

Safety Excess Flow Valves

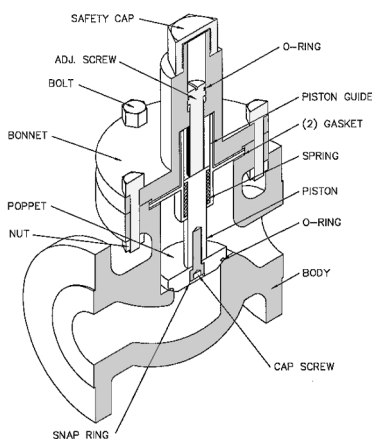


Malema's valves provide instant shut off in the event of a hose break or line failure, preventing the release of hazardous or inflammable products to the area, which can result in a disastrous fire or explosion and untold damage to personnel and equipment.

Note: All LPG tank cars and transport trucks are required by law to have excess flow valves installed. In addition, state LPG regulatory bodies require excess flow valves on all LPG storage vessels, storing products for domestic delivery and consumption.

Operation

As the fluid enters the valve, it flows through the orifice to the outlet. The orifice and tapered piston create a venturi effect, accelerating the flow through the valve. At a preset flow rate, the pressure differential offsets the spring-loading of the piston and shuts off the valve. Fluid can flow through the valve in either direction; however, the flow will be shut off in the direction indicated on the valve.



Illustrated is the M-XF Model.

Adjustment is achieved by means of an externally adjustable screw that positions the pistons closer or farther away from the orifice. Turning the adjusting screw clockwise to reduce the flow area causes actuation at lower preset flows. Typically, Malema offers three springs for each valve, a light, medium, and heavy spring. These cover the entire trip range of a standard valve.

M-XF Series

Field adjustable excess flow valve

Features

- Can be disassembled for repair or inspection without removal from pipe line
- Field adjustable
- Broad adjustable range
- Meets OSHA requirements for safety shut-off valves
- Operates effectively with liquids or gases
- In-line flow

Applications

- Fuel lines
- Pollution control
- Chemical processing
- Gas and hydraulic lines
- Petroleum and gas installations

Calibration Range *

Air: 0.5 to 40,000 scfm

Water: 0.1 to 2,500 gpm

* These ranges are over different valve sizes.

Specifications

Set Point Accuracy: $\pm 10\%$ maximum

Repeatability: $\pm 5\%$

Material Versions *

- Bronze
- Carbon Steel
- Cast Iron
- Forged Steel
- 316 Stainless Steel

* Other materials available on request.

Port Sizes *

- 3/4"
- 1"
- 1 1/2"
- 2"
- 3"
- 4"
- 6"
- 8"
- 10"

(ANSI Flanged, FNPT, and Socket Welded port types are available)

* Other sizes available on request.

Installation and Maintenance

The mounting position for this excess flow valve is horizontal. These valves can also be mounted vertically; this will change trip settings by approximately 15% (this is easily corrected since one can adjust the valve to counter for this change). This valve can be easily maintained in the field without removing it from the pipeline as all the components slide out of the top on disassembly; a special tool is provided for disassembly.

Flow Characteristics

(For Class 300 Valves)

