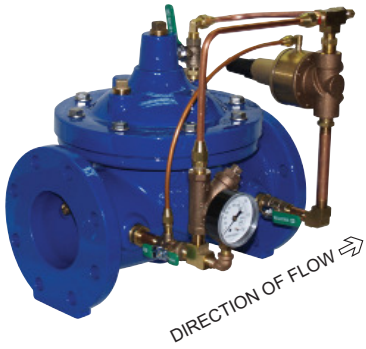
Model ZW205

Pressure Relief / Pressure Sustaining Valve

Application

The Zurn Wilkins Model ZW205 Pilot Operated Pressure Relief / Pressure Sustaining Valve is designed for applications where it is critical to maintain a pre-determined upstream pressure. The pilot assembly reacts to changes in upstream pressure allowing the main valve to modulate between the closed and open position, maintaining desired upstream set pressure. As long as the upstream pressure is below the set point of the pilot assembly, the main valve will stay in the closed position (sustaining); however, once the upstream pressure exceeds the set point of the pilot assembly, the main valve will open and relieve the excess pressure (relief).



Standards Compliance:

- Lead Plumbing Law Certified by IAPMO R&T*

*(0.25% MAX. WEIGHTED AVERAGE LEAD CONTENT)

- ANSI/AWWA C530

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
- ☐ Pilot Assembly
  - "Wye" Type Strainer
  - Closing Speed Control (sizes 1 1/4" - 4")
  - Isolation Valves
- ☐ Inlet Pressure Gauge
- ☐ ANSI Class 150 Flanges

Sizes

Globe:

Threaded ends	☐ 1 1/4" - 3" 400 psi max.
Flanged ends	☐ 1 1/2" - 10"
	☐ ANSI Class 150, 250 psi max.
	☐ ANSI Class 300, 400 psi max.
Grooved ends	☐ 1 1/2" - 10" 300 psi max.
Temperature Rating:	☐ Water 33°F to 140°F
Pilot Spring Range:	☐ 50-200 psi

Schematic Diagram

Item	Description of Standard Features
1	Main Valve
2	850XL Isolation Valve
3	SXL "Wye" Type Strainer
4	Pressure Gauge
5	Restriction Fitting
6	Closing Speed Control
7	PV-RLF Pressure Relief Valve

Options (Add suffix letters to ZW205)

Function

- ☐ C - 40XL Hydraulic Check with Isolation Valve
- ☐ L - SC1 Closing Speed Control (Standard 1 1/4" - 4")
- ☐ O - SC1 Opening Speed Control

Connections

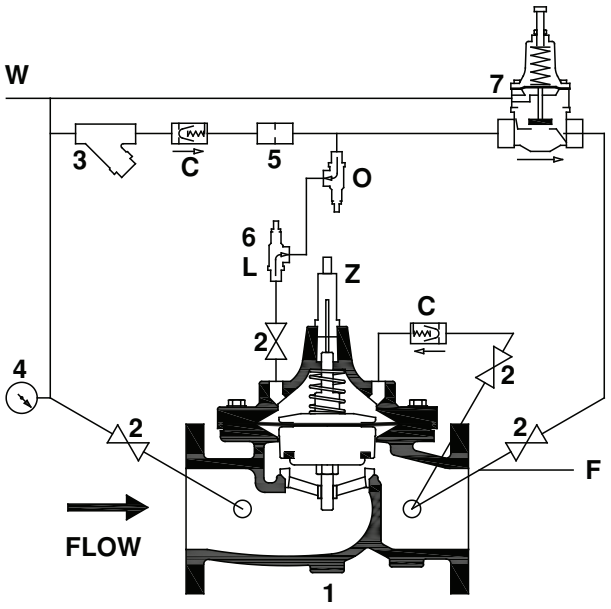
- ☐ G - IPS Grooved
- ☐ TH - NPT Threaded
- ☐ Y - ANSI Class 300 Flanges

Main Valve Options

- ☐ Z - ZPI Visual Position Indicator

Pilot System

- ☐ LP3 - 5-15 psi Low Pressure Range PV-RLF Pilot
- ☐ LP2 - 10-35 psi Low Pressure Range PV-RLF Pilot
- ☐ LP - 30-90 psi Low Pressure Range PV-RLF Pilot
- ☐ HP - 150-300 psi High Pressure Range PV-RLF Pilot
- ☐ ST - Stainless Steel Tubing and Fittings
- ☐ RV - Pilot on Reverse Side
- ☐ GL - Liquid Filled Gauge



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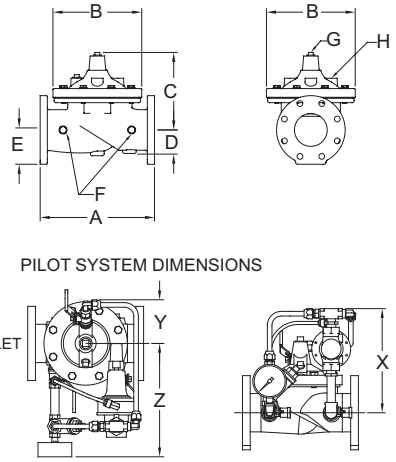
Main Valve Dimensions

