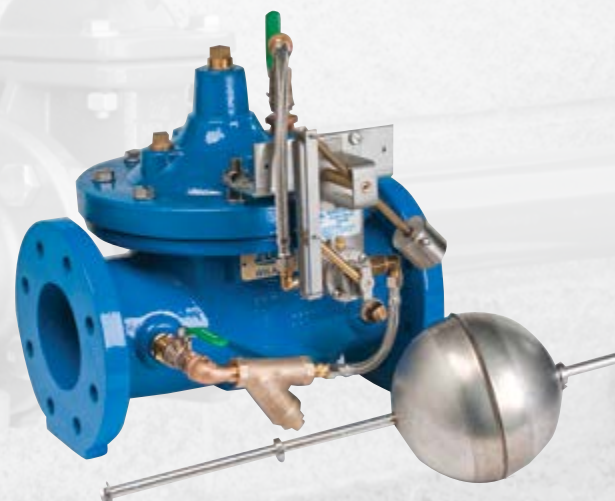




## Automatic Control Valves





Zurn Engineered Water Solutions® is a recognized leader in commercial, municipal, and industrial markets, delivering sustainable building solutions for new construction and retrofit applications.

At Zurn we are committed to providing smart solutions that save both time and money. Our goal is serving the customer through innovation, continuous improvement, and assurance behind every installation.

Choose Zurn for a reliable, recognized manufacturer to supply your entire installation, from behind the wall rough-in, to finish trim product and fixture systems.

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### Owner

- Zurn Wilkins automatic control valves offer the lowest total cost of ownership
- Valve design focused on simplifying maintenance and repair
- Products come standard with isolation valves, enabling inline service and maintenance
- 48 hour lead time speeds delivery, maximizes up-time
- Conserves water through superior performance over direct acting pressure reducing valves (PRVs)



### Engineer

- Specification under one part number with a standardized feature set
- Web based ZurnSpec<sup>SM</sup> tools simplify the specification process
- Full range of approvals
- Specify entire project with the Zurn platform of products



### Contractor

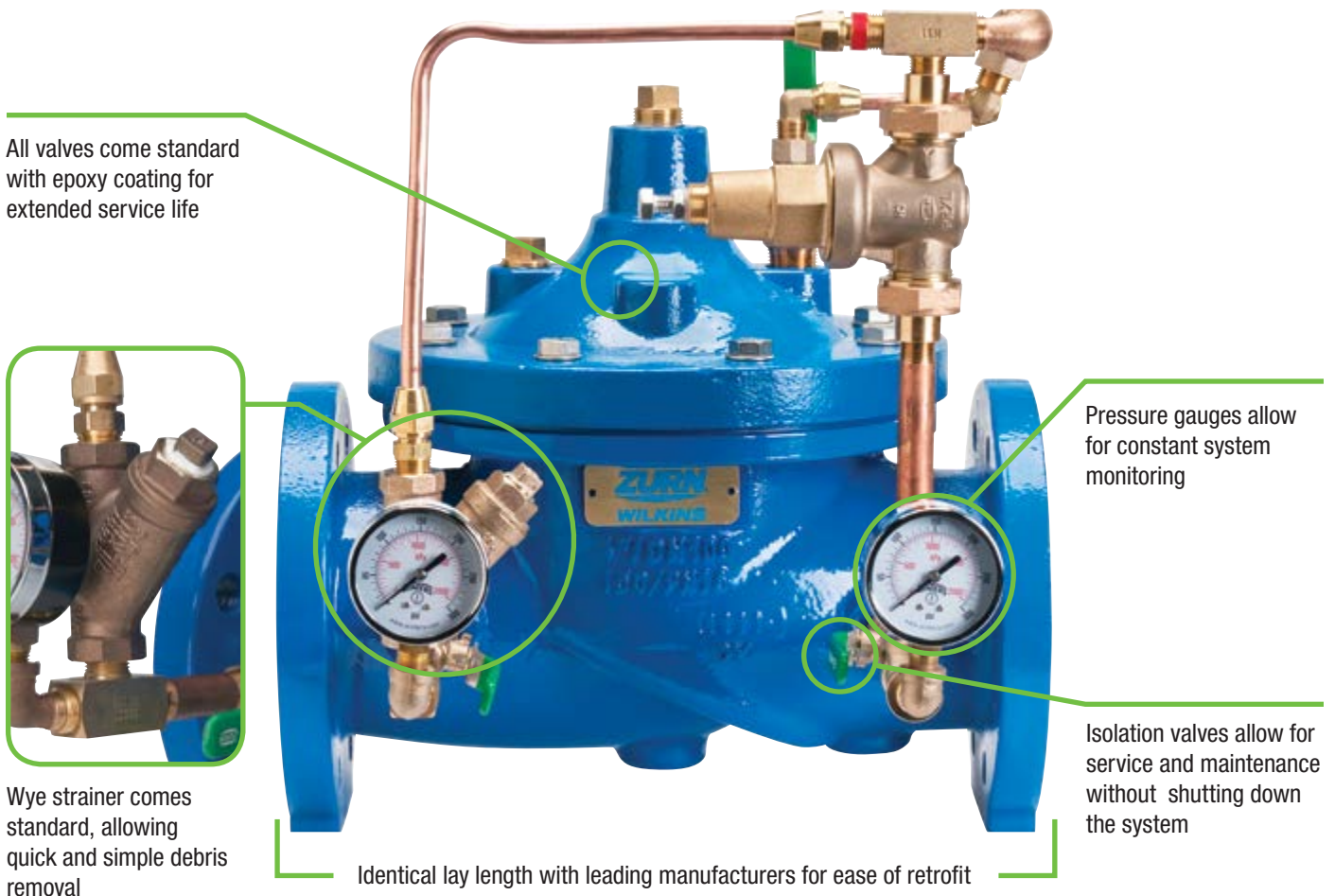
- Isolation valves and gauges come standard, allowing for simple installation and maintenance (commissioning and service)
- Union connections simplify pilotry repairs
- Simplified maintenance with readily available repair kits
- Excellent customer and technical support and training



### Distributor

- Industry's best lead time
- Complete entire project with the Zurn platform of products
- Standardized feature set reduces number of SKUs
- Superior brand equity

