



Model ZW209

Pressure Reducing Valve

Application

The Zurn Wilkins Model ZW209 Pilot Operated Pressure Reducing Valve is designed for many applications where the reduction of high inlet pressures to safe and stable outlet pressure is required. The pilot assembly reacts to changes in downstream pressure allowing the main valve to modulate between the closed and open position ensuring a constant downstream set pressure. Once the downstream pressure reaches the pilot setting, the main valve will seal shut preventing damage downstream. Pressure regulation is not dependent upon flow rate, resulting in minimal pressure loss through the valve. In addition the Model ZW209 comes standard with epoxy coating internally and externally for corrosion protection, as well as isolation valves and pressures gauges for quick and easy maintenance or repair.

Standards Compliance:

- Certified to NSF/ANSI 372* by IAPMO R&T
 - ANSI/AWWA C530
 - NSF® Listed-Standard 61 & 372* (sizes 4" - 10")
- *(0.25% MAX. WEIGHTED AVERAGE LEAD CONTENT)

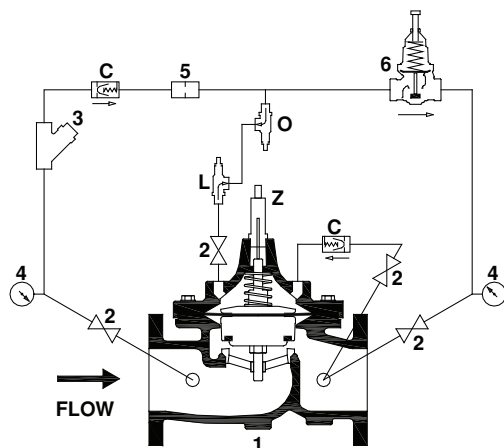
Materials

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

*The closing speed control (optional) on this valve should always be open at least three (3) turns off its seat.

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	NR3XL Pressure Reducing Control



Sizes

GLOBE STYLE BODY:

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: ☐ 15-150 psi

Standard Features

- ☐ Epoxy Coated, FDA Approved
- ☐ Pilot Assembly
 - "Wye" Type Strainer
 - Opening Speed Control (sizes 1 1/4" - 4")
 - Isolation Valves
- ☐ Inlet and Outlet Pressure Gauges
- ☐ ANSI Class 150 Flanges

Options

(Add suffix letters to ZW209)

Function

- ☐ C - 40XL2 Hydraulic Check with Isolation Valve
- ☐ L - SC1 Closing Speed Control*
- ☐ O - SC1 Opening Speed Control (Standard 1 1/4" - 4")

Connections

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

Main Valve Options

- ☐ SS - Stainless Steel Seat, Seal Ring Retainer & Stem Guide
- ☐ V - Viton Rubber Internals, rated 180°F (1-1/4"-4", only available with "LP" or "HP" Option)
- ☐ Z - ZPI Visual Position Indicator

Pilot System

- ☐ LP - 5-25 psi Low Pressure Range PV-PRD Pilot (replaces NR3XL)
- ☐ HP - 30-300 psi High Pressure Range PV-PRD Pilot (replaces NR3XL)
- ☐ ST - Stainless Steel Tubing and Fittings
- ☐ RV - Pilot on Reverse Side
- ☐ GL - Liquid Filled Gauge

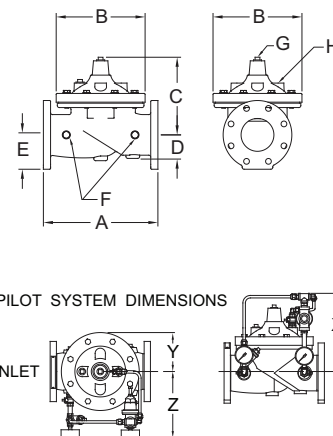
Zurn Industries, LLC | Wilkins
 1747 Commerce Way, Paso Robles, CA U.S.A. 93446 Ph. 855-663-9876, Fax 805-238-5766
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www.zurn.com

Rev. E
 Date: 3/15
 Document No. ACV-ZW209
 Product No. Model ZW209

Main Valve Dimensions

DIM		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	7 1/4	9 7/16	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 5/16	15 9/16	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	3/8	3/8	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	3/8	3/8	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 (inches)		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)	8 3/4	8 3/4	8 3/4	8 3/4	9 3/4	11 3/4	12 13/16	15 3/8	17 5/8
Y	Max. (inches)	2 7/8	2 7/8	3 1/2	4	4 1/2	6	8	10	12
Z	Max. (inches)	9 1/8	9 1/8	9 1/2	9 3/16	9 1/2	10 1/4	11 3/8	13 1/4	14 3/4



