

## Technical Bulletin

# LEAD FREE\*

## M115F Globe / M1115F Angle

### Fire System Pressure Reducing Valve

Sizes: 1½" - 8"

The Watts M115F (Globe) and M1115F (Angle) Pressure Reducing Valves meet all requirements for UL listed fire protection service. Automatically reduces a higher inlet pressure to an adjustable lower outlet pressure regardless of changing flow rate or varying inlet pressure.

### Models

Model M115F: Globe Pattern Single Chamber Pressure Reducing Valve

Model M1115F: Angle Pattern Single Chamber Pressure Reducing Valve

### Materials

<b>Body &amp; Cover:</b>	<ul style="list-style-type: none"> <li>Fused Red Epoxy inside and out</li> <li>Ductile Iron ASTM A536 65-45-12</li> </ul>
<b>Seat (Trim):</b>	Stainless Steel AISI 316 - Xylan Coated (Optional)
<b>Stem:</b>	Stainless Steel S30400 - Xylan Coated (Optional)
<b>Spring:</b>	Stainless Steel AISI S30200
<b>Elastomers:</b>	Buna-N
<b>Pressure Reducing Pilot:</b>	Body: Copper Silicon Alloy Internals: Stainless Steel, AISI 316 Elastomers: BUNA-N (Nitrile)
<b>Pilot System:</b>	Strainer Flo-Clean: Brass Body, Monel Screen Fittings: Lead Free* brass Control Tubing: Copper
<b>Pressure Gauge:</b>	UL / FM Approved 0-300psi

### Operating Pressure

<b>Threaded:</b>	ANSI B1.20.1, MAX WP 300psi
<b>150# Flanged:</b>	ANSI B16.42, Max WP 175psi
<b>300# Flanged:</b>	ANSI: B16.42, Max WP 300psi
<b>Grooved End:</b>	Max WP 300psi
<b>Pilot Spring:</b>	Spring: 30-300psi

### UL Rated Pressures

Valve Size	Max Inlet Pressure	Reduced Pressure Adjustment Range
in.	psi	psi
2	300	50-165
2½	300	50-165
3	300	50-165
4	300	50-165
6	300	50-165
8	300	50-165

\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



### Valve Sizes Available in Angle and Globe

Valve Size	Globe Threaded	Globe 150#	Globe 300#	Globe Grooved End	Angle Threaded	Angle 150#	Angle 300#
	Globe				Angle		
1½	✓	✓	✓		✓		
2	✓	✓	✓	✓	✓	✓	✓
2½	✓	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	✓
4		✓	✓	✓		✓	✓
6		✓	✓	✓		✓	✓
8		✓	✓	✓		✓	✓

✓ = c  US LISTED

### Operation

The main valve is controlled by a pressure reducing pilot control which is of direct acting, spring loaded-diaphragm actuated design. The control is a normally open pilot with an adjustable spring load to maintain a constant downstream pressure. As the main line downstream pressure increases to the set-point, it is sensed internally by the pilot, and the pilot throttles moving towards the closed position. This action in turn prevents the main valve cover pressure supply from being vented away, and the result is increased pressure in the main valve cover. This pressure acts to close the valve and modulate to the set point.

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## Installation & Start-Up

Refer to Std NFPA 13, and NFPA 14 for additional installation requirements as applicable for these valves. Refer to Std NFPA 25 for inspection, maintenance, and testing requirements as applicable for these valves. These valves are to be set to provide pressures and flows, and are to be tested after installation in accordance with NFPA 13 or NFPA 14 or both, whichever is applicable, and tested periodically thereafter in accordance with NFPA 25.

