Watts Fire Protection Products

WATTS®

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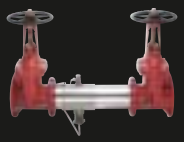


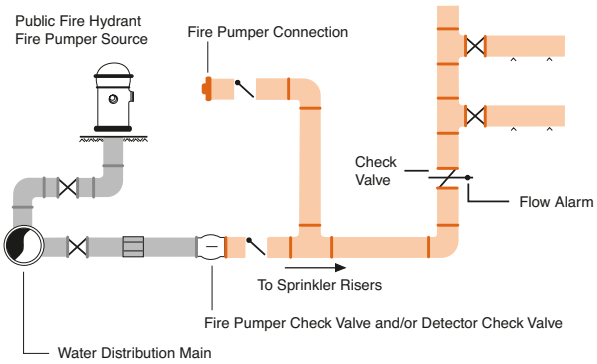
Table of Contents

Typical Fire Protection Systems as Recommended by AWWA M14 Second Edition

AWWA has recommended the type of backflow prevention protection required on fire sprinkler systems by classifying six different classes of systems based on the source of water and arrangement of piping carrying the water to the fire.

CLASS 1

Direct connections from public water mains only: no pumps, tanks or reservoirs; no physical connection from other water supplies; no anti-freeze or other additives of any kind; all sprinkler drains discharging to atmosphere, dry wells or other safe outlets.

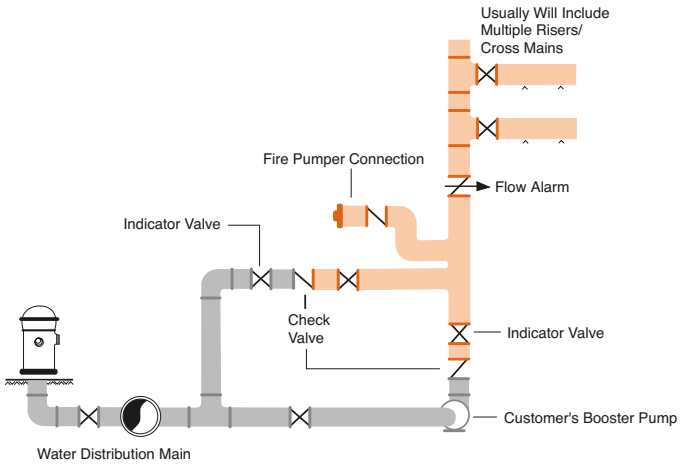


CLASS 2

Same as Class 1 except booster pumps may be installed in the connections from the street mains.

Class 1 and Class 2 recommended protection:

- A flow alarm check and/or a single detector check, either of which are not considered approved backflow protection assemblies



EXCEPTIONS TO CLASS 1 and CLASS 2

An approved backflow prevention assembly **should** be installed on a Class 1 or Class 2 system when the following special conditions are experienced.

- When underground fire sprinkler pipelines are parallel to and within 10 feet horizontally of sewer pipelines or other toxic materials
- When water is supplied to a site or system from two or more water utility service points or from two or more different water utilities
- Occupancies or changes in occupancies that involve the usage, storage or handling of types and quantities of material in a manner that could present a significant health hazard to the domestic supply
- Premises with unusually complex piping systems (usually these premises will have an approved backflow prevention assembly on the domestic service)
- Systems with pumper connections in which corrosion inhibitors or other chemicals are added to tanks or fire trucks, or when the water purveyor cannot be assured of the potability of the input to the pumper connection

Class 1 and Class 2 with special conditions, recommended backflow prevention protection:

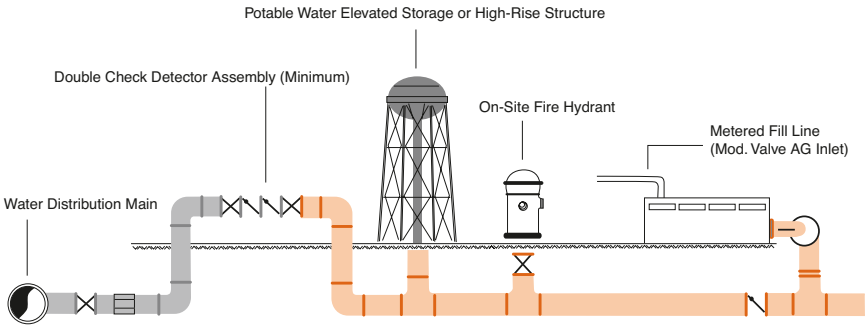
- Approved Double Check Valve Assembly
- Approved Double Check Detector Assembly

CLASS 3

Direct connections from public water supply mains, plus one or more of the following: elevated storage tanks; fire pumps taking suction from above ground covered reservoirs or tanks; and pressure tanks (all storage facilities are filled or connected to public water only, the water in the tanks are to be maintained in a potable condition).

Class 3 recommended backflow prevention protection:

- Approved Double Check Valve Assembly
- Approved Double Check Detector Assembly

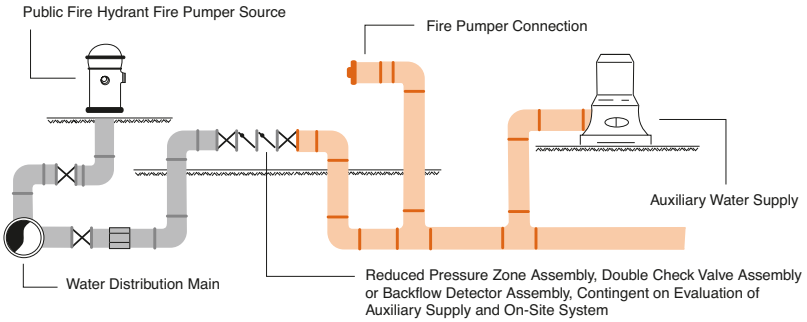


CLASS 4

Directly supplied from public mains with an auxiliary water supply dedicated to fire department use and available to the premises, such as an auxiliary supply located within 1700 feet of the pumper connection.

Class 4 recommended backflow prevention protection (depending on the auxiliary supply quality):

- Approved Double Check Valve Assembly
- Approved Double Check Detector Assembly
- Approved Reduced Pressure Zone Assembly
- Approved Reduced Pressure Detector Assembly
- Approved Air Gap

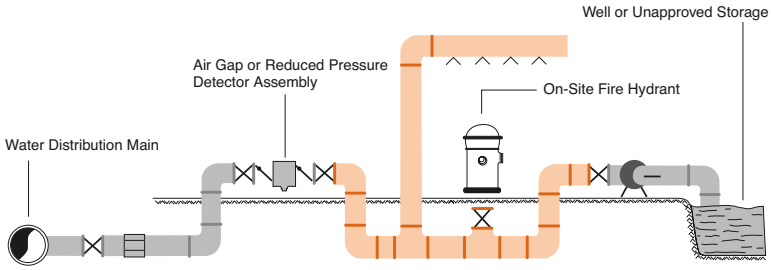


CLASS 5

Directly supplied from public mains and interconnected with auxiliary supplies; such as pumps taking suction from reservoirs exposed to contamination, or rivers or ponds; driven wells; mills or other industrial systems; or where anti-freeze or other additives are used.

