

Application

The Zurn Wilkins Model ZW205FP Fire Relief Valve is designed for Fire Suppression Systems to relieve high system pressures. The pilot assembly reacts quickly to increase of upstream pressure to prevent damage to system piping, valves, and sprinklers while maintaining positive pressure on fire pumps. As the water demand increases in the Fire Suppression System the Relief Valve will start to close, directing more water to suppress fires. The Relief Valve will maintain the upstream pressure at the set pressure as long as maximum flow rates of the valve are not exceeded. The Zurn Wilkins Model ZW205FP is designed to open quickly and close slowly to prevent upstream pressure surges. The Zurn Wilkins Model ZW205FP is available in both globe and angle pattern bodies.

Standards Compliance:

- UL and ULC Listed
- FM® Approved



Materials

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

Standard Features

- Red Epoxy Coated, FDA Approved
- Pilot Assembly
 - “Wye” Type Strainer
 - Inlet Pressure Gauge (UL/FM)
 - 3-Way Gauge Isolation Valve
- ANSI Class 150 Flanges
- Copper Tubing and Brass Fittings

Sizes

| | |
|-----------------------------|---|
| Globe & Angle | |
| 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"/> 50-200 psi (Standard) |
| | <input type="checkbox"/> 150-300 psi (Optional) |



DIRECTION OF FLOW ⇒

Options

(Add suffix letters to ZW205FP)

Function

- C - 40XL Hydraulic Check with Isolation Valve Body

- A - Angle Style Body

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

- Z - ZPI Visual Position Indicator

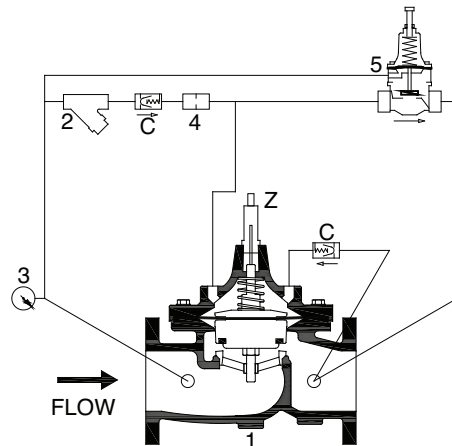
Pilot System

- HP - 150-300 psi High Pressure Range PV-RLF Pilot
- ST - Stainless Steel Tubing (included with SP option, only replaces Copper Tubing)
- SP - All Stainless Steel Pilotry (replaces all brass fittings, pilot valve and copper tubing)
- RV - Pilot on Reverse Side

Schematic Diagram

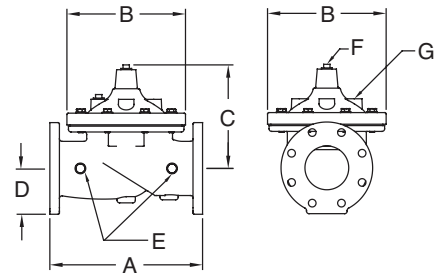
| Item | Description of Standard Features |
|------|----------------------------------|
| 1 | Main Valve |
| 2 | SXL “Wye” Type Strainer |
| 3 | Pressure Gauge |
| 4 | Restriction Fitting |
| 5 | PV-RLF Pressure Relief Valve |

Check on cover to keep cover full of water with vertical pump that does not have suction check valve.

