

115 White Pigeon Street
CONSTANTINE, MI
49042-1098
Phone: 269-435-2085



*A Friendly Community on the Banks of
the Historic St. Joseph River*

July 15, 2024



U.S. Department of Agriculture
3001 Coolidge Rd., Suite 200
East Lansing, MI 48823

RE: Village of Constantine AIS Waiver Request – WWTP Improvements Project

Dear [Redacted]

We are writing to submit a formal request for an availability waiver from the American Iron and Steel (AIS) requirements for 2.5" and 4" backflow preventers for the Village's Wastewater Treatment Plant (WWTP). The WWTP is located at 300 West Water Street, Constantine, MI and is undergoing an improvements project funded through USDA Rural Development.

The backflow prevention devices are designed to protect the potable water supply. Components of the backflow assemblies are comprised of iron and steel products; however, there are no AIS-compliant assemblies available. The WWTP requires potable water to wash tanks, equipment, floors, and provide spray water to various pieces of process equipment. The backflow assemblies rely on one-way valves and isolation valves with an air gap to create a physical barrier to prevent potentially contaminated water from flowing back into the potable water supply.

The project consists of one 2.5" backflow preventer and one 4" backflow preventer. The 2.5" backflow preventer supplies water to the laboratory and administration building while the 4" backflow preventer supplies water to the remainder of the site. There are three primary manufacturers of the specified devices with other wholly-owned subsidiaries. These include Watts, Apollo/Conbraco, and Zurn/Wilkins.

General Project Information:

The project consists of complete rehabilitation of the Village's WWTP that was abandoned in the late 1990's. Existing tanks and buildings are in the process of being refurbished and all new equipment, piping systems, and electrical systems are being installed. A Notice to Proceed was issued on October 6, 2023, and Substantial Completion is anticipated by April 8, 2025.

Products requesting AIS availability waiver:

2.5" Backflow Preventer (Watts LF909 or Equal).....	Price:	[Redacted]
4.0" Backflow Preventer (Watts LF909 or Equal)	Price:	[Redacted]

Note⁽¹⁾: The prices above are direct costs without contractor markup included.

A specification for the backflow prevention assemblies is attached. The Contractor has been unable to identify any manufacturer for the required assemblies that meets AIS requirements. Backflow preventers that are 2.5" or larger are only offered industry wide as epoxy coated cast iron. Backflow preventers that are 2" or smaller are offered with different materials of construction including brass or bronze, but those do not apply to this project. A data sheet/submittal form for the provided assemblies is also attached.

Companies Contacted:

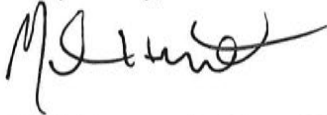
Company Name	Contact Name	Email/Phone Number	Response/findings (including lead times)
Watts	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Febco	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Ames	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Backflow Direct	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Apollo	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.
Conbraco	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.
Zurn	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.
Wilkins	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.

Two letters of support are attached from Watts and Zurn. Between these two companies, they cover the Watts, Febco, Ames, Backflow Direct, Zurn, and Wilkins brands. Suppliers for Apollo/Conbraco have also indicated there are no AIS available options.

After contacting multiple companies and suppliers, none were able to provide AIS-compliant backflow prevention assemblies. Due to the unavailability of these products that meet AIS requirements, the Village formally requests an availability waiver.

If you have any questions regarding the above or require additional information, please contact me at (269) 435-2085.

Respectfully,



Mark Honeysett, Village Manager
Village of Constantine

RD AIS Research Request Submittal Form	
Utility Name	Village of Constantine
Project Name	Wastewater System Improvements Project
Project Location	Constantine, Michigan 49042
Product(s) Needed	2 ½" Backflow Preventer & 4" Backflow Preventer
Date/Timeframe in which Product(s) is Needed	ASAP

Description of project:

Project consists of rehabilitation of the existing wastewater treatment facility. AIS non-compliant items in question consist of two backflow prevention devices on the potable water supply to the facility. The backflow assemblies consist of cast iron components that do not meet AIS requirements.

Summary of product(s) to be researched:

Part Description (including size)	Quantity	Total Value
2 ½" Backflow Preventer (Watts LF909 series or Equal)	1	██████████
4" Backflow Preventer (Watts LF909 series or Equal)	1	██████████
*Values above are direct costs without contractor markup included.		

