WATTS
007/ 007M1/ 007M2/ 007M3/ LF007

SIZE
1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 6"

DESCRIPTION
This is a double check assembly. Production began in 1989. All versions in the 1/2"-2" size have bronze bodies with in-line modular check assemblies that are removed from a single cover on the top. In 2010 the LF model was introduced which utilizes a lead free bronze. Check modules are held in the body by a retainer. Check seats are replaceable. All springs are contained when the cover is removed. Spring tension had to be released for a proper repair. There have been several modifications over the years but all versions utilize a similar construction. Be sure which version you have because repair kits are different. The original design was the 007 model produced from 1989-1991. From 1991-1993 the 007M1 model was produced. The difference being in 3/4"-1" the disc holders on the newer M1 style are now plastic instead of bronze and in all sizes a change in the check seat dimensions. The check cover is bolted on in the 007 and the 007M1 except the 3/4"-1" 007 which had a screw on cover. The 007M2 design began in 1993. The major change in the 007M2 was the downsizing of the body which produced a corresponding down sizing change in the internal parts. In 1993 the 1/2" 007 began production. In 1998 the 3/4" 007M3 was introduced. The U007 series was developed in sizes 3/4"-2" which incorporates a union end into the body. The U007A series utilizes a 90 degree elbow for an up and down piping orientation. The 007PC series is a polymer coated bronze assembly. The SS007 series is available in sizes 1/2"-1". The SS007 is a stainless steel body assembly. In the 2 1/2"-6" the body is an epoxy coated cast iron design. The checks are an in-line design with a single bolted cover on the top. All springs are contained when the cover is removed. Spring tension has to be released for a proper repair. Check seats are replaceable. The 2 1/2"-3" check modules are held in the body with a retainer while the 4"-6" check modules are held in by a wire clip. The 4"-6" were discontinued in 1992. In 2010 a LF model was introduced in sizes 2 1/2"-3" which replaced the leaded bronze parts with plastic and stainless steel to make it a lead free assembly.

BASIC REPAIR KIT
The repair kit contains all disc holders or discs and O-rings.

	KIT NO			
	LF007	**LF007M1**	**LF007M2**	**LF007M3**
SIZE	**007**	**007M1**	**007M2**	**007M3**
1/2"	007-RT050			
3/4"	007-RT075	007M1-RT075	007M2-RT075	007M3-RT075
1"	007-RT075	007M1-RT075	—	—
1 1/4"	—	—	007M2-RT150	—
1 1/2"	007-RT150	007M1-RT150	007M2-RT150	—
2"	007-RT150	007M1-RT150	—	—
2 1/2"	007-RT250			
3"	007-RT250			
4"	007-RT400◆			
6"	007-RT600◆			

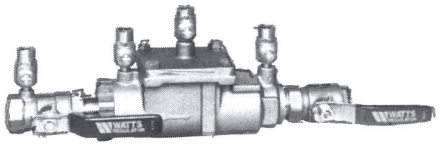
IMPORTANT FEATURES
~Bronze body on the 1/2"-2"
~Cast iron fused epoxy body on the 2 1/2"-6"
~Replaceable check seats
~Contained springs
~Factory repair information enclosed

Series 007

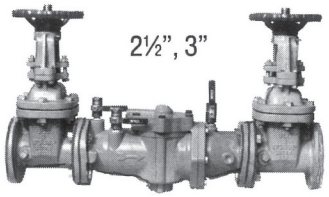
Sizes ½"- 3"

Series 007 Double Check Valve Assembly is designed to provide protection of the safe drinking water supply in accordance with national plumbing codes and water utility authority requirements for containment at the service line entrance. They can be applied to a variety of installations where the degree of hazard is considered to be low. Standardly furnished with ball type test cocks and quarter-turn, full port, resilient seated bronze ball valve shut-offs (¾" - 2") No. 007QT. ¾"- 1" have Tee handle shut-offs. Sizes 2½" and 3" have resilient seated flanged gate valve shut-offs.

- Replaceable seats
- No special tools required for servicing
- Modular construction



½" - 2"



2½", 3"

Available Models

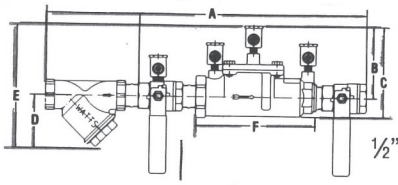
Sizes: ½"- 2"
Prefix U - union connections
Suffix QT - with quarter-turn, full port, resilient seated ball valves
S- with bronze strainer
LF- without shut-offs
Sizes: 2½" and 3"
NRS RW - non-rising stem resilient seated gate valves
OS&Y RW - with resilient seated outside stem & yoke shut-offs
QT - with quarter-turn, full port, resilient seated ball valve shut-offs
LF - without shut-offs valves
QT-FDA - with epoxy coated ball valve shut-offs

Standards (see page 3)

Pressure-Temperature

Supply pressure up to 175 PSI. Water temperature sizes ½"- 2" 140°F continuous, 180°F intermittent. Sizes 2½" and 3" 110°F continuous, 140°F intermittent.

Dimensions-Weights (approximate)



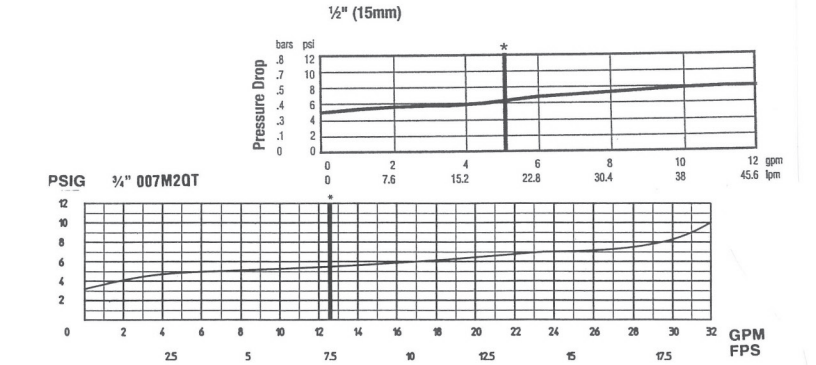
½" - 2"

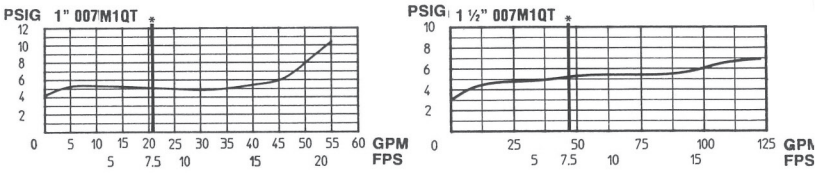
Size	Model	Dimensions inches A	B	C	D	E	F	Weight lbs
½"	007	10	2 7/16	4 5/8	-	-	5	4 ½
½"	007S	13	2 7/16	4 5/8	3	6	5	5 ½
¾	007	14	4 1/8	5 ½	-	-	81/4	9 ¼
¾	007S	18 ¾	4 1/8	5 ½	2 ¾	6 7/8	8 ¼	11 ½
¾	007M1	121/4	4 1/32	5 1/8	-	-	-	7
¾	007M1S	15 5/8	4 1/32	5 1/8	3	6 ¾	-	9
¾	007M2	11 1/8	3 1/8	4	-	-	-	5
¾	007M2S	14 ½	3 1/8	4	3	6 1/8	-	6 ¾
¾	007M3	11 1/8	3 1/8	4	-	-	6 3/16	5
¾	007M3S	14 ½	3 1/8	6 1/8	3	-	6 3/16	6 ¾
1	007	15 ¼	4 ½	5 7/8	-	-	8 ¼	10
1	007S	21 1/8	4 ½	5 7/8	3 1/8	7 5/8	8 ¼	13
1	007M1	13 ¼	4 1/32	5 1/8	-	-	-	12
1	007M1S	18	4 1/32	5 1/8	3 ¼	7 ¾	-	14
1 1/4	007M2	16 3/8	3 5/16	5	-	-	9 ½	15
1 1/4	007M2S	21 ½	3 5/16	7 1/16	3 ½	-	9 ½	19
1 ½	007	19 ¾	5 3/8	7 5/8	-	-	12 ½	24 ½
1 ½	007S	26 3/8	5 3/8	7 5/8	3 ½	8 7/8	12 ½	29
1 ½	007M1	18 3/8	4	6 ¼	-	-	13 3/8	21
1 ½	007M1S	25	4	6 ¼	3 ½	8 ¼	13 3/8	27 ¾
1 ½	007M2	16 ¾	3 ½	4 7/8	-	-	9 ¾	15 7/8
1 ½	007M2S	23 5/8	3 ½	4 7/8	3 ¾	7 1/16	9 ¾	19 5/8
2	007	23 ¾	4 ¾	7	-	-	12 ½	30 5/8
2	007S	31 ½	4 ¾	7	-	-	12 ½	38 5/8
2	007M1	19 ½	4	6 ¼	-	-	13 3/8	25 ¾
2	007M1S	25 5/8	4	6 ¼	-	8 ¾	13 3/8	33 ½

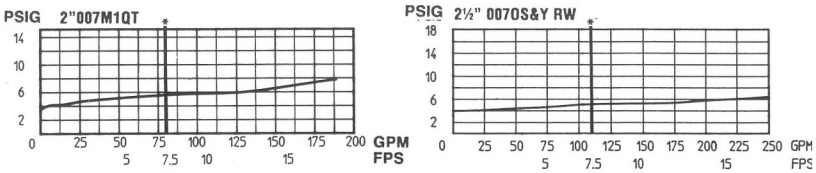
S models – with Strainer

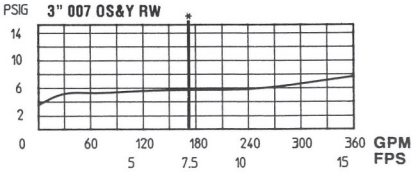
Capacity

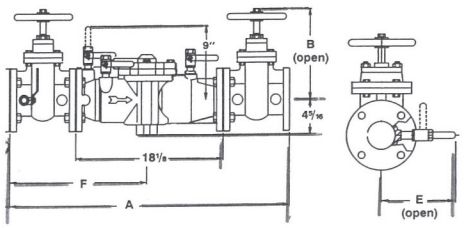
As compiled from documented Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California lab tests.
***Typical maximum mechanical/irrigation system flow rate (7.5 feet per second)**
****Typical maximum fireline system flow rate (15.0 feet per second)**



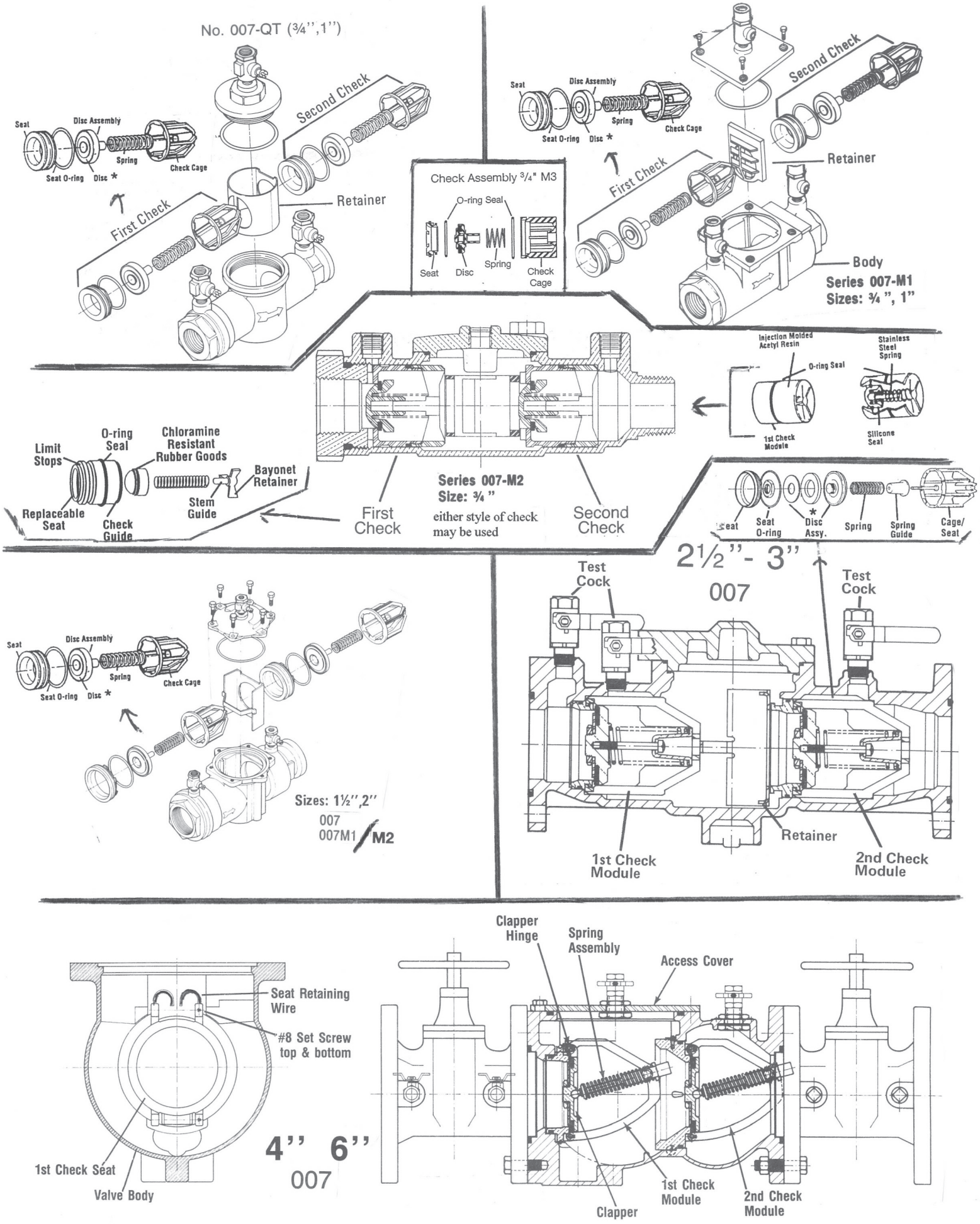








Size	Type	Dimensions (in.) A	B	E	F	Weight (lbs.)
2½"	007QT	33⅛	6⅜	8¾	16⅜	155
	007-NRS-RW	33⅛	11⅜	8¾	16⅜	155
	007-OS&Y-RW	33⅛	15⅞	8¾	16⅜	158
3"	007-QT	34⅛	6⅜	8¾	16⅜	185
	007-NRS-RW	34⅛	12¾	8¾	16⅜	185
	007-OS&Y-RW	34⅛	18½	8¾	16⅜	190


No. 007-QT (¾'',1'')
Seat
Disc Assembly
Spring
Check Cage
Seat O-ring
Disc *
Second Check
First Check
Retainer
Check Assembly ¾" M3
O-ring Seal
Seat
Disc
Spring
Check Cage
Body
Series 007-M1
Sizes: ¾ ", 1"
Injection Molded Acetyl Resin
O-ring Seal
Stainless Steel Spring
1st Check Module
Silicone Seal
Limit Stops
O-ring Seal
Chloramine Resistant Rubber Goods
Bayonet Retainer
Stem Guide
Replaceable Seat
Check Guide
Series 007-M2
Size: ¾ "
First Check
either style of check may be used
Second Check
Seat
Seat O-ring
Disc Assy.
Spring
Spring Guide
Cage/ Seat
2½'' - 3''
007
Test Cock
Test Cock
Sizes: 1½'',2''
007
007M1 / M2
Retainer
1st Check Module
2nd Check Module
Seat Retaining Wire
#8 Set Screw top & bottom
1st Check Seat
Valve Body
4'' 6''
007
Clapper Hinge
Spring Assembly
Access Cover
1st Check Module
2nd Check Module
Clapper

WATTS 007 DCDA

SIZE
2", 2 1/2", 3"

DESCRIPTION
The 007 DCDA is a double check detector assembly. Production began in 1995. The assembly utilizes a main valve similar to the 007. Several different bypass assemblies have been used over the years. Check the name plate to identify which version you have. The models used for the bypass were 3/4" 007M1, 3/4" 007M2, or 1/2" 007.

BASIC REPAIR KIT
Mainline repair kit contains either discs or disc holders and O-rings.

SIZE	KIT NO
2"	007M1-RT150
2 1/2"-3"	007-RT250

Bypass repair kit contains all disc holders and O-rings.

SIZE	KIT NO
3/4" 709	709-RT075
3/4" 007M1	007M1-RT075
3/4" 007M2	007M2-RT075
1/2" 007	007-RT050

IMPORTANT FEATURES
~Mainline assembly see 007

~Bypass assembly see 007

~Factory repair information enclosed

AVAILABLE MODELS

Suffix:

CFM - Cubic feet per minute meter

GPM - Gallons per minute meter

MATERIALS

- FDA approved, epoxy coated cast iron unibody with bronze seats (2½" & 3" size)
- Bronze body (2" size)
- Durable tight seating silicone discs
- Stainless steel springs
- ⅝" x ¾" (16 x 19mm) bronze meter

PRESSURE - TEMPERATURE

All sizes are suitable for supply pressures up to 175 psi (12.06 bars) and water temperature at 110°F (43°C) continuous, 140°F (60°C) intermittent.

STANDARDS

ASSE Standard No. 1048
AWWA Standard C510-92
CSA B64.5
IAPMO PS 31

APPROVALS

Listed/FM Approved

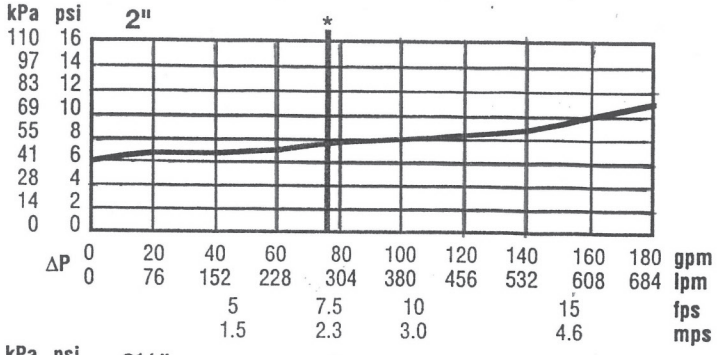
ASSE, AWWA
UL Classified with OS&Y Gate Valves
*Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

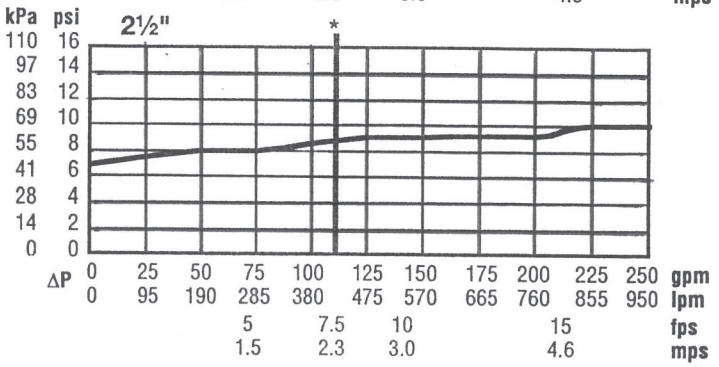
***2" & 2½" (50 & 64mm) 007DCDA horizontal or vertical upward flow position**
***3" (76mm) 007DCDA horizontal only**

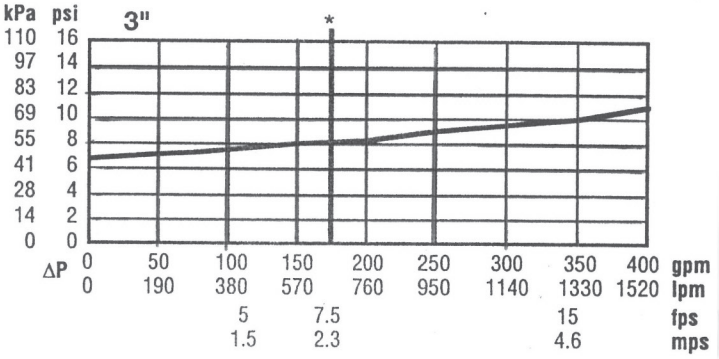
Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior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

PRESSURE DROP vs. FLOW

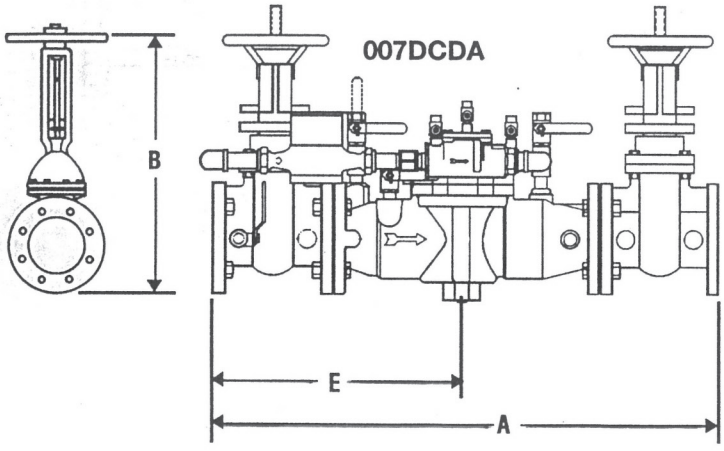
*Typical maximum system flow rate (7.5 feet/sec)

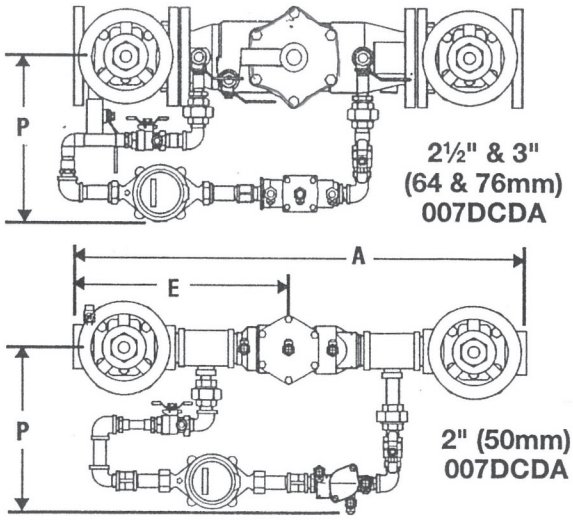






DIMENSIONS - WEIGHT Approximate





Model No.	Size in.	Size mm	A in.	A mm	B in.	B mm	E in.	E mm	P in.	P mm	Weight lbs.	Weight kgs.
			Dimensions									
007DCDA OSY	2"	50	35⅛	892	11	279	16¾	426	12¼	311	97	44
007DCDA OSY	2½"	64	33¼	845	15⅞	403	16⅜	416	12 5/16	313	164	74
007DCDA OSY	3"	76	34¼	870	18½	470	16⅝	422	12 5/16	313	196	89

WATTS 008
WATTS 008PC
WATTS LF008PC

SIZE
3/8", 1/2", 3/4", 1"

DESCRIPTION
This is a spill resistant pressure vacuum breaker. Production began in 1994. The body is made of bronze. There is also a polycoated body version designated as the model 008PC. The check and air inlet are a modularized single cartridge. In 2013 the LF008PC was introduced and the 008 and 008PC were discontinued. The LF008PC is a polycoated lead free body design. Internal parts are the same for the various versions.

BASIC REPAIR KIT
Repair kit contains check and air inlet cartridge and O-ring

SIZE	KIT NO
3/8"	008-T036
1/2"	008-T036
3/4"	008-T075
1"	008-T075

IMPORTANT FEATURES
~Bronze body

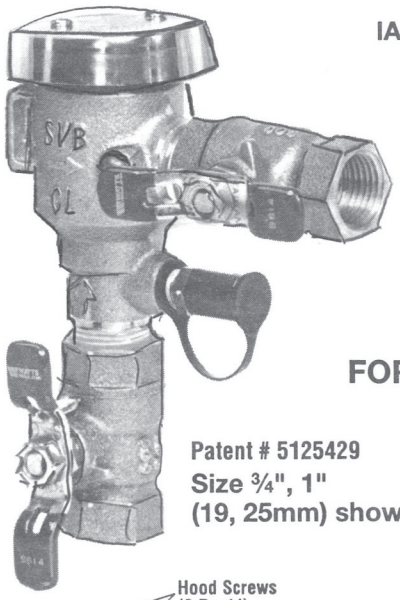
~Modular design

Series 008QT

High Hazard Backflow Preventer
Anti-Siphon, Spill-Resistant

Designed for **indoor** point of use applications to prevent back-siphonage of contaminated water back into the potable water supply. Separation of the water supply from the air inlet is accomplished by means of a diaphragm seal. This feature protects against any spillage during start-up or operation.

ASSE 1056
IAPMO Classfied



FOR INDOOR USE!

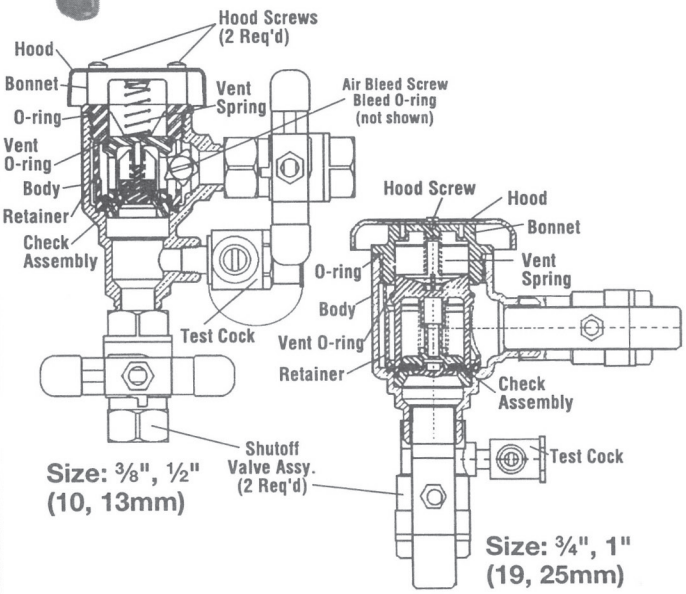
Patent # 5125429
Size ¾", 1"
(19, 25mm) shown

SIZES

⅜", ½", ¾" and 1" (10, 13, 19, 25mm)

FEATURES

- **Standardly supplied with Tee handles**
- **Available less Tee handle with stem wrench flats. For use where space is limited**
- **Available in left-handed or right-handed outlet**
- **Patented design**
- **Spill-resistant design for indoor use**
- **Affordable design**
- **Modular cartridge for ease of service**
- **Vent uses an o-ring for reliable operation**
- **Bronze body for durability**
- **Compact space saving design**
- **ASSE 1056**
- **IAPMO Classified**

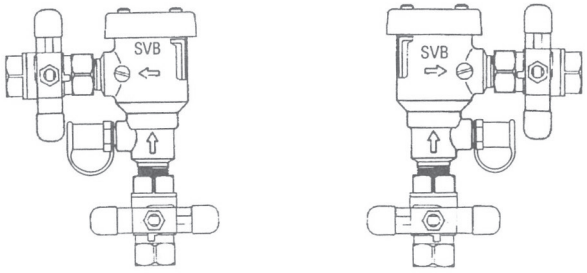


INSTALLATION

The SVB is designed to be installed at the point of use. When factory installed deck/machine mounted on machines or equipment, the critical level of the SVB shall be 1" (25mm) above the flood rim. If field applied for general plumbing applications, the critical level of the SVB shall be 6" above the flood rim.

MATERIALS

Springs	Stainless Steel	**Disc Holder**	PPO
Bonnet	PPO	**Check Disc**	Silicone Rubber
Vent Disc	EPDM	**Body**	Bronze



008QT-L (Left-Handed) **008QT (Right-Handed)**

PRESSURE - TEMPERATURE

Working Temp: 33° - 180°F (1° - 83°C)
Max Pressure: 150 psi (10.34 bars) - Min Pressure: 8 psi (55.2 kPa)

END CONNECTIONS

Female NPT - Ball Valve shut-offs.
Hose and Custom Connections

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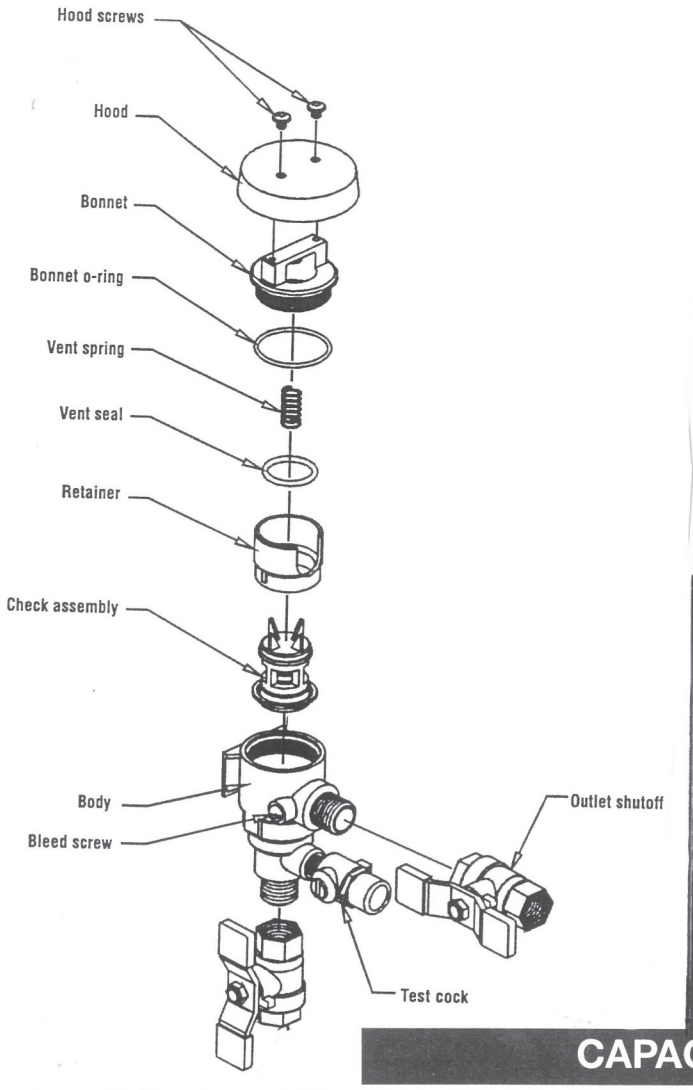
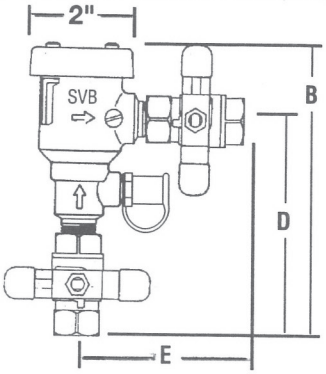


DIMENSIONS - WEIGHT

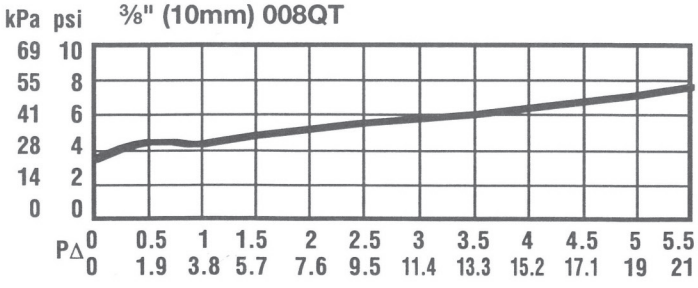


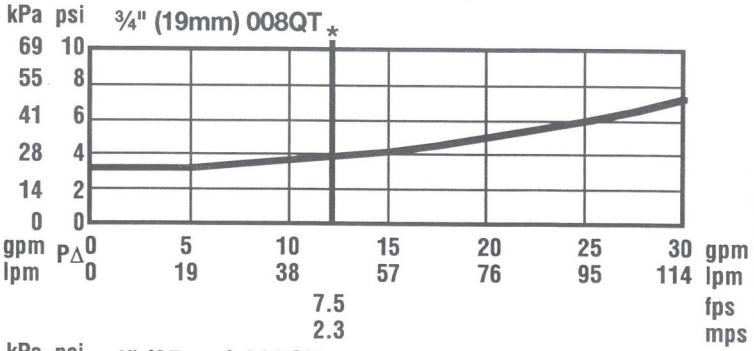
Size in.	Size mm	Dimensions B in.	B mm	D in.	D mm	E in.	E mm	Weight lbs.	Weight kgs.
3/8	10	5½	140	4	102	3⅛	79	1.6	.73
½	13	5¾	146	4¼	108	3⅜	86	1.7	.77
¾	19	7	178	4⅝	117	4½	114	3.8	1.72
1	25	7½	191	5	127	4⅞	124	4.8	2.18

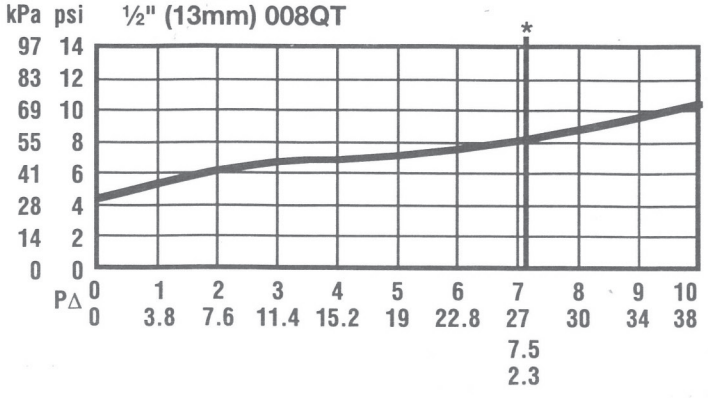
CAPACITY

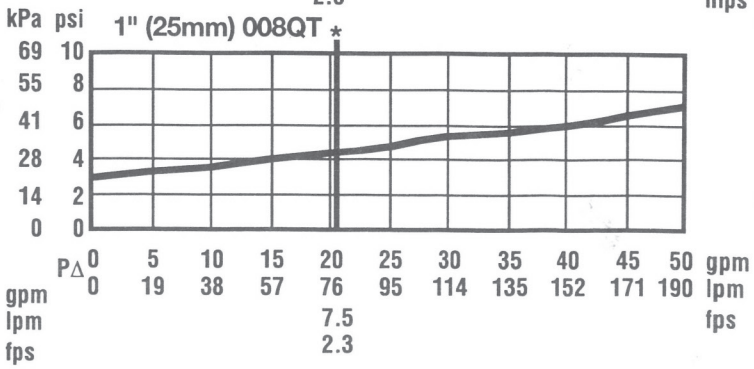
As compliled from documented Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California lab tests.

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









WATTS
009/ 009M1/ 009 M2/ 009 M3
LF009

SIZE
1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3"

DESCRIPTION
This is a reduced pressure assembly. Production began in 1989. All versions in the 1/2"-2" sizes utilize a bronze body design. In 2010 the LF model was introduced which utilizes a lead free bronze body design. The check modules and relief stem assembly can be removed from the top through a single cover. The checks are a modular in-line design and are held in the body by a retainer. All seats are replaceable. Check springs are contained when the modules are removed from the body. Spring tension had to be released to perform a proper repair. There is spring tension exerted on the cover from the relief valve spring. There have been several modifications over the years but all versions utilize a similar construction. Be sure which version and size you have because repair parts are different. The 009 was the original model that was produced from 1989-1991. It was modified in 1991 to the 009 M1 model in sizes 1 1/4"-2" which was produced from 1991-1992. In the 009 M1 model there was a change in the check seat dimensions. The 009 M2 design began in 1992. The major difference in the M2 design was the downsizing of the body and the internal repair parts. Relief valve sensing line is internal on all models. Internal check hardware is mostly plastic. The 1/2" model 009 was introduced in 1992. The 3/4" 009M3 began in 1998. A model U009 was developed in sizes 1/2"-2". This unit incorporates a union end into the body. The U009A utilizes the same union with a 90 degree elbow for an up and down piping orientation. The model 009 PC is a polymer coated bronze assembly available in sizes 3/4"-2". The model SS 009 is available in 1/4"-1" sizes and is similar to the 009 except the body is made of stainless steel instead of bronze. The 2 1/2"-3" have the same features as the smaller 009 except the body is made of fused epoxy coated cast iron. The relief valve sensing line is external on 2 1/2"-3". The internal check and RV hardware are mostly bronze. In 2010 a LF model was introduced in sizes 2 1/2"-3" which replaced the leaded bronze parts with plastic and stainless steel to make it a lead free assembly.

BASIC REPAIR KIT
The repair kit contains all disc holders or discs, diaphragms, and O-rings

	KIT NO				AIR GAP
SIZE	009	009M1	009M2	009M3	DRAIN
1/4"-1/2"	009-RT050	N/A	N/A	N/A	AGA
3/4"	009-RT075	N/A	009M2-RT075	009M3-RT075	AGC or A
1"	009-RT075	N/A	009M2-RT100	N/A	AGC
1 1/4"	009-RT125	009M1-RT125	009M2-RT125	N/A	AGF
1 1/2"	009-RT125	009M1-RT125	009M2-RT125	N/A	AGF
2"	009-RT125	009M1-RT125	009M2-RT200	N/A	AGF
2 1/2"	LF009-RT250	N/A	N/A	N/A	AGF
3"	LF009-RT250	N/A	N/A	N/A	AGF

IMPORTANT FEATURES
~1/2"-2" bronze body
~2 1/2"-3" fused epoxy cast iron body
~Replaceable seats
~Spring tension when cover is removed
~Contained check springs
~Factory repair information enclosed

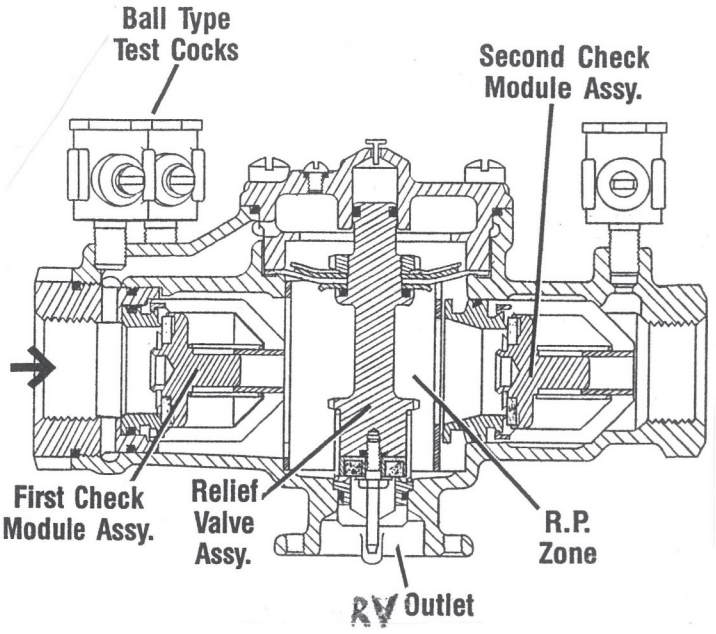
Series 009QT

REDUCED PRESSURE ZONE BACKFLOW PREVENTER

Sizes: ½" - 2"

The Watts Series 009QT Reduced Pressure Zone Backflow Preventers are designed to provide protection of the potable water supply in accordance with national plumbing codes and water utility authority requirements. This series can be utilized in a variety of installations, including high hazard cross connections in piping systems or for containment at the service line entrance.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. A compact modular design concept facilitates easy maintenance and assembly access. All sizes are constructed with NPT body connections and standardly furnished with ball type test cocks. Series 009QT has quarter turn, full port, resilient seated, bronze ball valve shut-offs. ½", ¾" and 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 right and left hand installations**
- **Replaceable seats for economical repair**
- **Bronze body construction for durability**
- **Ball valve test cocks - screwdriver slotted**
- **Large body passages provides low pressure drop**
- **Compact, space saving design**
- **No special tools required for servicing**

MATERIALS

Bronze body construction, silicone rubber for drip tight 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 (¾" - 2"). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

PRESSURE-TEMPERATURE

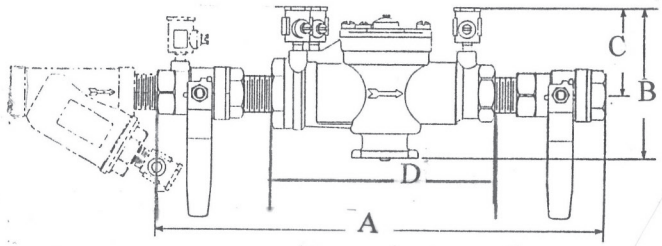
Series 009QT is suitable for supply pressure up to 175 PSI and water temperatures up to 140°F constant and 180°F intermittent.

STANDARDS

USC Manual 8th Edition†

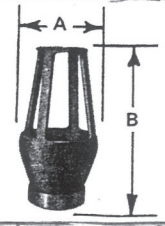
Tested and certified under the following standards for reduced pressure zone backflow preventers: ASSE No. 1013; AWWA C511-89; CSA B64.4; IAPMO Listed, File No. 1563.

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

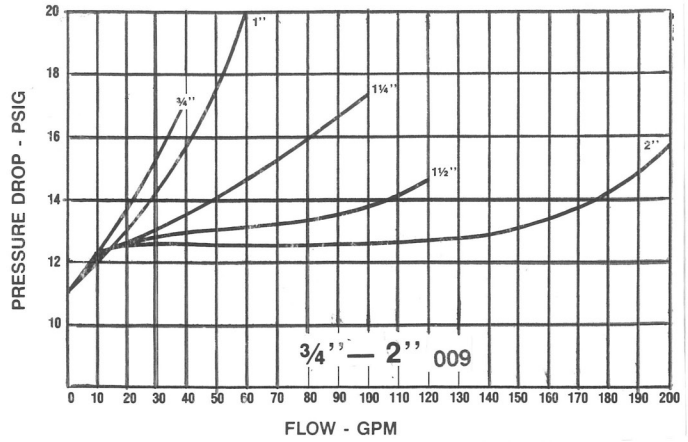


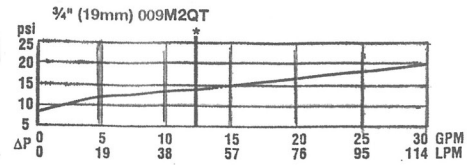
Size	Model	A	B	C	D	Weight lbs
¼"	009	10"	4 5/8"	3 3/8"	5 ½"	4.5
3/8"	009	10"	4 5/8"	3 3/8"	5 ½"	4.5
½"	009	10"	4 5/8"	3 3/8"	5 ½"	4.5
¾"	009	14 ¾"	5 ½"	3 1/8"	9 ½"	11.0
¾"	009M2	10 ¾"	5"	3 ½"	6 ¾"	5.75
¾"	009M3	10 ¾"	5"	3 ½"	6 ¾"	5.75
1"	009	14 ½"	5 ½"	3 1/8"	9 ½"	12.25
1"	009M2	14 ½"	5 ½"	3"	9 ½"	12.25
1 ¼"	009	21 1/8	7 ¾"	4 ¼"	-	28.12
1 ¼"	009M1	22 1/8	7 ¾"	4 ¼"	-	26.5
1 ¼"	009M2	17 3/8	6"	3 ½"	11 3/8	14.62
1 ½"	009	22"	7 ¾"	4 ¼"	-	30.25
1 ½"	009M1	20 ¼"	7 ¾"	4 ¼"	-	28.25
1 ½"	009M2	17 7/8	6"	3 ½"	11 3/8	16.32
2"	009	23 ¾"	7 ¾"	4 ¼"	-	34.25
2"	009M1	21 3/8	7 ¾"	4 ¼"	-	32.25
2"	009M2	21 3/8	7 ¾"	4 ½"	13 ½"	30.00

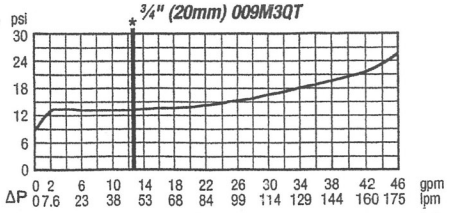
AIR GAPS

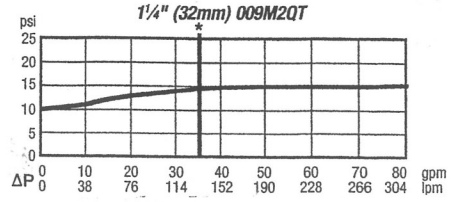


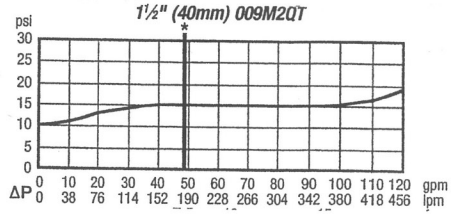
Part No	Model	Drain Size	A	B	wt lbs
AGA	1/4-1/2"009 ¾" 009M2/M3	1/2"	2 3/8"	3 1/8"	5/8
AGC	3/4 - 1" 009 1 1/4-1 1/2" 009M2	1"	3 1/4"	4 7/8"	1 1/2
AGF	1 1/4 - 3" 009 1 1/4-2" 009M1 2" 009M2	2"	4 3/8"	8"	3 1/4

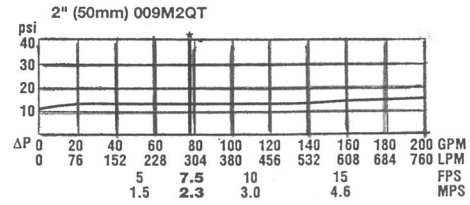


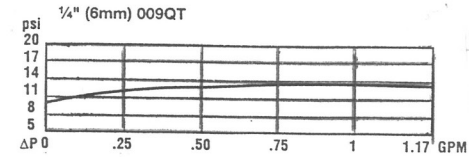


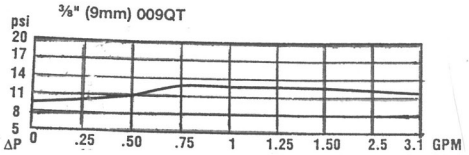


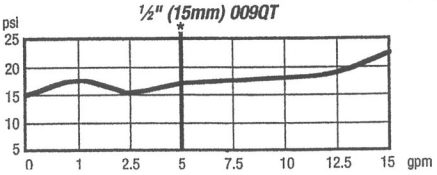


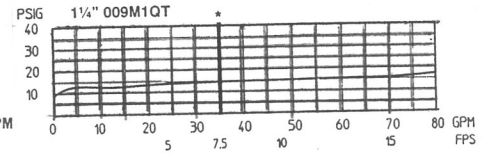


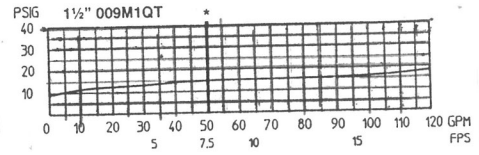


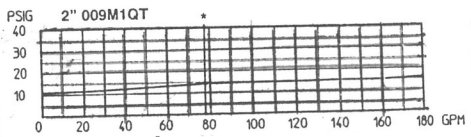


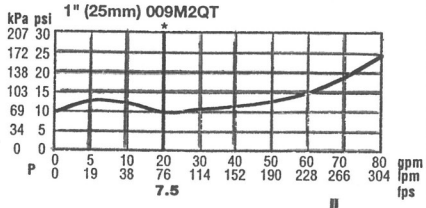


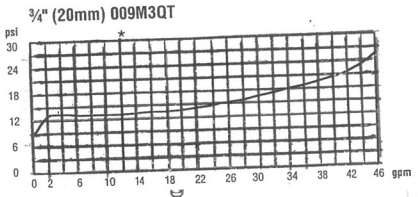


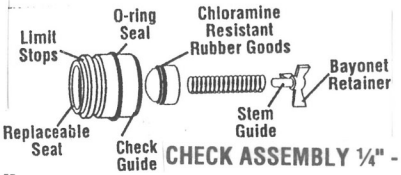




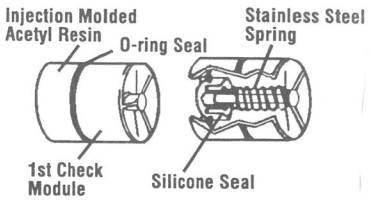




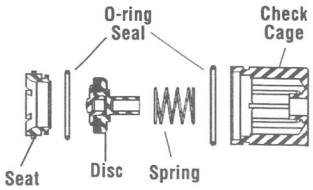




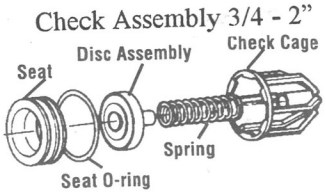
CHECK ASSEMBLY ¼" - ¾"

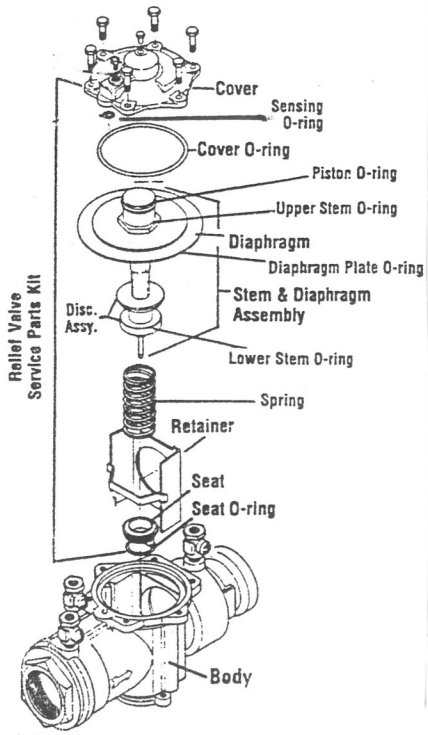


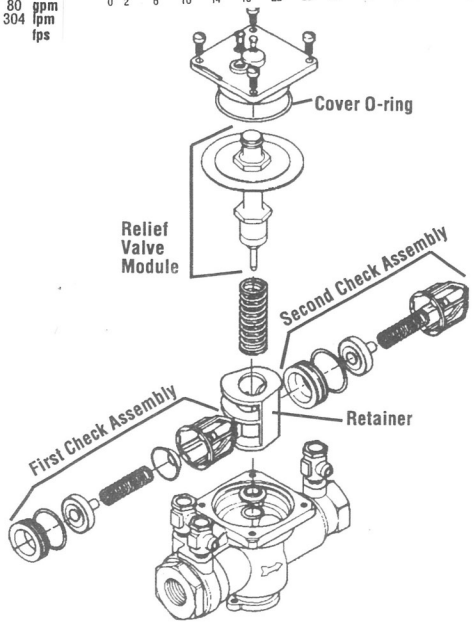
CHECK ASSEMBLY ¾" M3



Check Assembly 3/4 - 2"



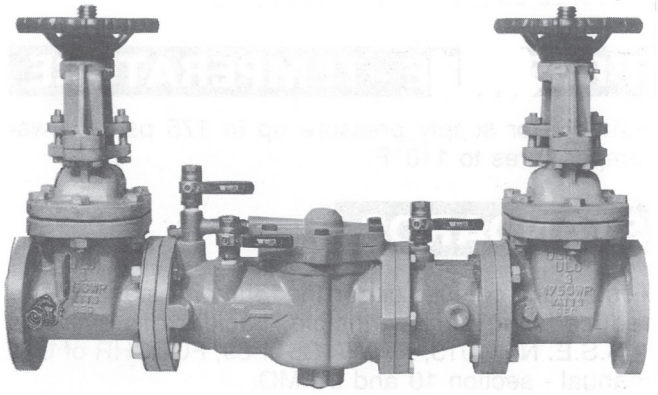




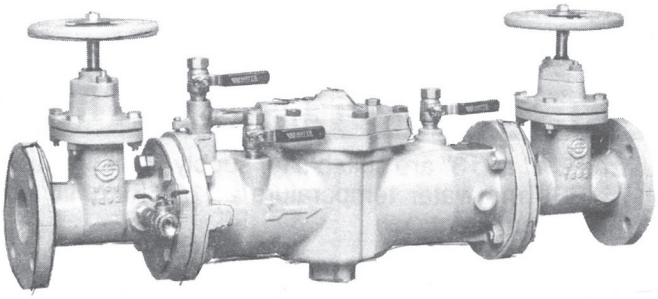
Series 009 2½" - 3"

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

The Watts 009 Series Reduced Pressure Principle Backflow Preventers are designed to provide protection of the safe drinking water supply in accordance with national plumbing codes and containment control water utility authority requirements. This series can be utilized in a variety of installations, including high hazard cross-connections in plumbing systems or for containment at the service line entrance. Furnished with non-rising stem (NRS) gate valve shut-offs.



No. 009-OSY (3") shown



● Unibody No. 009-

FEATURES

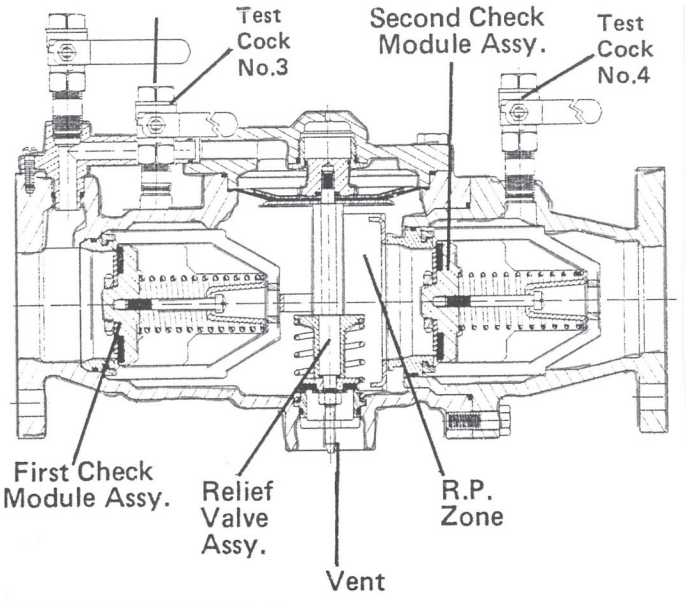
- **Body construction fused epoxy coated cast iron**
- **Removeable bronze seats**
- **Stainless steel internal parts**
- **Maximum flow at low pressure drop**
- **Compact for economy combined with performance**
- **Design simplicity for easy maintenance**

OPTIONS (Options can be combined)

Suffix

- **S -** with strainer, FDA approved epoxy coating.
- **OSY -** with OS&Y gate valve shut-offs.
- **QT -** with quarter-turn, full port, resilient seated, ball valve shut-offs.
- **QT-FDA -** for FDA epoxy coated ball valve shut-offs.
- **RW -** with resilient wedge epoxy coated shut-off valves.
- **LF -** without shut-off valves.

NOTE: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. (See 909AG back page.)



SPECIFICATIONS

For Reduced Pressure Principle Backflow Preventers

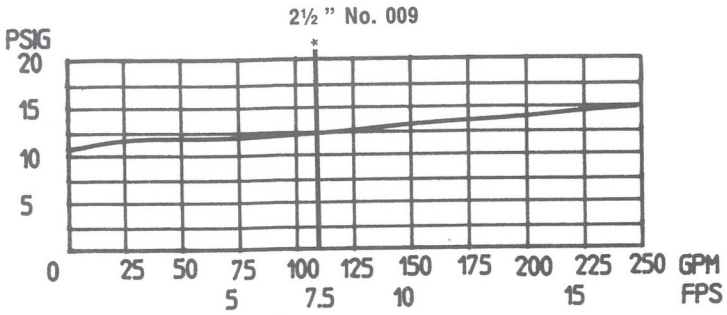
A reduced pressure principle backflow preventer shall be installed at each cross connection to prevent back-siphonage and backpressure backflow of hazardous materials into the safe drinking water supply. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves. The assembly shall include two tightly closing shut-off valves before and after the device and test cocks. All servicing shall be through a single access cover on the top of the valve. The device shall meet the requirements of A.S.S.E. Std. 1013; AWWA Std. C506. Watts Regulator Company Series 009 or equivalent.

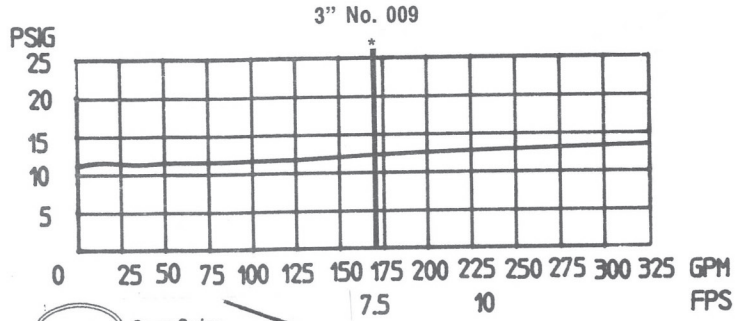
MATERIALS

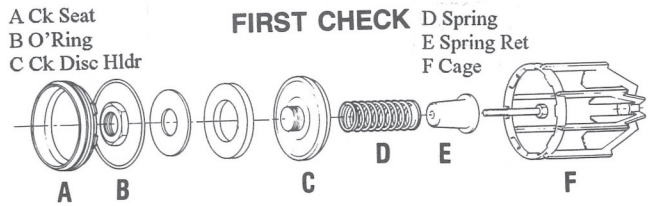
- (FDA approved) Epoxy coated cast iron unibody with bronze seats
- Relief valve with stainless steel seat and trim
- Bronze body ball valve test cocks.

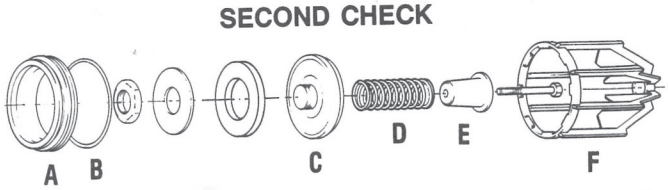
PRESSURE - TEMPERATURE

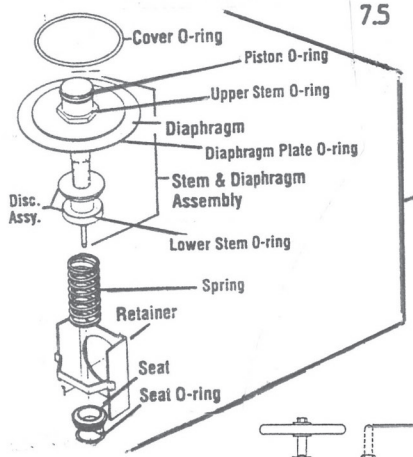
Sizes 2½" and 3" are suitable for supply pressures up to 175 PSI and water temperature at 110°F continuous, 140°F intermittent.

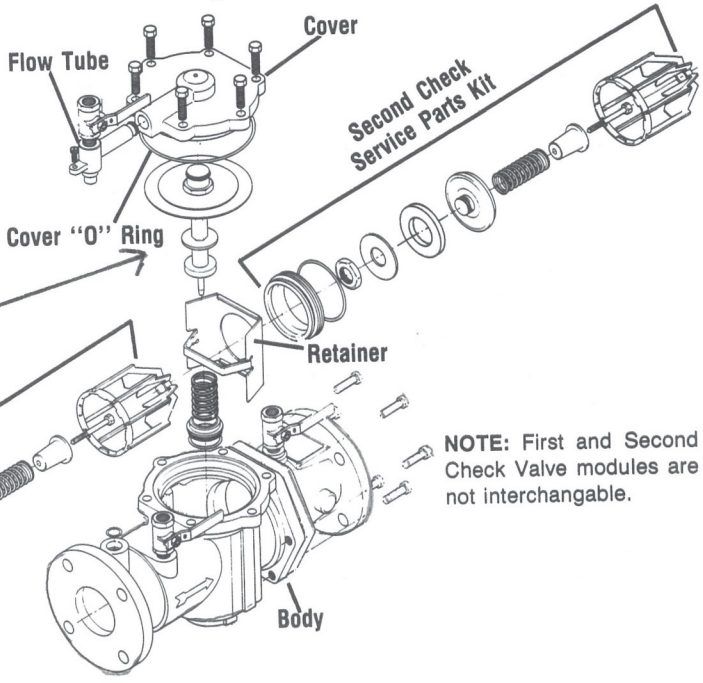




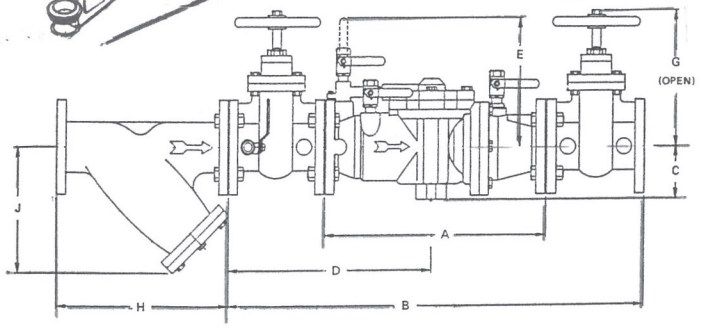


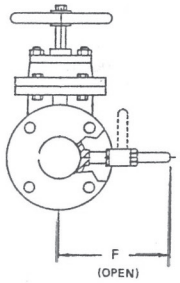






NOTE: First and Second Check Valve modules are not interchangable.

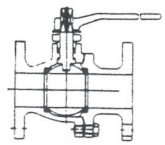




STRAINER SIZE	H	J	WGT.(lbs.)
2½"	9¾	9¾	28
3"	10	10	34

No. 009 Dimensions in inches (Wgt. in lbs.)

SIZE	TYPE	A	B	C	D	E	F	G	WGT.(lbs.)
2½"	009-LF	18 1/8		4½		10 5/8			82
	009-OSY	18 1/8	33¼	4½	16 3/8	10 5/8	7¾	15 7/8	166
	009-NRS	18 1/8	33¼	4½	16 3/8	10 5/8	7¾	11 3/8	163
3"	009-LF	18 1/8		4½		10 5/8			82
	009-OSY	18 1/8	34¼	4½	16 5/8	10 5/8	8¾	18½	198
	009-NRS	18 1/8	34¼	4½	16 5/8	10 5/8	8¾	12¾	193
2½"	009-QT	18 1/8	33¼	4½	16 3/8	10 5/8	7¾	6	150
3"	009-QT	18 1/8	34¼	4½	16 5/8	10 5/8	8¾	7	158



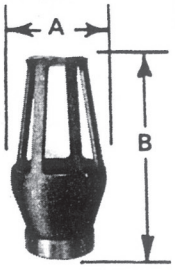
QT

Watts G-4000 Series Ball Valves

Iron Body No.	Desc.	For No. 009 Sizes	Drain Outlet Size	Dimensions A	Dimensions B	Weight
AG-F	Air Gap	2½"thru 3"	2"	4 3/8"	6¾"	3¼ lbs.

No. 909AG Series AIR GAPS

When installing a drain line use 909AG series Air Gaps on No. 009 backflow preventers.



WATTS 700

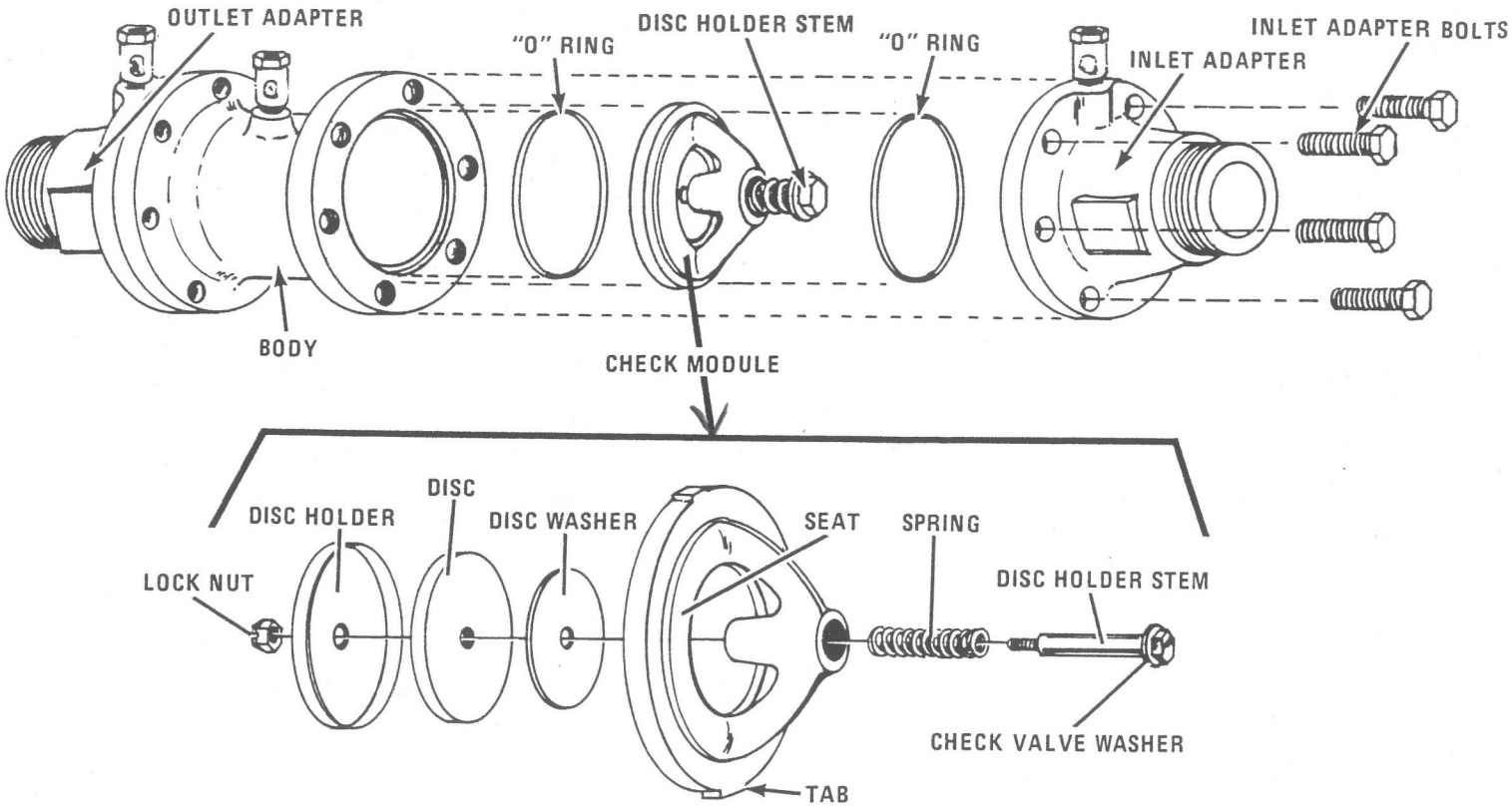
SIZE
3/4", 1", 1 1/2", 2", 2 1/2", 3", 4"

DESCRIPTION
This is a double check assembly. It was produced approximately from 1973 to 1985. It is an in-line modular check design. Check seats were replaceable. Springs were contained when the assembly was disassembled but had to be released for proper repair. The 3/4"-2" size assembly had to be removed from the piping to be repaired.

BASIC REPAIR KIT
Repair kit contains all rubber discs, gasket, and O-rings

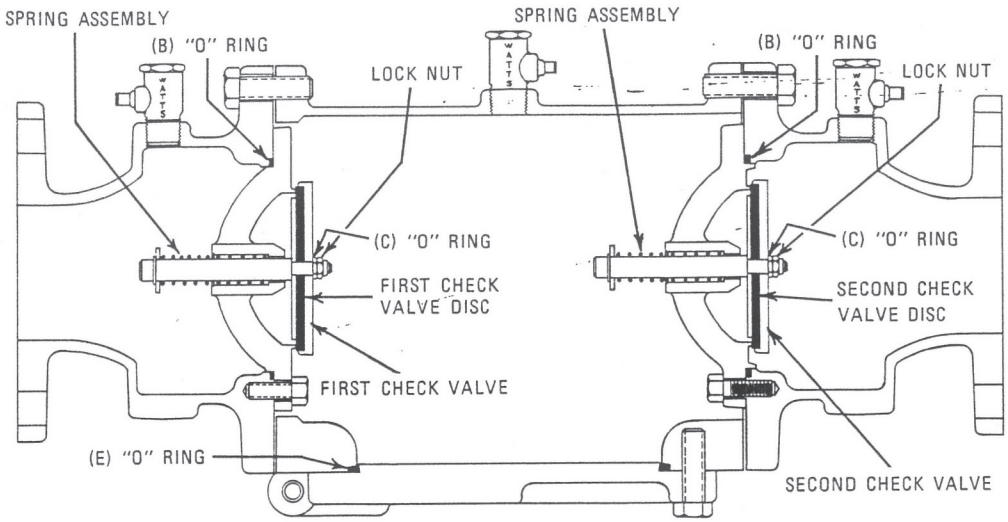
SIZE	KIT NO
3/4"	1BFPRK ◆
1"	2BFPRK ◆
1 1/2"	3BFPRK ◆
2"	3BFPRK ◆
2 1/2"	7BFPRK
3"	7BFPRK
4"	8BFPRK ◆

IMPORTANT FEATURES
~Replaceable seats
~Contained spring
~3/4"-2" not in-line repairable

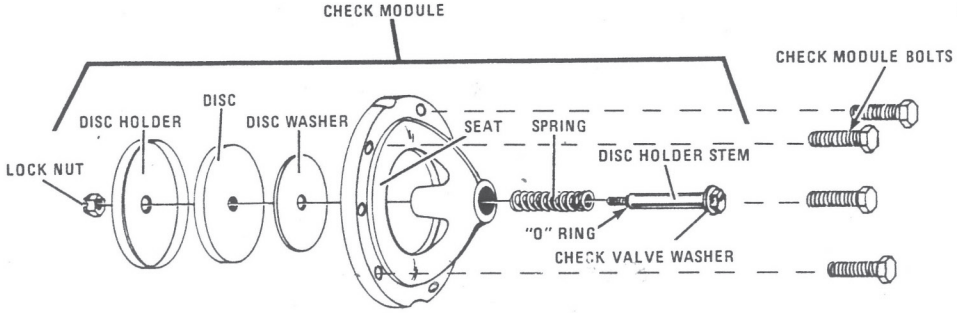


Sizes - ¾" thru 2"

Series 700 DOUBLE CHECK VALVE ASSEMBLY



2½" - 4"



WATTS 709/ LF709

SIZE
3/4", 1", 1 1/2", 2", 2 1/2", 3", 4", 6", 8", 10"

DESCRIPTION
This is a double check assembly. The 3/4"-2" were produced from 1979-1993. The 2 1/2"-10" sizes began production in 1979. The 3/4"-3" size body is constructed of bronze. In the 3/4"-2" sizes, the internal hardware parts are made of plastic and bronze. Watts also has a hot water version available on the 3/4"-2" sizes. This was designated by an HW after the model number e.g.: 709HW. The 21/2"-10" size bodies are cast iron with a fused epoxy coating. The 2 1/2"-3" size are available in either bronze or fused epoxy coated cast iron. Internal hardware parts are made of bronze and stainless steel. Check seats are replaceable on all sizes and springs are contained on all sizes when covers are removed. In 2010 a LF model was introduced in sizes 2 1/2"-10" which replaced the leaded bronze parts with stainless steel to make a lead free assembly. Rubber repair kits are the same for the LF and non LF assemblies.

BASIC REPAIR KIT
The repair kit contains all disc holders, or discs and O-rings.

SIZE	KIT NO
3/4"-1"	709-RT075
1 1/2"-2"	LF709-RT150
2 1/2"-3"	709-RT250
4"	709-RT400
6"	709-RT600
8"	709-RT800
10"	709-RT001

IMPORTANT FEATURES
~3/4"-3" has a bronze body

~2 1/2"-10" has a fused epoxy coated cast iron body

~Replaceable seats

~Contained springs

~Factory repair information enclosed

The 709 Series Double Check Valve Assembly is designed to prevent the reverse flow in water lines and to prevent non-potable water from entering into the potable water system. This series can be applied to a variety of installations where the degree of hazard is considered to be low to intermediate and where approved for specific installations.

MATERIALS

Bronze body construction — Series 709 Celcon® check seats, Series 709 HW stainless steel check seats. Stainless steel, shafts and flange bolts — durable tight-seating, rubber check valve assemblies. Bronze body ball valve test cocks.

Standardly furnished with N.P.T. connections and non-rising stem (NRS) gate valve shut-offs.

PRESSURE-TEMP.

Series 709 suitable for supply pressure up to 175 PSI and water temperatures up to 140°F.

Suffix HW suitable for water temperatures up to 210°F.

OPTIONS: **(Options can be combined)**

Suffix:

S - with bronze strainer.

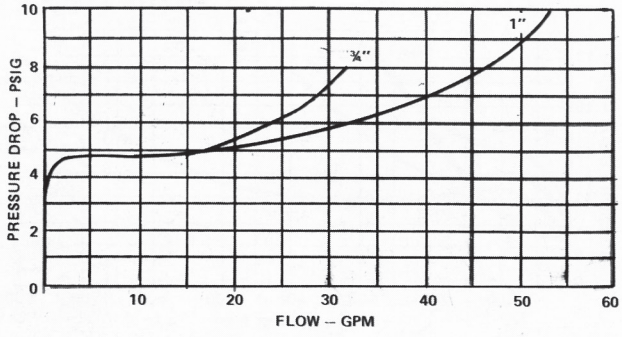
HW - with stainless steel check modules for hot water to 210°F and aggressive water conditions.

QT - with ¼ turn, full port, resilient seated, bronze ball valve shut-offs.

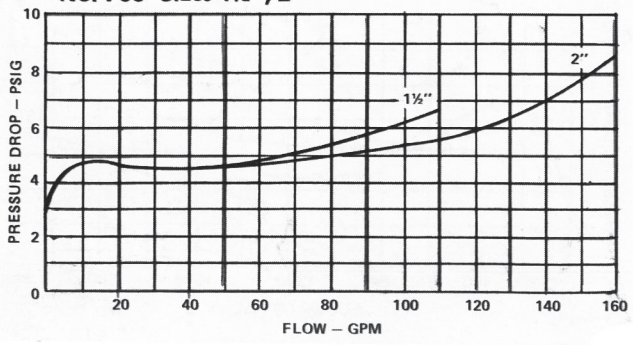
LF - without shut-off valves.