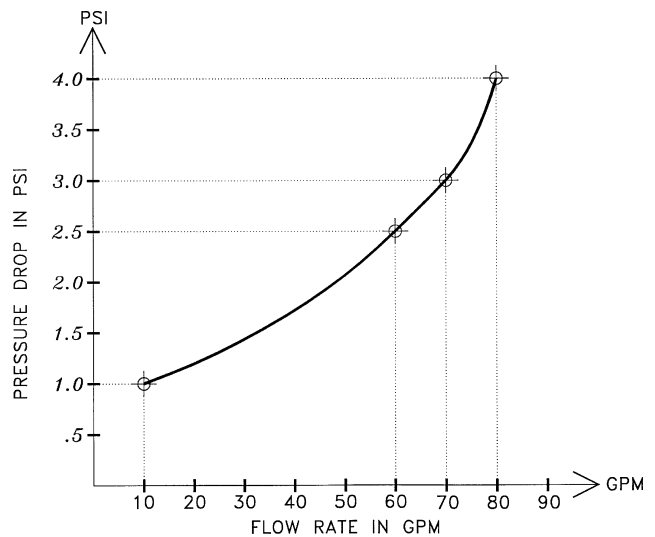
Valve Size	CV	Shut Off Range (Air/scfm)		Shut Off Range (Water/gpm)	
		Min	Max	Min	Max
3/4"	3	0.5	180	0.1	15
1"	5.5	2	400	0.5	25
1-1/2"	17	4	800	1	50
2"	38	8	1,500	2	90
3"	84	20	4,200	5	190
4"	160	40	5,800	10	350
6"	380	60	13,000	15	850
8"	660	72	18,000	18	1,450
10"	1,200	80	40,000	20	2,500

* Air @ STP (i.e. Pressure at 14.7 psig & Temperature at 70° F)

Note: These flows are shown for fully open standard globe valves. We use standard globe valve bodies to construct our EFVs.

Pressure Drop

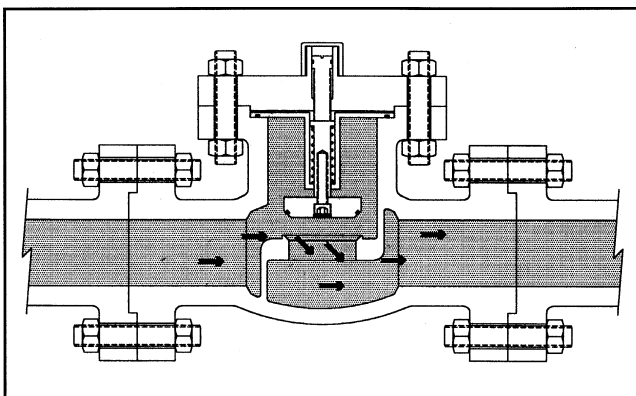
Typical pressure drops for class 300 valves for normal flow are well below 5 psi max. Please contact factory to review pressure drop information for other sizes as required.



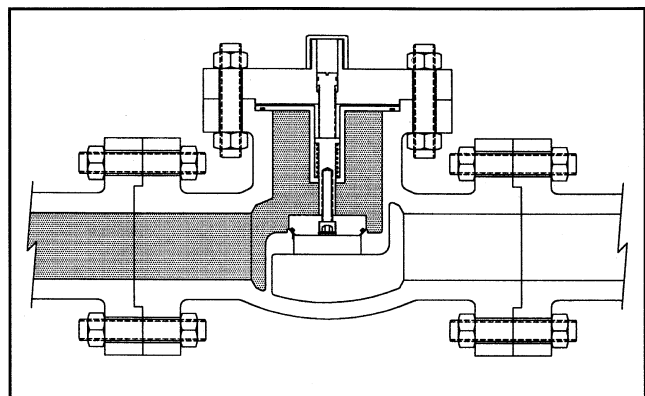
Pressure Drop Graph for M-XF-2.00-SS-300-FL

For pressure drops on other sizes, call factory.