Key product information:

The backflow prevention devices are designed to protect the potable water supply. There are three primary manufacturers of the specified devices with other wholly-owned subsidiaries. These include Watts, Apollo/Conbraco, and Zurn/Wilkins. The backflow assemblies rely on one-way valves and isolation valves with an air gap to create a physical barrier to prevent potentially contaminated water from flowing back into the potable water supply. Components of the unit are comprised of iron and steel products; however, there are no AIS-compliant assemblies available.

Companies contacted:

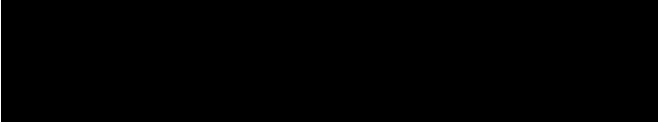
(In order to reduce duplication of efforts, provide information about any contacts made and the responses received, including information for the non-compliant product(s) identified):

Company Name	Contact Name	Email/Phone Number	Response/findings (including lead times)
Watts	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Febco	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.

Ames	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Backflow Direct	Dan Caldararo	dan.caldararo@watts.com 978-689-6207	No AIS options exist for the specified equipment.
Apollo	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.
Conbraco	Steve VanDeWeert	svandeweert@EtnaSupply.com	No AIS options exist for the specified equipment.
Zurn	Steve VanDeWeert	svandeweert@EtnaSupply.com	No response from manufacturer.
Wilkins	Steve VanDeWeert	svandeweert@EtnaSupply.com	No response from manufacturer.

Additional notes:

RD State Engineer name and contact information:



22 May 2024

RE: Large diameter backflows

To whom it may concern,

Watts Water Technologies and its subsidiaries Febco, Ames, and Backflow Direct do not currently offer any large diameter (2 ½" – 12") backflow preventers that meet the requirements of the American Iron and Steel Act. (AIS)

To the best of our knowledge none are offered by any of our competitors.

Should you have any questions or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink that reads "Andrew Rodenberg".

Andrew Rodenberg

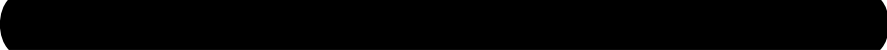
Certification Engineer



May 14, 2024

Re: American Iron and Steel (AIS) Requirement Compliance

To Whom It May Concern:

 Zurn Water, LLC – Wilkins is unable to supply any 2-1/2” or 3” size backflow preventer assemblies that meet the American Iron and Steel (AIS) requirement. Products that contain more than 50% iron and steel content by cost are considered items predominantly of iron or steel as defined by EPA guidance dated 3/20/14.

Please contact the factory if you have further questions.

Best Regards,

A handwritten signature in black ink that reads "James A Cruz". The signature is written in a cursive, flowing style.

James Cruz
Product Compliance Engineer
www.zurn.com

- c. Remove and dispose of existing back flow preventors and non-potable water lines.
 - d. Remove and dispose of existing natural gas piping within building and on roof. Meter no longer exists.
2. Existing Grit Building
- a. No demolition of sanitary plumbing, hot/cold water, or non-potable water required. Remove and dispose of existing storm piping and roof drainage.
- C. New Work
1. Control Building / Chemical Room / Lab Upper and Lower Levels.
- a. Provide new domestic water service at building including water meter (supplied by City of Constantine Water & Sewer), reduced pressure backflow preventer devices, piping system, etc. Coordinate with the water utility and site work contractor to route new domestic water piping to the new building as shown on the site civil plans.
 - b. Provide reduced pressure principal backflow preventer devices on the potable water supply to the main building and a separate reduced pressure principal backflow preventer device to service the non-potable water supply serving the process equipment.
 - c. Provide a new duplex pressure booster system on the non-potable water supply with bladder tank. Extend non potable water from Chemical Building below grade to new Headworks building.
 - d. Provide new plumbing fixtures including water closet, lavatory, sample sinks, laboratory sink, drinking fountain, hose bibbs, wall hydrants, emergency eye/face wash showers, etc., as shown on the drawings.
 - e. Provide new sanitary piping, vents, cleanouts, floor drains to new Laboratory Space and Chemical Room. All water, sanitary and service gasses shall be routed below the floor in the basement space.
 - f. Provide new domestic cold water piping systems including all piping, valves, fittings, etc. to all fixtures.
 - g. Provide new domestic hot water heater, mixing valve, and associated piping systems including all piping, valves, and fittings.
2. Headworks Building
- a. Provide new non potable water system in Headworks Building from service under the access road from the Admin/Digester Building including equipment connections and wash-down hose bibbs.
 - b. Provide new sanitary sewer.
 - c. Provide new storm water piping including any roof drains, clean outs and insulation.

