

Application

The Zurn Wilkins Model ZW215FP Fire Pump Suction Control Valve is designed specifically for Fire Suppression Systems to prevent fire pumps from over-drawing from the water supply resulting in damage to the pump or the supply network because of very low or negative pressures on the suction side of the fire pump. The pilot assembly reacts quickly to increases and decreases of suction pressure. The control valve will close if suction pressure drops below the set pressure. The control valve will open again once suction pressure rises to the control valve set pressure and will modulate to keep the suction pressure at the set pressure until supply increases. In addition the Model ZW215FP comes standard with epoxy coating internally and externally for corrosion protection, as well as a test cock on the sensing port for quick bleeding of sensing line.

Standards Compliance:

- FM® Approved



Materials

| | |
|-------------------|-------------------------|
| Main Valve Body | Ductile Iron ASTM A536 |
| Main Valve Bonnet | Ductile Iron ASTM A536 |
| Disc Guide | Bronze ASTM B 176 |
| Seat | Bronze ASTM B 176 |
| Disc | Buna-N Rubber |
| Diaphragm | Nylon Reinforced Buna-N |
| Stem | Stainless Steel |
| Spring | Stainless Steel |

Standard Features

- Epoxy Coated, FDA Approved
 - Blue - Class 150 Flange - Threaded Ends
 - Red Oxide - Class 300 Flange - Grooved Ends
- Pilot Assembly
 - "Wye" Type Strainer
 - Sensing Line Test Cock
 - Visual Position Indicator
 - 3/8" Flare Sensing Line Connection
- ANSI Class 150 Flanges

Sizes

Globe:

- | | |
|-----------------------------|---|
| Threaded ends, ANSI B1.20.1 | <input type="checkbox"/> 2" - 3" 300 psi max. |
| Flanged ends, ANSI B16.42 | <input type="checkbox"/> 2" - 10" |
| | <input type="checkbox"/> ANSI Class 150, 250 psi max. |
| | <input type="checkbox"/> ANSI Class 300, 300 psi max. |
| Grooved ends, AWWA C606 | <input type="checkbox"/> 2" - 10" 300 psi max. |
| Temperature Rating: | <input type="checkbox"/> Water 33°F to 140°F |
| Pilot Spring Range: | <input type="checkbox"/> 10-30 psi |



Options

(Add suffix letters to ZW215FP)

Function

- C - 40XL Hydraulic Check with Isolation Valve

Connections

- G - IPS Grooved (inlet rating 300 psi)
- TH - NPT Threaded (inlet rating 300 psi)
- Y - ANSI Class 300 Flanges (inlet rating 300 psi)

Main Valve Options

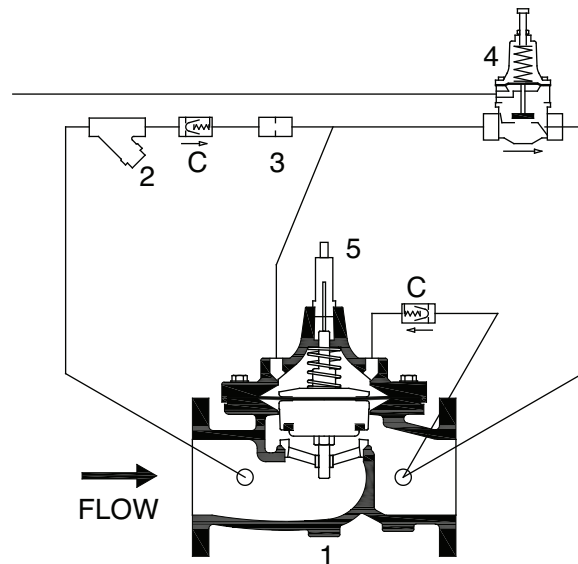
- SS - Stainless Steel Seat/Retainer/Cover Guide

Pilot System

- ST - Stainless Steel Tubing and Fittings
- RV - Pilot on Reverse Side

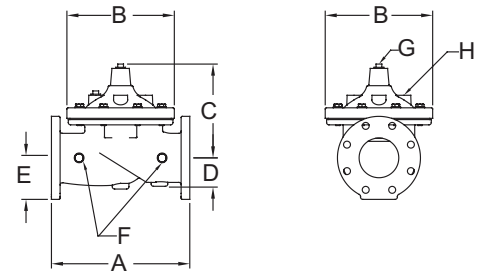
Schematic Diagram

| Item | Description of Standard Features |
|------|----------------------------------|
| 1 | Main Valve |
| 2 | SXL "Wye" Type Strainer |
| 3 | Restriction Fitting |
| 4 | PV-RLF Pressure Relief Valve |
| 5 | ZPI Visual Position Indicator |