Class 5 recommended backflow prevention protection:

- Approved Reduced Pressure Zone Assembly
- Approved Reduced Pressure Detector Assembly
- Approved Air Gap

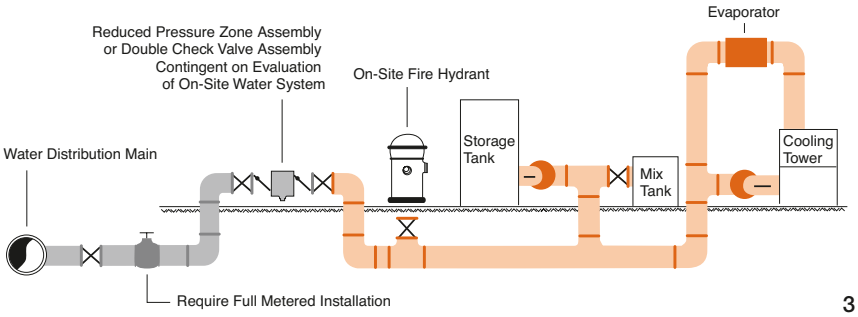


CLASS 6

Combined industrial and fire protection system supplied from the public water mains only; with or without gravity storage or pump suction tanks.

Class 6 recommended backflow prevention protection:

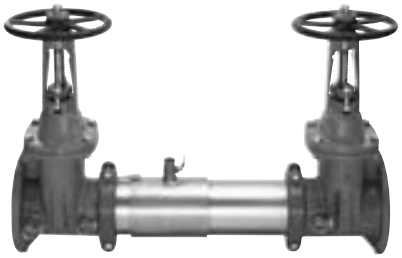
- A premises survey to determine both the industrial and fire protection requirements



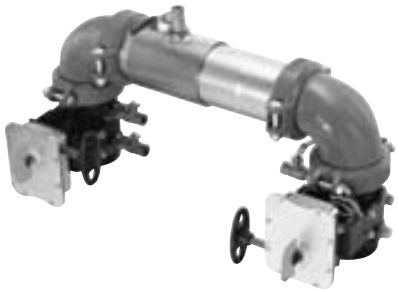
Series 757, 757N

Double Check Valve Assemblies

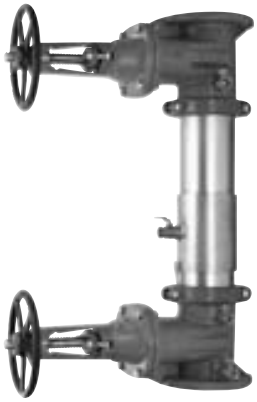
Sizes: 2½" – 10" (65 – 250mm)



757 OSY



757N BFG



757 OSY (Vertical)

Series 757, 757N Double Check Valve Assemblies are used to prevent backflow of pollutants that are objectionable but not toxic, from entering the potable water supply system. This Series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. The 757, 757N may be installed under continuous pressure service and may be subjected to backpressure. The 757, 757N consist of two independently operating check valves, two shutoff valves, and four test cocks.

Features

- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented tri-link checks provide 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

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

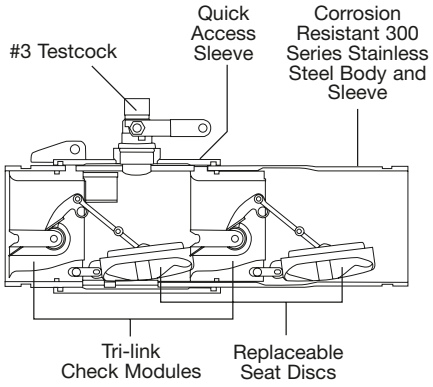
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)

Models

add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
BFG - 2½" – 8" UL/FM grooved gear operated butterfly valves with tamper switch
QT - 2½" – 3" quarter-turn, ball valves
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

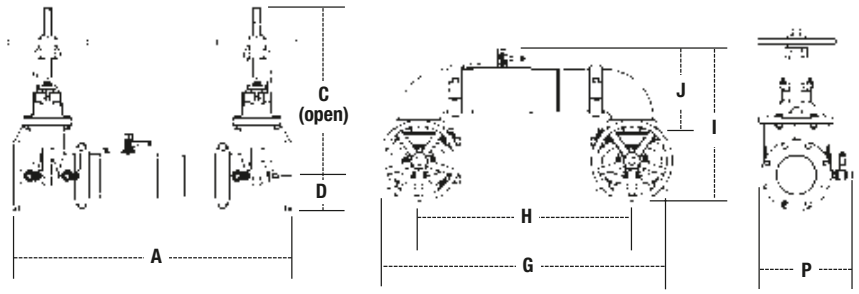
1015 (BFG & OSY only) B64.5



For additional information, request literature ES-757/757N.

