Series 909

Reduced Pressure Zone Assemblies

Sizes: 21/2" - 10" (65 - 250mm)



Watts 909 OSY shown Designed for inline servicing

- Installation Service
- Repair Kits
 Maintenance

IMPORTANT: Inquire with governing authorities for local installation requirements.

NOTE: For *Australia* and *New Zealand*, line strainers should be installed between the upstream shutoff valve and the inlet of the backflow preventer.

Its important that this device be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. If installed on a fire sprinkler system, all mechanical checks, such as alarm checks and backflow preventers, should be flow tested and inspected internally in accordance with NFPA 13 and NFPA 25.

Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. So FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.



Basic Installation Instructions

Installation Note:

The flange gasket bolts for the gate valves should be retightened during installation as the bolts may have loosened due to storage and shipping.

Series 909

Sizes: 2¹/₂" – 10" (65 – 250mm) 909 High Capacity Relief Series: Location and Installation Considerations

- Backflow preventers must be installed in high-visibility locations in order to allow for immediate notice of telltale discharge or other malfunction. This location should also facilitate testing and servicing, and protect against freezing and vandalism.
- 2. Installing a backflow preventer in a pit or vault is not recommended. However, if this becomes necessary, Watts highly recommends that a licensed journeyman tradesperson, who is recognized by the authority having jurisdiction, be consulted to ensure that all local codes and required safety provisions are met. An air gap below the relief port must be maintained so as to avoid flooding and submersion of the assembly, which may lead to a cross connection. *Please refer to Figure No. 1 for further information.
- 3. A strainer should be installed ahead of the backflow preventer to protect all internal components from unnecessary fouling.
 Caution: Do not install a strainer ahead of the backflow preventer on seldom-used, emergency water lines (i.e. fire sprinkler lines). The strainer mesh could potentially become clogged with debris present in the water and cause water blockage during an emergency.
- 4. Normal discharge and nuisance spitting are accommodated by the use of a Watts air gap fitting and a fabricated indirect waste line. Floor drains of the same size MUST be provided in case of excessive discharge. *Please refer to Figure No. 1 and Figure No. 2 for further information.
- 5. When a 909 Series backflow preventer is installed for dead-end service applications. (i.e. boiler feed lines, cooling tower makeup or other equipment with periodic flow requirements), discharge from the relief vent may occur due to water supply pressure fluctuation during static no-flow conditions. A check valve may be required ahead of the backflow preventer. *Please see "Troubleshooting", Page 7, prior to installation.



Watts No. 909 2¹/₂" – 10" (65 – 250mm)

Second

- 6. The relief valve module on 2½" 10" (65 250mm) 909 Series assemblies may be turned to discharge to the opposite side. To do so, unbolt the relief valve and turn the relief valve discharge port to the opposite side. Mount the high pressure hose on the opposite. This should be done by a licensed journeyman tradesperson, who is recognized by the authority having jurisdiction and only when space is critical for testing or repair.
- 7. ASSEMBLY: If the backflow preventer is disassembled during installation, it MUST be reassembled in its proper order. The gate valve with the test cock is to be mounted on the inlet side of the backflow preventer. The test cock must be on the inlet side of the wedge. Please see above. Failure to reassemble correctly will result in possible water damage due to excessive discharge from the relief port/vent and possible malfunction of the backflow preventer.
- 8. Installation procedures must comply with all state and local codes and must be completed by a licensed journeyman tradesperson who is recognized by the authority having jurisdiction. Please see Page 3 for specific installation procedures.
- 9. Prior to installation, thoroughly flush all pipe lines to remove any foreign matter.
- 10.START UP at Initial Installation and After Servicing: The downstream shutoff should be closed. Slowly open upstream shutoff and allow the backflow preventer to fill slowly. Bleed air at each test cock. When backflow preventer is filled, slowly open the downstream shutoff and fill the water supply system. This is necessary to avoid dislodging O-rings or causing damage to internal components.
- 11.**TEST:** The 909 Series backflow preventer may be tested by a certified tester at the time of installation in order to ascertain that the assembly is in full working order and may be relied upon to protect the safe drinking water as per applicable standard.

Figure 1 Series 909 RELIEF VALVE DISCHARGE RATES



Figure 2

Inlet

VALVE SIZE		TYPICAL FLOW RATES As sized by floor Drain Manufacturers	DRAIN Size	
in.	mm		in.	mm
2 ¹ /2"	65	55 gpm	2	50
3"	80	112 gpm	3	65
4"	100	170 gpm	4	100
6", 8", 10"	150,200,250	350 gpm	5	125

2

Basic Installation Instructions Series 909

Sizes: 2¹/₂" - 10" (65 - 250mm)