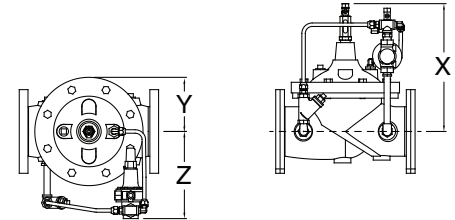


Main Valve Dimensions

| DIM | ANSI Class | | | | | | | |
|--------------------------------|-------------------|--------|------------|--------|----------|---------|---------|-----------|
| | | 2 (50) | 2 1/2 (65) | 3 (80) | 4 (100) | 6 (150) | 8 (200) | 10" (250) |
| A | Threaded | 9 3/8 | 11 | 12 1/2 | N/A | N/A | N/A | N/A |
| | Class 150 Flange | 9 3/8 | 11 | 12 | 15 | 20 | 25 3/8 | 29 3/4 |
| | Class 300 Flange | 10 | 11 5/8 | 13 1/4 | 15 5/8 | 21 | 26 7/16 | 31 1/8 |
| | Grooved | 9 | 11 | 12 1/2 | 15 | 20 | 25 3/8 | 29 3/4 |
| B | Diameter | 6 3/4 | 8 1/16 | 9 3/16 | 11 11/16 | 15 3/4 | 20 1/8 | 23 11/16 |
| C | Max. | 6 3/16 | 7 3/8 | 8 1/8 | 10 3/16 | 12 5/16 | 15 9/16 | 17 5/8 |
| D | Max. | 1 3/4 | 2 1/8 | 2 9/16 | 3 7/16 | 4 15/16 | 5 | 5 13/16 |
| E | Class 150 Flange | 3 | 3 1/2 | 3 3/4 | 4 1/2 | 5 1/2 | 6 3/4 | 8 |
| | Class 300 Flange | 3 1/4 | 3 3/4 | 4 1/8 | 5 | 6 1/4 | 7 1/2 | 8 3/4 |
| F | NPT Body Tap | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| G | NPT Cvr. Plug Tap | 1/2 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| H | NPT Cover Tap | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| Valve Stem Internal Thread UNF | | 10-32 | 10-32 | 1/4-20 | 1/4-20 | 1/4-20 | 3/8-16 | 3/8-16 |
| Stem Travel (in) | | 3/4 | 7/8 | 15/16 | 1 3/16 | 1 3/4 | 2 3/8 | 2 13/16 |
| Approx. Wt. (Lbs) | | 35 | 50 | 70 | 140 | 285 | 500 | 700 |
| Pilot System Dimensions | | | | | | | | |
| X | Max. (inches) | 11 1/4 | 11 1/4 | 11 3/4 | 13 3/4 | 16 | 21 | 23 1/4 |
| Y | Max. (inches) | 3 3/8 | 4 | 4 5/8 | 5 7/8 | 7 7/8 | 10 5/8 | 11 7/8 |
| Z | Max. (inches) | 8 3/8 | 8 1/4 | 8 1/2 | 9 1/2 | 10 3/4 | 12 1/4 | 13 1/2 |



Pilot System Dimensions



Operation

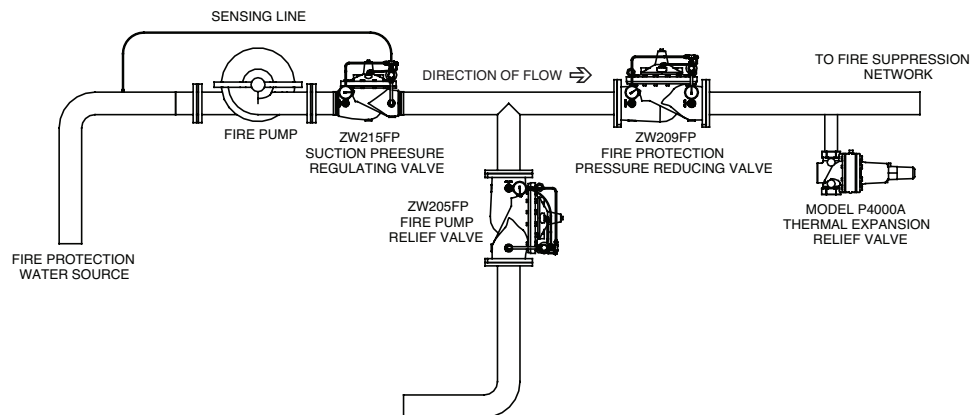
The Zurn Wilkins ZW215FP utilizes a pressure relief pilot valve that installs on the discharge side of the control circuitry. The pilot Model PV-RLF is a direct acting, normally closed, spring loaded, diaphragm actuated valve. The operation of the ZW215FP begins with accurately sizing the valve, then fine tuning the control circuitry by adjusting the PV-RLF to open at the desired suction pressure. A sensing line runs externally from the suction side of the pump to the pilot control chamber under the diaphragm. Thus, suction pressure exceeding the preset of the pilot acts to open the pilot valve while the adjustable spring in the pilot seeks to keep it closed. The result is a modulating action in the pilot that is transmitted to the cover of the main valve. This creates a mirror modulation of the diaphragm assembly in the main valve. Suction pressure is maintained within narrow limits regardless of changing flow rates or outlet pressure when supply has decreased below acceptable limits.