## ZW200 Series Features and Benefits

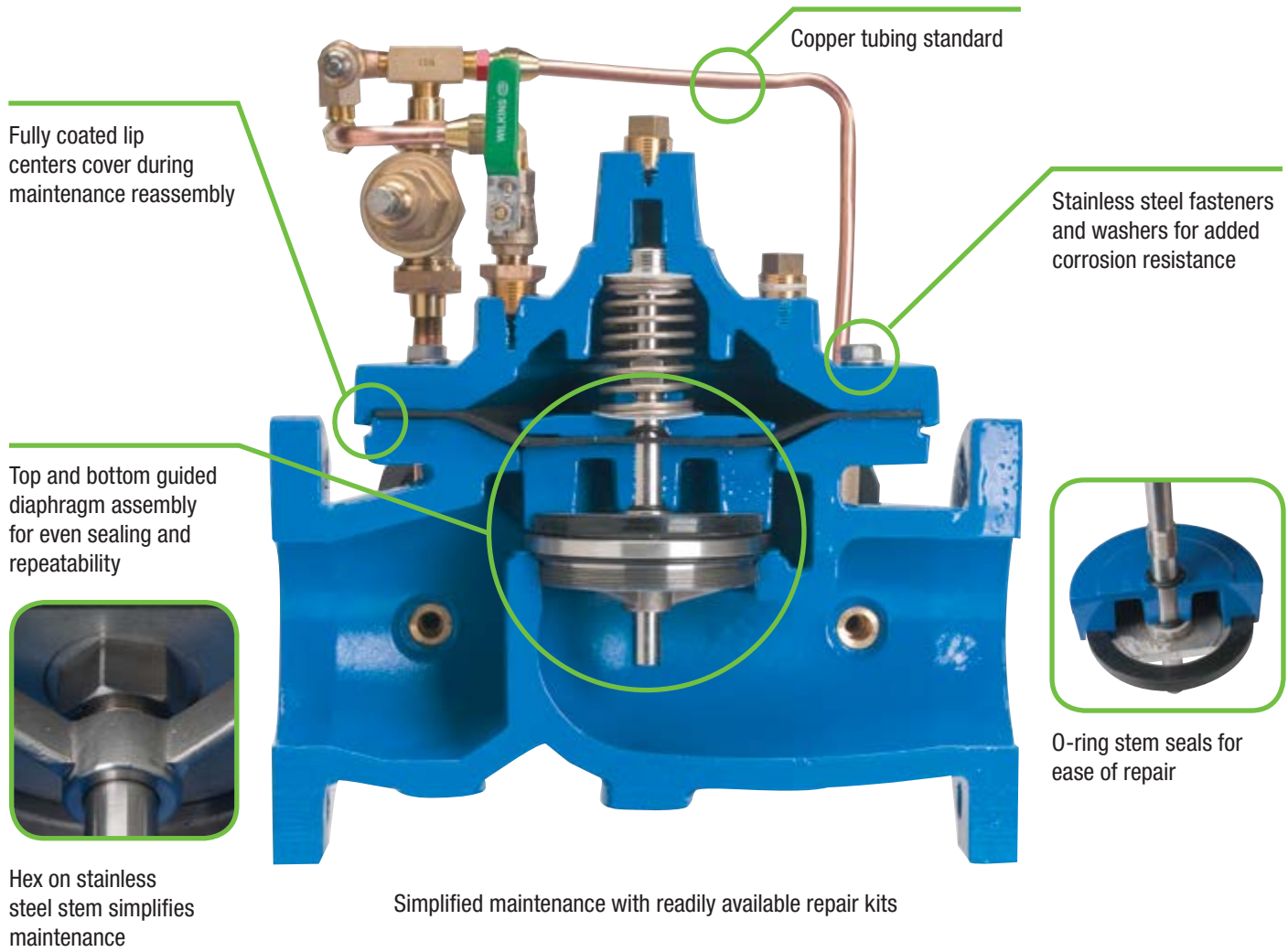


## ZW209 Series PRXL Pilot

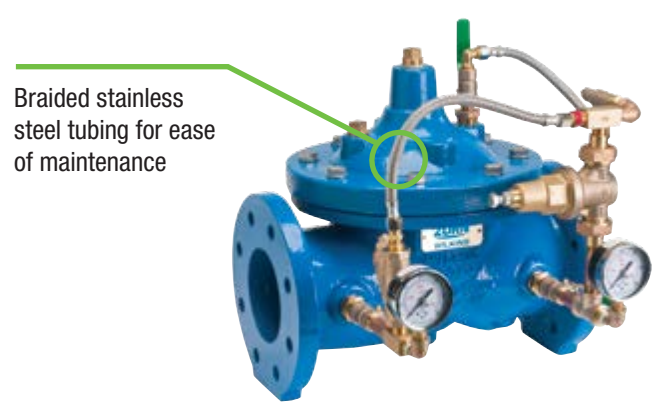
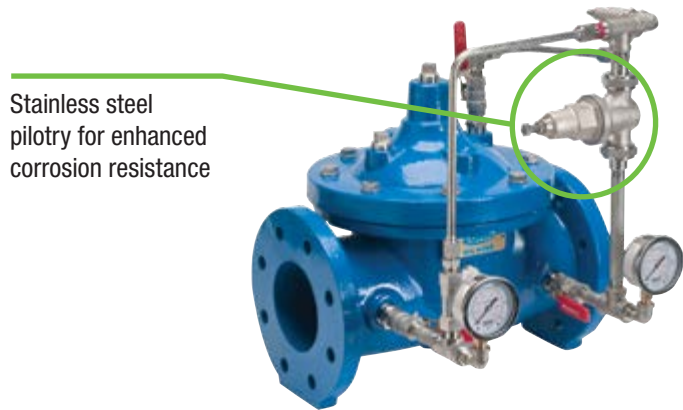


- All components made of corrosion resistant bronze, brass, and stainless steel
- Cartridge design for fast and easy in-line repairs
- Union connections simplify pilotry repairs

PRXL pilot cartridges are available for fast and easy in-line repairs





ZW200 Series Options



To learn more about the available options go to the ACV Part Number Configuration Tool on page 9

# Automatic Control Valve Function Matrix

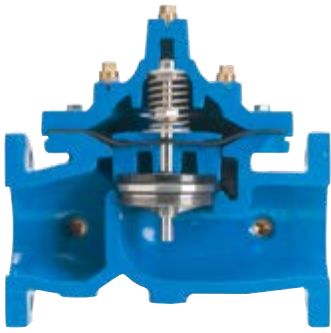
Function	Product Description	Operational Characteristics
Pressure Reducing Valves	Pressure Reducing Valve	Designed to reduce a high inlet pressure to a lower downstream pressure
	Pressure Reducing Valve with Low-flow By-pass	Designed to reduce a high inlet pressure to a lower downstream pressure, and is equipped with a direct acting PRV to handle very low flows from zero to 10 GPM
	Pressure Reducing Valve with Solenoid Shut-Off	Designed to reduce a high inlet pressure to a lower downstream pressure, and can be closed electrically
	Pressure Reducing / Pressure Sustaining Valve	Designed to reduce a high inlet pressure to a lower downstream pressure, and maintain inlet pressure
	Pressure Reducing Valve with Downstream Surge Protection	Designed to reduce a high inlet pressure to a lower downstream pressure, and will provide quick closure should downstream demand rapidly decrease, thereby preventing surges in the downstream piping
Equipment Protection	Excess Pressure Shut-off Valve	Valve will close when downstream pressure exceeds a pre-set limit
Automated Open/Close	Solenoid Operated Valve	Designed to open or close when the valve receives an electric signal
Relief/Sustain	Pressure Relief / Pressure Sustaining Valve	Relieves excess pressure or maintains inlet pressure
System/Pump Protection	Check Valve	Valve closes when downstream pressure exceeds upstream pressure
Level Control	Non-Modulating Float Valve	Controls the water level in a tank
	Altitude Valve	Works with differential pressure to control water level in reservoir
Fire Protection Systems	Fire Protection Pressure Reducing Valve	Designed to reduce a high inlet pressure to a lower downstream pressure in fire protection systems
	Fire Pump Pressure Relief Valve	Relieves excess pressure in a fire protection system
	Fire Protection Pump Suction Control	Maintains a minimum suction pressure to a fire protection pump

 = Not for use in fire protection applications.  = Specifically designed for use in fire protection applications.

Model #	Application	Market Segments		
ZW209		Commercial, Education, Healthcare, Industrial, Irrigation, Penal, Retail, Waterworks		
ZW209BP		Commercial, Education, Healthcare, Irrigation, Penal, Retail		
ZW209E		Commercial, Education, Healthcare, Industrial, Irrigation, Penal, Waterworks		
ZW209H		Commercial, Education, Healthcare, Industrial, Penal, Waterworks		
ZW209Q		Commercial, Education, Healthcare, Industrial, Irrigation, Penal, Waterworks		
ZW207		Commercial, Education, Healthcare, Industrial, Irrigation, Penal, Retail, Waterworks		
ZW206		Commercial, Industrial, Irrigation, Penal, Waterworks		
ZW205		Commercial, Education, Industrial, Penal, Waterworks		
ZW218		Commercial, Industrial, Irrigation, Penal, Waterworks		
ZW204		Industrial, Irrigation, Waterworks		
ZW221 / ZW222		Waterworks, Industrial		
ZW209FP		Fire Protection		
ZW205FP		Fire Protection		
ZW215FP		Fire Protection		

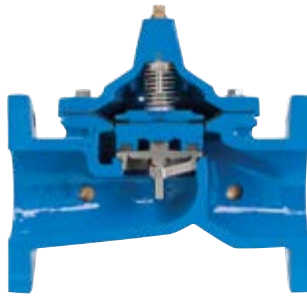
## ZW200 Series Body Types

---



**Standard Globe**

- In-line body
- Sizes 1-1/4" – 16"



**Reduced Port**

- In-line body with smaller sized internals – optimized for lower flow rates without the need to reduce pipe diameter
- Sizes 3" – 10"



**Angle**

- Right angle configuration for installation versatility
- Sizes 1-1/4" – 10"

## ZW200 Series End Connections

---



**Flanged**

- 150# flange, rated to 250 psi max
- 300# flange, rated to 400 psi max
- Sizes 1-1/2" – 16"



**Grooved**

- Rated to 300 psi max
- Sizes 1-1/2" – 10"
- Easy mechanical connection



**Threaded**

- Rated to 400 psi max
- Sizes 1-1/4" – 3"

\* International connections available



# ACV Part Number Configuration Tool

## Example



Code	Description
<b>Plumbing Pipe Size</b>	
114	1-1/4"
112	1-1/2"
2	2"
212	2-1/2"
3	3"
4	4"
6	6"
8	8"
10	10"
12	12"
14	14"
16	16"
<b>Base Part Number</b>	
ZW204	Non-Modulating Float Valve
ZW205	Pressure Relief / Sustaining
ZW205FP	Pressure Relief / Sustaining, Fire Protection
ZW206	Solenoid
ZW207	Shut-Off Valve
ZW209	Pressure Reducing
ZW209BP	Pressure Reducing w / Integral Bypass
ZW209E	Pressure Reducing w / Solenoid
ZW209FP	Pressure Reducing, Fire Protection
ZW209H	Pressure Reducing / Sustaining
ZW209Q	Pressure Reducing / Surge Protection
ZW215FP	Pump Control, Fire Protection
ZW218	Check Valve
ZW221	Altitude Level Control - One Way
ZW222	Altitude Level Control - Two Way
<b>Body Type</b>	
(blank)	Globe In-Line Body
A	Angle Body
R	Reduced Port Body

Code	Description
<b>End Connections</b>	
(blank)	Class 150 flanged
G	Grooved
TH	Threaded
Y	Class 300 flanged
X	Class 150 flanged (ZW209FP Only)
<b>Available Options (Varies by Model)</b>	
C	Hydraulic Check
L	Closing Speed Control
O	Opening Speed Control
V	Viton Rubber
Z	Position Indicator
LP	Low Pressure (by model)
LP2	2nd Lowest Pressure (by model)
LP3	Lowest pressure (by model)
HP	High Pressure Range
ST	Stainless Steel Tubing
SP	Stainless Steel Pilotry
SH	Stainless Braided Hose
VM	Valve Mounted Float Pilot
R1	12" Rod Extension
R2	24" Rod Extension
R3	36" Rod Extension
NC	120v60hz Normally Closed
NO	120v60hz Normally Open
24NC	24v60hz Normally Closed
24NO	24v60hz Normally Open
NS	Non-standard Solenoid
MO	Manual Operator
W	Remote Pressure/Sensing
F	Atmospheric Drain
RV	Pilot on Reverse side
GL	Liquid Filled Gauges

