



# Southeast Morris County Municipal Utilities Authority

19 SADDLE ROAD • CEDAR KNOLLS, NEW JERSEY 07927 • TEL 973-326-6880 • FAX 973-326-9521

## BACKFLOW PREVENTER – REDUCED PRESSURE ZONE (RPZ)

### GENERAL

The Southeast Morris County Municipal Utilities Authority (referred to herein as the “Authority”) is subject to the standard terms and conditions set forth by the Authority’s Rules and Regulations, pursuant to N.J.S.A. 40:14B.

As a public water supply, the Authority is required to protect and provide safe drinking water to consumers in accordance with the N.J.A.C. 7:10 Safe Drinking Water Act Rules.

The Authority is committed to providing an efficient process for developers to achieve their project goals in accordance with the Authority’s Rules and Regulations.

Developers interested in conducting business with the Authority shall comply with the standard terms and conditions mandated by the Authority’s Rules and Regulations.

Developer shall mean applicant responsible for application, fees and contract agreement with the Authority.

### REFERENCE

ANSI/AWWA	American National Standards Institute/American Water Works Standards
C104/A21.4-13	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
C110/A21.10-12	Ductile-Iron and Gray-Iron Fittings
C111/A21.11-12	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
C151/A21.51-09	Ductile-Iron Pipe, Centrifugally Cast
C502-05	Dry-Barrel Fire Hydrants
C509-09	Resilient-Seated Gate Valves for Water Supply Service
C511-07	Reduced-Pressure Principle Backflow Prevention Assembly
C651-05	Disinfecting Water Mains
C700-09	Cold-Water Meters – Displacement Type, Bronze Main Case
C702-10	Cold-Water Meters – Compound Type
C703-11	Cold-Water Meters – Fire-Service Type
ASTM	American Society for Testing and Materials
ASTM B88	Standard Specification for Seamless Copper Water Tube
N.J.S.A. 40:14B	New Jersey Statutes – Title 40 Municipal and County Utilities Authorities Law
N.J.A.C. 7:10	New Jersey Administrative Code – Title 7 Safe Drinking Water Act Rules
NSF	National Sanitation Foundation International Standard
NSF/ANSI 61	Drinking Water System Components – Health Effects
Rules and Regulations	The Southeast Morris County Municipal Utilities Authority’s Rules and Regulations

## REQUIREMENTS

1. Developers shall verify that all submittals conform to local, county and state ordinances.
2. Road opening permits on local and county roads shall be obtained by the developer. State road opening permits shall be obtained by the Authority at the developer's expense.
3. All excavation and backfill shall be the responsibility of the developer.
4. Only authorized personnel of the Authority will be permitted to make connections to the water mains of the Authority, access and operate curb stops, hydrants and valves as mandated by the Rules and Regulations.
5. All proposed materials shall be submitted for approval. Failure to submit information shall cause the Authority to reject work and deny water service.
6. All materials submitted for approval shall be of first-class high-grade quality, clean and sound and conform to the latest revisions of ANSI/AWWA Standards. No inferior or low-grade materials will be approved or accepted.
7. All materials shall be approved for NSF/ANSI 61 for potable drinking water.
8. All materials shall be manufactured in the United States of America.
9. As-built drawings shall be prepared and submitted to the Authority on a CD in PDF and CAD format, indicating the location of all facilities installed before water is turned on.

## SPECIFICATIONS FOR BACKFLOW PREVENTER - RPZ:

1. A Reduced Pressure Zone (RPZ) assembly shall be installed above grade as required by SMCMUA.
2. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs.
3. Seats and seat discs shall be replaceable in both check modules and the relief valve.
4. No threads or screws shall be present in the waterway exposed to line fluids.
5. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts.
6. The assembly shall meet the requirements of: USC; ASSE Std. 1013; AWWA Std. C511-92; CSA B64.4.
7. Example provided in **Appendix K**.

\*\* Reduced Pressure Zone product specifications have been prepared with the assistance of the aforementioned specifications sheets provided by Watts

Wilkins is an additional approved Reduced Pressure Zone (RPZ) manufacturer

## APPENDIX K

## For Health Hazard Applications

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

# Series 009

## Reduced Pressure Zone Assemblies

Sizes: 1/4" – 2"

Series 009 Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series is designed to protect drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes 1/4" – 1" shutoffs have tee handles.