How It Works



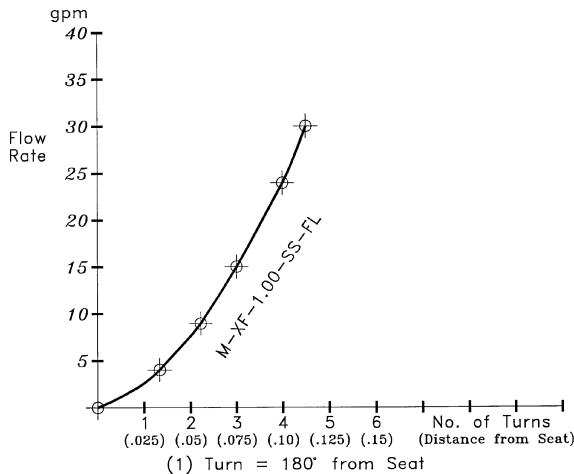
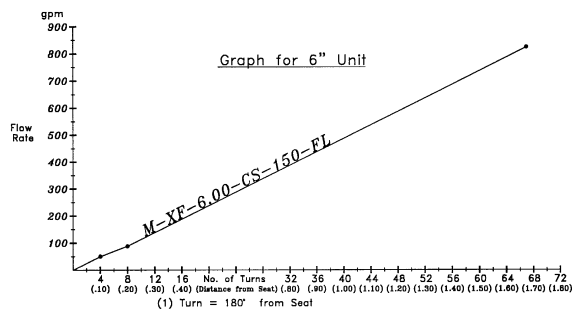
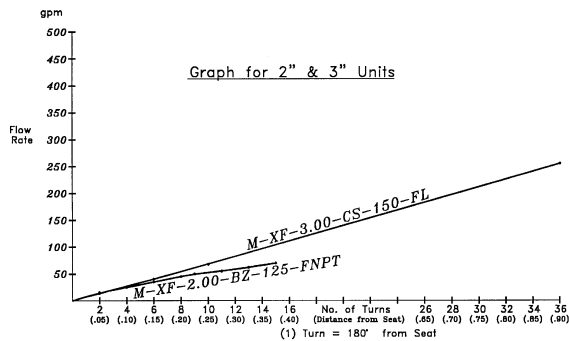
Valve Open - Normal Flow



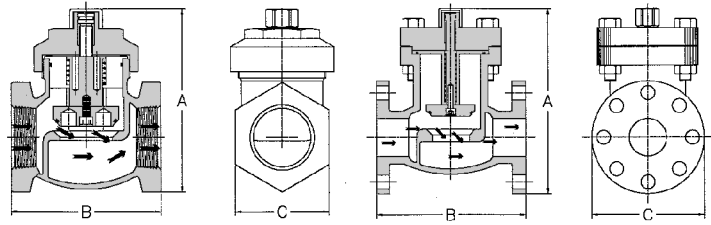
Valve Tripped Flow Shut Off

Safety Excess Flow Valves

Adjustment Screw Turns vs. Flow Trip Point Settings



Dimensional Drawing



Size	Connection	Class	Material	"A" (Height)	"B" (End to End)	"C" (Flange or Port OD)
0.75"	FN	125	BZ	3.90"	3.20"	2.10"
0.75"	FL	150	CS or SS	5.60"	4.63"	3.90"
1.00"	FL	150	CS or SS	5.40"	5.00"	4.30"
1.00"	SW	150	SS	4.00"	3.75"	2.00"
1.00"	FL	300	FS	5.50"	7.75"	4.30"
1.50"	FN	125	BZ	4.25"	4.75"	2.38"
1.50"	FL	150	CS or SS	**	6.50"	5.00"
1.50"	FL	300	BZ	**	9.00"	6.13"
2.00"	FL	150	CS or SS	8.10"	8.00"	6.00"
2.00"	FL	300	CS or SS	8.50"	10.50"	6.50"
3.00"	FL	150	CS or SS	11.60"	9.50"	7.50"
3.00"	FL	300	CS or SS	9.25"	12.50"	8.25"
4.00"	FL	300	CS or SS	15.30"	14.00"	10.00"
6.00"	FL	300	CS or SS	**	17.50"	12.50"
8.00"	FL	300	CS or SS	**	22.00"	15.00"
10.00"	FL	300	CS or SS	**	24.50"	17.50"

Note 1: Dimension "A" may be different if the globe bodies that Malema uses are sourced from different vendors.

Note 2: Please contact factory for dimensions of bodies that are not listed here.

ANSI Flange Data I

ANSI B 16.5, Class 150 (Steel) 285 pai max w.i.