\* International connections available

# ZW200 Series Technical Overview



Globe, Flanged ZW209 Shown



Globe, Grooved ZW209FPG Shown

## Globe Sizes, End Connections, Standards, Pressure Rating

Body Configurations		Globe Style Body		Angle Style Body
End Connection	Pressure Rating	Full Port	Reduced Port	Full Port
Threaded	400 psi max.	1-1/4"-3"	N/A	1-1/4"-3"
	ANSI Class 150, 250 psi max.	1-1/2"-16"	3"-10"	1-1/2"-10"
Flanged	ANSI Class 300, 400 psi max	1-1/2"-16"	3"-10"	1-1/2"-10"
	300 psi max.	1-1/2"-10"	N/A	1-1/2"-10"

## Functional Data

Valve Size	Inches	1-1/4	1-1/2	2	2-1/2	3	4	6	8	10	12	14	16
	DN	32	40	50	65	80	100	150	200	250	300	350	400
CV Factor	GPM	24	27	55	80	130	200	460	830	1280	1730	2325	3250
	Liters/Sec	5.8	6.5	13	19	31	48	110	200	308	416	559	782
Equivalent Length	Feet	38	65	55	63	70	116	170	206	270	355	316	315
	Meters	12	20	17	19	21	35	52	63	82	108	96	96
K Factor		5.6	8.2	5.4	5.2	4.7	5.9	5.7	5.3	5.5	6.1	4.9	4.3
Liquid Displaced from Diaphragm Chamber When Valve Opens	Gallons	0.02	0.02	0.04	0.06	0.09	0.16	0.52	1.29	2.31	3.9	5.9	8.5
	Liters	0.10	0.10	0.13	0.21	0.32	0.59	1.95	4.88	8.72	14.7	22.3	32.1

## Materials/Internals

<b>Main Valve Body</b>	Ductile Iron ASTM A536
<b>Main Valve Cover</b>	Ductile Iron ASTM A536
<b>Disc Guide</b>	Stainless Steel
<b>Seat</b>	Stainless Steel
<b>Disc</b>	Buna-N Rubber
<b>Diaphragm</b>	Nylon Reinforced Buna-N
<b>Stem</b>	Stainless Steel
<b>Spring</b>	Stainless Steel

## Operating Temperature Range

Water 33°F to 140°F

## Options and Accessories

### Function Options

- BP** Low-flow by-pass on ZW209 Pressure Reducing Valve
- Q** Surge Control
- E** Solenoid to add electrical shut-off to any valve
- H** Add a pressure sustaining feature to main valve
- U** Add a pressure reducing feature to main valve
- C** Add a hydraulic check valve feature to main valve
- L** Closing Speed Control
- O** Opening Speed Control

### Connection Options

- G** IPS grooved connections
- TH** NPT female threaded connections  
British threaded options available
- Y** ANSI Class 300 flanges  
British and ISO flange connections available

### Main Valve Options

- V** Viton rubber
- Z** Visual position indicator

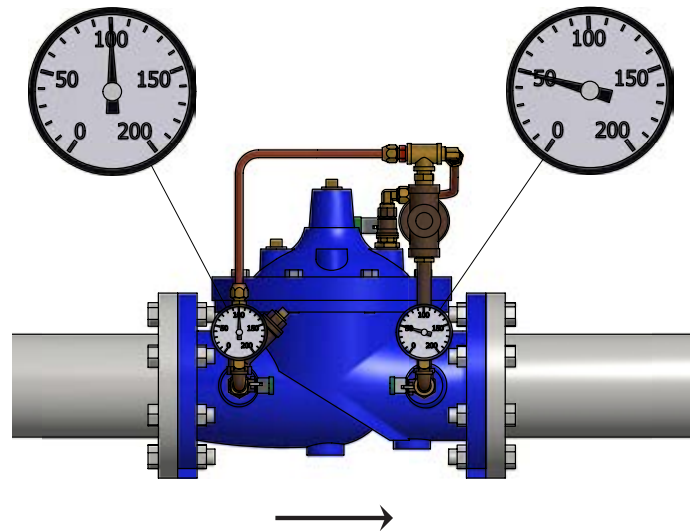
### Pilot Options

See individual specs for pilot options with each model



\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW209 - Pressure Reducing Valve



## Typical Application

- ZW209 pilot operated pressure reducing valve is designed for applications where the reduction of high inlet pressures to a safe and stable outlet pressure is required
- The pilot assembly reacts to changes in downstream pressure, allowing the main valve to modulate, ensuring a constant downstream set pressure
- Pressure regulation is not dependent upon flow rate, resulting in minimal fall-off through the valve
- Available with an optional checking feature

## Standard Equipment

- Wye Type Strainer
- Opening Speed Control (sizes 1-1/4" thru 4")
- Pilot Isolation Valves
- Inlet and Outlet Pressure Gauges
- Epoxy Coated
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Operating Temperature Range

- Water 33°F to 140°F

## Pilot Spring Ranges

- 5-25 optional
- 15-150 psi standard
- 30-300 optional

## Options (add suffix letters to ZW209)

### Function

- BP** Low-flow by-pass on ZW209 Pressure Reducing Valve
- Q** with Surge Control
- E** Solenoid Shutoff
- H** with Pressure Sustaining

### Body Types

- \_** Full Port Globe (standard)
- A** Angle Style
- R** Reduced Port

### Connections

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

### Main Options

- V** Viton Rubber Internals
- Z** Visual Position Indicator

### Pilot System

- LP** 5-25 psi Low Pressure Range PV-PRD Pilot (replaces PRXL)
- HP** 30-300 psi High Pressure Range PV-PRD Pilot (replaces PRXL)
- ST** Stainless Tubing and Flare Fittings
- SP** All Stainless Steel Pilotry & Pilot Valve
- SH** Stainless Steel Braided Hoses (replaces Copper Tubing)
- RV** Pilot Installed on Reverse Side
- GL** With Liquid Filled Gauge(s)

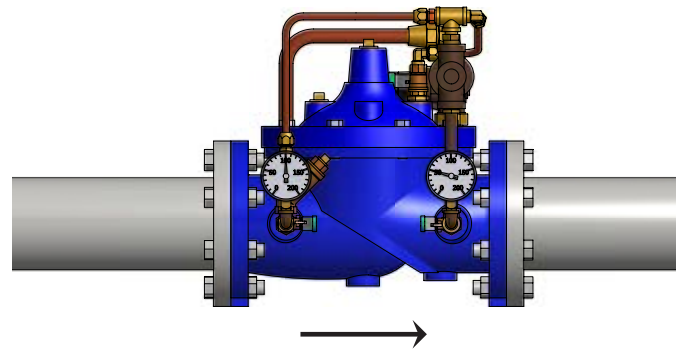
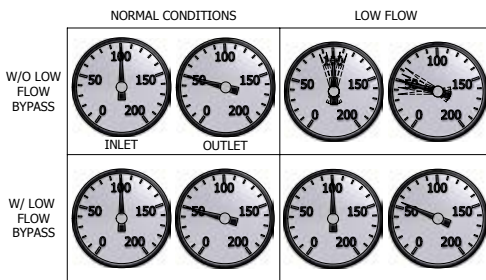
\* The closing speed control (optional) on this valve should always be open at least three full turns off its seat.

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information



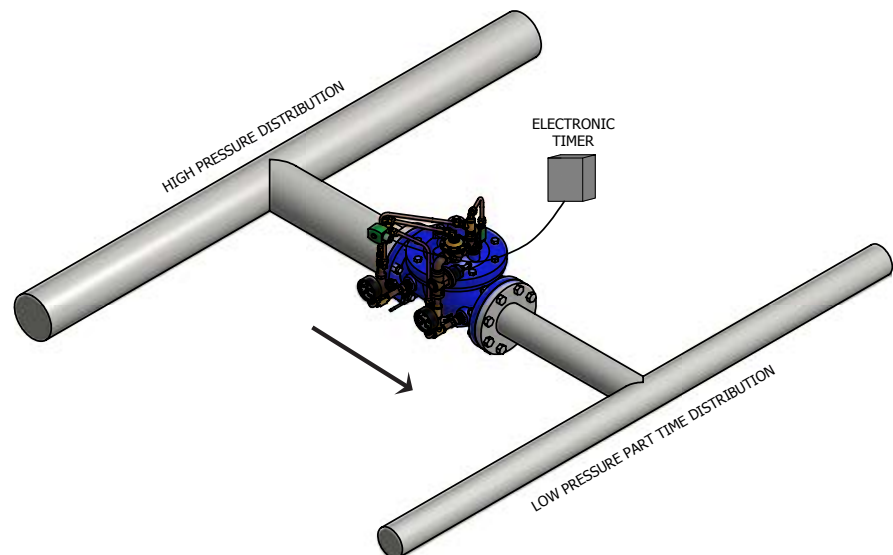
## Model ZW209BP – Pressure Reducing Valve with Low-Flow By-Pass