### Features

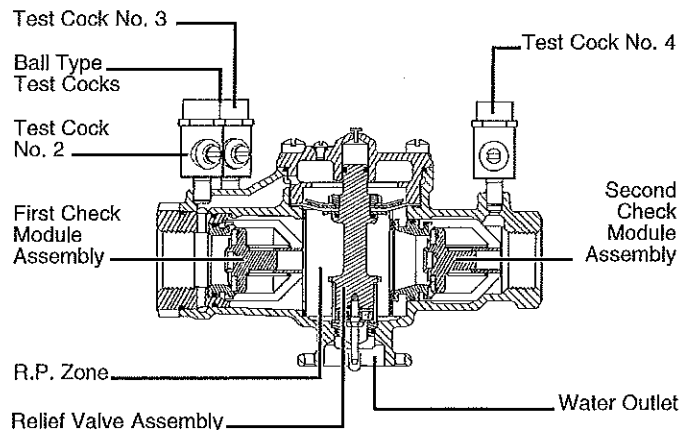
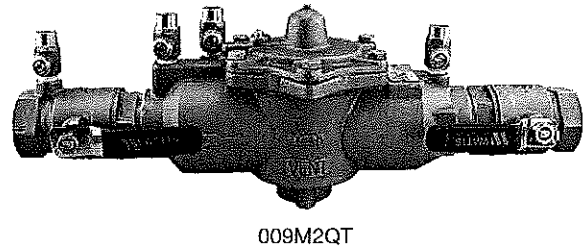
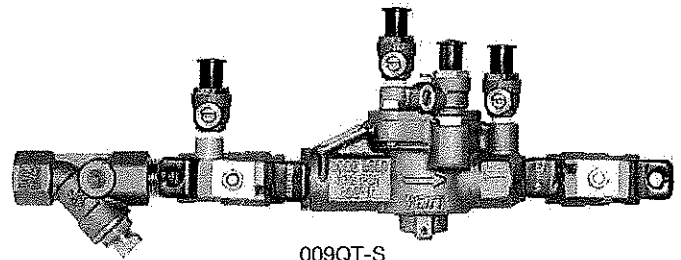
- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability 1/4" – 2"
- Ball valve test cocks – screwdriver slotted 1/4" – 2"
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing

### Specifications

A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC; ASSE Std. 1013; AWWA Std. C511-92; CSA B64.4. Shall be a Watts Series 009.

†Does not indicate approval status. Refer to Page 2 for approved sizes & models.

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.



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 For more information, send for literature ES-WB.

**NOTICE**

Inquire with governing authorities for local installation requirements



## Available Models: 1/4" – 2"

### Suffix:

- QT – quarter-turn ball valves
- S – bronze strainer
- LF – without shutoff valves
- AQT – elbow fittings for 360° rotation  
3/4" – 2" only
- PC – internal Polymer Coating
- SH – stainless steel ball valve handles
- HC – 2 1/2" inlet/outlet fire hydrant fitting (2" valve)

### Prefix:

- C – clean and check strainer  
3/4" – 1" only
- U – union connections (see ES-U009)

## Materials: 1/4" – 2"

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable stainless steel relief valve seat. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (1/2" – 2"). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

## Pressure / Temperature

Series 009 1/4" – 2" Suitable for supply pressure up to 175psi (12.1 bar). Water temperature: 33°F – 180°F (0.5°C – 75°C).

## Standards

- USC
- ASSE No. 1013
- AWWA C511-92
- CSA B64.4
- IAPMO File No. 1563.

†Does not indicate approval status. See below for approved models.



## Approvals

ASSE, AWWA, CSA, IAPMO

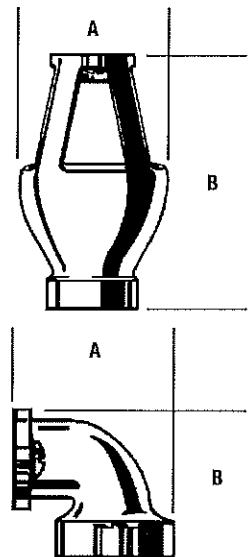
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

UL Classified 3/4" – 2"

(LF models only except 009M3LF)