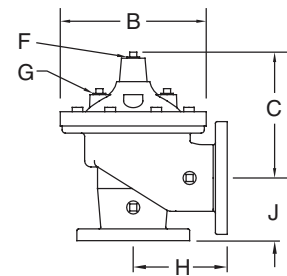


Globe and Angle Main Valve Dimensions

| DIM | FULL PORT | VALVE SIZE inches (mm) | | | | | | |
|----------------------------|-------------------|------------------------|------------|--------|----------|---------|----------|----------|
| | | 2 (50) | 2 1/2 (65) | 3 (80) | 4 (100) | 6 (150) | 8 (200) | 10 (250) |
| A | Threaded | 9 7/16 | 11 | 12 1/2 | | | | |
| | 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 | 9 3/16 | 11 11/16 | 15 3/4 | 20 1/8 | 23 11/16 |
| C | Max. | 6 3/16 | 7 3/8 | 8 | 10 3/16 | 12 5/16 | 15 9/16 | 17 5/8 |
| D | Threaded/Grooved | 1 3/4 | 2 1/8 | 2 9/16 | 3 7/16 | 5 | 5 | 5 13/16 |
| | 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 |
| E | NPT Body Tap | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| F | NPT Cvr. Plug Tap | 1/2 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| G | NPT Cover Tap | 3/8 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 |
| H | Threaded | 4 3/4 | 5 1/2 | 6 1/4 | | | | |
| | Class 150 Flange | 4 3/4 | 5 1/2 | 6 | 7 1/2 | 10 | 12 11/16 | 14 7/8 |
| | Class 300 Flange | 5 | 6 | 6 7/16 | 8 | 10 1/2 | 13 1/4 | 15 9/16 |
| | Grooved | 4 3/4 | 5 1/2 | 6 | 7 1/2 | 10 | 12 11/16 | 14 7/8 |
| J | Threaded | 3 1/4 | 4 | 4 1/2 | | | | |
| | Class 150 Flange | 3 1/4 | 4 | 4 | 5 | 6 | 8 | 8 5/8 |
| | Class 300 Flange | 3 1/2 | 4 5/16 | 4 7/16 | 5 5/16 | 6 1/2 | 8 1/2 | 9 5/16 |
| | Grooved | 3 1/4 | 4 | 4 1/4 | 5 | 6 | 8 | 8 5/8 |
| Valve Stem Internal Thread | | 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 | 1 | 1 3/16 | 1 3/4 | 2 3/8 | 2 13/16 |
| Approx. Wt. (lbs) | | 36 | 55 | 70 | 130 | 240 | 440 | 720 |



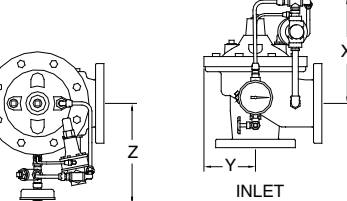
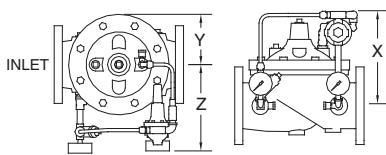
Globe Style Body



Angle Style Body

Pilot System Dimensions

| PILOT SYSTEM DIMENSIONS | | VALVE SIZE inches (mm) | | | | | | |
|-------------------------|-----|------------------------|-------------|---------|----------|----------|----------|-----------|
| | DIM | 2" (50) | 2-1/2" (65) | 3" (80) | 4" (100) | 6" (150) | 8" (200) | 10" (250) |
| Full Port Body | X | 8 1/2 | 8 1/2 | 9 1/2 | 12 | 13 | 14 | 17 1/2 |
| | Y | 3 1/2 | 4 | 4 1/2 | 6 | 8 | 10 | 12 |
| | Z | 9 | 9 | 9 1/2 | 10 | 11 1/2 | 13 | 14 1/2 |
| Angle Body | X | 10 | 10 | 10 | 11 7/8 | 12 1/4 | 15 1/2 | 17 1/2 |
| | Y | 5 1/4 | 5 1/4 | 5 1/4 | 6 | 8 | 10 | 11 7/8 |
| | Z | 9 3/4 | 9 1/2 | 9 1/2 | 11 1/4 | 13 3/8 | 15 1/4 | 18 |