- ZW209BP is a pressure reducing automatic control valve with a by-pass to handle low-flow rates
- ZW209BP maintains the downstream pressure within narrow limits, regardless of inlet pressure fluctuations or varying flow rates
- The by-pass line is equipped with a direct acting PRV in parallel with the main valve to handle very low flows from approximately 0-10GPM



## Model ZW209E – Pressure Reducing Valve with Solenoid Shut-Off

- ZW209E is a pressure reducing automatic control valve with a solenoid shut-off in the pilotry
- Maintains the downstream pressure within narrow limits, regardless of inlet pressure fluctuations or varying flow rates
- The solenoid and accelerator pilotry allows the valve to be shut down remotely via an electronic signal

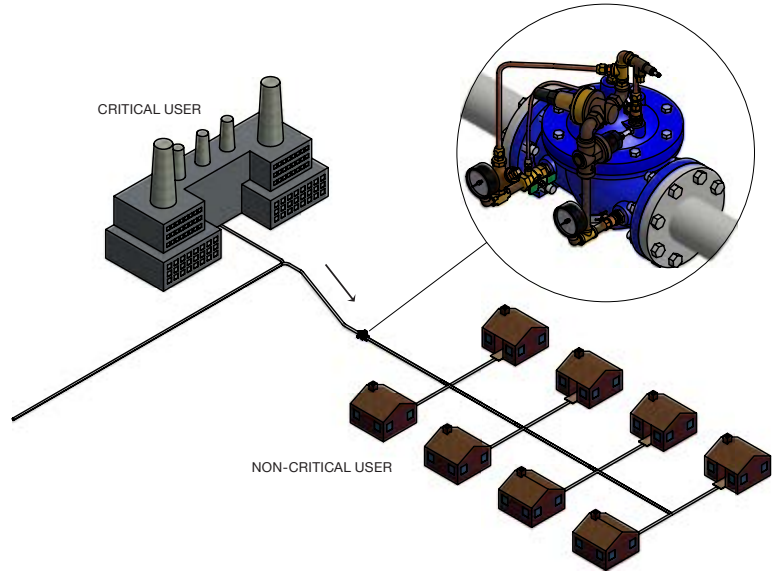


\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

## Model ZW209H – Pressure Reducing / Pressure Sustaining Valve



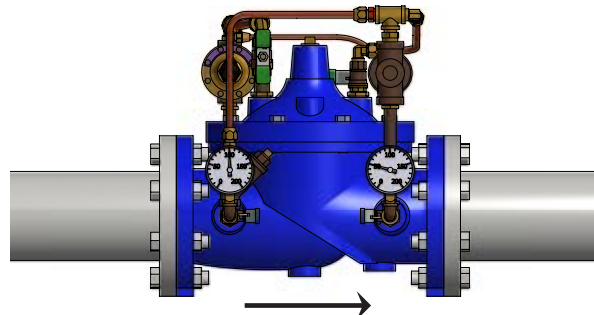
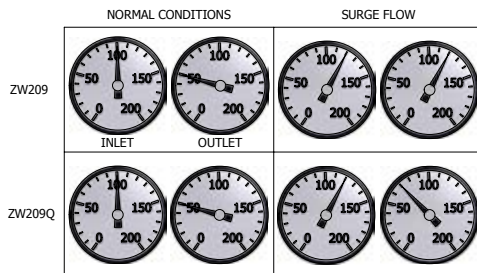
- ZW209H is a pressure reducing valve used where it is also critical to sustain upstream pressure
- Maintains the downstream pressure within narrow limits, regardless of inlet pressure fluctuations or varying flow rates
- Sustains upstream pressure to a critical user and will completely shut-off supply to downstream users in the unlikely event that the upstream pressure drops below a pre-set value



## Model ZW209Q – Pressure Reducing Valve with Downstream Surge Protection

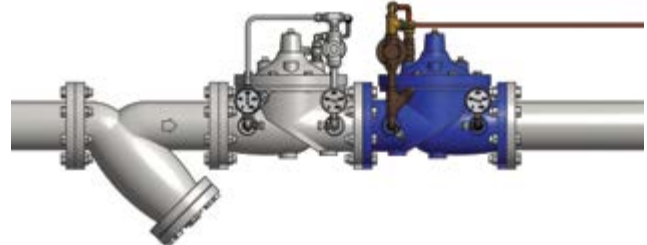
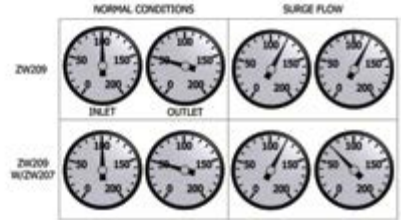


- ZW209Q is a pressure reducing valve used where a sudden decrease in downstream demand can create a pressure surge in the plumbing system
- Maintains the downstream pressure within narrow limits, regardless of inlet pressure fluctuations or varying flow rates
- In the event of a pressure surge created by a sudden decrease in downstream demand, the ZW209Q will close rapidly, protecting the plumbing system
- Once the surge dissipates the ZW209Q will return to normal operation



\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW207 - Excess Pressure Shut-Off Valve



## Typical Application

- ZW207 excess pressure shut-off valve is commonly used in conjunction with a standard ZW209 pressure reducing valve
- In instances where the ZW209 cannot react quick enough or becomes damaged, the ZW207 will shut down the system, protecting against excess pressure
- ZW207 is designed for many applications where protection of downstream components from high pressure is required

## Standard Equipment

- Wye Type Strainer
- Closing Speed Control (sizes 1-1/4" thru 4")
- Pilot Isolation Valves
- Inlet Pressure Gauge
- Epoxy Coated
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Operating Temperature Range

- Water 33°F to 140°F

## Pilot Spring Ranges

- 15 to 150 psi (standard)
- 30 to 300 psi (also available)

## Optional Features

### Function

**C** 40XL Hydraulic Check with Isolation Valve

### Body Types

– Full Port Globe (standard)  
**A** Angle Style  
**R** Reduced Port

### Connections

**G** IPS Grooved  
**TH** NPT Threaded  
**Y** ANSI Class 300 Flanges

### Main Options

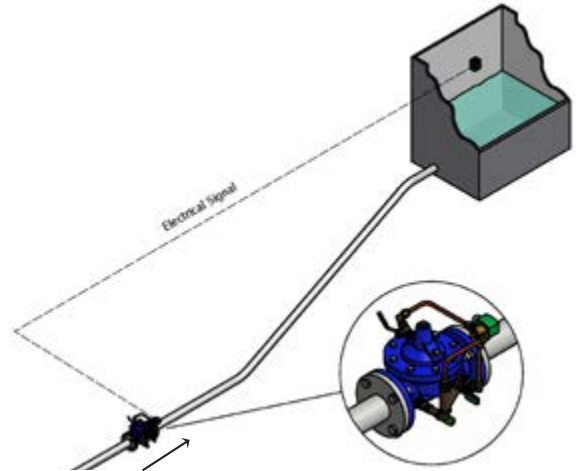
**V** Viton Rubber Internals, rated 180°F (1-1/4"-4")  
**Z** ZPI Visual Position Indicator

### 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 Flare Fittings  
**SP** All Stainless Steel Pilotry & Pilot Valve  
**SH** Stainless Steel Braided Hoses (replaces Copper Tubing)  
**RV** Pilot on Reverse Side  
**GL** Liquid Filled Gauge

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW206 - Solenoid Control Valve



## Typical Application

- ZW206 solenoid operated control valve is used to control the flow of water in remote locations or hazardous environments via an electrical signal from remote locations or hazardous environments
- Can be used to initiate flow or as a protection/shut-off device
- Factory configured as normally closed (energized to open) or normally open (energized to close)
- Used in conjunction with the Zurn Wilkins 375MS and the Zurn Wilkins Electronic Solenoid Timer (EST) system can prevent against flooding from backflow discharge
- Complete Flood Control Integrated System (FCIS) available as a turnkey assembly

## Standard Equipment

- Wye Type Strainer
- Pilot Isolation Valves
- Epoxy Coated
- Closing Speed Control (sizes 6" thru 10")
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Operating Temperature Range

- Water 33°F to 140°F

## Pilot System Specifications

### Rubber Parts

Buna-N Rubber Synthetic Rubber

### Solenoid Control Body

Brass ASTM B283

### Enclosure

NEMA Type 1,2,3,3S,4,4X General Purpose Watertight

### Voltages

24,120,240,480-60Hz AC, 110, 220-50Hz AC, 6, 12, 24, 120, 240-DC  
Others Available

### Max. Operating Pressure Differential

200 psi

## Pilot System Specifications (continued)

### Coil

Insulation Molded Class	F
Watts AC, 60Hz	6.1
AC Volt Amps Inrush	30
AC Volt Amps Holding	16
Watts DC	10.6

## Options (add suffix letters to ZW206)

### Function

<b>C</b>	40XL Check Valve with Isolation Valve
<b>L</b>	SC1 Closing Speed Control
<b>O</b>	SC1 Opening Speed Control