CAPACITY

No. 709 Sizes ¾", 1"

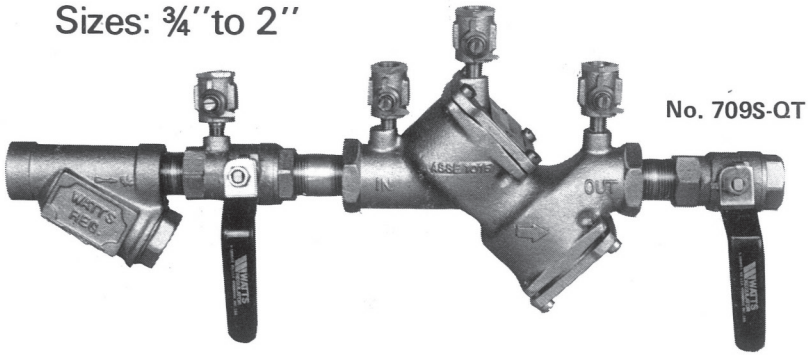


No. 709 Sizes 1½", 2"



709 Series

Sizes: ¾"to 2"

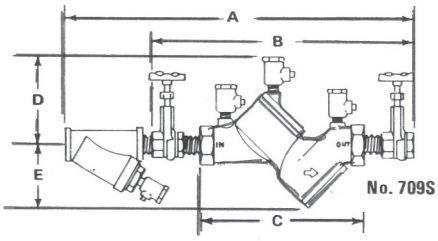


No. 709 Series features a modular design concept which facilitates complete maintenance and assembly by retaining the spring load access. The first and second check modules are interchangeable. All sizes are standardly equipped with gate valves and ball type test cocks. All sizes can be installed horizontally or vertically.

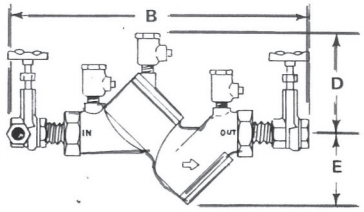
FEATURES

- **Bronze body construction**
- **Modular construction with replaceable seats**
- **Ball valve test cocks**
- **Low pressure drop**
- **Available with bronze strainers**
- **Compact for economy combined with performance**
- **Design simplicity for easy maintenance**

DIMENSIONS-WEIGHTS

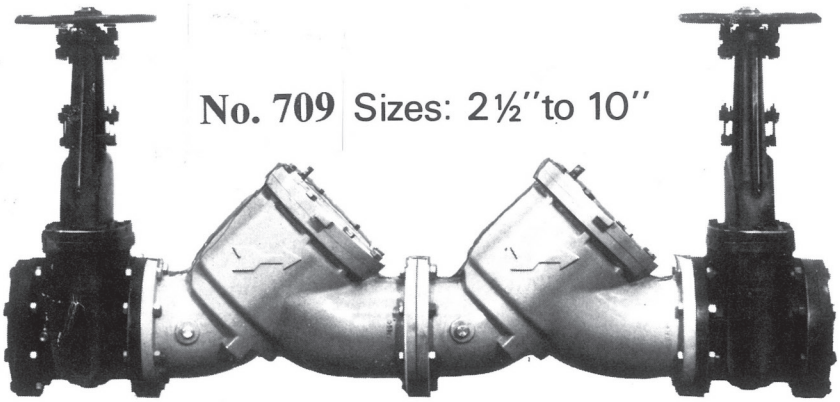


No. 709-S
(with strainer)



No. 709
(without strainer)

SIZE	DIMENSIONS (Inches) A	B	C	D	E	Width	Total Weight (Lbs.) Less Strainer	With Strainer
¾"	16	12 1/4	7 1/8	4	2 7/8	2 3/4	7 1/4	9
1"	17 3/4	13 3/4	7 1/8	4	2 7/8	2 3/4	8 1/2	11 1/2
1 1/4"	21 3/4	16 1/2	10 1/8	5	4 7/8	4 1/4	22	26
1 1/2"	23	16 3/4	10 1/8	5	4 7/8	4 1/4	22 3/4	27 1/4
2"	24 3/4	17 3/4	10 1/8	5	4 7/8	4 1/4	24 1/2	32 1/2
QT								
¾"	15 3/4	11 3/4	7 1/8	4	2 7/8	2 3/4	7 1/4	9
1"	18	13	7 1/8	4	2 7/8	2 3/4	8 1/2	11 1/2
1 1/4"	21 1/2	16 1/2	10 1/8	5	4 7/8	4 1/4	22	26
1 1/2"	23	17 1/4	10 1/8	5	4 7/8	4 1/4	22 3/4	27 1/4
2"	25 3/4	19	10 1/8	5	4 7/8	4 1/4	24 1/2	32 1/2



No. 709 larger sizes are similar to the smaller sizes in the modular design concept which facilitates maintenance and assembly access. The first and second check modules are interchangeable. All sizes are standardly equipped with gate valves and ball type test cocks. All sizes can be installed horizontally or vertically.

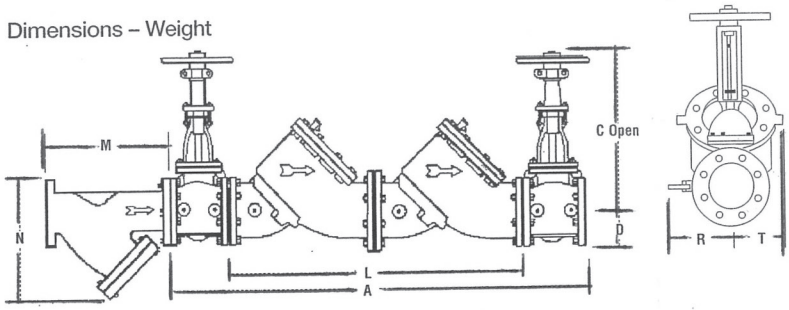
FEATURES

- **Body construction all bronze (2½" and 3" Optional) Epoxy coated cast iron 2 1/2" - 10"**
- **Removeable bronze seats**
- **Stainless steel internal parts**
- **Maximum flow at low pressure drop**
- **Compact for economy combined with performance**
- **Design simplicity for easy maintenance**

LF709 Materials:

Check Valve Bodies:	Epoxy Coated Cast Iron
Seats:	Stainless Steel

Dimensions – Weight



MATERIALS

2½" and 3" sizes - all bronze construction with stainless steel trim. (Optional)

4" and 6" sizes - epoxy coated (FDA approved) cast iron check valve bodies with bronze seats.

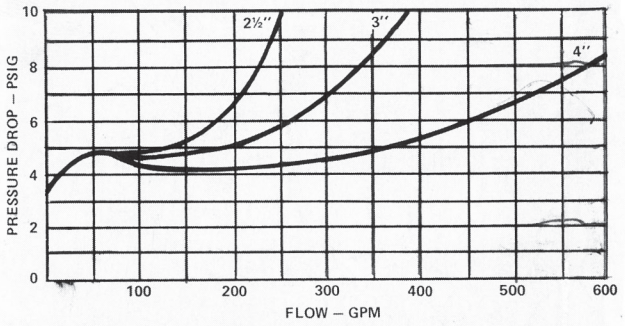
8" and 10" sizes - epoxy coated cast iron check valve bodies with bronze seats. All sizes furnished with bronze body ball valve test cocks.

PRESSURE-TEMPERATURE

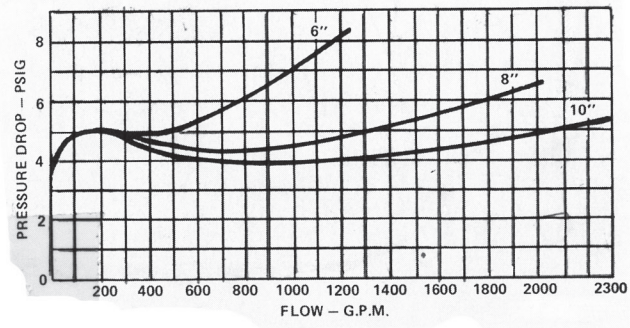
Sizes 2½" through 10" are suitable for supply pressures up to 175 PSI and water temperatures to 110°F max.

CAPACITY

No. 709 Sizes 2½", 3", 4"



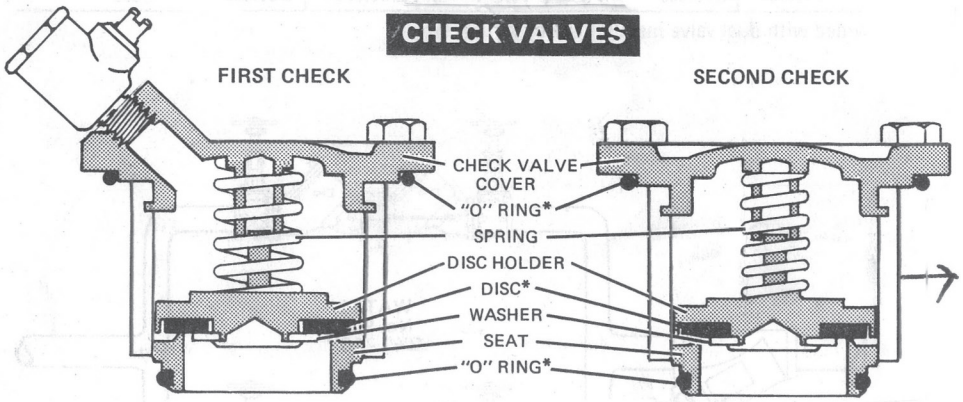
No. 709 Sizes 6", 8", 10"

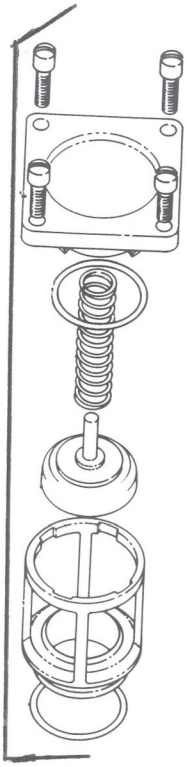


SIZE (DN)		DIMENSIONS															
		A		C (OSY)		C (NRS)		D		L		U*		M		N	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2½	65	39⅜	1000	16⅜	416	9⅜	238	3½	89	24⅛	613	11	279	10	254	6½	165
3	80	40⅜	1025	18⅞	479	10¼	260	3¾	95	24⅛	613	14	356	10⅛	257	7	178
4	100	52⅜	1330	22¾	578	12³⁄₁₆	310	4½	114	34⅛	867	14	356	12⅛	308	8¼	210
6	150	62⅞	1597	30⅛	765	16	406	5½	140	41⅝	1057	16	406	18½	470	13½	343
8	200	75	1905	37¾	959	19¹⁵⁄₁₆	506	6½	165	52	1321	21	533	21⅝	549	15½	394
10	250	90	2286	45¾	1162	23¹³⁄₁₆	605	8	203	64	1626	25	635	26	660	18½	470

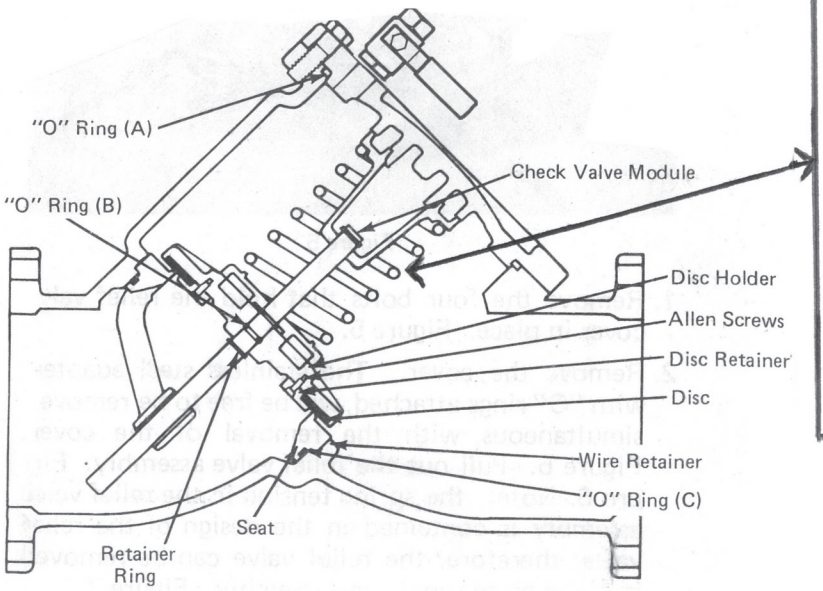
3/4" - 2"

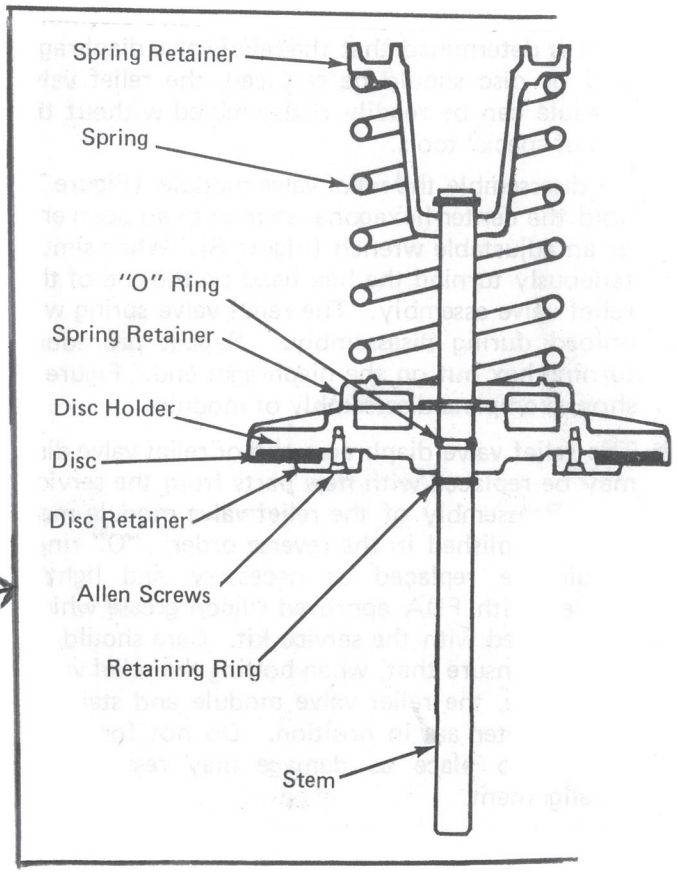
CHECK VALVES





2½" to 10"





WATTS 709 DDC
WATTS 709 DCDA

SIZE
3", 4", 6", 8", 10"

DESCRIPTION
This assembly is a double check detector assembly. Production began approximately in 1979. The model number was changed from DDC to the DCDA designation. The assembly utilizes the 709 design on the main valve and the bypass unit. In 1991 the bypass was changed to the 007M1 model. In 1993 the bypass was changed to the model 007M2. In 1998 the bypass was changed to the 1/2" 007. Be sure to look at the name plate of bypass assembly to be sure which one you have.

BASIC REPAIR KIT
Main line repair kit contains all discs, cover O-rings, and seat O-rings.

SIZE	KIT NO
3"	709-RT250
4"	709-RT400
6"	709-RT600
8"	709-RT800
10"	709-RT001

Bypass repair kit contains all disc holders and O-rings.

SIZE	KIT NO
3/4" 709	709-RT075
3/4" 007M1	007M1-RT075
3/4" 007M2	007M2-RT075
1/2" 007	007-RT050

IMPORTANT FEATURES
~Mainline assembly see Model 709

~Bypass assembly see either Model 709 3/4", 007M1 3/4", 007M2 3/4", or 1/2"007

~Factory repair information enclosed

MATERIALS

Size 3" (suffix M2) and sizes 4" to 10" have epoxy coated cast iron body, bronze seat and disc holder; stainless steel trim and durable, tight-seating rubber check valve discs.
Size 3" 709DDC or 909DDC has bronze body construction.
All sizes furnished with bronze body ball valve test cocks.
Furnished with outside stem and yoke (OS&Y) gate valves.
No. 709DDC by-pass line unit consists of an approved No. 709 double check valve assembly and water meter.
No. 909DDC by-pass line unit consists of an approved No. 909 reduced pressure zone backflow preventer and water meter.

OPTIONS: (Options can be combined)

Suffix:

RW - resilient wedge shut-off valves
GPM - furnished with gallons per minute meter.
LF - less gate valves (4" thru 10")

PRESSURE - TEMPERATURE

Sizes 3" through 10" are suitable for supply pressures up to 175 PSI and water temperatures to 110°F maximum.

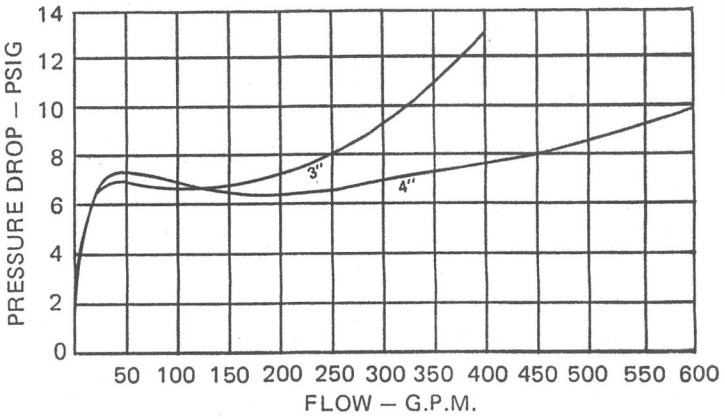
STANDARDS

Meets or exceeds the following standards for double check valve assemblies: A.S.S.E. Standard No. 1015 for 709DDC and No. 1013 for 909DDC.

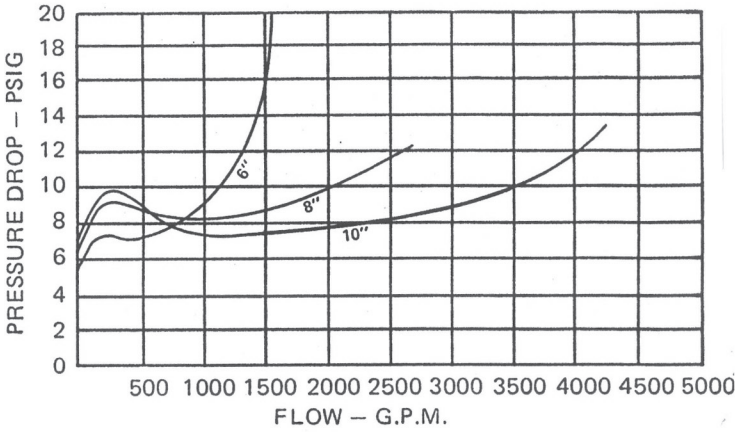
709DDC and 909DDC meet AWWA Standard C506; FCCHR of USC Manual Section 10. U.L. classified file No. EX3185 (sizes 3" thru 10") and are listed under CSA B.64 standard.

CAPACITY

No. 709 DDC Sizes 3" - 4"

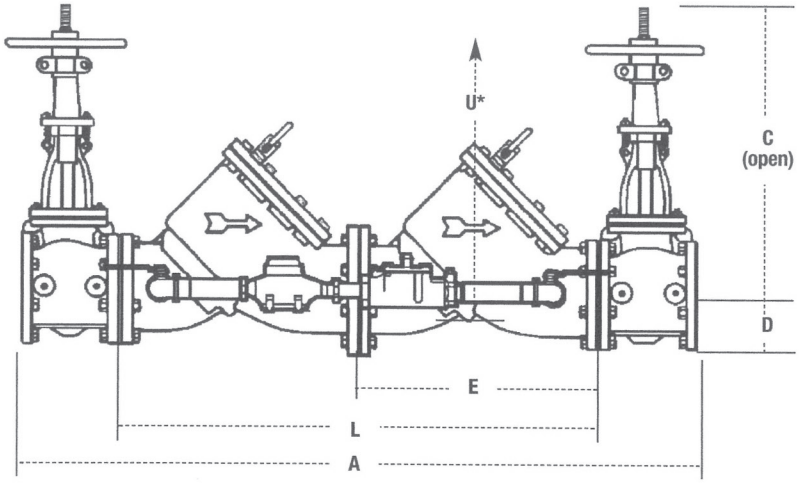


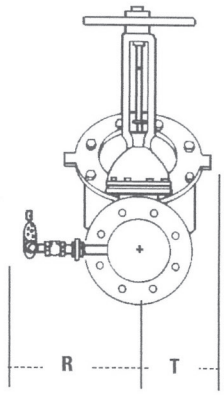
No. 709 DDC Sizes 6", 8", 10"



Above curves
As prepared by
University of Southern California

With OS&Y gate valves.





SIZE (DN)		DIMENSIONS																WEIGHT	
		A		C		D		E		L		R		T		U*		W/OSY† gates	
In.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
3	80	40	1016	18⅞	479	3½	89	12	305	24	610	14	356	3	76	14	356	190	86
4	100	52	1321	22¾	578	3¾	95	17	432	34	864	15	381	6	152	14	356	403	183
6	150	62½	1588	30⅛	765	4½	114	21	533	41½	1054	16	406	7½	191	16	406	727	330
8	200	75	1905	37¾	959	5½	140	26	660	52	1321	17	432	9	229	21	533	1327	602
10	250	90	2286	45¾	1162	6½	165	32	813	64	1626	18	457	10¼	260	25	635	2093	949

* Service clearance for check assembly from center.
†UL/FM approved backflow preventers must include UL/FM approved OSY.

WATTS
719/ LF719/ 719R10/ 719R15

SIZE
1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

DESCRIPTION
This is a double check assembly. Production began in 2003. This has a poppet style check valve. Check covers unscrew from the top of the body. The spring is not contained when the cover is removed. The body is made from a bronze alloy. In 2009 a LF model was produced with lead free bronze. The R10 and R15 designation refers to models that used one size body to fit several smaller sizes by putting on smaller ball valve shut-offs on the end (e.g. 719R10 1/2" & 3/4" use 719 1" body).

BASIC REPAIR KIT
The repair kit contains discs and O-rings.

SIZE	719 KIT NO	719R10 KIT NO	719R15KIT NO
1/2"	719-RT050	719R10-RT050	
3/4"	719-RT075	719R10-RT050	
1"	719-RT100		
1 1/4"-1 1/2"	719-RT125		719R15-RT150
2"	719-RT200		

IMPORTANT FEATURES
~Poppet style check
~Bronze body
~Factory repair information enclosed

Series 719
Double Check Valve Assemblies

Sizes: ½" – 2" (15 – 50mm)

Features

- Manufactured from bronze alloy
- Separate access, top entry check valve design
- Reversible seat disc rubber, extends check valve life
- Chloramine resistant elastomers
- Replaceable seats and seat discs
- Compact design
- Top mounted screwdriver slotted ball valve test cocks
- Low pressure drop
- ½" – 1" (15 – 25mm) have Tee handles
- No special tools required for servicing
- Plastic on plastic check guiding reduces potential binding due to mineral deposits

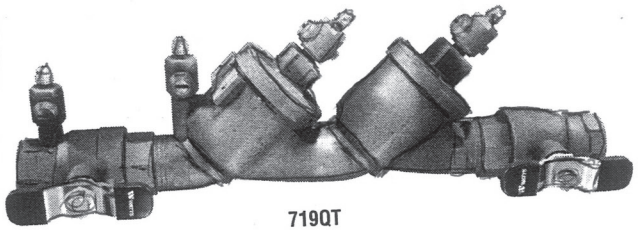
Materials

Body:	Bronze
Elastomers:	Chloramine resistant silicone and EPDM
Check Seats:	PPO
Disc Holders:	PPO

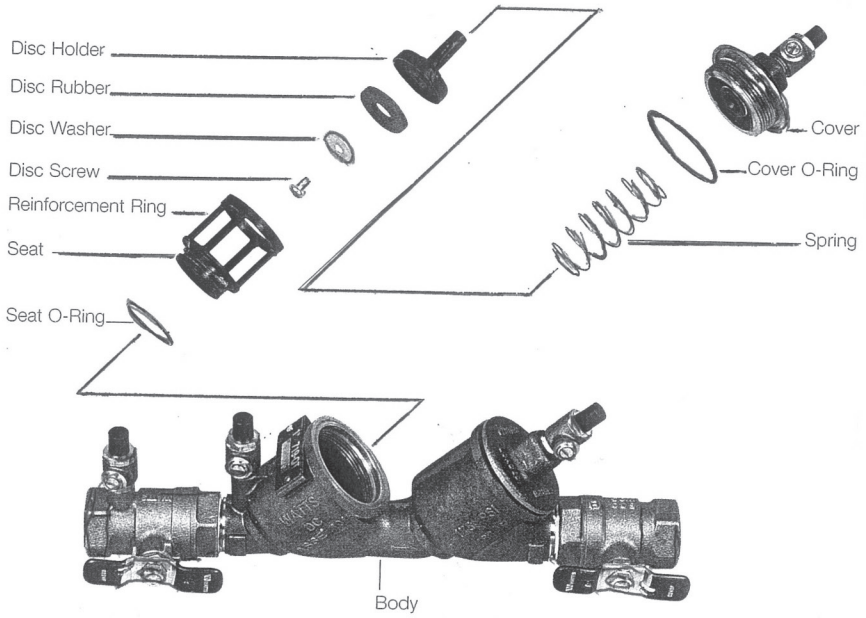
Pressure-Temperature

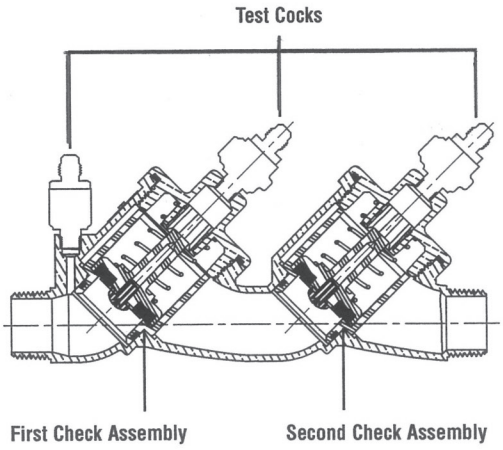
Operating Pressure: 175psi (12.1 bar)

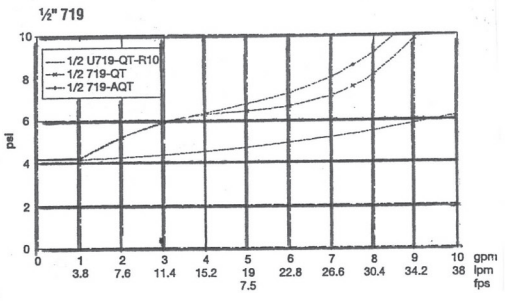
Operating Temperature Range: 33°F – 180°F (0.5°C – 82°C)

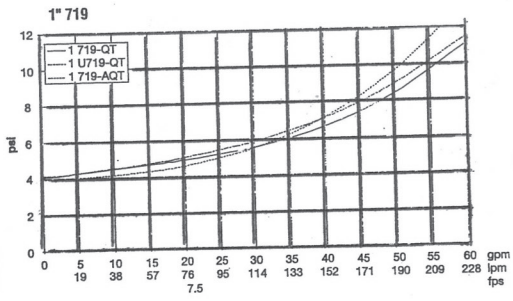


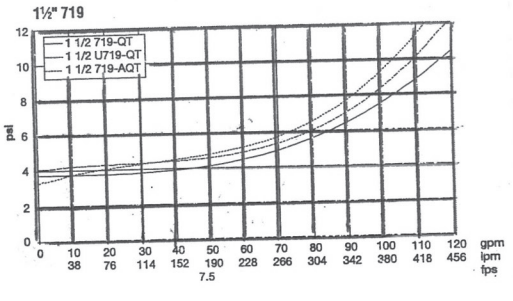
719QT

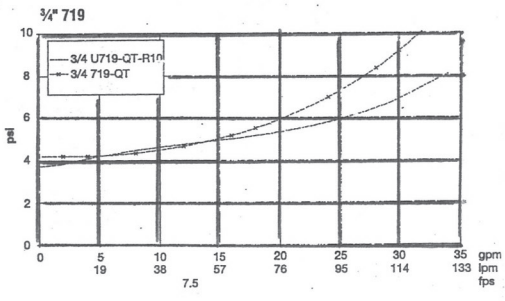


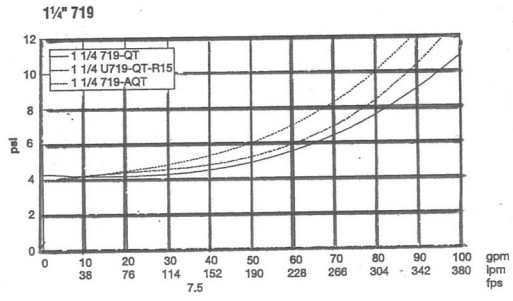


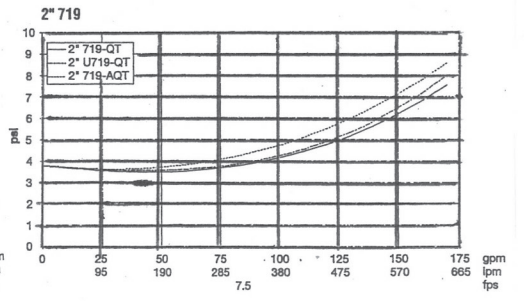




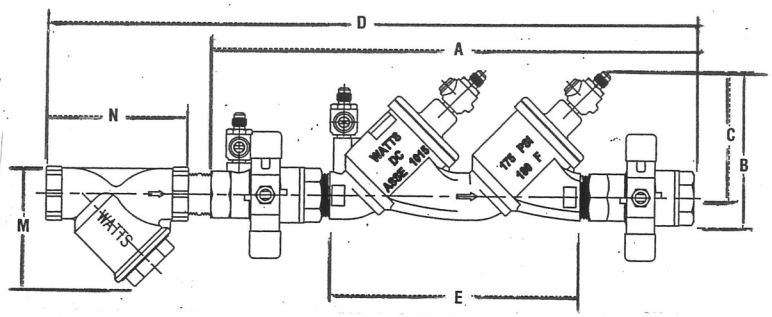








Dimensions/Weights

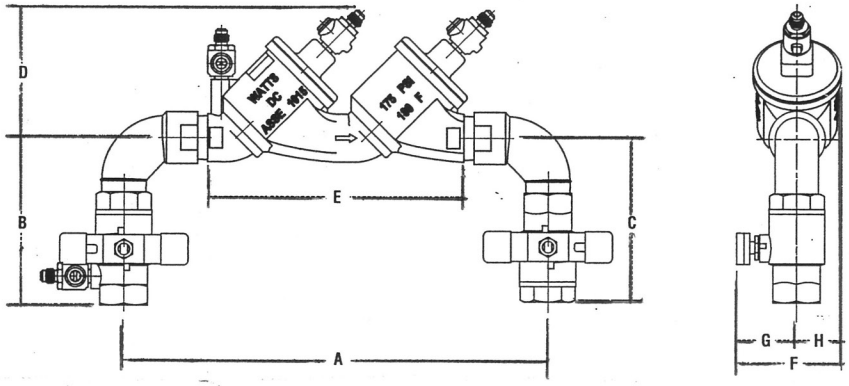


719QT MODELS

MODEL	SIZE		DIMENSIONS																WEIGHT	
			A		B		C		D		E(LF)		F		G		H		M		N			
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
719-QT	½	15	9⅞	251	3¹¹⁄₁₆	94	2¹⁵⁄₁₆	75	–	–	5¾	147	2½	63	1¹¹⁄₁₆	43	¾	20	2¾	70	2¼	57	2.84	1.29
719-QT	¾	20	12⅜	314	4¼	108	3½	90	–	–	7⅞	200	3⅛	80	2⅛	53	1⅛	27	3⅜	81	2¾	70	4.66	2.11
719-QT	1	25	14¹³⁄₁₆	376	4⅝	116	3¹³⁄₁₆	98	–	–	9⅝	244	3¹³⁄₁₆	96	2⅞	63	1⅝	34	3¾	95	3	76	7.44	3.37
719-QT	1¼	32	18⅞	480	6⅛	155	5⅛	129	–	–	11¹¹⁄₁₆	297	4¼	108	2⅝	67	1⅝	41	4⅞	113	3½	89	13.96	6.33
719-QT	1½	40	18⅞	480	6⅛	155	5⅛	129	–	–	11¹¹⁄₁₆	297	4¾	120	3⅛	79	1⅝	41	4⅞	124	4	102	16.12	7.31
719-QT	2	50	19½	495	7⅛	179	5¹³⁄₁₆	147	–	–	13⅜	340	5⅝	136	3⅞	87	1¹⁵⁄₁₆	49	5⅝	151	5	127	25.66	11.64
719-QT-S	½	15	9⅞	251	3¹¹⁄₁₆	94	2¹⁵⁄₁₆	75	12½	312	5¾	147	2½	63	1¹¹⁄₁₆	43	¾	20	2¾	70	2¼	57	3.84	1.74
719-QT-S	¾	20	12⅜	314	4¼	108	3½	90	15½	394	7⅞	200	3⅛	80	2⅛	53	1⅛	27	3⅜	81	2¾	70	6.41	2.91
719-QT-S	1	25	14¹³⁄₁₆	376	4⅝	116	3¹³⁄₁₆	98	18³⁄₁₆	462	9⅝	244	3¹³⁄₁₆	96	2⅞	63	1⅝	34	3¾	95	3	76	9.44	4.28
719-QT-S	1¼	32	18⅞	480	6⅛	155	5⅛	129	22¾	578	11¹¹⁄₁₆	297	4¼	108	2⅝	67	1⅝	41	4⅞	113	3½	89	17.96	8.15
719-QT-S	1½	40	18⅞	480	6⅛	155	5⅛	129	23¼	591	11¹¹⁄₁₆	297	4¾	120	3⅛	79	1⅝	41	4⅞	124	4	102	19.87	9.01
719-QT-S	2	50	19½	495	7⅛	179	5¹³⁄₁₆	147	24⅞	632	13⅜	340	5⅝	136	3⅞	87	1¹⁵⁄₁₆	49	5⅝	151	5	127	33.41	15.15

U719QT MODELS

MODEL	SIZE		DIMENSIONS																WEIGHT	
			A		B		C		D		E (LF)		F		G		H		M		N			
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
U719-QT-R10	½	15	15¹³⁄₁₆	402	4⅝	116	3¹³⁄₁₆	98	–	–	11⅝	288	3⅛	77	1¹¹⁄₁₆	43	1⅝	34	2¾	70	2¼	57	7.44	3.37
U719-QT-R10	¾	20	16¼	413	4⅝	116	3¹³⁄₁₆	98	–	–	11⅝	287	3⅜	86	2⅛	53	1⅝	34	3⅜	81	2¾	70	7.94	3.60
U719-QT	1	25	17¼	439	4⅝	116	3¹³⁄₁₆	98	–	–	11¹¹⁄₁₆	297	3¹³⁄₁₆	96	2⅞	63	1⅝	34	3¾	95	3	76	8.92	4.05
U719-QT-R15	1¼	32	21³⁄₁₆	539	6⅛	155	5⅛	129	–	–	14⅝	364	4¼	108	2⅝	67	1⅝	41	4⅞	113	3½	89	17.64	8.00
U719-QT	1½	40	21½	547	6⅛	155	5⅛	129	–	–	14½	369	4¾	120	3⅛	79	1⅝	41	4⅞	124	4	102	19.76	8.96
U719-QT	2	50	21⅞	555	7⅛	179	5¹³⁄₁₆	147	–	–	15¾	400	5⅝	136	3⅞	87	1¹⁵⁄₁₆	49	5⅝	151	5	127	29.97	13.59
U719-QT-S-R10	½	15	15¹³⁄₁₆	402	4⅝	116	3¹³⁄₁₆	98	18⅞	468	11⅝	288	3⅛	77	1¹¹⁄₁₆	43	1⅝	34	2¾	70	2¼	57	8.44	3.83
U719-QT-S-R10	¾	20	16¼	413	4⅝	116	3¹³⁄₁₆	98	19⅜	492	11⅝	287	3⅜	86	2⅛	53	1⅝	34	3⅜	81	2¾	70	9.69	4.39
U719-QT-S	1	25	17¼	439	4⅝	116	3¹³⁄₁₆	98	20⅝	524	11¹¹⁄₁₆	297	3¹³⁄₁₆	96	2⅞	63	1⅝	34	3¾	95	3	76	10.92	4.95
U719-QT-S-R15	1¼	32	21³⁄₁₆	539	6⅛	155	5⅛	129	25¹⁄₁₆	637	14⅝	364	4¼	108	2⅝	67	1⅝	41	4⅞	113	3½	89	21.64	9.82
U719-QT-S	1½	40	21½	547	6⅛	155	5⅛	129	25⅞	657	14½	369	4¾	120	3⅛	79	1⅝	41	4⅞	124	4	102	23.51	10.66
U719-QT-S	2	50	21⅞	555	7⅛	179	5¹³⁄₁₆	147	27¼	692	15¾	400	5⅝	136	3⅞	87	1¹⁵⁄₁₆	49	5⅝	151	5	127	37.72	17.11



719AQT MODELS

MODEL	SIZE		DIMENSIONS														WEIGHT	
			A		B		C		D		E (LF)		F		G		H			
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
719-AQT	½	15	7⅞	200	4³⁄₁₆	106	3¹⁵⁄₁₆	100	2¹⁵⁄₁₆	75	5¾	147	3¹⁄₁₆	77	1¹¹⁄₁₆	43	1⁵⁄₁₆	34	3.40	1.54
719-AQT	¾	20	10⅞	349	4¾	121	4⅜	116	3½	90	7⅞	200	3⅜	86	2⅛	53	1⅝	34	5.66	2.57
719-AQT	1	25	12¹¹⁄₁₆	322	5	127	4⅜	110	3¹³⁄₁₆	98	9⅝	244	3¹³⁄₁₆	96	2⅞	63	1⅝	34	8.87	4.03
719-AQT	1¼	32	15³⁄₁₆	386	5⅝	144	5⅝	144	5⅛	129	11¹¹⁄₁₆	297	4¼	108	2⅝	67	1⅝	41	15.66	7.10
719-AQT	1½	40	15¹³⁄₁₆	401	6³⁄₁₆	157	6³⁄₁₆	157	5⅛	129	11¹¹⁄₁₆	297	4¾	120	3⅛	79	1⅝	41	18.40	8.35
719-AQT	2	50	17⅜	442	6⅝	167	6⅝	167	5⅝	141	13⅜	340	5⅝	136	3⅞	87	1¹⁵⁄₁₆	49	28.96	13.14

WATTS
757/ 757A

SIZE

757
2 1/2", 3", 4", 6", 8", 10"

757A
2 1/2", 3", 4", 6"

DESCRIPTION

This is a double check assembly. This model was produced under the Hunter name from 2000-2002. In 2002 Watts bought the Hunter models and began production as the Watts models 757 and 757A. These are also sold under the Ames name as models C200 and C200A. The body is constructed of stainless steel tubing. To access the check components a movable sleeve is mounted over the access cover. On the 2 1/2"-6" sizes the sleeve slides over the body to access the check components. On the 8"-10" sizes the sleeve is attached by two grooved couplings. The check components are modular and constructed of noryl plastic. The check utilizes a torsion spring which is contained when the check module is removed from the body. The check spring must be extended and controlled with a pin or screwdriver to replace the check disc. The check disc may be either an EPDM or silicone rubber. The "A" designation refers to a bi-link check mechanism while the "non A" version utilizes a tri-link check mechanism. The body length dimensions may be up to 1" shorter than shown in the dimension chart on versions produced in 2003 or earlier. The body dimension does not change the repair parts inside.

BASIC REPAIR KIT

Repair kit contains discs and O-rings for both check modules

SIZE	KIT NO
757 2 1/2"-4"	757-RT250
757A 2 1/2"-4"	757A-RT250
757 6"	757-RT600
757A 6"	757A-RT600
757 8"	757-RT800
757 10"	757-RT001

IMPORTANT FEATURES

~2 1/2"-6" check access slides open
~Body is stainless steel
~Check modules are repairable
~Factory repair information enclosed

WATTS Models 757 & 757A Sizes 2 ½-10" Double Check Valve Assemblies

Features

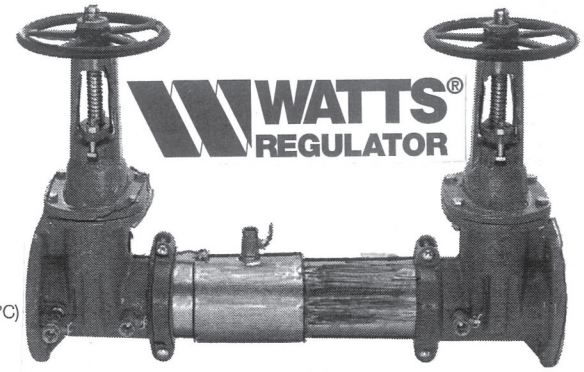
- Extremely compact design
- 70% Lighter than traditional designs
- 304 (Schedule 40) Stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented tri-link check provides lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- Available for horizontal, vertical or N pattern installations
- Replaceable check disc rubber
- Sizes 2½" and 3" available with quarter-turn ball valve shutoffs

Materials

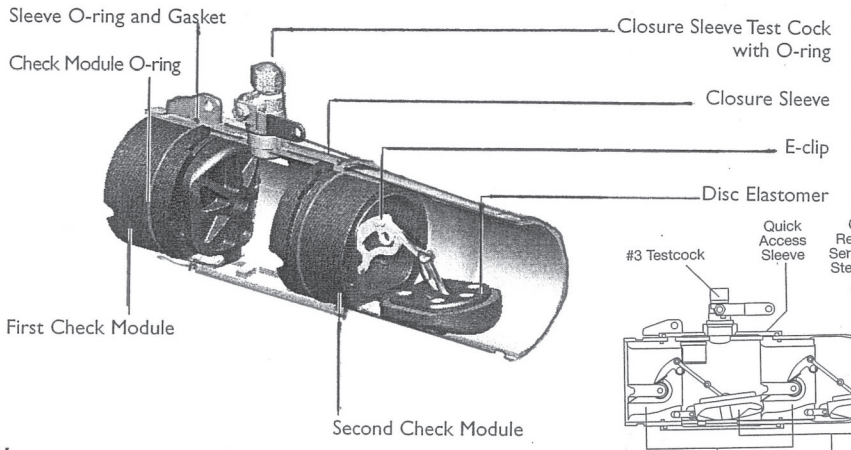
Housing & Sleeve: 304 (Schedule 40) Stainless Steel
Elastomers: EPDM, Silicone and Buna-N
Tri-link Checks: Noryl®, Stainless Steel
Check Discs: Reversible Silicone or EPDM
Test Cocks: Bronze Body Nickel Plated
Pins & Fasteners: 300 Series Stainless Steel
Springs: Stainless Steel

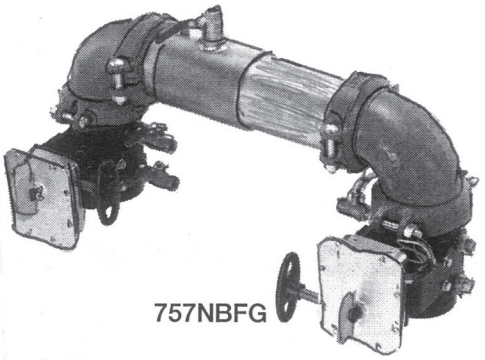
Pressure — Temperature

Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)



757OSY





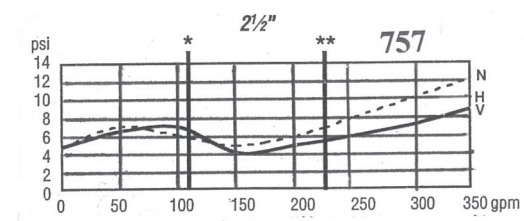
757NBFG

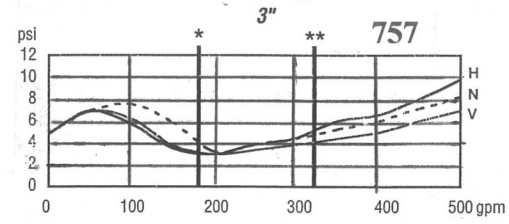
Capacity

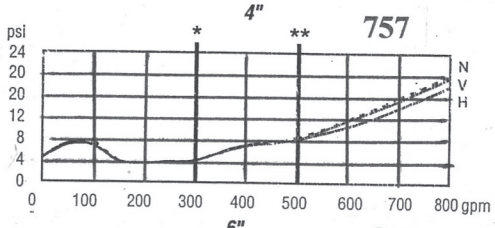
Series 757/757N flow curves as tested by Underwriters Laboratory per UL 1469, 1996.
Flow characteristics collected using butterfly shutoff valves

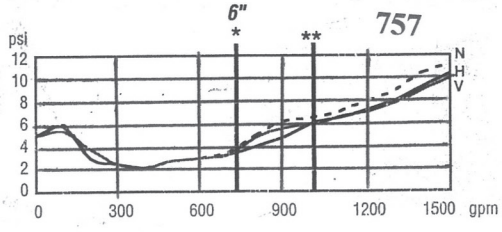
* = Rated flow ** = UL Rated flow

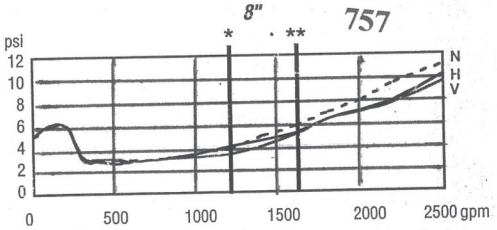
—— Horizontal —— Vertical ------ N - Pattern

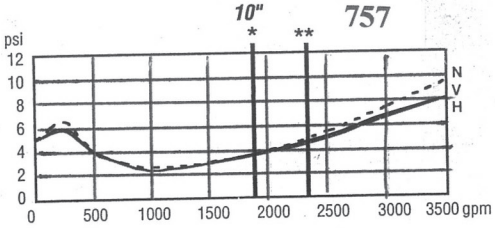


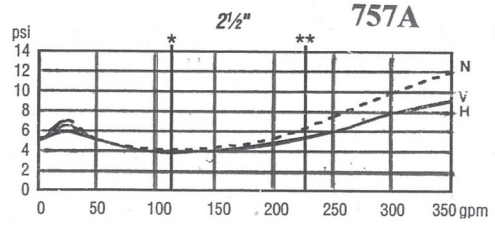


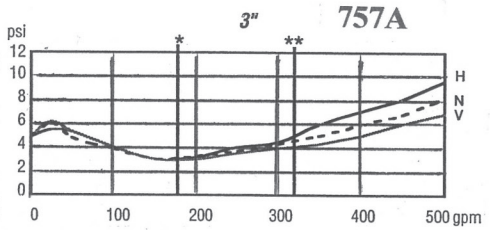


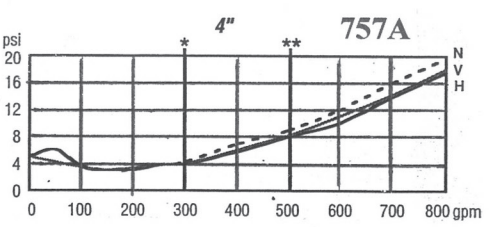


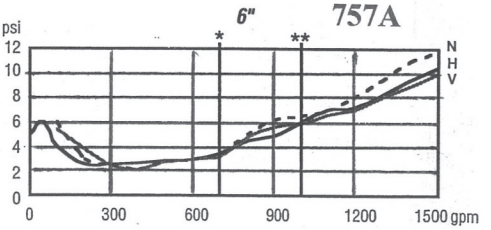




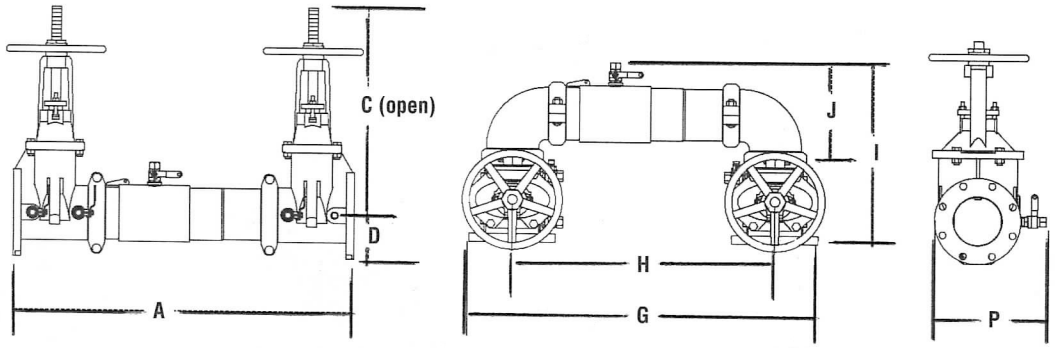








Dimensions — Weight

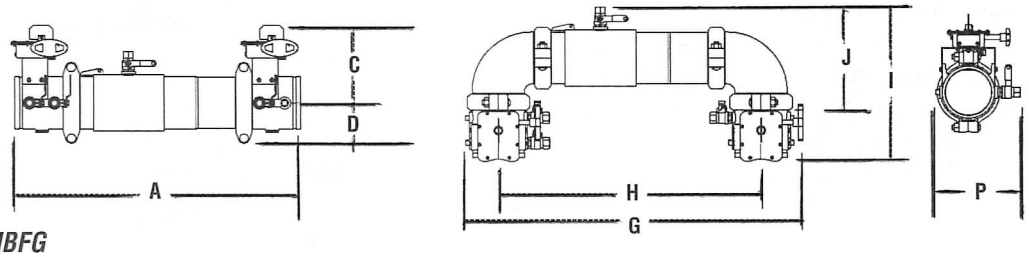


757 / 757N

SIZE (DN)		DIMENSIONS														WEIGHT					
		A		C (OSY)		C (NRS)		D		G		H		I		J		P		757NRS		757OSY		757N NRS		757N OSY	
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.	lbs.	kgs.
2½	65	30¾	781	16⅜	416	9⅜	238	3½	89	29 1/16	738	21½	546	15½	393	8 13/16	223	9 3/16	234	115	52	125	57	123	56	133	60
3	80	31¾	806	18⅞	479	10¼	260	3 11/16	94	30¼	768	22¼	565	17⅛	435	9 3/16	233	10½	267	131	59	145	66	144	65	158	72
4	100	33¾	857	22¾	578	12 3/16	310	4	102	33	838	23½	597	18½	470	9 15/16	252	11 3/16	284	161	73	161	73	184	83	184	83
6	150	43½	1105	30⅛	765	16	406	5½	140	44¾	1137	33¼	845	23 3/16	589	13 1/16	332	15	381	273	124	295	134	314	142	336	152
8	200	49¾	1264	37¾	959	19 15/16	506	6 1/16	170	54⅛	1375	40⅛	1019	27 7/16	697	15 11/16	399	17 3/16	437	438	199	480	218	513	233	555	252
10	250	57¾	1467	45¾	1162	23 13/16	605	8⅜	208	66	1676	49½	1257	32½	826	17 5/16	440	20	508	721	327	781	354	891	404	951	431

757a/757Na

SIZE (DN)		DIMENSIONS														WEIGHT					
		A		C (OSY)		C (NRS)		D		G		H		I		J		P		757aNRS		757aOSY		757Na NRS		757Na OSY	
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.	lbs.	kgs.
2½	65	31	787	16⅜	416	9⅜	238	3½	89	29 1/16	738	22	559	15½	393	8 13/16	223	9 3/16	234	115	52	125	57	123	56	133	60
3	80	31 11/16	805	18⅞	479	10¼	260	3 11/16	94	30¼	768	22¾	578	17⅛	435	9 3/16	233	10½	267	131	59	145	66	144	65	158	72
4	100	33 11/16	856	22¾	578	12 3/16	310	4	102	33	838	24	610	18½	470	9 15/16	252	11 3/16	284	161	73	161	73	184	83	184	83
6	150	44	1118	30⅛	765	16	406	5½	140	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	15	381	273	124	295	134	314	142	336	152



757BFG / 757NBFG

SIZE (DN)		DIMENSIONS														WEIGHT			
		A		C		D		G		H		I		J		P		757BFG		757N BFG	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	27¾	705	8	203	3½	89	29⅞	759	21½	546	14 15/16	379	8 13/16	223	9	229	56	25	64	29
3	80	28¼	718	8 5/16	211	3 11/16	94	30 11/16	779	22¼	565	15 7/16	392	9 3/16	233	9½	241	54	24	67	30
4	100	29	737	8 15/16	227	3 11/16	94	31 15/16	811	23½	597	16¼	412	9 15/16	252	10	254	61	28	84	38
6	150	36½	927	10	254	5	127	43 3/16	1097	33¼	845	19 11/16	500	13 1/16	332	10½	267	117	53	157	71
8	200	42¾	1086	12¼	311	6½	165	51 1/16	1297	40⅛	1019	23 5/16	592	15 11/16	399	14 3/16	361	261	118	337	153

757aBFG/757NaBFG

SIZE (DN)		DIMENSIONS														WEIGHT			
		A		C		D		G		H		I		J		P		757aBFG		757Na BFG	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	28	711	8	203	3½	89	29⅞	759	22	559	14 15/16	379	8 13/16	223	9	229	56	25	64	29
3	80	28½	724	8 5/16	211	3 11/16	94	30 11/16	779	22¾	578	15 7/16	392	9 3/16	233	9½	241	54	24	67	30
4	100	29 3/16	741	8 15/16	227	3 11/16	94	31 15/16	811	24	610	16¼	412	9 15/16	252	10	254	61	28	84	38
6	150	36½	927	10	254	5	127	43 3/16	1097	33¾	857	19 11/16	500	13 1/16	332	10½	267	117	53	157	71

Noryl® is a registered trademark of General Electric Company.

WATTS
757 DCDA/ 757A DCDA

SIZE

757DCDA
2 1/2", 3", 4", 6", 8", 10"

757A DCDA
2 1/2", 3", 4", 6"

DESCRIPTION

This is a double check detector assembly. This model was produced under the Hunter name from 2000-2002. In 2002 Watts bought the Hunter models and began production as the Watts model 757 DCDA and 757A DCDA. These models will also be sold as Ames model C300 and C300A. The mainline assembly is similar in construction to the 757 and 757A. The bypass assembly used for the first two years was the Flomatic DCVE 3/4". The assembly also used the Watts 007M3 3/4" for the bypass unit. Be sure to check the identification information on the bypass assembly to confirm which you have.

BASIC REPAIR KIT

Repair kit contains discs and O-rings for both check modules

SIZE	KIT NO
757 2 1/2"-4"	757-RT250
757A 2 1/2"-4"	757A-RT250
757 6"	757-RT600
757A 6"	757A-RT600
757 8"	757-RT800
757 10"	757-RT001

Bypass repair kit contains all check discs or check disc holders, and O-rings

SIZE	KIT NO
Flomatic DCVE 3/4"	B91RK00 ◆
Watts 007M3 3/4"	007M3RT075

IMPORTANT FEATURES

~2 1/2"-6" check access slides open
~Body is stainless steel
~Check modules are repairable
~Factory repair information enclosed

Models 757 DCDA & 757A DCDA Sizes 2 ½-10"

Double Check Detector Assemblies

Materials

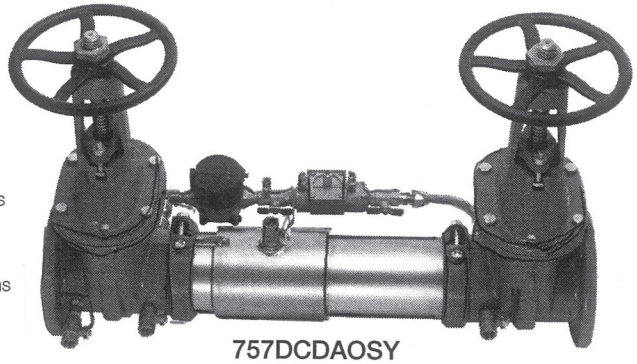
Housing & Sleeve: 304 (Schedule 40) Stainless Steel
Elastomers: EPDM, Silicone and Buna-N
Tri-link Checks: Noryl®, Stainless Steel
Check Discs: Reversible Silicone or EPDM
Test Cocks: Bronze Body Nickel Plated
Pins & Fasteners: 300 Series Stainless Steel
Springs: Stainless Steel

Pressure — Temperature

Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)

Features

- Extremely compact design
- 70% Lighter than traditional designs
- 304 (Schedule 40) stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented -link spring check provides lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- May be used for horizontal, vertical or N pattern installations
- Replaceable check disc rubber



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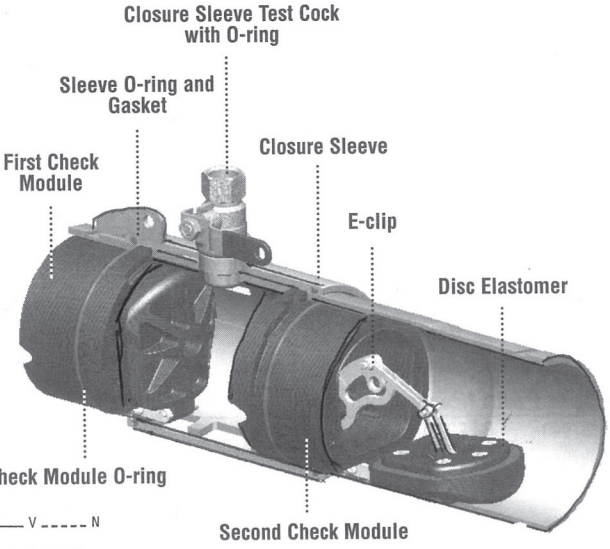

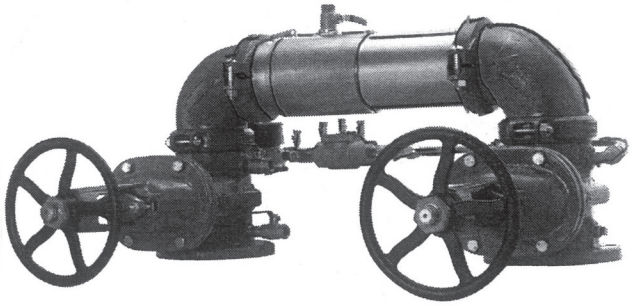

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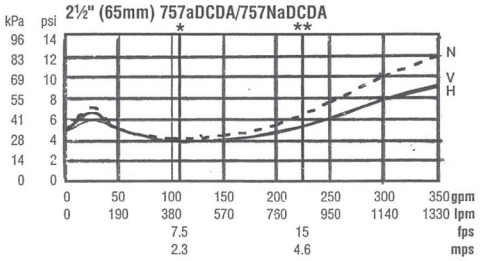
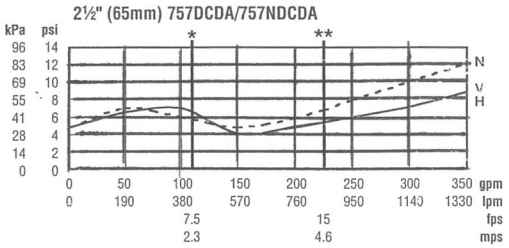
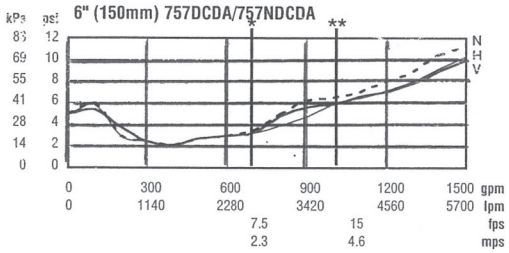
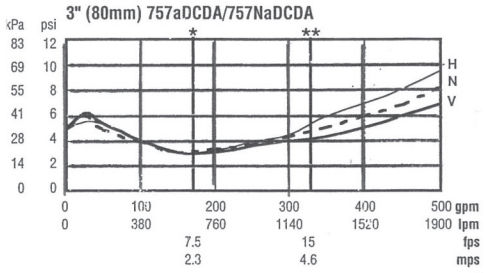
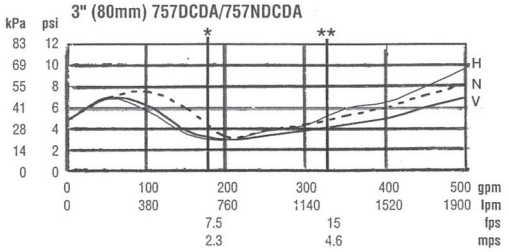
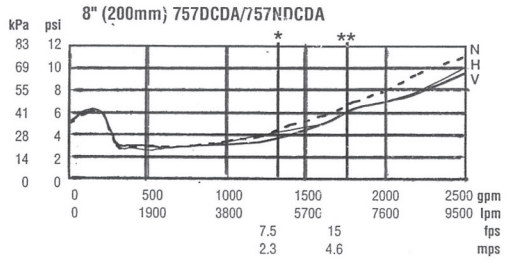


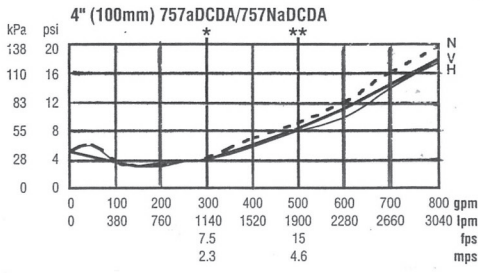


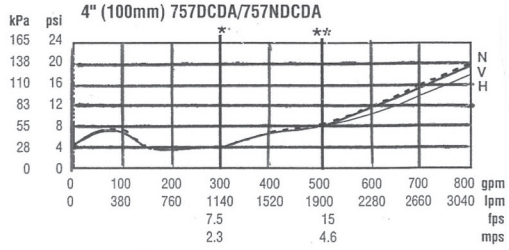


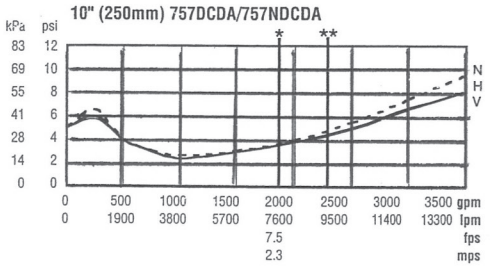


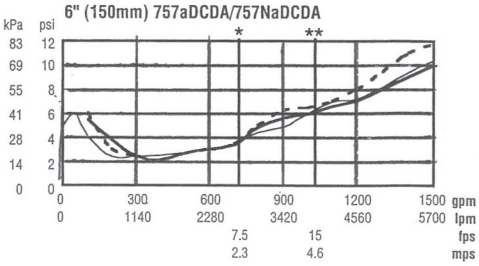


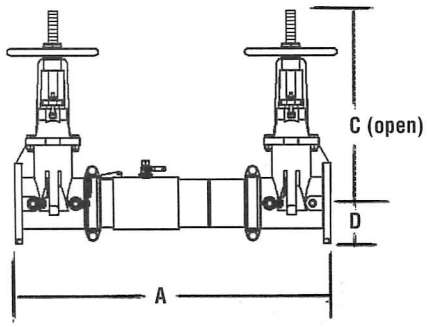


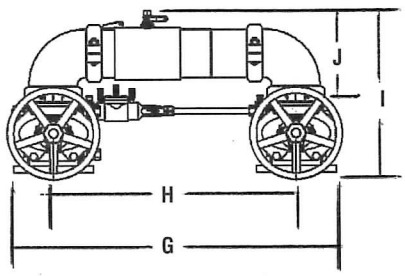


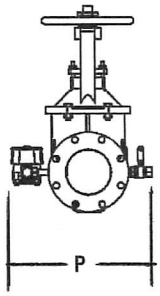










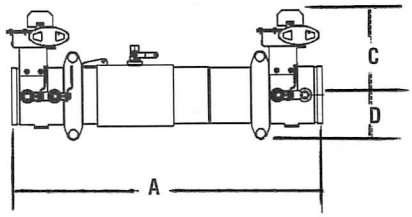


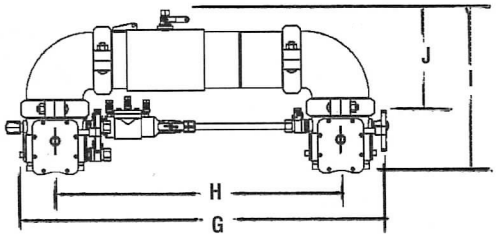
757DCDA , 757NDCDA

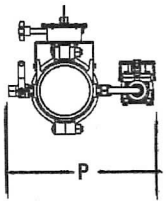
SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C (OSY)		D		G		H		I		J		P		757DCDA		757NDCDA	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	30¾	781	16⅜	416	3½	89	29 1/16	738	21½	546	15½	393	8 13/16	223	13 3/16	335	139	63	147	67
3	80	31¾	806	18⅞	479	3 11/16	94	30¼	768	22¼	565	17⅛	435	9 3/16	233	14½	368	159	72	172	78
4	100	33¾	857	22¾	578	4	102	33	838	23½	597	18½	470	9 15/16	252	15 3/16	386	175	79	198	90
6	150	43½	1105	30⅛	765	5½	140	44¾	1137	33¼	845	23 3/16	589	13 1/16	332	19	483	309	140	350	159
8	200	49¾	1264	37¾	959	6 11/16	170	54⅛	1375	40⅛	1019	27 7/16	697	15 11/16	399	21 3/16	538	494	224	569	258
10	250	57¾	1467	45¾	1162	8 3/16	208	66	1676	49½	1257	32½	826	17 5/16	440	24	610	795	361	965	438

757aDCDA / 757NaDCDA

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C (OSY)		D		G		H		I		J		P		757aDCDA		757NaDCDA	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	31	787	16⅜	416	3½	89	29 1/16	738	22	559	15½	393	8 13/16	223	13 3/16	335	139	63	147	67
3	80	31 11/16	805	18⅞	479	3 11/16	94	30¼	768	22¾	578	17⅛	435	9 3/16	233	14½	368	159	72	172	78
4	100	33 11/16	856	22¾	578	4	102	33	838	24	610	18½	470	9 15/16	252	15 3/16	386	175	79	198	90
6	150	44	1118	30⅛	765	5½	140	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	19	483	309	140	350	159







757DCDABFG / 757NDCDABFG

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C		D		G		H		I		J		P		757DCDABFG		757NDCDA BFG	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	27¾	705	8	203	3½	89	29⅞	759	21½	546	14 15/16	379	8 13/16	223	13	330	70	32	78	35
3	80	28¼	718	8 5/16	211	3 11/16	94	30 11/16	779	22¼	565	15 7/16	392	9 3/16	233	13½	343	68	31	81	37
4	100	29	737	8 15/16	227	3 11/16	94	31 15/16	811	23½	597	16¼	412	9 15/16	252	14	356	75	34	98	44
6	150	36½	927	10	254	5	127	43 3/16	1097	33¼	845	19 11/16	500	13 1/16	332	14½	368	131	59	171	78
8	200	42¾	1086	12¼	311	6½	165	51 1/16	1297	40⅛	1019	23 5/16	592	15 11/16	399	18 3/16	462	275	125	351	159

757aDCDABFG / 757NaDCDABFG

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C		D		G		H		I		J		P		757aDCDABFG		757aNDCDA BFG	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	28	711	8	203	3½	89	29⅞	759	22	559	14 15/16	379	8 13/16	223	13	330	70	32	78	35
3	80	28½	724	8 5/16	211	3 11/16	94	30 11/16	779	22¾	578	15 7/16	392	9 3/16	233	13½	343	68	31	81	37
4	100	29 3/16	741	8 15/16	227	3 11/16	94	31 15/16	811	24	610	16¼	412	9 15/16	252	14	356	75	34	98	44
6	150	36½	927	10	254	5	127	43 3/16	1097	33¾	857	19 11/16	500	13 1/16	332	14½	368	131	59	171	78

Noryl® is a registered trademark of General Electric Company.

WATTS 770
WATTS772

SIZE
4", 6", 8", 10"

DESCRIPTION
The 770/772 is a double check assembly. It was produced from 1993-1997. The check bodies are made of ductile iron which is fused epoxy coated. The check is a stainless steel toggle linkage mechanism. The check springs are contained when the covers are removed. The spring tension must be released to repair the assembly. The bronze check seats are replaceable but a seat removal tool is needed for that purpose. Instead of a rubber disc a vulcanized clapper plate is used to seal the check. The shutoffs on the 772 utilized a special shutoff. The shutoffs used on the 772 are not standard. There are two different size flanges on the inlet and outlet.

BASIC REPAIR KIT
Repair kit contains clapper plates, gaskets, and O-rings.

SIZE	KIT NO
4" 770	770-RT400
4" 772	770-RT400
6" 770	770-RT600
6" 772	770-RT600
8" 770	770-RT800
8" 772	770-RT600
10" 772	770-RT800

IMPORTANT FEATURES
~Ductile iron fused epoxy coated body

~Clapper plate check elastoner seals

~Contained springs

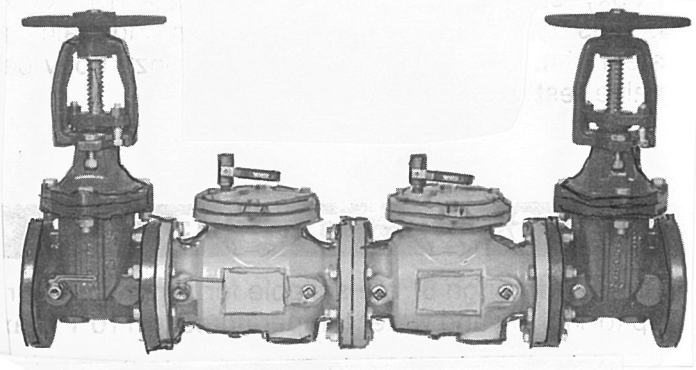
~Replaceable seats

~772 shutoffs are not standard dimensions

~Factory repair information enclosed

Series 770
DOUBLE CHECK VALVE BACKFLOW PREVENTER

Sizes: 4", 6", 8"



The 770 Series Double Check Valve Backflow Preventer is designed to prevent the reverse flow in water lines and to prevent polluted water from entering into the potable water system. This series can be applied to a variety of installations where the degree of hazard is considered to be low to intermediate and where approved for specific installations. 770 Series features a modular spring loaded design which facilitates vertical or horizontal installation. **Check with local authority having jurisdiction for installation requirements.**

FEATURES

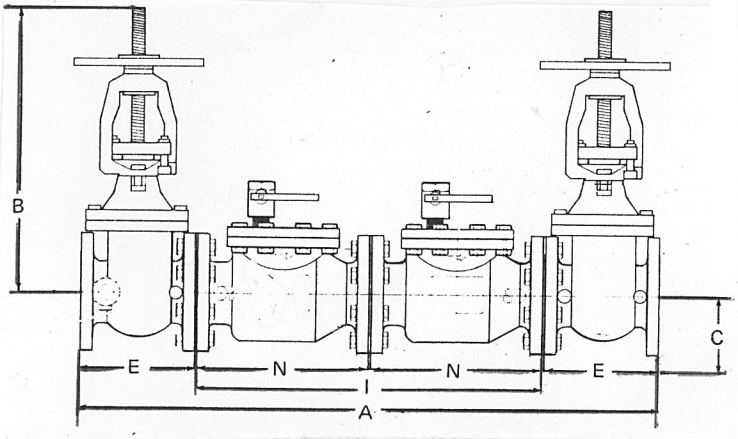
- Removable bronze seats
- Stainless steel internal parts
- Maximum flow at low pressure drop
- Compact for ecomomy combined with performance
- Design simplicity for easy maintenance
- Ductile iron bodies for maximum strength

MATERIALS

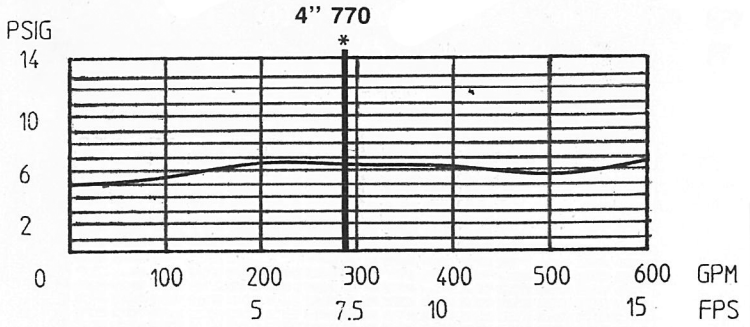
Epoxy coated (FDA approved) ductile iron valve bodies with bronze removable seats and stainless steel trim. All sizes furnished with bronze body ball valve test cocks.

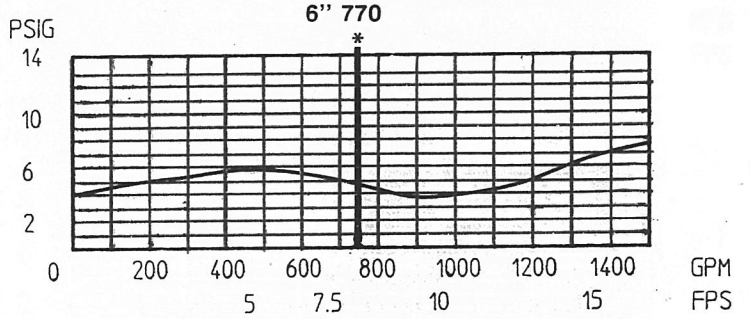
PRESSURE - TEMPERATURE

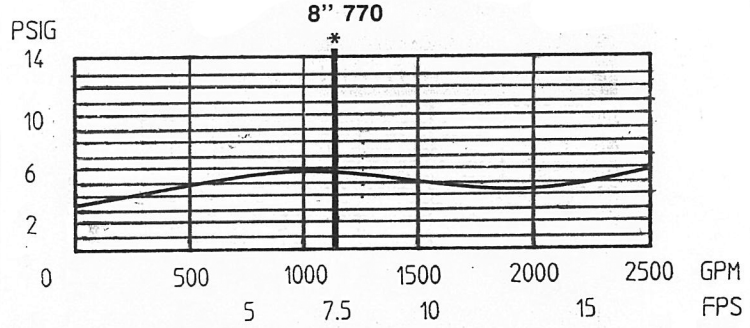
Sizes 4" through 10" are suitable for supply pressure up to 175 psi and water temperatures to 110°F max.



Capacity







*Typical maximum system flow rate (7.5 ft/sec.)

Size	A	OS&Y B	NRS B	C	E	I	N	Weights (lbs.) OS&Y	NRS	LF *
4"	47 1/8"	23 3/8"	15 1/2"	4 1/2"	9"	28 15/16"	14 7/16"	338	316	140
6"	58 1/2"	30"	19 5/8"	5 1/2"	10 1/2"	37 5/16"	18 5/8"	654	626	308
8"	70 3/8"	40"	24"	6 3/4"	11 1/2"	47"	23 7/16"	1104	1050	520

Series 772

DOUBLE CHECK VALVE BACKFLOW PREVENTER

Sizes: 4", 6", 8"and 10"

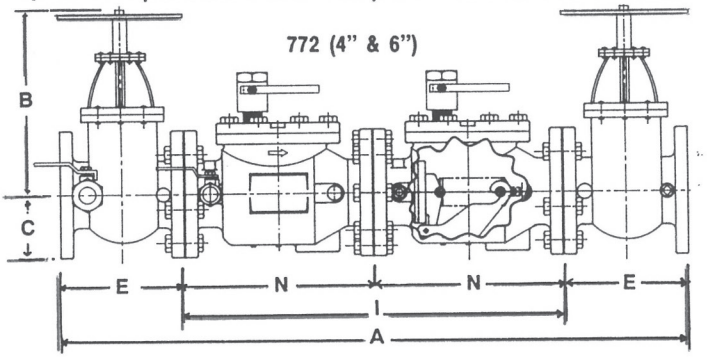
The 772 Series Double Check Valve Backflow Preventer is designed to prevent the reverse flow in water lines and to prevent polluted water from entering into the potable water system. This series can be applied to a variety of installations where the degree of hazard is considered to be low to intermediate and where approved for specific installations. 772 Series features a modular spring loaded design which facilitates vertical or horizontal installation.