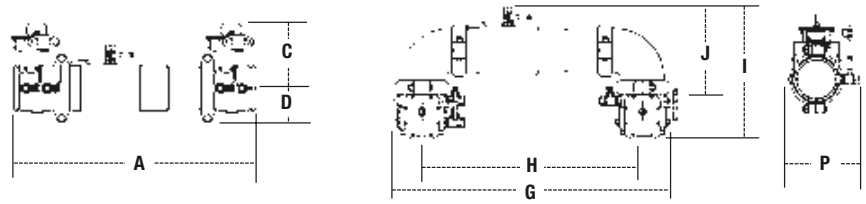
Flow Charts on p. 62

Dimensions – Weights



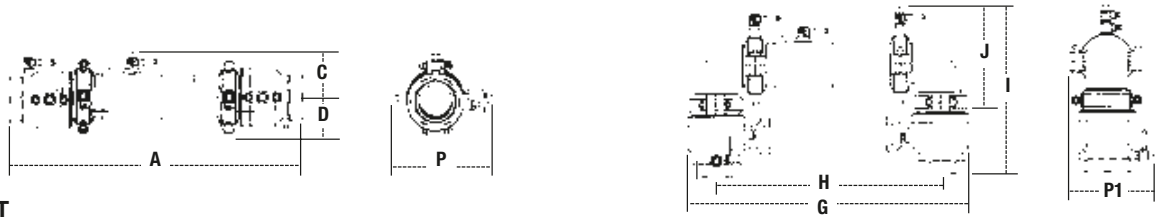
757, 757N

SIZE (DN)		DIMENSIONS (APPROX.)																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	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	43½	1105	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
8	200	50	1270	37¾	959	19 15/16	506	6 11/16	170	54⅛	1375	40⅝	1032	27 7/16	697	15 11/16	399	17 3/16	437	438	199	480	218	513	233	555	252
10	250	57½	1460	45¾	1162	23 13/16	605	8 3/16	208	66	1676	50	1270	32½	826	17 5/16	440	20	508	721	327	781	354	891	404	951	431



757 BFG, 757N BFG

SIZE (DN)		DIMENSIONS (APPROX.)																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	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
8	200	43	1092	12¼	311	6½	165	51 1/16	1297	40⅝	1032	23 5/16	592	15 11/16	399	14 3/16	361	261	118	337	153



757 QT

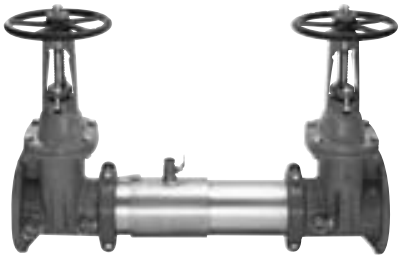
SIZE (DN)		DIMENSIONS (APPROX.)																		WEIGHT	
		A		C		D		G		H		I		J		P		P1			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2½	65	28 15/16	735	4⅞	124	3 13/16	97	30¼	768	24½	622	16 9/16	421	11⅜	289	10 7/16	265	8 5/16	211	35	16
3	80	30 3/16	767	4 13/16	122	3⅞	98	30¼	768	24½	622	17 3/16	437	11¼	258	10 7/16	265	8 9/16	217	45	21