### System Requirements

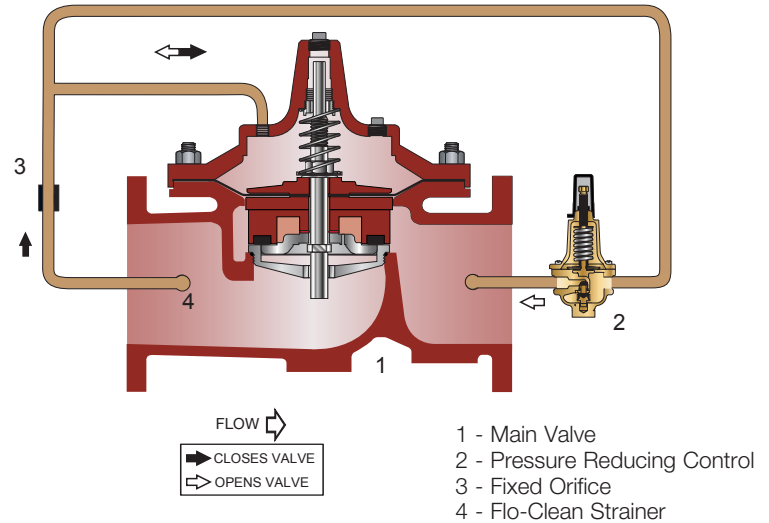
For a Valve intended for use in sprinkler systems, a relief valve of 1/2" size or larger is to be installed on the downstream side of the main valve as shown. Pressure gauges are to be installed on the inlet and outlet sides of the main valve as shown.

### Dry Steps

1. Clear the line of slag and debris.
2. Install the valve so that the flow arrow matches flow into the system.
3. Install a pressure gauge  
-downstream of the control valve  
-in the main valve outlet side Port  
-in the pilot gauge port (1/4" npt)
4. Loosen pilot lock nut to allow for adjustment.
5. Loosen a tube fitting connection near the valve cover port.
6. Close the downstream manual valve if installed in the system.

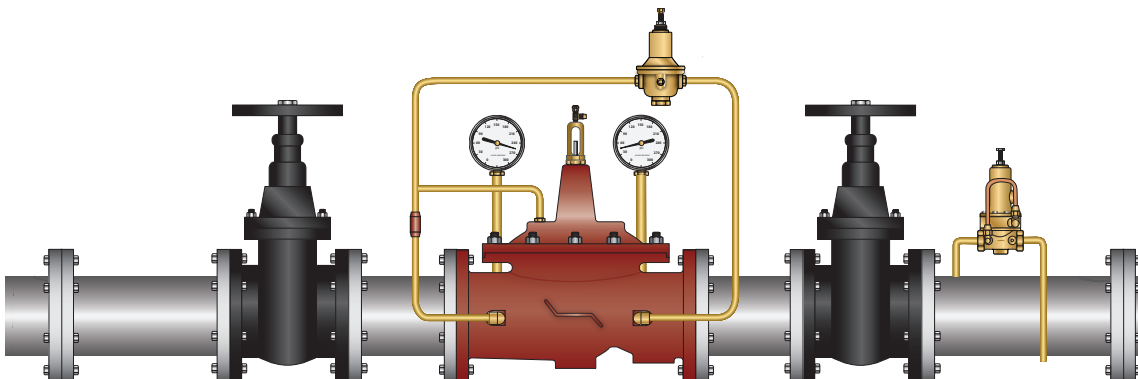
### Wet Steps

1. Slowly supply pressure/fluid to the control valve by opening the upstream manual valve. This will fill or "charge" the control valve. Care should be made not to overpressure the system.
2. Close the tube filling connection after all air has been vented from the line.
3. Slowly open the downstream manual valve to establish flow through the valve.
4. Under flowing conditions, note the outlet (downstream) pressure.



5. Adjust the control pilot to the desired set-point  
IN-Clockwise to increase the downstream pressure  
OUT-Counterclockwise to decrease the downstream pressure. This adjustment should be made gradually, allowing for the system pressure to change and stabilize.
6. Allow the system to flow. Make final adjustments as required.
7. Tighten the adjustment nut on the control when the desired outlet pressure is reached and the system is stable.