Operation

The Model ZW209 utilizes a pressure reducing pilot valve that installs on the discharge side of the control circuitry. The pilot is a direct acting, normally open, spring loaded, diaphragm actuated valve. The operation of the ZW209 begins with accurately sizing the valve, then fine tuning the control circuit by adjusting the pilot spring to the desired downstream pressure. Inlet pressure is piped to the inlet port of the pressure reducing pilot. A sensing line runs internally from the discharge side of the pilot to its lower control chamber under the diaphragm. Thus, downstream pressure exceeding the preset acts to close the pilot while the adjustable spring seeks to keep it open. The result is a modulating action in the pilot that is transmitted to the bonnet of the main valve. This creates a mirror modulation of the diaphragm assembly in the main valve. Downstream pressure is maintained within narrow limits regardless of changing flow rates or varying inlet pressures.

Flow Characteristics

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

Suggested flow calculations are based on flow through Schedule 40 Pipe. Maximum continuous flow is approx. 20 ft./sec (6.1 meters/sec) & maximum intermittent is approx. 25 ft./sec (7.6 meters/sec) and minimum continuous flow is approx. 1.25 ft./sec (0.4 meters/sec). Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates.

Notice:

In cases where design flow falls below the minimum continuous flow rate, a low flow by-pass shall be installed.

Specifications

The Pressure Reducing Valve shall be a diaphragm actuated, pilot controlled valve. The main valve body shall be ductile iron ASTM A 536. The stem of the basic valve shall be guided top and bottom. The diaphragm shall not be used as a seating surface. All internal and external ferrous surfaces shall be coated with a high quality, fusion epoxy coating. The pilot control shall be field adjustable from 15 psi to 150 psi. The valve shall be certified to NSF/ANSI Standard 372. The Pressure Reducing Valve shall be a ZURN WILKINS Model ZW209.

Job Name _____ Contractor _____

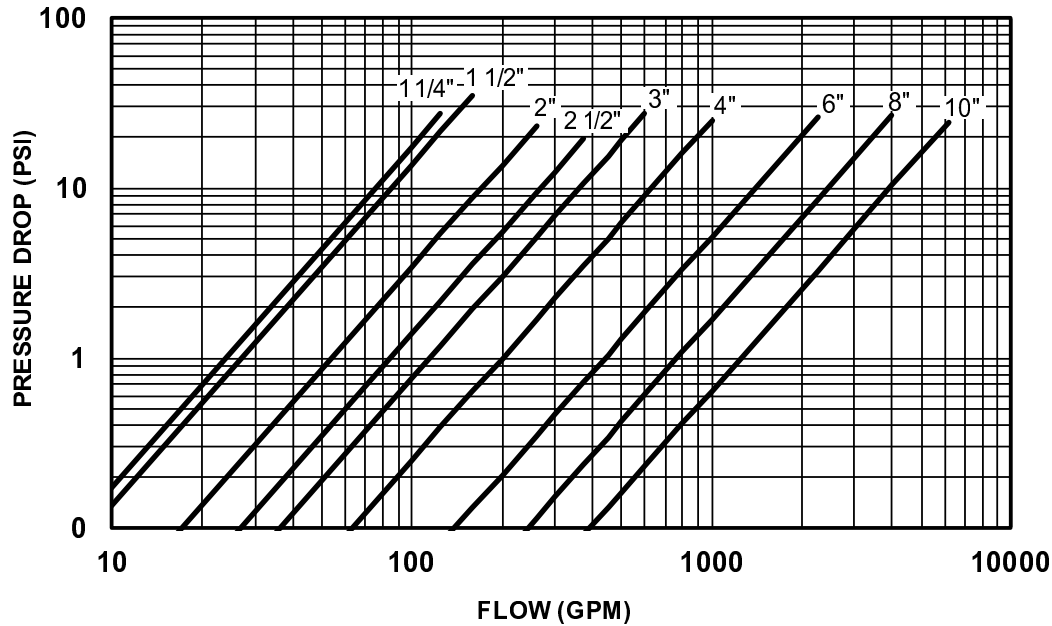
Job Location _____ Engineer _____

Zurn Industries, LLC | Wilkins
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In Canada | Zurn Industries Limited
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 Ph. 905-405-8272, Fax 905-405-1292