1.04 INTENT:

- A. The intent of this division is to call for finished work, tested and ready for operation.
- B. Furnish all materials, supplies, equipment, tools, transportation, facilities, and perform all labor and services necessary for the complete installation of the mechanical systems as shown on the drawings, as herein specified, and as required to make complete and operating systems.
- C. The work shall also include the completion of such details of mechanical work not mentioned or specifically shown, but which are necessary for the successful operation of all mechanical systems.

1.05 CODES:

- A. Where Standards or Codes are mentioned, the latest edition or revision in force shall be followed.
- B. Contract documents shall take precedence when they are more stringent than codes, ordinances, standards, and statutes. Codes, ordinances, standards and statutes shall take precedence when they are more stringent or conflict with the drawings and specifications.

- 11. Buried: Type "K" light drawn or annealed, seamless, copper tubing, conforming to ASTM B88. Fittings shall be flared or compression, conforming to ANSI B16.26.
- B. Non-Potable Water System:
 - 12. Above Ground Interior 2 Inch and Smaller: Schedule 80 Pressure Rated PVC piping and fittings. Fittings shall be socket welded or threaded.
 - C. Backflow Preventers:
 - 13. Reduced pressure principle on the water service.
 - 14. Acceptable Manufacturers: Apollo-Conbraco, Febco, Watts, or equal.
 - D. Pressure Reducing Valves:
 - 15. Lead free water pressure reducing valve.
 - 16. Model: Watts LF25AUB-Z3 low pressure model. See plans for outlet pressure.
 - 17. Acceptable Manufacturers: Watts, Apollo-Conbraco, Zurn-Wilkins.
 - E. Water Hammer Arresters:
 - 18. Size according to the fixture unit method as determined by the Plumbing and Drainage Institute.
 - 19. Acceptable Manufacturers: Josam, Smith, Wade, Zurn, or equal.
 - F. Wall Hydrants:
 - 20. Freezeless, 3/4 inches and of proper length for wall thickness with removable stem operator.
 - 21. Wall hydrant runs shall be equipped with stop valves.
 - 22. Model: Woodford Model 19 or equal.
 - 23. Manufacturers: Nibco, Watts, Woodford, or equal.
 - G. Hose Bibb:
 - 24. Rugged forged brass body and aluminum tee handle quarter turn hose bibb complete with vacuum breaker and quick disconnect coupling.
 - 25. Model: Watts LFBD-QT with Watts LF8 hose connection vacuum breaker.
 - 26. Manufacturers: Nibco, Watts, Woodford, or equal.

2.02 DOMESTIC HOT WATER SYSTEM:

- A. Piping:
 - 27. Above Ground Interior 2 Inches and Smaller: Type "L" hard drawn, seamless, copper tubing, conforming to ASTM B88. Fittings shall be sweat type wrought copper, ANSI B16.22. Tees formed into mains are not allowed.
 - 28. Above Ground Interior 2-1/2 Inches and Larger; galvanized steel pipe, electric resistance welded, conforming to ASTM A53, Type E, Grade B, Schedule 40, with screwed joints and 150 pound malleable galvanized fittings. Use threaded flange connections to valves and equipment. Elbows to be long radius design. "Victaulic" type joints and fittings are acceptable.
 - 29. Buried: Type "K" light drawn or annealed, seamless, copper tubing, conforming to ASTM B88. Fittings shall be flared or compression, conforming to ANSI B16.26.
- B. Water Heater (Gas Fired Storage Type):
 - 30. Storage Tank: Refer to drawing schedule, Glass lined, insulated, and protected by two or more magnesium anodes. AGA approved for storage type 180° water operation. Test pressure of 300 psig: Working pressure of 125 psig.
 - 31. Controls: Electric gas valve, aquastat, and high limit control activated by self-generating current supplied from the thermocouple. Safety pilot 100% safe shut-down type.
 - 32. Provide an ASME automatic reseating temperature-pressure relief valve, capacity ten percent greater than the heater input.
 - 33. Acceptable Manufacturers: Bradford White, Lochinvar, A.O. Smith, Ruud, or equal.
 - 34. Refer to Drawing Schedules for model numbers.
- C. Circulating Pumps:
 - 35. All bronze in-line circulators.