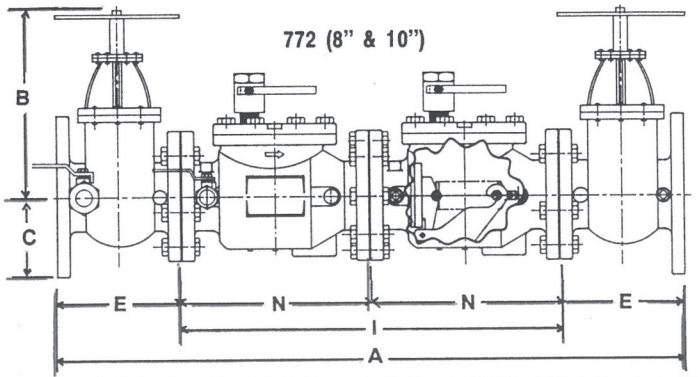
FEATURES

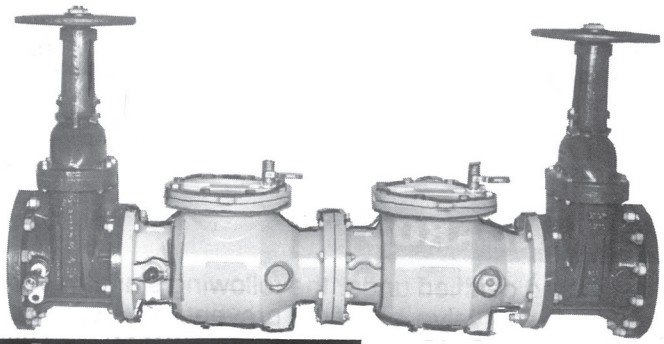
- Resilient seated gate valve shutoffs
- Replaceable bronze seats
- Stainless steel internal parts
- Maximum flow at low pressure drop
- Compact for economy combined with performance
- Design simplicity for easy maintenance
- Ductile iron bodies for maximum strength

PRESSURE - TEMPERATURE

Sizes 4" through 10" are suitable for supply pressure up to 175 psi and water temperatures to 110°F max.

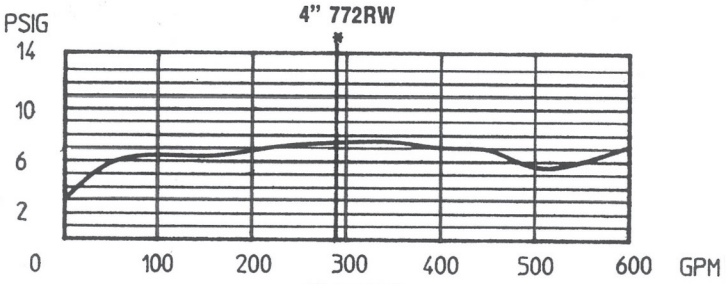


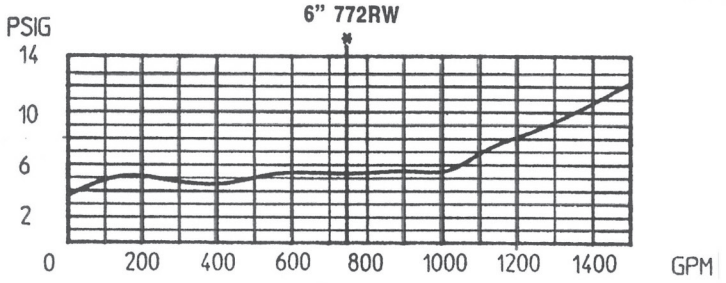


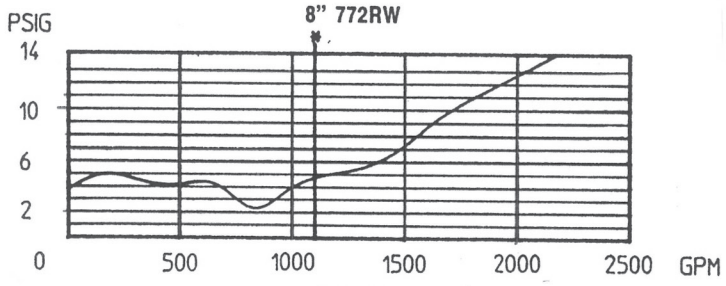


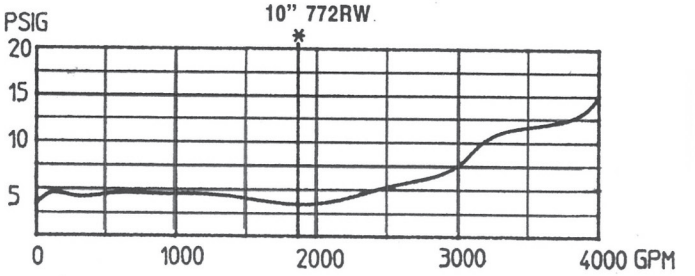
MATERIALS

Epoxy coated (FDA approved) ductile iron valve bodies with replaceable bronze seats and stainless steel trim. All sizes furnished with bronze body ball valve test cocks.



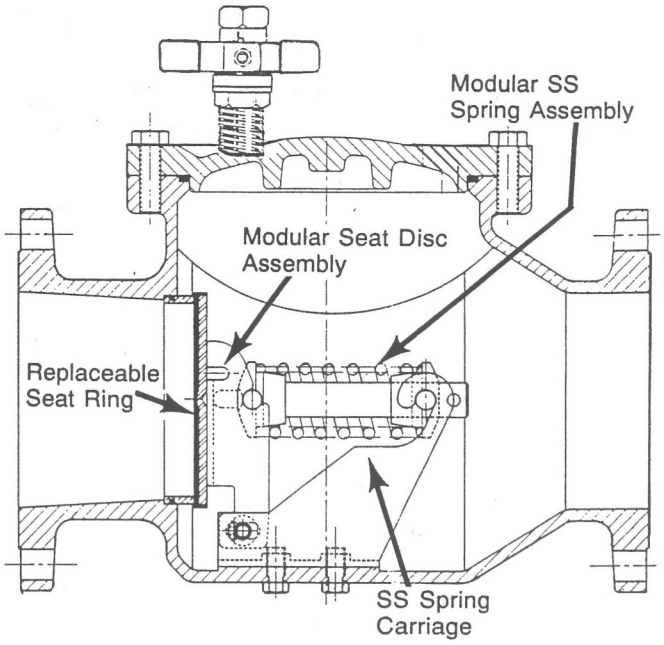






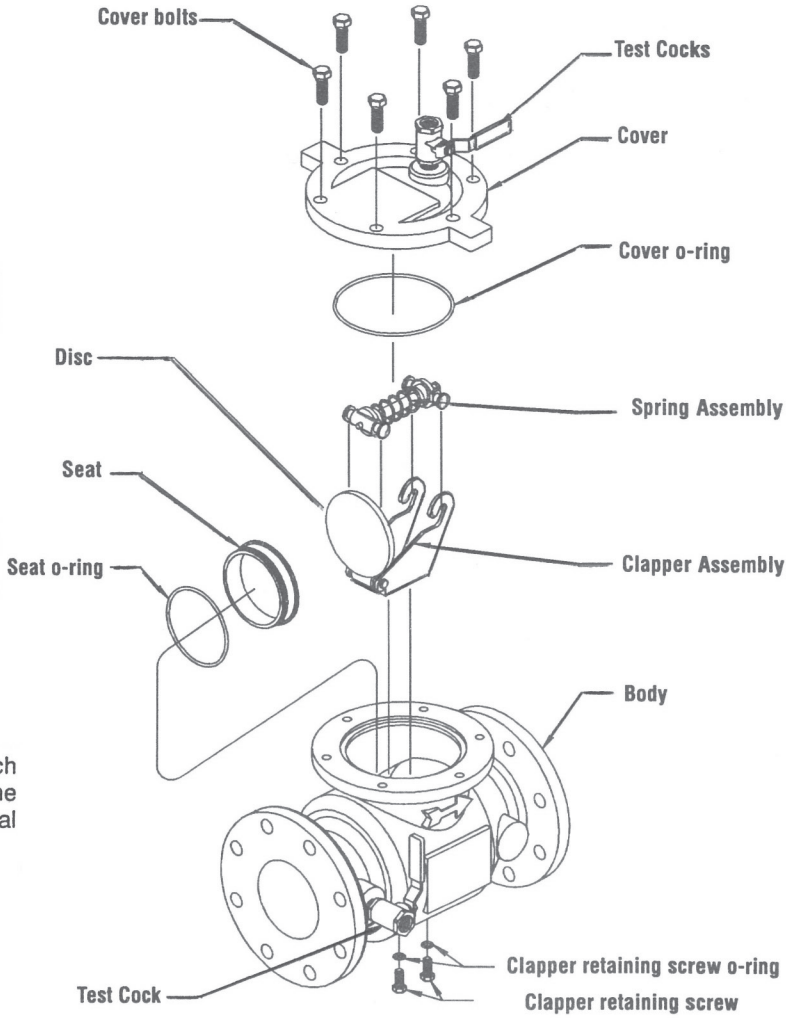
Size	A		B		C	E		I	N	Weights (lbs.)	
	OS&Y	NRS	OS&Y	NRS		OS&Y	NRS			OS&Y	NRS
4"	44.87	44.87	23.31	6.00	4.50	8.00	8.00	28.87	14.44	340.	296.
6"	57.25	55.25	23.31	12.00	5.50	10.00	9.00	37.25	18.63	650.	576.
8"	59.25	58.25	29.87	19.62	6.75	11.00	10.50	46.87	23.44	806.	680.
10"	72.79	72.04	39.87	23.93	8.00	12.25	11.50	46.87	23.44	1372.	1130.

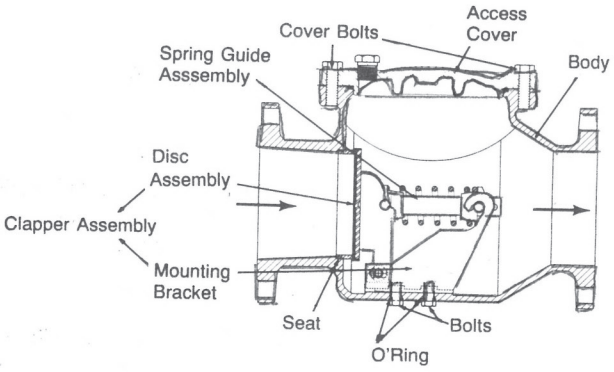
770–772
CHECK VALVES



CHECK ASSEMBLY MODULE

770-772 Series features a modular design concept which facilitates complete maintenance and assembly by retaining the spring load. The first and second check module are identical and can be interchanged.





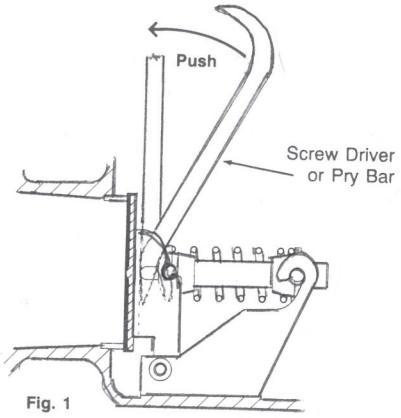


Fig. 1

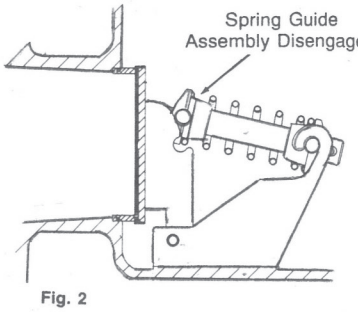


Fig. 2

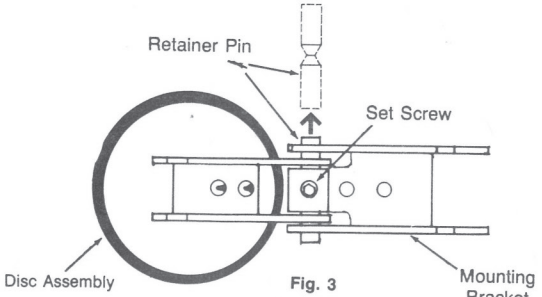


Fig. 3
Top View

WATTS 770 DCDA
WATTS 772 DCDA

SIZE
4”, 6”, 8”, 10”

DESCRIPTION
This is a double check detector assembly. This model was produced from 1993-1997. The main valve unit is similar to the 770/772 series. The bypass unit utilizes the 007M1 3/4” assembly.

BASIC REPAIR KIT
Main line repair kit contains clapper plates, gaskets, and O-rings.

SIZE	KIT NO
4” 770DCDA	770-RT400
4” 772DCDA	770-RT400
6” 770DCDA	770-RT600
6” 772DCDA	770-RT600
8” 770DCDA	770-RT800
8” 772DCDA	770-RT600
10” 772DCDA	770-RT800

Bypass repair kit contains discs and O-rings

SIZE	KIT NO
3/4” 007M1	007M1-RT075

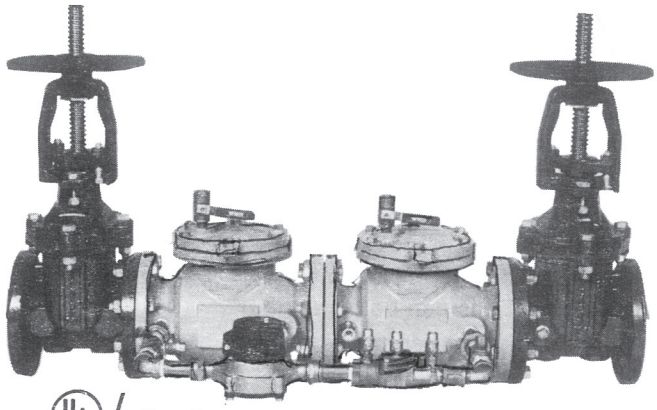
IMPORTANT FEATURES
~Main line assembly see 770/772

~Bypass assembly see 007M1

~Factory repair information enclosed

Series 770DCDA
DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER

Sizes: 4", 6", 8"



Series 770DCDA is designed for superior performance in protecting the potable water supply from backflow from fire sprinkler systems and identifying system leaks or unauthorized water usage. Water purvayors are mandated by federal law to maintain the drinking water supply within EPA standards. Non-potable piping systems such as fire sprinkler lines present a potential hazard due to backflow without proper backflow prevention.

BENEFITS: Detects system leaks . . . with emphasis on the cost of unaccountable water; incorporates a meter which allows the water utility to:

- Detect leaks that waste significant amounts of water.
- It provides a detection point for unauthorized use, helping to locate illegal taps.

MODULAR DESIGN

Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with resilient seated OS&Y gate valves, 5/8 x 3/4 GPM (gallons per minute) or CFM meter and ball type test cocks.

FEATURES

- **Body construction fused epoxy coated ductile iron**
- **Replaceable bronze seats**
- **Stainless steel internal parts**
- **Maximum flow at low pressure drop for fire systems**
- **Compact for ease of installation**
- **Design simplicity for easy maintenance**
- **Furnished with 5/8 x 3/4 bronze GPM meter**

MATERIALS

Epoxy coated ductile iron body, bronze replaceable seats, 300 Series stainless steel chemically resistant rubber check valve discs. Stainless steel check components cover bolts.

Suffix:

- ☐ **OSYRW** - resilient wedge OS&Y shut-off valves (standard)
- ☐ **GPM** - gallons per minute meter

OPTIONS: (options can be combined)

- ☐ **CFM** - cubic feet per minute meter.
- ☐ **RR** - remote reading meter

PRESSURE - TEMPERATURE

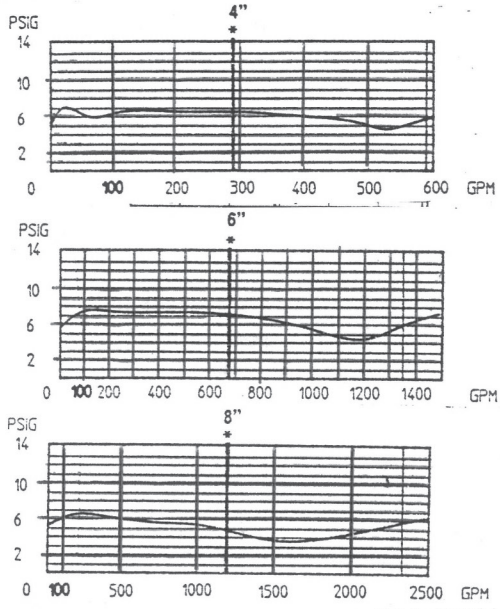
Suitable for supply pressures up to 175 PSI and water temperatures to 110°F continuous, 140°F intermittent.

STANDARDS

Meets or exceeds the following: ASSE, CSA B64.5, UL and FM. Size 4" & 8" approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

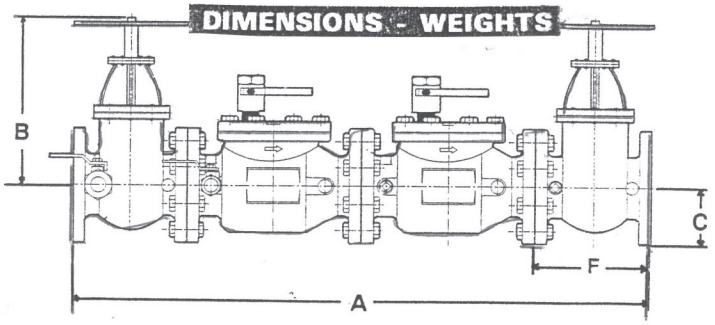
All performance data as established by independent testing laboratories.

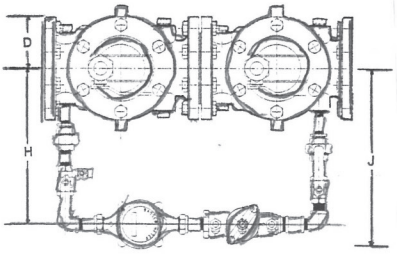
UL / FM Listed



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

DIMENSIONS - WEIGHTS





Size	Type	A	B	C	D	F	H	J	Weight (lbs.) Approx. Each
4"	770DCDAOSYRW	47.13	23.38	4.50	5.81	9.00	14	16	353
6"	770DCDAOSYRW	58.50	30	5.50	7.38	10.50	16	18	670
8"	770DCDAOSYRW	70.38	40	6.75	8.81	11.50	18	20	1121

WATTS 773

SIZE
4", 6"

DESCRIPTION
This is a double check assembly that was produced between 1998 and 1999. The internal parts are similar to the Model 709. The body was changed to provide an up and down piping arrangement. The body is a fused epoxy coated cast iron body. Check springs are contained when the covers are removed. The check seats are replaceable.

BASIC REPAIR KIT
The repair kit contains all rubber discs and O-rings.

SIZE	KIT NO
4"	709-RT400
6"	709-RT600

IMPORTANT FEATURES
~Fused epoxy cast iron body

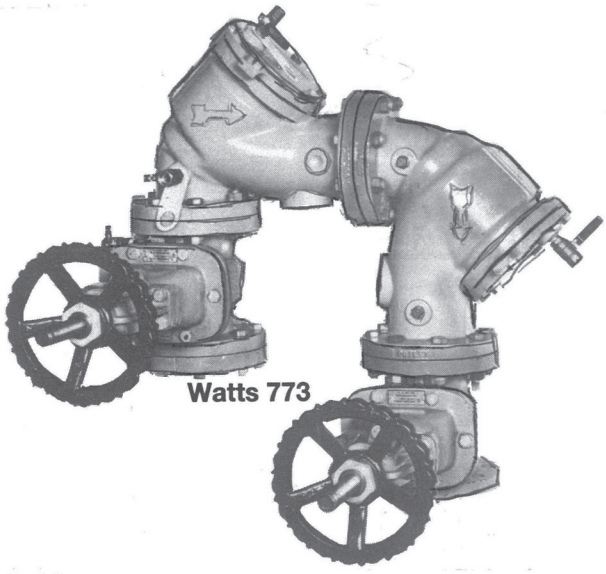
~Contained springs

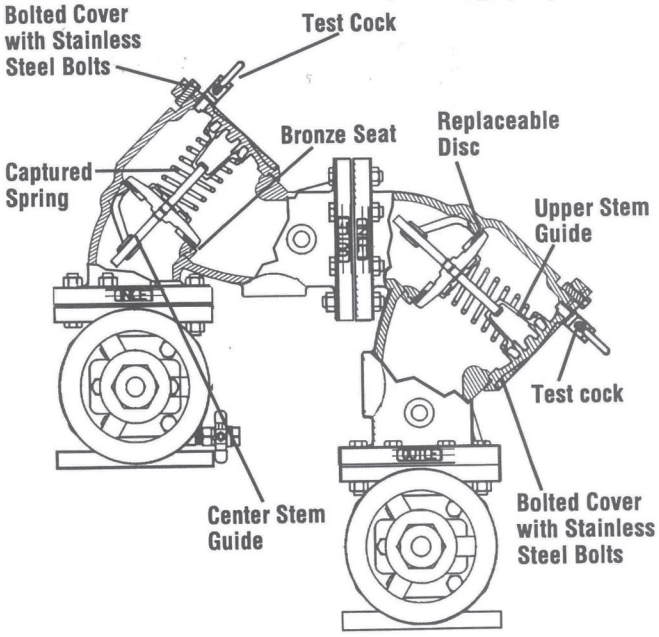
~Factory repair information enclosed

Series 773
Double Check Valve Backflow Preventer

Sizes 4", 6" (100, 150mm)

Series 773 Double Check Valve Backflow Preventer is designed to prevent the reverse flow in water lines and to prevent polluted water from entering into the potable water system. This series can be applied, where approved by the local authority having jurisdiction, on low hazard installations. No. 773 Series features a modular check design concept to facilitate easy maintenance. Check with local jurisdictional authority as to installation requirements.





FEATURES

- **Replaceable bronze seats**
- **Maximum flow at low pressure drop**
- **Design simplicity for easy maintenance**
- **No Special Tools Required for Servicing**
- **Captured spring assemblies for safety**
- **Grooved ends available**
- **Compact construction reduces lay length by as much as 70%**
- **Field proven check components for reliability and parts inventory reduction**
- **Lower installed cost in outdoor installations due to elimination of two elbows, two valve supports, use of shorter spools and smaller enclosures.**

AVAILABLE MODELS

Suffix:

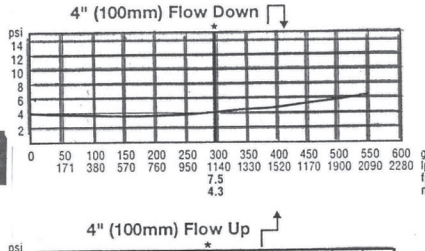
NRS - with non-rising stem resilient seated gate valves
OSY - with outside stem & yoke resilient seated gate valves
G - with grooved ends (NRS or OS&Y)

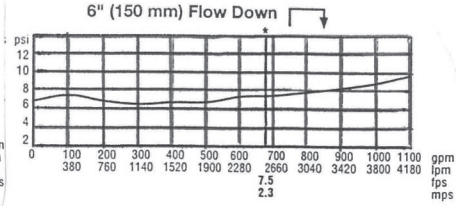
MATERIALS

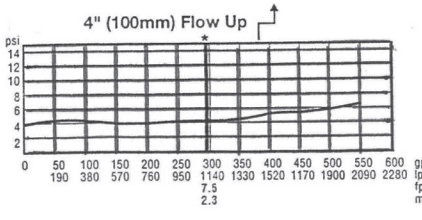
Epoxy coated FDA approved cast iron check valve bodies with bronze seats.

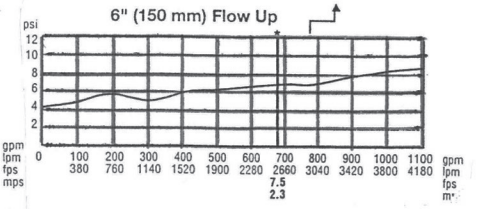
PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 PSI and water temperature to: 110°F continuous, 140°F intermittent.

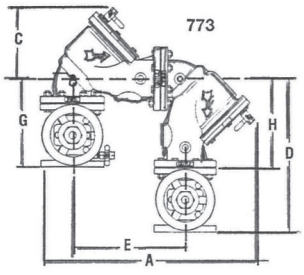


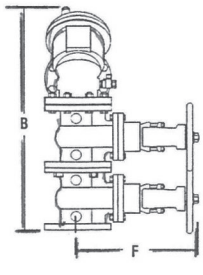






DIMENSIONS - WEIGHT (approximate)





Model	Size inches / mm	A inches / mm	B inches / mm	C inches / mm	D inches / mm	E inches / mm	F (open) inches / mm	F (close) inches / mm	G inches / mm	H inches / mm	Weight lbs. / kg.
773-LF	4 / 100	30¾ / 781	—	10 / 250	—	16¼ / 413	—	—	—	12½ / 318	209 / 95
773-OSY	4 / 100	32¼ / 819	31¹⁵⁄₁₆ / 805	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 384	—	300 / 136
773-NRS	4 / 100	32¼ / 819	31¹⁵⁄₁₆ / 805	10 / 250	21⅝ / 549	16¼ / 413	15¼ / 387	15¼ / 387	12¾ / 384	—	285 / 129
773-LF	6 / 150	38⅛ / 979	—	12¹⁵⁄₁₆ / 327	—	20 / 508	—	—	—	15⁹⁄₁₆ / 389	315 / 143
773-OSY	6 / 150	38⅛ / 979	38⅛ / 987	12¹⁵⁄₁₆ / 327	25¹⁵⁄₁₆ / 659	20 / 508	32½ / 826	27 / 686	15⁹⁄₁₆ / 389	—	375 / 170
773-NRS	6 / 150	38⅛ / 979	38⅛ / 987	12¹⁵⁄₁₆ / 327	25¹⁵⁄₁₆ / 659	20 / 508	20 / 508	20 / 508	15⁹⁄₁₆ / 389	—	360 / 163

WATTS 773 DCDA

SIZE
4", 6"

DESCRIPTION
This is a double check detector assembly. Production was between 1998 and 1999. The assembly utilizes the 773 design on the main valve. The bypass utilizes either the Model 007M2 or 007M3. Check the name tag on the bypass unit to confirm which you have.

BASIC REPAIR KIT
The mainline repair kit contains all rubber discs and O-rings.

SIZE	KIT NO
4"	709-RT400
6"	709-RT600

The bypass repair kit contains disc holder and O-rings.

SIZE	KIT NO
3/4" 007M2	007M2-RT075
3/4" 007M3	007M3-RT075

IMPORTANT FEATURES
~Mainline assembly: See 773

~Bypass assembly: See either 007M2 or 007M3

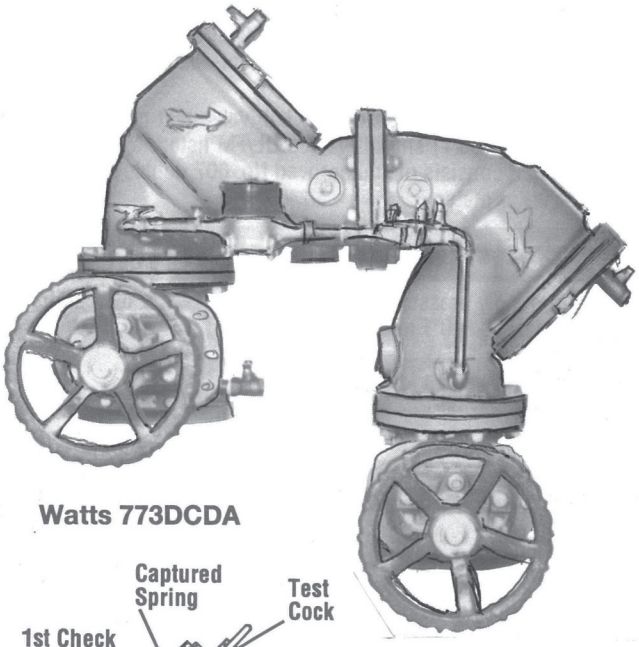
~Factory repair information enclosed

Series 773DCDA

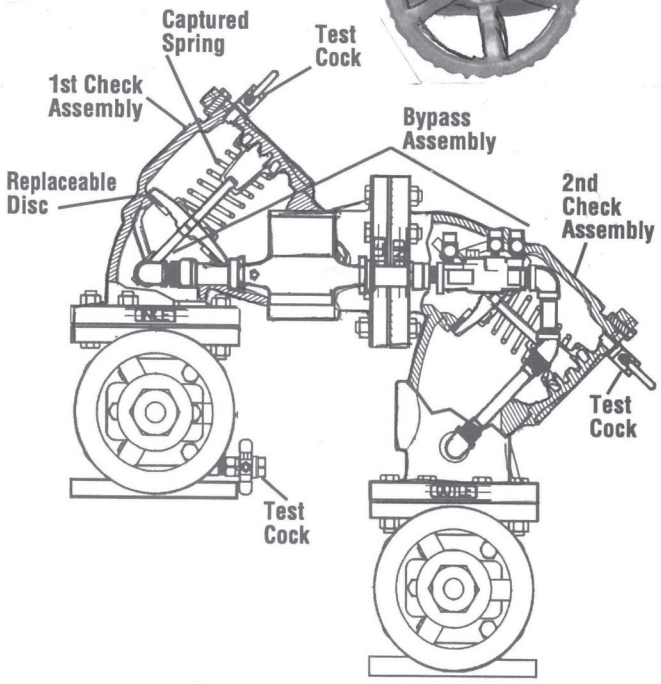
Double Check Detector Assembly Backflow Preventer

Sizes 4", 6"

Series 773 DCDA is designed for use in accordance with water utility authority containment requirements. It is mandatory to prevent the reverse flow of fire protection system substances, i.e. glycerin wetting agents, stagnant water and water of non-potable quality from being pumped or siphoned into the potable water line.



Watts 773DCDA



FEATURES

- **Body construction fused epoxy coated cast iron**
- **Replaceable bronze seats**
- **Maximum flow at low pressure drop**
- **Design simplicity for easy maintenance**
- **Furnished with ⅝ x ¾ bronze meter**
- **No special tools required for servicing**
- **Captured springs for safety**
- **Grooved ends available**
- **Compact construction reduces lay length by as much as 70%**
- **Field proven check components for reliability and parts inventory reduction**
- **Lower installed cost in outdoor installations due to elimination of two elbows, two valve supports, use of shorter spools and smaller enclosure.**
- **Detects underground leaks that historically have been a great annual cost due to waste**
- **Provides a detection point for unauthorized water use. It can help locate illegal taps.**
- **GPM or CFM meter available**

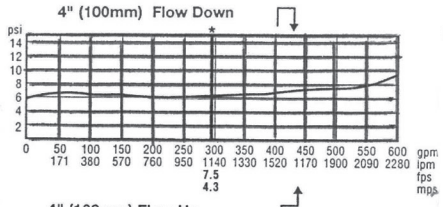
AVAILABLE MODELS

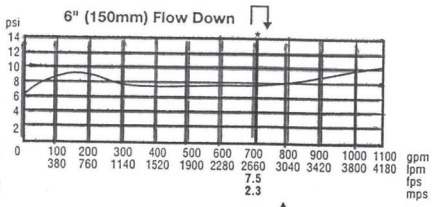
Suffix:

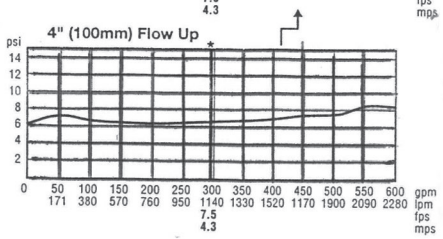
G - with grooved ends (OS&Y)
OSY - with UL/FM resilient seated outside stem and yoke
CFM - with cubic feet per minute meter
GPM - with gallons per minute meter

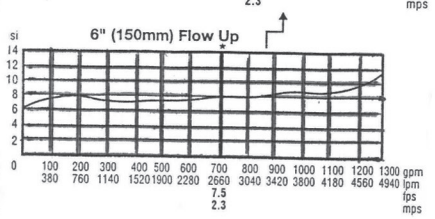
PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperatures to 110°F (43°C) constant, 140°F (60°C) intermittent.







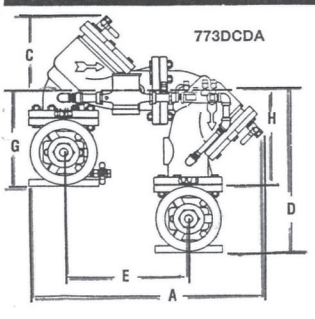


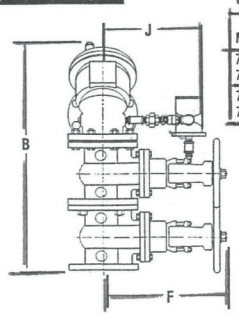
MATERIALS

Epoxy coated cast iron body, replaceable bronze seat and disc holder; stainless steel trim and durable, tight-seating rubber check valve discs.

All sizes furnished with bronze body ball valve test cocks, outside stem and yoke (OS&Y) shutoff valves UL/FM listed. No. 773DCDA bypass line unit consists of an approved No. 007 double check valve and ⅝ x ¾ water meter.

DIMENSIONS - WEIGHTS (approximate)





Series 773DCDA/773GDCDA

Model	Size inches / mm	A inches / mm	B inches / mm	C inches / mm	D inches / mm	E inches / mm	F (open) inches / mm	F (close) inches / mm	G inches / mm	H inches / mm	J inches / mm
773DCDA-OSY-GPM	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 324	12½ / 318	13⅜ / 346
773DCDA-OSY-CFM	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 324	12½ / 318	13⅜ / 346
773DCDA-OSY-CFM	6 / 150	38⅜ / 979	38⅛ / 962	12⅛ / 327	25 15/16 / 659	20⅛ / 511	32½ / 826	27 / 686	15 5/16 / 389	15⅝ / 389	16⅞ / 428
773DCDA-OSY-GPM	6 / 150	38⅜ / 979	38⅛ / 962	12⅛ / 327	25 15/16 / 659	20⅛ / 511	32½ / 826	27 / 686	15 5/16 / 389	15⅝ / 389	16⅞ / 428

Size	Weight lbs. / kg.
4"	350 / 159
6"	425 / 193

WATTS
774/774X

SIZE
2 1/2", 3", 4", 6", 8", 10", 12"

DESCRIPTION
This is a double check assembly. Production began in 1998. In 1997 the Watts Company purchased the Ames Company. Watts began marketing the Ames 2000SS as the Watts 774 and the 2000SE as the 774X. The body is made of stainless steel. The model utilizes a modular check design so that springs will be contained when the cover is removed. In the 2 1/2"-6" size the check assemblies are not field repairable and the whole check module must be replaced for an average repair. The check mechanism threads into the body and is a cam operated design made of glass filled noryl. The difference between the 774 and 774X is that the 774X utilizes internal parts one size smaller than the pipe size: (e.g. an 8" 774X would contain 6" check modules, a 6" 774X would contain 4" check modules). Be sure which version you have because parts will be different. The 774X models were discontinued in 2006. The 8"-10" check modules have a rubber disc design which can be replaced in the field. The check modules are bolted into the body and are not threaded as the smaller sizes are.

BASIC REPAIR KIT
The repair kit contains all check modules and O-rings.

SIZE	KIT NO
2 1/2"-4"	774-T400
6" 774	774-T600
6" 774X	774-T400
8"-12" 774	774-T800
8" 774X	774-T600

IMPORTANT FEATURES
~Stainless steel body

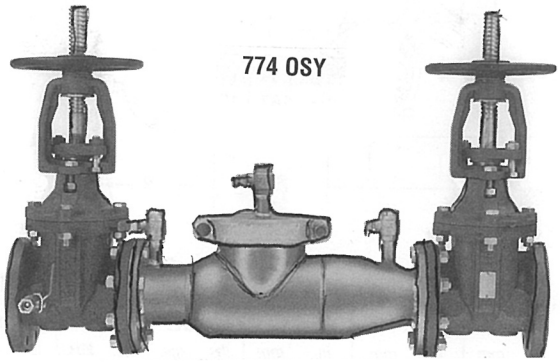
~Modularized checks

~Springs are contained

~Seats are replaceable

~Factory repair information enclosed

Series 774 - 774X
Double Check Valve Backflow Preventer 2 ½ - 12”



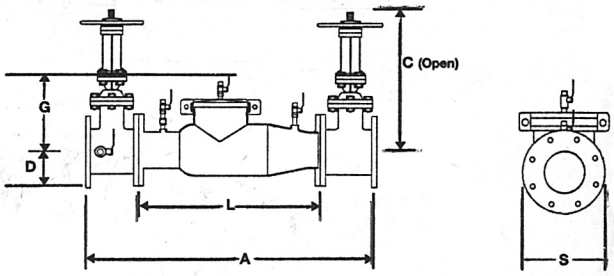
MATERIALS

All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 110°F (43°C) continuous.

DIMENSIONS - WEIGHT

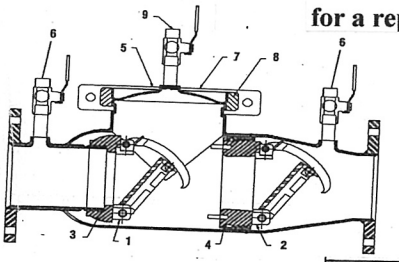


Size (DN) in.	Size (DN) mm	774 Dimensions A in.	A mm	C (open) in.	C (open) mm	D in.	D mm	G in.	G mm	L in.	L mm	S in.	S mm	Net Weight w/ Gates lb.	Net Weight w/ Gates kg.	Net Weight w/o Gates lb.	Net Weight w/o Gates kg.
2½	65	37		16½	419	3½	89	10	254	22	559	7	178	140	64	53	24
3	80	38	965	22	559	3¾	95	15	381	22	559	7½	191	215	98	55	25
4	100	40	1016	22¾	578	4½	114	10	254	22	559	9	229	225	102	58	26
6	150	48½	1232	30⅛	765	5½	140	15	381	27½	699	11	279	375	170	105	48
8	200	52½	1334	37¾	959	6¾	171	15	381	29½	749	13½	343	561	254	169	77
10	250	55½	1410	45¾	1162	8	200	15	381	29½	749	16	406	763	346	179	81
12	300	57½	1461	54	1372	9½	241	15	381	29½	749	19	483	1033	469	209	95

774X Size in. / mm	A in. / mm	C (open) in. / mm	D in. / mm	G in. / mm	L in. / mm	P in. / mm	S in. / mm	Net Weight w/Gates 774X lb. / kg	Net Weight w/Gates 774XDCDA lb. / kg.	Net Weight w/o Gates 774X lb. / kg.	Net Weight w/o Gates 774XDCDA lb. / kg.
6 / 150	41⅛ / 1054	30 / 762	5½ / 140	11⅛ / 283	20 / 508	16½ / 419	11 / 279	328 / 149	341 / 155	58 / 26	71 / 32
8 / 200	52½ / 1334	37¾ / 959	6¾ / 171	17½ / 445	29½ / 749	17½ / 445	13½ / 343	540 / 245	555 / 252	120 / 54	135 / 61

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.

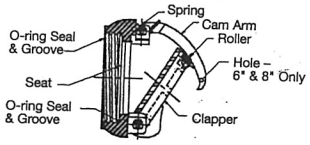
2 ½” - 6” checks are modular but check disc is not replaceable and the whole check module must be replaced for a repair



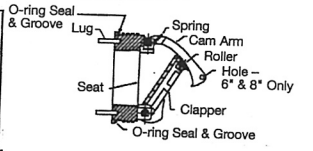
2 ½ - 6”

Item #	Description
1.	#1 Cam-Check
2.	#2 Cam-Check
3.	#1 Cam-Check O-ring
4.	#2 Cam-Check O-ring
5.	Cover Plate
6.	Ball Valve
7.	Groove Coupler
8.	Groove Coupler Gasket
9.	Ball Valve (Cover)

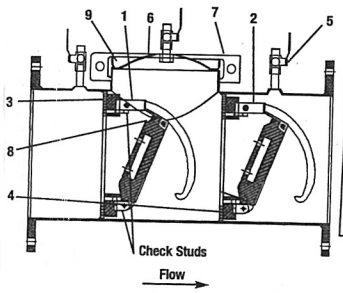
#1 Cam-Check 2½” – 6”



#2 Cam-Check DC & RP



8” – 12” checks are modular and the check disc is replaceable

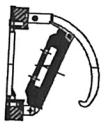


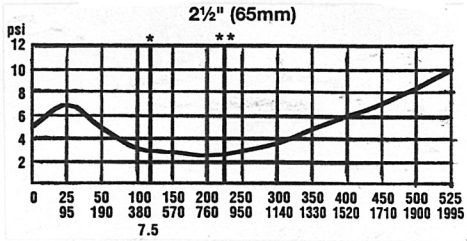
8 – 12”

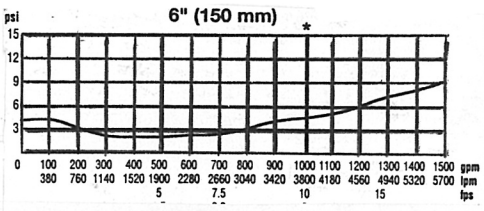
Item #	Part Description
1.	#1 Cam-Check
2.	#2 Cam-Check
3.	#1 Cam-Check O-ring
4.	#2 Cam-Check O-ring
5.	Ball Valve
6.	Cover Plate
7.	Groove Coupler
8.	Washer, shutoff disk
9.	Groove Coupler Gasket

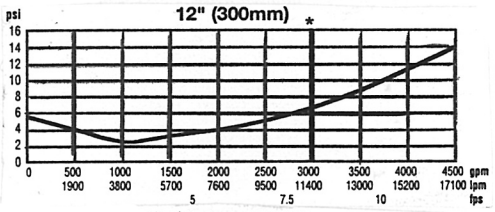
#1 Cam-Check

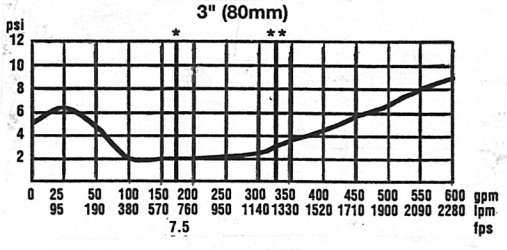
#2 Cam-Check DC

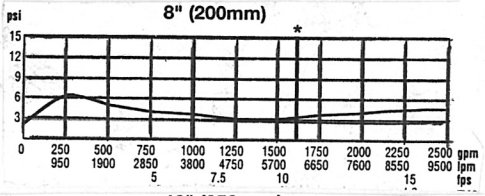


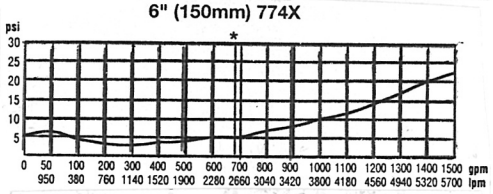


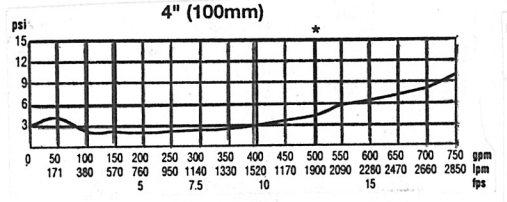


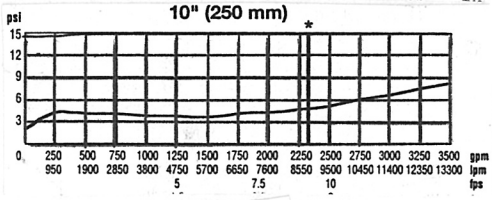


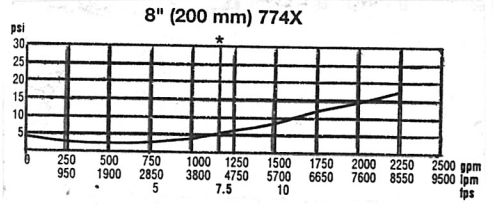












WATTS 774 DCDA
WATTS 774X DCDA

SIZE
2 1/2", 3", 4", 6", 8", 10", 12"

DESCRIPTION
This is a double check detector assembly. In 1997 the Watts Company purchased the Ames Company. In 1998 Watts began marketing the Ames 3000SS as the Watts 774 DCDA and the Ames 3000SE as the Watts 774X DCDA. The body is made of stainless steel. The model utilizes a modular check design so the springs will be contained when the cover is removed. The main valve is similar to the Watts model 774. In the 2 1/2"-6" size the check assemblies are not field repairable and the whole check module must be replaced for an average repair. The bypass assembly will be either the Watts 007 M2 or the Watts 007 M3. Be sure to notice if you have the model 774 DCDA or the 774X DCDA as the parts will be different. The 774XDCDA models were discontinued in 2001. The 8"-10" check does have a rubber disc that is field replaceable.

BASIC REPAIR KIT
The mainline repair kit contains all check modules and O-rings.

SIZE	KIT NO
2 1/4"-4" 774 DCDA	774-T400
6" 774 DCDA	774-T600
6" 774X DCDA	774-T400
8"-12" 774 DCDA	774-T800
8" 774X DCDA	774-T600

The bypass repair kit contains all disc holders and O-ring.

SIZE	KIT NO
3/4" 007M2	007M2-RT075
3/4" 007M1	007M1-RT075

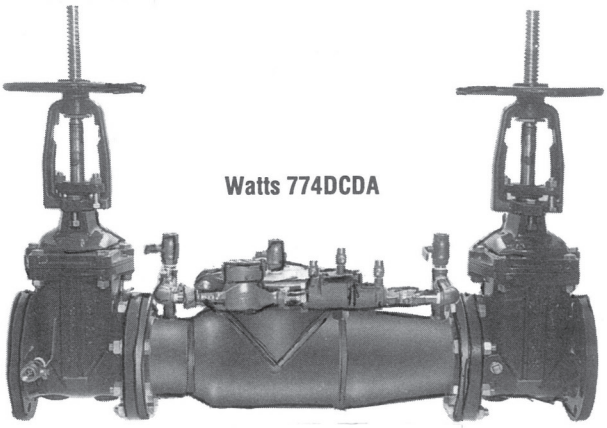
IMPORTANT FEATURES
~Mainline assembly: See Watts 774

~Bypass assembly: See Watts 007M2 3/4" or 3/4" 007M3

~Factory repair information enclosed

Series 774DCDA 774XDCDA

Double Check Detector Assembly 2 ½ - 12"


Watts 774DCDA

MATERIALS

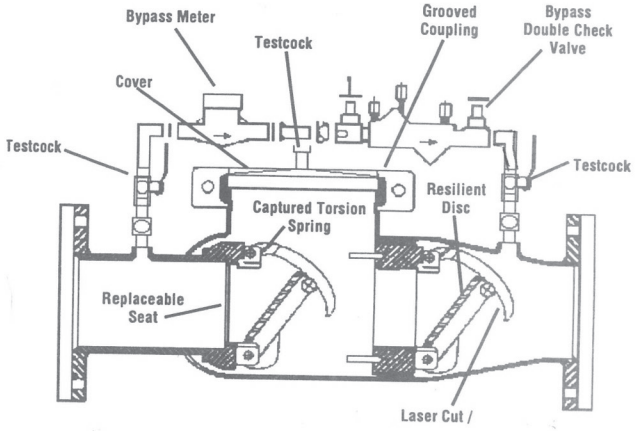
All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

PRESSURE - TEMPERATURE

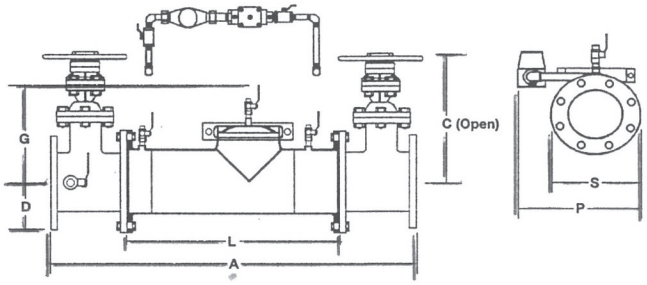
Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 110°F (43°C) continuous

FEATURES

- **Patented torsion spring check valve provides low head loss**
- **Short lay length is ideally suited for retrofit installations**
- **Stainless Steel body is half the weight of competitive designs reducing installation and shipping cost**
- **Stainless steel construction provides long term corrosion protection and maximum strength**
- **Single top access cover with two-bolt grooved style coupling for ease of maintenance**
- **Thermoplastic and stainless steel check valves for trouble-free operation**
- **No special tools required for servicing**
- **Compact construction allows for smaller vaults and enclosures**
- **Furnished with ⅝" x ¾" bronze meter (gpm or cfm)**
- **Detects underground leaks and unauthorized water use**



DIMENSIONS - WEIGHT (approximate)

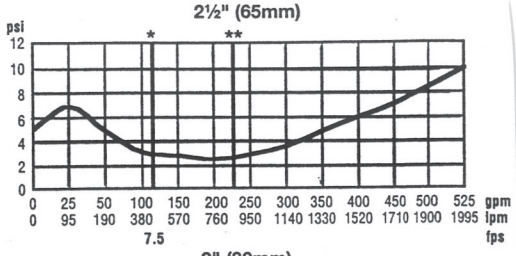


774 DCDA Size (DN) in.	mm	A in.	mm	C (open) in.	mm	D in.	mm	G in.	mm	L in.	mm	P in.	mm	Net Weight w/Gates lb.	kg.	Net Weight w/o Gates lb.	kg.
2½	65	38	965	16⅜	416	3½	89	10	254	22	559	12½	318	155	70	68	31
3	80	38	965	22	559	3¾	95	10	254	22	559	13	330	230	104	70	32

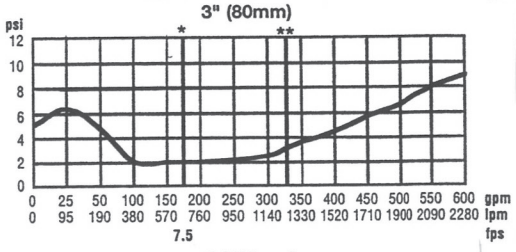
774 DCDA Size in. / mm	A in. / mm	C (open) in. / mm	D in. / mm	G in. / mm	L in. / mm	P in. / mm	Net Weight w/Gates lb. / kg.	Net Weight w/o Gates lb. / kg.
4 / 100	40 / 1016	23½ / 597	4½ / 114	10 / 250	22 / 559	14½ / 368	240 / 109	73 / 33
6 / 150	48½ / 1232	30 / 762	5½ / 140	15 / 381	27½ / 699	15½ / 394	390 / 177	120 / 54
8 / 200	52½ / 1334	37¾ / 959	6¾ / 171	15 / 381	29½ / 749	18¼ / 464	572 / 259	180 / 82
10 / 250	55½ / 1410	48 / 1219	8 / 200	15 / 381	29½ / 749	19½ / 495	774 / 351	190 / 86
12/ 300	57½ / 1461	54 / 1372	9½ / 241	15 / 381	29½ / 749	21 / 533	1044 / 474	220 / 100

774X DCDA Size in. / mm	A in. / mm	C (open) in. / mm	D in. / mm	G in. / mm	L in. / mm	P in. / mm	S in. / mm	Net Weight w/Gates 774X lb. / kg	774XDCDA lb. / kg.
6 / 150	41½ / 1054	30¼ / 765	5½ / 140	11⅛ / 283	20 / 508	16½ / 419	11 / 279	328 / 149	341 / 155
8 / 200	52½ / 1334	37¾ / 959	6¾ / 171	17½ / 445	29½ / 749	17½ / 445	13½ / 343	540 / 245	555 / 252

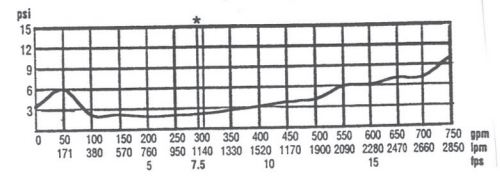
2½" (65mm)



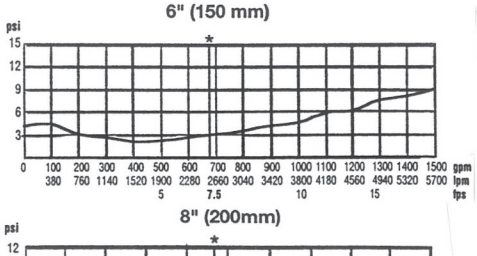
3" (80mm)



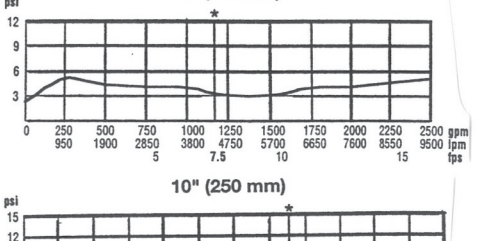
4" (100mm)



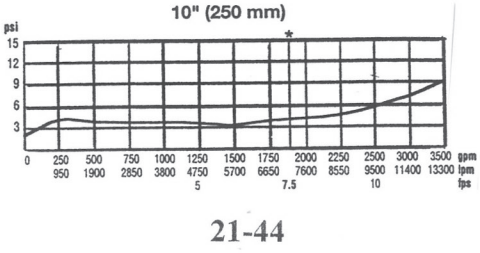
6" (150 mm)



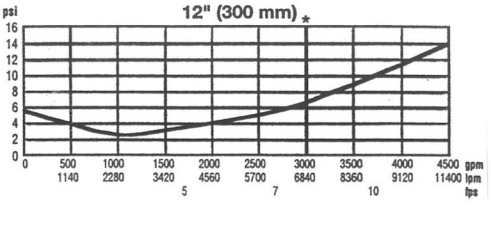
8" (200mm)



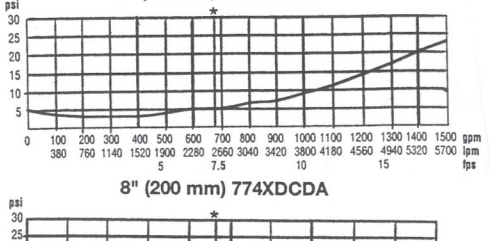
10" (250 mm)



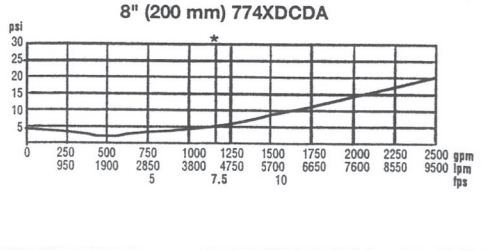
12" (300 mm)



6" (150mm) 774XDCDA



8" (200 mm) 774XDCDA



WATTS
775/ 775N

SIZE
1/2”, 3/4”, 1”, 1 1/4”, 1 1/2”, 2”, 3”, 4”, 6”, 8”

DESCRIPTION
This is a double check assembly. Production began in 1998. The 3”-6” was discontinued in 2003. In the 1/2”-2” size the body is made of copper tubing which is nickel plated. There is a single cover on the top. The checks are modular in construction and the springs are contained when the single access cover is removed. The check modules thread into the body. The 3”-8” body is made of stainless steel. The checks are modular in construction and the springs are contained when the single access cover is removed. The check modules are repairable and thread into the body. In the 3”-8” size there is a 775N model which uses two stainless steel elbows mounted between the backflow preventer flange and shut-off flange.

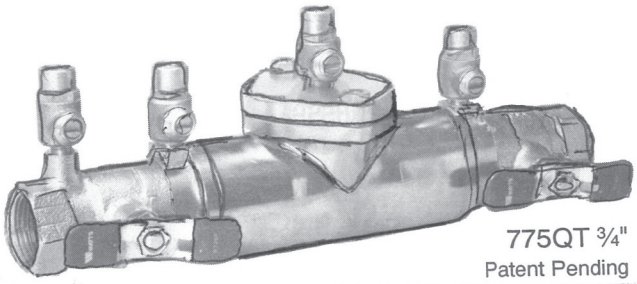
BASIC REPAIR KIT
The repair kit contains disc holders or discs and O-rings

SIZE	KIT NO
1/2”-3/4”	775-RT050
1”	775-RT100 ◆
1 1/4”-1 1/2”	775-RT125 ◆
2”	775-RT200
3”-4”	775-RT300
6”-8”	775-RT600

IMPORTANT FEATURES
~1/2”-2” has a nickel plated copper tube body
~3”-8” has a stainless steel body
~Modular check design
~Factory repair information enclosed

Series 775
Double Check Valve Assembly

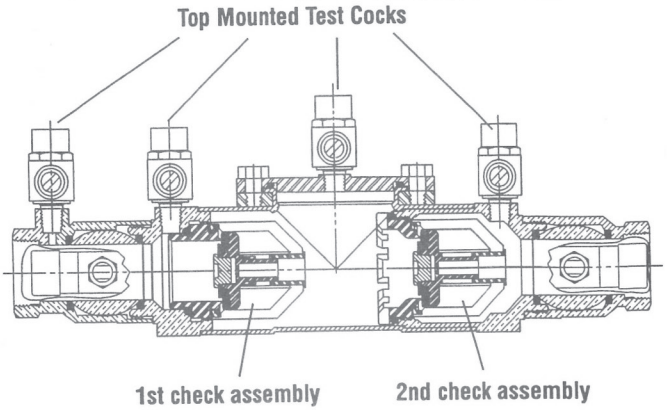
Sizes ½ through 2" (15-50mm)



775QT ¾"
Patent Pending

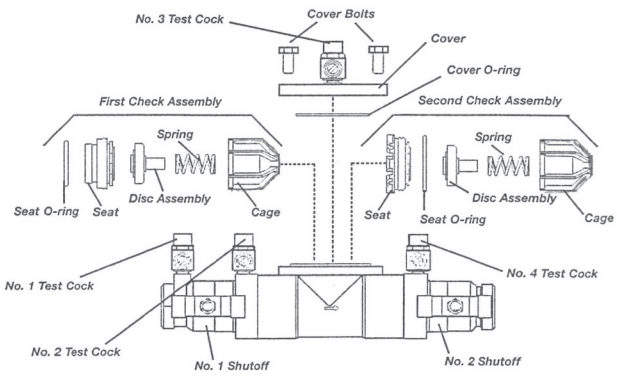
FEATURES

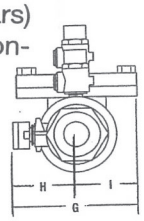
- *Tubular copper body creates smooth flow path and low headloss*
- *External/internal electroless nickel-plated body acts as an oxygen barrier for corrosion resistance*
- *Threaded-in check modules eliminate the use of check retainers for lower pressure loss*
- *Shortest lay length in the industry allows for the use of smaller meter boxes and enclosures*
- *Bolted on, top entry stainless steel single access cover for ease of maintenance in meter box installations*
- *Modular check construction featuring non-reversible checks with captured springs for simplified servicing*
- *Check valve seats are replaceable without the use of special tools*
- *Top mounted test cocks provide easy access for testing*



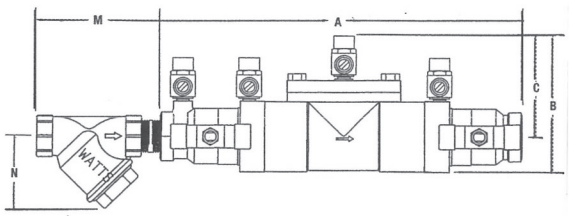
PRESSURE-TEMPERATURE

Suitable for supply pressure up to 175 psi (12 bars) and water temperature of up to 140°F (60°C) constant and 180°F (82°C) intermittent.

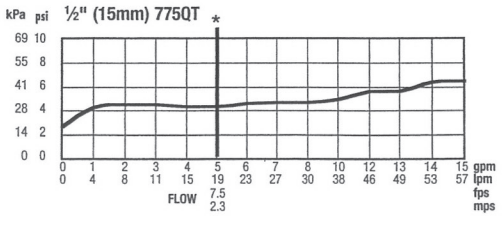


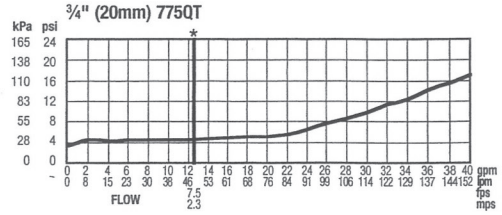


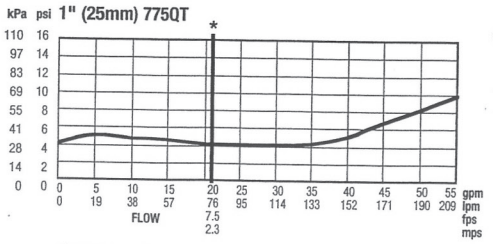
Dimensions – Weights

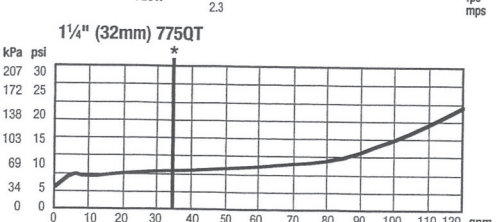


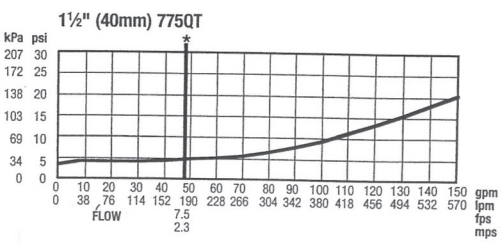
in.	mm	A in.	A mm	B in.	B mm	C in.	C mm	G in.	G mm	H in.	H mm	I in.	I mm	M in.	M mm	N in.	N mm	lbs.	kgs.
½	15	9	228	3⅝	92	2⅝	67	3 3/16	81	1⅝	41	1 9/16	40	3	76	3	76	4	1.8
¾	20	9	228	3⅝	92	2⅝	67	3 3/16	81	1⅝	41	1 9/16	40	3½	89	3	76	4	1.8
1	25	11¼	286	4½	114	3 5/16	84	3½	89	1⅞	47	1⅝	41	4¼	121	3¼	83	6.31	2.9
1¼	32	15⅜	390	6	152	4 7/16	113	6	152	3¼	82	2¾	69	4½	114	3½	89	17	7.7
1½	40	15⅜	390	6	152	4 7/16	113	6	152	3¼	82	2¾	69	4⅜	111	4	102	17	7.7
2	50	18½	460	6	152	4 7/16	113	6¾	171	3¼	82	2¾	69	5⅜	137	5	102	26	11.8

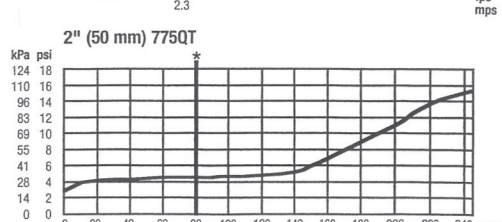






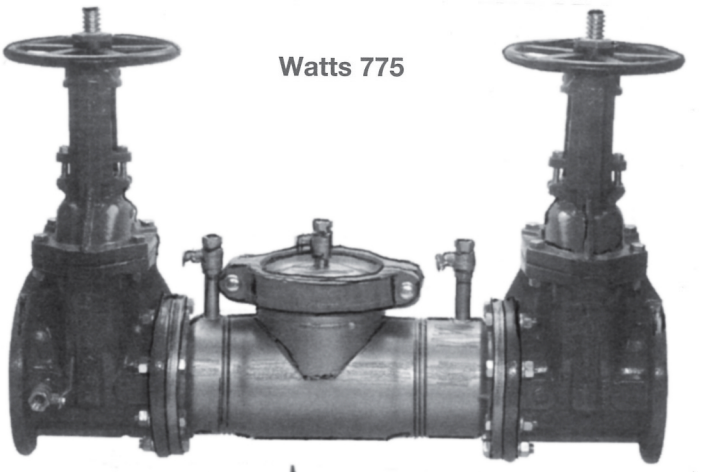


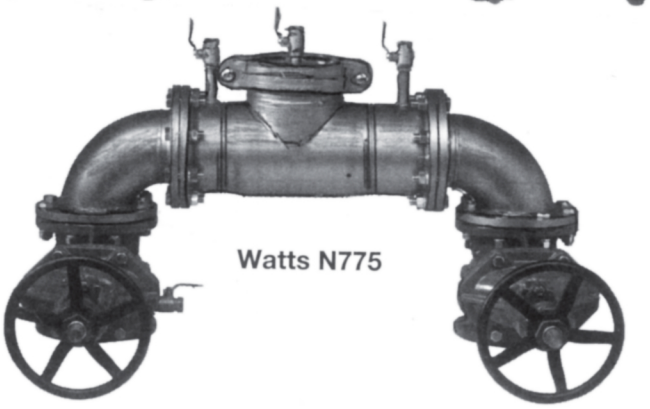




Series 775
Double Check Valve Backflow Preventer

Sizes: 3"- 8" (80 - 200mm)





FEATURES

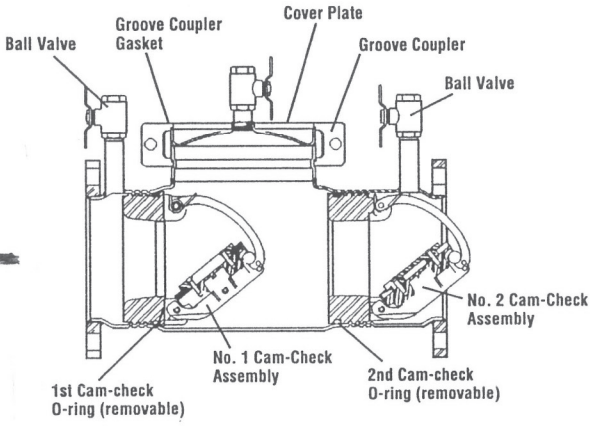
- *Short lay length for low installation cost - ideal for retrofit, valve vault and enclosure installations*
- *Light weight stainless steel body reduces handling and shipping costs versus cast iron valves*
- *Patented torsion spring check valve minimizes head loss*
- *Center-loaded stainless steel center pivot arm-distributes spring load evenly for repeatable touble free operation*
- *Stainless steel body provides long term corrosion protection and maximum strength-eliminates need for epoxy coatings*
- *Threaded-in check modules eliminate the need for retaining wires and difficult to remove clips*
- *Reversible check disc rubber*
- *Single top access cover with two bolt grooved style coupling for ease of maintenance*
- *Stainless steel and thermoplastic check valve construction for corrosion resistance*
- *No special tools required for servicing*
- *Same lay length as most Detector Check Valves for simplified retrofit installations*
- *Lead free body*
- *May be installed horizontally or vertically for ease of installation**

MATERIALS

All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 110°F (43°C) continuous.



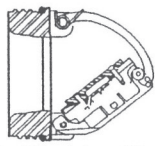
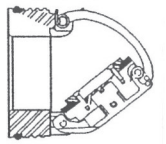
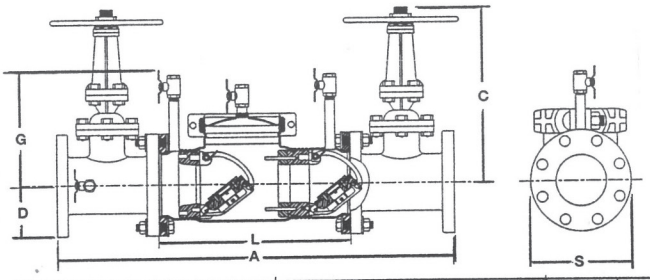


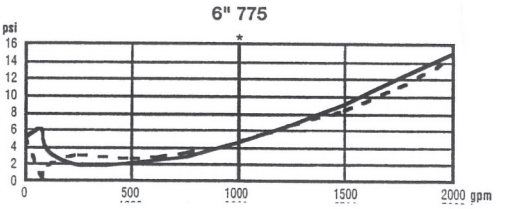
Figure 5

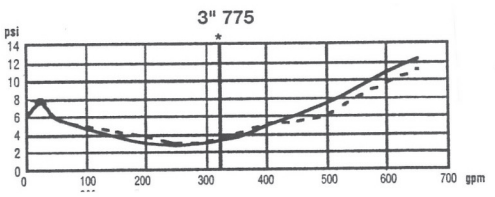


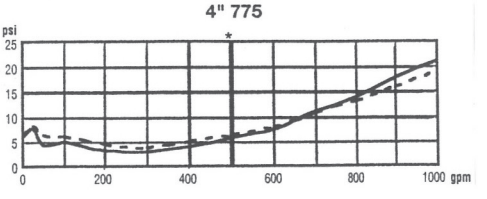
DIMENSIONS/WEIGHT (approximate)

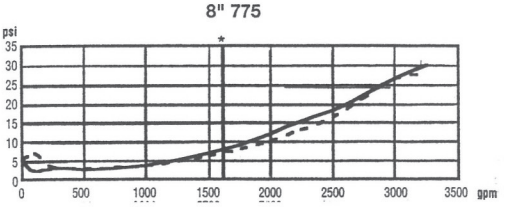


Size (DN) in.	mm	A in.	mm	C(OSY) in.	mm	Dimensions C(NRS)	D in.	mm	G in.	mm	L in.	mm	S in.	mm	Weight w/Gates lb.	kg.	Weight w/o Gates lb.	kg.
3	80	36⅛	918	18⅞	479	12⅜	3¾	95	10½	267	20	508	7½	191	190	86	43	20
4	100	34⅝	879	22¾	578	14¾	4½	114	10½	267	16½	419	9	229	255	116	42	18
6	150	43⅝	1108	30⅛	765	19	5½	140	12½	318	22½	572	11	279	399	181	78	34
8	200	45⅝	1159	37¾	959	22½	6¾	171	12½	318	22½	572	13½	343	613	278	92	41









*Rated flow as established by approval agencies

Horizontal = ———
Vertical = - - - - - - -

WATTS 775DCDA

SIZE
3" , 4", 6", 8"

DESCRIPTION
This is a double check detector assembly. Production began in 2000 and was discontinued in 2003. The main valve is an assembly similar to the Watts 775. The bypass uses either the Watts 007M3 or the model 775.

BASIC REPAIR KIT
Mainline repair kit contains discs and O-rings

SIZE	KIT NO
3"-4"	775-RT300
6"-8"	775-RT600

Bypass repair kit contains disc holder and discs and O-rings

SIZE	KIT NO
3/4" 007M3	007M3-RT075
3/4" 775	775-RT050

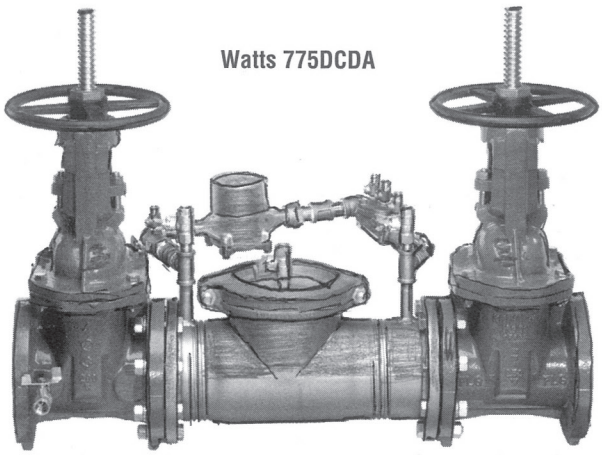
IMPORTANT FEATURES
~Mainline see Watts 775
~Bypass See Watts 007M3 or 775
~Factory repair information enclosed

BAVCO
BACKFLOW APPARATUS & VALVE CO.

Series 775DCDA

Double Check Detector Assembly

Sizes 3"- 8" (80 - 200mm)



MATERIALS

All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

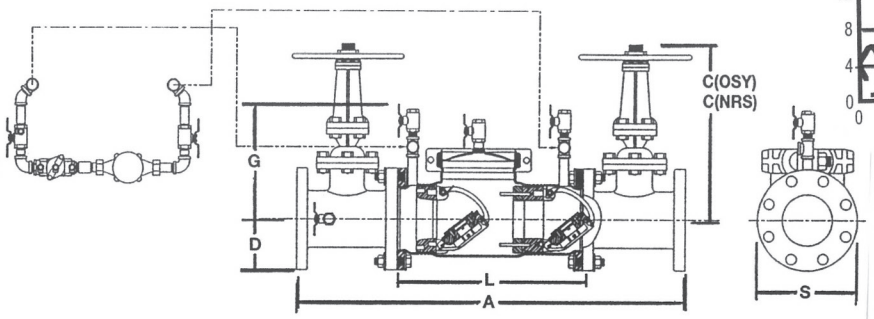
PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 110°F (43°C) continuous.

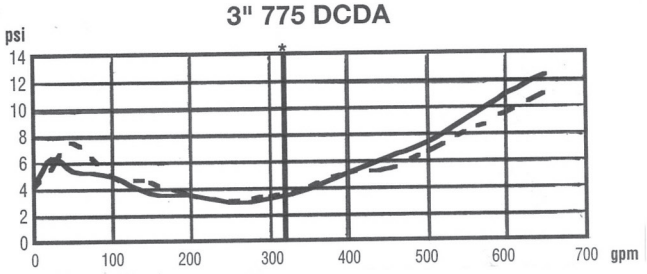
FEATURES

- *50% shorter lay length for low installation cost-ideal for retrofit, valve vault, and enclosure installations*
- *60% lighter than traditional cast iron valves-reduces handling and shipping costs*
- *Patented torsion spring check valve minimizes head loss*
- *Detects underground leaks and unauthorized water use*
- *Furnished with 5/8" x 3/4" bronze meter (gpm or cfm)*
- *Center-loaded stainless steel center pivot arm-distributes spring load evenly for repeatable trouble free operation*
- *Stainless steel body provides long term corrosion protection and maximum strength-eliminates need for epoxy coatings*
- *Threaded-in check modules eliminate the need for retaining wires and difficult to remove clips*
- *Reversible check disc rubber*
- *Single top access cover with two bolt grooved style coupling for ease of maintenance*
- *Stainless steel and thermoplastic check valve construction for corrosion resistance*
- *No special tools required for servicing*
- *Same lay length as most single detector check valves for simplified retrofit installations*
- *Lead free body*

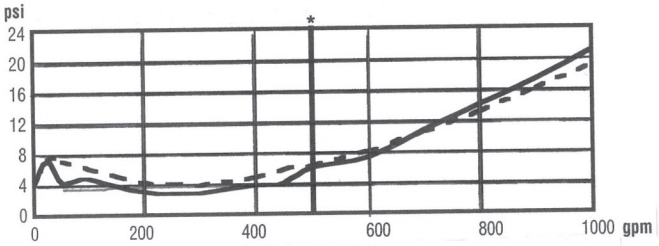
DIMENSIONS - WEIGHT *(approximate)*



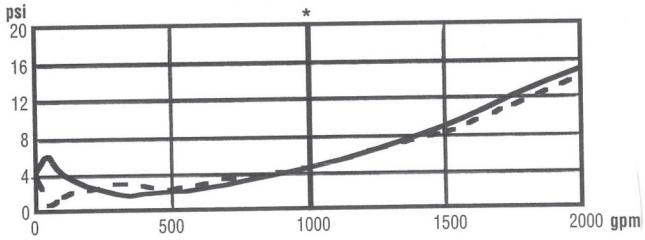
3" 775 DCDA



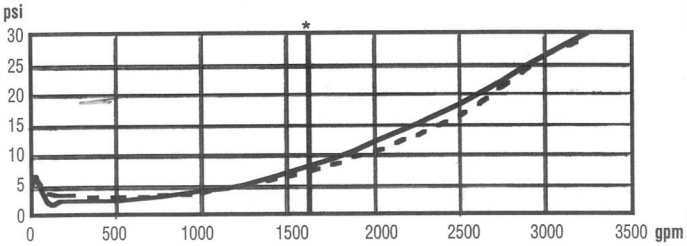
4" 775 DCDA



6" 775 DCDA



8" 775 DCDA



Size (DN)		A		C(OSY)		C(NRS)		Dimensions D		G		L		S		Weight w/Gates		Weight w/o Gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.	lb.	kg.
3	80	36⅛	918	18⅞	479	12⅜	314	3¾	95	13¼	337	20	508	7½	191	201	91	54	24
4	100	34⅝	879	22¾	578	14¾	375	4½	114	13¼	337	16½	419	9	229	266	121	53	24
6	150	43⅝	1108	30⅛	765	19	483	5½	140	15	381	22½	572	11	279	411	186	90	41
8	200	45⅝	1159	37¾	959	22½	572	6¾	171	15	381	22½	572	13½	343	626	284	105	48

WATTS 800

SIZE
1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

DESCRIPTION
This is a pressure vacuum breaker assembly. This assembly was produced from 1982-1993. The valve body is made of bronze. The check seat is cast into the body and is not replaceable. The springs are contained when the bonnet is removed. The check spring tension must be released for proper repair.