Flow Characteristics

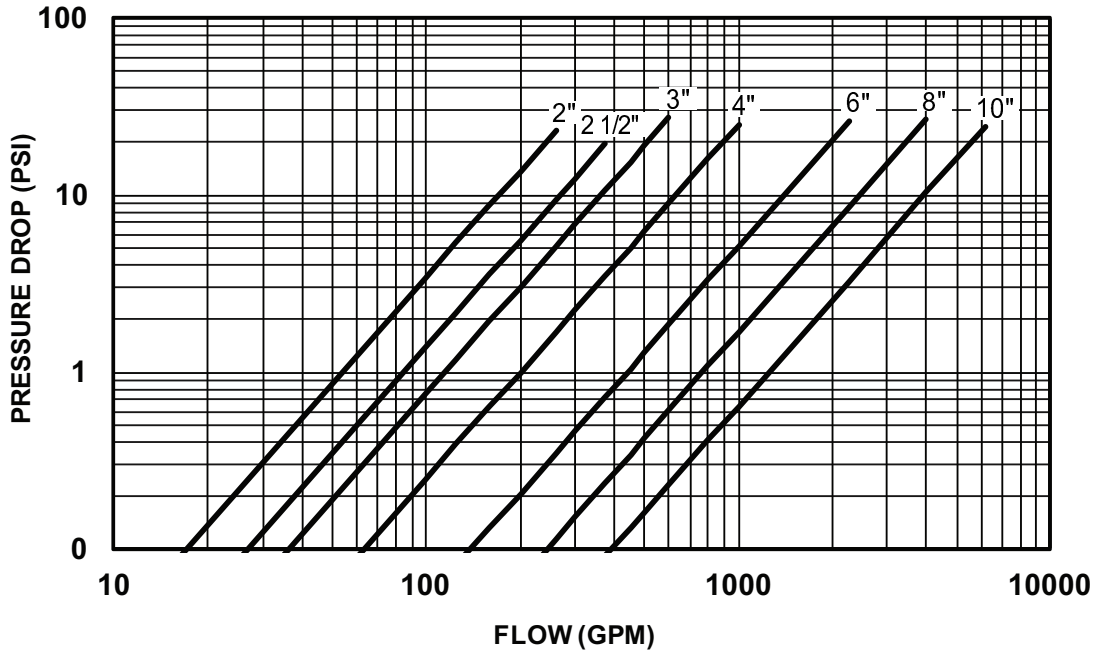
Suggested flow calculations are based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft./sec (6.1 meters/sec) & maximum surge is approx. 25 ft./sec (7.6 meters/sec). Many factors should be considered in sizing pressure relief valves including inlet pressure, outlet pressure and flow rates.

| Valve Size | inches | 2 | 2 1/2 | 3 | 4 | 6 | 8 | 10 |
|-----------------------------|-------------------|------|-------|-----|------|------|------|------|
| | mm | 50 | 65 | 80 | 100 | 150 | 200 | 250 |
| Suggested Flow (GPM) | Max. Continuous | 210 | 300 | 460 | 800 | 1800 | 3100 | 4900 |
| | Max Intermittent | 250 | 375 | 600 | 1000 | 2250 | 4000 | 6000 |
| | Min. Continuous | 15 | 20 | 30 | 50 | 115 | 200 | 300 |
| Suggested Flow (Liters/sec) | Max. Continuous | 13 | 19 | 29 | 50 | 113 | 195 | 309 |
| | Max. Intermittent | 16.4 | 23 | 37 | 62 | 142 | 246 | 388 |
| | Min. Continuous | 0.9 | 1.3 | 1.9 | 3.2 | 7.2 | 13 | 19 |

Typical Installation



BODY MINIMUM FRICTION LOSS



Specifications

The Fire Pump Suction Control Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and resilient, rectangular seat disc. These and other parts shall be replaceable in the field; all such service and adjustments to be possible without removing the valve from the line. The stem of the basic valve shall be guided top and bottom by integral bushings. The basic valve and its pilot control system shall contain no packing glands or stuffing boxes. The diaphragm shall not be used as a seating surface nor shall pistons be used as an operating medium. All internal and external ferrous surfaces shall be coated with a high quality, fusion epoxy coating. The pilot control system shall include a direct-acting, normally closed, spring-loaded, diaphragm actuated pilot valve with the stem guided between the diaphragm assembly and seat disc. To ensure precise suction pressure control the appropriately rated pilot valve shall be field adjustable within the pressure control range of the spring. The Fire Pump Suction Control Valve shall be a ZURN WILKINS Model ZW215FP.