Engineering Specification

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

LEAD FREE*

Series LF909

Reduced Pressure Zone Assemblies

Sizes: 2½" – 10"

Series LF909 Reduced Pressure Zone Assemblies are designed to provide cross-connection control protection of the potable water supply in accordance with national plumbing codes. This series can be utilized in a variety of installations, including health hazard cross-connections in plumbing systems or for containment at the service line entrance. With its exclusive relief valve design incorporating the "air-in/water-out" principle, it provides substantially improved relief valve discharge performance during the emergency conditions of combined backsiphonage and backpressure with both checks fouled. The coating on this backflow assembly uses ArmorTek™ technology to resist corrosion due to microbial induced corrosion (MIC) or exposed metal substrate. The LF909 features Lead Free* construction to comply with Lead Free* installation requirements.

Series LF909 is also available with SentryPlus™ Alert technology to detect catastrophic relief valve discharge that could potentially cause flooding, and issue a multi-channel alert (call, e-mail, text) to selected users so they can take action to avoid potentially costly flooding.

Features

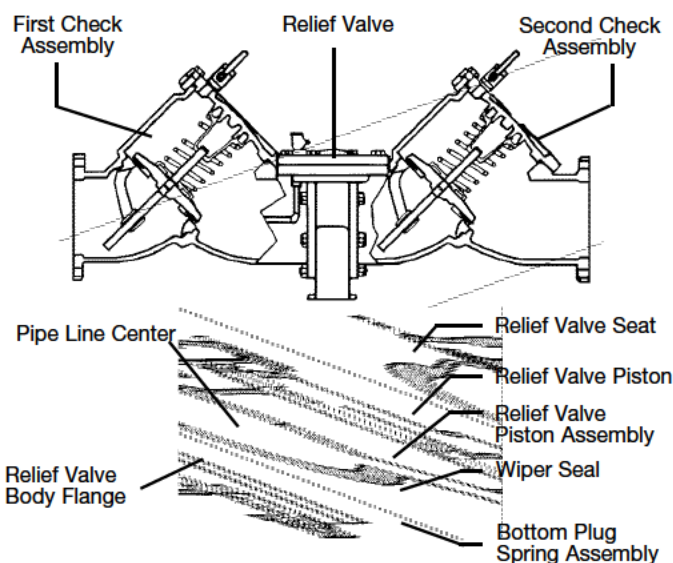
- Replaceable seats
- Stainless steel internal parts
- No special tools required for servicing
- Captured spring check assemblies
- Fused epoxy coated & lined checks
- Utilizes advanced ArmorTek™ coating technology to resist corrosion of internals
- Industrial strength sensing hose
- Field reversible relief valve
- Air-in/water-out relief valve design provides maximum capacity during emergency conditions

Specifications

A Reduced Pressure Zone Assembly shall be installed at each cross-connection to prevent backsiphonage and backpressure backflow of hazardous materials into the potable water supply. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves and captured springs. Backsiphonage protection shall include provision to admit air directly into the reduced pressure zone via a separate channel from the water discharge channel. The assembly shall include two tightly closing shutoff valves before and after the valve and test cocks. The Lead Free* Reduced Pressure Zone Assembly shall comply with state codes and standards, where applicable, requiring reduced lead content. The assembly shall meet the requirements of ASSE Std. 1013; AWWA Std. C511-92; CSA B64.5; and UL Classified File No. EX3185. Listed by IAPMO (UPC). Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. The valve body shall utilize a coating system with built in electrochemical corrosion inhibitor and microbial inhibitor. The assembly shall be a Watts Series LF909.