DIM	ANSI Class	VALVE SIZE inches (mm)								
		1 1/4" (32)	1 1/2" (38)	2 (50)	2 1/2 (65)	3 (80)	4 (100)	6 (150)	8 (200)	10" (250)
A	Threaded	7 1/4	8 1/2	9 3/8	11	12 1/2	N/A	N/A	N/A	N/A
	Class 150 Flange	N/A	8 1/2	9 3/8	11	12	15	20	25 3/8	29 3/4
	Class 300 Flange	N/A	9	10	11 5/8	13 1/4	15 5/8	21	26 7/16	31 1/8
	Grooved	N/A	8 1/2	9	11	12 1/2	15	20	25 3/8	29 3/4
B	Diameter	5 5/8	5 5/8	6 3/4	8 1/16	9 3/16	11 11/16	15 3/4	20 1/8	23 11/16
C	Max.	5 3/4	5 3/4	6 3/16	7 3/8	8 1/8	10 3/16	12 3/8	15 1/2	17 5/8
D	Max.	1 3/8	1 3/8	1 3/4	2 1/8	2 9/16	3 7/16	4 15/16	5	5 13/16
E	Class 150 Flange	N/A	2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8
	Class 300 Flange	N/A	3 1/16	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4
F	NPT Body Tap	7/16	7/16	3/8	1/2	1/2	3/4	3/4	1	1
G	NPT Cvr. Plug Tap	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1
H	NPT Cover Tap	7/16	7/16	3/8	1/2	1/2	3/4	3/4	1	1
Valve Stem Internal Thread UNF		10-32	10-32	10-32	10-32	1/4-20	1/4-20	1/4-20	3/8-16	3/8-16
Stem Travel (in)		7/16	7/16	3/4	7/8	15/16	1 3/16	1 3/4	2 3/8	2 13/16
Approx. Wt. (Lbs)		23	25	35	50	70	140	285	500	700
Pilot System Dimensions										
X	Max. (inches)	9	8 1/2	8 1/2	8 1/2	9 1/2	12	12 3/8	15 1/2	17 5/8
Y	Max. (inches)	4	4	4	4	5	6	8	10	12
Z	Max. (inches)	9 5/8	9 5/8	9 7/8	9 7/8	10	11 3/8	12 1/4	14	15



Operation

The Model ZW205 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 0 to 300 psi.).

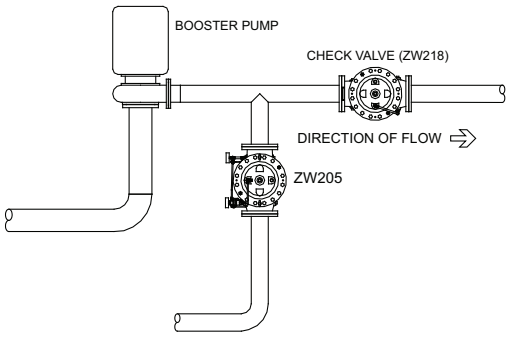
If upstream pressure does not exceed the preset on the pilot spring, the pilot and the main valve remain tightly closed. Should upstream pressure exceed the set point of the pilot, both the pilot and main valve will open, relieving the excess pressure by allowing flow through the valve. When upstream pressure returns to acceptable limits, the reverse action occurs. An adjustable flow control valve in the pilot piping provides quick opening for pressure relief and slow closing for surge protection.

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	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10
	mm	32	40	50	65	80	100	150	200	250
Suggested Flow (GPM)	Max. Continuous	93	125	210	300	460	800	1800	3100	4900
	Max Intermittent	120	160	260	375	600	1000	2250	4000	6150
	Min. Continuous	10	10	15	20	30	50	115	200	300
Suggested Flow (Liters/sec)	Max. Continuous	6	8	13	19	29	50	113	195	309
	Max. Intermittent	7.6	10	16.4	23	37	62	142	246	388
	Min. Continuous	.6	.6	0.9	1.3	1.9	3.2	7.2	13	19

Typical Installation



Specifications

The Pressure Relief / Pressure Sustaining 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 regulation, the appropriately rated pilot valve shall be field adjustable within the pressure control range of the spring. The Pressure Relief / Pressure Sustaining Valve shall be a ZURN WILKINS Model ZW205.