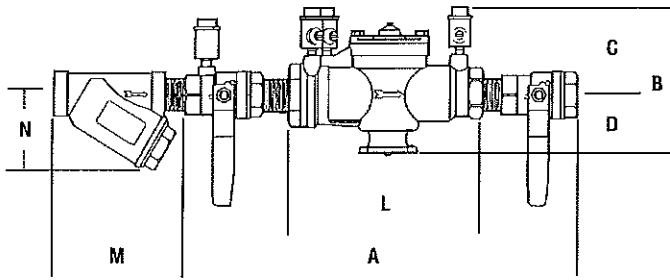
## Air Gaps and Elbows

MODEL	DRAIN OUTLET	DIMENSIONS				WEIGHT	
		for 909, 009 and 993 sizes		A		B	
	<i>in.</i> <i>mm</i>	<i>in.</i> <i>mm</i>	<i>in.</i> <i>mm</i>	<i>in.</i> <i>mm</i>	<i>in.</i> <i>mm</i>		
909AGA	1/4"-1/2" 009, 3/4" 009M2/M3	1/2 13	2 3/8 60	3 1/8 79	0.625 0.28	0.28	
909AGC	3/4"-1" 009/909, 1"-1 1/2" 009M2	1 25	3 1/4 83	4 7/8 124	1.5 0.68	0.68	
909AGF	1 1/4"-2" 009M1, 1 1/4"-3" 009/909, 2" 009M2, 4"-6" 993	2 51	4 3/8 111	6 3/4 171	3.25 1.47	1.47	
909AGK	4"-6" 909, 8"-10" 909M1	3 76	6 3/8 162	9 3/8 244	6.25 2.83	2.83	
909AGM	8"-10" 909	4 102	7 3/8 187	11 1/4 286	15.5 7.03	7.03	
909ELA	1/4"-1/2" 009, 3/4" 009M2/M3	- -	- -	- -	- -	-	-
909ELC	3/4"-1" 009/909	- -	2 3/8 60	2 3/8 60	0.38 0.17	0.17	
* 909ELF	1 1/4"-2" 009M1, 1 1/4"-2" 009/909, 2" 009M2, 4"-6" 993	- -	3 3/8 92	3 3/8 92	2 0.91	0.91	
* 909ELH Vertical	2 1/2"-3" 009/909	- -	- -	- -	- -	-	-