Installation

- A. Series 909 should be installed in a horizontal and upright position. This positions the relief valve below the first check valve, enabling the zone to drain through the relief valve outlet. The shutoff valve with the test cock is to be mounted on the inlet side of the backflow preventer. The test cock is on the inlet side of the shutoff valve.
- B. The 909 should always be installed in an accessible location to facilitate testing and servicing. Check the state and local codes to insure that the backflow preventer is installed in compliance, such as the proper height above the ground.
- C. Water discharge from the relief valve should be vented in accordance with code requirements. The relief valve should never be solidly piped into a drainage ditch, sewer or sump. The discharge should be funneled through a Watts air gap fitting piped to a floor drain.
- D. Watts recommends a strainer be installed ahead of Watts 909 Series assemblies to protect the discs from unnecessary fouling.
- E. Backflow preventers should never be placed in pits unless absolutely necessary and then only when and as approved by local codes. Consult your local or state plumbing or health inspector. Watts recommends installation indoors or above ground in an insulated enclosure.

Start Up

- F. The downstream shutoff should be closed. Open upstream slowly, fill the valve and bleed the air through Test cock 2, 3 and 4. When valve is filled, open the downstream shutoff slowly and fill the water supply system. This is necessary to avoid water hammer or shock damage.
- G. The installation of a Watts air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.
- H. Two or more smaller size valves can be piped in parallel (when approved) to serve a larger supply pipe main. This type of installation is employed where increased capacity is needed beyond that provided by a single valve and permits testing or servicing of an individual valve without shutting down the complete line.

The number of assemblies used in parallel should be determined by the engineer's judgement based on the operating conditions of a specific installation.

Indoors



Above Ground



Parallel



TABLE ONE - CAPACITY REQUIRED FOR SYSTEM

50 gpm	100 gpm	150 gpm	200 gpm	250 gpm	350 gpm	450 gpm	640 gpm	1000 gpm	2000 gpm	3000 gpm	5000 gpm
Two ³ /4" Devices	Two 1" Devices	Two 1¼" Devices	Two 1½" Devices	Two 1½" Devices	Two 2" Devices	Two 21/2" Devices	Two 3" Devices	Two 4" Devices	Two 6" Devices	Two 8" Devices	Two 10" Devices
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Table shows total capacity provided with dual valve installations of various sizes

Servicing First and Second Checks

NOTE: No special tools required to service	First and second checks are not interchangeable	_
Series 909	First Second	
909OSY	Check Relief Check Valve	

909 Repair Kits 2¹/2" – 10" (65 – 250mm)

Sizes: 2¹/₂" – 10" (65-250mm)

ORDERING CODE	KIT NO.	S	IZE
First Check Kits:		in.	mm
0887210	RK 909 CK1	2 ¹ / ₂ - 3	65-80
0887212	RK 909 CK1	4	100
0887213	RK 909 CK1	6	150
0887214	RK 909 CK1	8	200
0887215	RK 909 CK1	10	250
Second Check Kits:			
0887211	RK 909 CK2	2 ¹ / ₂ - 3	65-80
0887216	RK 909 CK2	4	100
0887217	RK 909 CK2	6	150
0887218	RK 909 CK2	8	200
0887219	RK 909 CK2	10	250
Kits include: Disc & Spring	assembly, Cover O-ring and	ubricant.	
First Check Rubber Pa	rts Kits:		
0887220	RK 909 RC1	$2\frac{1}{2} - 3$	65-80
0887221	RK 909 RC1	4	100
0887223	RK 909 RC1	6	150
0887224	RK 909 RC1	8	200
0887225	RK 909 RC1	10	250
Second Check Rubber	Parts Kits:		
0887226	RK 909 RC2	$2\frac{1}{2} - 3$	65-80
0887227	RK 909 RC2	4	100
0887228	RK 909 RC2	6	150
0887229	RK 909 RC2	8 10	200
U887230 Kite include: Lower Stom (KK 909 KUZ) ring (6" ophy) Chock disc. (IU ovor O ring, and lu	250 ubricant
Seat Kite for Checke		over o-ring, and it	ibiicaiit.
0887730	BK 909 S	$2^{1}/_{2} - 3$	65-80
0887731	BK 909 S	4	100
0887732	BK 909 S	6	150
0887733	RK 909 S	8	200
0887734	RK 909 S	10	250
Kits include: Seat, Seat 0-	ring, Cover O-ring, Retainer w	ire and lubricant.	
Total Rubber Parts Kits	5:		
0887750	RK 909 RT	2 ¹ / ₂ - 3	65-80
0887751	RK 909 RT	4	100
0887752	RK 909 RT	6	150
0887753	RK 909 RT	8	200
0887754	RK 909 RT	10	250
0887761	RK 909M1 RT	8	200
0887762	RK 909M1 RT	10	250
Kits include: Lower Stem ()-ring (6" only), Check disc, Co	over O-ring, Sleeve	0-ring,
Piston O-ring, RV disc ass	embly, Diaphragm, Piston sea	and Lubricant.	
when ordering specity EDP	number, Kit Number and Valve	5120.	
2 1⁄2" – 3"	4" – 10" (1	00 – 250mm	1 Corres
(65 – 80mm)	*Disc	: & Spring	Core and a second
	Asse	mbly	Dara Cara
() ()	*Dias & Casing	/ @.	— Disc
	CUISC & Shrind	< // ²	Louver Cterr

