



# Model ZW205FP

## Fire Pump Relief Valve

### 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 - 40XL2 Hydraulic Check

#### 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

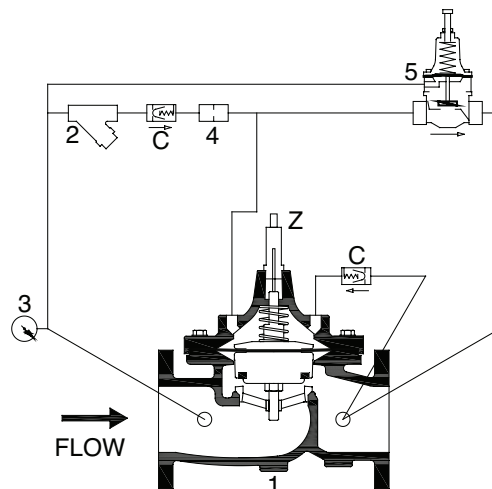
#### Pilot System

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

### Schematic Diagram

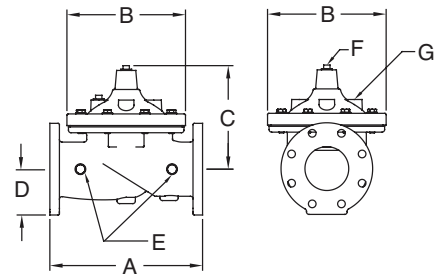
Item	Description of Standard Features
1.	Main Valve
2.	SXL "Wye" Type Strainers
3.	Pressure Gauge
4.	Restriction Fitting
5.	PV-RLF Pressure Relief Valve

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

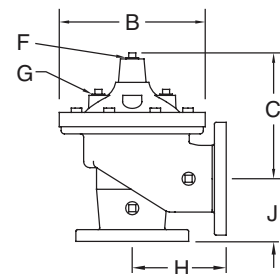


## Globe and Angle Main Valve Dimensions

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	



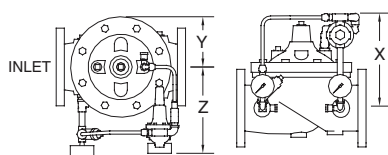
Globe Style Body



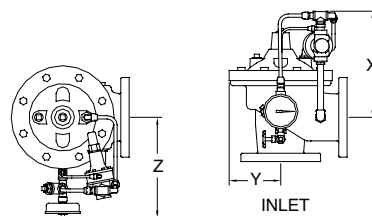
Angle Style Body

## 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

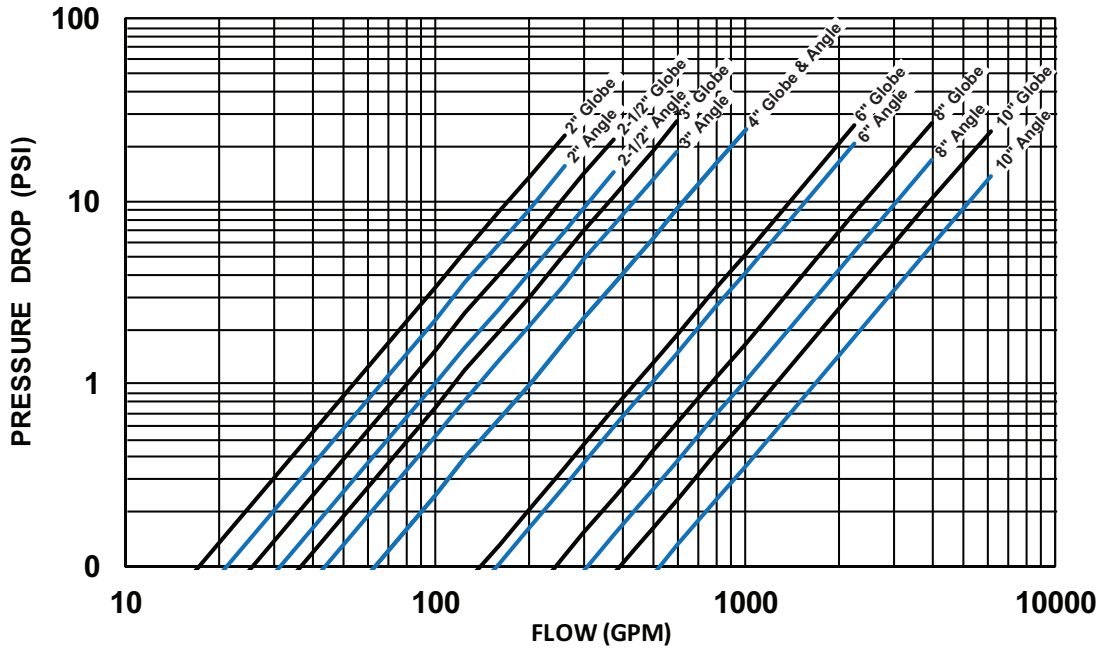
## Operation

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

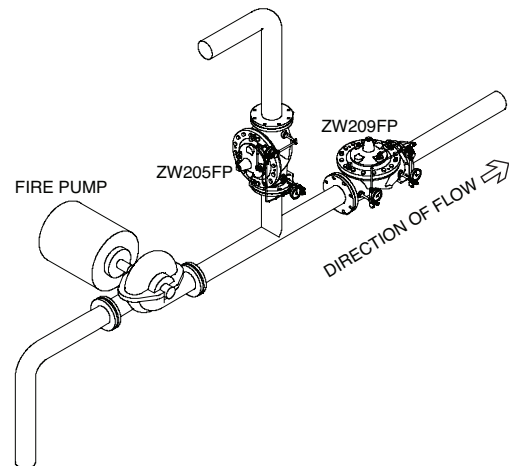


**Flow Characteristics**

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.**