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 757a, 757Na

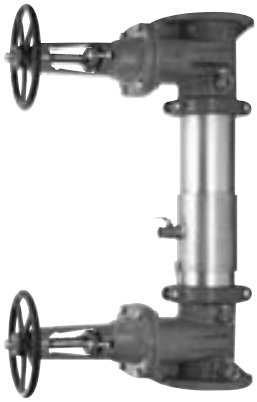
Double Check Valve Assemblies

Sizes: 2½" – 6" (65 – 150mm)



757a OSY

757Na BFG



757a OSY (Vertical)

Series 757a, 757Na Double Check Valve Assemblies are used to prevent back-flow of pollutants that are objectionable but not toxic, from entering the potable water supply system. This Series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. The 757a, 757Na may be installed under continuous pressure service and may be subjected to backpressure. The 757a, 757Na consist of two independently operating valves, two shutoff valves, and four test cocks.

Features

- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented bi-link checks provide 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

Materials

- Housing & Sleeve: 304 (Schedule 40) stainless steel
- Elastomers: EPDM and Buna-N
- Bi-link Checks: Noryl®, stainless steel
- Check Discs: Reversible EPDM
- Test Cocks: Bronze body nickel plated
- Pins & Fasteners: 300 Series stainless steel
- Springs: Stainless steel

Pressure – Temperature

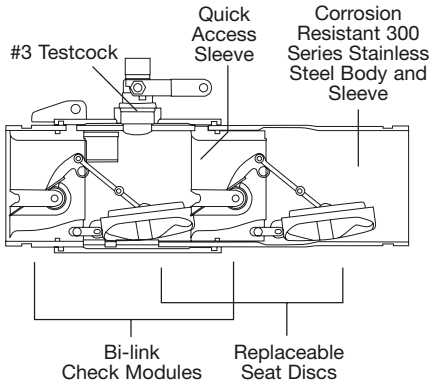
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)

Models

add Suffix:
NRS – non-rising stem resilient seated gate valves
OSY – UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
BFG - 2½" – 8" UL/FM grooved gear operated butterfly valves with tamper switch
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

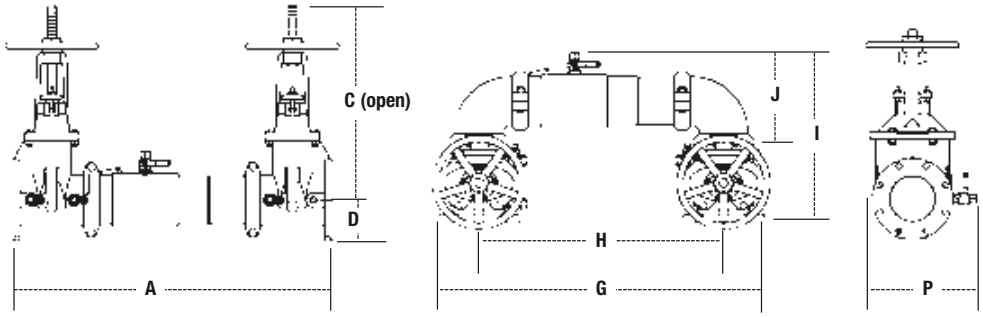
1015 (BFG & OSY only) B64.5



For additional information, request literature ES-757a/757Na.

Flow Charts on p. 62–63

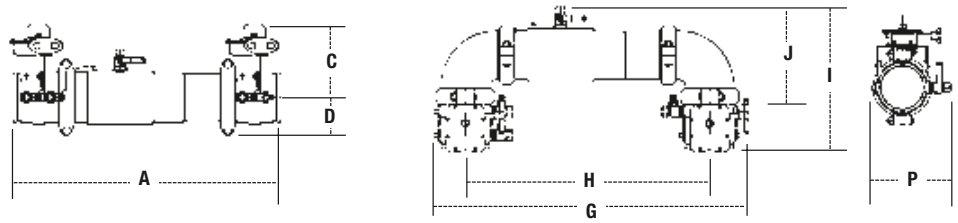
Dimensions – Weights



757a, 757Na

SIZE (DN)		DIMENSIONS (APPROX.)																		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	–	–	–	–	–	–	–	–	29 1/16	738	22	559	15½	393	8 13/16	223	9 3/16	234	–	–	–	–	123	56	133	60
3	80	–	–	–	–	–	–	–	–	30¼	768	22¾	578	17⅛	435	9 3/16	233	10½	267	–	–	–	–	144	65	158	72
4	100	–	–	–	–	–	–	–	–	33	838	24	610	18½	470	9 15/16	252	11 3/16	284	–	–	–	–	184	83	184	83
6	150	43½	1105	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