LF909 DNRS



Now Available
WattsBox Insulated Enclosures.

For more information, send for literature ES-WB.

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Inquire with governing authorities for local installation requirements

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

Available Models & Options

Suffix:

LF –	without shutoff valves
NRS –	non-rising stem resilient seated gate valves
OSY -	UL/FM outside stem & yoke resilient seated gate valves
S-FDA –	FDA epoxy coated strainer
ALERT	with SentryPlus™ Alert flood detection system

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary.

Materials

Check Valve Bodies: FDA epoxy coated cast iron

Seats: Stainless steel

Trim: Stainless steel

Relief Valve Body: 2½"-3" Lead Free* cast copper silicon alloy
4"-10" FDA epoxy coated cast iron

Test Cocks: Lead Free* copper silicon alloy

Pressure — Temperature

Temperature Range: 33°F-110°F (0.5°C-43°C) continuous,
140°F (60°C) intermittent

Maximum Working Pressure: 175psi (12.06 bar)

Standards

AWWA C511-92

IAPMO PS 31, SBCCI (Standard Plumbing Code)

USC manual for Cross-Connection Control, 8th Edition

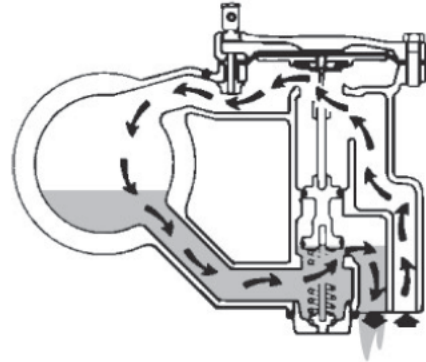
Approvals



Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

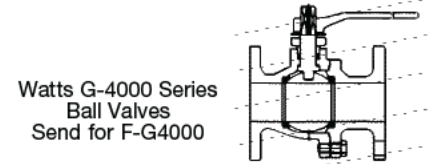
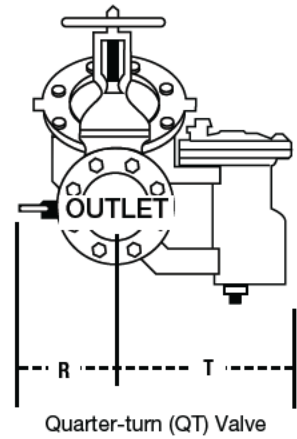
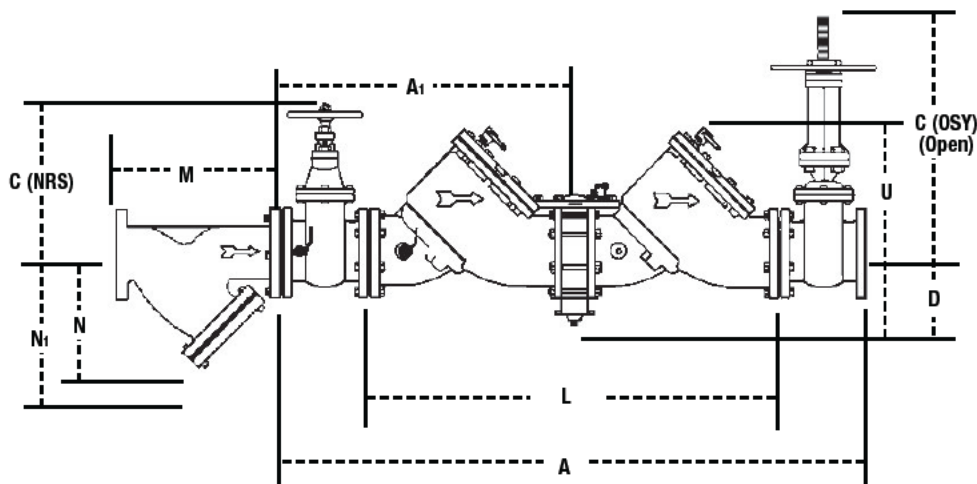
How It Operates

The unique relief valve construction incorporates two channels: one for air, one for water. When the relief valve opens, as in the accompanying air-in/water-out diagram, the right-hand channel admits air to the top of the reduced pressure zone, relieving the zone vacuum. The channel on the left then drains the zone to atmosphere. Therefore, if both check valves foul, and simultaneous negative supply and positive backpressure develops, the relief valve uses the air-in/water-out principle to stop potential backflow.