\* Epoxy coated

Dimensions and Weight: 1/4" - 2" 009



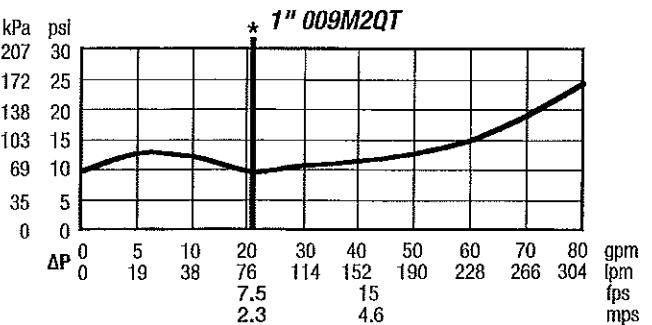
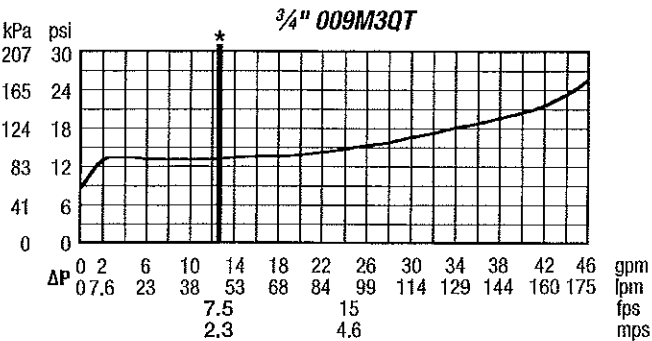
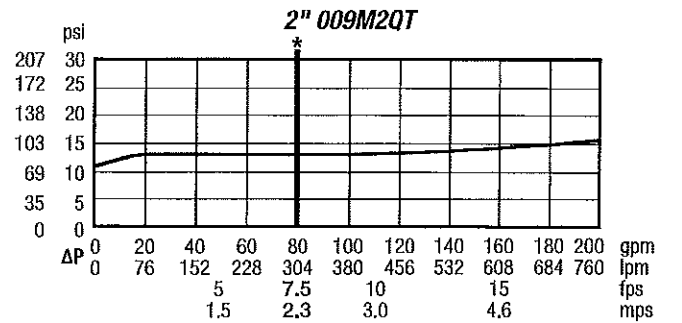
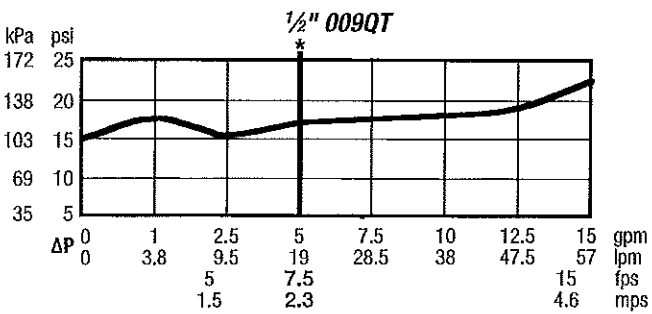
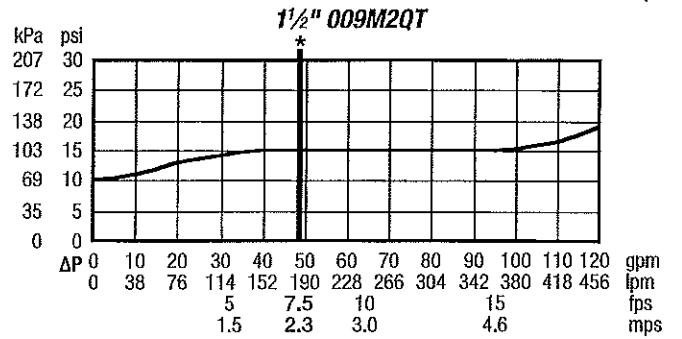
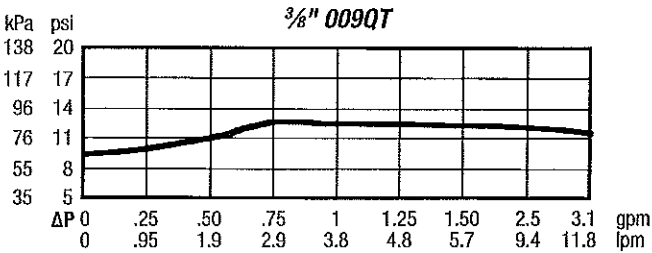
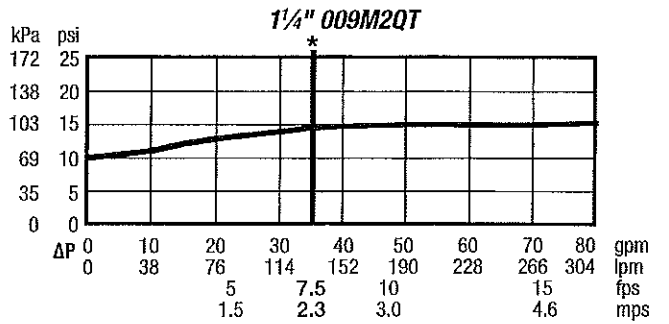
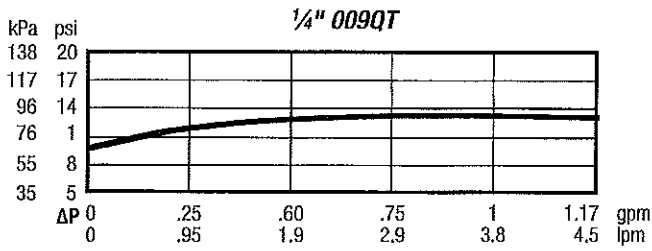
009 1/4" - 2"

SIZE		DIMENSIONS (APPROX.)								STRAINER DIMENSIONS				WEIGHT			
in.		A		B		C		D		L		M		N		lbs.	kgs.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/4		10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	2 3/8	60	2 1/2	64	5	2
3/8		10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	2 3/8	60	2 1/2	64	5	2
1/2		10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	2 3/4	70	2 1/4	57	5	2
3/4		10 3/4	273	5	127	3 1/2	89	1 1/2	38	6 3/4	171	3 3/16	81	2 3/4	70	6	3
1		14 1/2	368	5 1/2	140	3	76	2 1/2	64	9 1/2	241	3 3/4	95	3	76	12	5
1 1/4		17 3/8	441	6	150	3 1/2	89	2 1/2	64	11 3/8	289	4 7/16	113	3 1/2	89	15	6
1 1/2		17 7/8	454	6	150	3 1/2	89	2 1/2	64	11 1/8	283	4 7/8	124	4	102	16	7
2		21 3/8	543	7 3/4	197	4 1/2	114	3 1/4	83	13 1/2	343	5 15/16	151	5	127	30	13