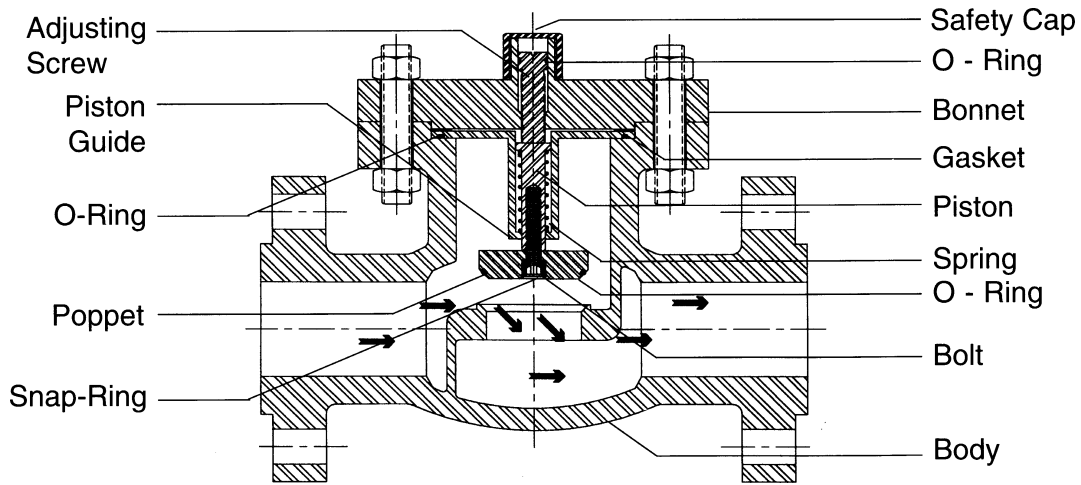
Size	OD	Flange Thickness	Raised Face Diameter	Number of Holes	Hole Diameter	Hole Circle Diameter
3/4"	3-7/8"	7/16"	1-11/16"	4	5/8"	2-3/4"
1-1/2"	5"	9/16"	2-7/8"	4	3/4"	3-7/8"
2"	6"	5/8"	3-5/8"	4	3/4"	4-3/4"
3"	7-1/2"	3/4"	4-1/8"	4	3/4"	6"
4"	9"	15/16"	6-3/16"	8	3/4"	7-1/2"
6"	11"	1"	8-1/2"	8	7/8"	9-1/2"
8"	13-1/2"	1-1/8"	10-5/8"	8	7/8"	11-3/4"
10"	16"	1-3/16"	12-3/4"	12	1"	14-1/4"

ANSI Flange Data II

ANSI B 16.5, Class 300 (Steel) 740 pai max w.p.

Size	OD	Flange Thickness	Raised Face Diameter	Number of Holes	Hole Diameter	Hole Circle Diameter
1-1/2"	6-1/8"	13/16"	2-7/8"	4	7/8"	4-1/2"
2"	6-1/2"	7/8"	3-5/8"	8	3/4"	5"
3"	8-1/4"	1-1/8"	5"	8	7/8"	6-5/8"
4"	10"	1-1/4"	6-3/16"	8	7/8"	7-7/8"
6"	12-1/2"	1-7/16"	8-1/2"	12	7/8"	10-5/8"
8"	15"	1-5/8"	10-5/8"	12	1"	12"
10"	17-1/2"	1-7/8"	12-3/4"	16	1-1/8"	15-1/4"

Cut-Away Drawing



Ordering Information

M - XF - 1.00 - SS - 300 - FL

Valve Size			
Code	Size	Code	Size
0.75	3/4"	4.00	4"
1.00	1"	6.00	6"
1.50	1-1/2"	8.00	8"
2.00	2"	10.00	10"
3.00	3"		

Body Material	
Code	Type
BZ	Bronze
CI	Cast Iron
CS	Cast Steel
FS	Forged Steel
SS	316 Stainless

Valve Class	
Code	Pressure Rating
125	200
150	285
300	740
600	1,480
800	1,975
1,500	3,705

Connection Type	
Code	Type
FL	Flanged
FN	FNPT
SW	Socket Weld