### Body Types

<b>_</b>	Full Port Globe (standard)
<b>A</b>	Angle Style
<b>R</b>	Reduced Port

### Connections

<b>G</b>	IPS Grooved
<b>TH</b>	NPT Threaded
<b>Y</b>	ANSI Class 300 Flanges

### Main Options

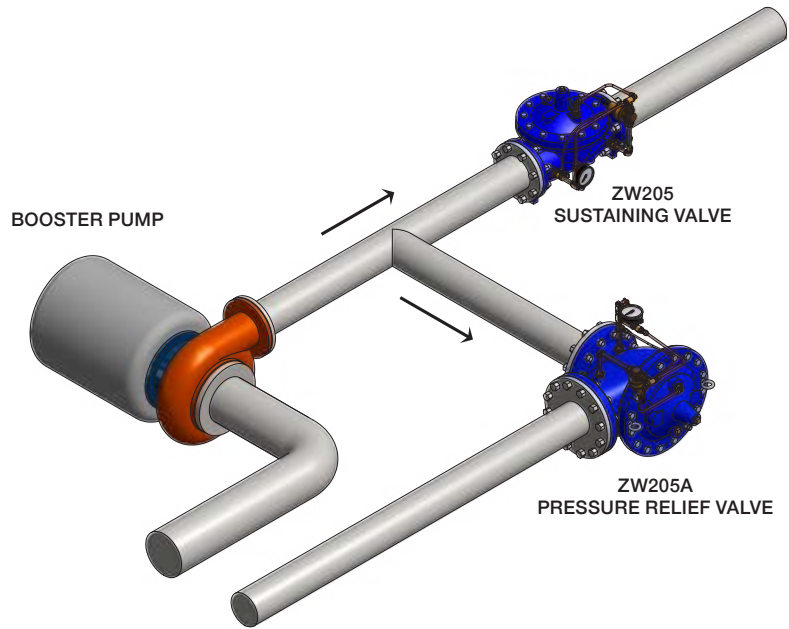
<b>V</b>	Viton Rubber Internals, Rated 180° (1-1/4" - 4")
<b>Z</b>	Visual Position Indicator

### Pilot System

<b>ST</b>	Stainless Tubing and Fittings
<b>SP</b>	All Stainless Steel Pilotry & Pilot Valve
<b>SH</b>	Stainless Steel Braided Hoses (replaces Copper Tubing)
<b>NC</b>	Normally Closed (energize to open) Main Valve, 120vac Solenoid
<b>NO</b>	Normally Open (energize to close) Main Valve, 120vac Solenoid
<b>24NC</b>	Normally Closed (energize to open) Main Valve, 24vac Solenoid
<b>24NO</b>	Normally Open (energize to close) Main Valve, 24vac Solenoid
<b>NS</b>	Non-Standard Solenoid Specify Voltage/AC/DC/Operation
<b>MO</b>	Manual Operator on Solenoid Valve (to control during power failure)
<b>W</b>	Independent Operating Pressure
<b>F</b>	Atmospheric Drain
<b>RV</b>	Pilot Installed on Reverse Side

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW205 - Pressure Relief/Pressure Sustaining Valve



## Typical Application

- ZW205 pilot operated pressure relief/pressure sustaining automatic control valve can be plumbed in two different ways
  - 1. Mounted on a branch line** – ZW205, in a relieving function, will open when the pressure exceeds a pre-set limit, relieving pressure from the system
  - 2. Mounted inline** – ZW205, in a sustaining function, maintains a minimum upstream pressure by closing off as the upstream pressure begins to drop
- 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)
  - Once the upstream pressure exceeds the set point of the pilot assembly, the main valve will open and relieve the excess pressure (relief)
- Available with an optional checking feature

## Standard Equipment

- Wye Type Strainer
- Closing Speed Control (sizes 1 1/4" thru 4")
- Pilot Isolation Valves
- Inlet Pressure Gauge
- Epoxy Coated
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Operating Temperature Range

- Water 33°F to 140°F

## Pilot Spring Ranges

- 5 to 15 psi
  - 10 to 35 psi
  - 30 to 90 psi
  - 50 to 200 psi (standard)
  - 150 to 300 psi
- \* Refer to spec sheet for various ranges

## Optional Features

### Function

- C** 40XL Hydraulic Check with Isolation Valve
- L** SC1 Closing Speed Control
- O** SC1 Opening Speed Control

### Body Types

- \_** Full Port Globe (standard)
- A** Angle Style
- R** Reduced Port

### Connections

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

### Main Options

- Z** Visual Position Indicator

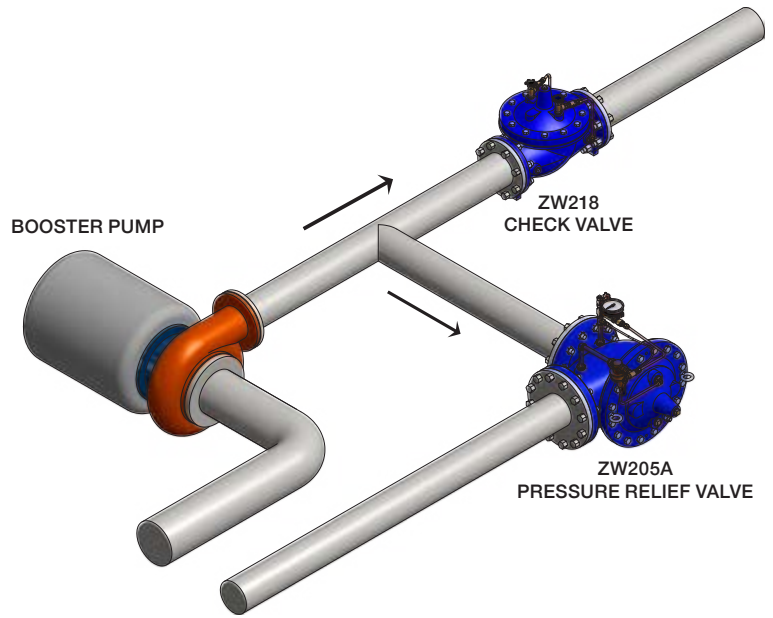
### Pilot System

- 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 Tubing and Fittings
- SP** All Stainless Steel Pilotry & Pilot Valve
- SH** Stainless Steel Braided Hoses (replaces Copper Tubing)
- RV** Pilot Installed on Reverse Side
- GL** With Liquid Filled Gauge

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information



# Model ZW218 - Check Valve



## Typical Application

- ZW218 check valve is generally used after a pump to prevent damage from backflow
- Fully opens when inlet pressure is greater than outlet pressure
- Closes drip tight when outlet pressure is greater than the inlet pressure

## Standard Equipment

- Standard with open and closing speed controls
- Epoxy Coated
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Operating Temperature Range

- Water 33°F to 140°F

## Optional Features

### Body Types

- Full Port Globe (standard)
- A Angle Style
- R Reduced Port

### Connections

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

### Main Options

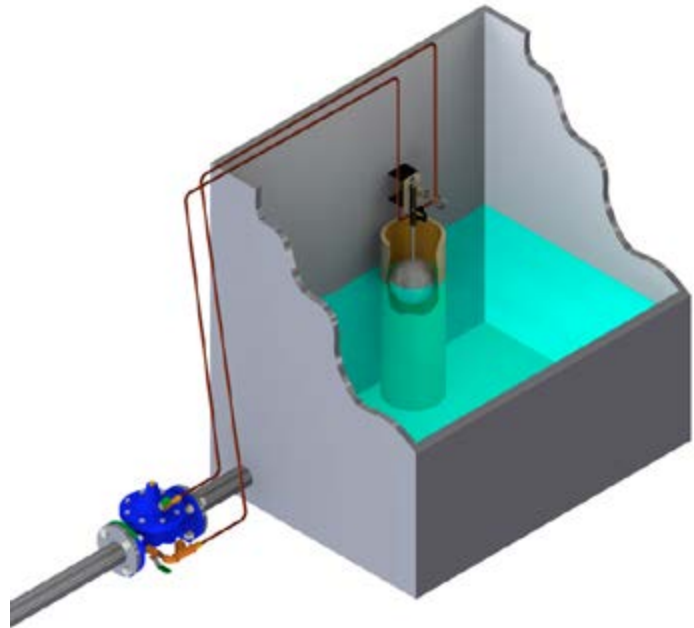
- Z ZPI Visual Position Indicator

### Pilot System

- ST Stainless Tubing and Fittings
- SP All Stainless Steel Pilotry & Pilot Valve
- SH Stainless Steel Braided Hoses (replaces Copper Tubing)
- RV Pilot Installed on Reverse Side

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW204 - Float Valve



## Typical Application

- ZW204 pilot operated non-modulating float automatic control valve opens or closes based on the position of a float
- Maintains accurate fluid levels in tanks
  - Once the fluid level reaches the low set-point of the float rod assembly, the main valve opens to fill the tank
  - Once the fluid level reaches the high set-point of the float rod assembly, the main valve closes drip-tight
- ZW204 is a non-modulating valve - it is either fully open or fully closed
- Standard configuration - float pilot is remote-mounted from the valve
- "VM" option allows for valve mounted pilotry

## STANDARD EQUIPMENT

- Wye Type Strainer
- Pilot Isolation Valves
- Epoxy Coated
- ANSI Class 150 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## OPTIONS (add suffix letters to ZW204)

### Function

- C** 40XL Hydraulic Check with Isolation Valve
- L** SC1 Closing Speed Control
- O** SC1 Opening Speed Control