Job Name _____ **Contractor** _____

Job Location _____ **Engineer** _____

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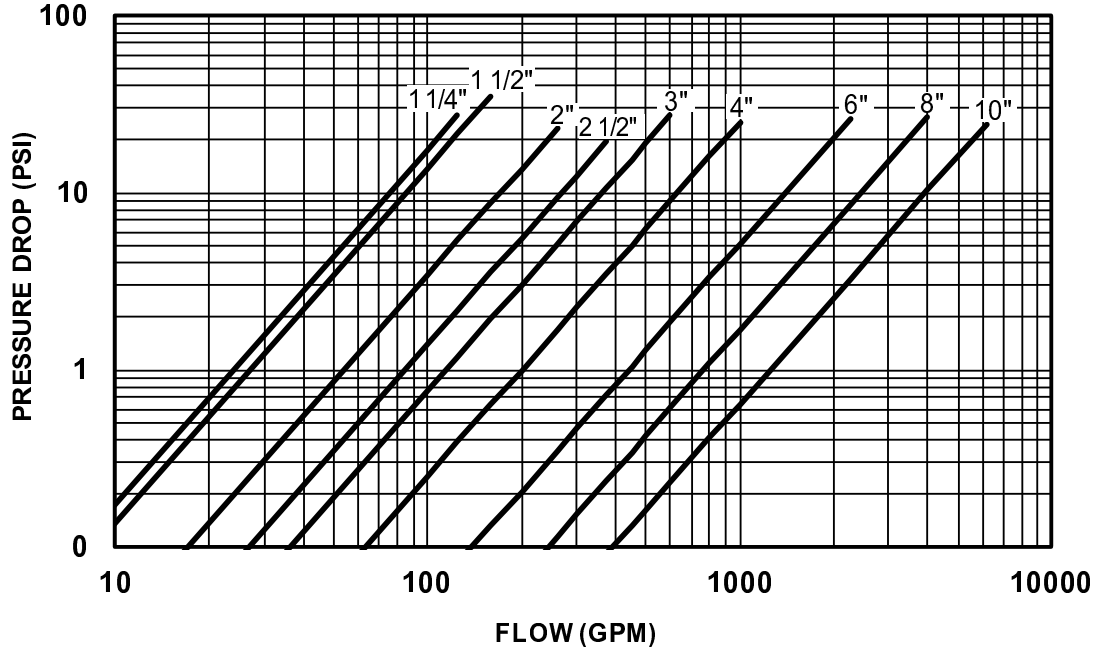
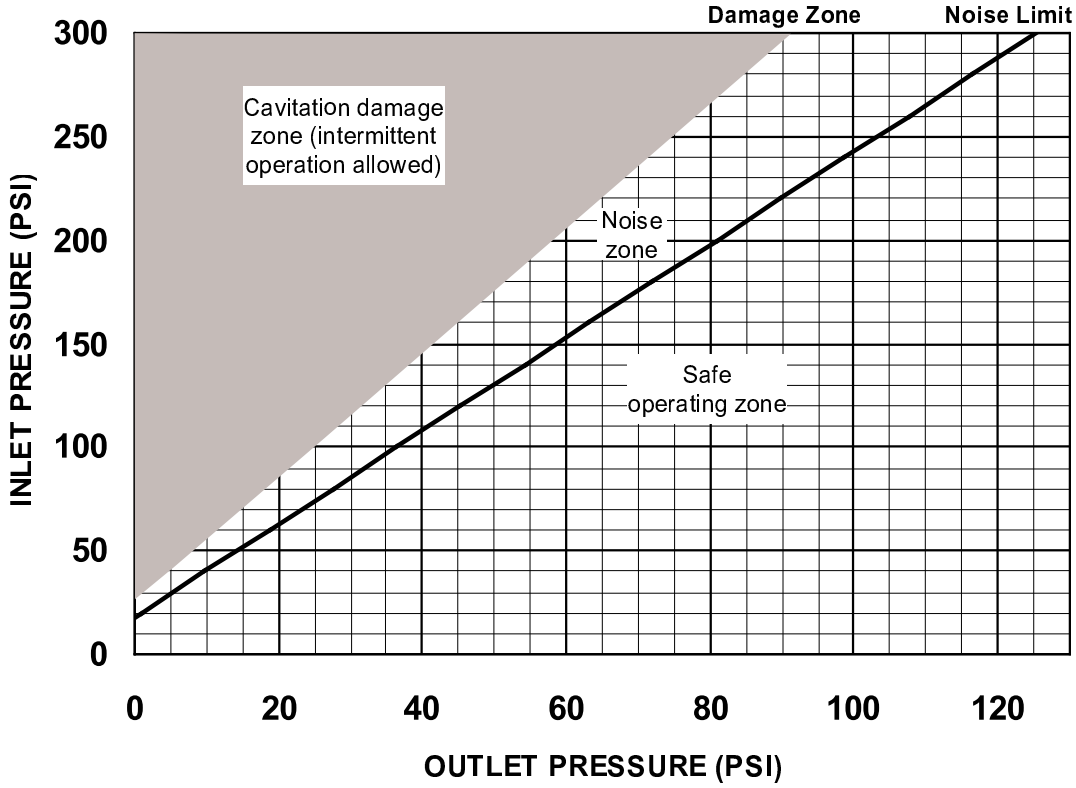
BODY MINIMUM FRICTION LOSS



PRESSURE REDUCTION LIMIT



Note: If the valve is to be used for continuous flow, supply adequate back pressure to operate the valve below the "Damage Zone" shown on the "Pressure Reduction Limit" chart. If the valve discharges to atmosphere adequate back pressure is very important, contact Zurn Wilkins for assistance.