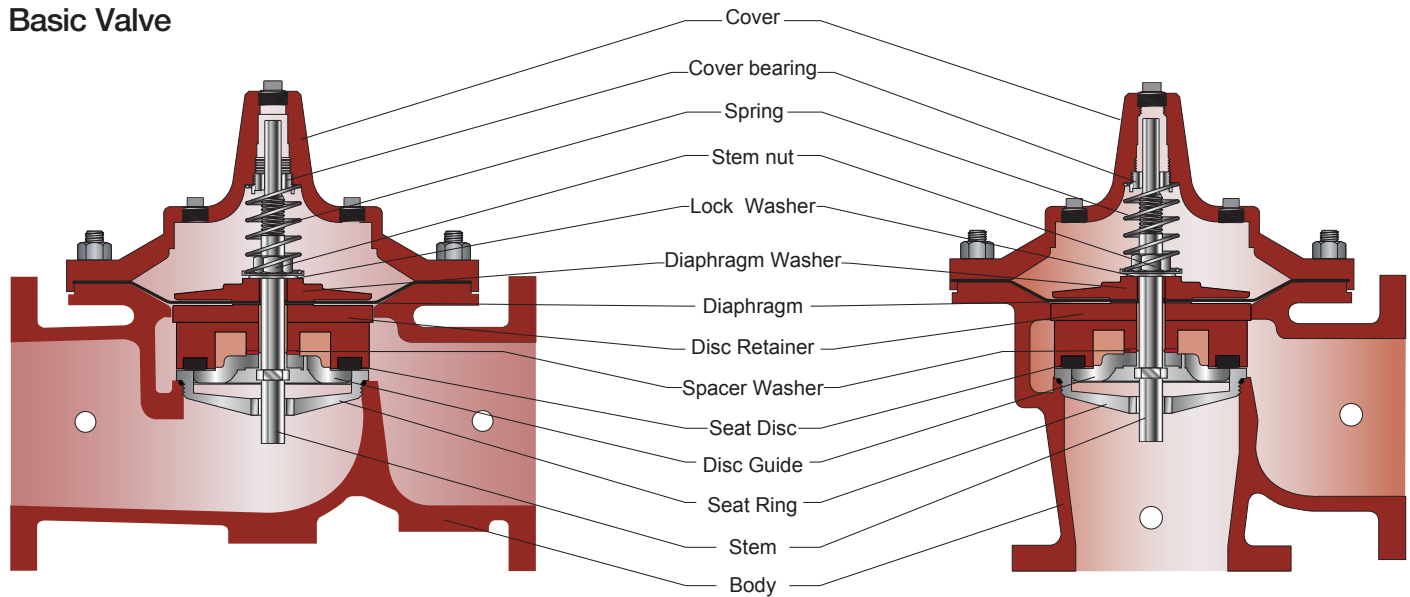
**NOTICE:** As a point of reference, the reducing control is factory set between 45 and 55psi. The objective to proper start-up is to bring the valve into service under controlled conditions. Pressure reducing valves should be put into service with a lower initial setting, allowing for a gradual increase to the desired set-point. If the desired pressure is equal to or less than the factory setting, turn the adjustment screw on the pilot counter-clockwise (OUT) to lower the initial setting of the control.



### NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

## Basic Valve



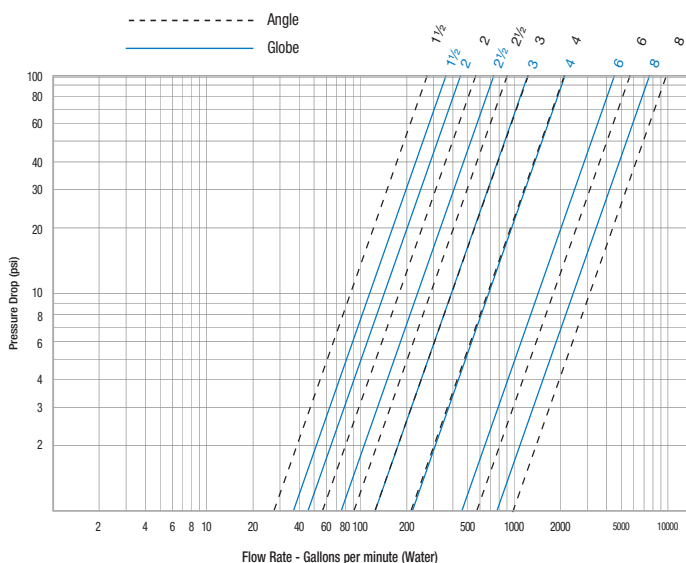
M100 Globe

M100 Angle

## Maintenance

The basic valve normally requires a minimum of maintenance, due to a packless construction and no required lubrication. However, it is suggested that a periodic inspection schedule be established to determine how the fluid is affecting the efficiency of the valve. Fluid velocity as well as any substance entrained in the fluid, such as dissolved minerals and/or suspended particles, vary between installations. In areas subject to freezing, remove the body cover drain plugs for winter drain-down.