Suffix HC - Fire Hydrant Fittings dimension 'A' = 25"

# Capacity

Performance as established by an independent testing laboratory. \*Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)



A Watts Water Technologies Company



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## For Health Hazard Applications

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" (65–250mm)

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 LF909 features Lead Free\* construction to comply with Lead Free\* installation requirements.

### Features

- Replaceable seats
- Stainless steel internal parts
- No special tools required for servicing
- Captured spring check assemblies
- Fused epoxy coated & lined checks
- Industrial strength sensing hose
- Field reversible relief valve
- Air-in/water-out relief valve design provides maximum capacity during emergency conditions

### Available Models

Suffix:

LF --	without shutoff valves
NRS --	non-rising stem resilient seated gate valves
OSY -	UL/FM outside stem & yoke resilient seated gate valves
QT-FDA --	FDA epoxy coated quarter-turn ball valves
S-FDA --	FDA epoxy coated strainer

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

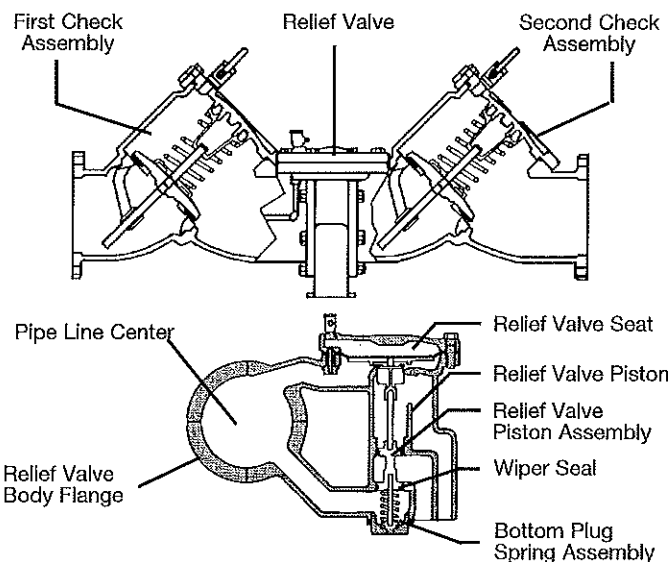
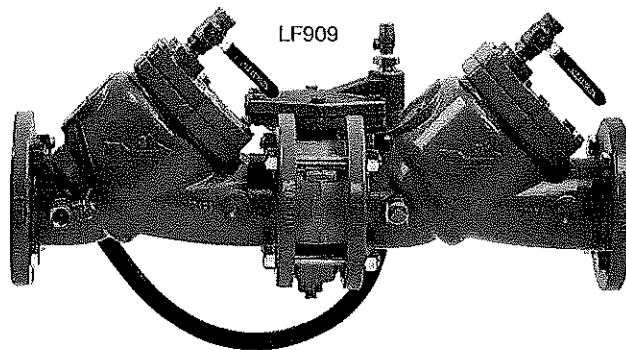
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For more information, send for literature ES-WB.

### 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.



### 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 assembly shall be a Watts Series LF909.

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.

# WATTS®



## Materials

Check Valve Bodies: FDA epoxy coated cast iron  
 Seats: Stainless steel  
 Trim: Stainless steel  
 Relief Valve Body: 2½"-3" (60-80mm) Lead Free\* cast copper silicon alloy  
 4"-10" (100-250mm) 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

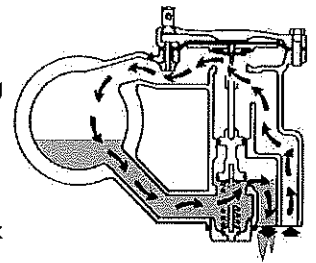
\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