Note: For 2½" – 4" horizontal/vertical installation, see page 4–5.



757a BFG, 757Na BFG

SIZE (DN)		DIMENSIONS (APPROX.)																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	–	–	–	–	–	–	29⅞	759	22	559	14 15/16	379	8 13/16	223	9	229	–	–	64	29
3	80	–	–	–	–	–	–	30 11/16	779	22¾	578	15 7/16	392	9 3/16	233	9½	241	–	–	67	30
4	100	–	–	–	–	–	–	31 15/16	811	24	610	16¼	412	9 15/16	252	10	254	–	–	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

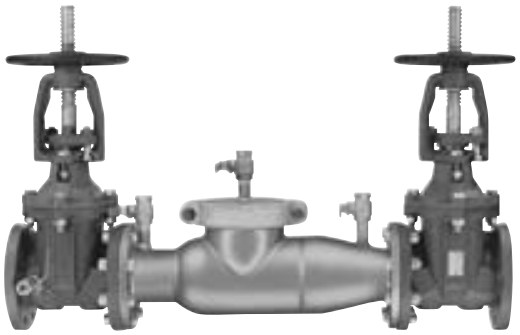
Note: For 2½" – 4" horizontal/vertical installation, see page 4–5.

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 774

Double Check Valve Assemblies

774: Sizes: 2½" – 12" (100 – 300mm)



774 OSY

Series 774 Double Check Valve Assemblies are designed to prevent the reverse flow of polluted water from entering into the potable water system. These models can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. Series 774 feature short end-to-end dimensions, light weight stainless steel body, and the lowest head loss available.

Features

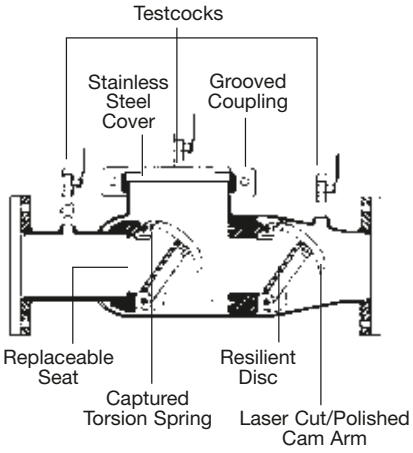
- Patented torsion spring check valve provides low head loss
- Short lay length is ideally suited for retrofit installations
- Stainless Steel body is half the weight of competitive designs reducing installation and shipping cost
- Stainless steel construction provides long term corrosion protection 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
- May be installed in horizontal or vertical flow up position

Materials

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

Pressure – Temperature

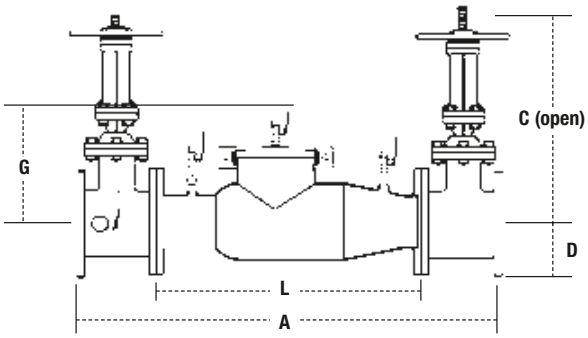
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C) continuous
Maximum Working Pressure: 175psi (12.1 bar)

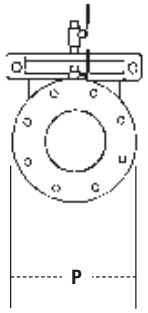


For additional information, request literature ES-774.