### Body Types

- Full Port Globe (standard)
- A** Angle Style
- R** Reduced Port

### Connections

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

### Main Options

- V** Viton Rubber Internals, Rated 180° (1-1/4" - 4")
- Z** Visual Position Indicator

### Pilot System

- ST** Stainless Steel Tubing and Fittings (with VM Option)
- SP** All Stainless Steel Pilotry & Pilot Valve
- SH** Stainless Steel Braided Hoses (replaces Copper Tubing)
- VM** Valve Mounted Float Pilot
- R1, R2, R3** 1', 2', or 3' Float Rod Extension (5' total length max)
- W** Independent Operating Pressure
- RV** Pilot Installed on Reverse Side

## Operating Temperature Range

- Water 33°F to 140°F

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Model ZW221/ZW222 - Altitude Valve



## Typical Installation:

### Zurn offers two Altitude Valve models:

- The ZW221 One Way Altitude Level Control Valve controls water level in a tank or reservoir
- The ZW222 Two Way Altitude Level Control Valve controls water level in a tank or reservoir, while also allowing reverse flow, so that only one line is needed to the tank/reservoir. When upstream supply pressure drops below tank pressure, main valve opens, allowing water to flow back upstream
- Accurately controls water level based on relative pressure, without the need for floats and sensors
- Standard valves come with one set point – the valve opens to fill the tank and will close drip-tight once the high water level is reached
- Adjustment ranges available from 5' to 230'
- "D" Delayed Opening/Dual Set Point Option delays opening of valve until water reaches a lower set point

## Operating Temperature Range

- Water 33°F to 140°F

## Standard Features

- Blue Epoxy Coated, FDA Approved
- Pilot Assembly
  - SXL "Wye" Type Strainer
  - Accelerator Pilot Control
  - 850XL Isolation Valves
- Closing Speed Control
- ANSI Class 150 Flanges
- Position Indicator
- Pressure Gauges
- Gauge Isolation and Sensing Line Flush Valve
- Stainless Steel Braided Hoses/ Brass Fittings
- Position Indicator

## Options (add suffix letters to ZW221 or ZW222)

### Function

- D** Delayed drawdown level before valve reopens (3 - 20ft)
- E** Solenoid override to shut-off valve
- H** With Pressure Sustaining
- C** Hydraulic Check with Isolation Valve
- O** Opening Speed Control

### Body Types

- Full Port Globe (standard)
- A** Angle Style
- R** Reduced Port

### Connections

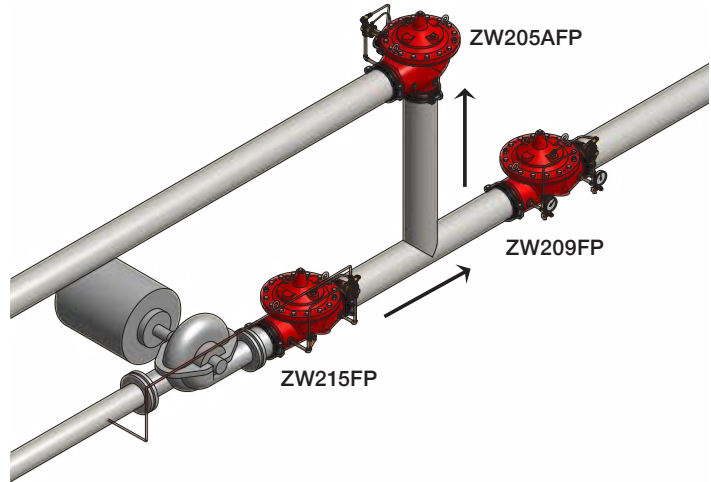
- G** IPS Grooved
- TH** NPT Threaded
- Y** ANSI Class 300 Flanges

### Pilot System

- L1** 5'-55' adjustment range
- L2** 45'-85' adjustment range
- L3** 75'-230' adjustment range
- ST** Stainless Steel Tubing and Fittings
- F** Atmospheric "wet" drain
- RV** Pilot Installed on reverse side

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information

# Zurn Wilkins Automatic Control Valves for Fire Protection



## Typical Application

- The Fire Protection Series of pilot operated automatic control valves come fully equipped to handle fire protection plumbing needs
- Standard features:
  - Red epoxy coating inside and out for corrosion protection
  - Pressure gauges for quick and easy installation, maintenance, or repair
  - Full complement of agency approvals
- Provided in grooved, flanged, or threaded end connections
- State-of-the-art design and construction with necessary approval sets

## STANDARD EQUIPMENT

- Wye Type Strainer
- 3-Way Gauge Isolation Valves
- Epoxy Coated
- ANSI Class 300 Flanges
- Copper Pilot Tubing with Brass/Bronze Fittings
- Stainless Steel Seat, Retainer, Cover Guide

## Options

### Body Types

- Full Port Globe (standard)
- A** Angle Style

### Main Options

- RV** Pilot Installed on Reverse Side
- SP** All Stainless Steel Pilotry & Pilot Valve

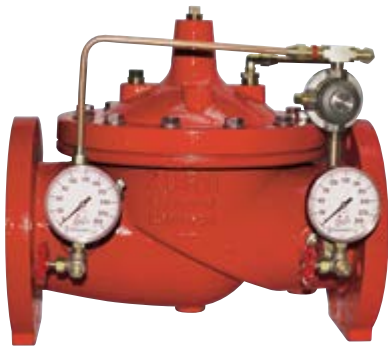
### Connection Options

- G** Grooved Ends (inlet rating 300 psi)
- TH** NPT threaded (inlet rating 300 psi)
- X** ANSI Class 150 Flanges (inlet rating 250 psi, ZW209FP only)
- ANSI Class 150 Flanges (inlet rating 250 psi, ZW205FP and ZW215FP)
- Y** ANSI Class 300 Flanges (inlet rating 300 psi)

## Operating Temperature Range

- Water 33°F to 140°F

\* Refer to [www.zurn.com](http://www.zurn.com) for updated information



### Model ZW209FP – Fire Protection Pressure Reducing Valve

- ZW209FP pilot operated pressure reducing valve is designed for fire suppression systems to reduce high inlet pressures
- Reacts to changes in downstream pressure, allowing the main valve to modulate, ensuring a constant downstream set pressure, independent of flow rate



### Model ZW205FP – Fire Pump Relief Valve

- ZW205FP fire pump relief valve can be installed on a branch line and will open when the pressure exceeds a pre-set limit
- When plumbed in a branch line, the ZW205FP opens to relieve high pressure, protecting the fire protection system from pressure spikes



### Model ZW215FP – Fire Protection Pump Suction Control

- ZW215FP fire protection pump suction control valve prevents fire pumps from over-drawing from the supply line
- Prevents damage to the pump or the supply network
- Will throttle or close if suction pressure drops below the set pressure and open once suction pressure rises



\* Refer to [www.zurn.com](http://www.zurn.com) for updated information



## Model ZPI Valve Position Indicator

- Positive visual indicator of current operating position
- Frictionless
- Leak proof
- Easy maintenance and cleaning
- Protected indicator rod
- Can be installed to replace the top plug on any Zurn Wilkins basic main valve

Model ZPI Size	Height Above Cover	NPT
1-1/4"	4-1/4"	1/2"
1-1/2"	4-1/4"	1/2"
2"	4-1/4"	1/2"
2 1/2"	4-1/4"	1/2"
3"	4-1/4"	1/2"
4"	4-1/4"	3/4"
6"	6"	3/4"
8"	6-3/8"	1"
10"	6-3/8"	1"
12"	8"	1"
14"	8"	1"
16"	8"	1"



## Pressure Gauges

Standard Equipment on all Zurn Wilkins Pressure Reducing and Pressure Relief Automatic Control Valves

- Face Diameter:** 2 1/2"  
**Connection Size:** 1/4" NPT bottom mount  
**Range:** 0-300 psi for 150# Flange and grooved end connections, 0-400 psi for Threaded, 300# flange end connections  
**Accuracy:** +/- 3-2-3% of Span  
**Bourdon Tube:** Phosphor bronze  
**Window:** Plastic  
**Movement:** Brass



## Model 40XL2 Check Valve

- Size:** 3/8" thru 3/4"  
**Body:** Cast brass  
**Poppet:** Polyetherimide  
**Seal Ring:** NBR  
**Spring:** Stainless steel



## Model SXL Wye Strainer

- Size:** 3/8" thru 3/4"  
**Body and Cap:** Cast bronze ASTM B584 or B806, lead-free  
**Screen:** 20 Mesh stainless steel, 300 series



## Pilot Restriction Fitting

**Size:** 3/8"  
**Body and Restriction:** Brass ASTM B16



## Model 850XL – Isolation Valve

**Size:** 3/8" thru 3/4"  
**Body:** Cast bronze ASTM B584 or B806, lead-free  
**Ball:** Chrome plated bronze ASTM B584 or B806, lead-free  
**Seats:** PTFE Virgin Teflon  
**Stem:** Brass ASTM B16  
**Stem Packing:** PTFE Virgin Teflon  
**Thrust Washer:** PTFE Virgin Teflon  
**Handle and Nut:** Stainless steel



## Model PV-ACL – Accelerator Pilot

- Corrosion resistant
- Operates in any position
- Automatic operation
- No lubrication required
- Easy maintenance
- Accelerates the opening and closing of any Automatic Control Valve
- Used on any solenoid or float controlled Automatic Control Valve for faster closure
- Available as both a 2-way valve and a 3-way valve