## Capacity

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

## 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.



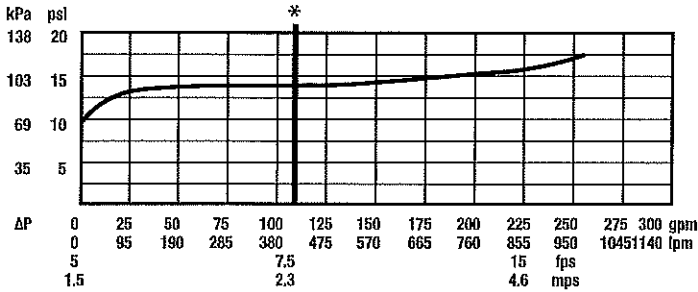
Water Air  
 Out In

## Approvals

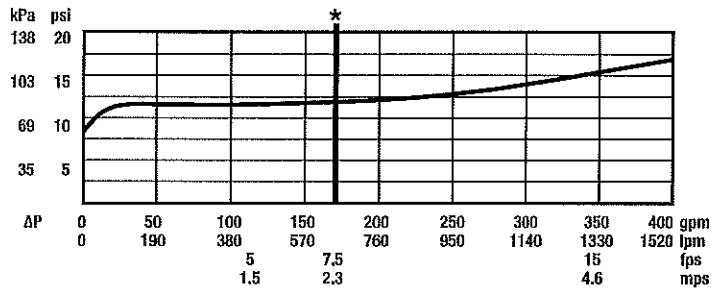


Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

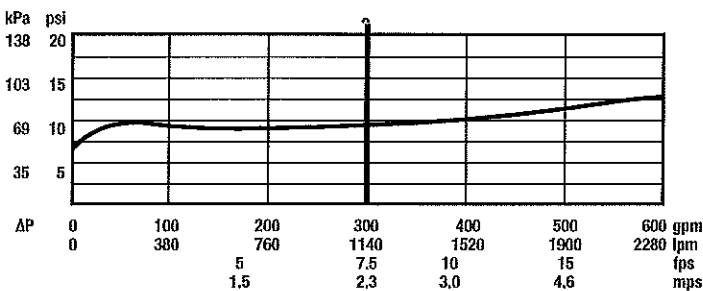
2½" (65mm)



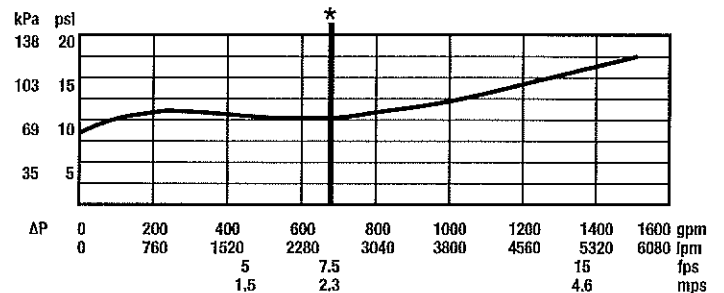
3" (80mm)



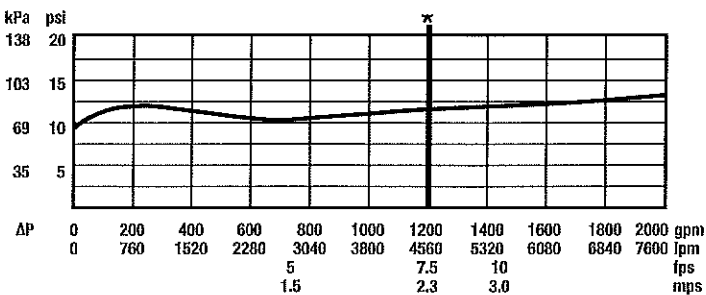
4" (100mm)



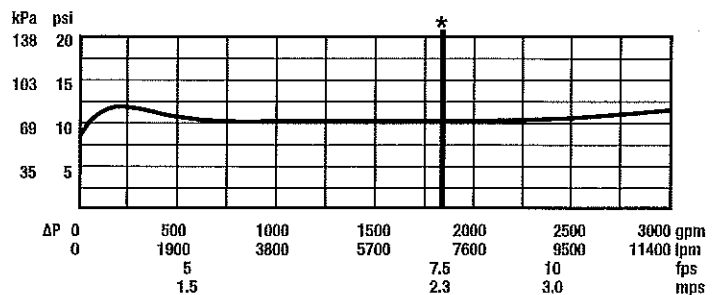
6" (150mm)