Flow Charts on p.64

Dimensions – Weights





774

SIZE (DN)		DIMENSIONS (APPROX.)														WEIGHT			
		A		C (open)		C (NRS)		D		G		L		P		w/Gates		w/o Gates	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm.*	*lb.*	*kg.*	*lb.*	*kg.*
2½	65	38	965	16⅜	416	9⅜	238	3½	89	10	254	22	559	12½	318	155	70	68	31
3	80	38	965	18⅞	479	10¼	260	3¾	95	10	254	22	559	13	330	230	104	70	32
4	100	40	1016	22¾	578	12 3/16	310	4½	114	10	254	22	559	14½	368	225	102	58	26
6	150	48½	1232	30⅛	765	16	406	5½	140	15	381	27½	699	15½	394	375	170	105	48
8	200	52½	1334	37¾	959	19 15/16	506	6¾	171	15	381	29½	749	18¼	464	561	254	169	77
10	250	55½	1410	45¾	1162	23 13/16	605	8	200	15	381	29½	749	19½	495	763	346	179	81
12	300	57½	1461	53⅛	1349	26¾	679	9½	241	15	381	29½	749	21	533	1033	469	209	95

Models

add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem & yoke resilient seated gate valves
LF - without shutoff valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

1015 (OSY only) (4" – 10", OSY only)
For additional approvals consult factory.
Flange dimension in accordance with AWWA Class D

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 709
Double Check Valve Assemblies

Sizes: 2½" – 10" (65 – 250mm)

709 OSY

Series 709 Double Check Valve Assemblies are designed to prevent the reverse flow of polluted water from entering into the potable water system. This Series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. Series 709 features a modular check design concept to facilitate easy maintenance.

Features

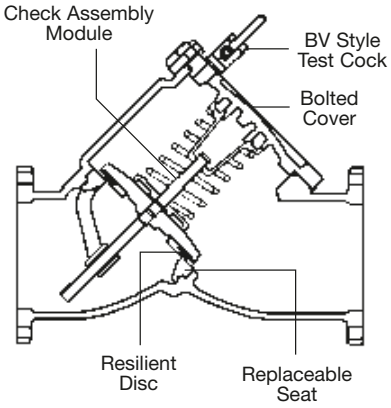
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Design simplicity for easy maintenance
- No Special Tools Required for Servicing
- Captured spring assemblies for safety
- Approved for vertical flow up installation

Materials

- Check Valve Bodies: Epoxy coated (FDA approved) cast iron
- Seats: Bronze

Pressure – Temperature

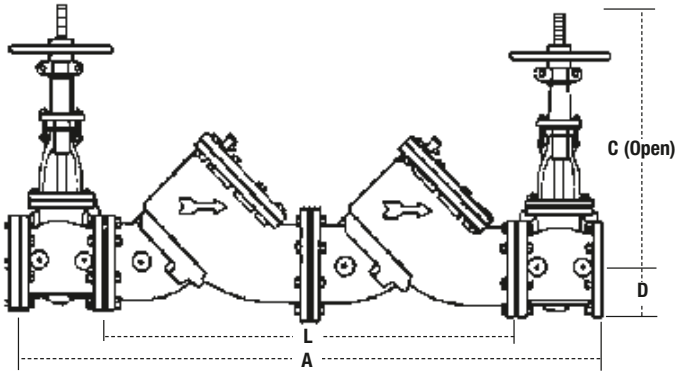
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C) continuous, 140˚F (60˚C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)

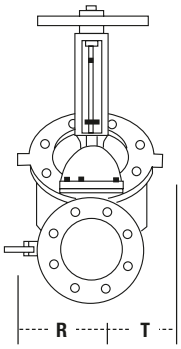


For additional information, request literature ES-709L.