**Size** 1/2"  
**End Detail** 1/2" NPT Female  
**Control Port** 1/8" NPT Female  
**Pressure Rating** 400 psi Max  
**Temperature Rating** 140° F Max  
**Body** Cast Lead-Free Bronze

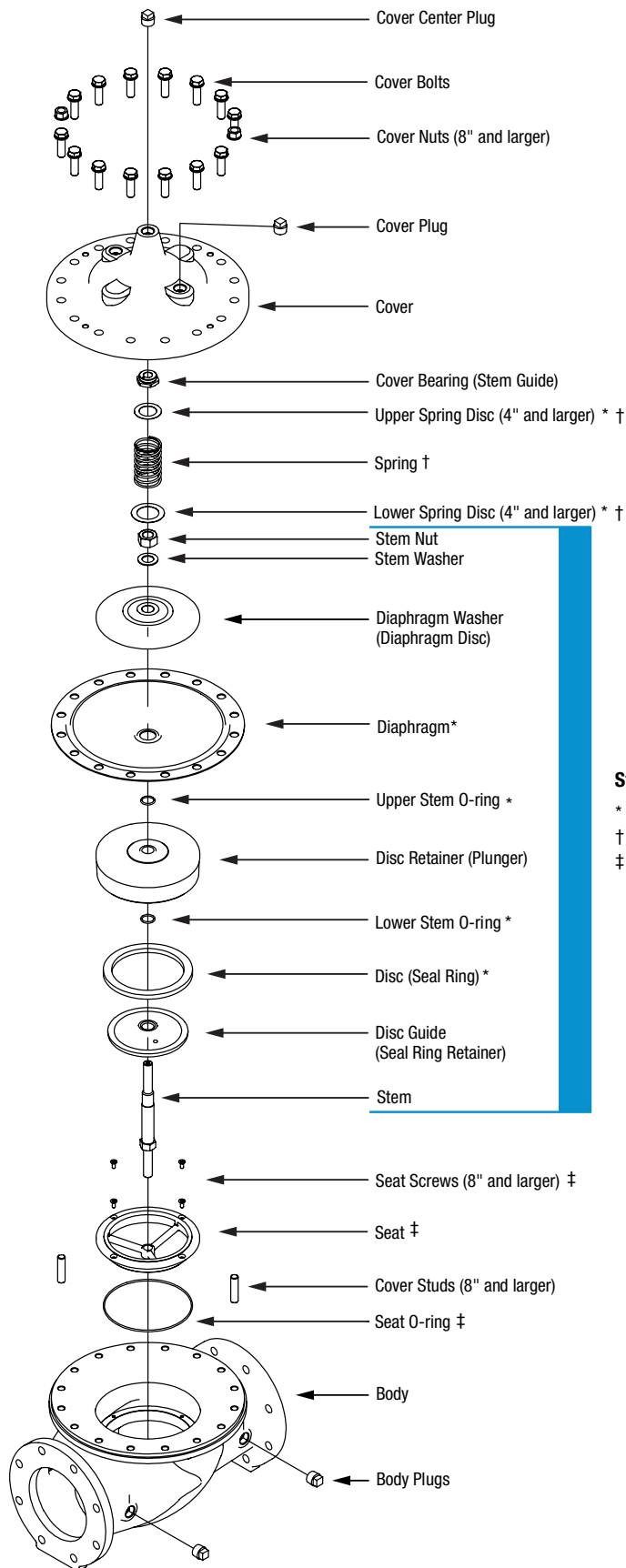


## Model SC1 – Opening and Closing Speed Controls

- Corrosion resistant
- Operates in any position
- Easy adjustments
- Automatic operation
- No lubrication required
- Easy maintenance
- Needle valve allowing free flow in one direction and restricted flow in the opposite direction
- Used to slow down the rate at which the main valve opens or closes

**Size** 3/8"  
**End Detail** 3/8" NPT (one connection male one connection female)  
**Pressure Rating** 400 psi Max  
**Temperature Rating** 140° F Max  
**Body** Cast Lead-Free Bronze

# Repair Kits for All Zurn ZW200 Series ACV Parts



### Stem Assembly †

\* Rubber Repair Kit Items  
 † Complete Repair Kit Items  
 ‡ Seat Repair Kit

### Zurn Wilkins ZW200 Series ACV Rubber Repair Kits

Rubber Repair Kit contains:  
 diaphragm, stem o-rings, and disc  
 (with spring discs for 4" and larger sizes)

Size	Repair Kit Part Number
1-1/4" - 1-1/2"	RK114-112-ZW200R
2"	RK2-ZW200R
2-1/2"	RK212-ZW200R
3"	RK3-ZW200R
4"	RK4-ZW200R
6"	RK6-ZW200R
8"	RK8-ZW200R
10"	RK10-ZW200R
12"	RK12-ZW200R
14"	RK14-ZW200R
16"	RK16-ZW200R

### Zurn Wilkins ZW200 Series ACV Complete Repair Kits

Complete Repair Kit contains:  
 spring and complete stem assembly  
 (with spring discs for 4" and larger sizes)

Size	Repair Kit Part Number
1-1/4" - 1-1/2"	RK114-112-ZW200C
2"	RK2-ZW200C
2-1/2"	RK212-ZW200C
3"	RK3-ZW200C
4"	RK4-ZW200C
6"	RK6-ZW200C
8"	RK8-ZW200C
10"	RK10-ZW200C
12"	RK12-ZW200C
14"	RK14-ZW200C
16"	RK16-ZW200C

### Zurn Wilkins ZW200 Series ACV Seat Repair Kits

Seat Repair Kit contains:  
 seat and seat o-ring  
 (with seat screws for 8" and larger sizes)

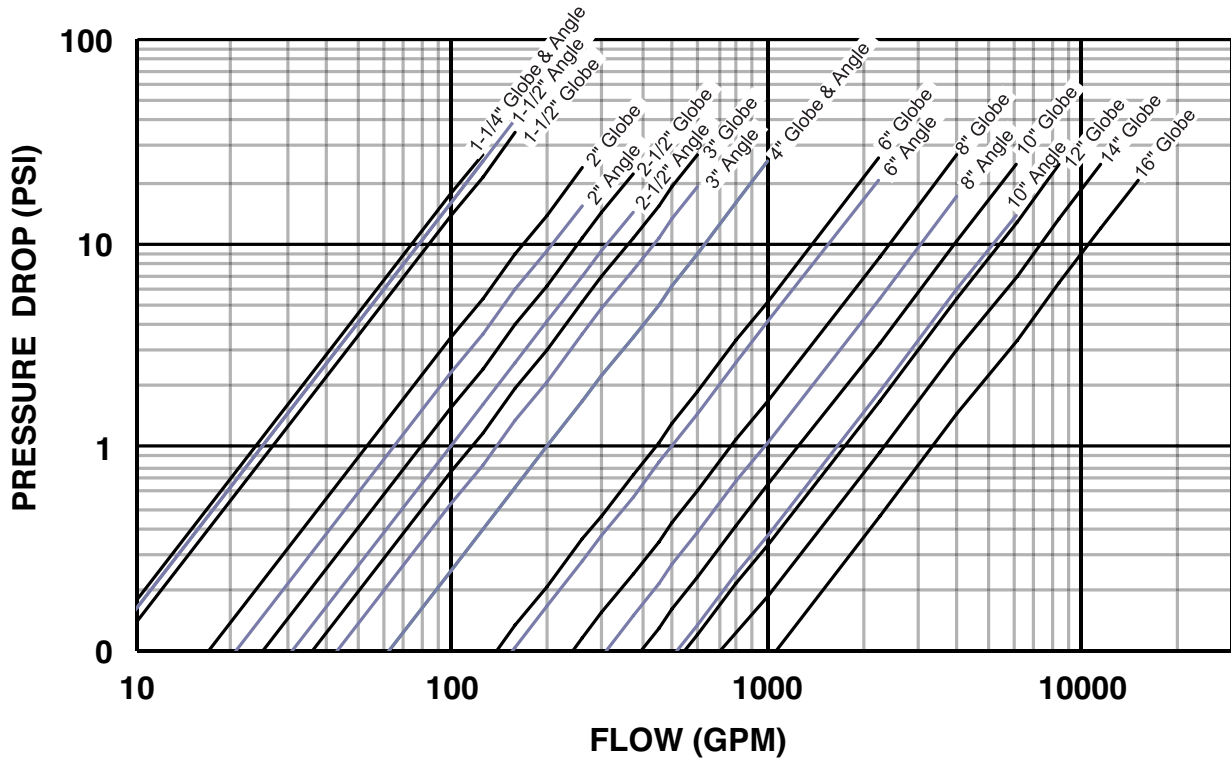
Size	Repair Kit Part Number
1-1/4" - 1-1/2"	RK114-112-ZW200SK
2"	RK2-ZW200SK
2-1/2"	RK212-ZW200SK
3"	RK3-ZW200SK
4"	RK4-ZW200SK
6"	RK6-ZW200SK
8"	RK8-ZW200SK
10"	RK10-ZW200SK
12"	RK12-ZW200SK
14"	RK14-ZW200SK
16"	RK16-ZW200SK



# Flow Charts

(Based on normal flow through a wide open valve)