Globe Pilot System Dimensions

Angle Pilot System Dimensions

Operation

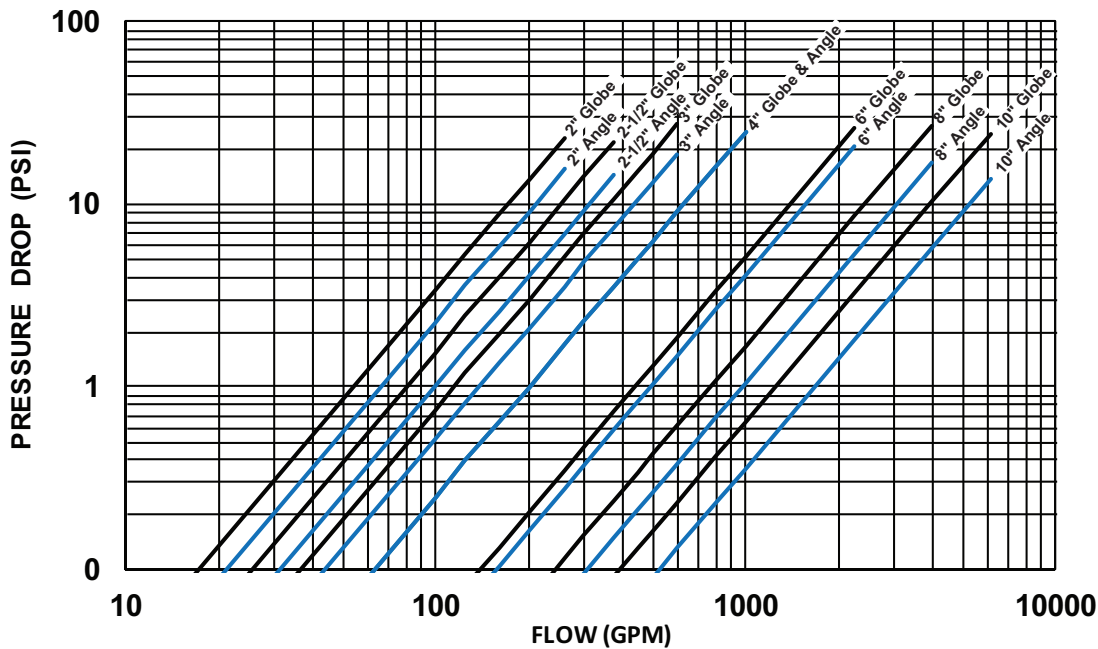
The Model ZW205FP pilot system is designed to sense upstream pressure. The pilot piping contains a normally closed, direct acting, spring loaded pilot valve, which may be preset to the particular pressure requirements of the system (Pilots are available in pressure ranges from 50 to 300 psi.).

If upstream pressure does not exceed the preset on the pilot spring, the pilot and the main valve remain tightly closed.

Should upstream pressure exceed the set point of the pilot, both the pilot and main valve will open, relieving the excess pressure by allowing flow through the valve. When upstream pressure returns to acceptable limits, the reverse action occurs. The pilot piping provides quick opening for pressure relief and slow closing for surge protection.

A check valve on the inlet of the pilot system will prevent water from draining from the main valve cover when used with a vertical turbine pump to ensure proper operation of the control valve at all times.

BODY MINIMUM FRICTION LOSS

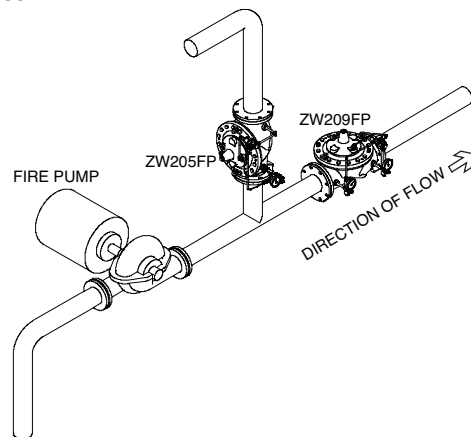


Flow Characteristics

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. 45 ft./sec (13.7 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 | 260 | 375 | 600 | 1000 | 2250 | 4000 | 6150 |
| | 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



Specifications

The Fire Pump Relief Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot controlled globe or angle 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 pressure relief, the appropriately rated pilot valve shall be field adjustable within the pressure control range of the spring. The Fire Pump Relief Valve shall be a ZURN WILKINS Model ZW205FP.

UL Installation Specification Requirements

UL installation specifications require the valve to be installed in accordance with the standard for installation of sprinkler systems, NFPA 13, and with the standard for installation of stationary pumps for fire protection, NFPA 20. The valve is to be inspected, tested and maintained in accordance with the standard for the inspection, Testing and Maintenance of Water-Based Fire Protection Systems, NFPA 25.

Note: If the valve discharges to atmosphere adequate back pressure is very important, contact Zurn Wilkins for assistance.