BASIC REPAIR KIT
The repair kit contains check rubber disc, float disc, and bonnet O-ring.

SIZE	KIT NO
1/2"	800-RT050
3/4"	800-RT050
1"	800-RT050
1 1/4"	800-RT125
1 1/2"	800-RT125
2"	800-RT125

IMPORTANT FEATURES
~Bronze body

~Check seat is not replaceable

~Springs are contained

Series 800QT
Anti-Siphon Pressure Vacuum Breakers

Sizes: ½" thru 2"

FEATURES

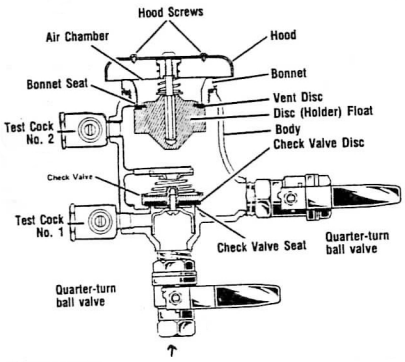
- Easy maintenance of internal parts.
- With resilient seated quarter turn ball valve shut offs
- Test cocks for easy testing to insure proper operation.
- No special tools required for servicing.

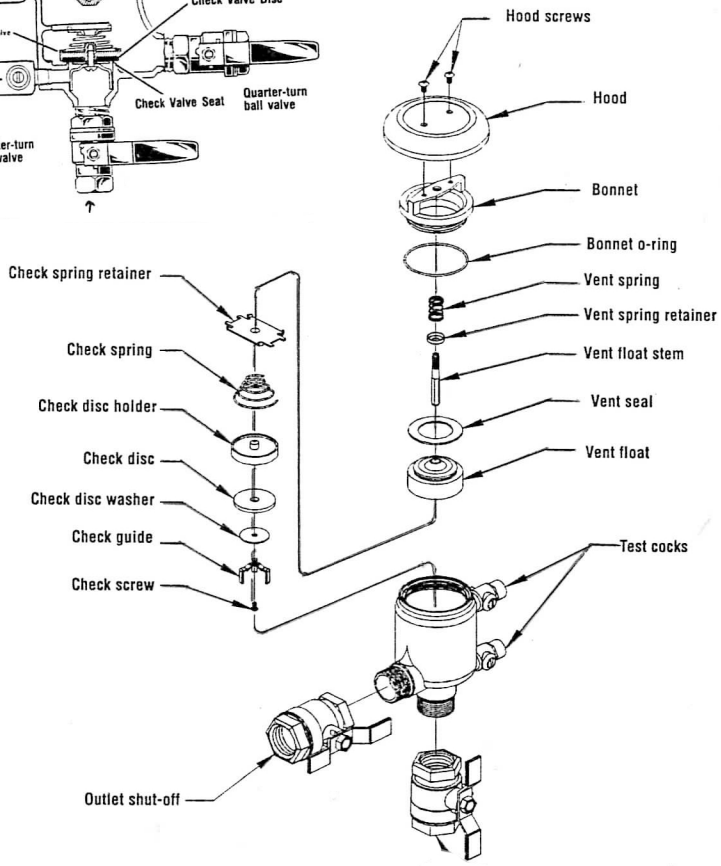
PRESSURE - TEMPERATURE

Working Temperature: 33°F to 140°F
Max. Pressure ——— 150 PSI
Min. Pressure ——— 15 PSI

MATERIALS

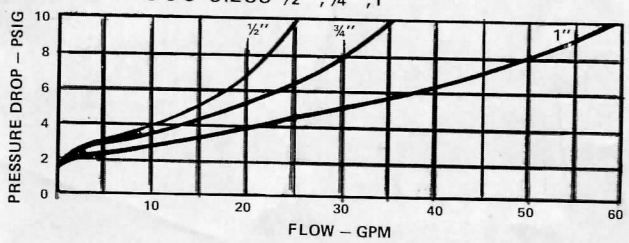
Bonnet	Plastic
Vent Disc	Silicone Rubber
Disc Holder Float	Polyethylene
Check Valve Disc	Silicone Rubber
Check Valve Seat	Bronze
Body	Bronze



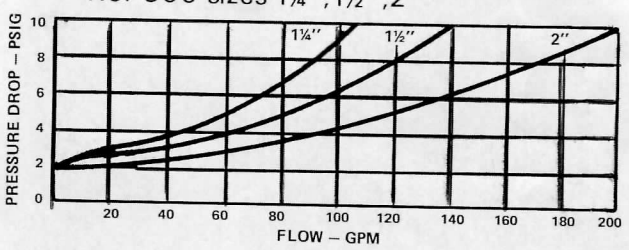


CAPACITY

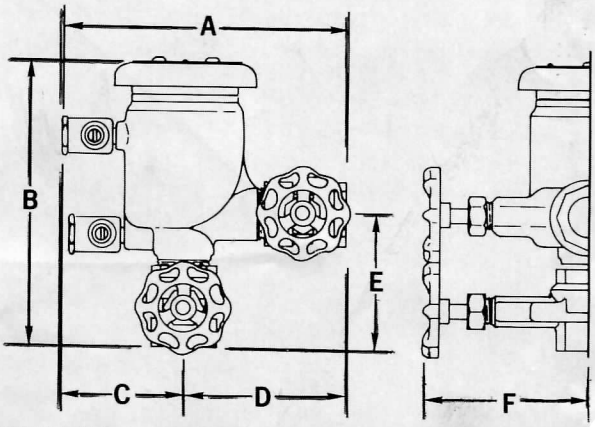
No. 800 sizes ½", ¾", 1"



No. 800 sizes 1¼", 1½", 2"



DIMENSIONS-WEIGHTS



No. 800	A	B	C	D	E	F	Weight
½"	7 1/8"	7 3/4"	3 1/8"	4 5/8"	4 1/8"	3 3/8"	6 1/2 lbs.
¾"	7 1/8"	7 1/8"	3 1/8"	4"	3 7/16"	3 3/4"	6 3/4 lbs.
1"	7 1/8"	7 1/8"	3 1/8"	4"	3 11/16"	4 3/8"	7 3/8 lbs.
1¼"	10 3/16"	10 15/16"	4 1/8"	6 1/16"	5 15/32"	4 7/8"	18 lbs.
1½"	10 3/16"	10 15/16"	4 1/8"	6 1/16"	5 3/4"	5 1/2"	19 1/8 lbs.
2"	10 3/8"	11 1/8"	4 1/8"	6 1/4"	6 1/8"	6 3/8"	21 1/8 lbs.

WATTS
800M/ 800CM

SIZE
1/2", 3/4"

DESCRIPTION
This is a pressure vacuum breaker assembly. Production began in 1986 and was discontinued in 2012. It has a one piece compact body design that incorporated the ball valves in the assembly body. The test cocks are located in the ball valve stem. The test cocks are a specially designed needle valve that requires turning of the test cock to operate. The 800CM model is the same as the 800M except it is chrome plated. The body is made of bronze. The check seat is cast in the body and is not replaceable. The check spring is contained when the bonnet is removed.

BASIC REPAIR KIT
The repair kit contains check assembly, float assembly, bonnet, and bonnet O-ring.

SIZE	KIT NO
1/2"	800CM-T050
3/4"	800CM-T050

IMPORTANT FEATURES
~Bronze body

~Check spring is contained

~Check seat is cast in the body

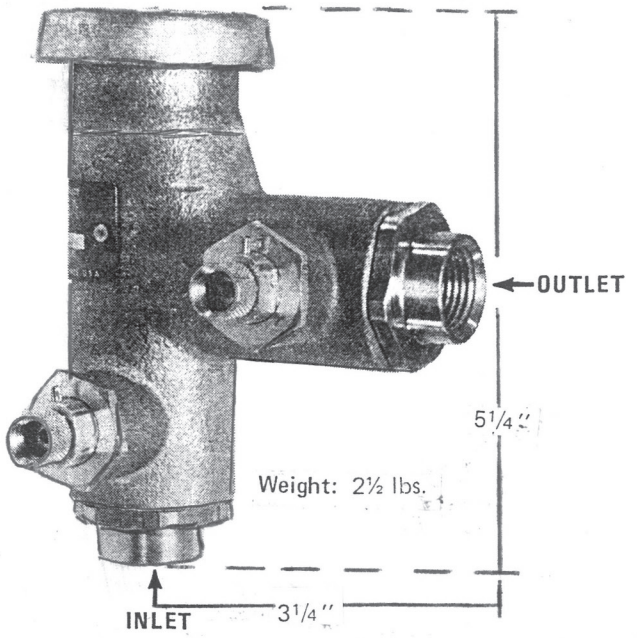
~Integral ball valve construction

~Special needle valve test cocks

WATTS
No. 800M, 800CM
ANTI-SIPHON PRESSURE TYPE VACUUM BREAKERS

Size: ½", ¾"

Model 800M - Bronze body
Model 800CM - Chrome finish

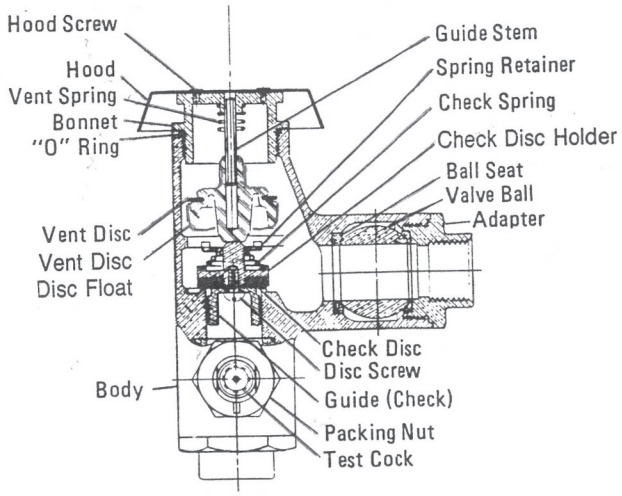


FEATURES

- Easy maintenance of internal parts
- Serves as an anti-siphon valve
- Hex test cocks for easy testing to insure proper operation
- Meets or exceeds the A.S.S.E. and U.S.C.F. requirements
- Drip tight ball valves

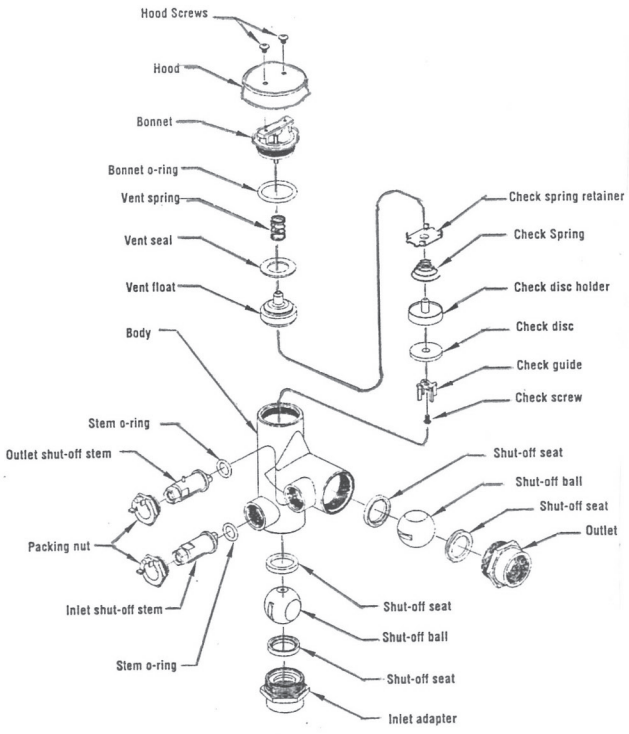
MATERIALS

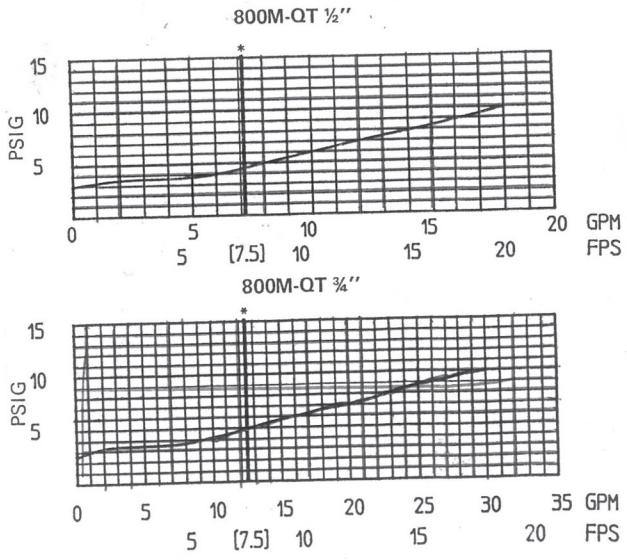
Hood - Brass
Bonnet - Bronze
Vent Disc - Silicone Rubber
Disc Holder Float - Polyethylene
Check Valve Disc - Silicone Rubber
Check Valve Seat - Bronze
Body - Bronze



PRESSURE - TEMPERATURE

Working Temperature: 33°F to 210°F
Maximum Pressure: 150 PSI
Minimum Pressure: 15 PSI





WATTS 800 M2
WATTS 800 M3

SIZE
M2 - 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"
M3 - 1/2", 3/4"

DESCRIPTION
This is a pressure vacuum breaker assembly. Produced from 1991-1994. This is a bronze bodied unit. The check spring is contained when the bonnet is removed. The check seats are not replaceable. The test cocks for these models are all located on the ball valve and not on the body.

BASIC REPAIR KIT
Repair kit contains all rubber discs and O-ring.

SIZE	KIT NO
1/2"-1" M2	800M2-RT050
1/2" -3/4" M3	800M3-RT050
1 1/4" -2"M2	800M2-RT125

IMPORTANT FEATURES
~Bronze body

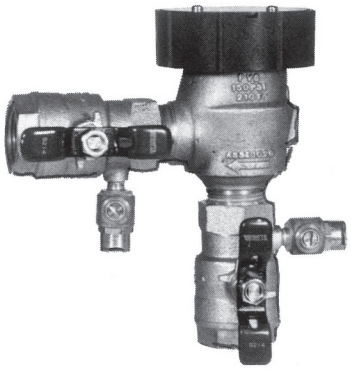
~Contained check spring

~Test cocks are mounted on the ball valve

BAVCO
BACKFLOW APPARATUS & VALVE CO.

Series 800M3-QT/800M2-QT
ANTI-SIPHON PRESSURE VACUUM BREAKERS

This valve is designed to prevent backsiphonage of contaminated water into a potable water supply. The valve is ideally suitable for turf irrigation systems, industrial process water systems and other continuous pressure piping system applications where the water enters the equipment at or below its flood rim. The disc float and check valve are suitable for temperatures up to 140°F. The resilient sealing float O'Ring seal and check seat disc are silicone rubber which is resistant to heat, shock and chemical attack.



No. 800M3-QT

No. 800M2-QT

MATERIALS

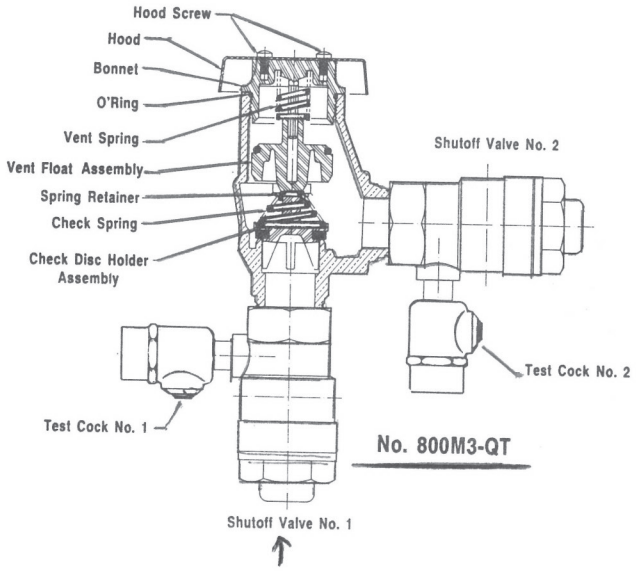
Hood	Acetal
Bonnet	Acetal
Vent Disc	Silicone Rubber
Disc Holder Float	Polypropylene
Check Valve Disc	Silicone Rubber
Check Valve Seat	Bronze
Body	Bronze

PRESSURE - TEMPERATURE

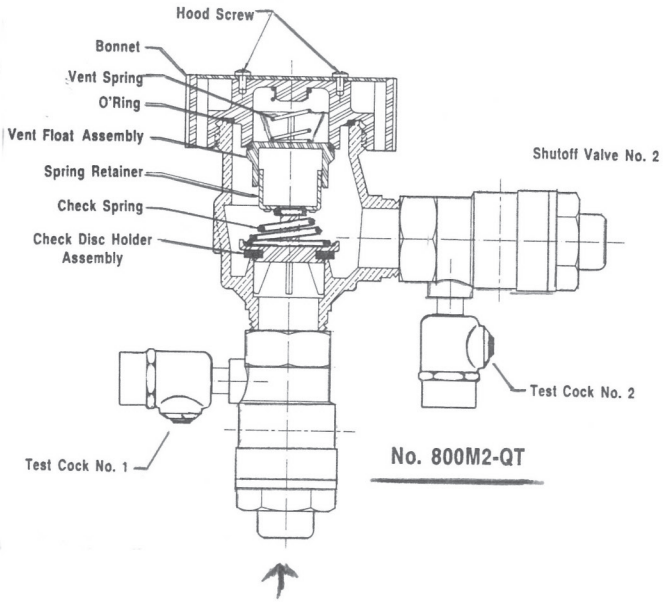
Working Temperature: 33° F to 210° F
Max. Pressure ——— 150 PSI
Min. Pressure ——— 15 PSI

FEATURES

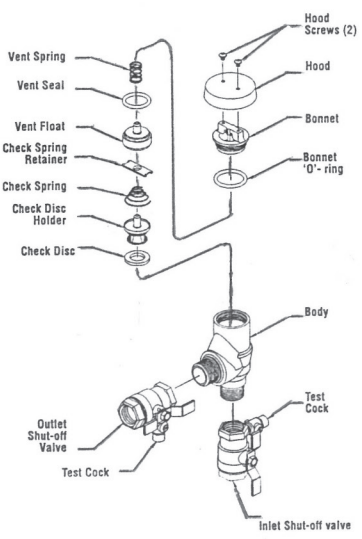
- Easy maintenance of internal parts.
- Acetal bonnet to act as "freeze plug" to prevent body damage.
- O'Ring bonnet seal for less possibility of fouling.
- Silicone seat discs for durability.
- Test cocks for easy testing and draining.
- Compact space saving design.
- Meets or exceeds the ASSE use requirements.
- Standardly equipped with tee handle quarter turn ball valve shutoffs ½ "- 1". The 1¼ "- 2" feature lever handles.
- No special tools required for servicing.
- Bronze body for durability.



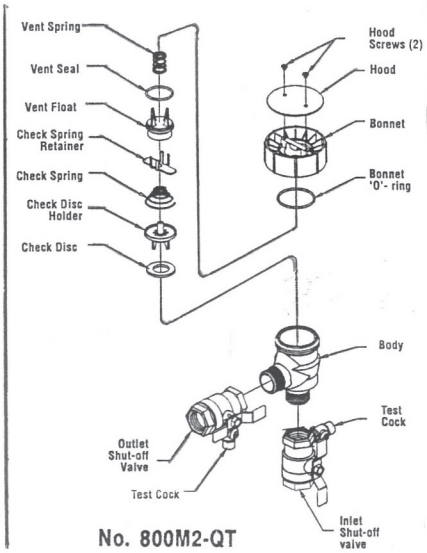
No. 800M3-QT



No. 800M2-QT



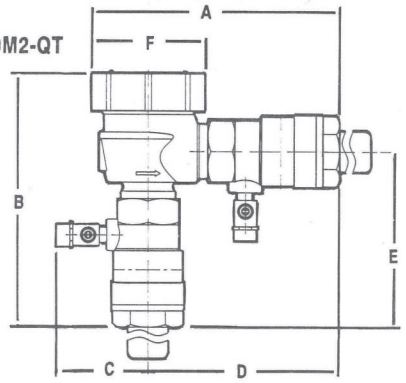
No. 800M3-QT



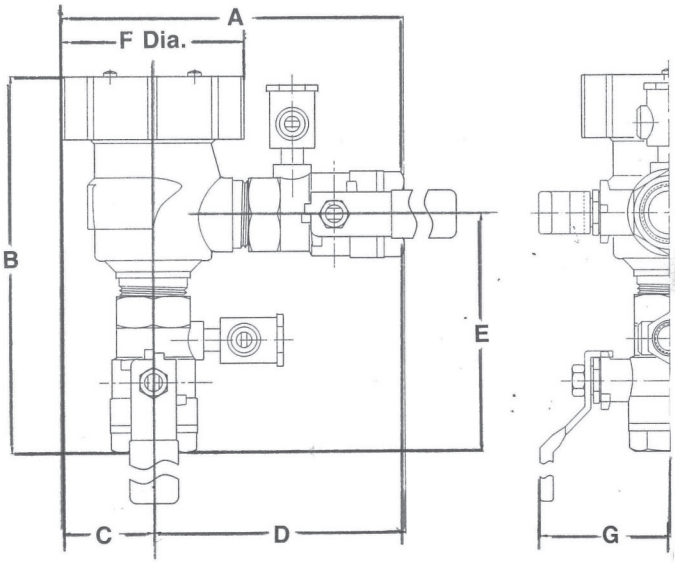
No. 800M2-QT

DIMENSIONS - WEIGHT

No. 800M2-QT

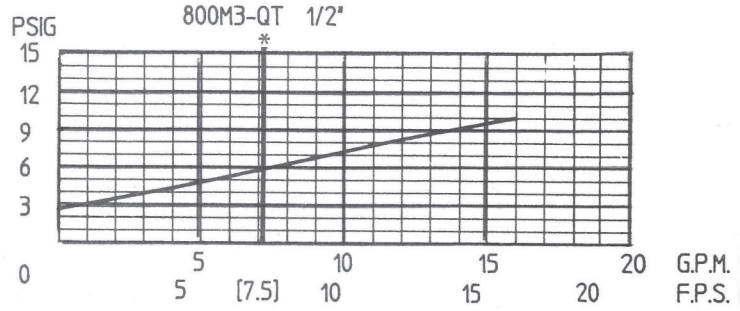


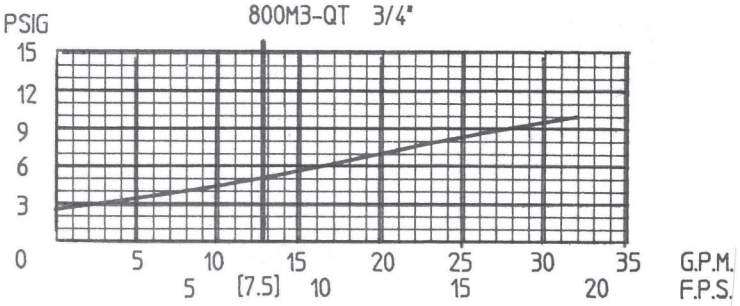
No.	Size (In.)	Dimensions (inches) A	B	C	D	E	F	Weight (lbs.)
800M3-QT	½	4.97	6.19	2.25	3.85	3.69	2.25	3.06
800M3-QT	¾	5.25	6.47	2.38	4.13	3.97	2.25	3.13
800M2-QT	1	4.86	7.45	2.62	3.16	2.69	3.40	5
800M2-QT	1¼	8.56	9.00	2.75	6.08	5.75	4.96	10
800M2-QT	1½	8.85	9.36	2.87	6.37	6.12	4.96	13
800M2-QT	2	9.43	9.60	3.12	6.95	6.36	4.96	16

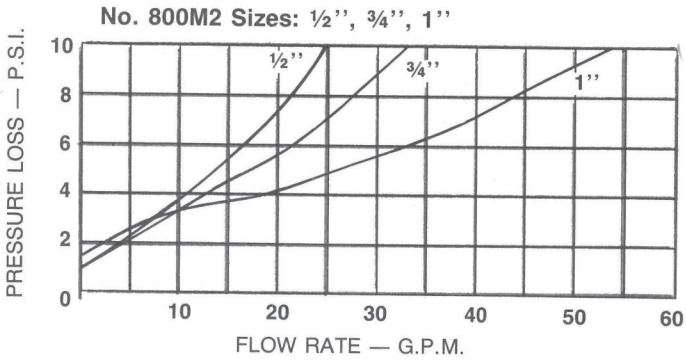


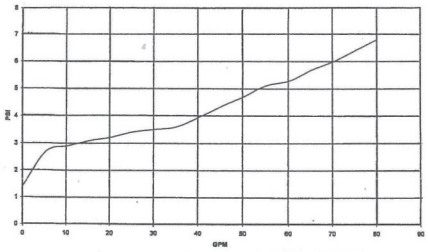
No. 800M2 QT

Size (In.)	Dimensions (Inches) A	B	C	D	E	F	G	Weight (lbs.)
½, ¾	5.25	6.47	1.12	4.13	4.50	2.25	2.07	3
1	6.63	7.28	1.75	4.88	4.60	3.52	2.50	5

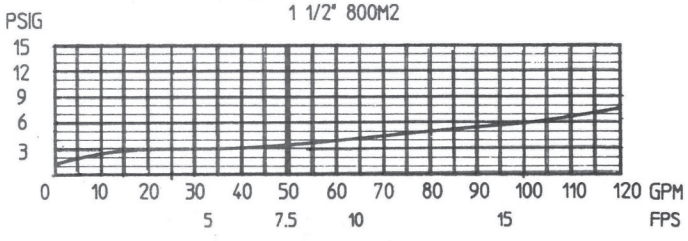


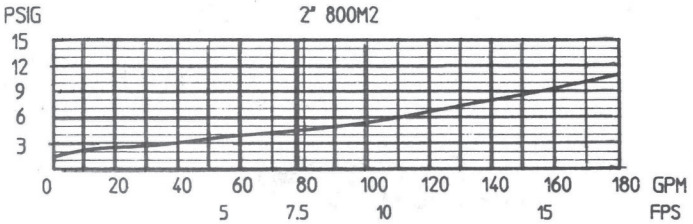






1 ¼"





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

WATTS
800 M4/ LF800 M4/ 800 M4-FR

SIZE
1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

DESCRIPTION
This is a pressure vacuum breaker. Production began in 1994. This is a bronze bodied unit. In 2010 a LF800M4 model was introduced which was constructed of lead free bronze. The check spring is contained when the bonnet is removed. The check seat is replaceable. A seat removal tool is needed to change the seat. The test cocks for this model are located on the ball valves and not on the assembly body. The 800M4 is a redesign of the 800M2 and 800M3 series with the only difference being the incorporation of a replaceable check seat. In 1995 the 800 M4 FR model was introduced. This model contains a small relief valve built into the air inlet float to prevent damage if the assembly froze.

BASIC REPAIR KIT
Repair kit contains the rubber disc and O-rings.

	800 M4
SIZE	**KIT NO**
1/2"-3/4"	800M4-RT050
1"	800M4-RT100
1 1/4"-2"	800M4-RT125

IMPORTANT FEATURES
~Bronze body

~Contained check spring

~Test cocks are mounted on ball valve

~Factory repair information enclosed

Series 800M4

Anti-Siphon Pressure Vacuum Breaker

Sizes: ½", ¾",1", 1¼", 1½", 2"

Features

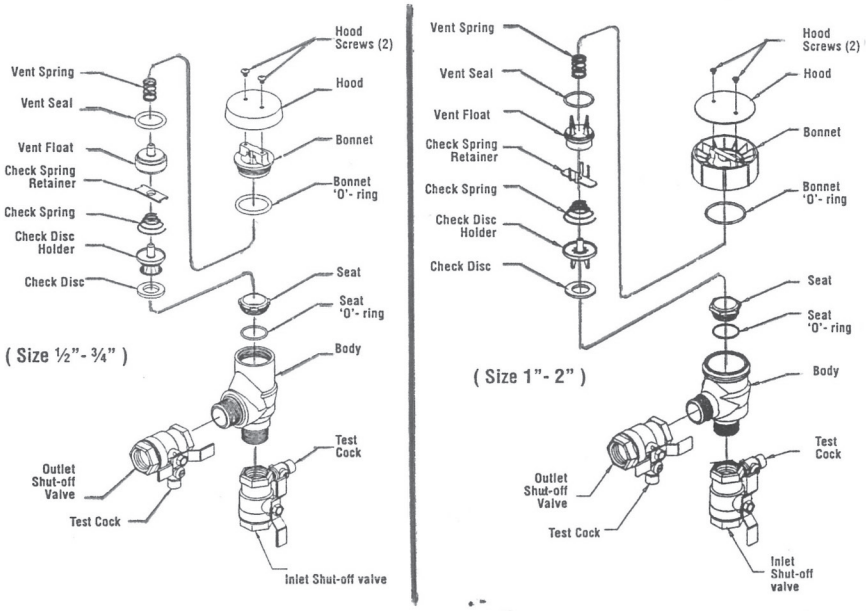
- Replaceable plastic seat
- Easy maintenance of internal parts
- Serves as an anti-siphon valve
- Ball valve test cocks for easy testing to insure proper operation
- Quarter-turn ball valve shutoffs
- "T" handles on ½" - 1"

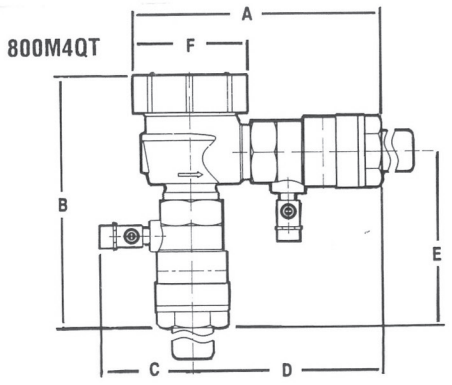
Pressure - Temperature

Working Temp: —— 33°F - 140°F
Max. Pressure: —— 150 PSI
Min. Pressure: —— 15 PSI

Materials

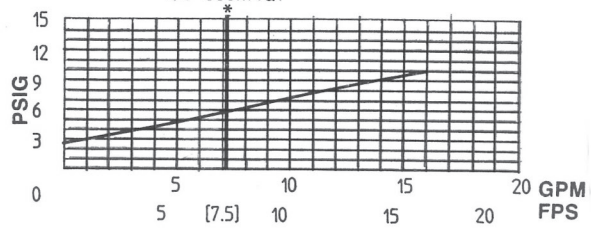
Vent Disc ——— Silicone rubber
Disc Holder Float ——— Polyethylene
Check Valve Disc ——— Silicone rubber
Check Valve Seat ——— Plastic - Noryl
Body ——— Bronze
Shutoff Valves ——— Quarter-turn ball type



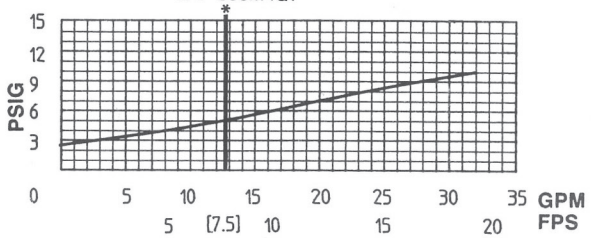


No.	Size (In.)	Dimensions (In.) A	B	C	D	E	F	Weight (lbs.)
800M4-QT	½	5	6 3/16	2 1/4	3 7/8	3 11/16	2 1/4	3 1/16
800M4-QT	¾	5 1/4	6 1/2	2 3/8	4 1/8	4	2 1/4	3 1/8
800M4-QT	1	4 7/8	7 1/2	2 5/8	3 3/16	2 11/16	3 7/16	5
800M4-QT	1 1/4	8 9/16	9	2 3/4	6 1/8	5 3/4	5	10
800M4-QT	1 1/2	8 7/8	9 3/8	2 7/8	6 3/8	6 1/8	5	13
800M4-QT	2	9 5/8	9 5/8	3 1/8	6 15/16	6 3/8	5	16

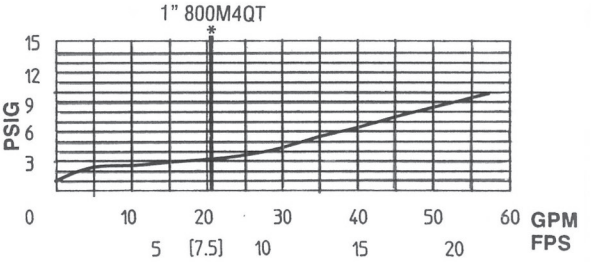
1/2" 800M4QT



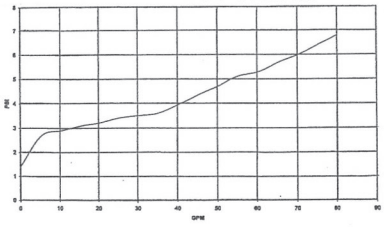
3/4" 800M4QT



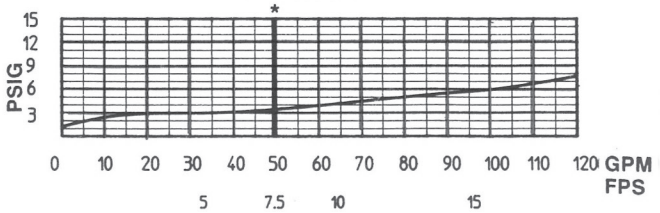
1" 800M4QT



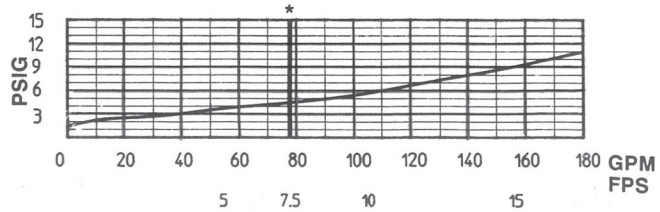
1 1/4" 800M4QT



1 1/2" 800M4QT



2" 800M4QT



WATTS 900

SIZE
3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 6"

DESCRIPTION
This was a reduced pressure assembly. It was produced from 1970 to 1988. The 3/4"-4" was a bronze bodied unit with an in-line check design. The 3/4"-2" size had to be removed from the piping for repair. All seats were replaceable on all sizes. The first check and relief valve springs were not contained when the assembly was disassembled. Special tools were suggested to perform a repair on this model. The 4" and 6" size body were made of cast iron and also had the in-line check design. The 4" was available in either bronze or cast iron body. The cast iron versions 4"-6" were either painted epoxy coated or galvanized to minimize rust. Special tools were needed to disassemble and repair this model.

BASIC REPAIR KIT
The kit contains rubber discs, gaskets, and O-rings.

SIZE	KIT NO	AIR GAP DRAIN	SPECIAL TOOLS
3/4"	46BFPRK	900AGC	The 3/4"-2" tool
1"	46BFPRK	900AGC	comes in the
1 1/4"	46BFPRK	900AGL	rubber repair kit
1 1/2"	48BFPRK	900AGL	
2"	48BFPRK	900AGL	
2 1/2"	42BFPRK	N/A	SAT900H153
3"	42BFPRK	N/A	SAT900H153
4"	43BFPRK	N/A	SAT900J153
6"	44BFPRK	N/A	SAT900K153

IMPORTANT FEATURES
~3/4"-2" not in line repairable

~3/4"-3" bronze body

~4"-6" cast iron body

~Special tools needed for proper repair

~Factory repair information enclosed

BAVCO
BACKFLOW APPARATUS & VALVE CO.

MODEL 900 Sizes ¾", 1", 1¼", 1½", 2"

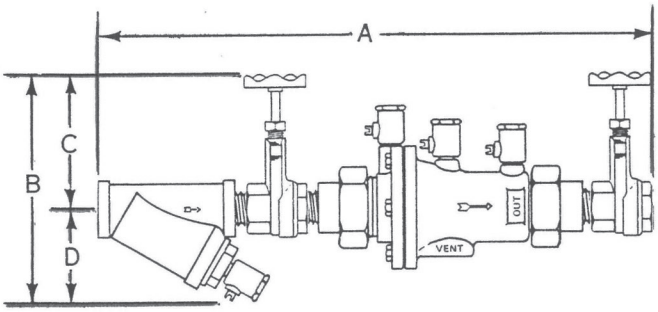
MATERIALS

Bronze body construction—stainless steel internal parts and flange bolts—durable, tight-seating rubber check valve assemblies.

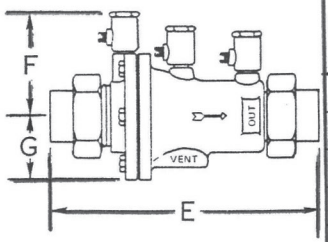
PRESSURE - TEMPERATURE

Suitable for supply pressure up to 175 psi and for supply water temperatures up to 140°F. and for emergency backflow temperatures up to 210°F. For higher operating temperature, consult factory.

DIMENSIONS - WEIGHT



Sizes (In.)	Dimensions (Inches) A	B	C	D	Total Weight (Lbs.)
¾	18 3/4	7 1/8	4	3 1/8	14 1/2
1	21 1/4	8 13/16	5 1/4	3 9/16	15
1¼	20 3/4	9 3/4	6	3 3/4	16
1½	28 3/4	10 3/4	6 3/4	4	39
2	29 3/4	12 7/8	8 1/4	4 3/8	42



Inlet - Outlet Sizes (In.)	Dimensions (Inches) E	F	G	Vent Sizes (In.)
¾	9	3 3/4	2 1/8	1
1	9	3 3/4	2 1/8	1
1¼	9 3/16	3 3/4	2 1/8	1
1½	14 3/4	5 1/4	3 9/16	2
2	14 3/4	5 1/4	3 9/16	2

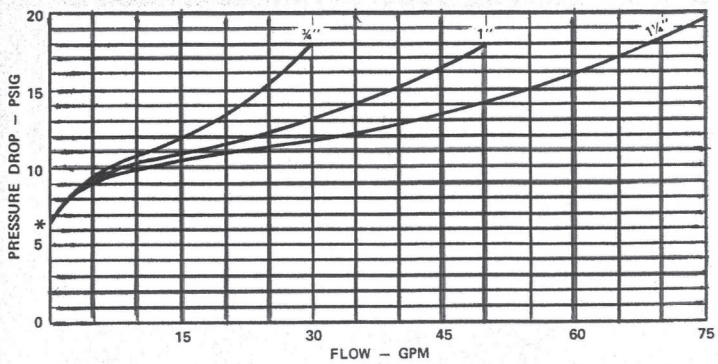
STANDARDS

39769 Certified thru 2"

Tested by Factory Mutual Research Corp. and certified by the American Society of Sanitary Engineering Standard 1013-1971 for reduced pressure principle backflow preventers. Meets performance requirements of A.W.W.A. Standard C506

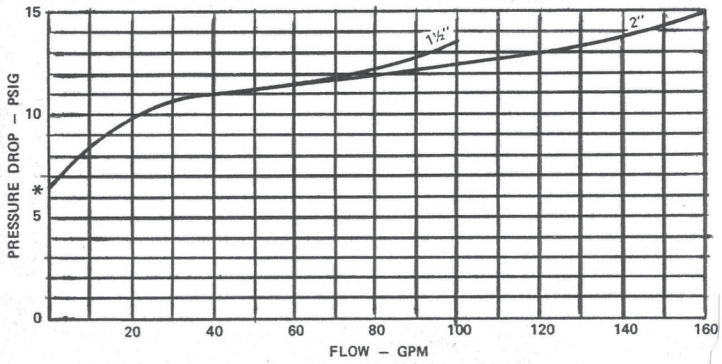
CAPACITY

NO. 900 SIZES ¾", 1", 1¼"



* OPENING PRESSURE

NO. 900 SIZES 1½", 2"



Size of Device	Rated Flow	Maximum Allowable Pressure Loss at Rated Flow	Actual Capacity Watts No. 900
¾"	30 GPM	20 PSI	35
1"	50 GPM	18 PSI	55
1¼"	75 GPM	18 PSI	75
1½"	100 GPM	16 PSI	130
2"	160 GPM	16 PSI	175

Table shows flow that an approved device must deliver based on maximum allowable pressure drops shown. These performance requirements are specified in the University of Southern California "Manual of Cross Connection Control" and A.S.S.E. Standard 1013.

Watts valves have been tested under these provisions and equal or exceed these performance requirements as shown.

SPECIFICATIONS FOR REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS

A reduced pressure principle backflow preventer shall be installed at any cross connection to prevent the backflow of contaminated water into the potable water supply. It shall be a complete assembly including tight-closing shut-off valves before and after the device and also be protected by a strainer. The design shall include test cocks, a pressure-differential relief valve located between two positive seating check valves. The device, (specified or indicated on plans) shall meet the requirements of A.S.S.E. Standard 1013. Watts Regulator Company Series 900 or equal.

MODEL 900 Sizes 2½",3",4",6" CAPACITY

MATERIALS

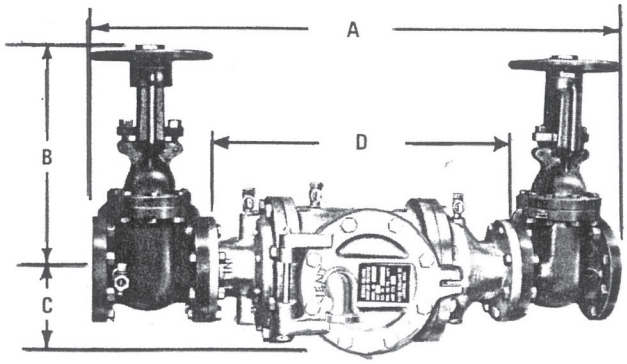
2½", 3" — Standard Bronze Construction
4" — Optional Bronze Construction
4", 6" — Standard Iron Construction

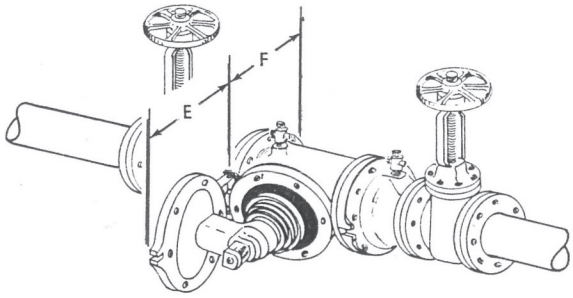
Iron body construction has internal waterways epoxy coated (FDA approved) — stainless steel and brass internal parts and flange bolts — durable, tight-seating rubber check valve assemblies.

PRESSURE - TEMPERATURE

Suitable for supply pressure up to 175 psi. and for water temperature up to 110°F.

DIMENSIONS - WEIGHT





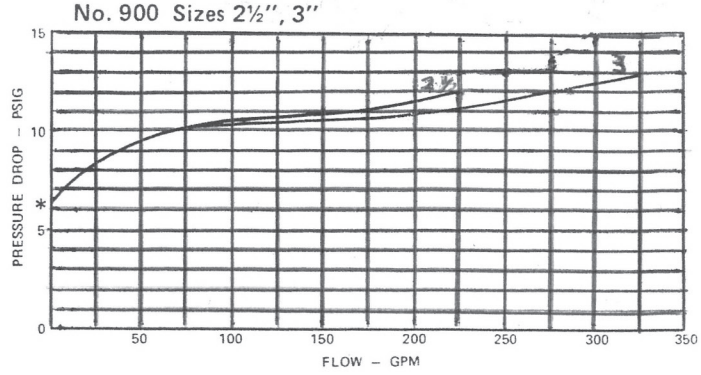
Sizes (In.)	Material	DIMENSIONS (Inches) A	B	C	D	E	F	Total Weight (Lbs.)
2½	Bronze	36½	16¼	3½	21	9 5/16	10	210
3	Bronze	37½	16¼	3¾	21	9 5/16	10	240
4	Bronze	45 11/16	19½	6½	27½	16	13	514
4	Iron	45 11/16	19½	6½	27½	16	13	571
6	Iron	59 9/16	24	8⅝	38 7/16	21	19½	1,120

STANDARDS

39769
Certified thru 6"

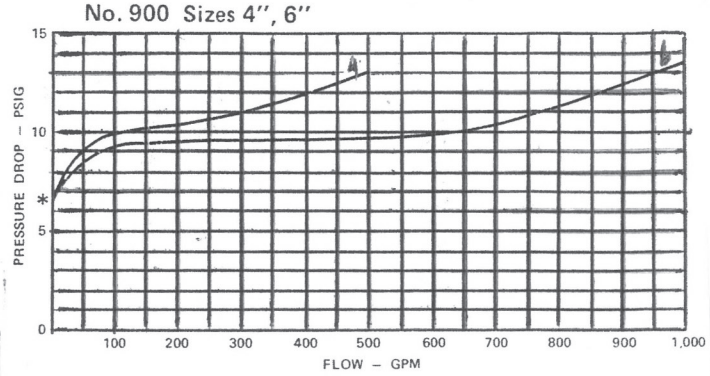
Designed to equal or exceed the requirements of A.S.S.E. standards 1013. AWWA standards C-506

No. 900 Sizes 2½", 3"



* OPENING PRESSURE

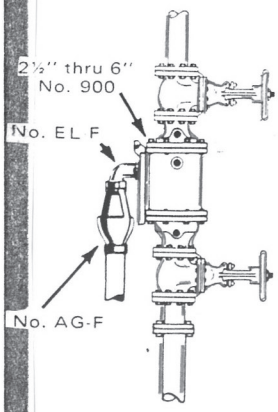
No. 900 Sizes 4", 6"



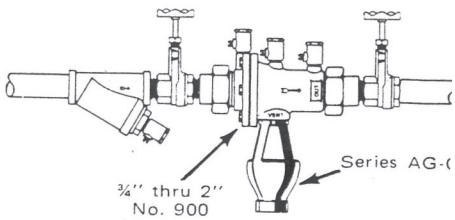
Air Gaps

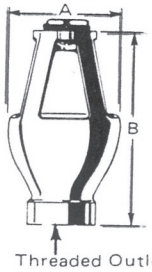
No.	Desc.	Body	Dimensions A	B	Weight
AG-C	Air Gap	Iron	3"	5¼"	1½ lbs.
EL-C	Elbow	Iron	2½"	2¼"	⅜ lb.
AG-F	Air Gap	Iron	4"	7¾"	3¼ lbs.
EL-F	Elbow	Iron	4½"	3¼"	2 lbs.

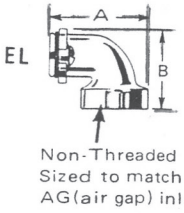
VERTICAL



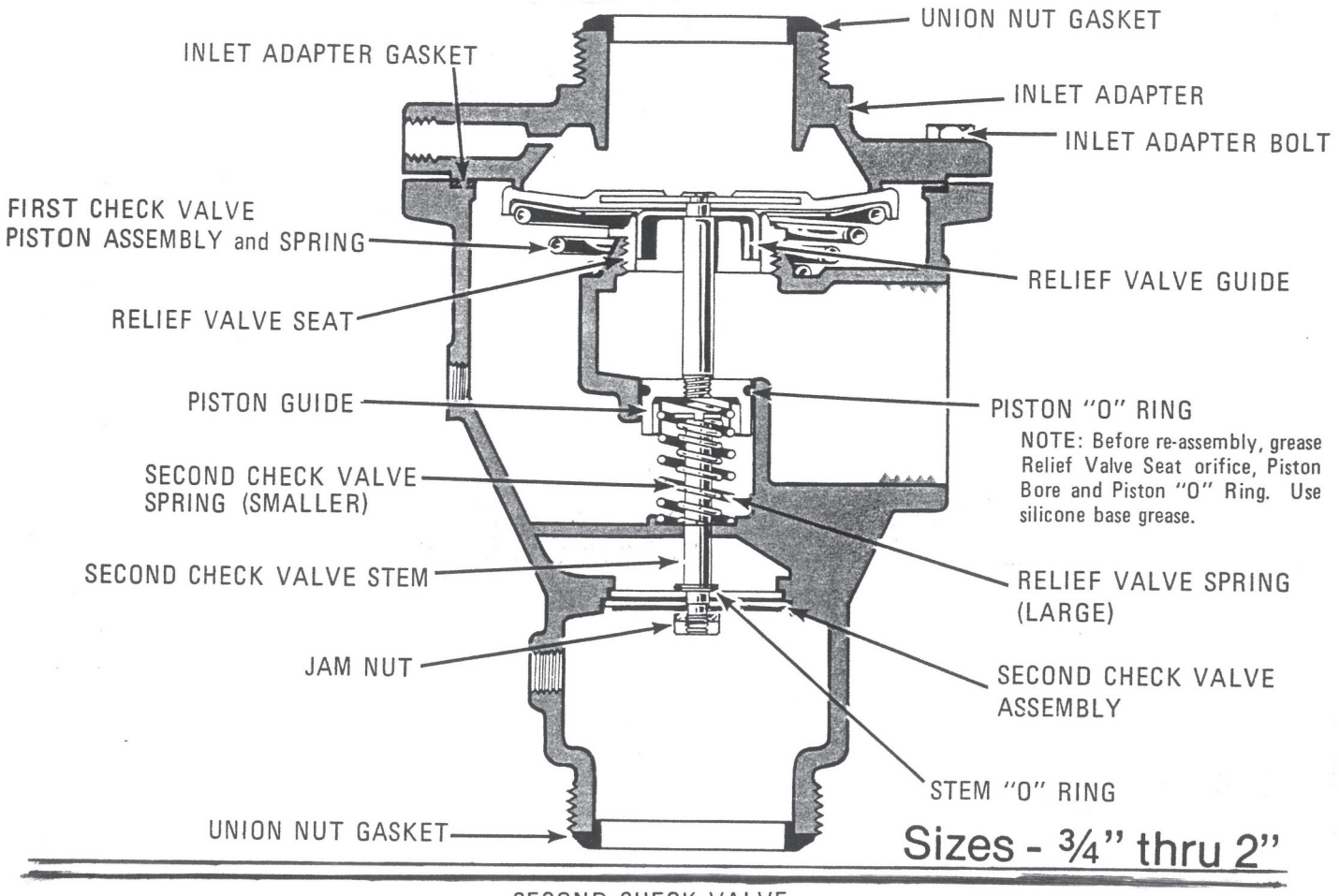
HORIZONTAL



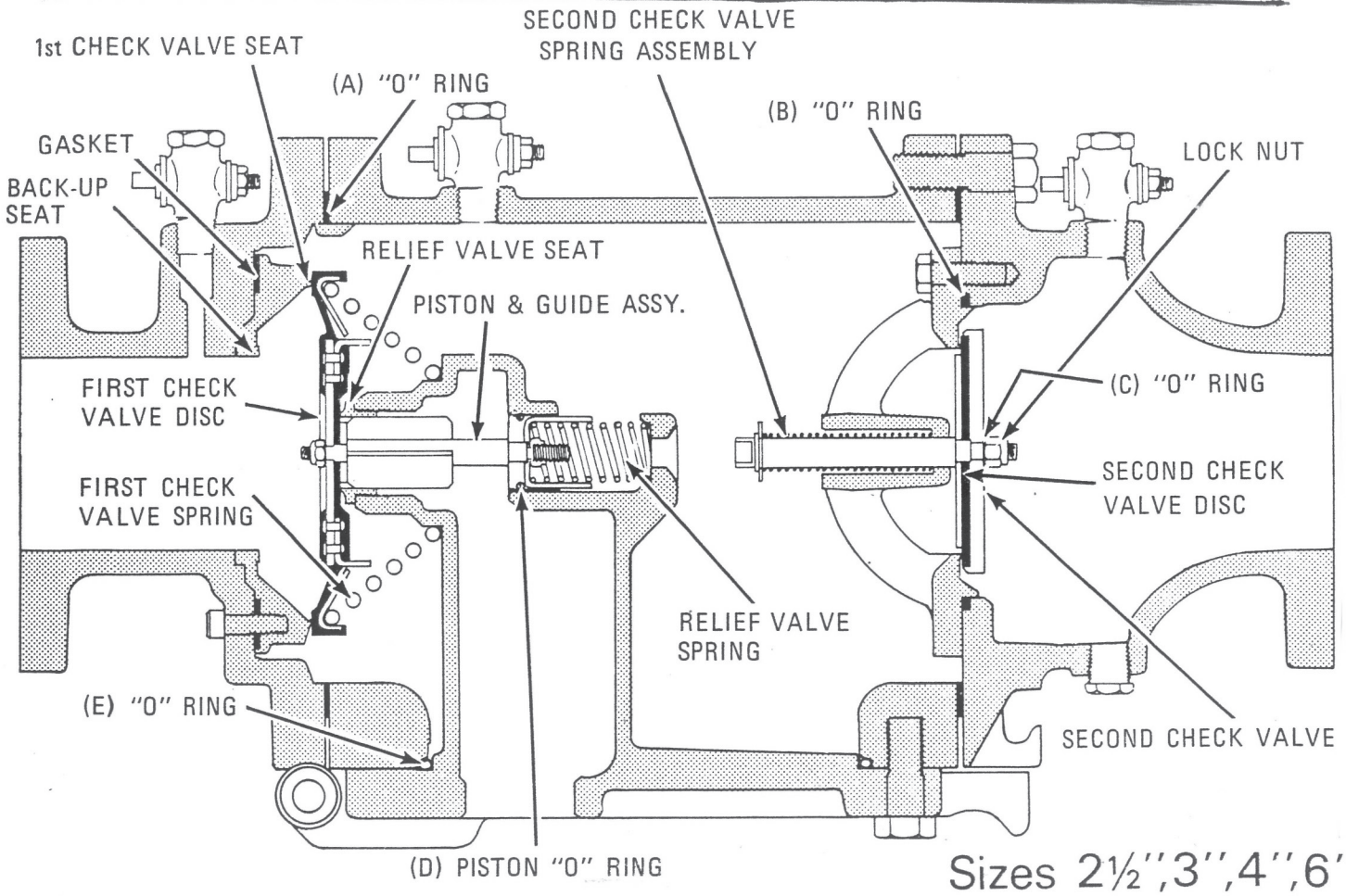




900



Sizes - ¾" thru 2"



Sizes 2½",3",4",6"

WATTS
909/ LF909/ 909 M1/ LF909M1

SIZE
3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 6", 8", 10"

DESCRIPTION
Model 909 is a reduced pressure backflow assembly. Production began in 1979. The 3/4"-3" size body is constructed of bronze. In 2010 a LF909 model was produced that utilized a lead free bronze. The 2 1/2"-10" size check body is cast iron with a fused epoxy coating. The 2 1/2" and 3" were available in bronze and cast iron. Watts also has a hot water option available in the 3/4"-2" which is good up to 210° F. This is designated by the letters HW after the model number, e.g.: 909HW. The model M1 was introduced in 1989 in the 3/4"-2" and 4"-10" sizes. The 3/4"-2" size was changed by having the nipple between the body and the shut-off cast into the body instead of being a separate nipple. The repair parts on the 3/4"-2" 909 and 909M1 are the same. The 4"-6" size had a change on the relief valve body. The 909 design had a bronze relief valve body. In the 909M1 modification the relief body was changed to fused epoxy coated cast iron. The relief valve spring assembly was also changed. In the 8"-10" 909M1 sizes there was a change in the relief valve body. The relief valve utilizes the internal parts of the 4"-6" 909 unit. In the 909 M1 series the relief valve rubber repair parts will be the same in 4"-10". The check design will be similar to the 709. The check seats are replaceable and springs are contained when the covers are removed. The 2 1/2"-10" utilized an external relief valve sensing line and the relief valve body can be detached from the check body on these sizes. In 2010 a LF909 model was introduced in all sizes which replaced the internal leaded bronze parts with stainless steel and other lead free bronze materials. The rubber repair kit will fit both versions.

BASIC REPAIR KIT
The 909 repair kit contains all disc holders, or discs, O-rings, and diaphragm.

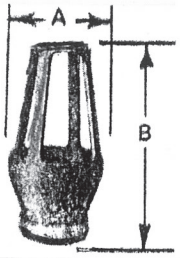
	KIT NO		AIR GAP DRAIN	
	LF909	LF 909	LF909	LF909M1
SIZE	909M1	909	909	909M1
3/4"-1"	LF909-RT075	LF909-RT075	AGC	AGC
1 1/4"-2"	LF909-RT125	LF909-RT125	AGF	AGF
2 1/2"	LF909-RT250	LF909-RT250	AGF	AGF
3"	LF909-RT250	LF909-RT250	AGF	AGF
4"	LF909-RT400	LF909-RT400	AGK	AGK
6"	LF909-RT600	LF909-RT600	AGK	AGK
8"	LF909M1-RT800	LF909-RT800	AGM	AGK
10"	LF909M1-RT001	LF909-RT001	AGM	AGK

IMPORTANT FEATURES
~3/4"-3" bronze body
~2 1/2"-10" fused epoxy coated cast iron check body
~Contained springs
~Replaceable seats
~External relief valve sensing line
~Relief valve body can be detached
~Factory repair information enclosed

BAVCO
BACKFLOW APPARATUS & VALVE CO.

No. 909AG Series

For No. 909 Sizes	Drain Outlet Size	Dimensions A	Dimensions B	Weight
3/4" and 1"	1"	3 1/4"	4 7/8"	1 1/2 lbs.
1 1/4" thru 2"	2"	4 3/8"	6 3/4"	3 1/4 lbs



MATERIALS

Bronze body construction — Model 909 celcon check seats, Model 909HW stainless steel check seats — stainless steel relief valve seats, shafts and flange bolts — durable tight seating, rubber check valve and relief valve assemblies. Bronze body test cocks.

LF909 Materials:

Body: Lead Free* Cast Copper Silicon Alloy
Check Seats: 909 Celcon®
Relief Valve Seats: Stainless Steel 909HW
Test Cocks: Lead Free* Cast Copper Silicon Alloy

Celcon® is a registered trademark of Celanese, Limited

PRESSURE-TEMPERATURE

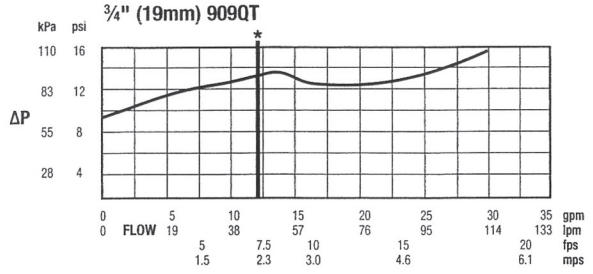
Series 909 suitable for supply pressure up to 175 PSI and water temperatures up to 140°F.

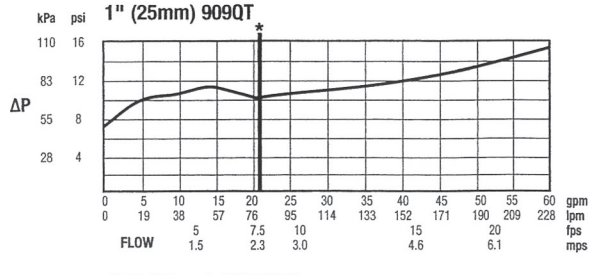
Suffix HW suitable for water temperatures up to 210°F.

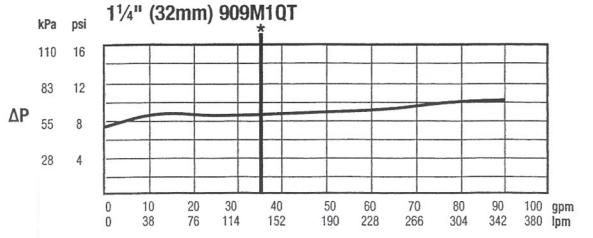
CONNECTIONS

Sizes ¾" and 1" have N.P.T. connections. Sizes 1¼", 1½" and 2" have screwed end flange connections.

CAPACITY

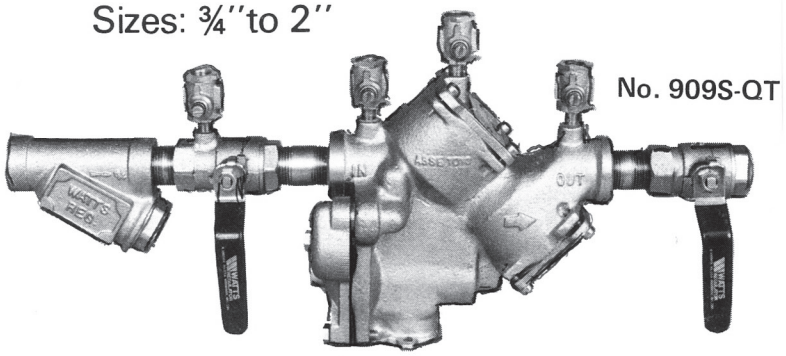




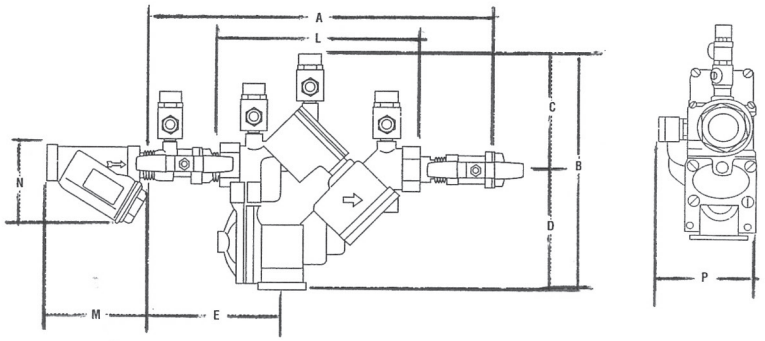


909 Series

Sizes: ¾"to 2"



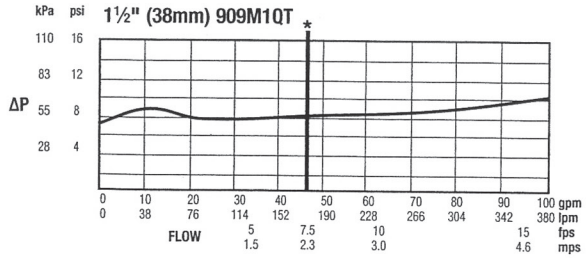
Series 909 provides superior protection in cross connection control for both cold and hot water installations. It is a unique, patented design incorporating the "air-in/water-out" principle, providing substantially improved relief valve discharge performance during the emergency conditions of combined back-siphonage and backpressure with both checks fouled.

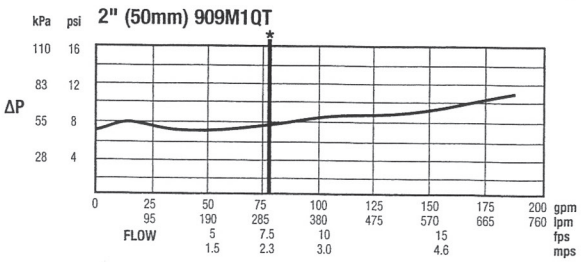


Suffix HC - Fire Hydrant Fittings dimension "A" = 23¾" (603mm)

909

SIZE (DN)		DIMENSIONS A		B		C		D		E		L		P		STRAINER DIMENSIONS M		N		WEIGHT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
¾	20	14⅜	365	8¾	222	4	102	4¾	121	6¾	171	7 5/16	186	3⅞	98	3 3/16	81	2¾	70	14	6
1	25	15⅜	391	8¾	222	4	102	4¾	121	7	178	7 5/16	186	3⅞	98	3¾	95	3	76	15	7
1¼	32	18½	470	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	4 1/16	113	3½	89	40	18
1½	40	19	483	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	4⅞	124	4	102	40	18
2	50	19½	495	11⅝	295	5½	140	6½	165	7¾	197	10⅜	264	5¼	133	5 5/16	151	5	127	40	18

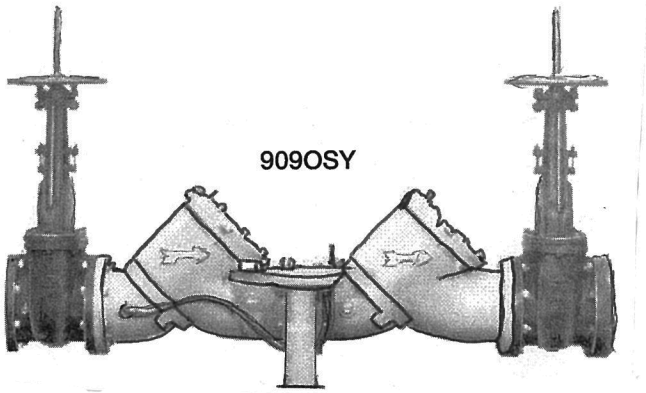




Series 909

Reduced Pressure Zone Assemblies

Sizes: 2½" – 10" (65–250mm)



Materials

Check Valve Bodies: FDA epoxy coated cast iron or bronze
Seats: bronze
Trim: stainless steel
Relief Valve Body: 2½"-3" (60-80mm) bronze
4"-10" (100-250mm) FDA epoxy coated cast iron
Test Cocks: bronze body ball valve

Pressure — Temperature

Temperature Range: 33°F-110°F (5°C-43°C) continuous, 140°F (60°C) intermittent
Maximum Working Pressure: 175psi (12.06 bar)

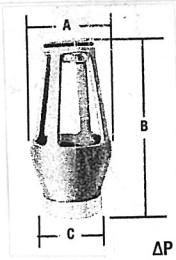
LF909 Materials:

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

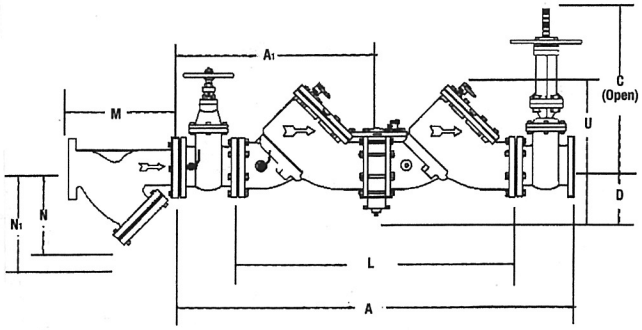
Air Gap Dimensions

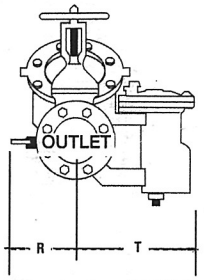
When installing a drain line on Series 909 backflow preventers that are installed horizontally, use 909 AG series air gaps.

Iron Body Model No.	Ordering Code	Series/Sizes	DIMENSIONS A in.	A mm	B in.	B mm	C in.	C mm	WEIGHT lbs	WEIGHT kgs
909AG-F	0881378	1¼" – 3" 009/909 1¼" – 2" 009 M1 2" 009 M2	4⅜	111	6¾	171	2	51	3.25	1.47
909AG-K	0881385	4" – 6" 909 8" – 10" 909 M1	6⅜	162	9⅝	244	3	76	6.25	2.83
909AG-M	0881387	8 – 10" 909	7⅜	187	11¼	286	4	102	15.50	7.03

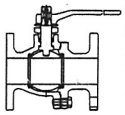


Dimensions — Weights





Quarter-turn (QT) Valve

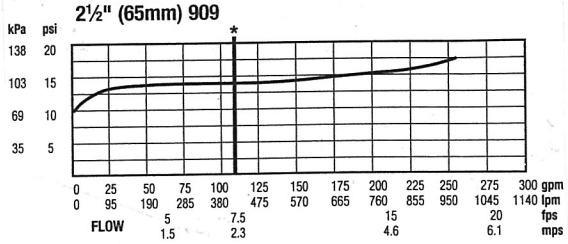


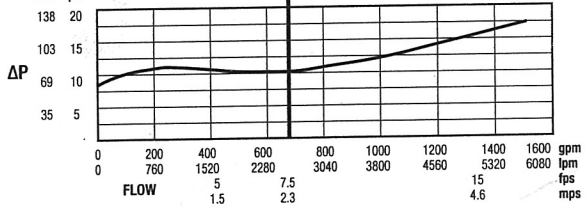
Watts G-4000 Series Ball Valves Send for F-G4000

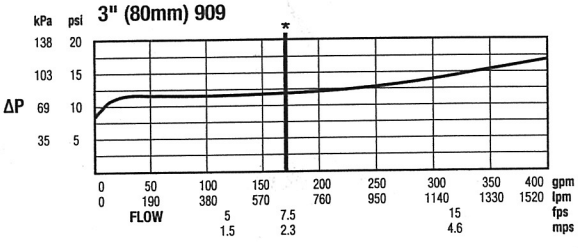
NOTE: Relief valve section is reversible, therefore, can be on either side and is furnished standardly as shown.

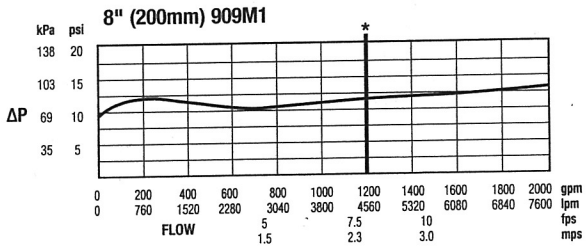
SIZE (DN)		DIMENSIONS A		A1		C clearance for check (OSY)*		(NRS)		D		L		U		R		R (QT)		T		WEIGHT NRS		OSY		QT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	65	41¼	1048	20⅝	524	16⅜	416	9⅜	238	5¼	133	26⅛	663	11	279	4	102	16	406	9 1/16	230	195	88.4	198	89.8	182	82.6
3	80	42¼	1073	21¼	540	18⅞	479	10¼	260	5¼	133	26⅛	663	11	279	5	127	16	406	9 1/16	230	225	102	230	104	190	86
4	100	55½	1400	27⅝	702	22¾	578	12 1/16	310	6	152	37	940	14	356	6	152	19¾	502	14⅜	365	455	206	470	213	352	160
6	150	65½	1664	32¾	832	30⅛	765	16	406	6	152	44½	1130	16	406	11	279	26	660	14⅜	365	718	326	798	362	762	346
8	200	78½	2000	39⅜	1000	37¾	959	19 15/16	506	9¾	248	55¼	1403	21	533	11¼	286	11¼	286	19¼	489	1350	612	1456	660	2286	1037
10	250	93⅝	2378	46⅞	1190	45¾	1162	23 13/16	605	9¾	248	67⅜	1711	21	533	12½	318	12½	318	21	533	2160	980	2230	1011	3716	1685

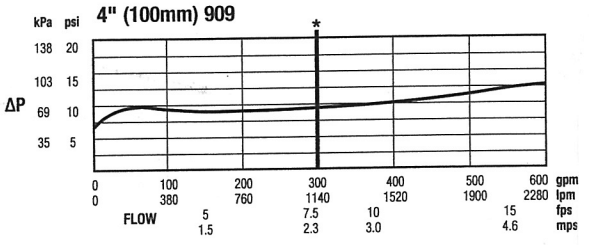
*UL, FM approved backflow preventers must include UL/FM approved OSY gate valves.