## BODY MINIMUM FRICTION LOSS

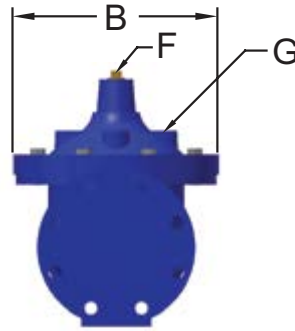
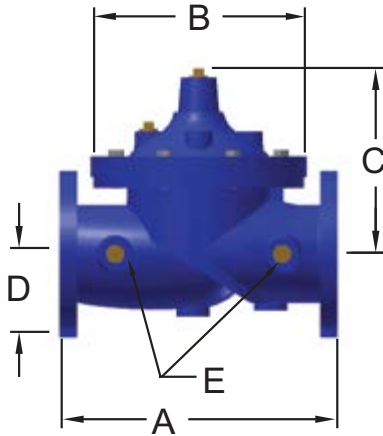


## FLOW CHARACTERISTICS

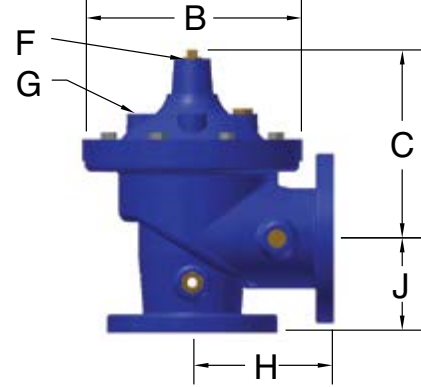
Full Port Globe and Angle Valve size	Inches (mm)	1-1/4 (32)	1-1/2 (40)	2 (50)	2-1/2 (65)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)
	Reduced Port Globe Valve Size	Inches (mm)			3 (80)		4 (100)	6 (150)	8 (200)	10 (250)			
Suggested Flow (GPM)	Max. Continuous	93	125	210	300	460	800	1800	3100	4900	7000	8400	11000
	Max Intermittent	120	160	260	375	600	1000	2250	4000	6150	8700	10500	13800
	Min. Continuous	10	10	15	20	30	50	115	200	300	435	530	690
Suggested Flow (Liters/sec)	Max. Continuous	6	8	13	19	29	50	113	195	309	550	665	665
	Max. Intermittent	7.6	10	16.4	23	37	62	142	246	388	440	530	95
	Min. Continuous	0.6	0.6	0.9	1.3	1.9	3.2	7.2	13	19	28	33	43

# Main Valve Dimensions

## GLOBE BODY DIMENSIONS

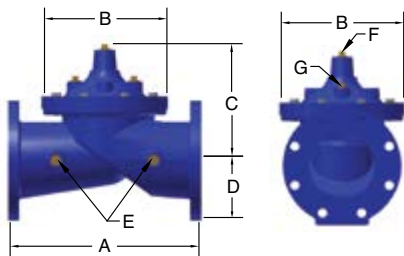


## ANGLE BODY DIMENSIONS



DIM	Full Port	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)	12 (300)	14 (350)	16 (400)
A	Threaded	7 1/4	7 1/4	9 7/16									
	Class 150 Flange		8 1/2	9 3/8	11	12	15	20	25 3/8	29 3/4	34	39	41 3/8
	Class 300 Flange		9	10	11 5/8	13 1/4	15 5/8	21	26 7/16	31 1/8	35 1/2	40 1/2	43 1/2
	Grooved		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	9 3/16	11 11/16	15 3/4	20 1/8	23 11/16	27 1/2	31 3/4	34 1/2
C	Max.	5 3/4	5 3/4	6 3/16	7 3/8	8	10 3/16	12 5/16	15 9/16	17 5/8	20 3/16	22 13/16	25 7/8
D	Threaded/Grooved	1 3/8	1 3/8	1 3/4	2 1/8	2 9/16	3 7/16	5	5	5 13/16	6 3/4	8 7/8	8 13/16
	Class 150 Flange		2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8	9 1/2	10 1/2	11 3/4
	Class 300 Flange		3	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4	10 1/4	11 1/2	12 3/4
E	NPT Body Tap	3/8	3/8	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1
F	NPT Cvr. Plug Tap	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1	1	1	1
G	NPT Cover Tap	3/8	3/8	3/8	1/2	1/2	3/4	3/4	1	1	1	1	1
H	Threaded	3 1/4	3 1/4	4 3/4	5 1/2	6 1/4							
	Class 150 Flange		4	4 3/4	5 1/2	6	7 1/2	10	12 3/4	15			
	Class 300 Flange		4 1/4	5	6	6 7/16	8	10 1/2	13 1/4	15 9/16			
	Grooved		4 7/16	4 3/4	5 1/2	6	7 1/2	10	12 3/4	15			
J	Threaded	2	2	3 1/4	4	4 1/2							
	Class 150 Flange		4	3 1/4	4	4	5	6	8	8 5/8			
	Class 300 Flange		4 1/4	3 1/2	4 5/16	4 7/16	5 1/3	6 1/2	8 1/2	9 5/16			
	Grooved		3 3/16	3 1/4	4	4 1/4	5	6	8	8 5/8			
Valve Stem Internal Thread		10-32	10-32	10-32	10-32	1/4-20	1/4-20	1/4-20	3/8-16	3/8-16	3/8-16	3/8-16	3/8-16
Stem Travel (in)		7/16	7/16	3/4	7/8	1	1 3/16	1 3/4	2 3/8	2 13/16	3 7/16	3 13/16	4 5/16
Approx. Wt. (Lbs)		22	26	36	55	70	130	240	440	720	820	1200	1550

## REDUCED PORT BODY DIMENSIONS



DIM		VALVE SIZE INCHES (mm)				
		3" (80)	4" (100)	6" (150)	8" (200)	10" (250)
A	Class 150 Flange	10 1/4	14	17 3/4	21 7/16	26
	Class 300 Flange	11	14 1/2	18 11/16	22 7/16	27 7/16
B	Dia	6 3/4	9 3/16	11 11/16	15 3/4	20 1/8
C	Max	6 3/8	8 7/16	12 5/16	13 1/4	16 3/4
D	Class 150 Flange	3 3/4	4 1/2	5 1/2	6 3/4	8
	Class 300 Flange	4 1/8	5	6 1/4	7 1/2	8 3/4
E	NPT Body Tap	3/8	1/2	3/4	3/4	1
F	NPT Cvr. Plug Tap	3/8	1/2	3/4	3/4	1
G	NPT Cvr. Tap	3/8	1/2	3/4	3/4	1
Valve Stem Internal Thread		10-32	1/4-20	1/4-20	3/8-16	3/8-16
Stem Travel (in)		3/4	1	1 1/5	1 3/4	2 3/8
Approx. Wt. (Lbs.) Class 150		50	90	160	280	480

### **How do I size a Pilot Operated Pressure Reducing Automatic Control Valve?**

- Determine the actual inlet pressure, the desired outlet pressure, and the maximum and minimum continuous flow rates. Using the Submittal Sheet, choose the size of valve that will satisfy the maximum and minimum continuous flow rates. Verify that the valve will not be in a potential cavitation zone and the desired pressure drop across the valve does not fall into a cavitation zone.
- If the pressure drop across a single valve results in cavitation, a second valve may need to be plumbed in series. Set each valve such that the pressure drop is equal for each valve.

### **How do I control water hammer or surging that is caused by my Automatic Control Valve?**

- Water hammer and surging is caused by a rapidly closing and opening of a valve. This can be resolved with the use of Model SC1 speed controls. The closing speed control can be adjusted to prevent the rapid closure of the control valve, mitigating water hammer. The opening speed control can be adjusted to allow the control valve to open slowly, mitigating surging.

### **My flow rate is below the minimum continuous flow rate of the Automatic Control Valve. How do I handle this?**

- Water flows under the minimum continuous flow rate can be handled by a direct acting pressure reducing valve (PRV) plumbed in parallel to the control valve (ACV). When installed in parallel with the ACV, the PRV is set to the desired static operating pressure required by the water system. The ACV is then set 5 psi below the setting of the PRV. This ensures that all low flows will flow through the PRV.

### **How do I adjust a Pressure Reducing Automatic Control Valve?**

- Go to [www.zurn.com](http://www.zurn.com) to find instruction sheets for each valve model, which contain specific procedures and operating instructions.

### **What is the difference between Zurn Wilkins Fire Protection and non-fire Automatic Control Valves?**

- The function and performance of the Zurn Wilkins fire protection and plumbing automatic control valves is the same. However, the fire protection code requires these valves to be free of any pilotry shut-offs that would render the system inoperable in the event of a fire. Zurn Wilkins fire protection ACVs carry additional UL and FM approvals, in addition to standard approvals (AWWA, NSF/ANSI 372).

### **Why would I choose an Altitude Valve instead of a Float Valve?**

- The Zurn Wilkins altitude valve is used in reservoirs and closed top water tanks where it is not feasible to plumb the float pilot assembly. The valve has more customizable features and options to fit a broader range of applications.
- The Zurn Wilkins float valve is generally used in open top water tanks where it is feasible to plumb the float pilot assembly in close proximity to the valve (or use a valve mounted pilot). The float valve is an on/off non-modulating valve that is either open or closed.

**If you still have questions, please contact Zurn Customer Care at 855-ONE-ZURN (855-663-9876) for assistance.**



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