet gradually to its original position.
- Resume normal operation.

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 trichloroethane 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.

Specifications

Part Name	Material
Housing, End Plug and Adjusting Screw	316SS
Magnet in Adjusting Screw & Pistons	Alnico 5
Piston	316SS
O-rings	Viton
Pressure and Temperature Specifications Maximum Operating (psig) Burst (psig) Maximum Operating Temperature	 3,000* 5,000* 149°C (300°F)

*May not apply for all configuration. Consult factory for additional details.

* Note: For the 316SS valve. Piston and adjusting screw with embedded magnets using beam-welded plugs.
No epoxy in wetted area

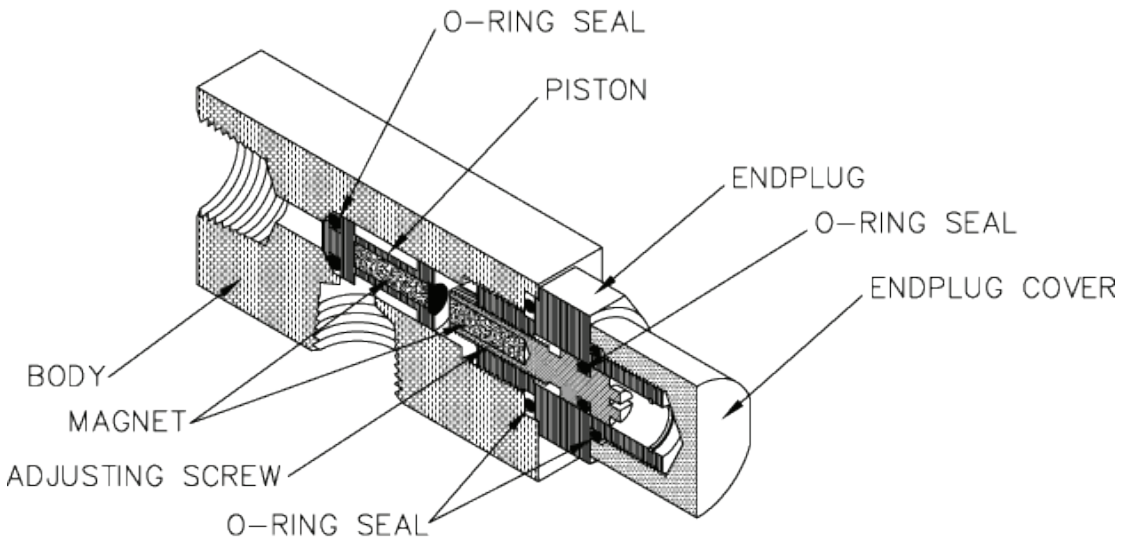
Manual Reset Valve Specifications

Bleed to Atmosphere	Nupro Valve in 316SS, with maximum pressure to 3000* psi. Temperature from - 10^{O}F to 400^{O}F. All seals are PTFE coated Viton (other seal materials are optional)
Bleed to Sample Container	Whitey Co 'BV' Series in 316SS, Carbon Steel or Alloy R-405 with maximum pressure up to 10,000* psi @ 100^{O}F
Intrinsic Reset	316SS Packing is PFA

*may not apply for all configuration. Consult factory for additional details.

Dimensional drawings

Illustrated is the M-VF-125



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

Ordering Information

Model Code									Description
M-VF									
	-								
Body Material		S							316 Stainless Steel
Connection Sizes			1						1/8” FNPT
			2						1/4” FNPT
			3						3/8” FNPT
			4						1/2” FNPT
			6						3/4” FNPT
Shutoff				1					Positive Shutoff
				2					Bleed (Available with standard reset option only)
					-				
Reset						0			Standard
						1			Bleed to Atmosphere (not available in 3/4”)
						2			Bleed to Sample Container
						3			Intrinsic Reset (not available in 3/8” or 3/4”)
Piston Type							0		316SS with Epoxy
							1		All 316SS (no epoxy)
O-rings								0	Viton
								1	Kalrez
Special Options									Factory Preset
									Oxygen Cleaning

Warranty

Malema Sensors warrants to the buyer that its products are free from defects in materials and workmanship at the time of shipment and during the WARRANTY PERIOD. Malema Sensors obligation under this warranty is limited to the replacement of the product(s) by same product(s) manufactured by Malema Sensors or repair of the product(s) at the Malema Sensors facility. Malema Sensors products are sold with the understanding that the buyer has determined the applicability of the product(s) to its intended use. It is the responsibility of the buyer to verify acceptability of performance to the actual conditions of use. Performance may vary depending upon these actual conditions.

Warranty Period

This warranty is in effect for twelve (12) months from the date of shipment from Malema Sensors place of business.

Warranty Claim

If Malema Sensors products are found to be defective in materials or workmanship within twelve (12) months of the date of shipment, they will be repaired or replaced with same product at the discretion of Malema Sensors at its place of business at no charge to the buyer.

Service and Repair

To return the products, please obtain an RMA number for the product by contacting Malema Sensors (Corporate Office), Boca Raton at (800) 637-6418 or (561)995-0595.

All returns of equipment must go to the following address:
Malema Sensors,
1060 S Rogers Circle
Boca Raton, FL 33487, USA

NOTE: Specifications are subject to change without notice.