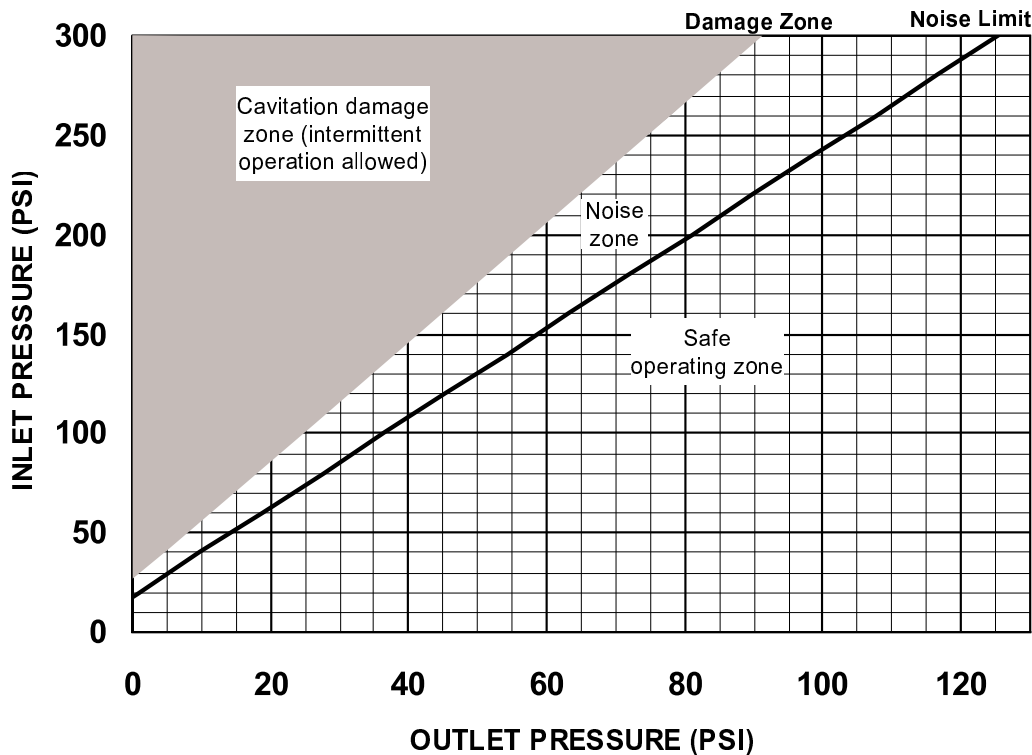
www.zurn.com

FLOW CHARACTERISTICS

BODY MINIMUM FRICTION LOSS



PRESSURE REDUCTION LIMIT



* Notes for Body Minimum Friction Loss Chart:

Minimum inlet pressure is 10 psi higher than set point or the additional body friction loss at intended flow, whichever is higher. (friction loss may be important at flows above 20 ft/s)

Example: A 6" valve intended to flow 2000 GPM at 150 psi has a friction loss of 20 psi at 2000 GPM. The minimum inlet pressure would be $150 + 20 = 170$ psi. When inlet pressure is below set point, the outlet pressure will be the pressure at the inlet minus the friction loss.

**BFP-1**

W375ASTP

WILKINS

WFSCP

WILKINS

WAG6

WILKINS

WZW209P

WILKINS

BFP-1 BACKFLOW PREVENTER PER ADDENDUM #2-1

LEAD LAW COMPLIANT 4 STAINLESS STEEL RPP ASSEMBLY

STAINLESS STEEL BODY FLGXFLG

4" FS CAST IRON FLANGE WYE STRAINER

2-1/2" - 6 AIR GAP

LF 4 PRESSURE REDUCING VALVE 150# FXF

1. BFP-1 - Provide caps and tethers for each test cock.
2. PRV - Coating to be FDA approved or comply with AWWA C550

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: June 13, 2016

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Whitworth (WES)

Project No. WT 14127.01
WES 607

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	221119P02	(Submittal No.'s)
		(Cannon #22 1119-004) – (Paric #15051-) – (WES #607)
		• Domestic Water Piping Specialties

***Remarks: See Submittal Review from Webb Engineering.**

c: **Kevin Patel**
Kpatel@cannondesign.com

☒ ***Reviewed**

☒ ***No Exceptions Taken**

☒ ***Make Corrections Noted
*Amend & Resubmit**

☒ ***Make Corrections As Noted,
No Resubmittal Required**

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.