O-ring (6" only)

Retainer wire

Seat O-ring

Cover O-ring

Seat

Assembly

Seat

Seat O-ring

Cover O-ring

- Remove the hatch cover bolts. NOTE: The 909 is designed so that when the bolts are backed off ½", all the spring load is released from the cover and retained by the check module. CAUTION: Be sure to verify this before removing all the bolts.
- 2. Lift the check valve module straight out taking care not to hit and damage the seating.
- 3. The seat ring may be removed and replaced by pulling out the two wire retainers on sizes 4" 10" (100 250) while on sizes $2\frac{1}{2}" 3" (65 80mm)$, one quarter turn twist removes seat. The wire retainers are 10" long. One is drawn out clockwise and the other is drawn out counterclockwise.
- 4. With the retainer wires removed, the seat ring can be lifted straight up and removed.
- 5. CAUTION: The check valve spring is in compression. The spring load is captured by the two spring retainers and the stem. The spring retainers are not to be removed for servicing. If there is a need to replace the spring, spring retainer or stem, an assembled module must be obtained from the factory. These modules are not interchangeable, be sure to replace the first check with a first check module and the second check with a second check module.
- 6. To replace the disc on sizes $2\frac{1}{2}$ " 4" (65 100mm) simply remove the retaining nut or for sizes 6" 10" (150 250mm) remove the allen head socket screws. Reverse this procedure to install the new disc.

For further details contact your technical sales representative, see back page.

*Warning: Spring assembly is factory assembled. DO NOT DISASSEMBLE

Servicing the Relief Valve

Sizes: 21/2" - 10" (65-250mm)

- 1. Remove the relief valve cover bolts. Note the 909 is designed so that when the bolts are backed off 1/2" all the relief valve spring load is retained by the bottom plug spring module. **CAUTION:** Be sure to verify this before removing all the bolts.
- 2. Remove the cover and diaphragm. The relief valve piston assem-
- bly can be lifted straight up and out.
- 3. Replace the wiper seal and piston O-ring and apply grease to the O-ring.
- 4. To replace the relief valve disc, hold the upper guide fin and unscrew the diaphragm pressure plate. It may be necessary to lightly tap the cast webs and the pressure plate to loosen. Replace with a new disc holder assembly and O-ring. Note: the disc rubber is molded into the disc holder and is supplied as a disc holder assembly.
- 5. Removal of the bottom plug and spring assembly. During normal field service there is no need to remove the bottom plug spring assembly other than inspection. It can be removed by simply unscrewing with a large pipe wrench.

CAUTION: The spring as retained on the bottom plug is highly loaded. NO attempt should be made in the field to remove the spring. For replacement, a complete bottom plug assembly must be obtained from the factory.

For further details contact your technical sales representative, see back page.

909 Repair Kits 21/2" - 10" (65 - 250mm)

ORDERING CODE	KIT NO.	SIZE			
Relief Valve Rubber Pa	rts	in.	mm		
0887231	RK 909 RV	2 ¹ / ₂ - 3	65-80		
0887232	RK 909 RV	4 - 6	100-150		
0887233	RK 909 RV	8 – 10	200-250		
0887234	*RK 909M1 RV	4 - 10	100-250		
Kits include: Sleeve o-ring, Seat o-ring, Piston o-ring, Stem o-ring, RV disc assembly,					

Diaphragm, Piston seal, Bottom plug o-ring and lubricant

Relief Valve Total

0887235	RK 909 VT	2 ¹ / ₂ - 3	65-80
0887236	RK 909 VT	4 - 6	100-150
0887237	RK 909 VT	8 – 10	200-250
0887238	*RK 909M1 VT	4 - 10	100-250
te include: Adapter o_ring	Dianhragm Diec & nieton	accomply Soat Soat	

Kits include: Adapter o-ring, Diaphragm, Disc & piston assembly, Seat, Seat o-ring and lubricant. (4" - 10" M1 includes bottom plug & spring assembly.)

Cover Kits

0887740	RK 909 C	2 ¹ / ₂ - 3	65-80
0887741	RK 909 C	4	100
0887742	RK 909 C	6	150
0887743	RK 909 C	8	200
0887744	RK 909 C	10	250
"to include. Course Course	a vina and lubvicant		

Kits include: Cover, Cover o-ring and lubricant.

Cover Kits						
0887745	rk 909rpda C	2 ¹ / ₂ - 3	65-80			
0887746	RK 909RPDA C	4	100			
0887747	RK 909RPDA C	6	150			
0887748	RK 909RPDA C	8	200			
0887749	RK 909RPDA C	10	250			
Kits include: Cover Cover	o_ring and lubricant					

e: Cover, Cover o-ring and lubric *M1 = Cast iron relief valve.