## Headloss



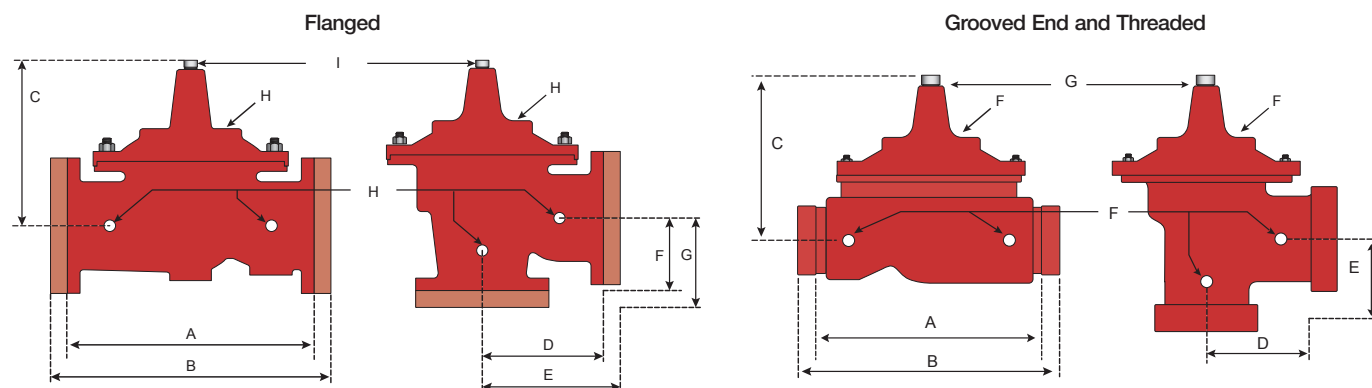
## Disassembly/Assembly

Inspection or maintenance can be accomplished without removal from the line.

To replace the diaphragm and/or the Seat Disc:

1. Remove fitting nuts where necessary to release the valve cover from the controls or control lines.
2. Remove the cover and spring.
3. Remove the diaphragm and stem assembly, taking care not to damage the diaphragm when removing over studs.
4. With the assembly removed, examine the diaphragm and Seat Disc for wear or damage. Do not disassemble unless replacement is indicated.
5. To replace the diaphragm, Seat Disc and/or stem O-ring, hold the stem in a vise or with wrench on the flats at the bottom end of the stem. Remove the nuts.
6. Remove the diaphragm washer, diaphragm, etc., in the proper sequence.
7. Check all surfaces, seat, O-ring grooves and diaphragm clamping surfaces for damage and/or foreign particles.
8. To reassemble, reverse the order of disassembly. Tighten stem nuts securely to ensure proper clamping of the diaphragm. To assure positive and even clamping of the diaphragm between the body and the cover, gradually tighten the cover nuts diametrically opposite each other.

## Dimensions



### Flanged

Valve Size	Globe 150#		Globe 300#		Cover To Center		Angle 150#		Angle 300#		Angle 150#		Angle 300#		Port Size NPT	Port Size NPT	MAX Rated Flow
	A		B		C		D		E		F		G		H	I	GPM
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	in.	
1½	8½	216	9	229	5½	140									¾	¼	127
2	9¾	238	10	254	6½	165	4¾	121	5	127	¾	83	3½	89	¾	½	150
2½	11	279	11¾	295	7½	191	5½	140	5¾	149	4	102	4½	110	½	½	200
3	12	305	13¼	337	8¼	210	6	152	6¾	162	4	102	4¾	111	½	½	300
4	15	381	15¾	397	10¾	270	7½	191	7¾	200	5	127	5½	135	¾	¾	500
6	20	508	21	533	13¾	340	10	254	10½	267	6	152	6½	165	¾	¾	1300
8	25¾	645	26¾	670	16	406	12¾	324	13¼	337	8	203	8½	216	1	1	1550

### Grooved End and Threaded

Valve Size	Globe Threaded		Globe Grooved		Cover To Center		Angle Threaded		Angle Threaded		Port Size (npt)	Port Size (npt)	Max Rated Flow
	A		B		C		D		E		F	G	
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	in.	GPM
1½	7¼	184			5½	140	¾	83	1¾	48	¾	¼	127
2	9¾	238	9	229	6½	165	4¾	121	¾	83	¾	½	150
2½	11	279	11	279	7½	191	5½	140	4	102	½	½	200
3	12½	267	12½	318	8¼	210	6¼	159	4½	114	½	½	300
4			15	381	10¾	270					¾	¾	500
6			20	508	13¾	340					¾	¾	1300
8			25¾	645	16	406					1	1	1550