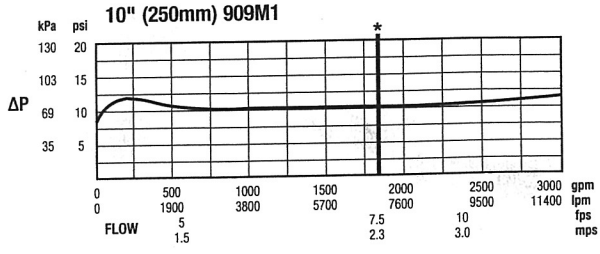






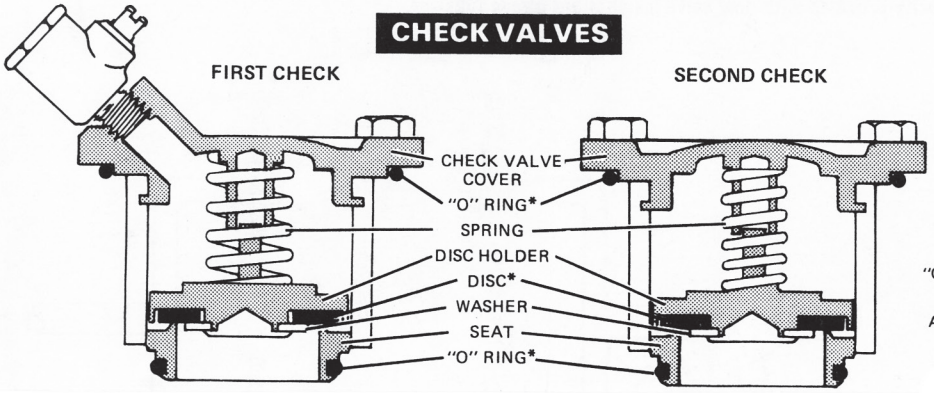




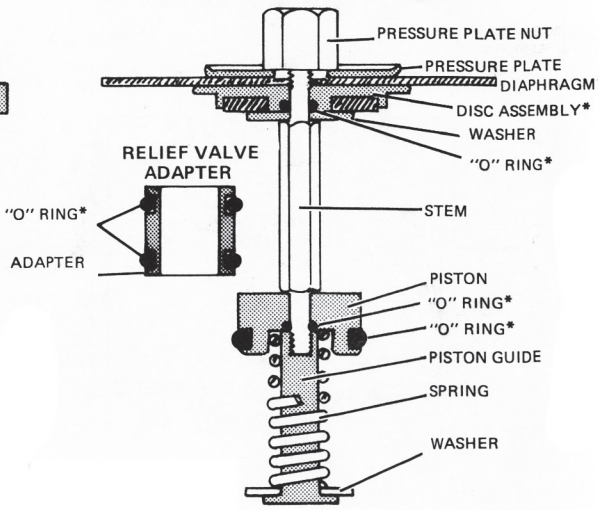


3/4" - 2" Replacement Parts

CHECK VALVES

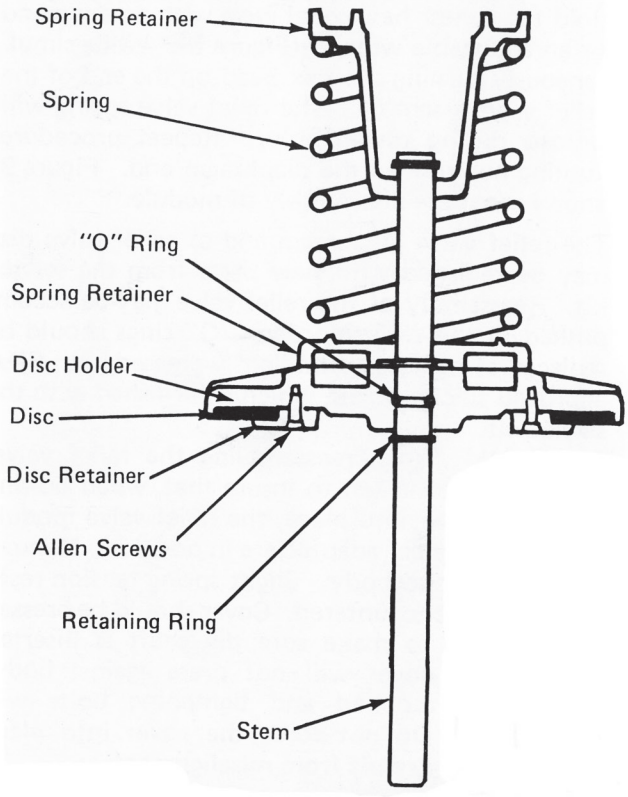


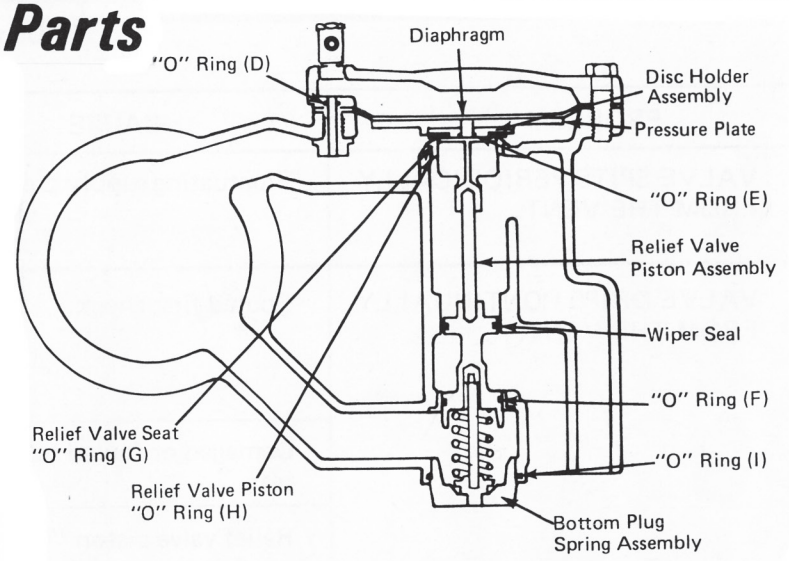
RELIEF VALVE ASSEMBLY



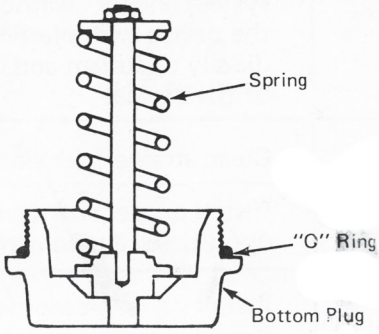
2½" - 10" Replacement Parts

CHECK MODULE ASSEMBLY



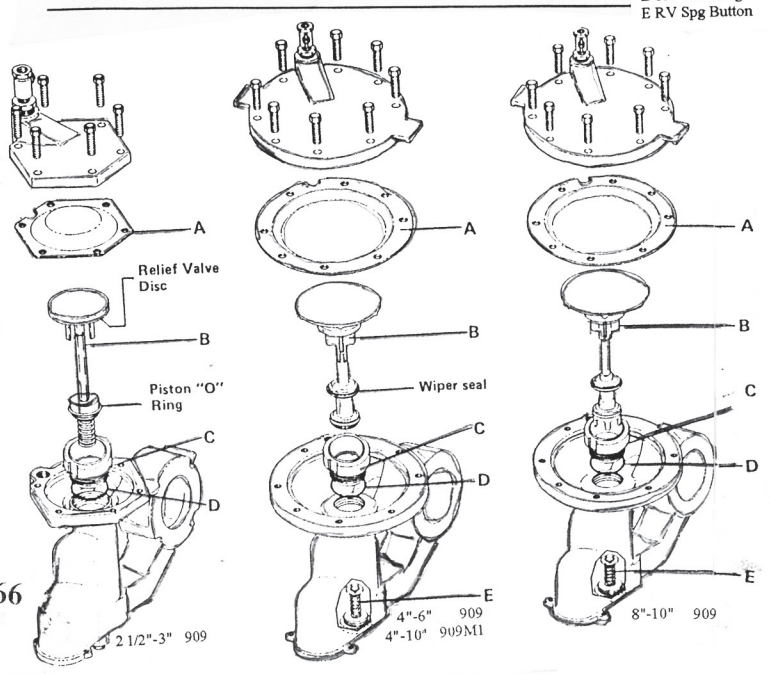


BOTTOM PLUG SPRING ASSEMBLY 4-10"



RELIEF VALVE PISTON ASSEMBLY

A Diaphragm
B RV Stem
C RV Seat
D RV Seat O'rg
E RV Spg Button



WATTS
909DDC/ 909 RPDA

SIZE
2 1/2", 3", 4", 6", 8", 10"

DESCRIPTION
This assembly is a reduced pressure detector assembly. The Model 909DDC began in 1987 and the 909RPDA began in 1990. The main assembly of the 909 DDC is similar to the Model 909. The 909RPDA is similar to the 909M1. The bypass design is either the Watts 909 3/4", Watts Model 009 3/4" or the 009 M2 3/4". Check the name plate on the bypass unit to be sure which model you have.

BASIC REPAIR KIT
Main line repair kit contains discs, diaphragm, and O-rings.

	909DDC		909 RPDA
SIZE	KIT NO	SIZE	KIT NO
2 1/2"-3"	LF909-RT250	2 1/2"-3"	LF909-RT250
4"	LF909-RT400	4"	LF909-RT400
6"	LF909-RT600	6"	LF909-RT600
8"	LF909-RT800	8"	LF909M1-RT800
10"	LF909-RT001	10"	LF909M1-RT001

Bypass repair kit contains all disc holders, diaphragms, and O-rings.

MODEL	SIZE	KIT NO	AIR GAP DRAIN
909	3/4"	LF909-RT075	AGC
009	3/4"	009-RT075	AGC
009M2	3/4"	009M2-RT075	AGA

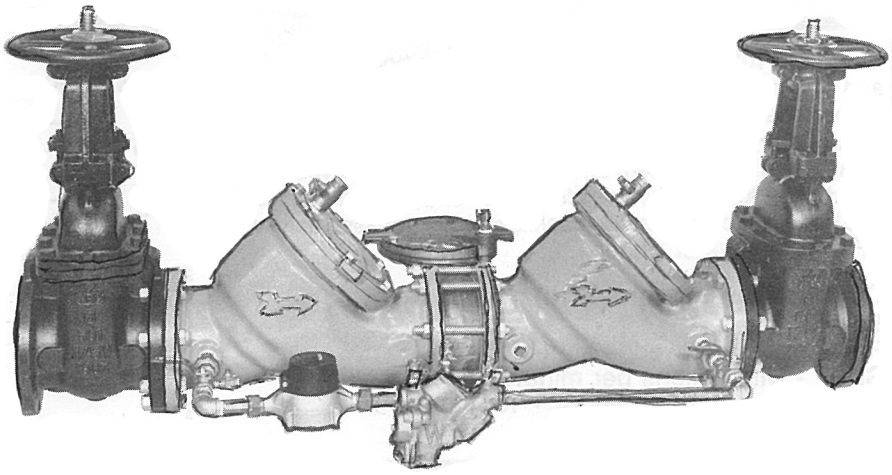
IMPORTANT FEATURES
~Main line assembly see Watts 909 or 909 M1

~Bypass assembly see Watts 909 3/4"

~Bypass assembly see Watts 009 3/4" or 009 M2 3/4"

~Factory repair information enclosed

Series 909RPDA sizes 2 ½-10”



Materials

Discs: Rubber

Body: Epoxy coated cast iron

Seat and Disc Holder: Bronze

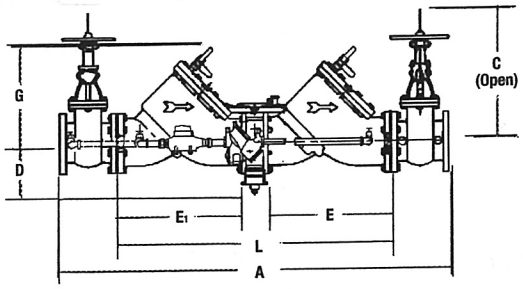
Trim: Stainless steel

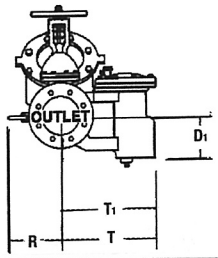
Test Cocks: Bronze

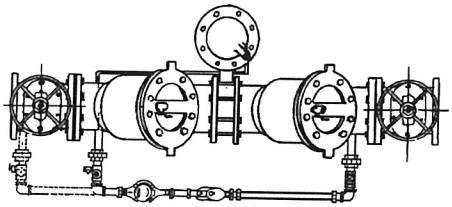
Pressure — Temperature

Temperature Range: 33°F – 140°F (5°C – 60°C) continuous

Maximum Working Pressure: 175psi (12.06 bar)







NOTE: Piping for 3" 909 will start from #1 gate valve and connect at #2 check valve.

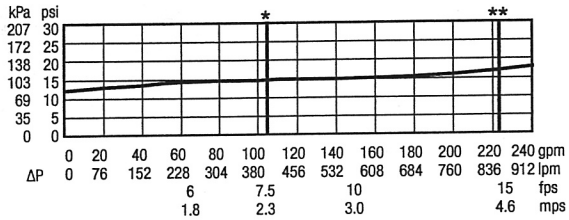
SIZE (DN)	DIMENSIONS																		WEIGHT					
	A		A1		C (OSY)*		C (NRS)		D		L		clearance for check U		R		R (QT)		T		NRS		OSY		QT	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	65	41¼	1048	20⅝	524	16⅜	416	9⅜	238	5¼	133	26⅛	663	11	279	4	102	16	406	9 1/16	230	195	88.4	198	89.8	182	82.6
3	80	42¼	1073	21¼	540	18⅞	479	10¼	260	5¼	133	26⅛	663	11	279	5	127	16	406	9 1/16	230	225	102	230	104	190	86
4	100	55⅛	1400	27⅝	702	22¾	578	12 3/16	310	6	152	37	940	14	356	6	152	19¾	502	14⅜	365	455	206	470	213	352	160
6	150	66	1664	33	832	30⅛	765	16	406	6	152	45	1130	16	406	11	279	26	660	14⅜	365	718	326	798	362	762	346
8	200	78½	2000	39⅜	1000	37¾	959	19 5/16	506	9¾	248	55¼	1403	21	533	11¼	286	11¼	286	19¼	489	1350	612	1456	660	2286	1037
10	250	93⅝	2378	46⅞	1190	45¾	1162	23 13/16	605	9¾	248	67⅜	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.

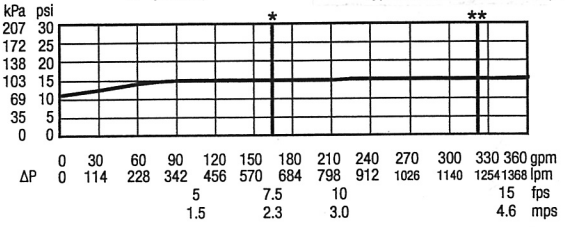
Capacity

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

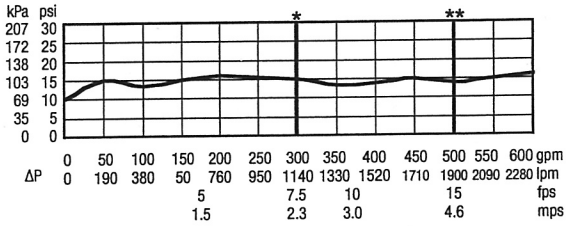
2½" (65mm)



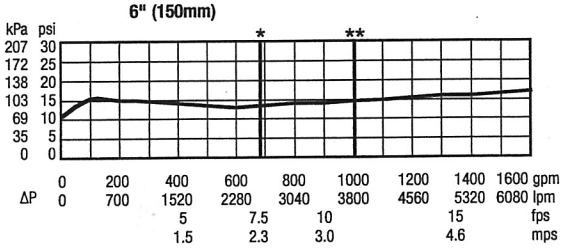
3" (80mm)



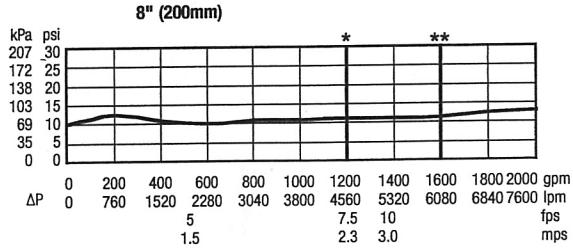
4" (100mm)



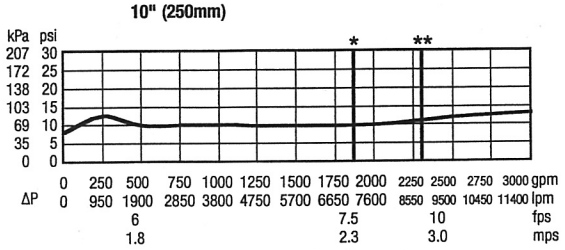
6" (150mm)



8" (200mm)



10" (250mm)



WATTS
919/ LF919

SIZE
1 /4", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

DESCRIPTION
This is a reduced pressure assembly. Production began in 2003. The body is made of a bronze alloy. In 2010 a Model LF919 was introduced which was constructed of lead free bronze. The checks utilize a poppet style check mechanism. Check covers unscrew from the top of the body. The check springs are not contained when the cover is removed. The relief valve utilizes an internal relief valve sensing line. There will be tension from the relief valve spring as you remove the cover.

BASIC REPAIR KIT
Repair kit contains discs, diaphragm, and O-rings

SIZE	KIT NO	AIR GAP DRAIN
1/4"-1/2"	919-RT050	919AGC
3/4"	919-RT075	919AGC
1"	919-RT100	919AGC
1 1/4"- 1 1/2"	919-RT125	919AGF
2"	919-RT200	919AGF

IMPORTANT FEATURES
~Body is bronze
~Poppet style checks
~Factory repair information enclosed

Series 919

Reduced Pressure Zone Assemblies

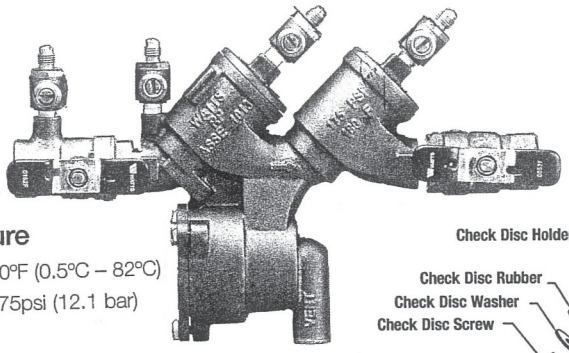
Sizes: ¼" – 2" (5 – 50mm)

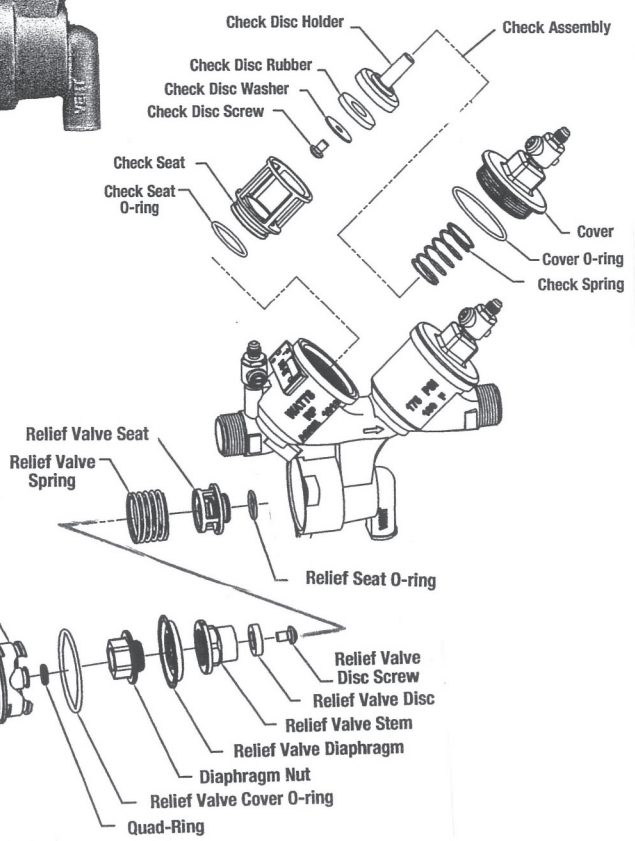
Materials

Body: Bronze
Discs: Silicone rubber
Check Seats: Replaceable polymer
Cover Bolts: Stainless steel

Pressure — Temperature

Temperature Range: 33°F – 180°F (0.5°C – 82°C)
Maximum Working Pressure: 175psi (12.1 bar)



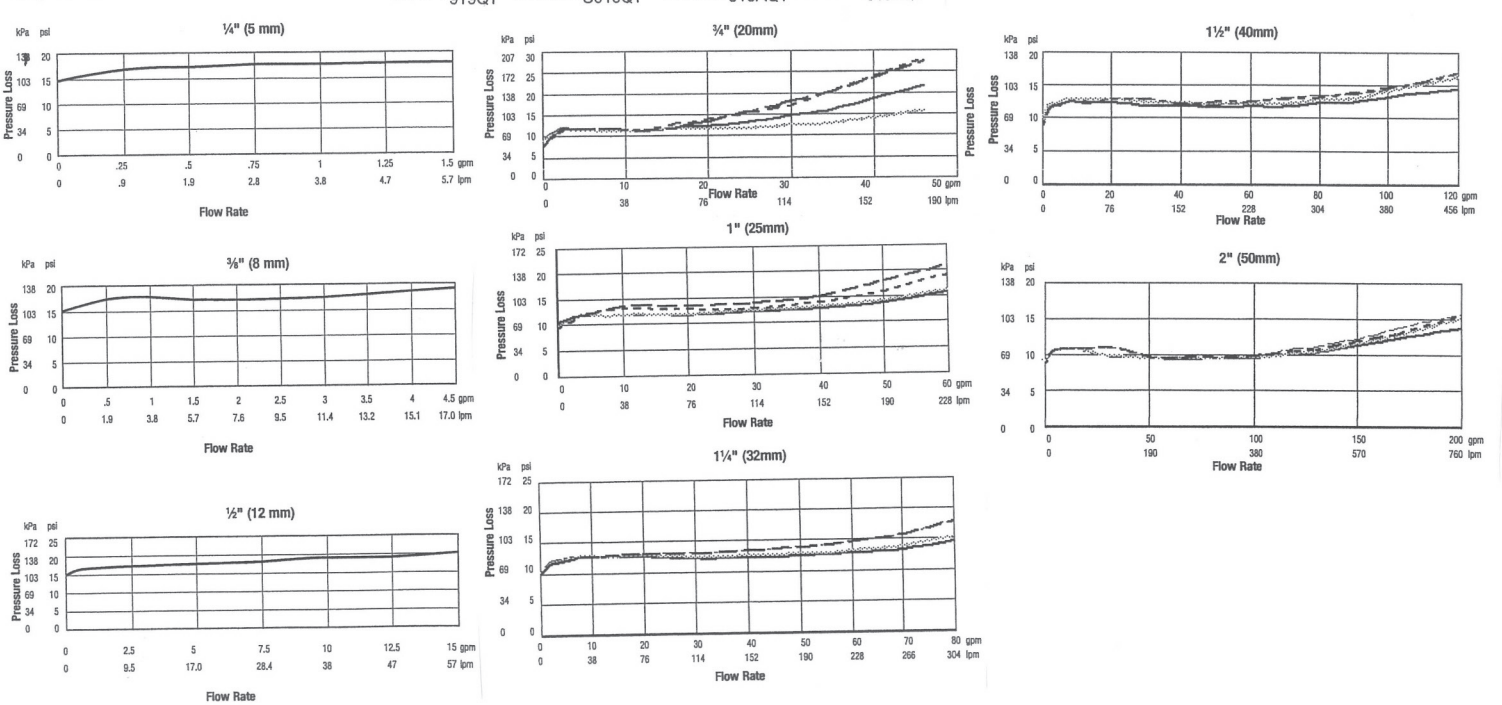


Features

- Separate access covers for the check valves and relief valve for ease of maintenance
- Top entry-all check internals easily accessible
- All rubber elastomers of chloramine resistant material
- Check valve poppet assemblies are fully guided by innovative plastic seat guide
- Replaceable push-in check valve and relief valve seats eliminates threads from the water way
- EZ twist relief valve cover quarter-turn locking joint captures the spring load during repair to facilitate disassembly
- Innovative check valve plastic cover bushing provides trouble free guiding of the check valve poppet
- Bottom mounted relief valve provides reduced installation clearances
- Compact, space saving design
- No special tools required for servicing
- Top mounted test cocks for ease in testing and reduced installation clearances
- Standardly furnished with NPT body connections

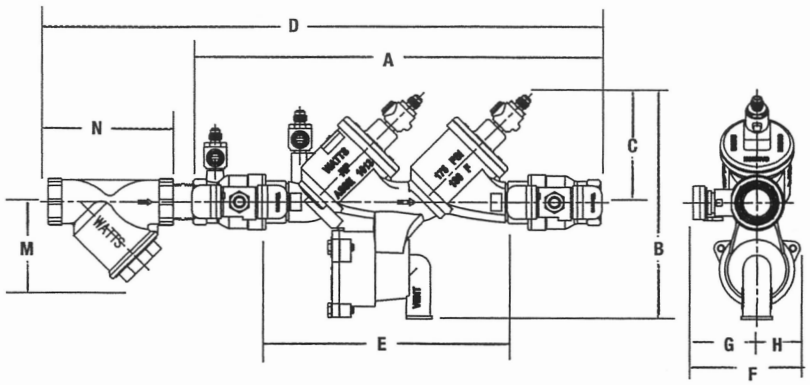
This series features two poppet style check valves, replaceable check seats, with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes ¼" – 1" (5 – 25mm) shutoffs have tee handles.

Capacities



WATTS®

Dimensions — Weights



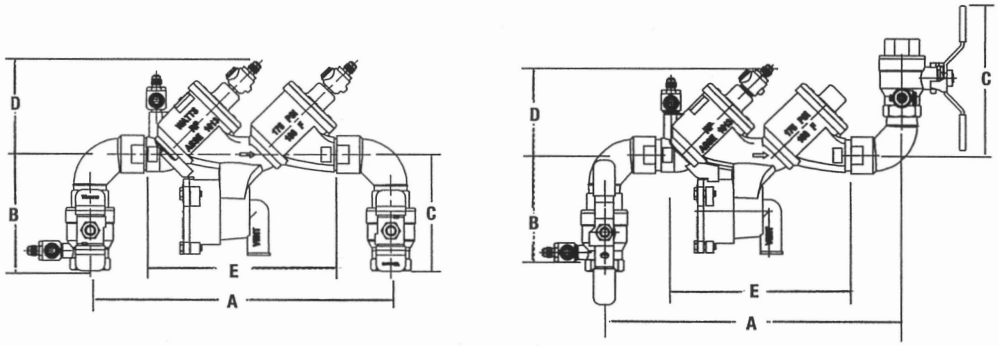
Series 919

Reduced Pressure Zone Assemblies

Sizes: ¼" – 2" (5 – 50mm)

919QT, 919QT-S

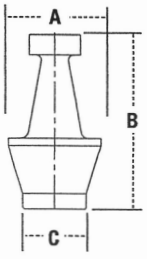
SIZE (DN)		DIMENSIONS																STRAINER DIMENSIONS				WEIGHT			
		A		B		C		D		E (LF)		F		G		H		M		N		919QT		919QT-S	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
1/4	8	9 1/2	241	6 7/8	175	2 7/8	73	12 3/8	314	5 3/4	146	3	75	1 3/8	35	1 9/16	40	2 3/8	60	2 1/2	64	5.8	2.6	6.3	2.9
3/8	10	9 1/2	241	6 7/8	175	2 7/8	73	12 3/8	314	5 3/4	146	3 1/3	84	1 3/4	44	1 9/16	40	2 3/8	60	2 1/2	64	5.8	2.6	6.3	2.9
1/2	15	9 1/2	241	6 7/8	175	2 7/8	73	12 3/4	324	5 3/4	146	3 3/8	86	1 7/8	48	1 9/16	40	2 3/4	70	2 1/4	57	5.8	2.6	6.3	2.9
3/4	20	12 1/8	307	7 7/16	188	3 1/2	88	15 1/2	393	7 11/16	195	3 5/8	92	2 1/16	52	1 9/16	40	1 5/8	41	3 3/16	81	8.3	3.7	10.0	4.5
1	25	14 1/2	368	8	202	3 7/8	98	19 3/16	487	9 3/16	233	4	102	2 7/16	62	1 9/16	40	2 1/8	54	3 3/4	95	11.8	5.4	13.8	6.3
1 1/4	32	18 1/8	461	11 7/16	290	5 1/8	129	23 1/4	591	11 11/16	297	5 1/8	130	2 5/8	67	2 1/2	64	2 1/2	64	4 7/16	113	22.3	10.1	26.3	11.9
1 1/2	40	18 3/4	476	11 7/16	290	5 1/8	129	25 1/16	637	11 11/16	297	5 5/8	143	3 1/8	79	2 1/2	64	3	76	4 7/8	124	28.3	12.8	32.0	14.5
2	50	21 1/16	535	12 1/16	307	5 5/8	142	28 13/16	732	13 3/8	340	5 15/16	151	3 7/16	87	2 1/2	64	3 9/16	90	5 15/16	151	37.3	16.9	45.0	20.4



919AQT,919ZQT

SIZE (DN)		DIMENSIONS														WEIGHT	
		A		B		C		D		E (LF)		F		G		H			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
3/4	20	10 3/8	263	3 15/16	100	3 15/16	100	3 1/2	88	7 11/16	195	3 5/8	92	2 1/16	52	1 9/16	40	9.3	4.2
1	25	12 1/4	311	4 13/16	122	4 13/16	122	3 7/8	98	9 3/16	233	4	102	2 7/16	62	1 9/16	40	13.3	6.0
1 1/4	32	16 1/16	407	5 7/8	149	5 7/8	149	5 1/8	129	11 11/16	297	5 1/8	130	2 5/8	67	2 1/2	64	24.0	10.9
1 1/2	40	16 5/8	421	6 1/2	164	6 1/2	164	5 1/8	129	11 11/16	297	5 5/8	143	3 1/8	79	2 1/2	64	30.5	13.8
2	50	17 5/16	440	6 5/8	168	6 9/16	166	5 1/8	142	13 3/8	340	5 15/16	151	3 7/16	87	2 1/2	64	40.6	18.4

Air Gaps



AIR GAP MODEL	SIZES	DIMENSIONS						WEIGHT	
		A		B		C			
		in.	mm	in.	mm	in.	mm	lbs.	kg.
919AGC	1/4" – 1"	2 3/8	60	3 1/8	79	1/2	13	.63	.28
919AGF	1 1/4" – 2"	4 3/8	111	8 7/16	214	3	76	4.26	1.93

WATTS 957

SIZE
2 1/2”, 3”, 4”, 6”, 8”, 10”

DESCRIPTION
This is a reduced pressure assembly. This model was produced under the name Hunter from 2000-2002. In 2002 Watts bought the Hunter models and began production as the model 957. This model will also be sold as an Ames model C400. The body is constructed of stainless steel tubing. To access the check components a movable sleeve is mounted over the access cover. On the 2 1/2”-6” size the sleeve slides over the body to access the check components. On the 8”-10” size the sleeve is attached by two grooved couplings. The check components are modular and constructed of noryl plastic. The check utilizes a torsion spring which is contained when the check module is removed from the body. The check spring must be extended and controlled with a pin or screwdriver to replace the check disc. The check disc may be either an EPDM or silicone rubber. The body length dimensions may be up to 1” shorter than shown in the dimension chart on versions produced in 2003 or earlier. The body dimension does not change the repair parts inside. The relief valve body attaches to the outside of the check body and is pressurized with an external RV sensing line.

BASIC REPAIR KIT
Repair kit contains discs and O-rings for both check modules, RV piston, and rolling diaphragm.

SIZE	KIT NO	AIR GAP DRAIN
2 1/2”-4”	957-RT250	AG957
6”	957-RT600	AG957
8”	957-RT800	AG957
10”	957-RT001	AG957

IMPORTANT FEATURES
~2 1/2”-6” check access slides open
~Body is stainless steel
~Check modules are repairable
~Factory repair information enclosed

WATTS® REGULATOR

Reduced Pressure Zone Assemblies

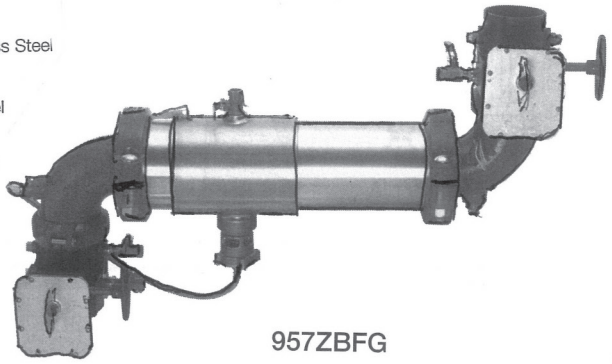
Model 957 Sizes 2 ½-10"

Materials

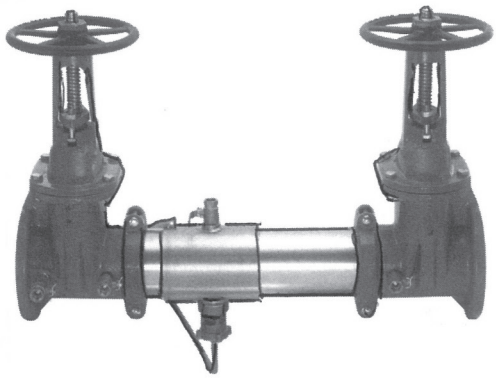
Housing & Sleeve: 304 (Schedule 40) Stainless Steel
Elastomers: EPDM, Silicone and Buna-N
Torsion Spring Checks: Noryl®, Stainless Steel
Check Discs: Reversible Silicone or EPDM
Test Cocks: Bronze Body Nickel Plated
Pins & Fasteners: 300 Series Stainless Steel
Springs: Stainless Steel

Pressure — Temperature

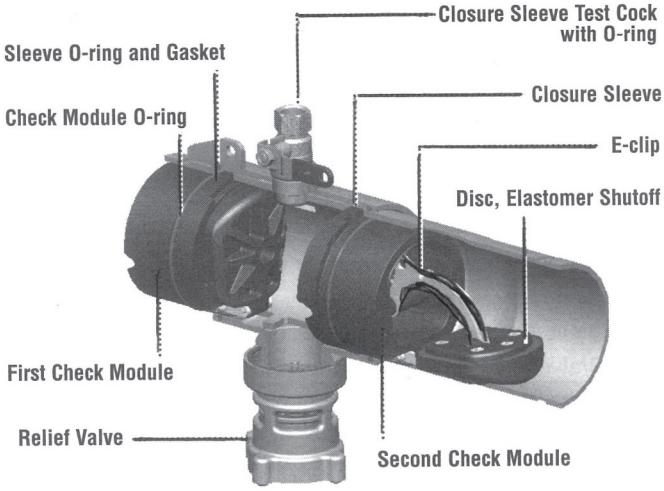
Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)

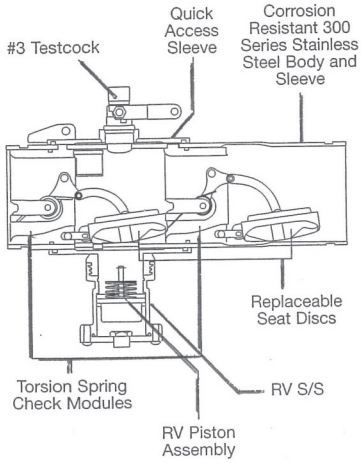


957ZBFG



957OSY

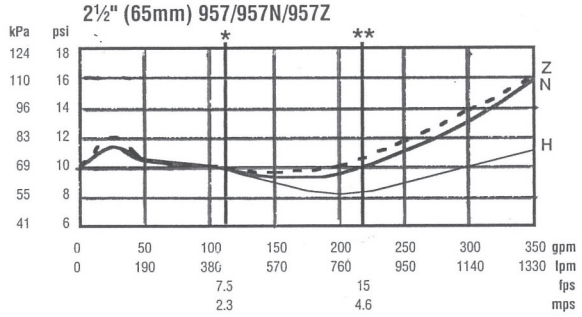




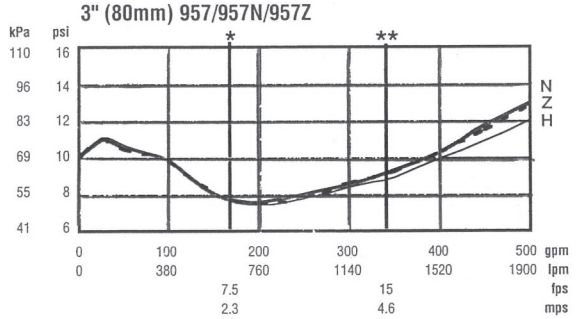
Features

- 2½" and 3" (65 and 80mm) sizes available with quarter-turn ball valve shutoffs
- Replaceable check disc rubber
- Extremely compact design
- 70% Lighter than traditional designs
- 304 (Schedule 40) stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented torsion spring checks provide lowest pressure loss
- Unmatched ease of serviceability
- Bottom mounted cast stainless steel relief valve
- Available with grooved butterfly valve shutoffs

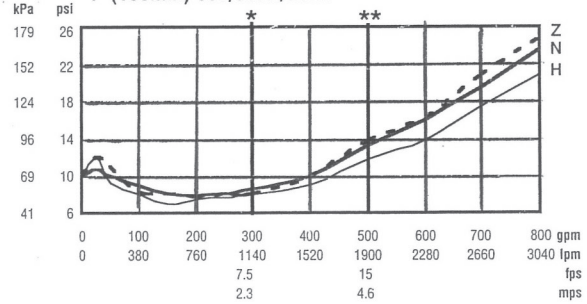
2½" (65mm) 957/957N/957Z



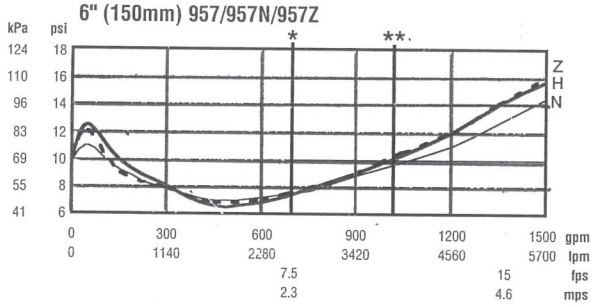
3" (80mm) 957/957N/957Z



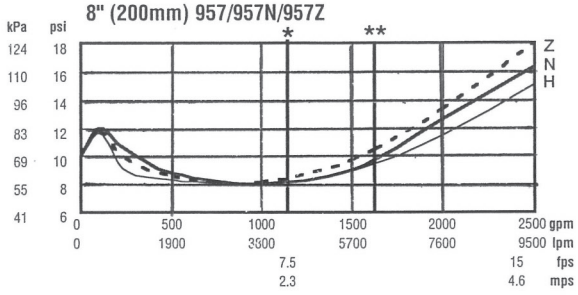
4" (100mm) 957/957N/957Z



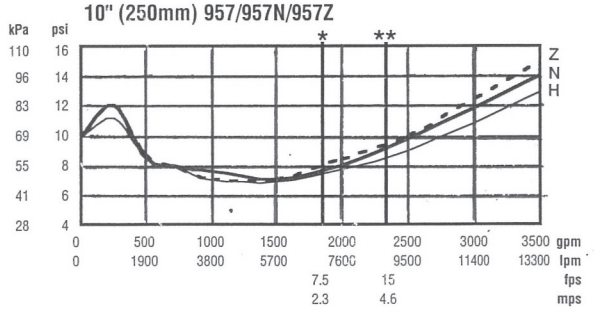
6" (150mm) 957/957N/957Z



8" (200mm) 957/957N/957Z

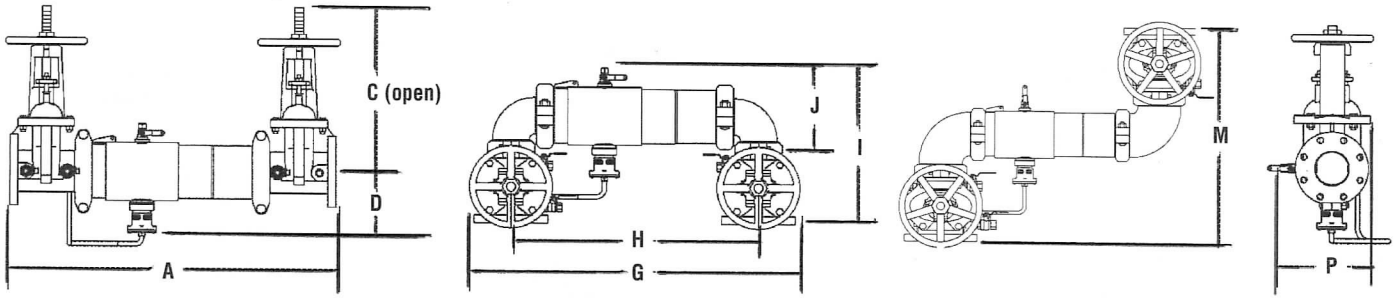


10" (250mm) 957/957N/957Z



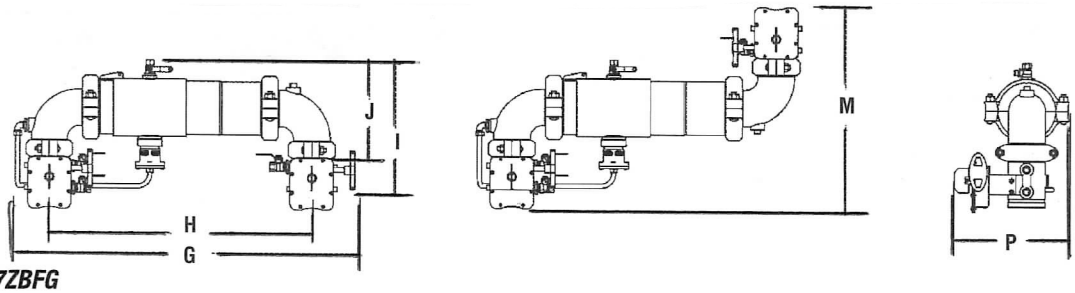
* = Rated flow ** = UL Rated flow

Dimensions — Weight



957, 957N, 957Z

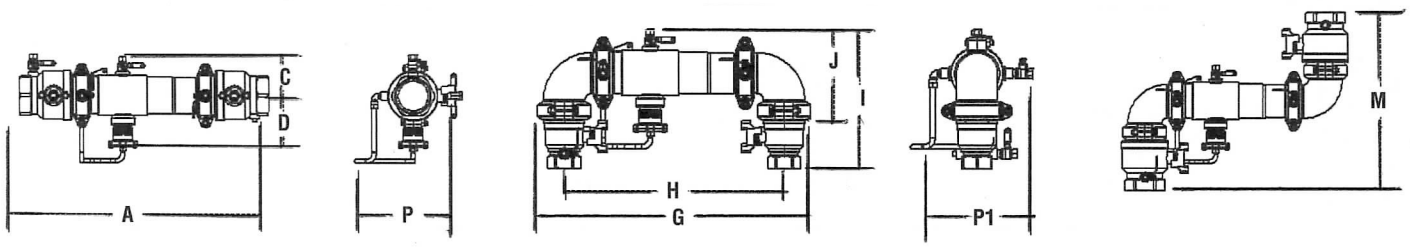
SIZE (DN)		DIMENSIONS																		WEIGHT					
		A		C (OSY)		C (NRS)		D		G		H		I		J		M		P		957NRS		957OSY		957N NRS		957N OSY	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	65	30¾	781	16⅜	416	9⅜	238	6½	165	29 1/16	738	21½	546	15½	393	8 13/16	223	21¼	540	9 3/16	234	118	54	128	58	126	57	136	62
3	80	31¾	806	18⅞	479	10¼	260	6 1/16	170	30¼	768	22¼	565	17⅛	435	9 3/16	233	23	584	10½	267	134	61	148	67	147	67	161	73
4	100	33¾	857	22¾	578	12 3/16	310	7	178	33	838	23½	597	18½	470	9 15/16	252	26¼	667	11 3/16	284	164	74	164	74	187	85	187	85
6	150	43½	1105	30⅛	765	16	406	8½	216	44¾	1137	35¼	895	23 3/16	589	13 1/16	332	34¼	870	15	381	276	125	298	135	317	144	339	154
8	200	49¾	1264	37¾	959	19 15/16	506	9 1/16	246	54⅛	1375	40⅛	1019	27 7/16	697	15 1/16	399	36⅞	937	17 3/16	437	441	200	483	219	516	234	558	253
10	250	57¾	1467	45¾	1162	23 13/16	605	11 3/16	285	66	1676	49½	1257	32½	826	17 5/16	440	44½	1124	20	508	723	328	783	355	893	405	950	431



957NBFG, 957ZBFG

SIZE (DN)		DIMENSIONS										WEIGHT	
		G		H		I		J		M		P		957N/957Z	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
2½	65	32½	826	23	584	15½	394	9½	241	19¾	502	11 13/16	300	67	30
3	80	34	864	24	610	16 5/16	414	10 1/16	256	21¼	540	12⅛	308	70	32
4	100	35⅝	905	25½	648	17 3/16	437	10 15/16	279	23½	597	12⅝	321	87	39
6	150	46½	1181	35¼	895	20½	521	13½	343	27¼	692	15	382	160	73

Noryl® is a registered trademark of SABIC Innovative Plastics Holding BV.



957QT

SIZE (DN)		DIMENSIONS																				WEIGHT			
		A		C		D		G		H		I		J		M		P		P1		QT		QTN	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2 1/2	65	27 1/2	698	4 7/8	124	6 7/8	175	30¼	768	21½	546	16 1/16	407	11⅜	289	19 7/8	505	11 5/16	287	11 5/16	287	46	21	57	26
3	80	28	711	4 7/8	124	6 7/8	175	30¼	768	22¼	565	16 9/16	420	11⅜	289	20 7/8	531	11 5/16	287	11 5/16	287	56	25	67	30
4	100	28¾	730	4 7/8	124	6 7/8	175	30¼	768	23½	597	18 5/16	465	11⅜	289	24 3/8	619	11 5/16	287	11 5/16	287	76	34	87	39

WATTS 957 RPDA

SIZE
2 1/2", 3", 4", 6", 8", 10"

DESCRIPTION
This is a reduced pressure detector assembly. This model was produced under the Hunter name from 2000-2002. In 2002 Watts bought the Hunter models and began production as the Watts 957 RPDA. This model will also be sold as an Ames model C500. The mainline assembly is similar in construction to 957. The bypass assembly used is the Flomatic RPZE 3/4" or the Watts 3/4" Model 919.

BASIC REPAIR KIT
Repair kit contains discs and O-rings for both check modules, RV piston, and rolling diaphragm.

SIZE	KIT NO	AIR GAP DRAIN
2 1/2"-4"	957-RT250	AG957
6"	957-RT600	AG957
8"	957-RT800	AG957
10"	957-RT001	AG957

Bypass repair kit contains all check discs, O-rings, and diaphragm

SIZE	KIT NO
Flomatic RPZE 3/4"	B92RK00 ◆
Watts 919 3/4"	919-RT075

IMPORTANT FEATURES
~2 1/2"-6" check access slides open
~Body is stainless steel
~Check modules are repairable
~Factory repair information enclosed

Model 957 RPDA 2 ½-10"

Reduced Pressure Detector Assemblies

Features

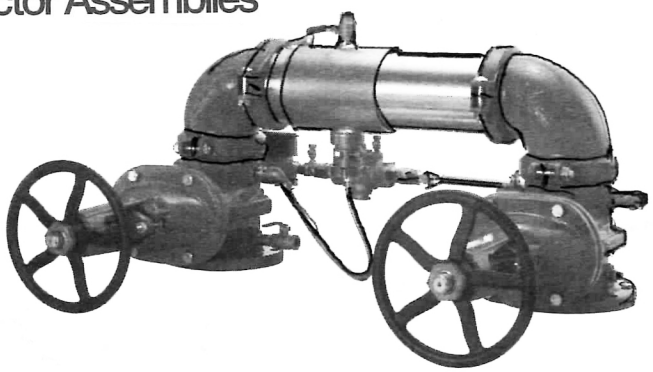
- Extremely compact design
- 70% lighter than traditional designs
- 304 (Schedule 40) stainless steel housing & sleeve
- Groove fittings allow integral pipeline adjustment
- Patented torsion spring check provides lowest pressure loss
- Unmatched ease of serviceability
- Replaceable check disc rubber
- Available with grooved butterfly valve shutoffs
- Bottom mounted cast stainless steel relief valve
- Metered bypass to detect leakage or theft of water from the fire sprinkler system

Materials

Housing & Sleeve: 304 (Schedule 40) Stainless Steel
Elastomers: EPDM, Silicone and Buna 'N'
Torsion Spring Checks: Noryl®, Stainless Steel
Check Discs: Reversible Silicone or EPDM
Test Cocks: Bronze Body Nickel Plated
Pins & Fasteners: 300 Series Stainless Steel
Springs: Stainless Steel

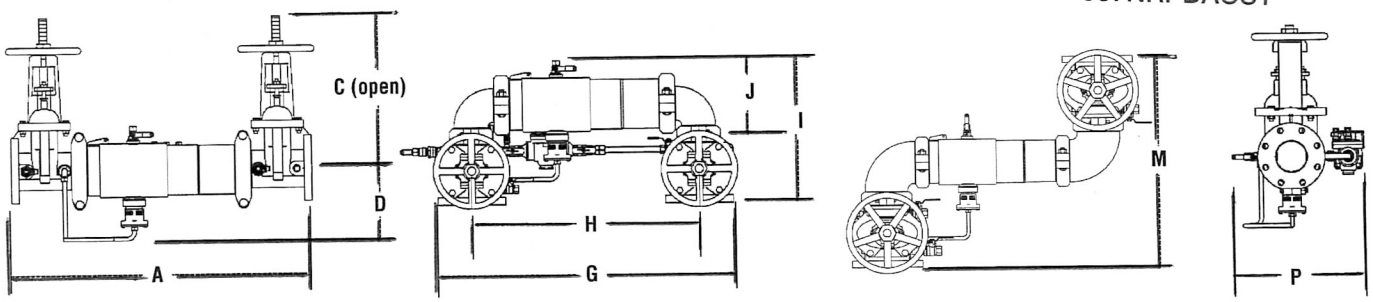
Pressure — Temperature

Temperature Range: 33°F – 140°F (0.5°C – 60°C)
Maximum Working Pressure: 175psi (12.1 bar)



957NRPDAOSY

Dimensions — Weight



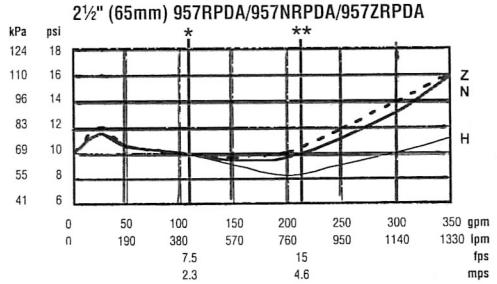
957RPDA, 957NRPDA, 957ZRPDA

SIZE (DN)		DIMENSIONS																WEIGHT			
		A		C (OSY)		D		G		H		I		J		M		P		957RPDA		957NRPDA	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
2½	65	30¾	781	16⅜	416	6½	165	29 1/16	738	21½	546	15½	393	8 13/16	223	21¼	540	13 3/16	335	142	64	150	68
3	80	31¾	806	18⅞	479	6 11/16	170	30¼	768	22¼	565	17⅛	435	9 3/16	233	23	584	14½	368	162	73	175	79
4	100	33¾	857	22¾	578	7	178	33	838	23½	597	18½	470	9 15/16	252	26¼	667	15 3/16	386	178	81	201	91
6	150	43½	1105	30⅛	765	8½	216	44¾	1137	33¼	845	23 3/16	589	13 1/16	332	32¼	819	19	483	312	142	353	160
8	200	49¾	1264	37¾	959	9 11/16	246	54⅛	1375	40⅛	1019	27 1/16	697	15 11/16	399	36⅞	937	21 3/16	538	497	225	572	259
10	250	57¾	1467	45¾	1162	11 3/16	285	66	1676	49½	1257	32½	826	17 5/16	440	44½	1124	24	610	797	362	964	437

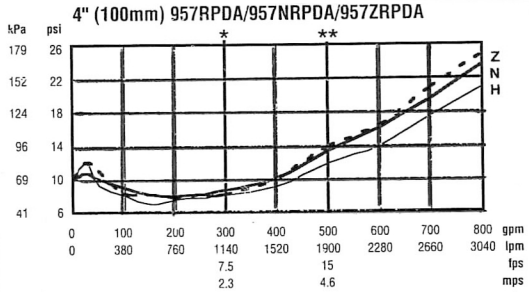
957NRPDABFG, 957ZRPDABFG

SIZE (DN)		DIMENSIONS										WEIGHT	
		G		H		I		J		M		P		957RPDABFG	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
2½	65	32½	826	23	584	15½	394	9½	241	19¾	502	15 13/16	402	81	37
3	80	34	864	24	610	16 5/16	414	10 1/16	256	21¼	540	16⅛	410	84	38
4	100	35⅝	905	25½	648	17 3/16	437	10 15/16	279	23½	597	16⅝	422	101	46
6	150	46½	1181	35¼	895	20½	521	13½	343	27¼	692	19	483	174	79

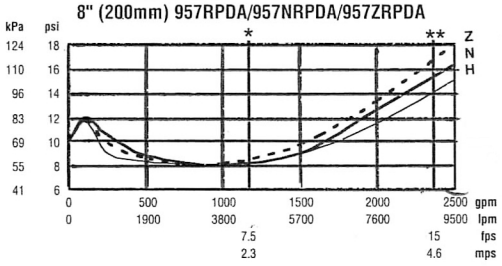
2½" (65mm) 957RPDA/957NRPDA/957ZRPDA



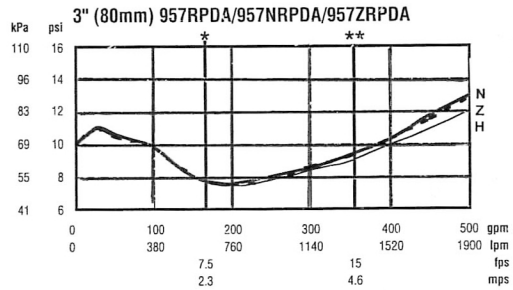
4" (100mm) 957RPDA/957NRPDA/957ZRPDA



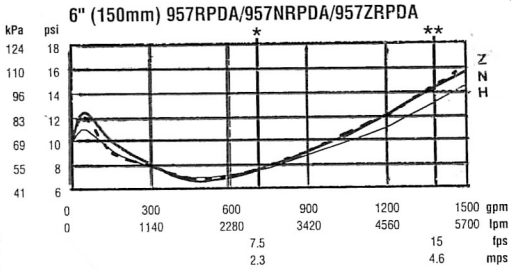
8" (200mm) 957RPDA/957NRPDA/957ZRPDA



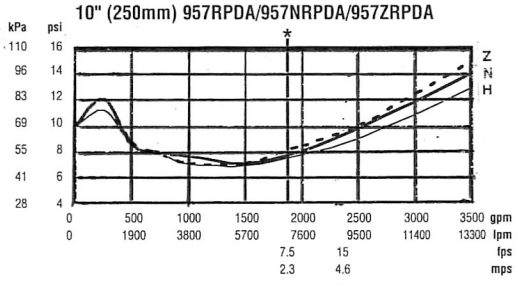
3" (80mm) 957RPDA/957NRPDA/957ZRPDA



6" (150mm) 957RPDA/957NRPDA/957ZRPDA



10" (250mm) 957RPDA/957NRPDA/957ZRPDA



WATTS 990
WATTS 992

SIZE
4”, 6”, 8”, 10”

DESCRIPTION
The 990/992 is a reduced pressure assembly. It was produced from 1993-1997. The check bodies are made of ductile iron which is fused epoxy coated. The check is a toggle linkage mechanism. The check springs are contained when the cover is removed. The spring tension must be released to repair the assembly. The bronze check seats are replaceable but a seat removal tool is needed for that purpose. Instead of a rubber disc a vulcanized clapper plate is used to seal the check. The relief valve body is of bronze construction and is attached to the check body by a threaded connection. The relief seat is replaceable and the relief spring is contained. An external relief valve sensing line is utilized. A special shut-off valve was utilized on the 992 series. The shut-offs on the 992 had flange dimensions different than a standard sized shut-off.

BASIC REPAIR KIT
Repair kit contains check clapper plates, gaskets, O-rings, diaphragm, and relief discs

SIZE	KIT NO	AIR GAP DRAIN
4” 990	990-RT400 ◆	AGF
4” 992	990-RT400 ◆	AGF
6” 990	990-RT600 ◆	AGF
6” 992	990-RT600 ◆	AGF
8” 990	990-RT800	AGK
8” 992	990-RT600 ◆	AGK
10” 992	990-RT800	AGK

IMPORTANT FEATURES
~Ductile iron fused epoxy coated body

~Clapper plate check elastoner seals

~Contained spring

~Replaceable seats

~992 shut-offs are not standard dimensions

~Factory repair information enclosed

BAVCO
BACKFLOW APPARATUS & VALVE CO.

Series 990
REDUCED PRESSURE ZONE BACKFLOW PREVENTER

Sizes: 4", 6", 8"

The Watts Series 990 Reduced Pressure Zone Backflow Preventers 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 piping systems or for containment at the water meter service line entrance.

Furnished with non-rising stem (NRS) resilient wedge gate valve shut-offs.

FEATURES

- Replaceable bronze seats
- Fused epoxy coated & lined
- Stainless steel reinforced sensing hose
- Stainless steel internal parts
- No special tools required for normal maintenance
- Captured spring assemblies

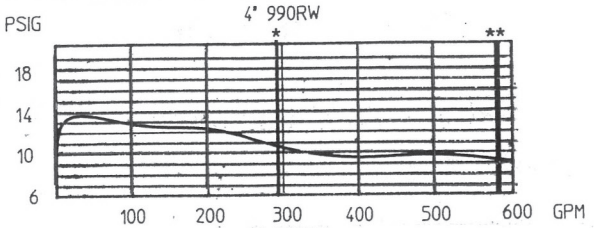
MATERIALS

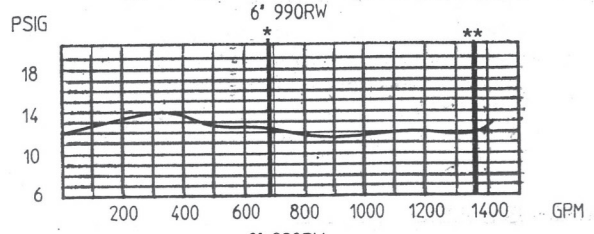
No. 990 sizes 4" - 8" have FDA approved epoxy coated ductile iron check valve bodies with bronze seats and bronze relief valve with stainless steel trim (4", 6") and FDA approved epoxy coated iron relief valve with stainless steel trim (8").

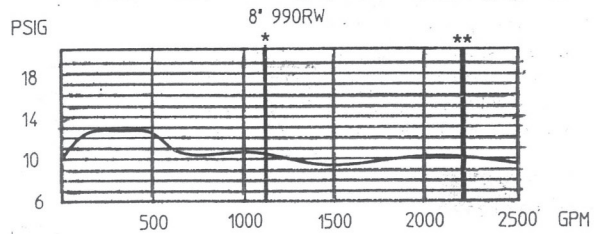
All sizes furnished with bronze body ball valve test cocks.

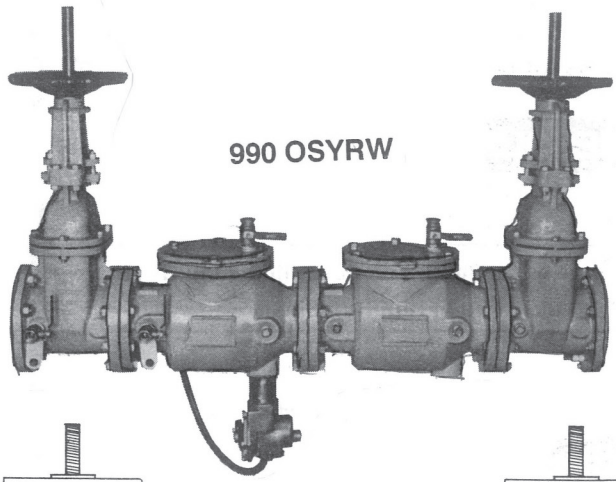
PRESSURE - TEMPERATURE

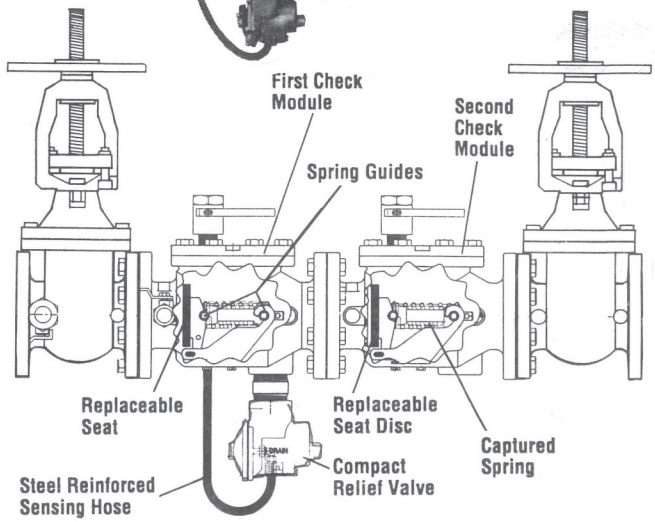
Suitable for supply pressure up to 175 psi and water temperatures to 110°F.



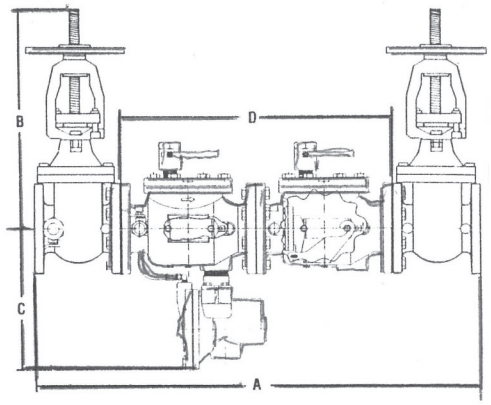


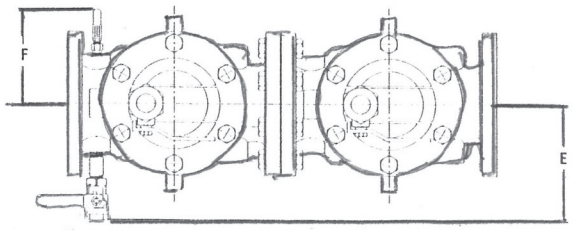






DIMENSIONS - WEIGHTS



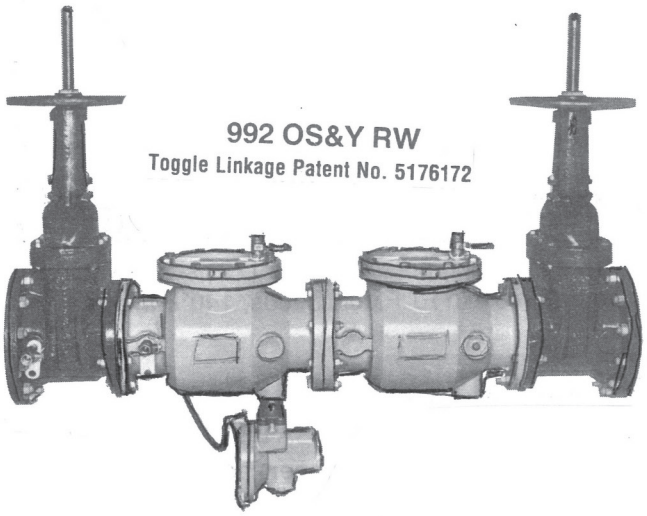


Size	Dimensions (inches) A	B	C	D	E	F	Weight (lbs.)
4" OS&YRW	46⅞	23⅜	16½	28⅞	15	9³⁄₁₆	364
6" OS&YRW	58⅜	30	18	37⅜	17	10	631
8" OS&YRW	69⅞	40	19¹³⁄₁₆	46⅞	18½	8¹³⁄₁₆	1138

Series 992

REDUCED PRESSURE ZONE BACKFLOW PREVENTER

Sizes: 4", 6", 8", 10"



MATERIALS

No. 992 sizes 4" - 10" have FDA approved epoxy coated ductile iron check valve bodies with replaceable bronze seats and bronze relief valve with stainless steel trim (4", 6") and FDA approved epoxy coated iron relief valve with stainless steel trim (8" & 10").

All sizes furnished with bronze body ball valve test cocks.

PRESSURE - TEMPERATURE

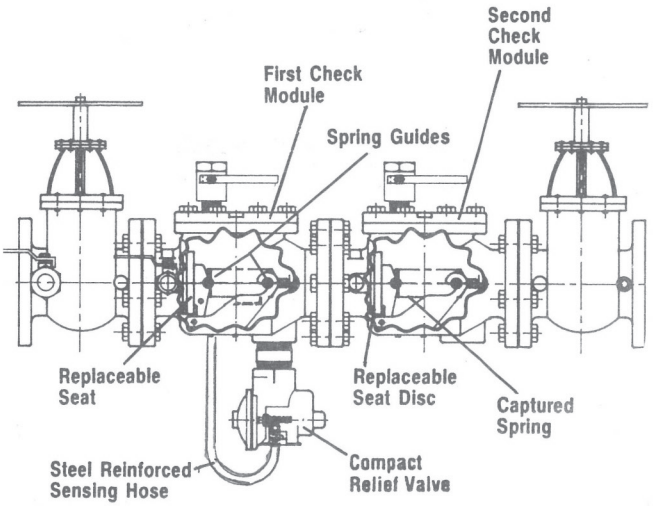
Suitable for supply pressure up to 175 psi and water temperatures to 110°F continuous, 140°F intermittent.

STANDARDS

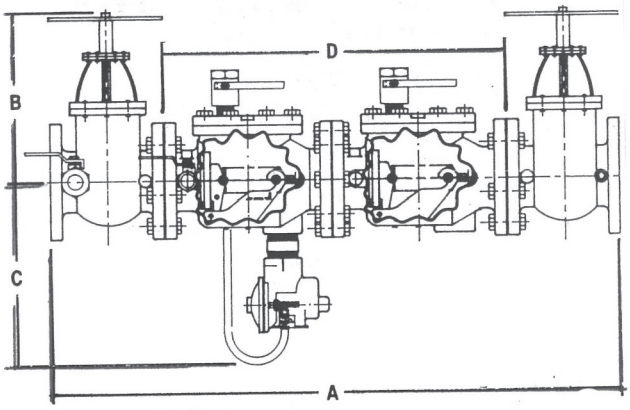
ASSE 1013, AWWA C511, CSA B64

USC Manual For Cross Connenction control 8th Edition

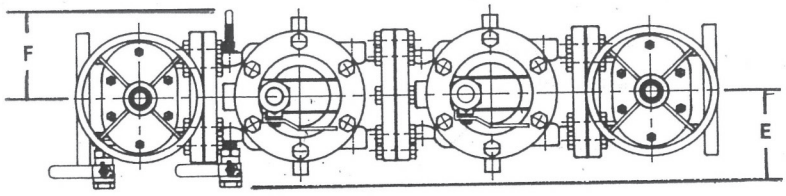
IAPMO PS31

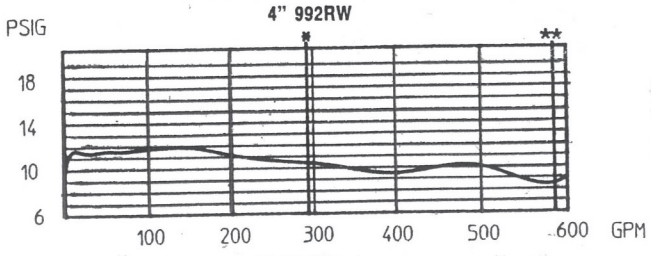


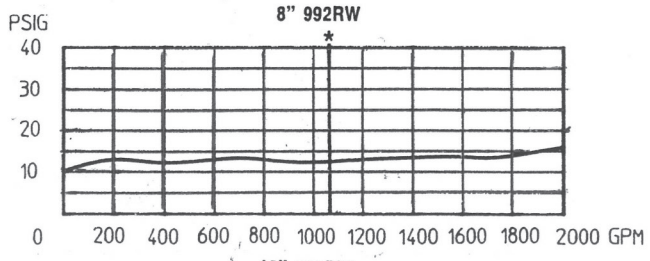
DIMENSIONS - WEIGHTS

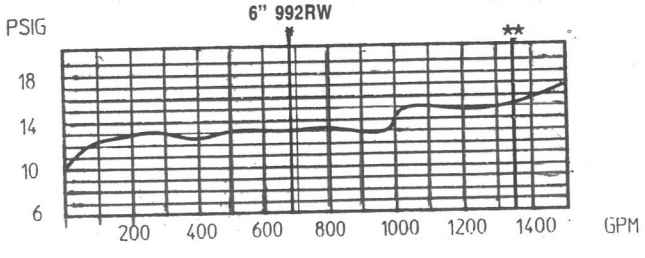


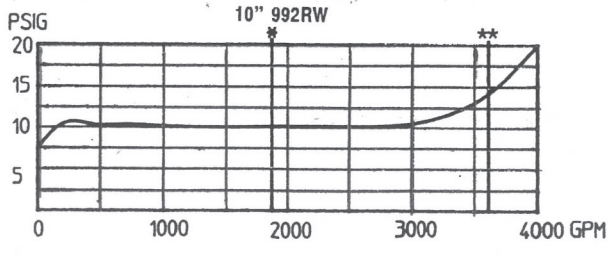
Size (Inches)	Dimensions (Inches) A OS&Y RW	A NRS RW	B OS&Y RW	B NRW RW	C	D	E	F	Weight (lbs.) OS&Y RW	Weight (lbs.) NRS RW
4	44.87	44.87	23.31	6.00	16.50	28.87	7.87	9.18	351	307
6	57.25	55.25	23.31	12.00	18.00	37.37	8.69	10.00	611	537
8	59.25	58.25	29.87	19.62	19.79	37.37	8.75	8.81	811	685
10	73.54	72.04	39.87	23.93	19.79	49.04	8.75	8.81	1387	1147



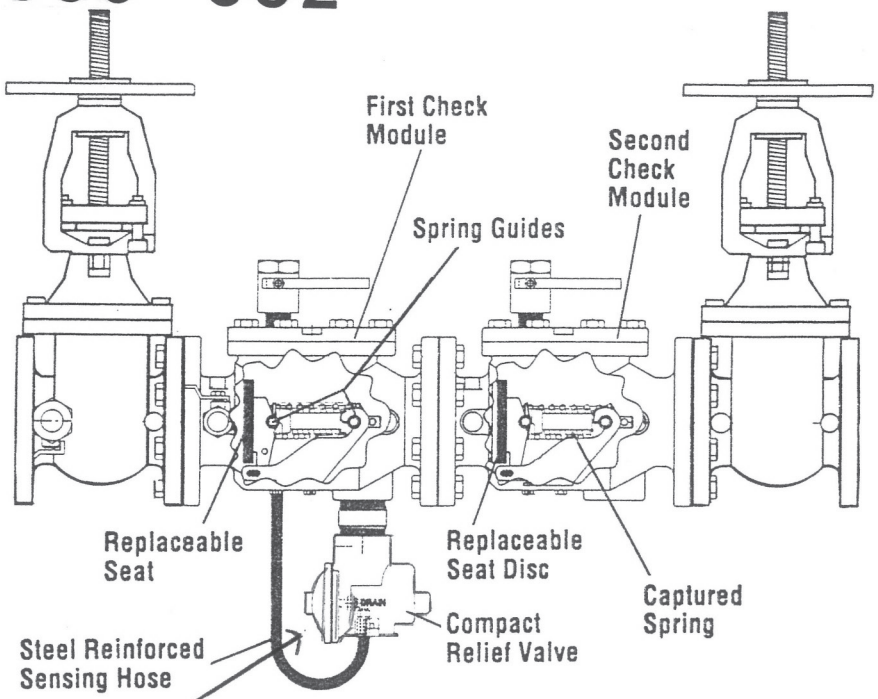


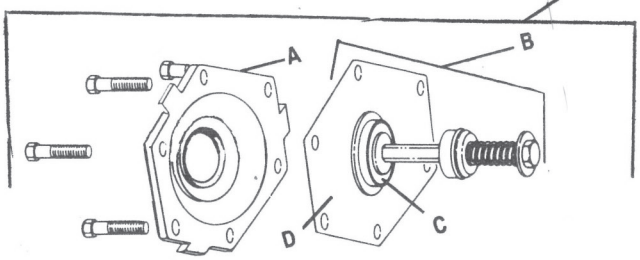






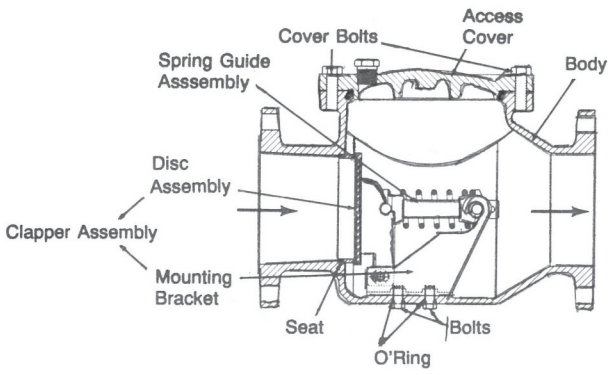
990–992





A Cover B RV Stem Assy C RV Disc D RV Diaphragm

CHECK VALVES



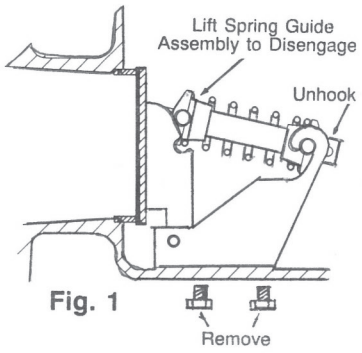


Fig. 1

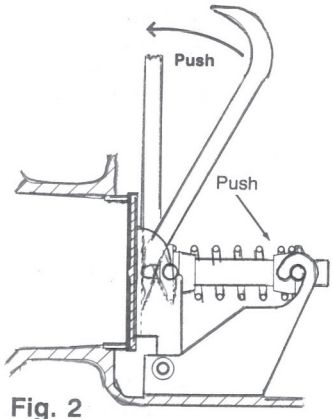


Fig. 2

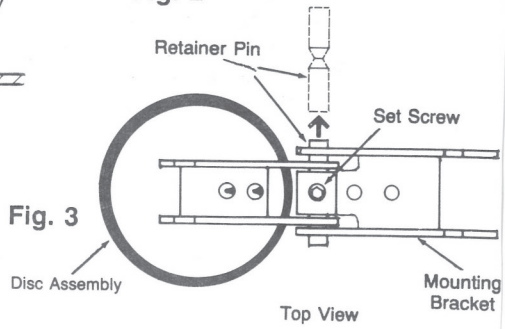


Fig. 3

WATTS 990 RPDA
WATTS 992 RPDA

SIZE
4”, 6”, 8”, 10”

DESCRIPTION
This is a reduced pressure detector assembly. It was produced from 1993-1997. The main valve unit is similar to the 990/992 series. The bypass unit utilized is either the 009 3/4” or the 009M2 3/4” assembly.

BASIC REPAIR KIT
Main line repair kit contains clapper plates, gaskets, O-rings, diaphragm, and relief disc.

SIZE	KIT NO	AIR GAP DRAIN
4” 990 RPDA	990-RT400 ◆	AGF
4” 992 RPDA	990-RT400 ◆	AGF
6” 990 RPDA	990-RT600 ◆	AGF
6” 992 RPDA	990-RT600 ◆	AGF
8” 990 RPDA	990-RT800	AGK
8” 992 RPDA	990-RT600 ◆	AGK
10” 992 RPDA	990-RT800	AGK

Bypass repair kit contains disc holders, diaphragm, and O-ring

SIZE	KIT NO
3/4” 009M2	009M2-RT075
3/4” 009	009-RT075

IMPORTANT FEATURES
~Main line assembly see 990/992

~Bypass assembly see 009 M2

~Factory repair information enclosed

Series 990RPDA

REDUCED PRESSURE DETECTOR ASSEMBLY

Sizes: 4", 6", 8"

Series 990 RPDA is designed exclusively for use in accordance with water utility authority containment requirements. It's use prevents the reverse flow of fire protection system substances, i.e., glycerin wetting agents, stagnant water and water of non-potable quality from being pumped or siphoned into the potable water line.

BENEFITS: Detects leaks . . . with emphasis on the cost of unaccountable water; incorporates a meter which allows the water utility to:

- Detect leaks, minimizing the losses that can occur due to water damage or sprinkler system failure.
- Provide a detection point for unauthorized use.

Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with AWWA epoxy coated UL/FM listed OS&Y resilient wedge gate valves, CFM (cubic feet per minute) meter or optional GPM (gallon per minute) meter and ball type test cocks. A pressure differential relief valve is located in a zone between the check valves.