Water Out
Air In

Dimensions – Weights



NOTE: Valve may be furnished with (2) OSY or (2) NRS Shutoffs.

NOTE: Relief valve section is reversible, therefore, can be on either side and is furnished standardly as shown.

SIZE	DIMENSIONS												WEIGHT													
	A		A1		C clearance for check (OSY)*		(NRS)		D		L		U		R		R (QT)		T		NRS		OSY		QT	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	41½	1053	20¾	527	16¾	416	9¾	238	5¼	133	26¾	669	11	279	4	102	16	406	9¼	230	195	88.4	198	89.8	182	82.6
3	42½	1079	21¼	539	18¾	479	10¼	260	5¼	133	26¾	669	11	279	5	127	16	406	9¼	230	225	102	230	104	190	86
4	55¾	1405	27¾	702	22¾	578	12¾	310	6	152	37¾	944	14	356	6	152	19¾	502	14¾	365	455	206	470	213	352	160
6	65¼	1672	33	836	30¾	765	16	406	6	152	44¼	1134	16	406	11	279	26	660	14¾	365	718	326	798	362	762	346
8	78¾	1995	39¾	998	37¾	959	19¼	506	9¾	248	55¼	1404	21	533	11¼	286	11¼	286	19¼	489	1350	612	1456	660	2286	1037
10	93¼	2376	46¾	1188	45¾	1162	23¼	605	9¾	248	67¾	1709	21	533	12½	318	12½	318	21	533	2160	980	2230	1011	3716	1685

*UL, FM approved backflow preventers must include UL/FM approved OSY gate valves.

Strainer Dimensions

SIZE	DIMENSIONS						WEIGHT	
	M		N†		N		lbs.	kgs.
	in.	mm	in.	mm	in.	mm		
2½	10	254	10	254	6½	165	28	12.7
3	10½	267	10	254	7	178	34	15.4
4	12½	308	12	305	8¼	210	60	27
6	18½	470	20	508	13½	343	133	60
8	21½	549	22¾	578	15½	394	247	112
10	26	660	28	711	18½	470	370	168

† – Dimension required for screen removal

Air Gap Dimensions

When installing a drain line on Series 909 backflow preventers that are installed horizontally, use 909 AG series air gaps.