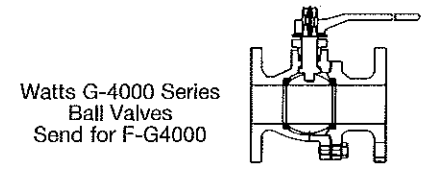
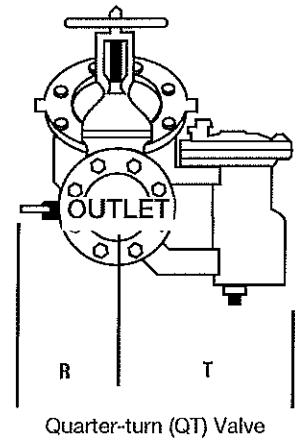
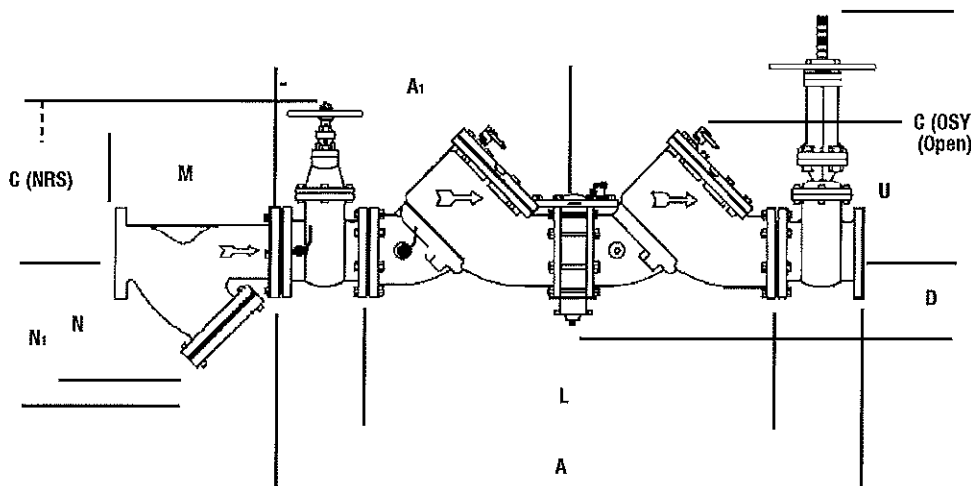
8" (200mm)



10" (250mm)



## 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 (DN)		DIMENSIONS										WEIGHT															
in.	mm	A		A1		C clearance for check				D		L	U	R		R (QT)		T		NRS		OSY		QT			
		in.	mm	in.	mm	(OSY)*		(NRS)		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	65	41¼	1048	20¾	524	16¾	416	9¾	238	5¼	133	26¾	663	11	279	4	102	16	406	9¼	230	195	88.4	198	89.8	182	82.6
3	80	42¼	1073	21¼	540	18¾	479	10¼	260	5¼	133	26¾	663	11	279	5	127	16	406	9¼	230	225	102	230	104	190	86
4	100	55¼	1400	27¾	702	22¾	578	12¾	310	6	152	37	940	14	356	6	152	19¾	502	14¾	365	455	206	470	213	352	160
6	150	65½	1664	32¾	832	30¾	765	16	406	6	152	44½	1130	16	406	11	279	26	660	14¾	365	718	326	798	362	762	346
8	200	78½	2000	39¾	1000	37¾	959	19½	506	9¾	248	55¼	1403	21	533	11¼	286	11¼	286	19¼	489	1350	612	1456	660	2286	1037
10	250	93¾	2378	46¾	1190	45¾	1162	23¾	605	9¾	248	67¾	1711	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

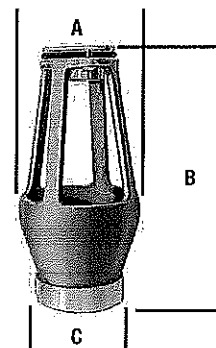
SIZE (DN)		DIMENSIONS						WEIGHT	
in.	mm	M		N1†		N		lbs.	kgs.
		in.	mm	in.	mm	in.	mm		
2½	65	10	254	10	254	6½	165	28	12.7
3	80	10¾	257	10	254	7	178	34	15.4
4	100	12¾	308	12	305	8¼	210	60	27
6	150	18½	470	20	508	13½	343	133	60
8	200	21¾	549	22¾	578	15½	394	247	112
10	250	26	660	28	711	18½	470	370	168

† – 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.

For additional information, visit our web site at: [www.watts.com](http://www.watts.com)



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