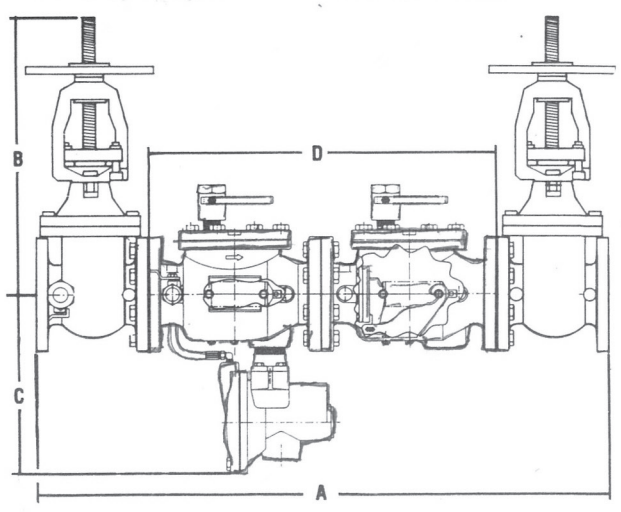
MODULAR DESIGN

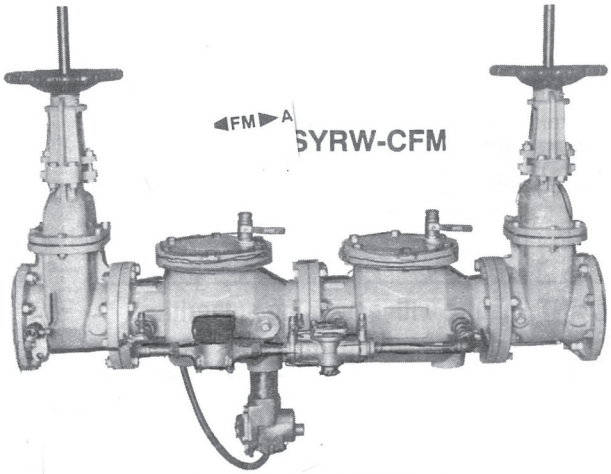
Features a modular design concept which facilitates maintenance and assembly access. Two bolts remove the stainless steel check internals. Each module contains a spring sub-assembly featuring a captured spring for safety and ease of maintenance.

FEATURES

- Fused epoxy coated ductile iron body
- Replaceable seats & discs in mainline and bypass assemblies
- Stainless steel internal parts
- Maximum flow at low pressure drop
- Compact for economy, combined with performance
- Design simplicity for easy maintenance
- Furnished with 5/8" x 3/4" meter

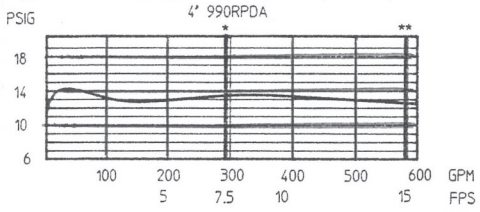
DIMENSIONS - WEIGHTS

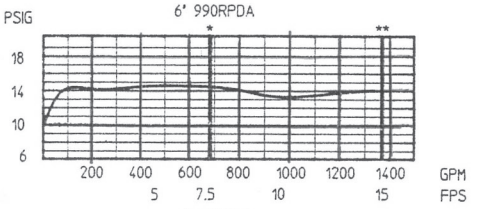


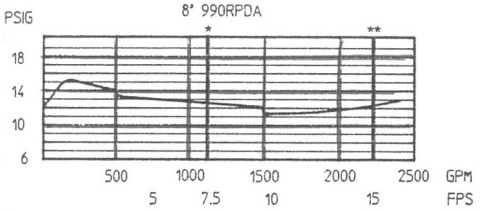


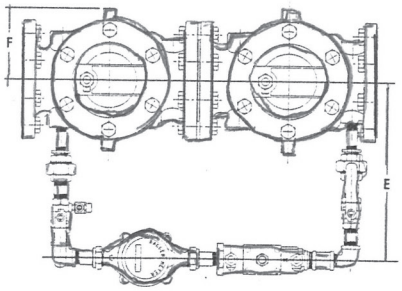
CAPACITY As compiled from documented Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California lab tests.

*Typical maximum mechanical/irrigation system flow rate (7.5 feet per second)
**Typical maximum fireline system flow rate (15.0 feet per second)









Size	Dimensions (inches) A	B	C	D	E	F	Weight (lbs.)
4" OS&YRW	46⅞	23⅜	16½	28⅞	15	9³⁄₁₆	364
6" OS&YRW	58⅜	30	18	37⅜	17	10	631
8" OS&YRW	69⅞	40	19¹³⁄₁₆	46⅞	18½	8¹³⁄₁₆	1138

WATTS 993

SIZE
4", 6"

DESCRIPTION
This is a reduced pressure assembly that was produced between 1998 and 1999. The internal check parts are similar to the Model 909. The relief valve is similar to the 990. The body is designed to provide an up and down piping arrangement. The check body is fused epoxy coated cast iron. Check springs are contained when the covers are removed. The check seats are replaceable. The relief valve utilizes an external sensing line. The relief valve body is made of bronze with a replaceable stainless steel seat. The relief valve spring is contained when the cover is removed.

BASIC REPAIR KIT
The repair kit contains rubber discs, diaphragm, and O-rings.

SIZE	KIT NO
4"	993-RT400 ◆
6"	993-RT600 ◆

IMPORTANT FEATURES
~Contained springs

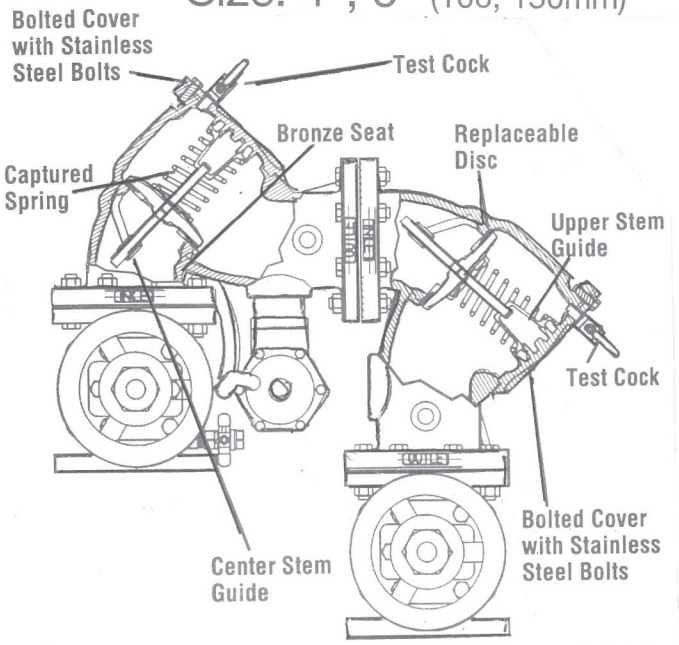
~Replaceable seats

~Factory repair information enclosed

Series 993

Reduced Pressure Zone Backflow Preventer

Size: 4", 6" (100, 150mm)



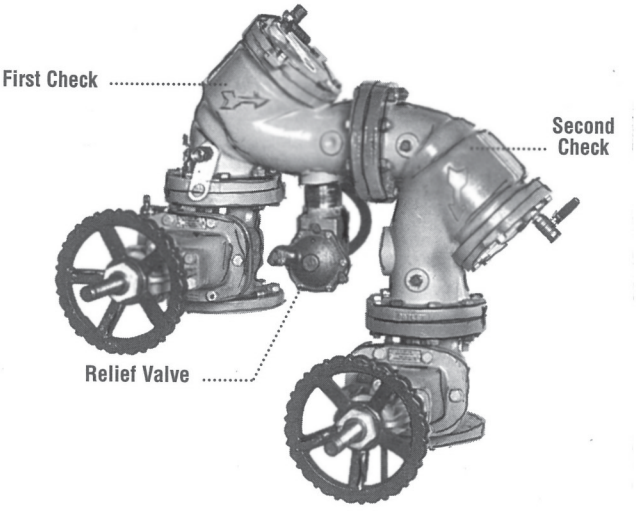
MATERIALS

Series 993 have FDA approved epoxy coated cast iron check valve bodies with bronze seats and bronze relief valve with stainless steel trim.

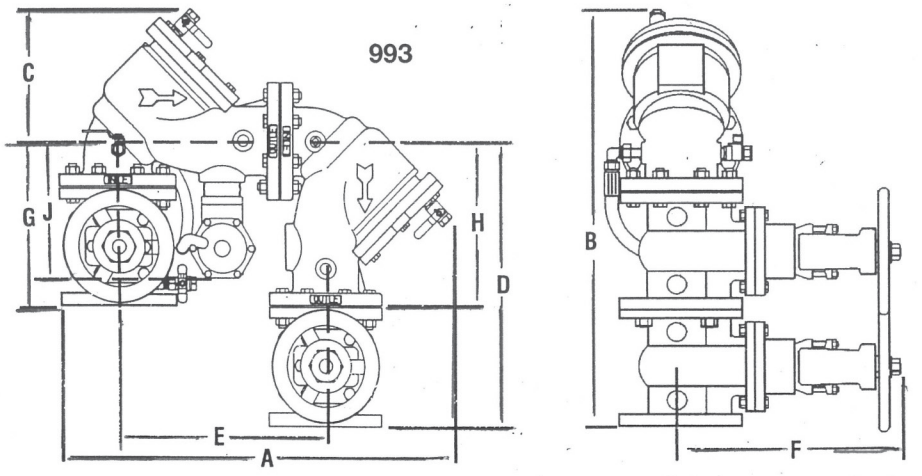
All sizes furnished with bronze body ball valve test cocks.

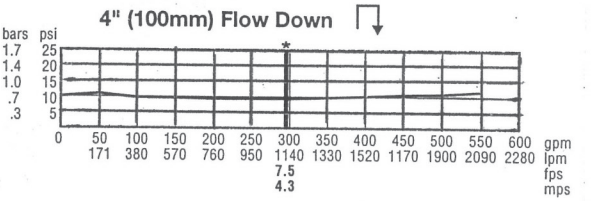
PRESSURE - TEMPERATURE

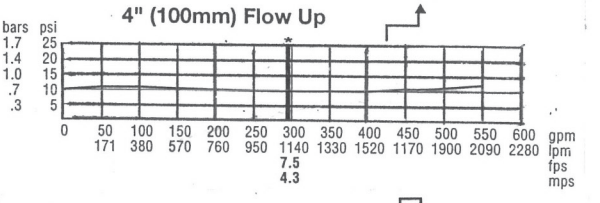
Suitable for supply pressure up to 175 psi (12.1 bars) and water temperatures to 110°F (43°C).

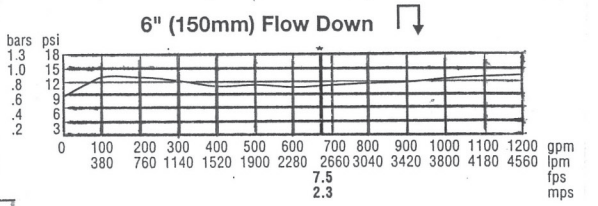


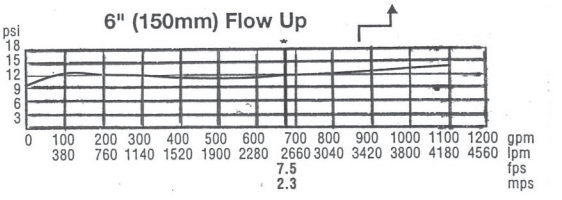
DIMENSIONS - WEIGHT (approximate)











Model	Size inches / mm	A inches / mm	B inches / mm	C inches / mm	D inches / mm	E inches / mm	F (open) inches / mm	F (close) inches / mm	G inches / mm	H inches / mm	J inches / mm
993-LF	4 / 100	30¾ / 781	—	10 / 250	—	16¼ / 413	—	—	—	12½ / 318	10½ / 267
993-OSY	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 324	—	—
993-NRS	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	15¼ / 387	15¼ / 387	12¾ / 324	—	—
993-LF	6 / 150	38⅜ / 979	—	12⅞ / 327	—	20⅛ / 510	—	—	—	15⅝ / 389	11⁵⁄₁₆ / 303
993-OSY	6 / 150	38⅜ / 979	38⅜ / 986	12⅞ / 327	25⅝ / 659	20⅛ / 510	32½ / 826	27 / 686	15⅝ / 389	—	11⁵⁄₁₆ / 303
993-NRS	6 / 150	38⅜ / 979	38⅜ / 986	12⅞ / 327	25⅝ / 659	20⅛ / 510	20 / 508	20 / 508	15⅝ / 389	—	11⁵⁄₁₆ / 303

Model	Size inches / mm	Weight lbs. / kg.
993-LF	4 / 100	250 / 113
993-OSY	4 / 100	350 / 159
993-NRS	4 / 100	335 / 152
993-LF	6 / 150	350 / 159
993-OSY	6 / 150	425 / 193
993-NRS	6 / 150	410 / 186

WATTS 993 RPDA

SIZE
4", 6"

DESCRIPTION
This is a reduced pressure detector assembly. The assembly was produced from 1998-1999. The mainline assembly is similar to the model 993. The bypass utilizes either the 3/4" Model 009M2 or the 009 M3.

BASIC REPAIR KIT
Mainline repair kit contains rubber discs, diaphragm, and O-rings.

SIZE	KIT NO
4"	993-RT400 ◆
6"	993-RT600 ◆

Bypass repair kit contains check disc holders, RV disc, diaphragm, and O-rings.

SIZE	KIT NO
3/4" 009M2	009M2-RT075
3/4" 009M3	009M3-RT075

IMPORTANT FEATURES
~Mainline assembly: See 993

~Bypass assembly: See either 009M2 or 009M3

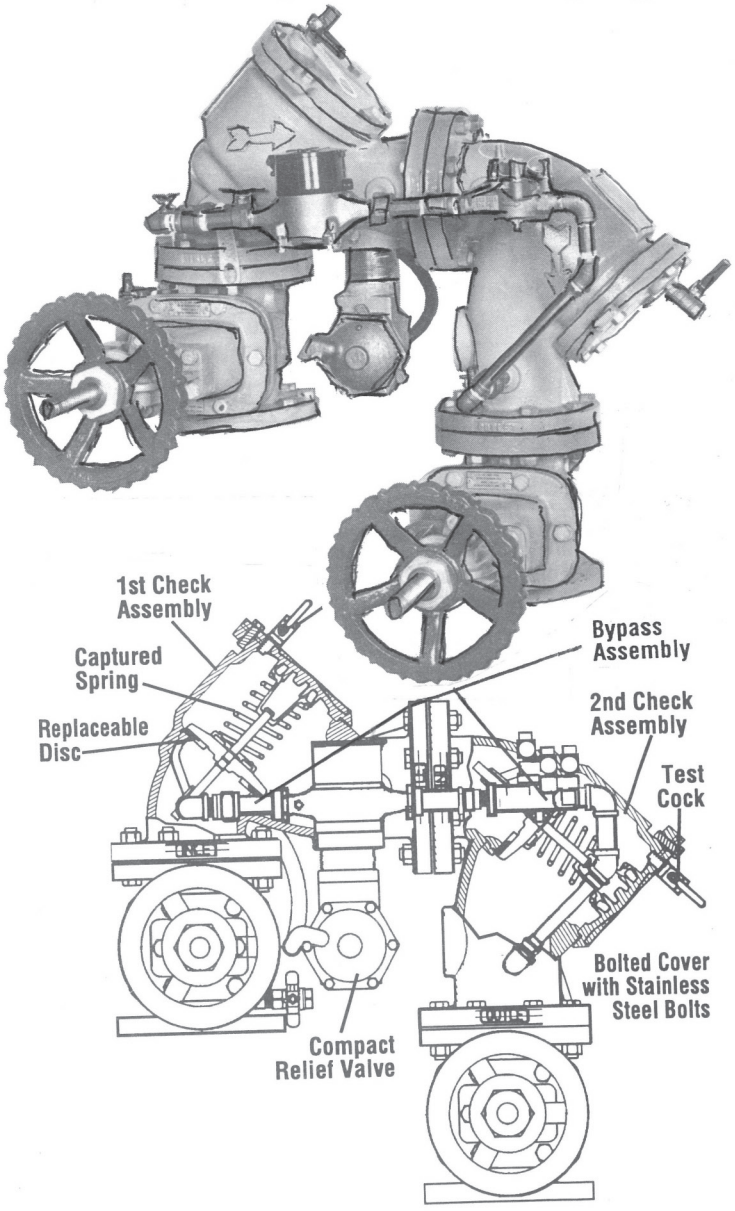
~Factory repair information enclosed

Series 993 RPDA

Reduced Pressure Detector Assembly

Sizes 4", 6" (100, 150mm)

Series 993RPDA Reduced Pressure Detector Assembly is designed for use in accordance with water authority containment programs. This series can be used to prevent the reverse flow of fire protection system substances, i.e., glycerin wetting agents, stagnant water and water of non-potable quality from being pumped or siphoned in the potable water supply.



FEATURES

- Fused epoxy coated cast iron body
- Replaceable bronze seats
- Stainless steel internal parts
- Captured springs for safety
- No special tools required for servicing
- Grooved ends available
- Compact bottom-mounted relief valve to reduce clearance requirements
- Compact construction reduces lay length by as much as 70%
- Field proven check/relief valve components for reliability and parts inventory reduction
- Lower installed cost in outdoor installations due to elimination of two elbows, two valve supports, use of shorter spools and smaller enclosure
- Detects underground leaks that historically have been a great annual cost due to waste
- Provides a detection point for unauthorized water use. It can help locate illegal taps
- GPM or CFM meter available
- Furnished with 5/8" x 3/4" bronze meter

AVAILABLE MODELS

Suffix:

G - with grooved ends (OS&Y)
OSY - with (UL/FM) outside stem & yoke resilient seated valves
CFM - with cubic feet per minute meter
GPM - with gallons per minute meter

MATERIALS

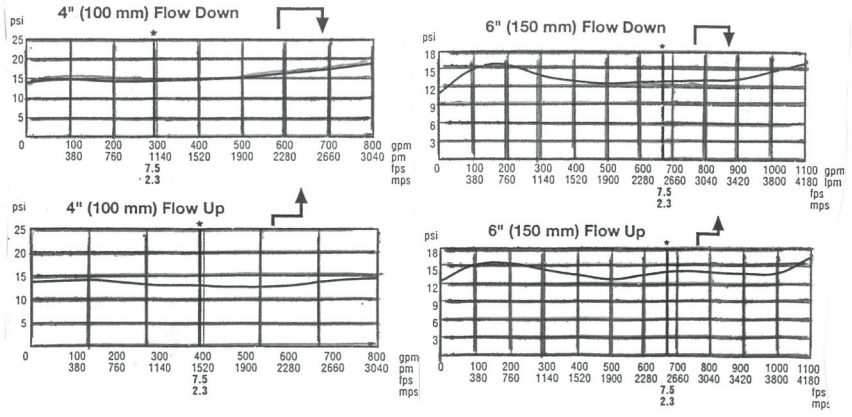
Series 993 have FDA approved epoxy coated cast iron check valve bodies with bronze seats and bronze relief valve with stainless steel trim.
All sizes furnished with bronze body ball valve test cocks.

PRESSURE - TEMPERATURE

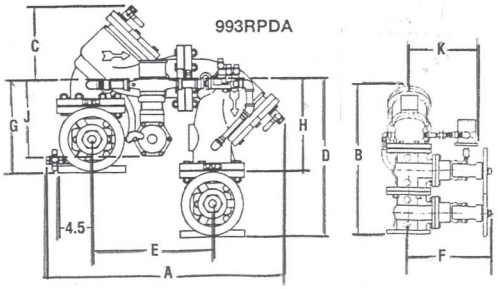
Suitable for supply pressure up to 175 psi (12.1 bars) and water temperatures to 110°F (43°C) continuous, 140°F (60°C) intermittent.

CAPACITY

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



DIMENSIONS - WEIGHTS (approximate)



Model	Size inches / mm	A inches / mm	B inches / mm	C inches / mm	D inches / mm	E inches / mm	F (open) inches / mm	F (close) inches / mm	G inches / mm	H inches / mm	J inches / mm	K inches / mm
993RPDA-OSY-GPM	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 324	12½ / 318	10½ / 267	13¹¹⁄₁₆ / 348
993RPDA-OSY-CFM	4 / 100	32¼ / 819	31⅝ / 803	10 / 250	21⅝ / 549	16¼ / 413	23¾ / 603	19¼ / 489	12¾ / 324	12½ / 318	10½ / 267	13¹¹⁄₁₆ / 348
993RPDA-OSY-CFM	6 / 150	38⅜ / 979	38¹³⁄₁₆ / 986	12⅞ / 327	25¹⁵⁄₁₆ / 659	20⅛ / 511	32½ / 826	27 / 656	15⁵⁄₁₆ / 389	15⁵⁄₁₆ / 389	11¹⁵⁄₁₆ / 303	16⅞ / 428
993RPDA-OSY-GPM	6 / 150	38⅜ / 979	38¹³⁄₁₆ / 986	12⅞ / 327	25¹⁵⁄₁₆ / 659	20⅛ / 511	32½ / 826	27 / 656	15⁵⁄₁₆ / 389	15⁵⁄₁₆ / 389	11¹⁵⁄₁₆ / 303	16⅞ / 428

Size inches / mm	Weight lbs. / kg.
4 / 100	425 / 193
6 / 150	480 / 218

WATTS 994

SIZE
2 1/2”, 3”, 4”, 6”, 8”, 10”

DESCRIPTION
This is a reduced pressure assembly. Production began in 1998. In 1997 the Watts Company purchased the Ames Company and began marketing the Ames 4000 SS as the Watts 994. The body is made of stainless steel with a single access cover for the checks. The check design is modular so springs are contained and the seats are replaceable. In the 2 1/2”-6” size the check assemblies are not field repairable and the whole check module must be replaced for an average repair. The check is made of glass filled noryl and is cam operated. The 8-10” check does have a rubber disc that is field replaceable. The relief valve is attached to the check body by threads and uses an external sensing line.

BASIC REPAIR KIT
The repair kit contains first check module, second check module, bellofram, disc, and O-rings

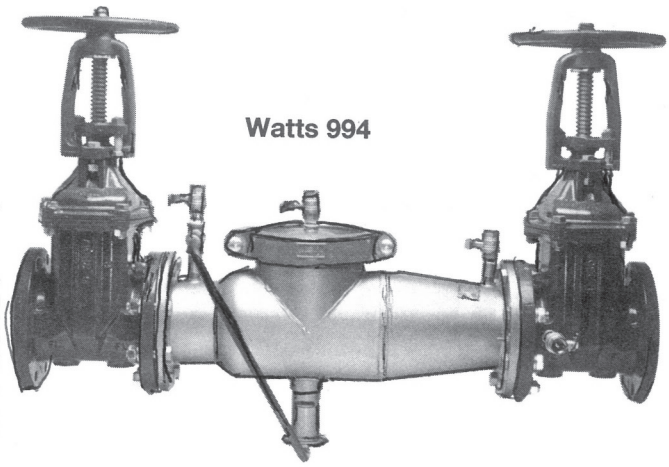
SIZE	KIT NO
2 1/2”	994-T400
3”	994-T400
4”	994-T400
6”	994-T600
8”-10”	994-T800

IMPORTANT FEATURES
~Stainless steel body
~Modularized checks
~Springs are contained
~Factory repair information enclosed

Series 994

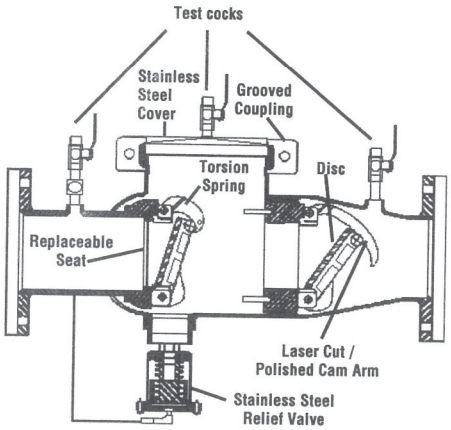
Reduced Pressure Zone Assemblies

Sizes 2½" – 10" (65 – 250mm)



Features

- Stainless Steel construction provides long term corrosion resistance and maximum strength
- Stainless Steel body is half the weight of competitive designs reducing installation & shipping costs
- Short end to end dimensions makes retrofit easy
- Bottom mounted relief valve reduces clearance requirements when installed against an outside wall
- Patented torsion spring check valves provides maximum flow at low pressure drop
- Thermoplastic & stainless steel check valves for trouble-free operation
- No special tools required for servicing
- Compact construction allows for smaller enclosures
- Stainless steel relief valve features a balanced rolling diaphragm to eliminate sliding seals and lower maintenance costs

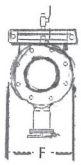


MATERIALS

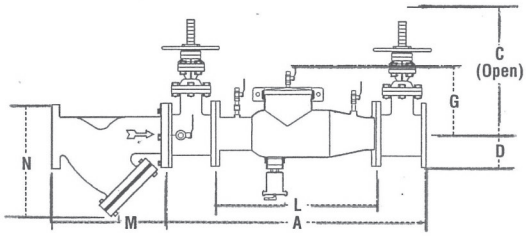
All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 110°F (43°C) continuous.

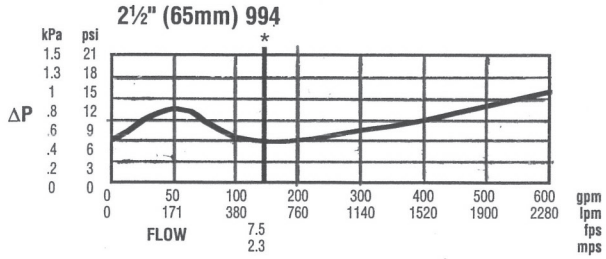


Dimensions – Weights

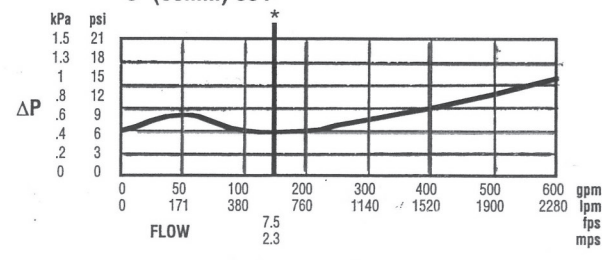


SIZE (DN)		DIMENSIONS (APPROX.)												STRAINER DIMENSIONS				WEIGHT			
		A		C (open)		D		F		G		L		M		N		w/Gates		w/o Gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.	lb.	kg.
2½	65	37	940	16⅜	419	10½	267	7	178	10	254	22	559	10	254	6½	165	148	67	60	27
3	80	38	965	18⅞	479	10½	267	7½	191	10	254	22	559	10⅛	257	7	178	226	103	62	28
4	100	40	1016	22¾	578	10½	267	9	229	10	254	22	559	12⅛	308	8¼	210	235	107	65	30
6	150	48½	1232	30⅛	765	11½	292	11	279	15	381	27½	699	18½	470	13½	343	380	172	110	50
8	200	52½	1334	37¾	959	12½	318	13½	343	15	381	29½	749	21⅜	549	15½	394	571	259	179	81
10	250	55½	1410	45¾	1162	12½	318	16	406	15	381	29½	749	26	660	18½	470	773	351	189	86

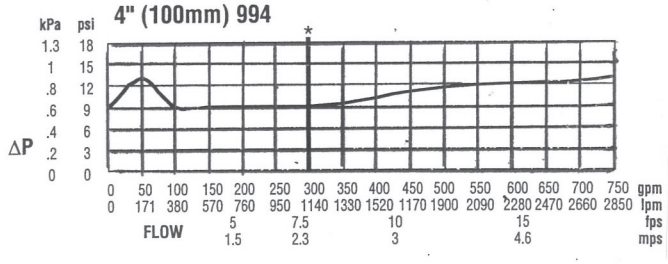
2½" (65mm) 994



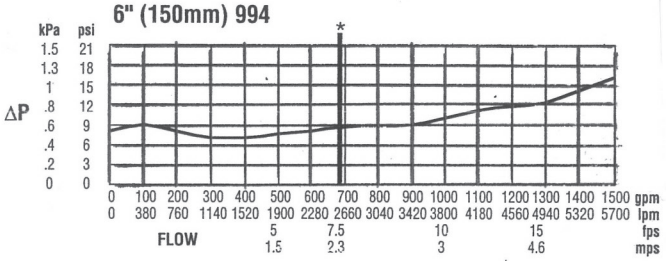
3" (80mm) 994



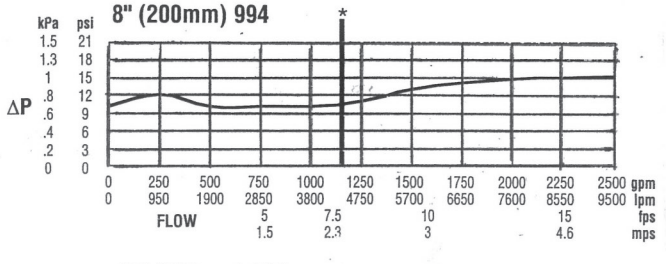
4" (100mm) 994



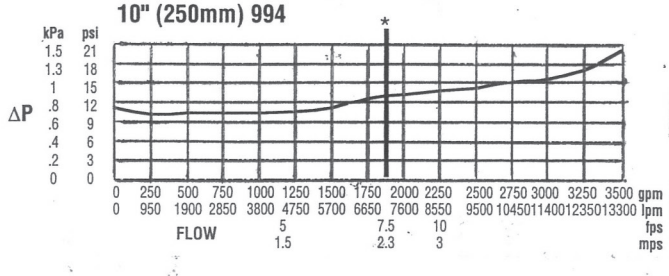
6" (150mm) 994



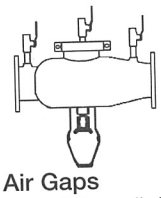
8" (200mm) 994



10" (250mm) 994

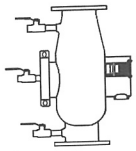


Model 994 and 994RPDA Sizes: 2½" – 10"



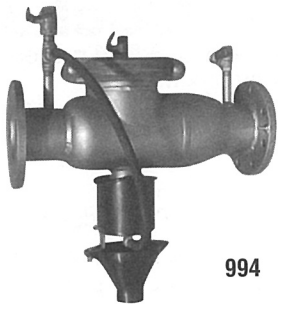
Horizontal Air Gaps

1. Remove two of the relief valve capscrews 180° apart.
2. Remove the relief valve hose from fitting below inlet ball valve.
3. From the top of the air gap, thread the relief valve hose down and out the slot.
4. Use ¼" - 20 UNC x 1" long stainless steel screws.
5. Reconnect relief valve hose to the fitting below the inlet ball valve.



Vertical Air Gaps

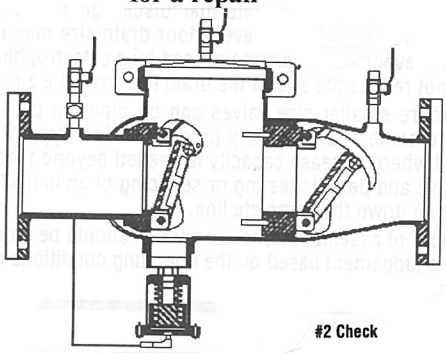
1. Detach the sensing line from the inlet ball valve and the elbow on the relief valve.
2. Remove the elbows from the relief valve base.
3. Hang the Air Gap Drain on the body of the relief valve
4. Reinstall the elbow into the base of the relief valve to hold the Air Gap drain in place.
5. Install the rigid fitting end of the sensing line to the elbow on the base of the relief valve and the swivel end to the fitting on the ball valve.

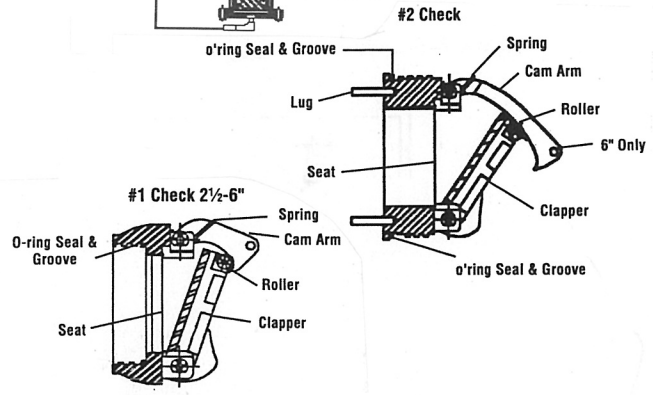


994

2 ½-6"

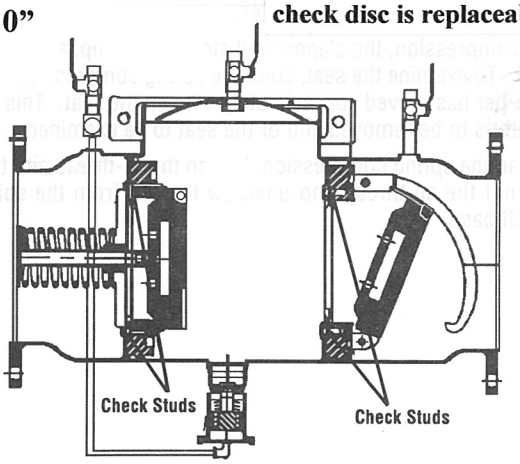
2 ½" - 6" checks are modular but check disc is not replaceable and the whole check module must be replaced for a repair



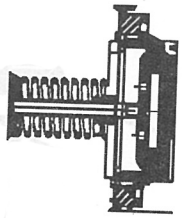


8-10"

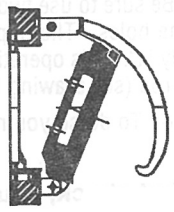
8" – 12" checks are modular and the check disc is replaceable



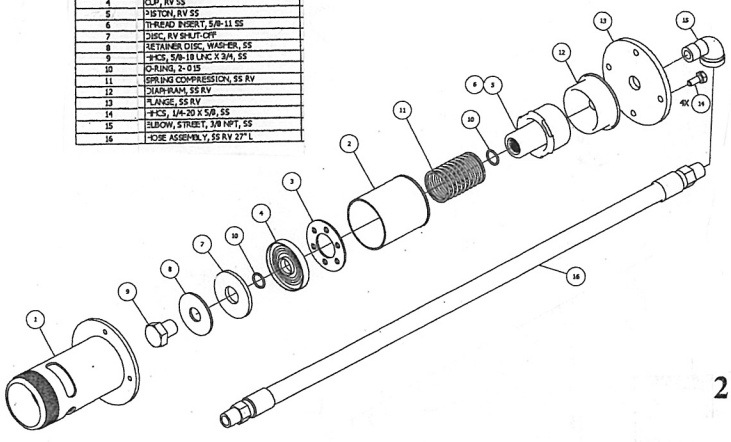
#1 Cam-Check RP



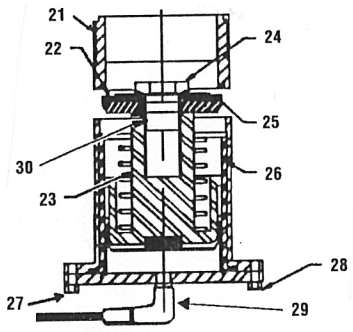
#2 Cam-Check DC & RP



ITEM	PARTS LIST DESCRIPTION
1	-AV BODY
2	-SLEEVE, SS RV MACHINED
3	-STOP, SPRING
4	-CUP, RV SS
5	-PISTON, RV SS
6	-THREAD INSERT, 5/8-11 SS
7	-DISC, RV SHUT-OFF
8	-RETAINER DISC, WASHER, SS
9	-HCS, 5/8-18 UNC X 3/4, SS
10	-O-RING, 2- 015
11	-SPRING COMPRESSION, SS RV
12	-DIAPHRAM, SS RV
13	-FLANGE, SS RV
14	-HCS, 1/4-20 X 5/8, SS
15	-ELBOW, STREET, 3/8 NPT, SS
16	-HOSE ASSEMBLY, SS RV 27" L



Relief Valve 2 ½-10"



Item #	Part Description
21	Relief Valve Body
22	Rubber Shut-Off Disc
23	Piston Diaphragm Assembly
24	Hex Head Bolt
25	Disc Retainer
26	Sleeve
27	Bottom Bolt
28	Bottom Flange (w st. elbow)
29	Bottom St. Ell
30	O-ring disc

WATTS 994 RPDA

SIZE
2 1/2", 3", 4", 6"

DESCRIPTION
This is a reduced pressure principle detector assembly. Production began in 1999. The Watts Regulator Company purchased the Ames Company and began marketing the Ames 5000 SS as the Watts 994RPDA. The mainline assembly is similar to the Watts 994. The bypass assembly is similar to the Watts 009M3 3/4".

BASIC REPAIR KIT
Mainline repair kit contains first check module, second check module, rolling diaphragm disc and O-rings

SIZE	KIT NO
2 1/2"	994-T400
3"	994-T400
4"	994-T400
6"	994-T600

Bypass repair kit contains disc holders, diaphragm, and O-ring

SIZE	KIT NO
3/4"	009M3-RT075

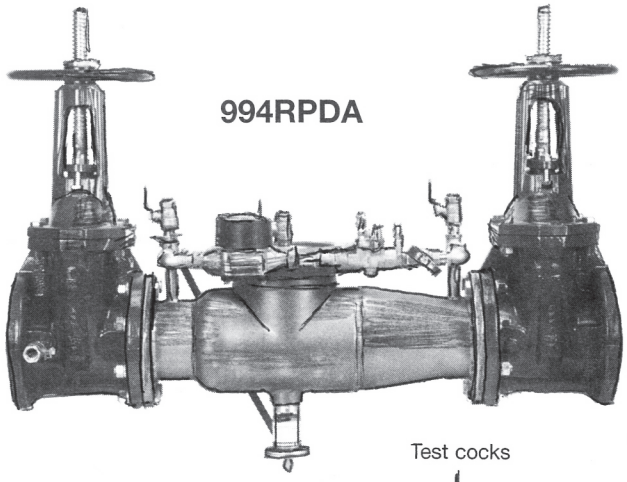
IMPORTANT FEATURES
~Mainline assembly similar to Watts 994
~Bypass assembly similar to the Watts 009M3 3/4"
~Factory repair information enclosed

BAVCO
BACKFLOW APPARATUS & VALVE CO.

Series 994RPDA

Reduced Pressure Detector Assemblies

Sizes 2½" – 6" (65 – 150mm)



Features

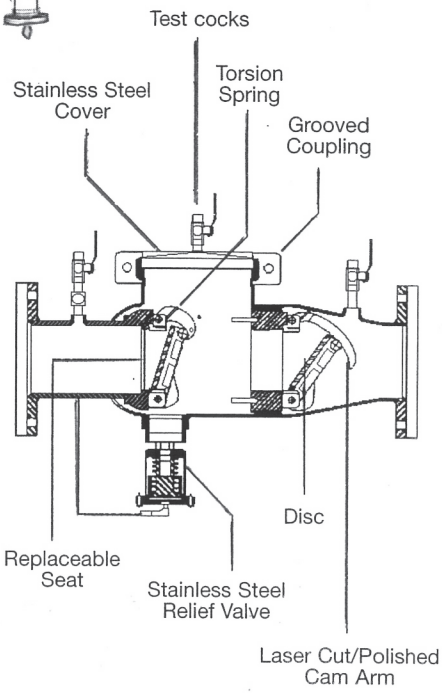
- Stainless steel construction provides long term corrosion resistance and maximum strength
- Stainless steel body is half the weight of competitive designs reducing installation and shipping costs
- Short end to end dimensions makes retrofit easy
- Bottom mounted relief valve reduces clearance requirements when installed against an outside wall
- Patented torsion spring check valves provide maximum flow at low pressure drop
- Thermoplastic and stainless steel check valves for trouble-free operation
- No special tools required for servicing
- Compact construction allows for smaller enclosures
- Stainless steel relief valve features a balanced rolling diaphragm to eliminate sliding seals and lower maintenance costs
- Detects underground leaks and unauthorized water use.
- GPM or CFM meter available

Materials

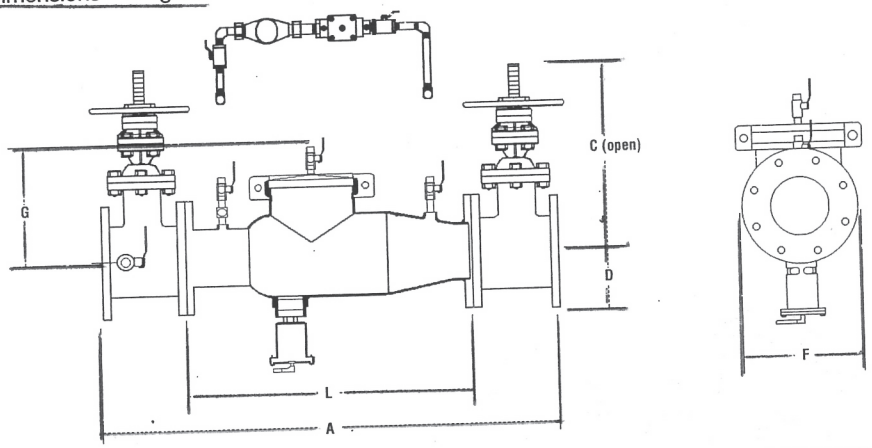
- All internal metal parts: 300 Series stainless steel
- Main valve body: 300 Series stainless steel
- Check assembly: Noryl®

Pressure – Temperature

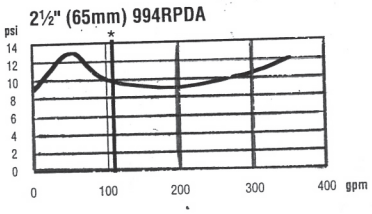
Temperature Range: 33°F – 110°F
(5°C – 43°C) continuous
Maximum Working Pressure: 175psi
(12.06 bars)

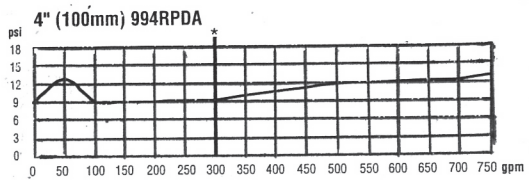


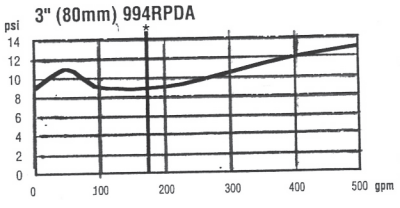
Dimensions – Weights

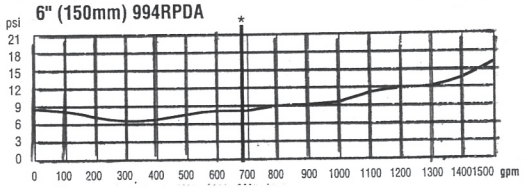


SIZE (DN)		DIMENSIONS (APPROX.)												WEIGHT			
		A		C (open)		D		F		G		L		w/Gates		w/o Gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.	lbs.	kg.
2½	65	37	940	16⅜	416	10½	267	7	178	10	254	22	559	148	67	60	27
3	80	38	965	18⅞	479	10½	267	7½	191	10	254	22	559	226	103	62	28
4	100	40	1016	22¾	578	10½	267	9	229	10	250	22	559	235	107	65	30
6	150	48½	1232	30⅛	765	11½	292	11	279	15	381	27½	699	380	172	110	50









WATTS 995

SIZE
1/2”, 3/4”, 1”, 1 1/4”, 1 1/2”, 3”, 4”, 6”

DESCRIPTION
This is a reduced pressure assembly. Production began in 1998. The 3”-6” was discontinued in 2003. The 1/2”- 1 1/2” was discontinued in 2009. In the 1/2”-1 1/2” size the body is made of copper tubing which is nickel plated. There is a single cover for the checks. The checks are modular in construction so the springs will be contained and the seats are replaceable. The check modules thread into the body. The relief valve is attached to the check body by a union and utilizes an external sensing line. The 3”-6” size utilizes a stainless steel body. The checks are modular and are accessed from the single access cover. The checks are repairable and screw into the body. The relief valve is pressurized from an external sensing line. The relief valve is mounted between the two checks and is located under the cover.

BASIC REPAIR KIT
The repair kit contains disc holders or discs, diaphragm, and O-rings

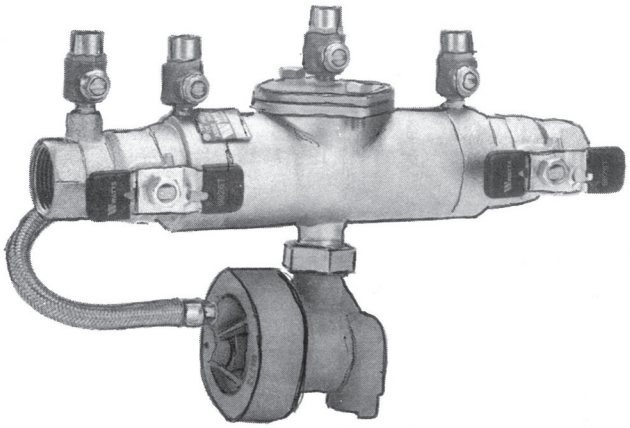
SIZE	KIT NO
1/2”-3/4”	995-RT050
1”	995-RT100
1 1/4”-1 1/2”	995-RT125 ◆
3”-4”	995-RT300 ◆
6”	995-RT600 ◆

IMPORTANT FEATURES
~1/2”-2” nickel plated copper tube body
~3”-6” stainless steel body
~Modular checks
~Factory repair information enclosed

Series 995

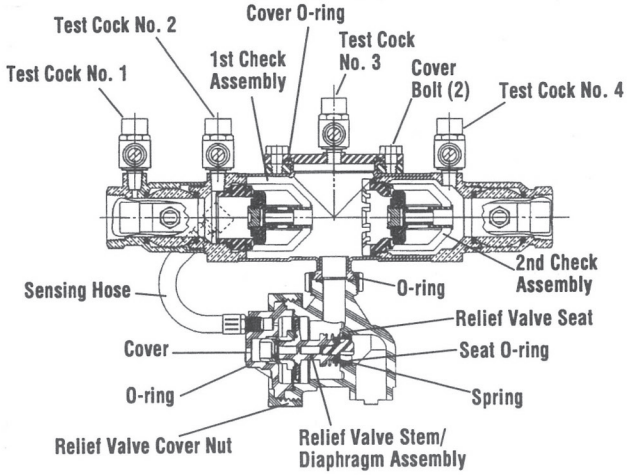
Reduced Pressure Backflow Preventer

Sizes: ½" through 1½" (15-40mm)



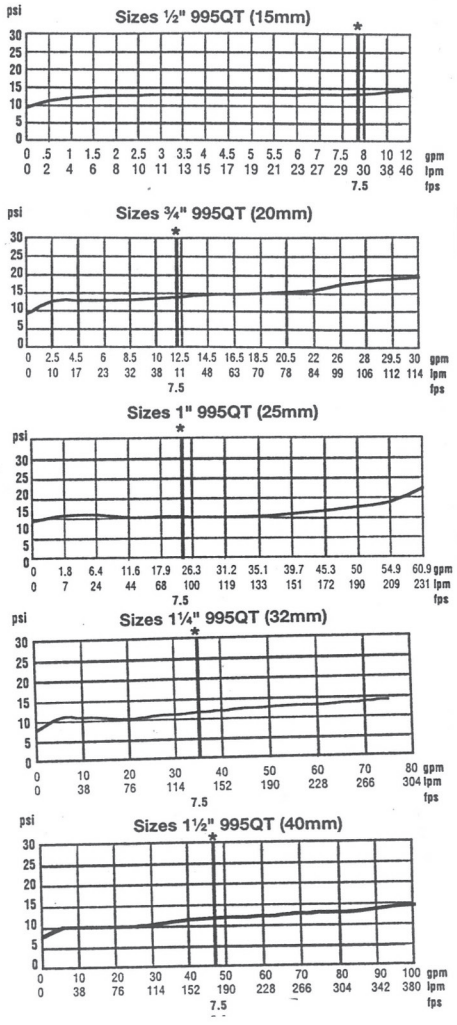
FEATURES

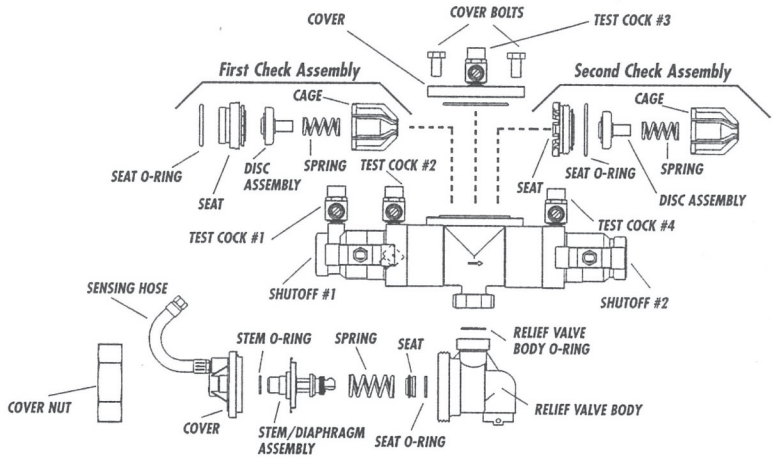
- *Tubular lead free copper body creates smooth flow path and low head loss.*
- *External/internal electroless nickel-plated body acts as an oxygen barrier for corrosion resistance.*
- *Threaded-in check modules eliminate the use of check retainers for lower pressure loss.*
- *Bottom mounted relief valve reduces end-to-end dimensions allowing smaller enclosures and space requirements.*
- *Separate relief valve access cover allows the check modules to be serviced independently of the relief valve.*
- *Unique relief valve cover nut design eliminates use of cover bolts and simplifies alignment.*
- *Flexible stainless steel braided hose, senses supply pressure at the mid-point of the body to reduce fouling.*
- *Check relief valve seats are replaceable without the use of special tools.*
- *Modular check valves feature captured springs and replaceable disc rubber.*
- *Bolted on, top entry stainless steel check valve cover features an o-ring seal to limit torque requirements.*
- *Crush seal check module o-ring for positive seating.*



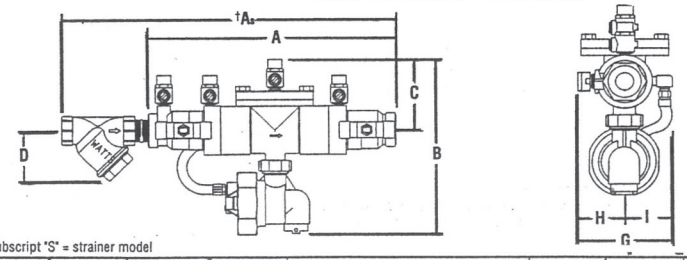
PRESSURE - TEMPERATURE

Suitable for supply pressure up to 175 psi (12 bars) and water temperatures up to 180°F continuous.





DIMENSIONS - WEIGHT



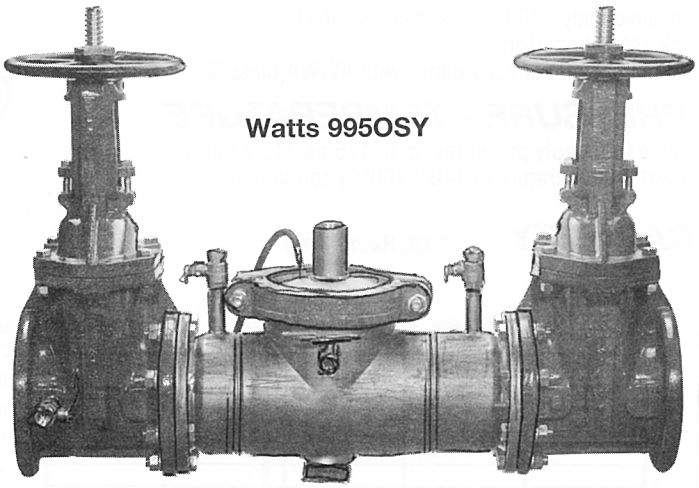
†Subscript "S" = strainer model

Model No.	Size (DN) in.	Size (DN) mm	A in.	A mm	B in.	B mm	C in.	C mm	D in.	D mm	G in.	G mm	H in.	H mm	I in.	I mm	Weight lbs.	Weight kg.
								Dimensions (Approx.)										
995QT	½	15	9	228	7¼	184	2⅝	67	–	–	3⅝	92	1⅝	41	2	51	4.75	2.2
995QT-S	½	15	12	304	7¼	184	2⅝	67	3	76	3⅝	92	1⅝	41	2	51	5.75	2.6
995QT	¾	20	9	228	7¼	184	2⅝	67	–	–	3⅝	92	1⅝	41	2	51	4.75	2.2
995QT-S	¾	20	12½	317	7¼	184	2⅝	67	3	76	3⅝	92	1⅝	41	2	51	6.50	3.0
995QT	1	25	11½	292	8 1/16	205	3 3/16	84	–	–	4⅛	105	2	51	2⅛	54	7	3.2
995QT-S	1	25	16¼	413	8 1/16	205	3 3/16	84	3¼	83	4⅛	105	2	51	2⅛	54	9	4.1
995-QT	1¼	32	15⅜	390	11	279	4 7/16	113	–	–	6	152	3¼	82	2¾	69	18¼	8.2
995-QTS	1¼	32	19⅞	504	11	279	4 7/16	113	3½	89	6	152	3¼	82	2¾	69	22¼	10.1
995-QT	1½	40	15⅜	390	11	279	4 7/16	113	–	–	6	152	3¼	82	2¾	69	18¼	8.2
995-QTS	1½	40	20¼	514	11	279	4 7/16	113	4	102	6	152	3¼	82	2¾	69	23¾	10.7

Series 995

Reduced Pressure Zone Backflow Preventer

Sizes: 3"- 6" (80 - 150mm)



MATERIALS

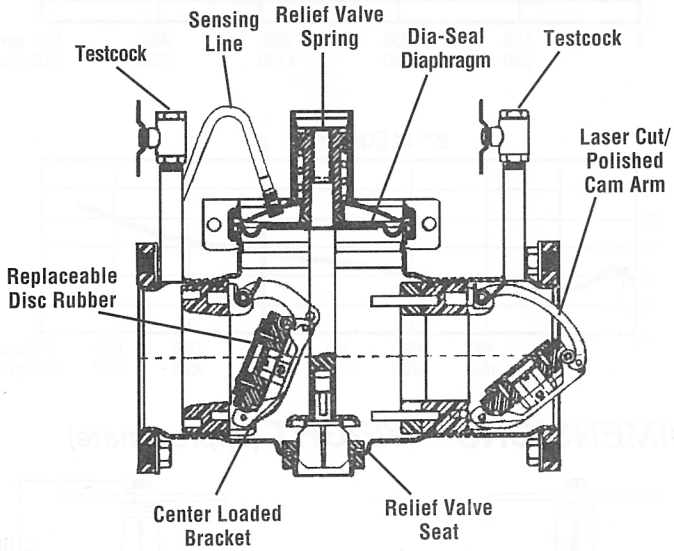
All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

PRESSURE - TEMPERATURE

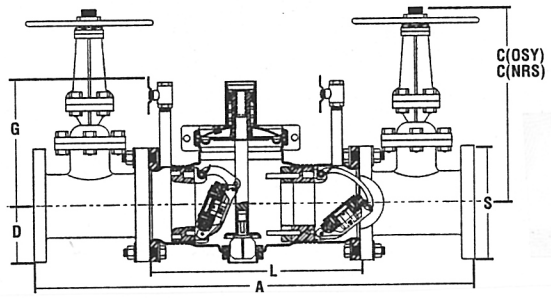
Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 140°F (60°C) continuous.

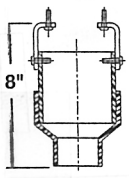
FEATURES

- *40% shorter lay length for low installation cost-ideal for retrofit and enclosure installations.*
- *Light weight stainless steel body reduces handling and shipping costs versus cast iron valves.*
- *Patented DynaFloat™ torsion spring check valve minimizes head loss and includes "edge protection" to prevent wear of the disc rubber due to back pressure.*
- *Center-loaded stainless steel center pivot arm distributes check valve spring load evenly for repeatable trouble free operation.*
- *Stainless steel body provides long term corrosion protection and maximum strength, eliminates need for epoxy coatings and the associated voids and pin holes.*
- *Threaded-in check modules, no need for retaining wires and difficult to remove clips.*
- *Reversible check disc rubber.*
- *Single top access cover with two bolt grooved style coupling for ease of maintenance.*
- *Stainless steel and thermoplastic check valve construction for corrosion resistance.*
- *No special tools required for servicing.*
- *In-line relief valve reduces installation clearance requirements.*
- *Lead free body is 60% lighter than competitive designs.*
- *Bulkhead-mounted relief valve seat allows for simple removal.*
- *Dia-Seal™ relief valve design minimizes parts and reduces maintenance time.*



DIMENSIONS - WEIGHT (approximate)

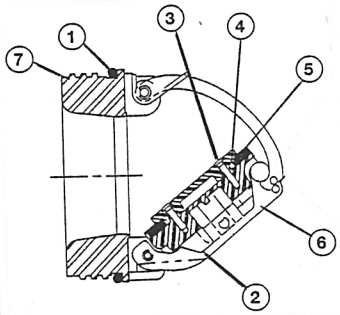




Air Gap Fitting

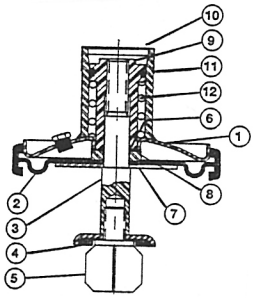
Size in.	Size mm	A in.	A mm	C (OSY) in.	C (OSY) mm	C (NRS) in.	C (NRS) mm	Dimensions D in.	Dimensions D mm	G in.	G mm	L in.	L mm	S in.	S mm	Net Weight w/Gates lb.	Net Weight w/Gates kg.	Net Weight w/o Gates lb.	Net Weight w/o Gates kg.
3	80	36⅛	918	18⅞	479	12⅜	314	3¾	95	10½	268	20	508	7½	191	194	88	47	21
4	100	34⅝	879	22¾	578	14¾	375	4½	114	10½	268	16½	419	9	229	259	118	46	20.8
6	150	43⅝	1108	30⅛	765	19	483	5½	140	12½	318	22½	572	11	279	408	185	87	40

Checks

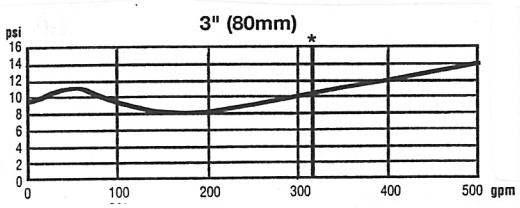


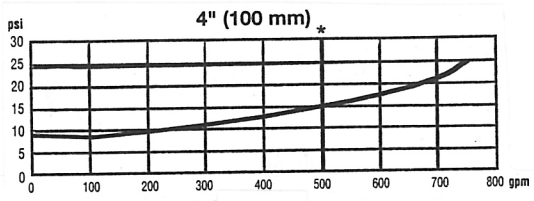
Item	Part Description
1.	1st Cam-Check O-ring (removable)
2.	Clapper Assembly (removable)
3.	Clapper Retaining Plate Screws (removable)
4.	Clapper Retainer Plate (removable)
5.	Clapper Disc (removable)
6.	Pivot Arm Pin (removable) 2 c-clips
7.	2nd Cam-Check O-ring (removable)

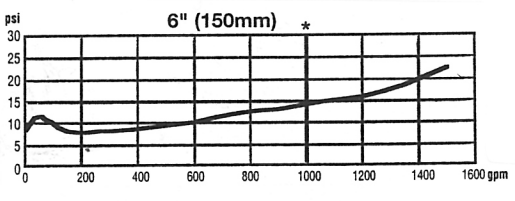
Relief Valve



Item	Part Description
1.	Cover
2.	Diaphragm/Gasket
3.	Shaft
4.	Sealing Disc
5.	Guide, Lower
6.	O-ring
7.	Support Disc
8.	Disc, Diaphragm Stop
9.	Guide, Upper
10.	Cover, Dust
11.	O-ring, Upper
12.	Spring







WATTS 995RPDA

SIZE
3", 4", 6"

DESCRIPTION
This is a reduced pressure principle detector assembly. Production began in 1999 and was discontinued in 2003. The Watts Regulator Company purchased the Ames Company in 1997. Watts began marketing the Ames 5001 SS as the Watts 995 RPDA. The mainline assembly is similar to the Watts 995. The bypass assembly is similar to the Watts 009 M3 3/4".

BASIC REPAIR KIT
Mainline repair kit contains discs, diaphragms, and O-rings.

SIZE	KIT NO
3"-4"	995-RT300 ◆
6"	995-RT600 ◆

Bypass repair kit contains discs, diaphragm, and O-rings.

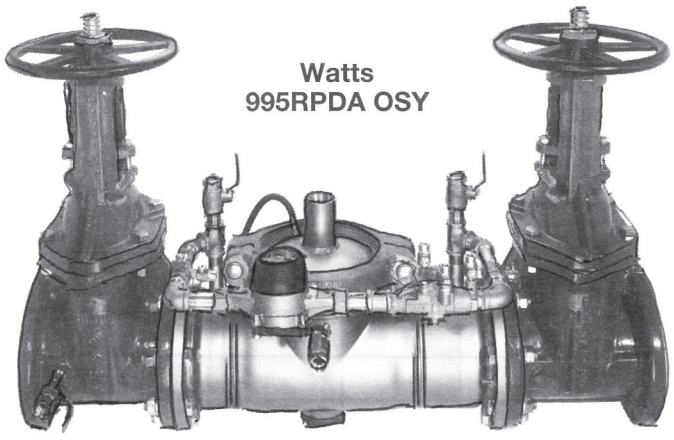
SIZE	KIT NO
3/4"	009M3-RT075

IMPORTANT FEATURES
~Mainline assembly similar to the Watts 995
~Bypass assembly similar to the Watts 009M3
~Factory repair information enclosed

Series 995RPDA

Reduced Pressure Detector Assembly

Sizes: 3"- 6" (80 - 150mm)



MATERIALS

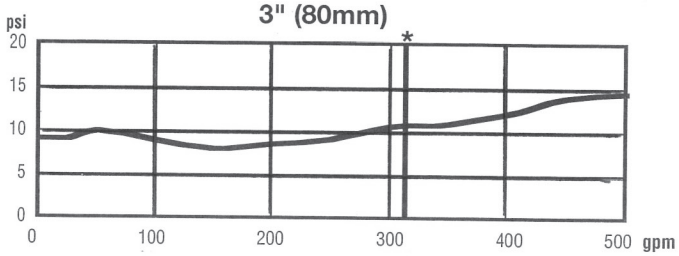
All internal metal parts: 300 Series stainless steel
Main valve body: 300 Series stainless steel
Check assembly: Noryl
Flange dimension in accordance with AWWA Class D

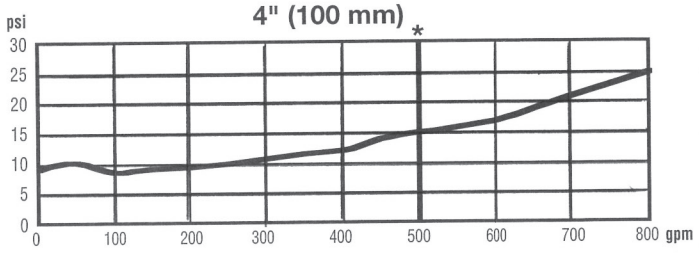
PRESSURE - TEMPERATURE

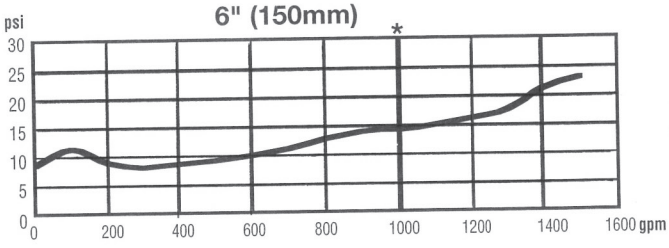
Suitable for supply pressures up to 175 psi (12.1 bars) and water temperature to 140°F (60°C) continuous.

FEATURES

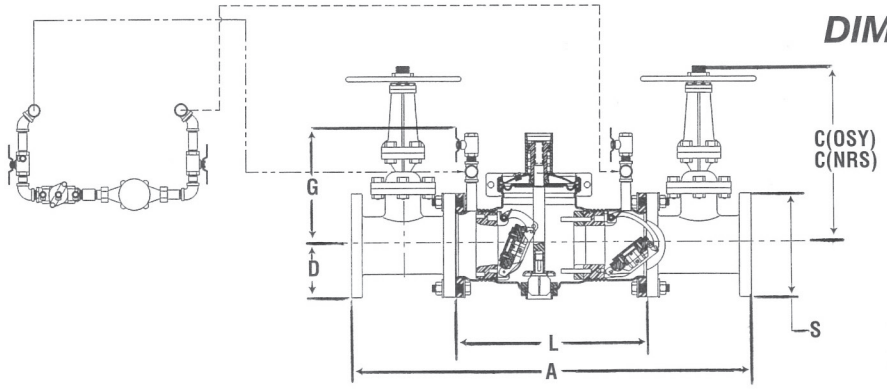
- *40% shorter lay length for low installation cost-ideal for retrofit and enclosure installations.*
- *Light weight stainless steel body reduces handling and shipping costs versus cast iron valves.*
- *Patented DynaFloat™ torsion spring check valve minimizes head loss and includes "edge protection" to prevent wear of the disc rubber due to back pressure.*
- *Center-loaded stainless steel center pivot arm distributes check valve spring load evenly for repeatable trouble free operation.*
- *Stainless steel body provides long term corrosion protection and maximum strength, eliminates need for epoxy coatings and the associated voids and pin holes.*
- *Threaded-in check modules, no need for retaining wires and difficult to remove clips.*
- *Reversible check disc rubber.*
- *Single top access cover with two bolt grooved style coupling for ease of maintenance.*
- *Stainless steel and thermoplastic check valve construction for corrosion resistance.*
- *No special tools required for servicing.*
- *In-line relief valve reduces installation clearance requirements.*
- *Lead free body is 60% lighter than competitive designs.*
- *Bulkhead-mounted relief valve seat allows for simple removal.*
- *Dia-Seal™ relief valve design minimizes parts and reduces maintenance time.*
- *Furnished with GPM or CFM meter.*
- *Detects underground leaks and unauthorized water use.*







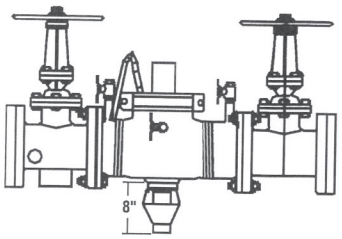
DIMENSIONS - WEIGHT *(approximate)*



Size		A		Dimensions C (OSY)		C (NRS)		D		G		L		S		Net Weight w/Gates		Net Weight w/o Gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.	lb.	kg.
3	80	36⅛	918	18⅞	479	12⅜	314	3¾	95	13¼	337	20	508	7½	191	205	93	58	26
4	100	34⅝	879	22¾	578	14¾	375	4½	114	13¼	337	16½	419	9	229	270	122	57	26
6	150	43⅜	1108	30⅛	765	19	483	5½	140	15	381	22½	572	11	279	420	191	99	45

Air Gap Assembly

Model 995AG 3" - 6"



Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. 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 FACTORY REPAIR INFORMATION

The following pages are excerpts from literature the manufacturers print to help repair their assemblies. This information is provided to assist in repairing their assemblies but should not be considered all the information needed to repair all situations.

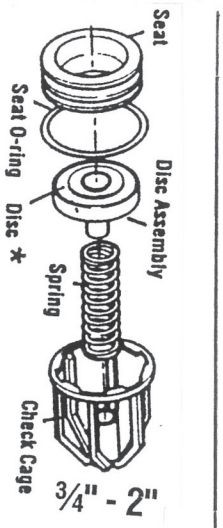
MODELS FOR WHICH FACTORY REPAIR INFORMATION IS PROVIDED

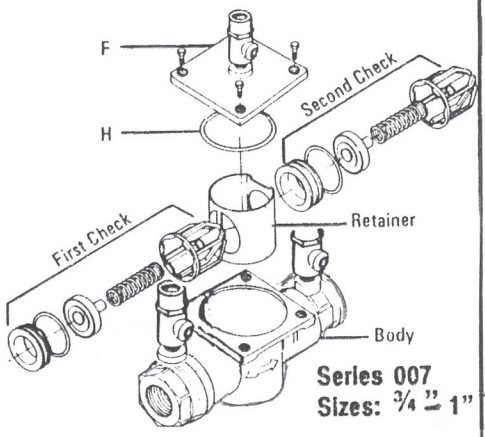
PAGES 21-97 THROUGH 21-99 HAVE INTENTIONALLY BEEN OMITTED

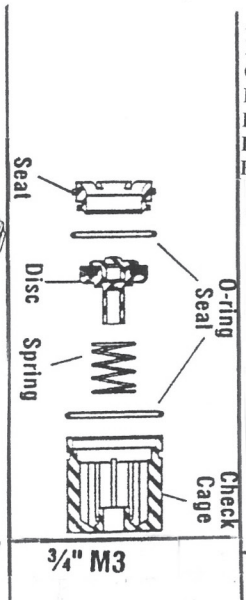
Series 007 DOUBLE CHECK VALVE ASSEMBLY Sizes: ½" thru 2"

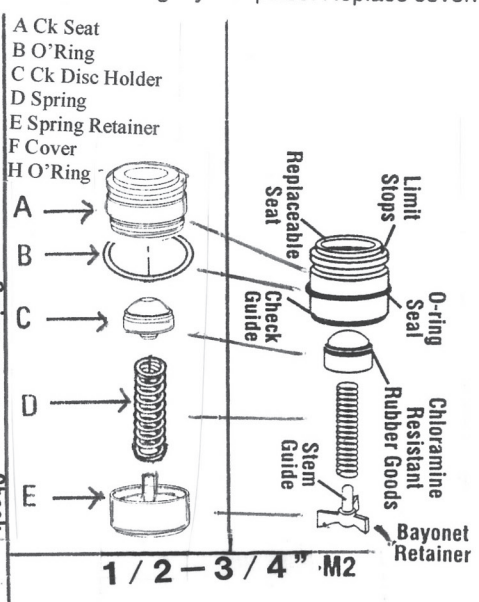
Servicing the First and Second Check Valves:

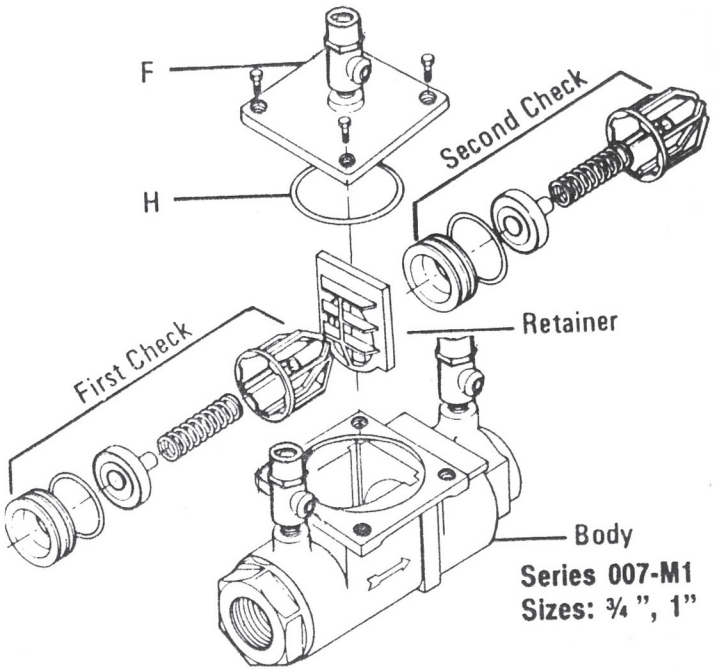
1. After removing the cover, remove the retainer for the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver. **Note:** For Series 007 sizes ¾"- 2", the seats and sprngs of the first and second check modules are **not** interchangeable. The heavier spring and smaller diameter seat belong with the first check module. Series 007M1 sizes ¾"- 1" and Series 007M2 ¾" have interchangeable seats and springs.
2. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counter-clockwise against the cage, for Series 007M2 pull apart seat and cage. The seat, cage, spring and disc assembly are now individual components.
3. The disc assembly may now be cleaned and re-assembled or, depending on its condition, it may be discarded and replaced with a new assembly from the repair kit. O'rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease furnished with the service kit.
4. Re-assemble the check valve module in the reverse order. Check modules are installed in the valve body with the seats facing the valve inlet. The modules must be securely in place before the retainer can be replaced. On the ¾"- 1" size, this retainer may have to be tilted slightly into place. Replace cover.

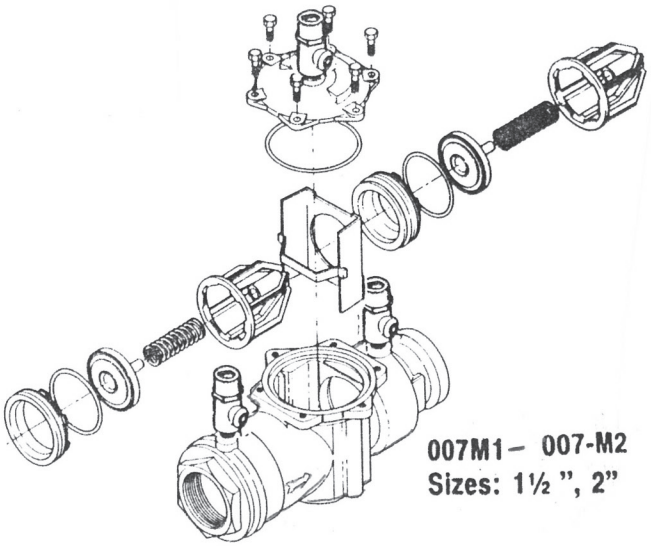




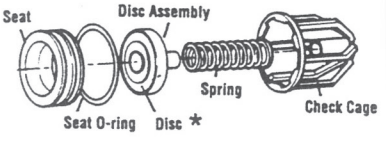








CHECK ASSEMBLY (1" - 2")



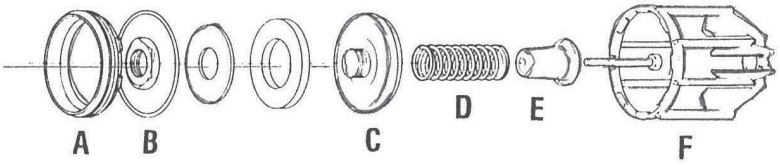
Series 007 DOUBLE CHECK VALVE ASSEMBLY

Sizes: 2½'' and 3''

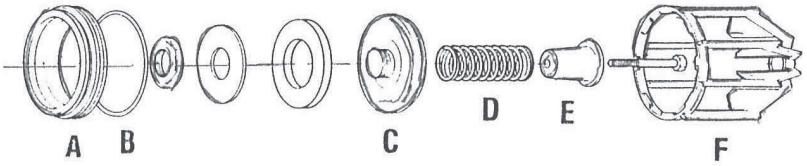
1. Remove cover bolts and cover.
2. Remove the retainer from the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver. **Note:** The seats and springs of the first and second check modules are **not** interchangeable. The heavier spring and smaller diameter seat belong with the first check module.
3. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, pusn the seat inward and rotate counter-clockwise against the cage. The seat, spring cage, spring and disc assembly are now individual components.
4. The disc assembly may now be cleaned and re-assembled or, depending on its condition, may be discarded and replaced with a new assembly from the repair kit. ''O'' rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease furnished with the service kit.
5. Re-assemble the check valve modules. Check modules are installed in the valve body with the seats facing the valve inlet. The modules must be securely in place before the retainer can be replaced. On the ¾'' and 1'' size, this retainer mav have to be tilted slightly into place.