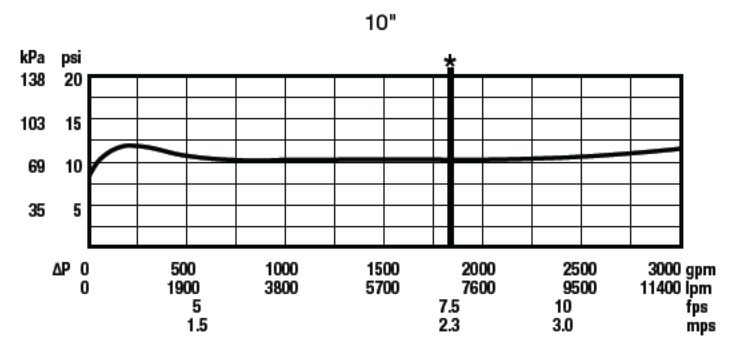
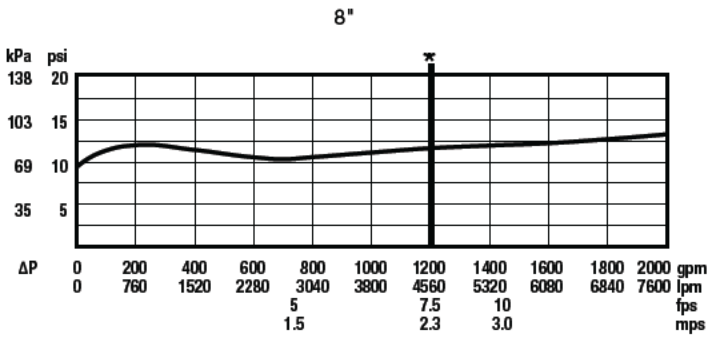
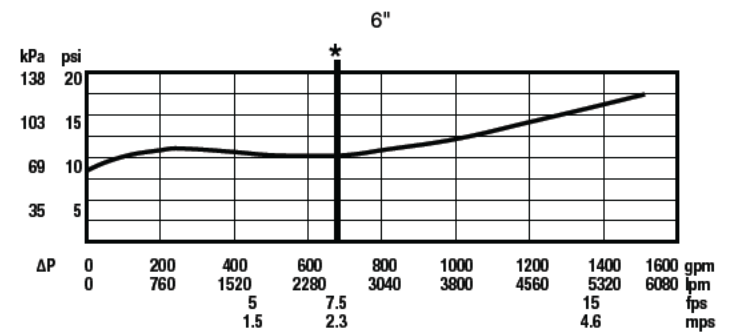
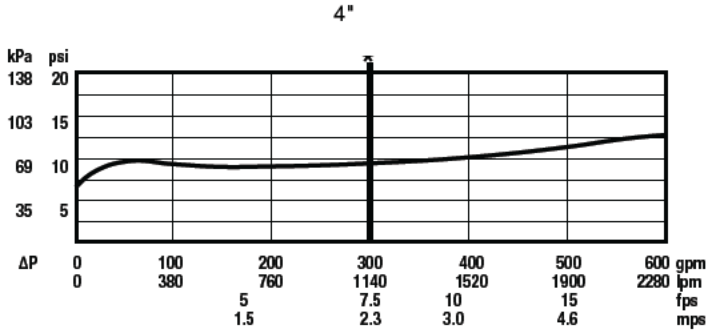
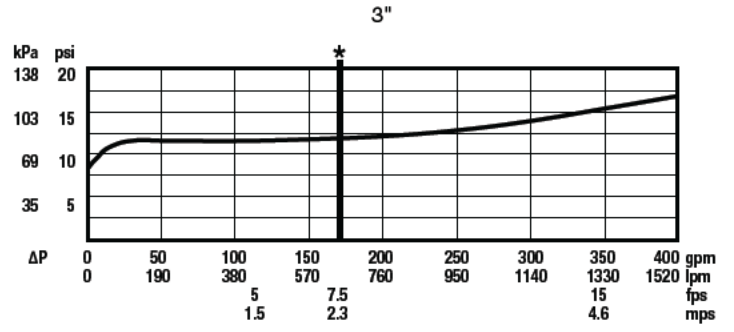
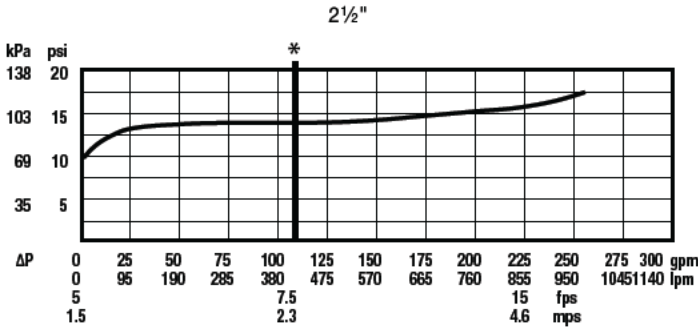
IRON BODY MODEL NO.	ORDERING CODE	SERIES/SIZES	DIMENSIONS			WEIGHT				
			A	B	C	lbs	kgs			
			in.	mm	in.	mm	in.	mm		
909AG-F	881378	1¼" – 3" 009/909 1¼" – 2" 009 M1 2" 009 M2	4¾	111	6¾	171	2	51	3.25	1.47
909AG-K	881385	4" – 6" 909 8" – 10" 909 M1	6¾	162	9¾	244	3	76	6.25	2.83
909AG-M	881387	8" – 10" 909	7¾	187	11¼	286	4	102	15.5	7.03

For flange size backflow preventers installed vertically (flow down), a fabricated air gap is recommended.



Capacity

*Typical maximum flow rate (7.5 feet/sec.)



USA: Tel: (978) 689-6066 • Fax: (978) 975-8350 • Watts.com
 Canada: Tel: (888) 208-8927 • Fax: (905) 332-7068 • Watts.ca
 Latin America: Tel: (62) 55-4122-0138 • Watts.com