1400 S. 3rd Street, Suite 201
St. Louis, Missouri 63104
Phone: (314) 588-0600
Fax: (314) 588-0604

Letter of Transmittal

To: wtashop@wmtao.com

From: Mike Whitworth

Date: June 11, 2016

Re: Webster University ISB

WES No: 607

☐ For your Files

☐ For Review

☐ Please Comment

☐ Please Reply

Item No.	Description	No. of Copies	Date
1	Shop Drawing Review – 22 1119 Domestic Water Piping Specialties	1	06-11-2016

•Signature: Mike Whitworth



**WEBB
ENGINEERING
SERVICES INC.**

www.webb-engineering.com

The review of this submittal is limited to the general conformance with the designated design concept and intent of this project and with the general compliance of the information provided in the contract documents. All comments, remarks and notations made on the submittal(s) as a result of this review do not relieve the contractor from full compliance with requirements of the contract documents. Approval for a specific item shall not include approval of an assembly of which the item is not a component. The contractor is solely responsible for rough-in and installation confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordination of this work with that of other trades on this project; and in a safe and satisfactory manner. All work shall be installed in full compliance with the manufacturer's recommendation, Federal, State and Local rules and regulation and the Authority Having Jurisdiction (AHJ) and applicable adopted codes and standards.

PROJECT NAME: Webster University ISB

LOCATION: St. Louis Missouri

CLIENT PROJ. NO.: N/A

WES PROJ. NO.: 607

SPEC SECTION: 22 1119
Domestic Water Piping
Specialties

SUBMITTAL ITEM: See Below -

CONTRACTOR: Deluca Plumbing, LLC.

CTR. SUBMITTAL # 22 1119-004

SUBMITTAL DATE: June 06, 2016

DATE RECEIVED: June 08, 2016

RECEIVED VIA: E-Mail

RECEIVED FROM: WTA

DATE RETURNED: JUNE 11, 2016

RETURNED VIA: E-MAIL

RETRURNED TO: WTASHOP@WMTAO.COM

STATUS KEY:

NEC	MCN	AAR	REJ	REV	NO EXCEPTION TAKEN	
					MAKE CORRECTIONS NOTED, NO RESUBMITTAL:	
					AMEND AND RESUBMIT	
					REJECTED, SEE REMARKS:	
					REVIEWED ONLY	
					ITEM	REMARKS
	X				BFP-1 Backflow Preventer Zurn Model – 375ASTP	1. Provide caps and tethers for each test cock.
X					Strainer Wilkins a Zurn Company Model - FSCP	
X					Air Gap Fitting Zurn Model – AG6	
	X				PRV Pressure Reducing Valve Zurn Model – ZW209	1. Coating to be FDA approved or comply with AWWA C550.
	X				BFP-2 Backflow Preventer Zurn Model – 375XLSF With Strainer	1. Provide caps and tethers for each test cock.
X					Air Gap Fitting Zurn Model – AG4	
	X				BFP-3 Backflow Preventer Zurn Model – 375XLSG With Strainer	1. Provide caps and tethers for each test cock.
X					Air Gap Fitting Zurn Model – AG4	



	X				BFP-4 Backflow Preventer Zurn Model – 375XLSH With Strainer	1. Provide caps and tethers for each test cock.
X					Air Gap Fitting Zurn Model – AG5	
		X			Trap Primer PPP Model – PR-500	1. This type/style of trap primer is not specified for this project. Is contractor proposing to use this type/style rather than the waste arm trap primer?
		X	X		Water Hammer Arrester Sioux Chief Model 650-660 Series	1. Provide type/style specified. Refer to specification section 22 1119. Part 2 Products, paragraph 2.12. 2. Refer to Plumbing Fixture Schedule on drawing P0601.

REVIEWED BY: Michael R. Whitworth DATE: June 11, 2016

THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SHOP DRAWING REFERENCED ABOVE.



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0073

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 06/07/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

RE: BFP 1-4 WHA TP Product data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:		SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings		☒ Approval	☒ Approved as Submitted
☐ Letter		☐ Your Use	☐ Approved as Noted
☐ Prints		☐ As Requested	☐ Returned After Loan
☐ Change Order		☐ Review and Comment	☐ Resubmit
☐ Plans			☐ Submit
☐ Samples		SENT VIA:	☐ Returned
☐ Specifications		☐ Attached	☐ Returned for Corrections
☒ Other: Product Data		☐ Separate Cover Via:	☐ Due Date:

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal		221119-04	1		06/07/2016	BFP 1-4 WHA TP Product data	Submitted

NOTES:

CC: Paric Corporation, Kathy Bathe

Project Coordinator: Paric Corporation, Kathy Bathe

Signed: _____
Devin Gates

Shop Drawing Submittal

Project Name: **WEBSTER ISB**

Specification # **221119-02**

Specification Description: Domestic Water Specialties
- BFP 1-4
- Trap Primers
- Water Hammer Arrestors

Date: 06-06-16

General Contractor / Construction Manager: Paric

Contractor: DeLuca Plumbing, L.L.C.
8465 Delport Drive
St. Louis, MO 63114

Supplier: Various

Manufacturer: Various

Reviewed & Approved by: DeLuca Plumbing 06-06-16

Action: Forward to GC/CM for Review & Approval

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