NOTE: No special tools required to service Series 007 2½''- 3''

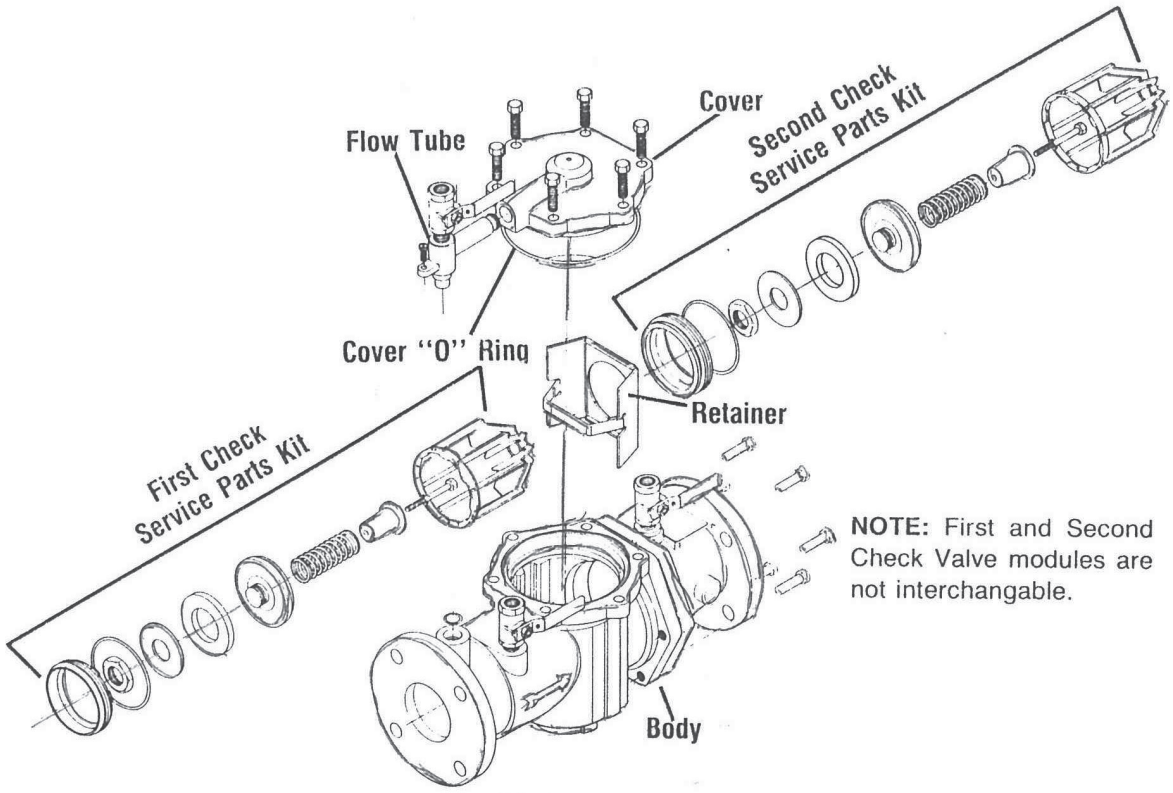
FIRST CHECK



SECOND CHECK



A Ck Seat
B O'Ring
C Ck Disc Holder
D Spring
E Guide
F Spring Retainer



NOTE: First and Second Check Valve modules are not interchangable.

4" and 6" 007

To Clean the Check Seats and Clapper Face

1. Remove the valve access cover.
2. Withdraw the 1st check seat retaining wires (fig. 1). Do not bend.
3. Withdraw the entire 1st check module.
4. Compress the spring assembly and pop the ball-end from its' socket; then remove the entire spring assembly.
5. With the spring load gone, rotate the clapper open then wipe clean any debris from the rubber clapper and the bronze seat sealing surface.
6. Repeat steps (2-5) for the removal and cleaning of the 2nd check seat and clapper.
7. To re-install, reverse the above steps while being sure to orient the check modules so the clapper hinge is on top.

To Replace Check Seats

1. Remove the valve access cover.
2. Withdraw the 1st check seat retaining wires (fig. 1). Do not bend.
3. Withdraw the entire 1st check module.
4. Compress the spring assembly and pop the ball-end from its' socket, then remove the entire spring assembly.
5. Loosen the two #8 set screws and slide out the two pins that secure the check cage.
6. Everything now easily comes apart so you can replace the check seat - to rebuild, reverse the above steps.

NOTE: To replace the 2nd check seat you must first remove the 1st check module.

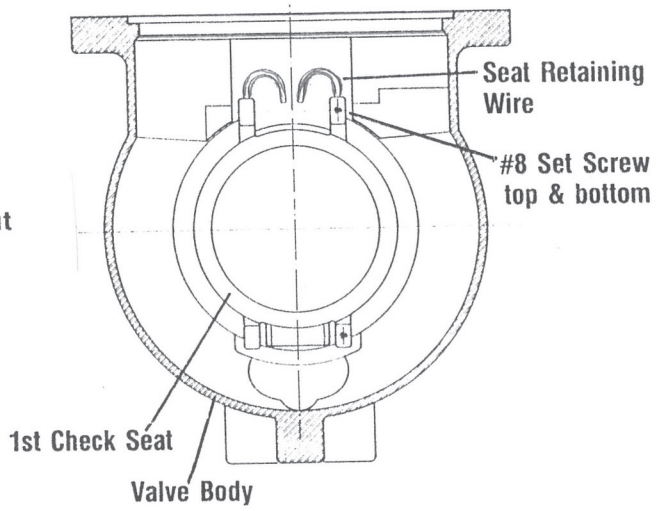
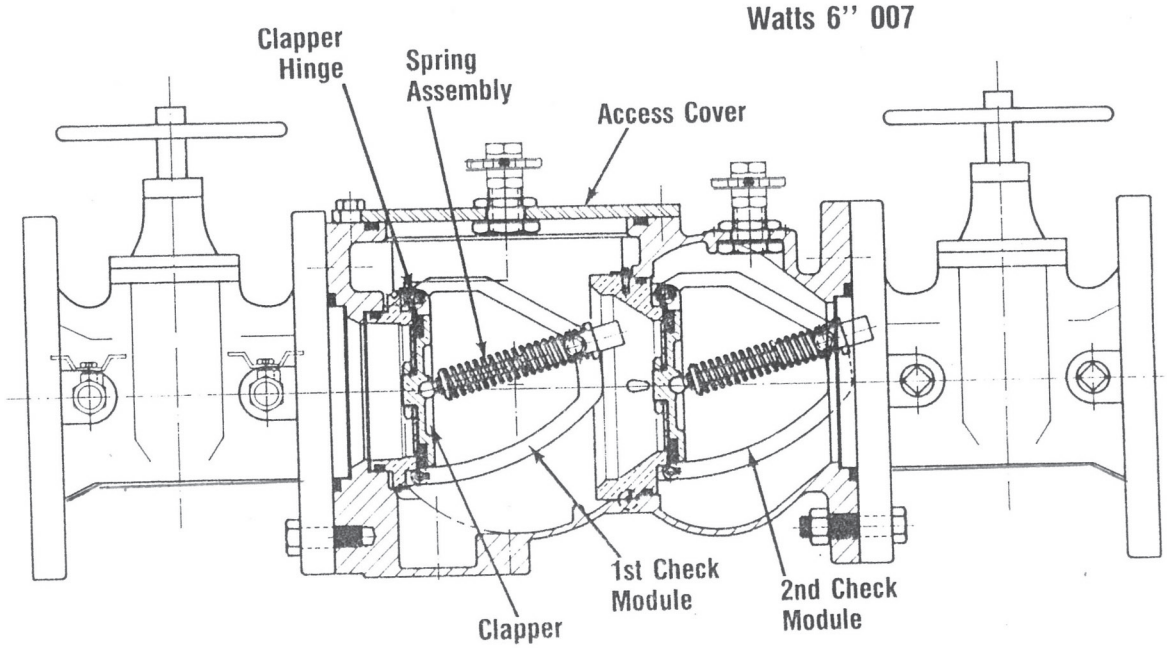
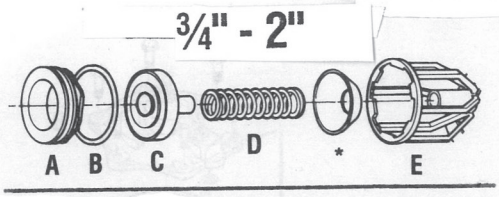
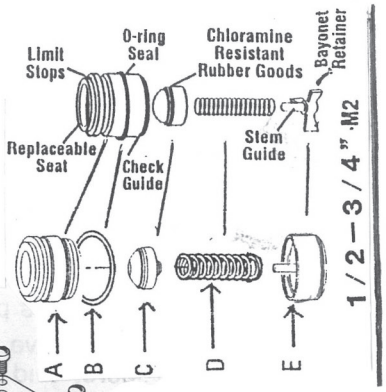


Figure 1
View from the inside of the valve looking out through the 1st check orifice.

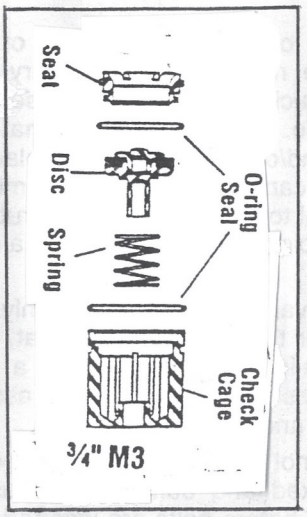


009 Sizes: ½" thru 2"





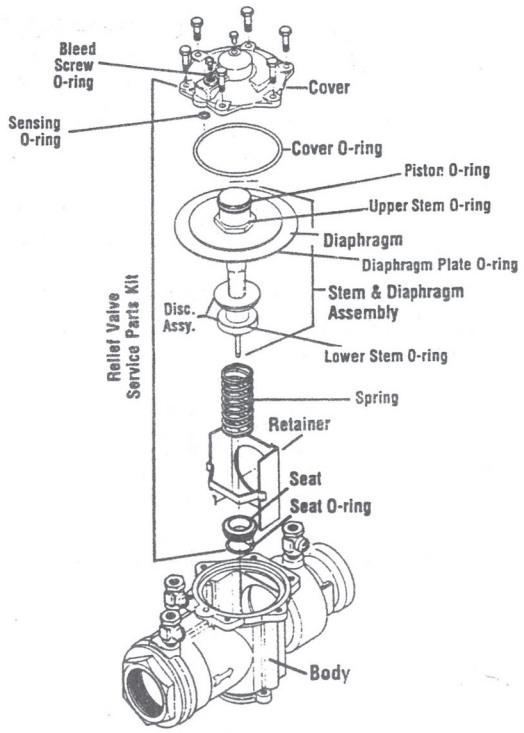
1. Remove the relief valve assembly
2. Remove the retainer from the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver. **Note:** The seats and springs of the first and second check modules are **not** interchangeable. The heavier spring and/or smaller diameter seat belong with the first check module.
3. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counter-clockwise against the cage. The seat, spring cage, spring and disc assembly are now individual components.
   Note: ½" - ¾" M2 modules snap apart
4. The disc assembly may now be cleaned and re-assembled or, depending on its condition, may be discarded and replaced with a new assembly from the repair kit. "O" rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease furnished with the service kit.
5. Re-assemble the check valve modules. Check modules are installed in the valve body with the seats facing the valve inlet. The modules must be securely in place before the retainer can be replaced. On the ¾" and 1" size, this retainer may have to be tilted slightly into place. Replace relief valve assembly.



Servicing the Relief Valve

1. Remove the relief valve cover bolts while holding the cover down.
2. Lift the cover straight off. The stem and diaphragm assembly will normally remain with the cover as it is removed. The relief valve spring will be free inside the body at this point.
3. The relief valve seat is located at the bottom of the body bore, and can be removed, if necessary, for cleaning. The disc can be cleaned without disassembly of the relief valve module. If it is determined that the relief valve diaphragm and/or disc should be replaced, the relief valve module can be readily disassembled without the use of special tools. **Note:** The disc rubber is molded into the disc holder and is supplied as a disc holder assembly.
4. To re-assemble the relief valve, press the seat firmly into place in the body, center the spring on the seat, and insert the cover and relief valve module as a unit straight into the bore. Press down on the cover to assure proper alignment. Insert and tighten bolts.

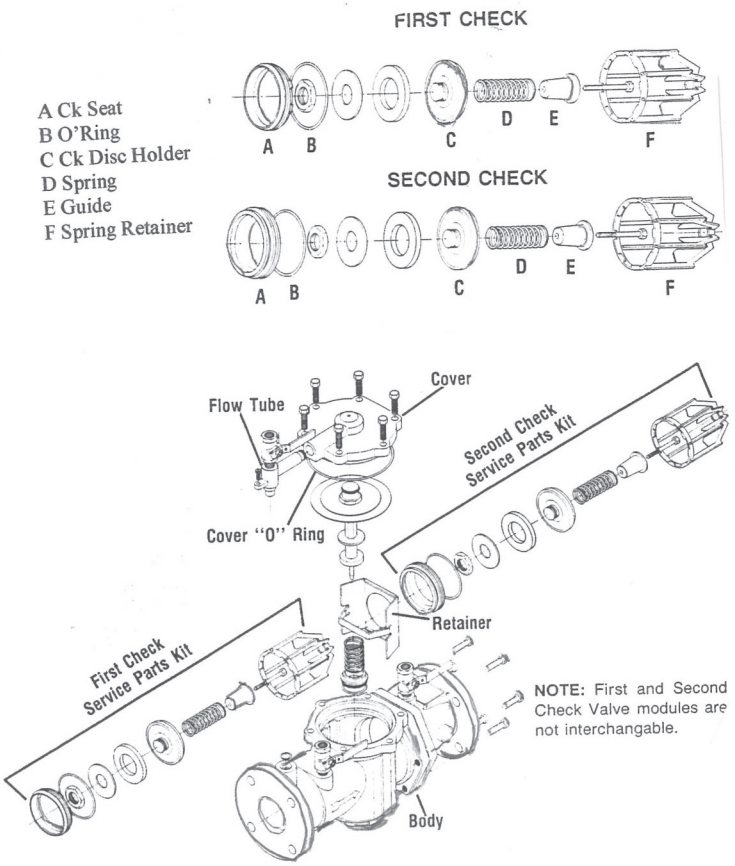
   Caution: If cover will not press flat against body, stem assembly is crooked and damage can result. Re-align stem and cover before bolts are inserted.



009
2 1/2 – 3"

1. Remove the relief valve assembly
2. Remove the retainer from the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver. **Note:** The seats and springs of the first and second check modules are **not** interchangeable. The heavier spring and smaller diameter seat belong with the first check module.
3. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, pusn the seat inward and rotate counter-clockwise against the cage. The seat, spring cage, spring and disc assembly are now individual components.
4. The disc assembly may now be cleaned and re-assembled or, depending on its condition, may be discarded and replaced with a new assembly from the repair kit. "O" rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease furnished with the service kit.
5. Re-assemble the check valve modules. Check modules are installed in the valve body with the seats facing the valve inlet. The modules must be securely in place before the retainer can be replaced. On the ¾" and 1" size, this retainer may have to be tilted slightly into place Replace relief valve assembly.

NOTE: No special tools required to service Series 009 ½"- 3".

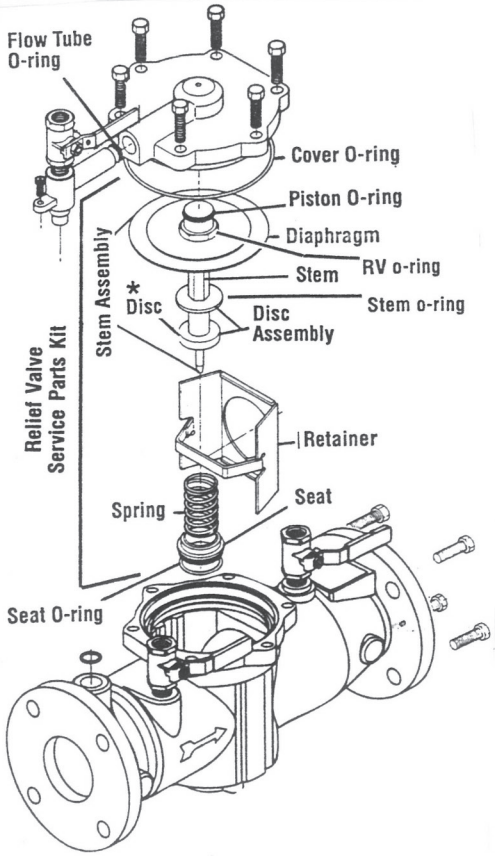


Servicing the Relief Valve 2½"- 3"

1. Remove the four or six relief valve cover bolts while holding the cover down.
2. Lift the cover straight off. The stem and diaphragm assembly will normally remain with the cover as it is removed. The relief valve spring will be free inside the body at this point.
3. The relief valve seat is located at the bottom of the body bore, and can be removed, if necessary, for cleaning. The disc can be cleaned without disassembly of the relief valve module. If it is determined that the relief valve diaphragm and/or disc should be replaced, the relief valve module can be readily disassembled without the use of special tools. **Note:** The disc rubber is molded into the disc holder and is supplied as a disc holder assembly.
4. To re-assemble the relief valve, press the seat firmly into place in the body, center the spring on the seat, and insert the cover and relief valve module as a unit straight into the bore. Press down on the cover to assure proper alignment. Insert and tighten bolts.

Caution: If cover will not press flat against body, stem assembly is crooked and damage can result. Re-align stem and cover before bolts are inserted.

NOTE: No special tools required to service Series 009 ½"- 3".

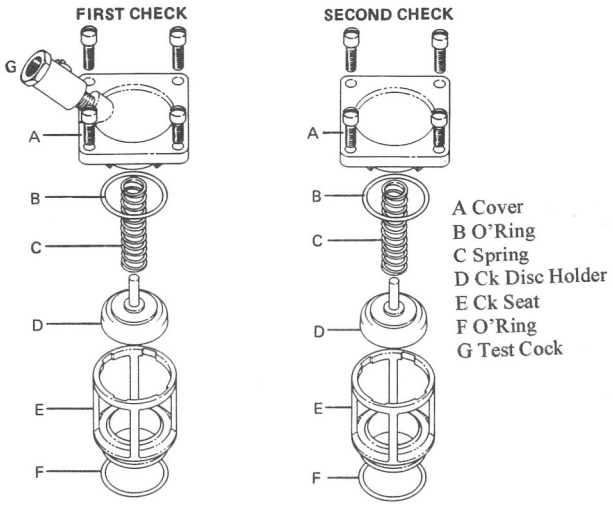


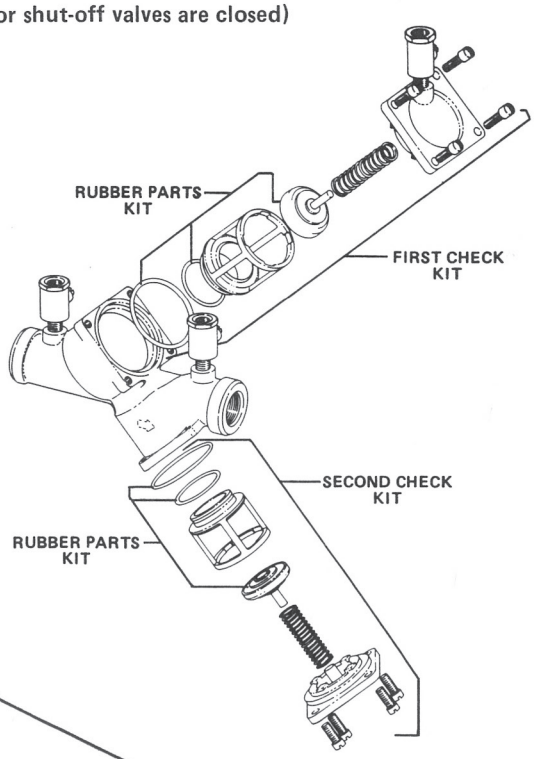
709 - 3/4 - 2"

FIRST and SECOND CHECKS ¾ - 2" Sizes

1. After removing the cover screws, the check comes out with the cover. **2.** Holding the check valve module in both hands, rotate the assembly ¼ turn. This will disengage the disc and spring assembly into individual components. The disc assembly may be cleaned or replaced. "O" rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease. Reassemble the check valve module in the reverse order. **NOTE:** The springs of the first and second check valves are interchangeable.

(Before servicing be certain water is turned off or shut-off valves are closed)





709 - 773 - 773DCDA 2 1/2- 10"

FIRST AND SECOND CHECKS 2½"- 10" Sizes

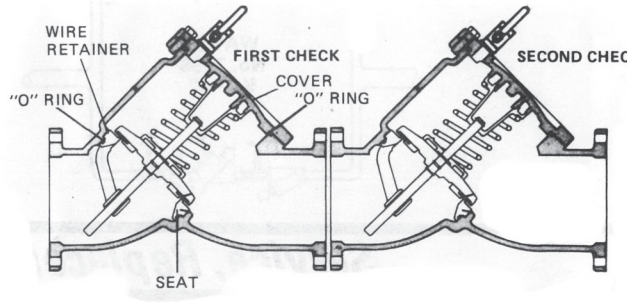
1. Remove hatch cover bolts . NOTE: The 709 is designed so that when the bolts are backed off ½" all the spring load is released from the cover and retained by the check module. **CAUTION: Be sure to verify this before removing all the bolts.**

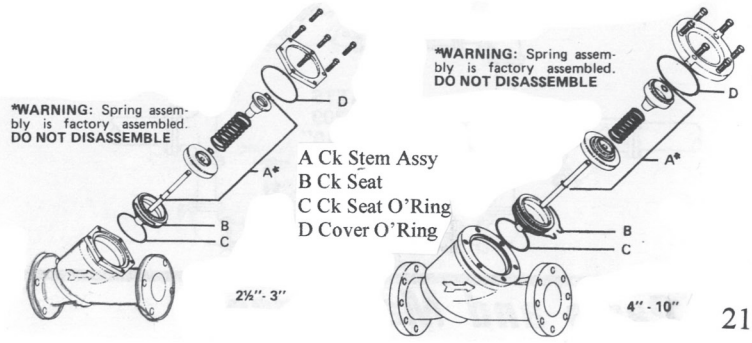
2. Lift check valve module straight out taking care not to hit and damage seat ring.

3. The seat ring may be removed and replaced by pulling out the two wire retainers. The wire retainers are 10" long. One is drawn out clockwise and the other is drawn out counter-clockwise.

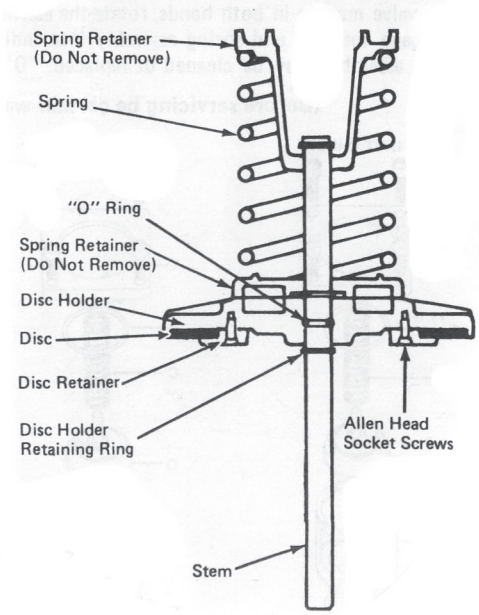
4. With the retainer wires removed, the seat ring can be lifted straight up and removed.

CAUTION: The check valve disc and spring assembly 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, replace the disc and spring assembly. If the disc holder has been damaged by freezing or severe water hammer, it can be replaced in the field. Remove the disc holder retaining ring and slide the disc holder off the stem. Remove the "O" ring from the stem and replace with a new one. Apply grease to the "O" ring and slide the new disc holder into place. Re-install the retaining ring. NOTE: the disc holder should not be removed when servicing only the disc, remove allen head screws holding the disc retaining plate and replace disc.





DISC and SPRING ASSEMBLY



Series 770 – 772

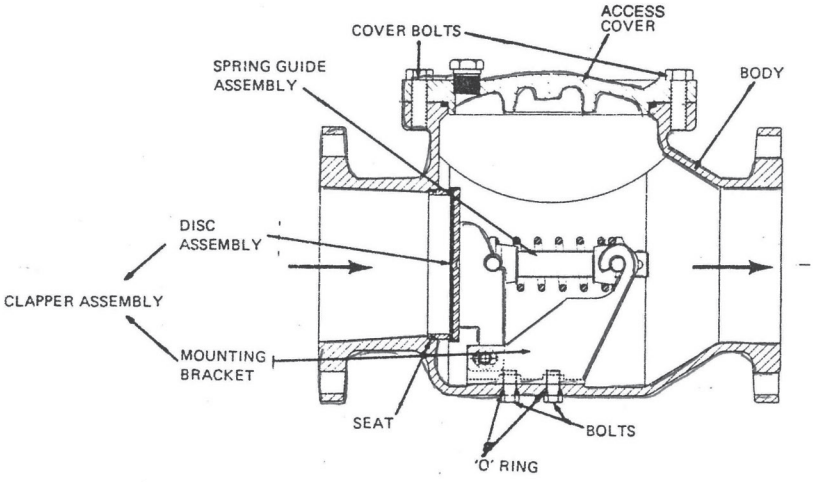
Spring Guide Assembly Removal Instructions

1. The 772 features a captured spring in a center stem guided assembly. The spring guide assembly must be removed to clean the seat disc. As with any spring loaded mechanism, keep fingers away from pinch points. The spring guide assembly has a heavy spring pre-load and could cause injury. It is not neccessary to disassemble the spring guide assembly.
2. Remove the access cover.
3. Apply leverage between the spring guide assembly and the disc assembly as shown in Fig. 1.
4. Compress the spring guide assembly slightly so it will pop free from the notches on the disc assembly and rest as shown in Fig. 2.
5. Completely remove the spring guide assembly by unhooking the two outlet end ears from the mounting bracket.

Disc Assembly Removal Instructions

1. Remove the access cover.
2. Remove the spring guide assembly.
3. Unfasten the two bolts on the bottom of the body opposite the access cover.
4. Reach in through the access opening and remove the entire clapper assembly. Opening the clapper assembly. and laying it flat on a table (refer to Fig. 3).
5. With an allen wrench, remove the set-screw which secures the spacer to the retainer pin on the clapper assembly.
6. Slide out the retainer pin to separate the disc assy from the mounting bracket.

CHECK VALVES 4", 6", 8" and 10"



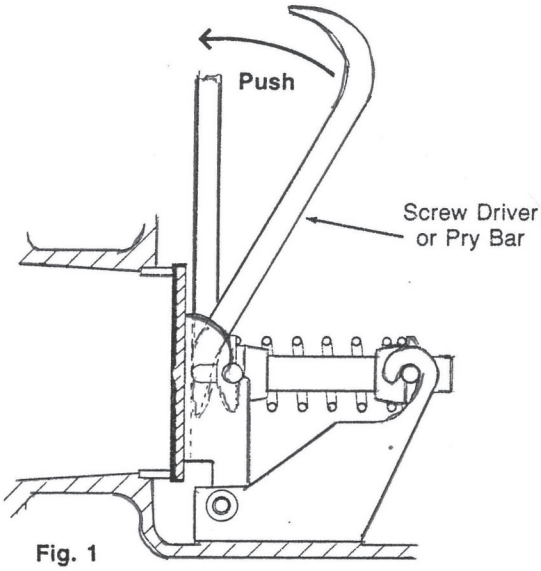


Fig. 1

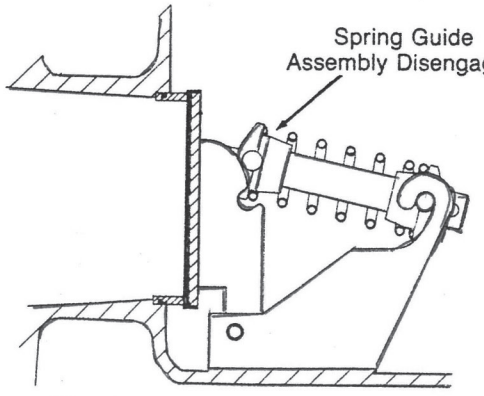


Fig. 2

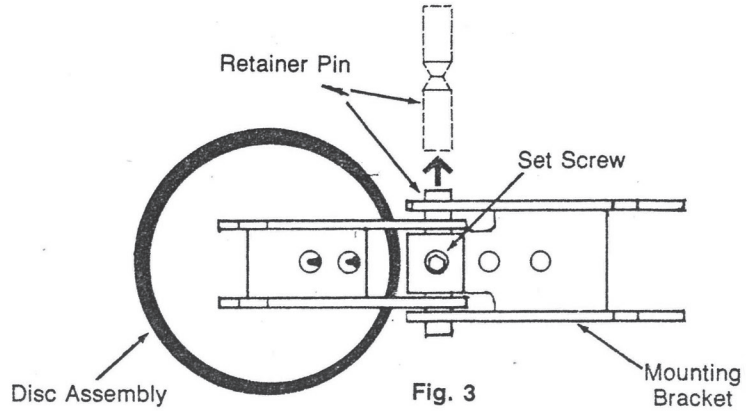
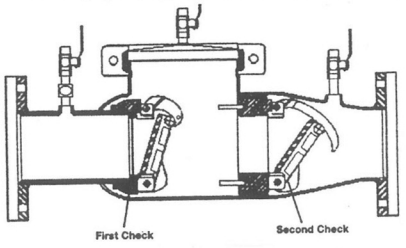


Fig. 3
Top View

Removing Check Assemblies ***(Before servicing be certain shut off valves are closed)***

1. Slowly open all ball valves to relieve air and water pressure. Loosen bolts on groove coupler and remove groove coupler and cover plate from valve body.
2. Remove #1 Check assembly by using your hands to unscrew (turn counter-clockwise) Check and remove through top access port. Do not use Arm as a handle to unscrew. If Check can not be loosened by hand, insert a long screwdriver between valve body and Check **(see figure 3)**. Slowly apply pressure against the Check until loosened. Finish unscrewing by hand. Unscrew #2 Check (turn counter clock-wise) by placing a long screwdriver between lugs and applying pressure to loosen #2 Check. Finish unscrewing by hand.
3. To clean #1 Check, (6' and 8" only) locate the Check Arm open ing stud on the oulet flange of the valve assembly. Slide the Check Arm over the stud with the check threads facing down ward **(figure 1)**. Tighten 1/4" nut on stud to secure Check bar. Slowly pull the assembly outward to open check allowing exposure of the seat and clapper contact area for cleaning. To clean #2 Check, lift Check Arm and hold in open position. Raise clapper so that the end of the Check Arm rests between roller and clapper **(figure 2)**. Thoroughly clean the seat area and clapper sealing surfaces of both Checks. Inspect seats, clapper sealing surfaces, Check Arms, and O-rings for damage. If not damaged gently close the clapper. If damaged, install a new Check assembly and/or O-ring.
4. Before reinstallation of Checks thoroughly clean o-ring groove and lubricate o-ring w/FDA approved lubricant. Insert and thread #2 Check first and then #1 Check. #2 Check should be tightened by inserting a long screwdriver between lugs to tighten firmly. Do not over tighten. Tighten #1 Check firmly by hand only. Replace cover plate, clean groove coupler gasket and groove, replace groove coupler.



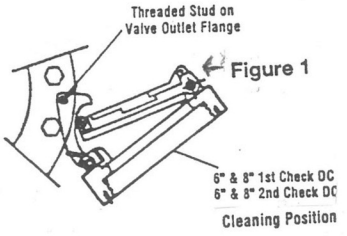


Figure 1

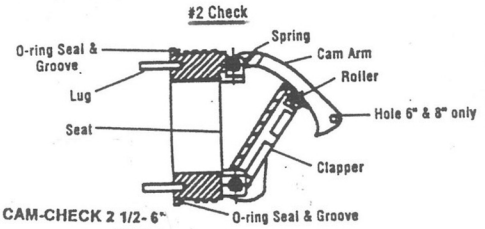
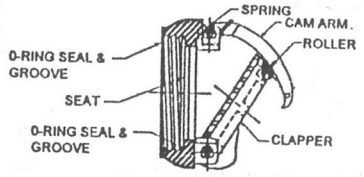


Figure 2



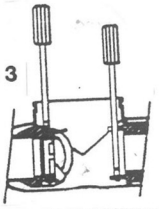
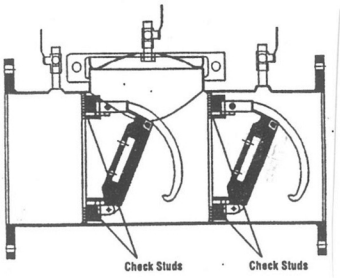
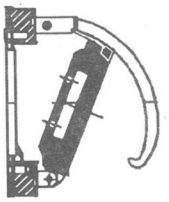


Figure 3



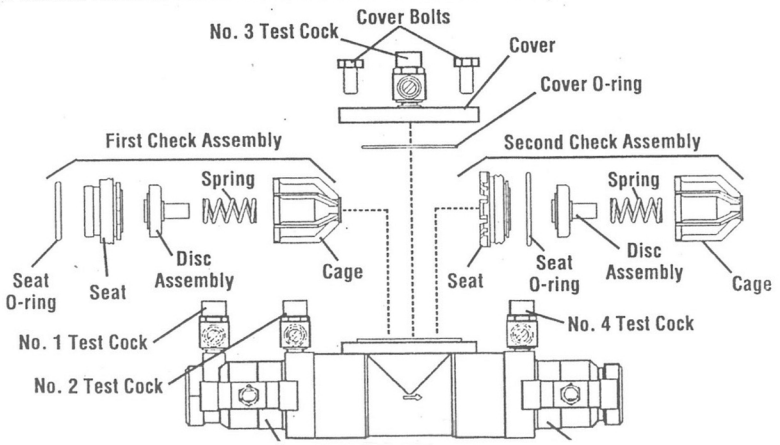


775 1/2 - 2"

Servicing the First and Second Check Valves:

1. Close shutoff valves and open test cocks No. 2, 3 and 4 to relief pressure from the body of the valve. Loosen cover bolts and remove cover. The check valve modules can now be removed from the valve by hand or with a screwdriver. Note: The first and second check assemblies are not interchangeable and the first check assembly must be removed prior to removing the second check assembly.
2. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counterclockwise against the cage. The seat, cage, spring and disc assembly are now individual components.
3. The disc assembly may now be cleaned and reassembled or, depending on its condition, it may be replaced with a new assembly from a repair kit. Seat O-rings should be inspected and replaced as necessary.
4. Reassemble the check module in the reverse order. Install the check modules into the valve body hand-tight. Replace the cover.

(Before servicing be certain water is turned off or shut-off valves are closed)



Sizes ¾", 1", 1¼", 1½", 2"

Series 900 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS

DISASSEMBLY OF NO. 900

1. Remove the No. 900 head from the line (union nuts and adapters remain in the line).
2. Remove inlet adapter bolts, maintaining pressure by hand on adapter to overcome spring preload within the device. (Figure A) NOTE: Use longer jacking bolts to maintain pressure on adapter while removing short bolts.

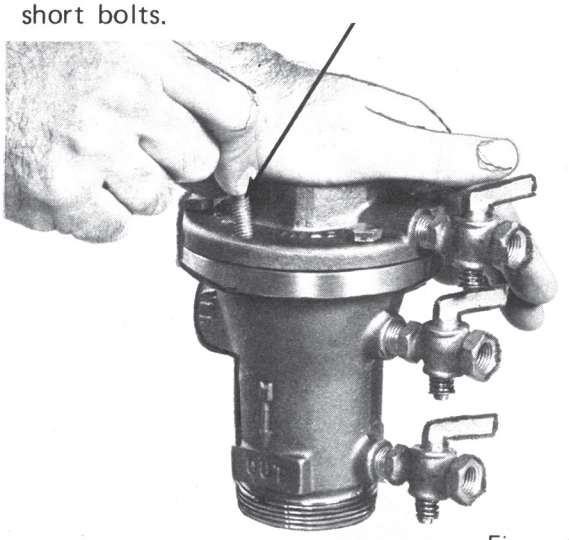


Figure A

3. Remove inlet adapter and adapter gasket. Lift out first check valve piston assembly and spring. Figure B.
4. The relief valve seat in Series 900 is replaceable although cleaning can be performed without removing from valve.

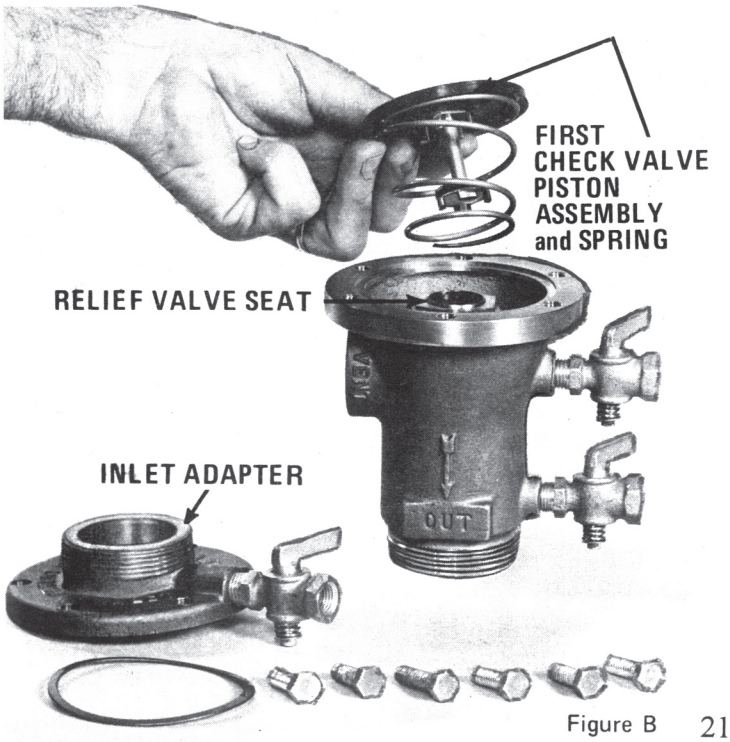


Figure B

5. Remove relief valve spring. Figure C.

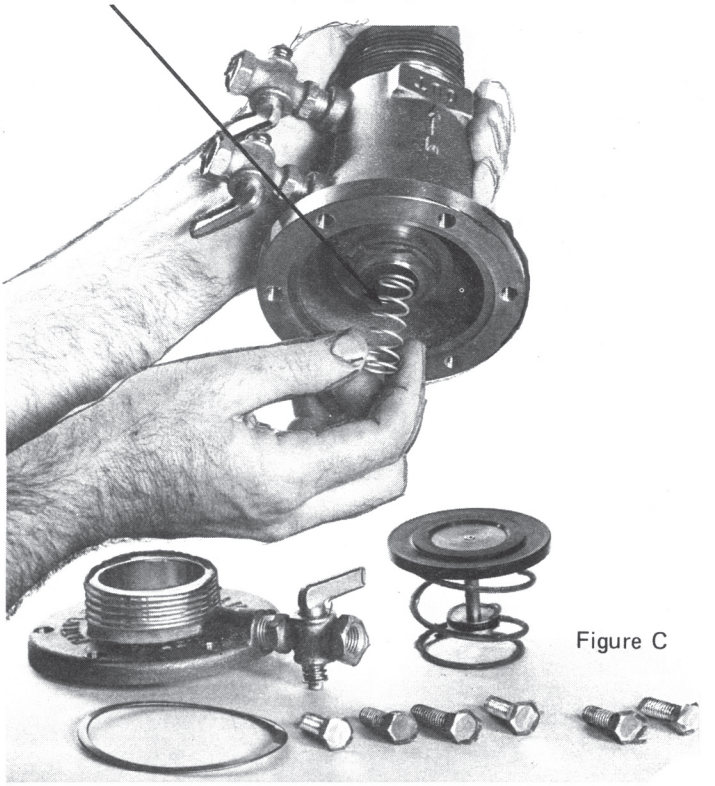


Figure C

6. Insert nutdriver through inlet end to engage head of stem. From outlet end, loosen and remove jam nut with second nutdriver. Remove second check valve assembly from outlet end of valve. (Figure D) Remove the stem and second check valve spring from inlet end of valve. (Reference Figure E)

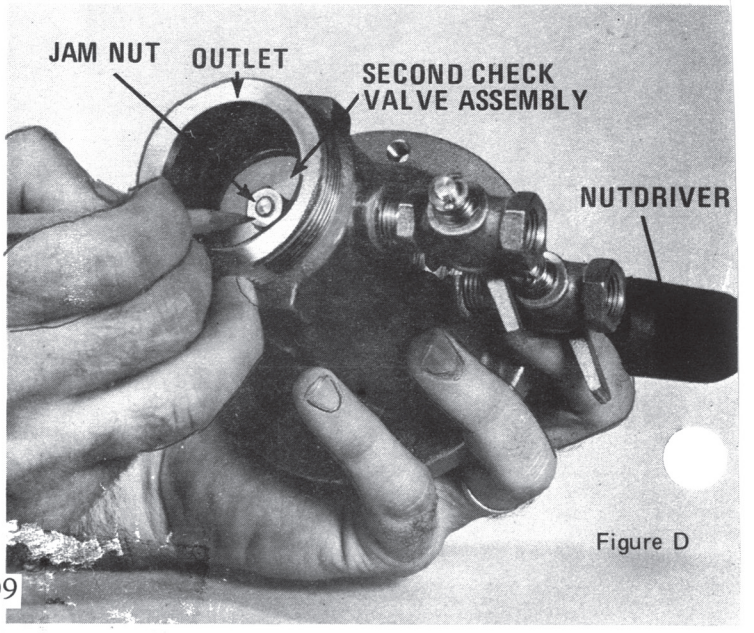


Figure D

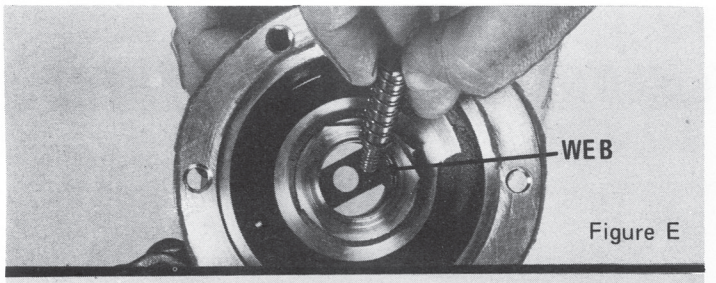


Figure E

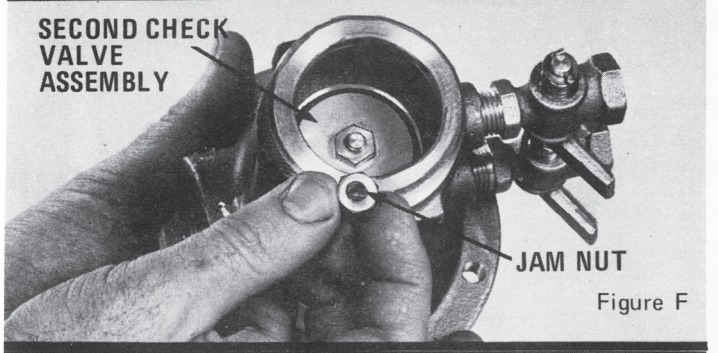


Figure F

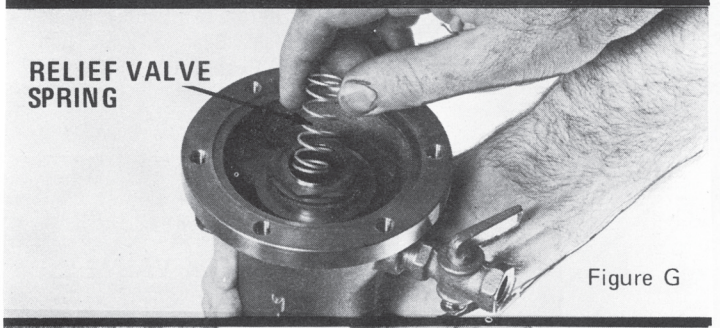


Figure G

Figure H

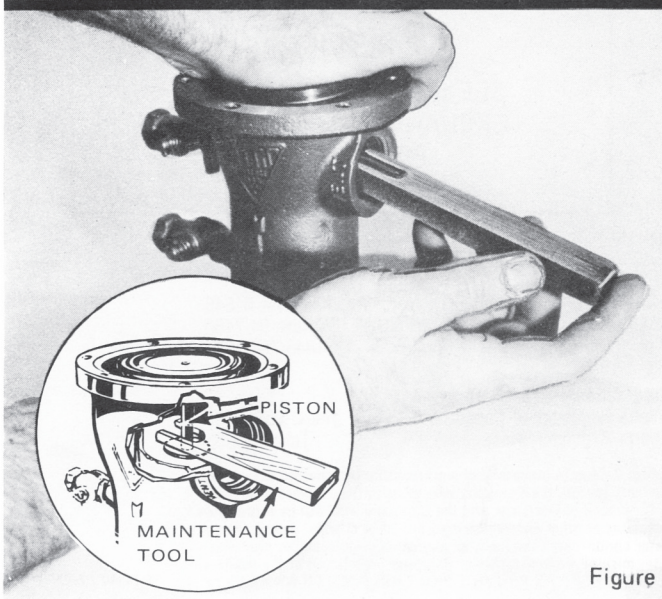
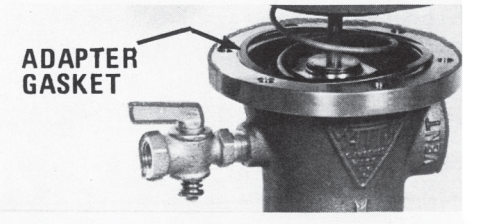


Figure I

REASSEMBLY OF NO. 900

1. Place second check valve spring over stem and insert in web, from inlet side of valve, as shown. Figure E.
2. From inlet side, push down stem to overcome spring pressure. From outlet side, insert second check valve assembly and thread on stem. Insert nutdriver through inlet end and engage head of stem. Tighten check valve assembly nut securely. Thread on jam nut and tighten securely. Figure F.
3. Screw in relief valve seat to tapping (if seat was removed).
4. From inlet end of valve, insert small end of relief valve spring over the stem. Figure G.
5. Install small end of first check valve spring over relief valve seat, (Ref. Figure B). Insert check valve piston assembly into the valve pressing the piston through the seating orifice. Figure H. If above is inserted properly, the second check valve spring will be located under the disc guide. (It is important that this middle spring be seated evenly; see No. 7). Also, these parts must be greased. See note on Page 4.
6. While holding down check valve assembly, insert maintenance tool (furnished with each device) into the outlet so that it engages the piston. This serves to overcome spring preload and simplify assembly. Figure I.
7. Insert adapter gasket and place adapter on top of check valve assembly centering stem rivet in inlet and lining up bolt holes by eye. Figure J.
8. Insert and tighten long jacking bolts furnished and insert and tighten other bolts. Figure J. Press thumb through inlet against check valve assembly and remove maintenance tool.
9. Replace the No. 900 head in the line; tighten union nuts.



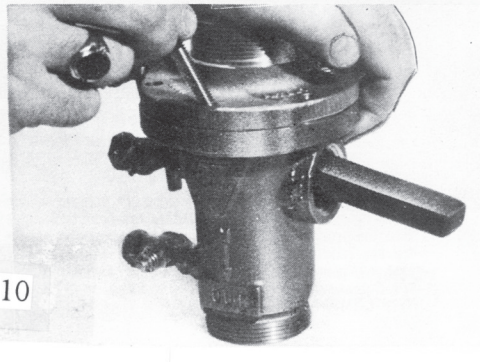
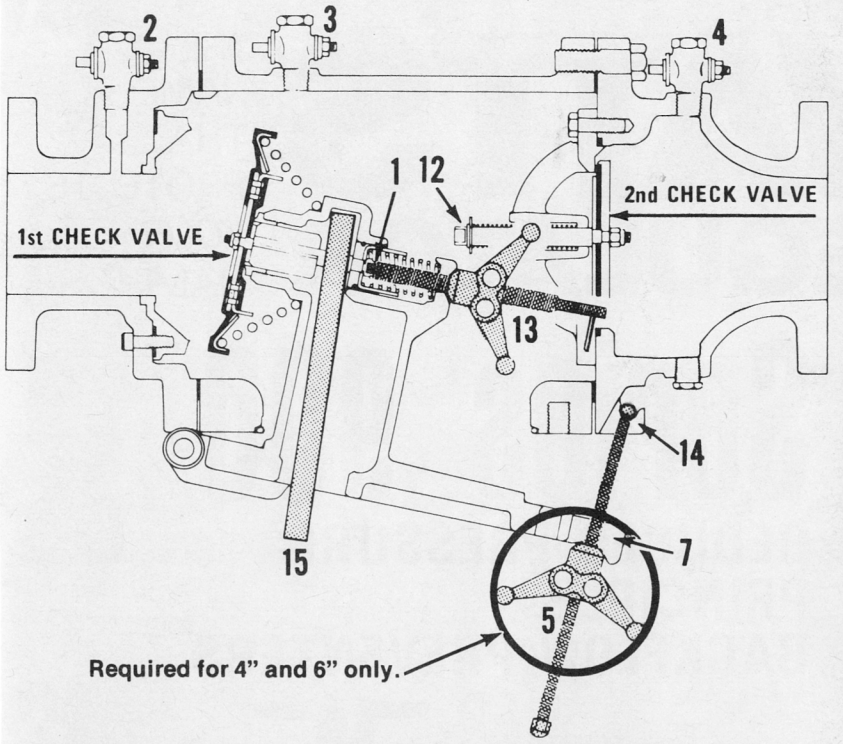
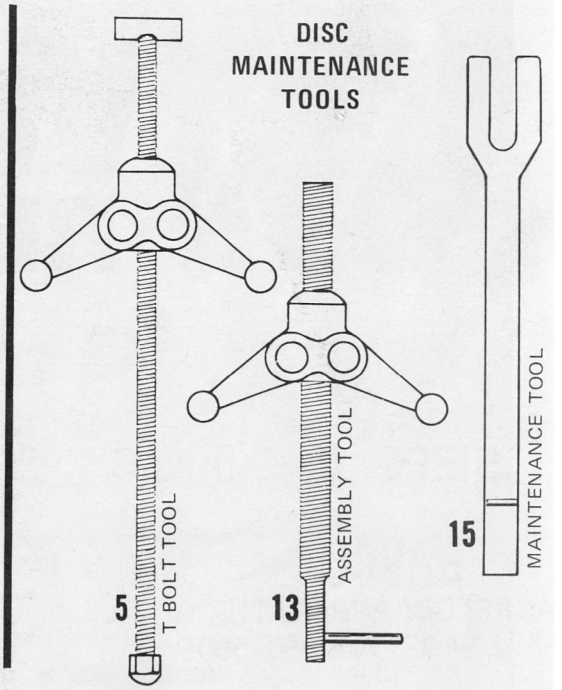


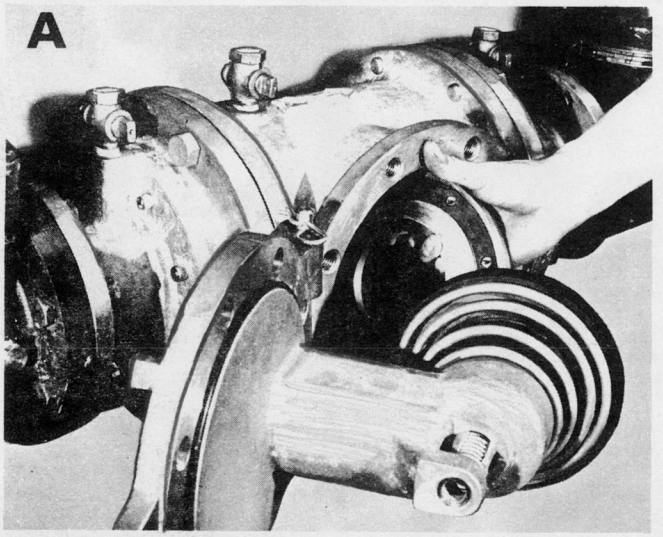
Figure J

SIZES: 2½" thru 6"

SERVICE REPLACEMENT PARTS and MAINTENANCE Series 900







FIRST CHECK VALVE QUICK CLEANING OPERATION:

A. Insert maintenance tool (15) into the vent port until the mark on the handle is flush with vent port surface.

B. Close both inlet and outlet gate valves.

C. Open three test cocks (2, 3 and 4) located between the gate valves. The test cock which is immediately upstream of the first check valve (2) must be left open when the access door is swung open to equalize pressure. When this test cock is opened, the relief valve will tend to open, but will be captivated in a partially open position by the maintenance tool.

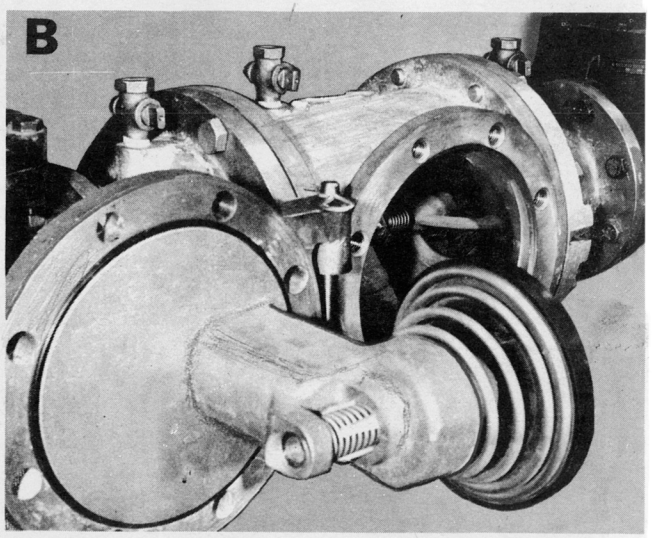
D. Remove eight hexagonal bolts from the access door.

E. Swing the door to an open position collecting water spillage in a suitable receptacle.

F. Inspect 1st check valve seats and discs for damage or deterioration, after wiping with a clean cloth.

G. If damage or deterioration to either seat is evident, remove the eight socket head screws and remove seat and gasket from valve. See photo (A).

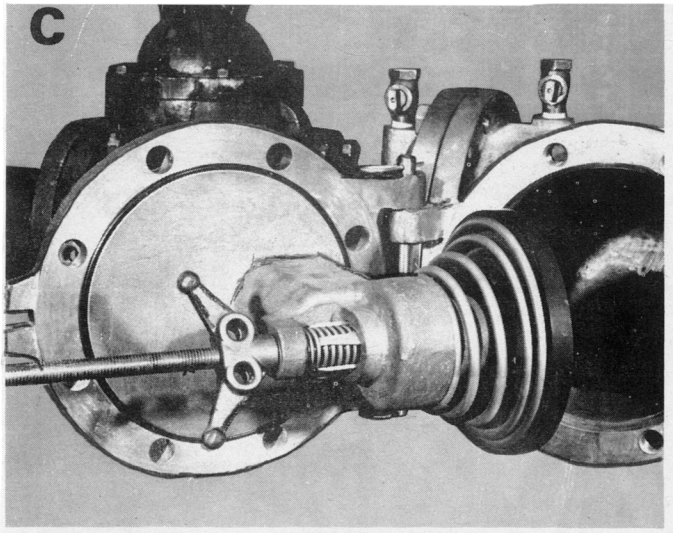
H. Reverse above procedure for reassembly. Note lubricate seat gasket with "O" ring grease.



REMOVAL OF FIRST CHECK VALVE ASSEMBLY:

I. Insert assembly tool (13) into the hole in the end of the relief valve casting and screw threaded rod onto the end of the check valve assembly (1) hand tight. Lubricate rod for easier turning.

J. Tighten the wing nut of the assembly tool only until the maintenance tool (15) can just be removed from the relief valve vent port. (Approximately a half turn.) See photos (C and D).

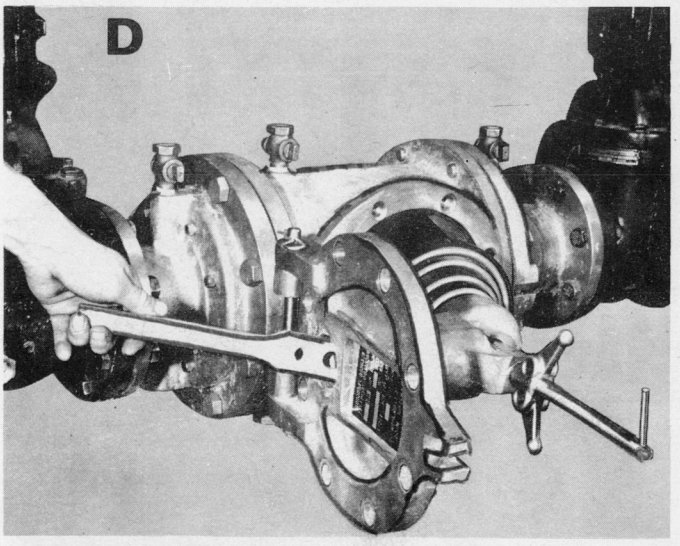


CAUTION: DO NOT OVER-TIGHTEN THE WING NUT AS THIS MAY DAMAGE THE RELIEF VALVE DISC.

K. Remove maintenance tool (15). Loosen wing nut while restraining rod from turning, allowing springs to completely decompress. When wing nut spins loosely, threaded rod can be unscrewed from device permitting removal of 1st check valve assembly.

L. After replacing parts of the check valve assembly, reverse procedure to reassemble parts taking note of the "Caution" regarding over-tightening of the wing nut. Tighten the wing nut only until maintenance tool (15) can just be inserted to the mark on the handle of the tool.

M. Insert maintenance tool (15), photo (D). Loosen wing nut and remove assembly tool (13) from device.

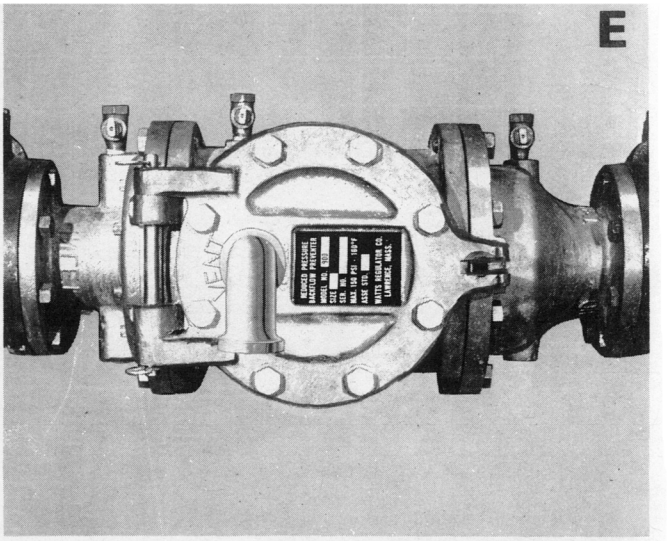


DISMANTLING OF SECOND CHECK VALVE:

N. Depress valve stem of second check valve assembly (12) and hold in an open position. Collect any water spillage.

O. Reach in through the door and wipe both seat and disc of the second check assembly while depressing (holding). Allow valve to close. **Caution:** Keep fingers clear of closing.

P. If second check valve is damaged or deteriorated, remove six bolts from the flange of the second check valve module and remove the module.

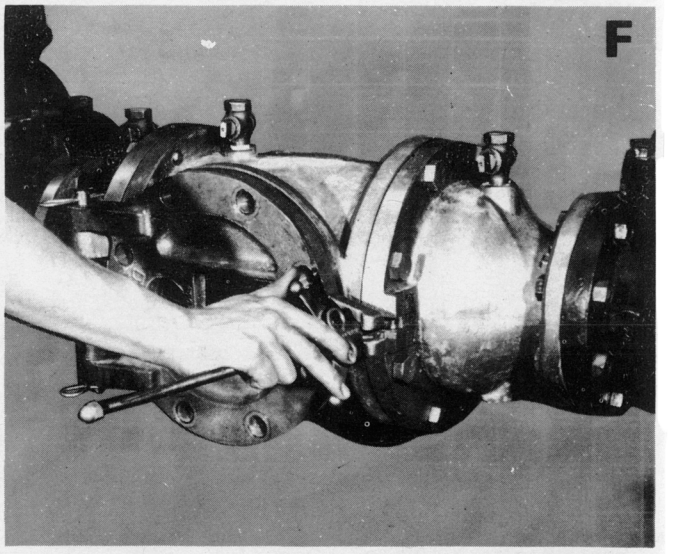


Q. After disassembly and cleaning, reassemble the check valve module in the position shown in photo (B).

R. Inspect access door "O" ring seal to be sure it is in its proper position and close the door. Reassemble with eight hexagonal bolts.

S. Close all petcocks and open gate valves.

T. Remove maintenance tool (15) after restoring water pressure, photo (E).



OPENING OF ACCESS DOOR WHEN MAINTENANCE TOOL CANNOT BE FULLY INSERTED INTO VENT PORT BECAUSE RELIEF VALVE IS OPEN:

U. Insert T bolt (5) into cavity of outlet casting (14) and through the ear of relief valve casting (7).

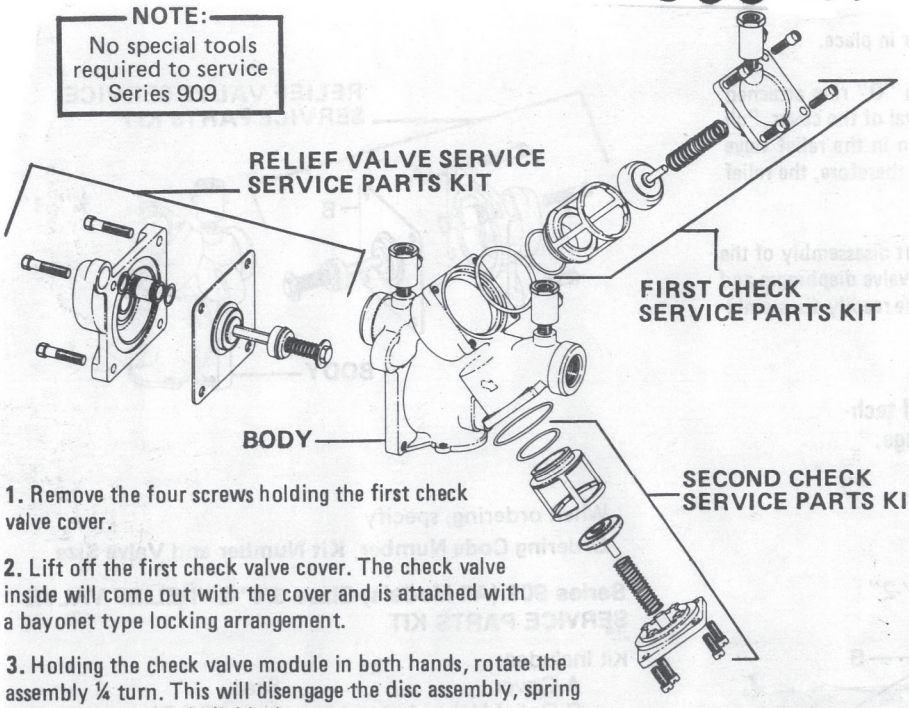
V. Tighten wing nut hand tight.

W. Remove eight hexagonal hatch bolts. *There is now a spring load transmitted to the T bolt assembly (5) from the first check spring.*

X. Slowly back off the wing nut allowing the door to open to the point where the first check and relief valve springs have decompressed enough so the door can be freely opened and the T bolt assembly (5) can be removed.

909 3/4–2"

NOTE:
No special tools required to service Series 909



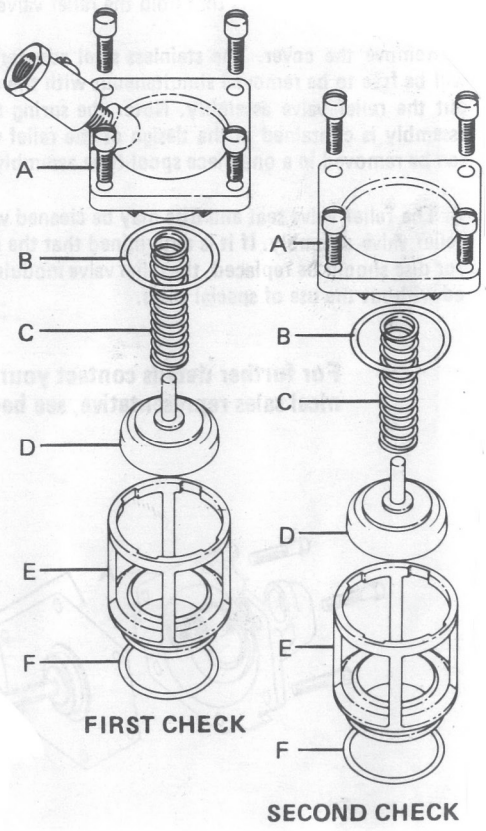
1. Remove the four screws holding the first check valve cover.

2. Lift off the first check valve cover. The check valve inside will come out with the cover and is attached with a bayonet type locking arrangement.

3. Holding the check valve module in both hands, rotate the assembly ¼ turn. This will disengage the disc assembly, spring and seat cover into individual components.

4. The disc assembly may be cleaned and reassembled, or depending upon its condition, it may be discarded and replaced and replaced with a new assembly from the service kit . "O" rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease which is also furnished with the service kit.

5. Reassemble the check valve module in the reverse order. Service is identical for both the first and second check valves.



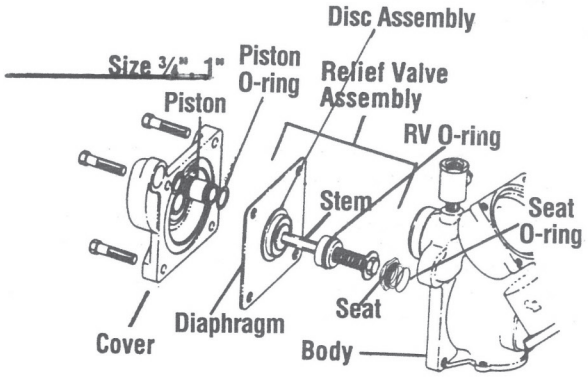
A Cover
B Cover O'Ring
C Spring
D Ck Disc Holder
E Ck Seat
F Ck Seat O'Ring

Servicing the Relief Valve ¾ - 2"

1. Remove the four bolts that hold the relief valve cover in place.

2. Remove the cover. The stainless steel adapter, with "O" ring attached will be free to be removed simultaneous with the removal of the cover. Pull out the relief valve assembly. Note: the spring tension in the relief valve assembly is contained in the design of the relief valve; therefore, the relief can be removed in a one-piece spool-type assembly.

3. The relief valve seat and disc may be cleaned without disassembly of the relief valve assembly. If it is determined that the relief valve diaphragm and /or disc should be replaced, the relief valve module can be readily disassembled without the use of special tools.



TO PREVENT SHAFT DAMAGE ASSEMBLE AS SHOWN.
CAUTION: If cover will not press against body, assembly is crooked and tightening bolts will bend shaft. **Do not force the cover into place as damage may result from misalignment.**

To assemble the Relief Valve Assembly have a screwdriver ready.
Depress the Relief Valve Assembly, carefully guiding it against the two pound spring load. When properly aligned, the pistonis in the cylinder bore. Insert the screwdriver as shown.
The Relief Valve Assembly is held encapsulated by the screwdriver. You should now have both hands free to bolt down the cover. Insert and snug two bolts 180° apart to hold the cover. Finish iserting the remaining bolts and snug up evenly and alternating until secure. Remove the screwdriver.

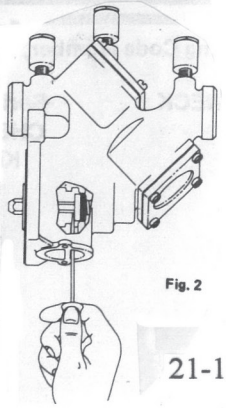
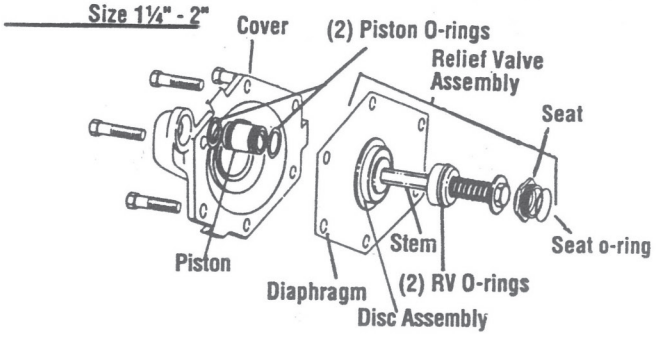


Fig. 2



Series 909 Sizes 2½''- 10''

1. 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.**

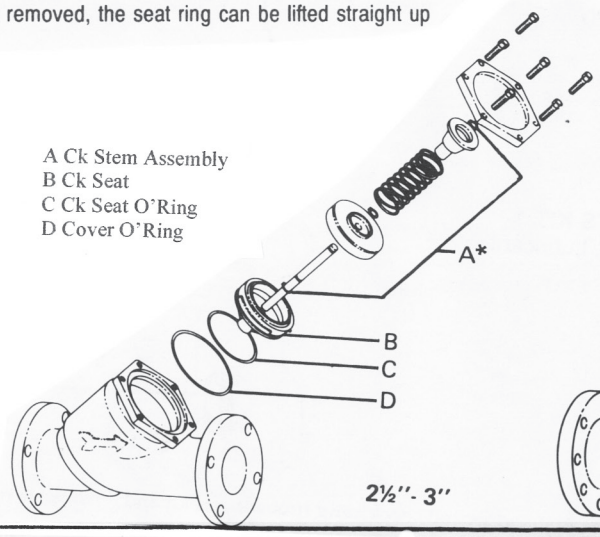
2. Lift the check valve module straight out taking care not to hit and damage the seat ring.

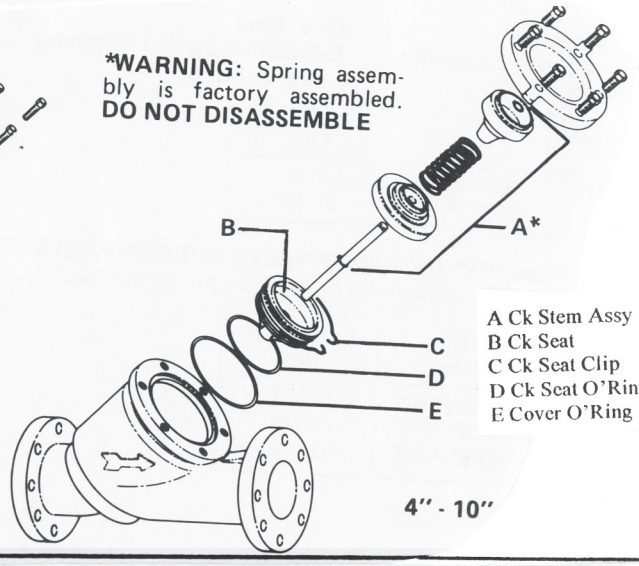
3. The seat ring may be removed and replaced by pulling out the two wire retainers on sizes 4"- 10" while on sizes 2½ "- 3", one quarter-turn twist removes seat. The wire retainers are 10" long. One is drawn out clockwise and the other is drawn out counter clockwise.

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 2½ "- 4" simply remove the retaining nut or for sizes 6"- 10" remove the allen head socket screws. Reverse this procedure to install the new disc.





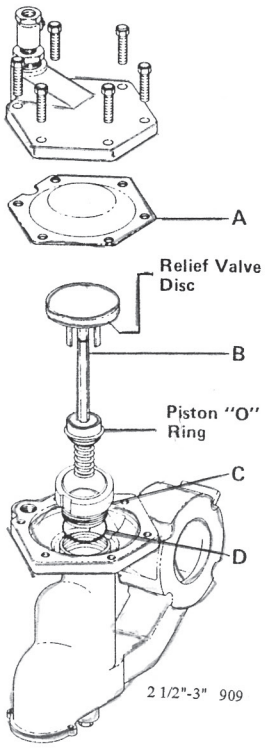
1. Remove the relief valve cover bolts. Note the 909 is designed so that when the bolts are backed off ½" all the relief valve spring load is retained by the bottom plug spring module. **CAUTION:** Be sure to verify this before removing all the bolts.

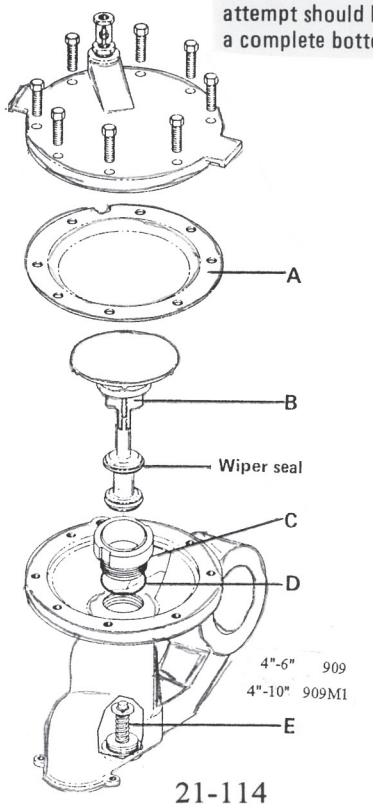
2. Remove the cover and diaphragm (A). The relief valve piston assembly (B) can be lifted straight up and out.

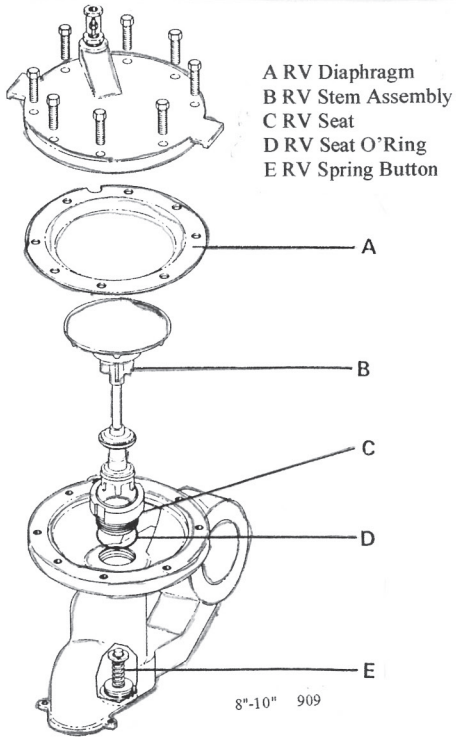
3. Replace the wiper seal and piston "O" ring and apply grease to the "O" ring.

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 spring assembly (E). 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.



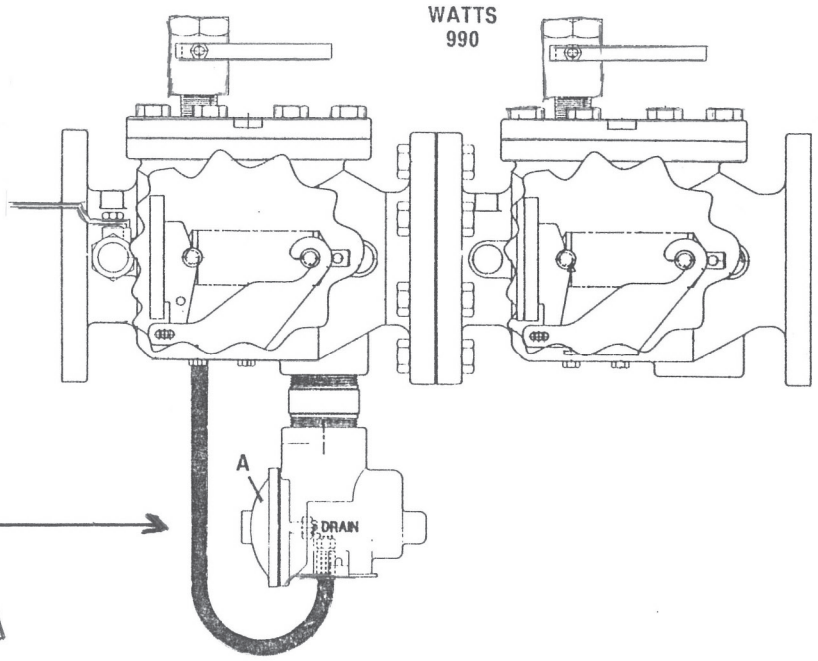


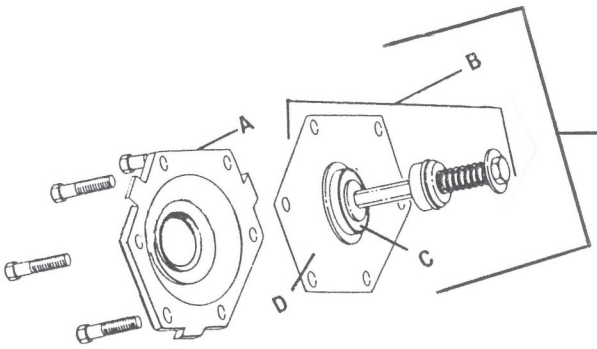


Series 990 - 992

To Service the Relief Valve:

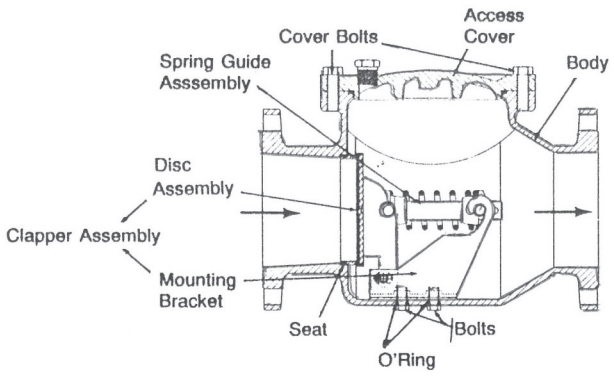
1. Remove sensing hose. Check for debris.
2. Remove cover (A).
3. Remove diaphragm and stem assembly (B). Check seat disc (C) for debris and diaphragm (D) for cuts or tears. Repair or replace as necessary.
4. Lubricate only sealing O'Rings with Dow Corning FS 1292. **Do not** lubricate seat disc or diaphragm.
5. Reassemble and test.





A Cover B RVStem Assy C RV Disc D RV Diaphragm

CHECK VALVES



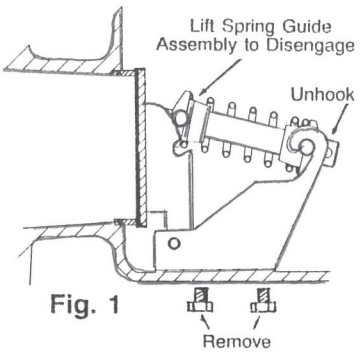


Fig. 1

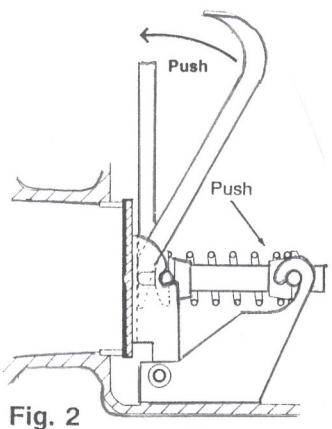


Fig. 2

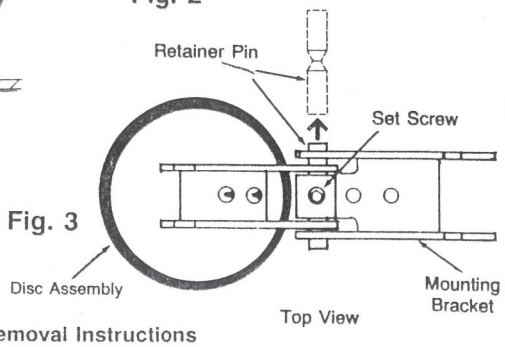


Fig. 3

Spring Guide Assembly Removal Instructions

1. Remove the access cover.
2. The 990 features a captured spring in a center stem guided assembly. The spring guide assembly must be removed to clean the seat disc. To remove the spring assembly from the mounting bracket remove the two bolts on the bottom of the body opposite the access cover. This will allow the spring module to be removed from the notches on the mounting bracket. (Fig. 1) As with any spring loaded mechanism, keep fingers away from pinch points. The spring guide assembly has a heavy spring pre-load and could cause injury. It is not necessary to diassemble the spring guide assembly.

To Replace

1. Bolt the mounting bracket back in place after lubricating the bolt O'Rings.
2. Position the back of the spring guide into the rear hook of the mounting bracket.
3. Apply leverage between the spring guide assembly and the disc assembly as shown in Fig. 2. Compress spring assembly slightly and push down to position the spring assembly in the front notches.

Disc Assembly Removal Instructions

1. Remove the access cover.
2. Unfasten the two bolts on the bottom of the body opposite the access cover.
3. Remove the spring guide assembly.
4. Reach in through the access opening and remove the entire clapper assembly, opening the clapper assembly and laying it flat on a table. (Refer to Fig. 3)
5. With an allen wrench, remove the set-screw swhich secures the spacer to the retainer pin on the clapper assembly.
6. Slide out the retainer pin to separate the disc assembly from the mounting bracket. **Important:** Each check repair kit fits (1) one check module.

993/993RPDA

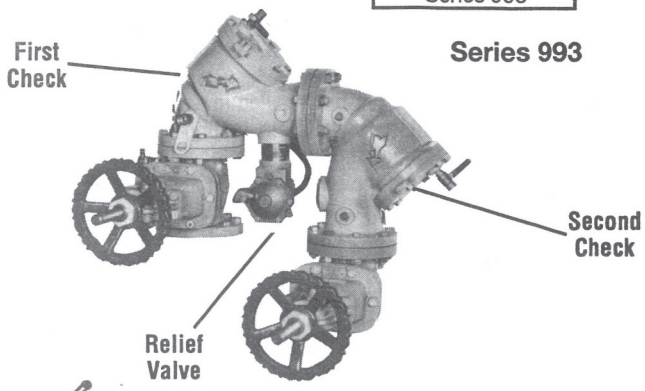
Servicing First and Second Checks

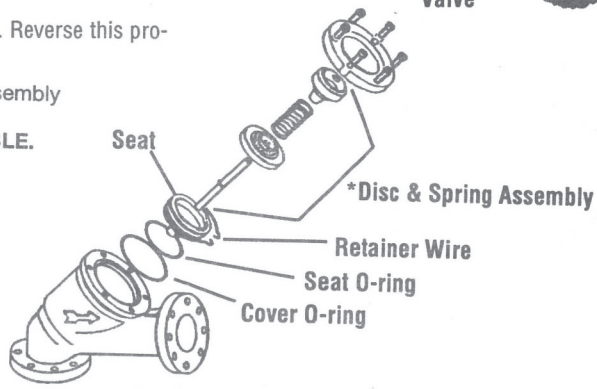
1. Remove the hatch cover bolts. **NOTE:** The 993 is designed so that when the bolts are backed off ½", all the spring load is released from the cover and retained by the check module. **CAUTION: Be sure to verify this before removing all the bolts.**
2. Lift the check valve module straight out taking care not to hit and damage the seating.
3. The seat ring may be removed and replaced by pulling out the two wire retainers. 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 spiring 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, simply remove the retaining nut. Reverse this procedure to install the new disc.

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

First and second checks are not interchangeable

NOTE: No special tools required to service Series 993

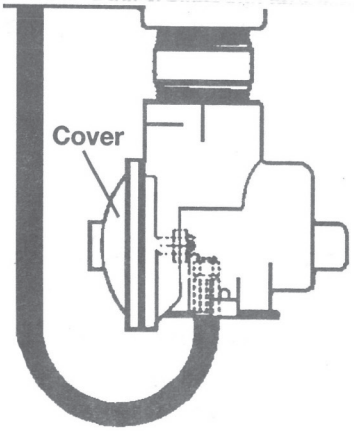


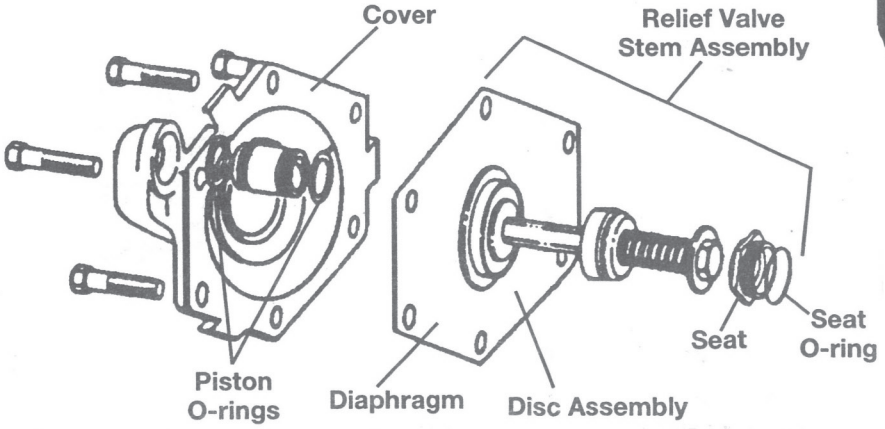


Servicing the Relief Valve

To Service the Relief Valve:

1. Remove sensing hose. Check for debris.
2. Remove cover.
3. Remove diaphragm and stem assembly. Check seat disc for debris and diaphragm for cuts or tears. Repair or replace as necessary.
4. Lubricate only sealing O-rings with Dow Corning FS 1292. **Do not** lubricate seat disc or diaphragm.
5. Reassemble and test.





Watts Series 994/994RPDA 2 ½" – 6"

REMOVING CHECK ASSEMBLIES (Before servicing be sure shutoff valves are closed)

1. Slowly open all ball valves to relieve air and water pressure. Loosen bolts on groove coupler and remove groove couple and cover platefrom valve body.
2. Remove #1 Check Assembly by using your hands to unscrew (turn counter-clockwise) Check and remove through top access port. Do not use Check Arm as a handle to unscrew. If Check cannot be loosened by hand, insert a long screwdriver between valve body and Check **(see figure 2)**. Gently apply pressure against the Check until loosened. Finish unscrewing by hand. Unscrew #2 Check (turncounter-clockwise) by placing along screwdriver across lugs and applying pressure to loosen #2 Check. Finish unscrewing by hand.
3. To clean #1 Check (6" only), locate the Check Arm opening stud on the outlet flange of the valve assembly. Slide the Check Arm over the stud with the check threads facing down ward **(figure 5A)**. Tighten 1/4" nut on stud to secure cam bar.
4. Slowly pull the assem-bly outward to open check allowing exposure of the seat clapper area for cleaning. To clean #2 Check, lift Cam Arm and hold in open position. Raise clapper so that the end of the Check Arm rests between roller and clapper **(figure 5B)**. Thoroughly clean the seat area and clapper sealing surfaces of both Checks. Inspect seats, clapper sealing surfaces, Check Arms, and O-rings for dam-age, nicks, and debris. If not damaged, gently close the clapper. If dam-aged, install a new Check as-sembly and/or O-ring.
4. Before reinstallation of Checks, thoroughly clean O-ring groove and lubricate O-ring with FDA approved lubricant. Insert and thread #2 Check first and then #1 Check. #2 Check should be tight-ened by inserting a long screwdriver between lugs to tighten firmly **(see figure 2)**. Do not over tighten. Tighten #1 Check firmly by hand only. Replace cover plate, clean groove coupler gasket and groove. Replace groove coupler. Repressurize and bleed air from all test cocks.

Figure 1

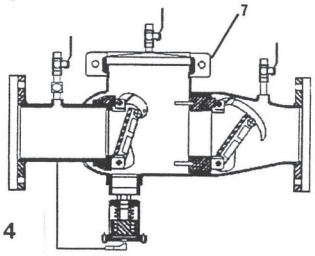


Figure 2

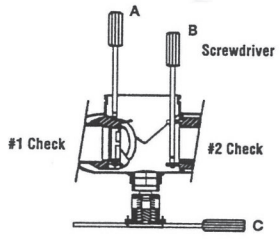


Figure 3

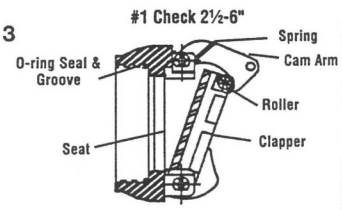


Figure 4

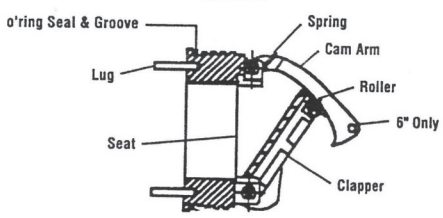


Figure 5A Cam Bar Open Pin

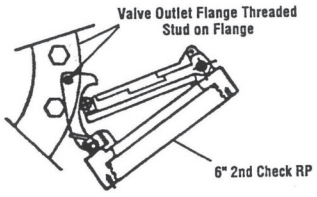


Figure 5B

Watts Series 994/994RPDA (8" and 10")

REMOVING CHECK ASSEMBLIES *(Before servicing be certain shut off valves are closed)*

1. Slowly open all ball valves to relieve air and water pressure. Loosen bolts on groove coupler and remove groove couple and cover plate from valve body.
2. **#1CHECK**

   Using a 9/16" socket wrench or nut driver, remove the four nuts from the #1 check studs **(see fig. 1)**. Using two hands, place them at 12 o'clock and 6 o'clock, wiggle the check assembly free. Remove through access port with back of clapper first with spring end down. Pull check assembly out of main body. Inspect seats and clapper sealing surfaces.

   #2 CHECK

   After loosening bolts with a 9/16" socket, remove bolts completly. Using the centerline access bar, spin the check assembly from the 9 o'clock position to the 12 o'clock position, then (without letting go of the access bar) push the cam assembly slightly downstream so that the clap-per is now parallel to the valve body. Now bring the check assembly through the check retaining wall. Leave the check assembly parallel to the valve body. Pull the check as sembly through the access port.
3. Using a 3/8" nut driver or a piece of small diameter pipe, place on the check arm torsion spring and move away from and move away from and around the torsion spring retaining bracket so as to relieve the torsion spring tension. This will allow the check arm to move freely, enabling you to inspect the clapper face and check seat. Thoroughly clean the seat area and clapper sealing surfaces, check arms, and o-rings for damage, nicks, and debris. If damaged, install a new check assembly and or O-ring.
4. Before reinstallation of check assembly, thoroughly clean O-ring groove and lubricate O-ring with F.D.A. approved lubricant.

Figure 1

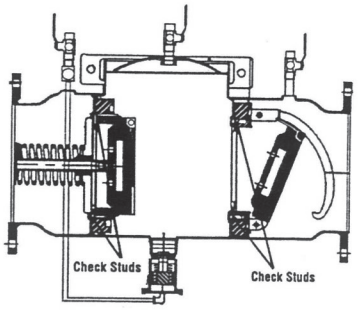


Figure 2

#1 Cam-Check RP

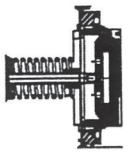


Figure 3

#2 Cam-Check DC & RP

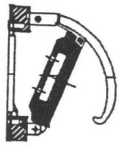
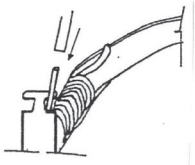


Figure 4



Servicing the First Check 8" & 10"

Use extreme caution when servicing the first check!

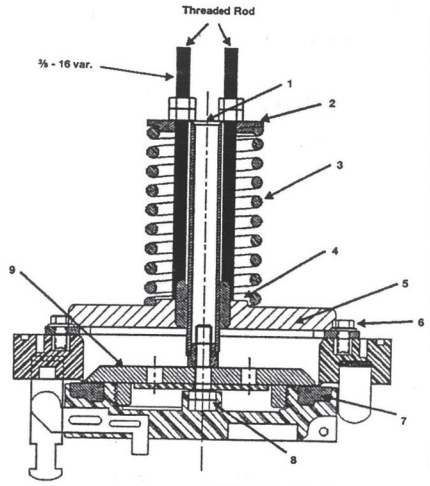
To inspect the seat and clean the seat and clapper washer:

1. After removing the first check from the backflow valve body, place on a flat surface with the coil spring facing up.
2. In order to gain access to the seat and clapper rubber ring, you must compress the spring (#3) that surrounds the clapper shaft (#1). To do so, you must place the ⅜" threaded rod through two holes of the spring retaining plate #2.
3. After placing the ⅜" all-thread rod through the spring retaining plate, Screw the threaded rod into the holes (#4) at the base of spider (#5 next to shaft). Be sure to use two nuts on the threaded rod to tighten them into the holes. The depth of the threaded holes should be approximately ½". This operation will require you to use two pieces of threaded rod (see drawing below).
4. Compressing the spring. To do so you need to loosen the top ⅜" nut and back it off without unthreading the threaded rod from the spider. Place a box end wrench or crescent wrench on the ⅜" nut closest to the spring retaining plate and tighten. Tighten both threaded and nut evenly; put a few turns on one threaded rod nut and a few turns on the other.
5. During compression, the clapper will slowly move up, away from the seat. To examine the seat, continue spring compression until the clap-per has moved approximately 1" from the seat. This will allow debris to be removed and or the seat to be examined.
6. To unload the spring compression, loosen the all-thread and then double nut the all-thread and unscrew the rod from the spider and shaft base.

To disassemble the first check, you will need the following:

- Two pieces of ⅜" threaded rod (approximately 14" long)
- Adjustable crescent wrench
- Pipe wrench or channel lock pliers

1. Shaft
2. Spring retaining plate
3. Spring
4. ⅜" threaded hole (maintenance)
5. Spider
6. Spider retaining bolt
7. Seat ring
8. Clapper to shaft bolt
9. Seat ring retainer



Servicing the Relief Valve 2 ½"-10"

1. The relief valve may be serviced while on or off the backflow preventer valve.
2. **NOTE: DO NOT USE A PIPE WRENCH TO REMOVE THE RELIEF VALVE ASSEMBLY FROM THE BACKFLOW PREVENTER.**
3. Shut down water system.

RELIEF VALVE DISASSEMBLY

1. Disconnect the relief valve hose from the elbow in the bottom flange cover at the swivel hose connection. Do not remove the elbow.
2. If the valve is to be removed from the backflow preventer for service, place a screw driver blade or flat bar across the edges of two of the hex head screws in the bottom flange cover and turn counter-clockwise to loosen the relief valve assembly. (See Figure 2 page 4)
3. Remove the four bottom bolts from the bottom of the relief valve assembly with a 5/16" socket or open-end wrench. Remove the bottom flange cover.
4. Remove the piston assembly & sleeve from the relief valve body by placing your index fingers through the slots in the side of the body and pressing down on the top of the disc retainer in the top of the piston assembly. (See Figure 7.)
5. Pull the piston assembly free of the body by grasping the sleeve and pulling down.
6. Grip the sleeve and the piston assembly by the head of the hex head bolt. Pull up on the sleeve to extend the diaphragm. Slide the sleeve (item #26) completely off of the diaphragm and inspect the diaphragm for tears, holes or excessive wrinkles. If the diaphragm is damaged, order a new piston/diaphragm assembly.

RELIEF VALVE REASSEMBLY

1. Thoroughly clean all inside surfaces of the relief valve body.
2. Inspect the relief valve body seat surface located at the top edge of the three discharge slots near the top of the body by rubbing the end of the index finger around the entire seat surface; access the seat surface through the slots or the bottom of the body. The seat must be free of nicks. If nicks are discovered, remove the body & install a new relief valve assembly.
3. Position the diaphragm on the piston assembly so that it is facing up as shown in Figure 8.
4. Now fold the top (ribbed) edge of the diaphragm inward, grasp the sleeve with the **ribbed edge up** and slide the sleeve down over the piston assembly as shown in Figure 8.
5. While still holding the sleeve, slide it up over the diaphragm and, using your thumb & index finger, position the bead of the diaphragm so that it wraps over the outside of the rib on the top of the sleeve so that the sleeve is held by the diaphragm. Now place the piston assembly on a flat, firm surface with diaphragm facing up as shown in Figure 9.
6. Cup your hand slightly to form an air trap and force the sleeve down over the piston assembly with a rapid slap (hard) on the open end of the diaphragm with your cupped hand. The trapped air in the diaphragm will force the diaphragm between the inside of the sleeve and the outside of the piston. Ensure that the diaphragm is fully seated. **If diaphragm is wrinkled, repeat previous step.**
7. Slide the piston assembly and sleeve into the relief valve body with the hex head bolt entering the flanged end of the body first. Slide the piston assembly in until the diaphragm lip is smoothly seated in the machined groove in the flanged end of the body. By running your index finger around the outside of the diaphragm bead, you will ensure it is seated smoothly
8. Position the bottom flange cover on the bottom of the relief valve body and secure by hand tightening the four bottom bolts.
9. Now tighten the four bottom bolts to approximately 15 ft.-lbs. with a 5/16" socket or open-end wrench.
10. Reattach the relief valve hose to the elbow in the bottom flange cover.

Figure 7

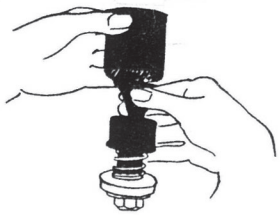
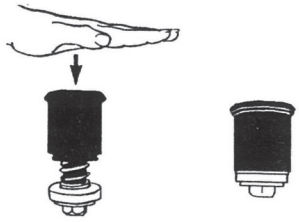
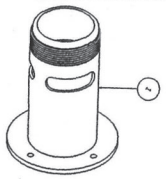
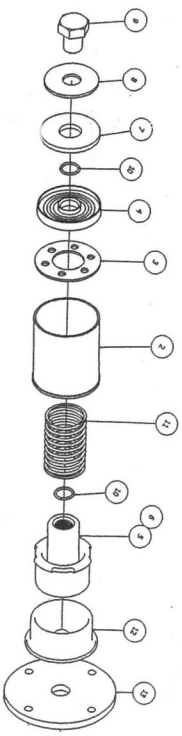


Figure 8

Figure 9







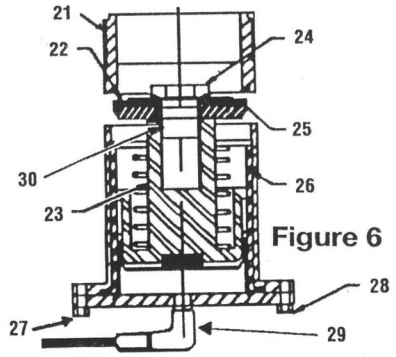


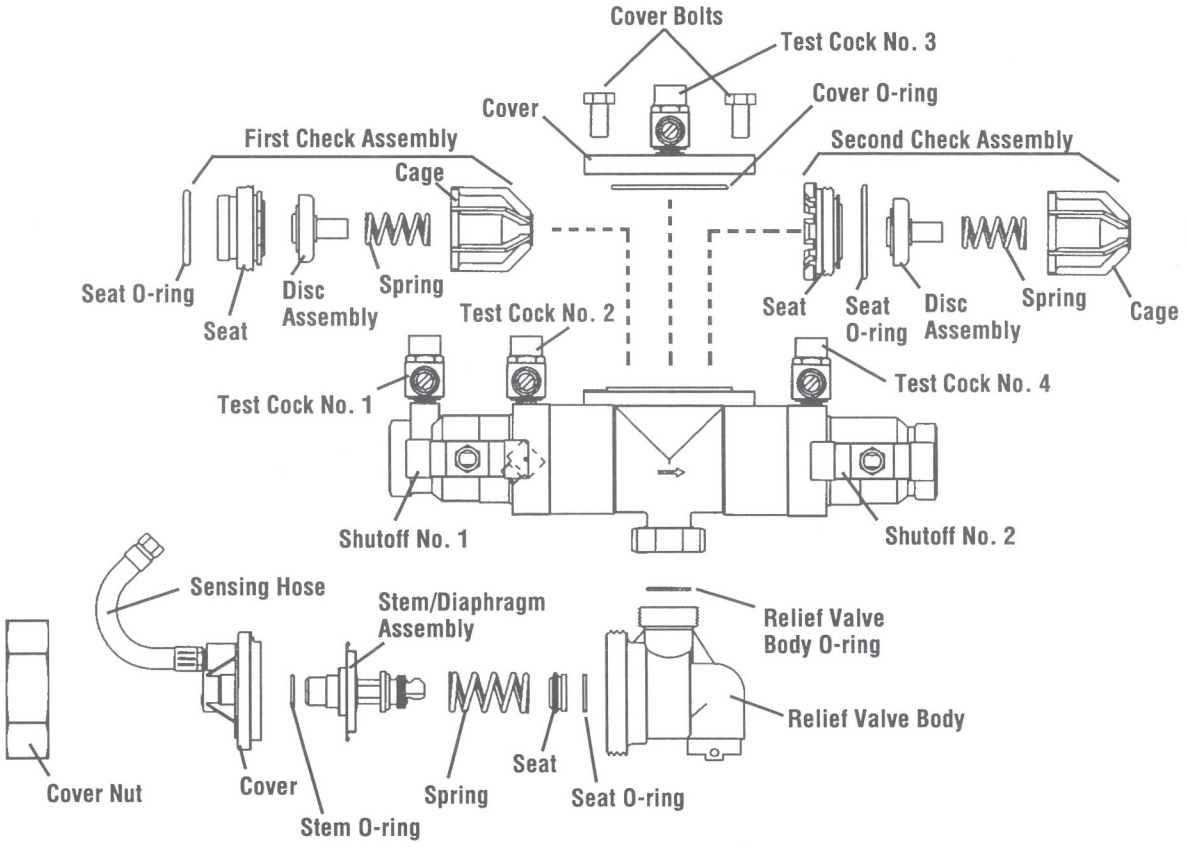
Figure 6

Item #	Part Description
21	Relief Valve Body
22	Rubber Shut-Off Disc
23	Piston Diaphragm Assembly
24	Hex Head Bolt
25	Disc Retainer
26	Sleeve
27	Bottom Bolt
28	Bottom Flange (w st. elbow)
29	Bottom St. Ell
30	O-ring disc

PARTS LIST	
ITEM	DESCRIPTION
1	RV BODY
2	SLEEVE, SS RV MACHINED
3	STOP, SPRING
4	CLIP, RV SS
5	PISTON, RV SS
6	THREAD INSERT, 5/8-11 SS
7	DISC, RV SHUT-OFF
8	RETAINER DISC, WASHER, SS
9	*HCS, 5/8-18 UNC X 3/4, SS
10	O-RING, 2-015
11	SPRING COMPRESSION, SS RV
12	DIAPHRAM, SS RV
13	*LANGE, SS RV
14	*HCS, 1/4-20 X 5/8, SS
15	ELBOW, STREET, 3/8 NPT, SS
16	*OSE ASSEMBLY, SS RV 27" L

Servicing the First and Second Check Valves ½", ¾", and 1"

1. Close shutoff valves and open test cocks No. 2, 3 and 4 to relieve pressure from the body of the valve. Loosen cover bolts and remove cover. The check valve modules can now be removed from the valve by hand or with a screwdriver. Note: The first and second check assemblies are not interchangeable and the first check assembly must be removed prior to removing the second check assembly.
2. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counterclockwise against the cage. The seat, cage, spring and disc assembly are now individual components. If the cage disengages prematurely, simply use the cage as a tool to screw the check valve seat from the valve body.
3. The disc assembly may now be cleaned and reassembled or, depending on its condition, it may be replaced with a new assembly from a repair kit. Seat o-ring should be inspected and replaced as necessary.
4. Reassemble the check module in the reverse order. Install the check modules into the valve body hand-tight. Replace the cover.



Servicing the Relief Valve ½", ¾", and 1"

1. Remove the relief valve cover nut by turning the nut counterclockwise
2. Remove the relief valve cover, stem/diaphragm assembly, and relief valve spring.
3. Inspect the relief valve diaphragm for wear and replace as needed.
4. The relief valve seat is located inside of the body and can be removed, if necessary, for cleaning/inspection. The seat is pressed into the body cavity and can be removed by inserting a finger in the center of the seat and pulling outwards. Inspect seat for nicks and replace as needed.
5. Inspect the disc rubber and clean or replace if required. The disc can be removed by screwing the white washer counterclockwise.
6. To reassemble the relief valve, press the seat firmly into place in the body, snap the spring onto the relief valve stem, center the spring on the seat, and insert the cover and stem/diaphragm assembly as a unit, into the body bore. The locating pin in the relief valve cover should be aligned with the corresponding locating notch in the top of the relief valve body.
7. Install relief valve cover nut and tighten.

Series 995/995RPDA

Reduced Pressure Zone Backflow Preventer/ Reduced Pressure Detector Assemblies

Sizes: 3" - 6"

Servicing First and Second Checks

REMOVING CHECK ASSEMBLIES (Before servicing be sure shutoff valves are closed)

1. Slowly open all ball valves to relieve air and water pressure. After pressure is relieved, loosen bolts on groove coupler and remove groove coupler and cover plate from valve body.
2. Remove #1 Check Assembly. Do not use Check Arm as a handle to unscrew the Check. Insert lid bolts in 1st check seat ring (see fig. 1), insert a long screwdriver or pry bar between lid bolts. Gently apply pressure against the bolts and turn seat assembly counter clockwise moving bolts hole to hole to maintain turning leverage (two additional bolts will eliminate need to move lid bolts from hole to hole). Finish unscrewing by hand and remove through top access port. Unscrew #2 Check (turn counter-clock wise) by placing a long screwdriver across lid bolts inserted in holes located in the 2nd check seat ring, similar in method used to remove 1st check and applying pressure to loosen #2 Check. Finish unscrewing by hand.
3. To clean Check, locate the Check Arm opening stud on the out let flange of the valve assembly. Slide the Arm over the stud with the check threads facing downward **(fig. 2)**. Tighten 1/4" nut on stud to secure cam bar. Slowly pull the assembly out ward to open check allowing exposure of the seat and clapper contact area for cleaning. The assembly may be locked open by aligning the holes in the cam bar and hinge arms and inserting a rod (fig. 4).

Check Disassembly

Please use caution when disassembling check. The check is a spring-loaded mechanical device.

Figure 3

Press down on the check assembly to unload the cambar from hinge arms and roller. Then place a thin rod or screwdriver into a maintenance hole in one hinge arm.

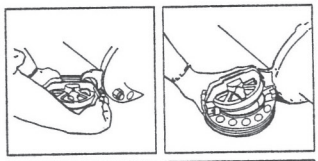


Figure 4

Using your free hand, swing the clapper assembly away from the seat. Align (A) lockout holes.

Figure 5

Remove 1 c-clip from the center pivot pin. Withdraw the center pivot pin from the clapper and the hinge arms. Remove the clapper assembly from the check assembly module. **Note: You may replace this item as an assembly or you may replace only the disc.**

Figure 6

Disassemble the clapper by removing 4 screws, disc retainer and the clapper disc. Disc may be flipped if sealing surface is damaged.

Figure 1

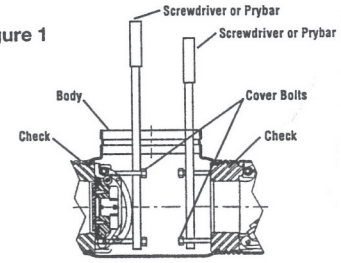
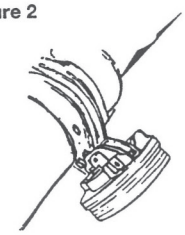
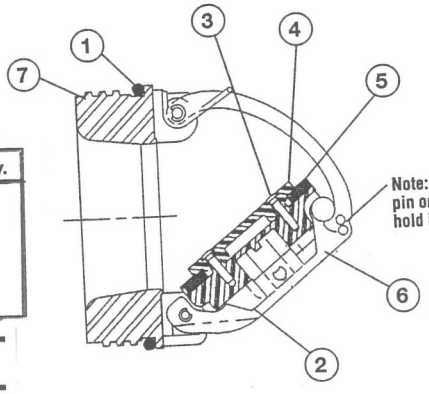


Figure 2



3", 4" & 6" RP 1st Check Assmbly

Before reinstallation of check assembly, thoroughly clean O-ring groove and lubricate O-ring with F.D.A. approved lubricant.



Note: Align holes and insert pin or small screwdriver to hold in open position.

Item	Part Description	Qty.
1.	1st Cam-Check O-ring (removable)	1
2.	Clapper Assembly (removable)	1
3.	Clapper Retaining Plate Screws (removable)	4
4.	Clapper Retainer Plate (removable)	1
5.	Clapper Disc (removable)	1
6.	Pivot Arm Pin (removable) 2 c-clips	1
7.	2nd Cam-Check O-ring (removable)	1

Servicing the Relief Valve

RELIEF VALVE SERVICE INSTRUCTIONS

1. Prior to beginning any maintenance work, shut down the water supply to the unit and relieve any residual pressure in the valve by opening Test Cock (TC) #4.
2. The relief valve is an integral part of the lid assembly and may be serviced when the lid assembly is removed from the body of the valve.
3. The relief valve may be disconnected from the sensing line hose if desired to enable easier access to all parts of the assembly.

REPLACING THE SEALING DISC

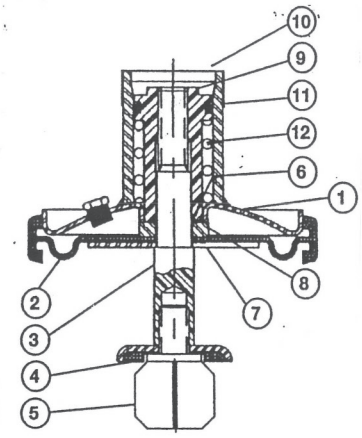
1. Remove relief valve assembly from body.
2. Unscrew Seal Cup Lock Nut from the underside of the body
3. Remove Seal Cup and Gasket thru the body access port.
4. Install NEW Seal Cup and gasket in reverse order.
5. Reinstall Lock Nut. DO NOT CROSS THREAD.

COMPLETE DISASSEMBLY OF THE RELIEF VALVE

1. Remove Sensing line from "T" junction at TC #2.
2. Remove Relief Valve Assembly from body.
3. Where available, clamp the RV assembly at the center section of the shaft on to the jaws of a vise and tighten sufficiently to prevent turning during disassembly.
4. Unscrew the seat from the shaft by turning counter clockwise.
5. Remove lower spacer (**Note:** Chamber side should be down).
6. Remove dust cap.
7. Remove retaining nut (**Note:** Apply light downward pressure to prevent spring from POPPING off the spring guide and retaining washer).
8. Lift off the cover. All internal parts will be pulled off the shaft at the same time.
9. Remove Spacer (Note direction of chamber)
10. Remove the diaphragm (Note direction of roll/convalute for reinstallation)
11. Remove diaphragm support.
12. Remove shaft O-ring.
13. Remove Upper spacer (Note chamber side should be on the top)

RV STYLE:

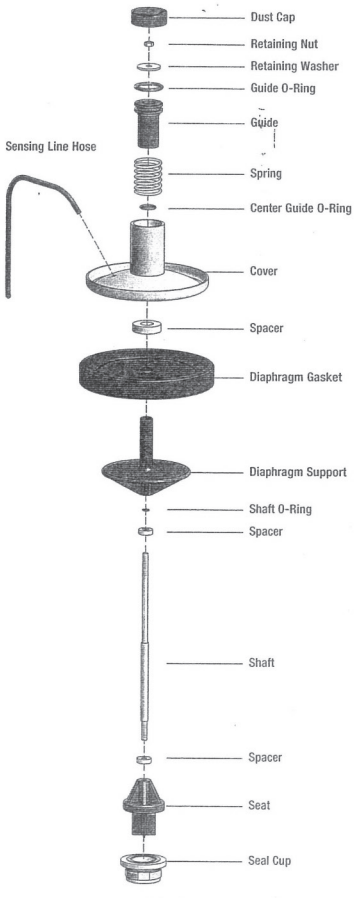
After removing Dust Cap, inspect Retainer Nut
OLD STYLE: HEX molded in guide - Parts no longer available.
NEW STYLE: ⅜" Nylock HEX nut - Parts shown stainless.



Parts Table

Item	Part Description
1.	Cover
2.	Diaphragm/Gasket
3.	Shaft
4.	Sealing Disc
5.	Guide, Lower
6.	O-ring
7.	Support Disc
8.	Disc, Diaphragm Stop
9.	Guide, Upper
10.	Cover, Dust
11.	O-ring, Upper
12.	Spring

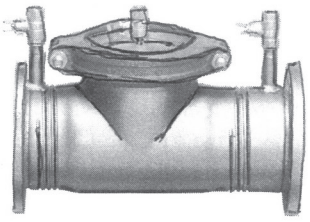
Old Style



New Style

Series 775/775DCDA

Double Check Backflow Preventer
Double Check Detector Assemblies
Sizes: 3" - 8"



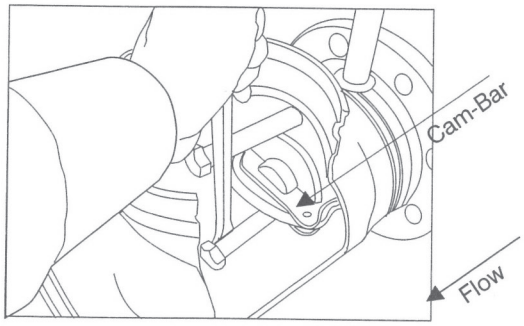
REMOVING CAM-CHECKS

Place yourself so that the water flow through the valve is left to right.

1. Shut down water system by closing two gate valves and lock out system if possible. Slowly open ball valves to relieve internal pressure. After pressure is relieved, loosen bolts on groove coupler and remove groove coupler and cover plate from valve body.

2. Unscrew (counter clockwise as viewed through the port facing the check) the #1 Cam-Check. Insert the two grooved coupler bolts into the holes in the face of the seat. Be sure that the pins or bolts are installed with one on each side of the cam bar as shown. Insert a long screwdriver or pry bar between opposing pins and loosen the check (counter clockwise) until it comes free to turn by hand. Finish unscrewing the Cam-Check by hand using the support ears for the clapper and cam bar to turn the check. (See fig #1A)

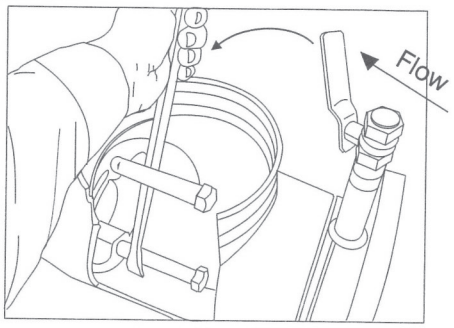
Figure #1A



3. Lift the Check straight up and out of the port access hole.

4. Using a pry bar across opposing pins in the #2 Cam-Check, loosen the #2 Cam-Check until it can be unscrewed by hand. Finish unscrewing the check by hand until it is free from the threads and spins out of the bore. (See fig. #1B). Remove #2 Cam-Check.

Figure #1B



5. Lift the Check straight up and out of the port access hole.

CAM-CHECK DISASSEMBLY

Please use caution when disassembling cam-check.

FIGURE 7

Using a thin rod or screwdriver, lift the cambar up so that the clapper is free to swing upwards away from the seat.

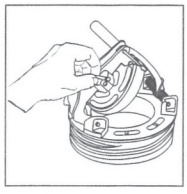


FIGURE 8

Using your free hand, swing the clapper open until the roller is almost to the free end of the cambar. Align the maintenance lockout holes in the cambar and the hinge arms.
Secure the check assembly in the maintenance position by inserting a rod or thin screwdriver through the lock-out holes.

FIGURE 9

Remove 1 c-clip from the center pivot pin. Withdraw the center pivot pin from the clapper and the hinge arms. Remove the clapper assembly from the check assembly module. Remove the retainer screws. **Note: You may replace this item as an assembly or you may continue and replace only the sealing disc.**

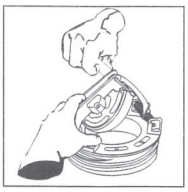
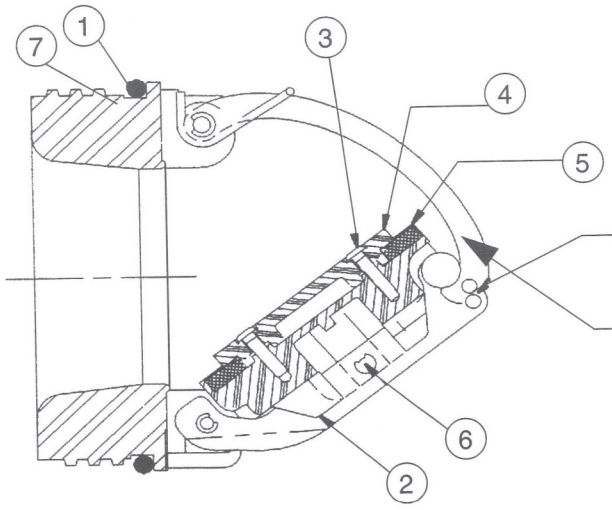


FIGURE 10

Disassemble the clapper by removing 4 screws, clapper retainer plate and the clapper disc. Disc may be reversed if sealing surface is damaged.

Before reinstallation of check assembly, thoroughly clean O-ring groove and lubricate O-ring with F.D.A. approved lubricant.



Note: Align holes and insert pin or small screwdriver to hold in open position.

Cam bar

Series 775/775DCDA

Double Check Backflow Preventer
Double Check Detector Assemblies
Sizes: 3" - 8"

Item #	Part Description
1.	1st Cam-Check O-ring (removable)
2.	Clapper Assembly (removable)
3.	Clapper Retaining Plate Screws (removable)
4.	Clapper Retainer Plate (removable)
5.	Clapper Disc (removable)
6.	Pivot Arm Pin (removable) 2 c-clips
7.	2nd Cam Check O-ring (removable)

INSTALLING CAM CHECKS

Prior to installing the Cam-Checks, ensure that all threads are clean and free of debris, grit, or other particles. Thoroughly clean O-rings grooves and lubricate O-rings with an FDA approved Lubricant.

A) First Install the #2 Cam-Check:

1. Insert the #2 Cam-Check through the cover port with the clapper facing down. Align the threads of the #2 Cam-Check with the threads in the body and start to thread the Check in by hand.

2. Tighten the #2 Cam-Check. Insert grooved coupler bolts into the holes in the rear face of the seat . Insert a long screw driver or pry bar between opposing pins and tighten the check (clockwise as viewed through the port facing the check) until it comes to a solid stop. Then back the check out about 15 degrees or from the 1:00 to the 12:00 position. (See Fig #1C)

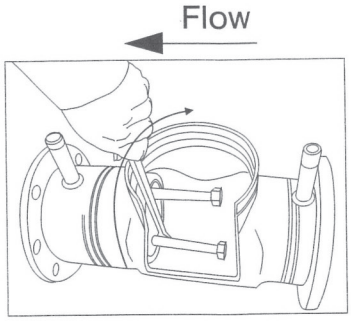


Figure #1C

B) Then Install the #1 Cam-Check:

1. Insert the #1 Cam-Check through the cover port with the clapper facing down. Align the threads of the #1 Cam-Check with the threads in the body and start to thread the Check in by hand - using the ears which extend from the seat ring to turn the check assembly. **DO NOT** use the clapper or the cam bar to turn the check assembly.

2. Tighten the #1 Cam-Check. Insert grooved coupler bolts into the holes in the face of the seat (or use the bolts from the lid groove coupler). Be sure that the pins or bolts are installed with one on each side of the cam bar. Insert a long screw driver or pry bar between opposing pins and tighten the check (clockwise as viewed through the port facing the check) until it comes to a solid stop. Then back the check out about 15 degrees or from the 1:00 position to the 12:00 position. (See Fig #1D)

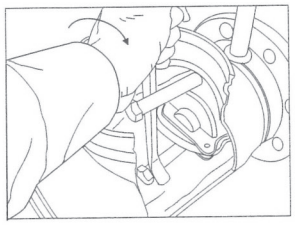


Figure #1D

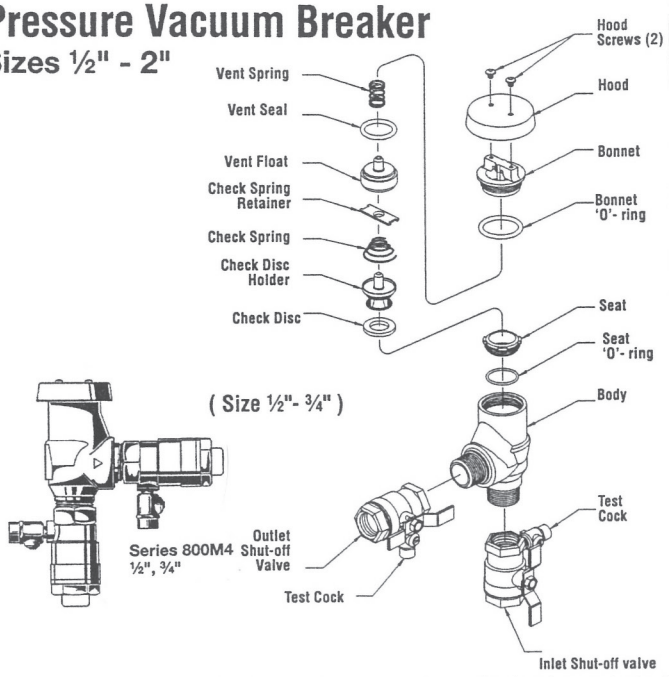
START UP: After re-installation of the cover plate and groove coupler - the downstream shut off valve should be closed. Open upstream gate slowly, fill the valve and bleed the air through Test cocks 2, 3 and 4. When valve is filled, open the downstream shut off slowly. Failure to bleed air from assembly may cause water hammer or shock damage to the water system.

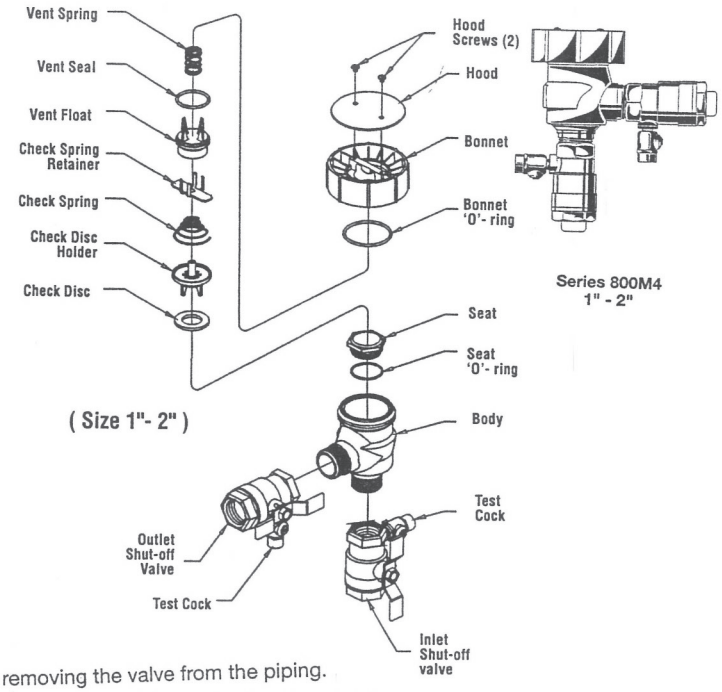
NOTE: Ames assemblies require minimum maintenance. All assemblies must be retested once maintenance has been performed. ***Before servicing be certain shut off valves are closed.***

Series 800M4/800M4FR

Pressure Vacuum Breaker

Sizes ½" - 2"





Internal parts can be removed, repaired or inspected without removing the valve from the piping.

Disassembly

1. Shut off the supply pressure and drain the valve.
2. Remove the two hood screws and the hood.
3. Place a wrench on the parallel flats of bonnet and stem assembly. Turn counter clockwise and remove.
4. Remove the vent assembly.
5. Press down on the spring retainer and disengage it from the retaining lugs. Then turn 90° and remove.
6. Remove the spring retainer and spring. Note that the large diameter of the spring is down on the guide assembly.
7. Remove the check disc holder and guide assembly.
8. Disassemble the check disc holder assembly.

Reassembly

Reassemble in the reverse order utilizing the new parts from the repair kit.

Series 008

Anti-Siphon, Anti-Spill Vacuum Breaker

Sizes ⅜" - 1"

Internal parts can be removed, repaired or inspected without removing the valve from the piping.

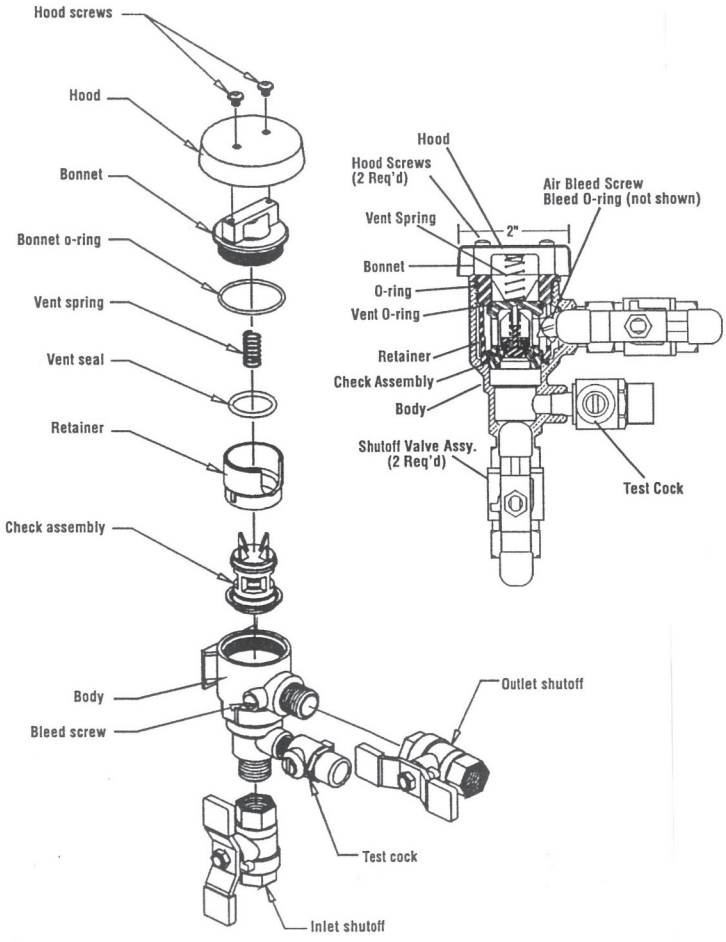
Disassembly:

1. Shut off supply pressure and drain valve.
2. Remove the two hood screws, remove hood.
3. Unscrew the bonnet by turning counterclockwise.
4. Lift retainer and check assembly from valve body. To assist with removal a small flow can be applied by "cracking" the inlet valve slightly. Alternately the test cock may be opened to break any suction caused by lifting internal assembly. Be sure to close test cock before pressurizing valve.

Reassembly:

Install new retainer module assembly into valve body by aligning "U" shaped cutout in retainer with the valve outlet. The top of retainer must drop just below threads in the valve body. Reassemble remaining parts in reverse order.

Caution:
Spillage may occur if diaphragm is ruptured. Care must be taken not to damage parts during assembly.



Series 719 Sizes: ½" – 2" (15 – 50mm) Service and Maintenance

Double Check Valve Assemblies

Servicing the First and Second Check Valves

NOTE: Before servicing be certain water is turned off or shut-off valves are closed

1. Close shut off valves up and downstream of the valve.
2. Using an appropriate sized wrench, loosen the check valve cover. Unscrew the check valve cover and lift off.
3. Remove spring.
4. Lift out disc holder assembly from body of valve.
5. To reverse the seat disc, unscrew disc screw and disassemble disc washer and disc rubber from disc holder assembly. Reverse rubber so opposite face is showing. Assemble disc screw through disc washer and rubber and screw into disc holder.
6. To replace seat module, pull out of body by gripping at reinforcement ring. Replace seat module with new component by placing into body seat bore. Tightening cover will engage seat properly.
7. Insert disc holder assembly back into seat module.
8. Replace spring insuring that it seats properly on disc holder.
9. Place cover onto spring with internal guide on cover positioned inside end coil.
10. Screw cover onto valve body.
11. Tighten cover wrench tight.
10. Open shut off valves.

Series 919

Reduced Pressure Zone Assemblies

Servicing First & Second Check Valves ¼" – 2"

NOTES: 1. No special tools are required to service the Series 919 ¼" - 2".
2. Before servicing, make sure the water is turned off or shut-off valves are closed.

1. Close shut-off valves up and downstream of the valve.
2. Using an appropriate sized wrench, loosen the check valve cover. Unscrew the check valve cover and lift it off.
3. Remove the spring.
4. Lift out the disc holder assembly from the body of the valve.
5. To reverse the seat disc, unscrew the disc screw and disassemble the disc washer and disc rubber from the disc holder assembly. Reverse the disc rubber so the opposite face is showing.
6. Assemble the disc screw through the disc washer and disc rubber, and screw it into the disc holder.
7. To replace the seat module, pull the seat module out of the body by gripping at the reinforcement ring. Replace the seat module with the new seat by placing it into the body seat bore.

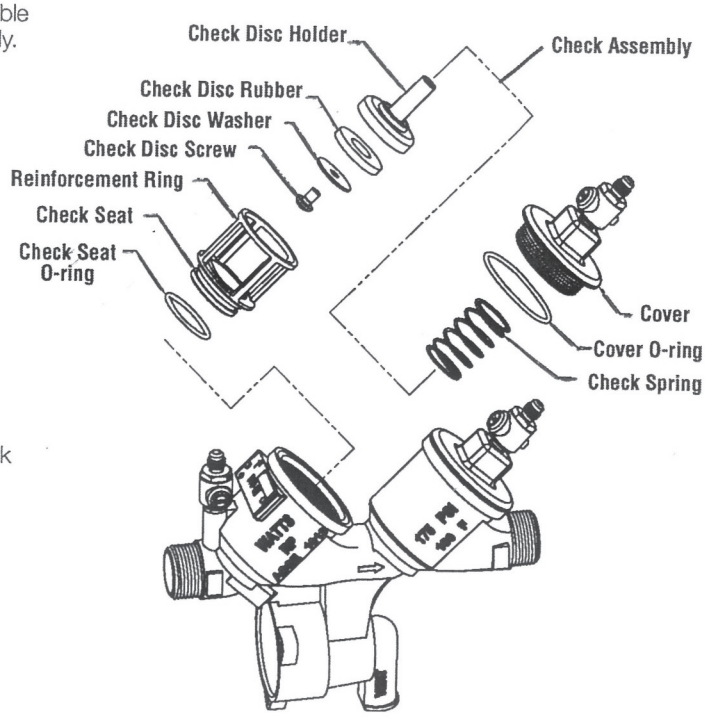
NOTE: When you tighten the cover in step 12, the cover will engage the seat module properly.

8. Insert the disc holder assembly back into the seat module.
9. Replace the spring ensuring that it seats properly on the disc holder.

WARNING

The first check valve has a heavy weight spring. The second check valve has a lighter weight spring. When reassembling the check valves, make sure you install the correct spring into the correct check valve.

10. Place the cover onto the spring with the internal guide on the cover positioned inside the end coil.
11. Screw the cover onto the valve body.
12. Tighten the cover using the appropriate sized wrench.
13. Service the second check valve using steps 2 through 12.
14. Slowly open shut off valves.



Series 919

Reduced Pressure Zone Assemblies

Servicing the Relief Valve ¼" – 2"

NOTES: 1. No special tools are required to service the series 919 ¼" - 2".
2. Before servicing, make sure the water is turned off or shut-off valves are closed.

The following procedures provide information for replacing the diaphragm, the relief valve disc, and the relief valve seat. It is recommended that you visually inspect these parts to determine if a replacement or a cleaning is required.

Disassembling the Relief Valve

1. Remove the relief valve cover bolts while holding the cover down.
2. Turn the cover counterclockwise for ¼ turn, and lift it straight off while still applying pressure to the cover with your hand.

WARNING

Make sure you apply pressure to the cover as you lift it straight off. Due to the release of pressure when removing the cover, the relief valve spring may eject quickly.

3. Remove the relief valve assembly (includes cover O-ring, stem and diaphragm assembly).
4. Remove the relief valve spring.
5. Remove the pressed in relief valve seat and seat O-ring.

Replacing the Diaphragm

6. Using a wrench, loosen the diaphragm assembly by turning the hex bolt counterclockwise.
7. Remove the diaphragm and replace with a new diaphragm if required, or clean the existing diaphragm.
8. Using a wrench, reassemble the diaphragm assembly by turning the hex bolt clockwise to tighten.

Replacing the Relief Valve Disc and Seat

9. Using a phillips screwdriver, remove the screw in the relief valve disc and replace the disc if required, or clean the existing disc.
10. Place the screw back into the relief valve disc and tighten.
11. Replace the relief valve seat with a new seat if required, or clean the existing seat.

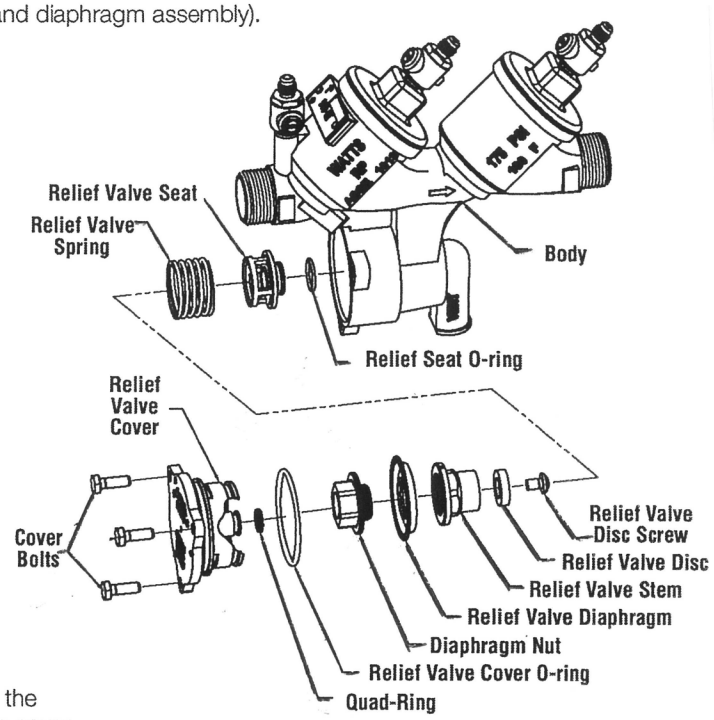
Reassembling the Relief Valve

12. Place the relief valve seat back into the chamber bore.
13. Slide the diaphragm assembly into the relief valve seat.
14. Place the spring on to the diaphragm assembly.
15. Place the cover O-ring on the diaphragm assembly.
16. Line up the grooves on the relief valve cover with the grooves in the relief valve body, and turn the cover clockwise ¼ turn to seat the cover.
17. Using a wrench, place the bolts back into the cover and tighten.

CAUTION

If the cover does not lie flat against the relief valve body, the diaphragm assembly is not installed properly and damage can result. Remove the bolts and cover, realign the diaphragm assembly, and place the cover back on the relief valve body.

18. Open the shutoff valves.



Model 757 / 757A / 757 DCDA / 757A DCDA

Sizes 2 ½ - 10"

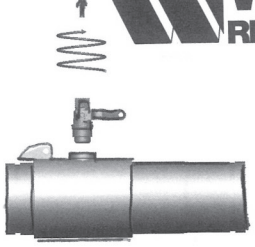


Figure A

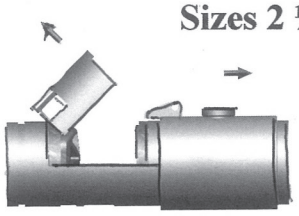


Figure B

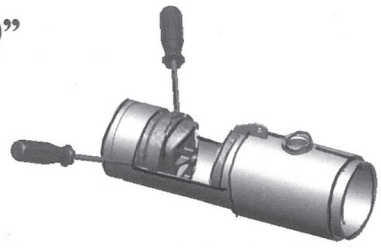


Figure C

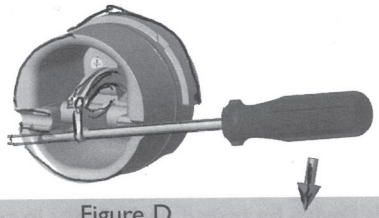


Figure D

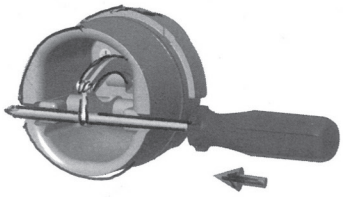


Figure E

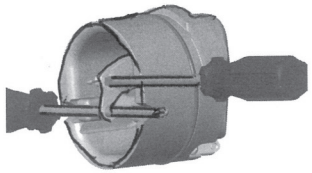


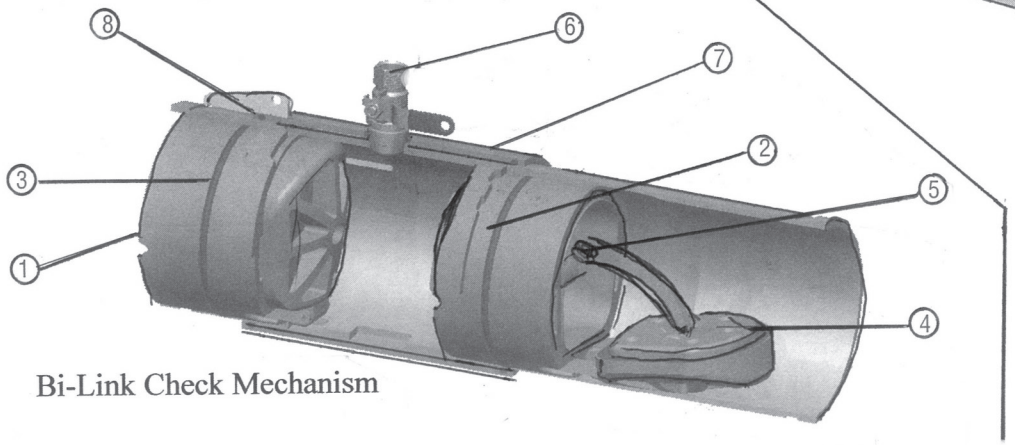
Figure F

Maintenance Instructions

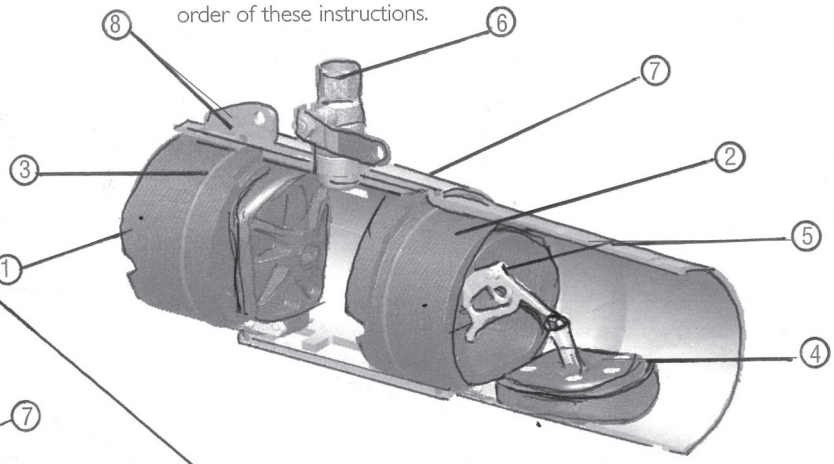
Prior to servicing any Watts valve, it is mandatory to shut down water system by closing both the inlet and outlet shut-off valves. After shutoff valves are closed, open test cock #2, #3 and #4 to relieve pressure within the backflow assembly.

1. After #3 test cock has been opened to relieve pressure, remove #3 test cock from housing. (Figure A)
2. Slowly slide the cover sleeve to the downstream side of the housing. (Figure B)
3. Remove the stainless steel check retainer from the housing. (Figure B)
4. Remove the #1 check module (Figure C) by inserting two flat blade screwdrivers into the slots on either side of the check module and gently pry to check module toward the open zone.
5. Remove #2 check module with the same instructions as in #5 above.
6. To clean or inspect either check module, insert a #3 screwdriver through the downstream side of the check module as shown in Figure D and E. When the screwdriver is in place, remove the E-clip (Figure F) and pin connecting the structural members and the check clapper will open with no tension.
7. Thoroughly clean the seating area. The sealing disk may be removed, if necessary, by removing the screws connecting the keeper plate to the clapper. The sealing disc may be reversed and reinstalled if the elastomer is cut or damaged.
8. Wash check module and O-ring and inspect for any damage. If damaged, reinstall new parts.
9. After thorough cleaning, lubricate O-ring w/FDA approved lubricant, replace pin and E-clip in structural members, remove screw driver and reinstall check modules and assemble housing in reverse order of these instructions.

1. 1st Ck Module
2. 2nd Ck Module
3. O'Ring
4. Ck Disc
5. E Clip
6. Closure Sleeve Test Cock
7. Closure Sleeve
8. O'Ring



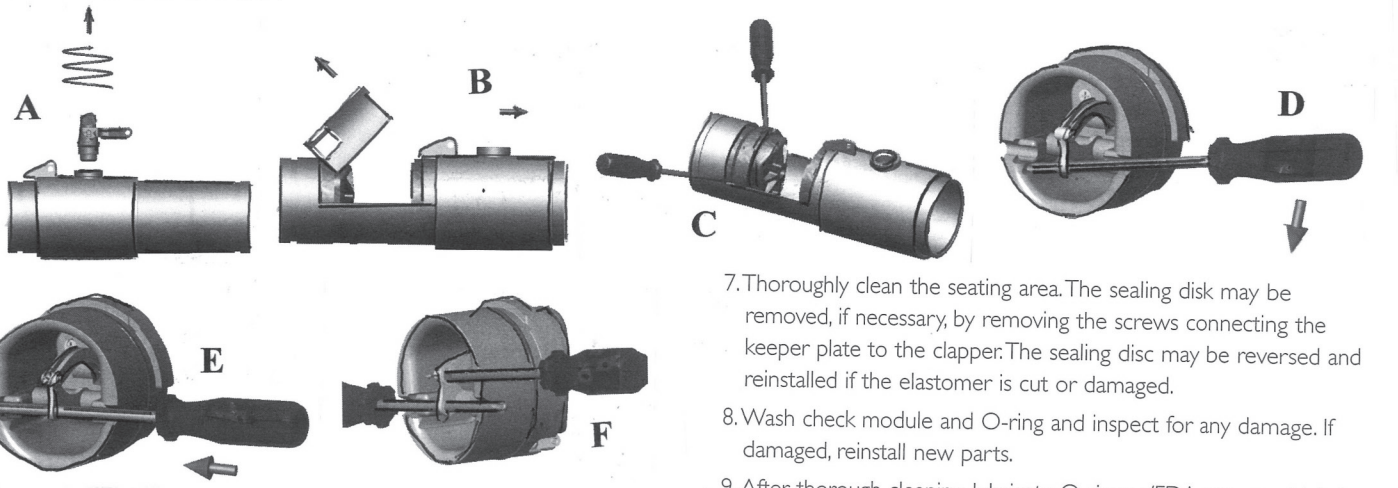
Bi-Link Check Mechanism



Tri-Link Check Mechanism

1. 1st Ck Module
2. 2nd Ck Module
3. O'Ring
4. Ck Disc
5. E Clip
6. Closure Sleeve Test Cock
7. Closure Sleeve
8. O'Ring

Model 957 / 957 RPDA Sizes 2 ½ - 10"



Maintenance Instructions

Prior to servicing any Watts valve, it is mandatory to shut down water system by closing both the inlet and outlet shut-off valves. After shutoff valves are closed, open test cock #2, #3 and #4 to relieve pressure within the backflow assembly.

1. After #3 test cock has been opened to relieve pressure, remove #3 test cock from housing. (Figure A)
2. Slowly slide the cover sleeve to the downstream side of the housing. (Figure B)
3. Remove the stainless steel check retainer from the housing. (Figure B)
4. Remove the #1 check module (Figure C) by inserting two flat blade screwdrivers into the slots on either side of the check module and gently pry to check module toward the open zone.
5. Remove #2 check module with the same instructions as in #5 above.
6. To clean or inspect either check module, insert a #3 screwdriver through the downstream side of the check module as shown in Figure D and E. When the screwdriver is in place, remove the E-clip (Figure F) and pin connecting the structural members and the check clapper will open with no tension.
7. Thoroughly clean the seating area. The sealing disk may be removed, if necessary, by removing the screws connecting the keeper plate to the clapper. The sealing disc may be reversed and reinstalled if the elastomer is cut or damaged.
8. Wash check module and O-ring and inspect for any damage. If damaged, reinstall new parts.
9. After thorough cleaning, lubricate O-ring w/FDA approved lubricant, replace pin and E-clip in structural members, remove screw driver and reinstall check modules and assemble housing in reverse order of these instructions.

Servicing Relief Valve

Prior to servicing the relief valve, it is mandatory to shut down water system by closing both the inlet and outlet shutoff valves and relieving pressure within the assembly by opening the #2, #3 and #4 test cocks.

1. Disconnect the hose from the bottom cover plate to the relief valve.
2. An O-ring seals the relief valve body to the main housing. It is not necessary to tighten the connection beyond firm hand tightening. The relief valve should be able to be removed by hand untightening. Unscew the relief valve from the housing.
3. Remove the cover plate of the relief valve by removing the four connecting screws.
4. Remove the rubber diaphragm from the relief valve. Be aware of how the diaphragm is configured so that it can be reinstalled in the same manner. The hard rubber tab in the diaphragm fits into a similar socket in the head of the piston. (Figure 1)
5. Hold the relief valve in both hands with the threaded end up and both thumbs on the head of the piston. Push up on the piston until the piston shaft with the attached E-clip is exposed. Remove the E-clip (Figure 2)
6. Remove the piston and spring from the relief valve housing and thoroughly clean all parts including the diaphragm. Inspect all rubber parts for damage and if damaged, replace them with new parts.
7. Reassemble the relief valve in the reverse order that it was disassembled.

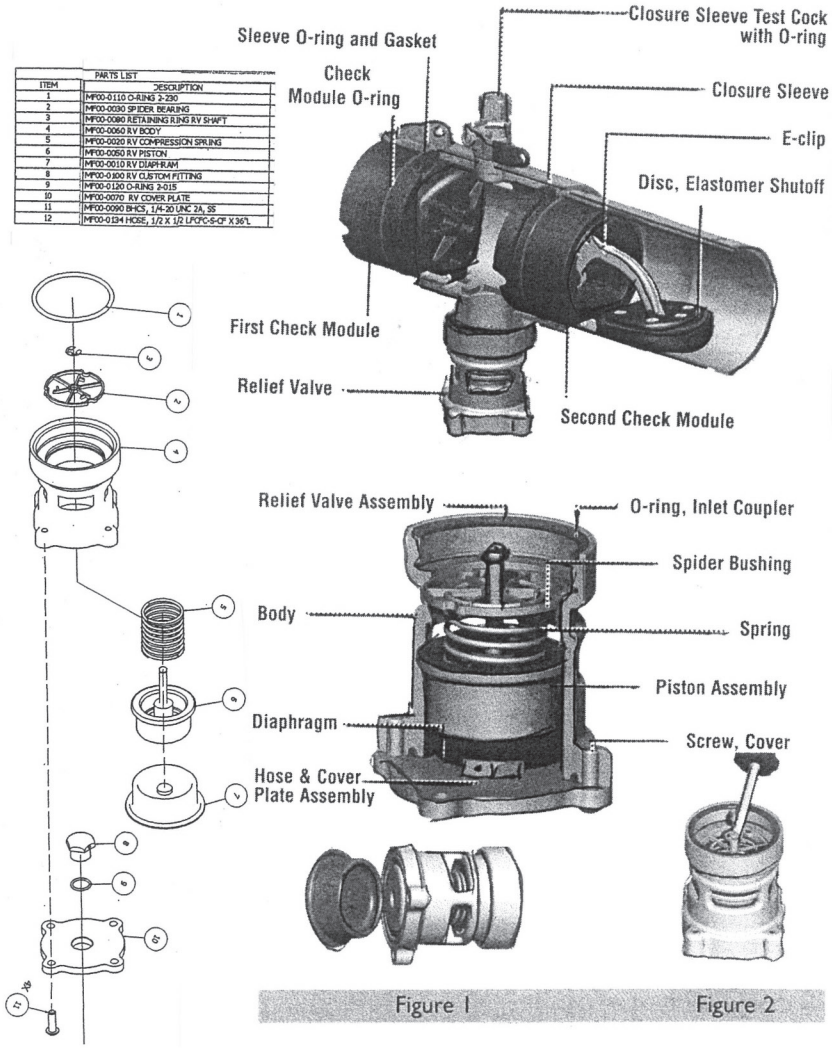


Figure 1 Figure 2