Flow Charts on p.60

Dimensions – Weights





709

SIZE (DN)		DIMENSIONS (approx.)														WEIGHT	
		A		C(OSY)		C(NRS)		D		L		R		T			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2½	65	39	991	16⅜	416	9⅜	238	3½	89	24	610	4	102	3	76	167	76
3	80	40	1016	18⅞	479	10¼	260	3¾	95	24	610	5	127	3	76	167	76
4	100	52	1321	22¾	578	12 3/16	310	4½	114	34	864	6	152	6	152	368	167
6	150	63¼	1607	30⅛	765	16	406	5½	140	42½	1089	11	279	7½	191	627	284
8	200	75	1905	37¾	959	19 15/16	506	6⅝	168	52	1321	11¼	286	9	229	1201	545
10	250	90	2286	45¾	1162	23 13/16	605	8	203	64	1626	12½	318	10¼	260	2003	908

*Dimensions needed for screen removal.

Models

add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem and yoke resilient seated gate valves
LF - without shutoff valves
BB - bronze body 2½" – 3" (64 – 76mm)
QT - quarter-turn ball valves
QT-FDA - FDA epoxy coated quarter-turn ball valves

Approvals

1015 (OSY only)

AWWA
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
Sizes 4" – 10" (100 – 250mm) approved horizontal and vertical "flow up"
Size 2½" and 3" (65 and 80mm) approved horizontal only.
Factory Mutual approved 4" – 10" (80 – 250mm) vertical "flow up"

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 007
Double Check Valve Assemblies

Sizes: ½" – 3" (15 – 80 mm)

¾" 007M3QT

2" 007M1QT HC

Series 007 Double Check Valve Assemblies shall be installed at referenced cross-connections to prevent the backflow of polluted water into the potable water supply. Only those cross-connections identified by local inspection authorities as non-health hazard shall be allowed the use of an approved double check valve assembly.

Features

- Ease of maintenance - only one cover
- Top entry
- Replaceable seats and seat discs
- Modular construction
- Compact design
- Top mounted ball valve test cocks
- Low pressure drop
- No special tools required for servicing
- ½" – 1" (15 – 25 mm) have tee handles
- ½" – 2" (15 – 50mm) cast bronze body construction
- 2½" – 3" (65 – 80mm) fused epoxy coated cast iron body

Materials

- Body: ½" – 2" (15 – 50mm) Cast bronze
  2½" – 3" (65 – 80mm) Fused epoxy coated cast iron body

Pressure – Temperature

Temperature Range:
½" – 2" (15 – 50mm)
33°F – 180°F (0.5°C – 82°C)
2½" – 3" (65 – 80mm)
33°F – 110°F (0.5°C – 43°C) continuous, 140° (60°C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)

Models

½" – 2" (15 – 50mm)

add Suffix:
QT - quarter-turn ball valves
LF - without shutoff valves
LH - locking handle ball valves (open position)
SH - stainless steel ball valve handles
HC - 2½" inlet/outlet fire hydrant fitting (2" valve)
PC - polymer coating

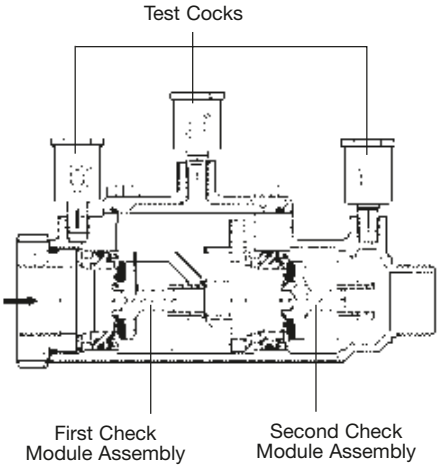
add Prefix:
U - union connections

2½" and 3" (65 and 80mm)

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

Approvals

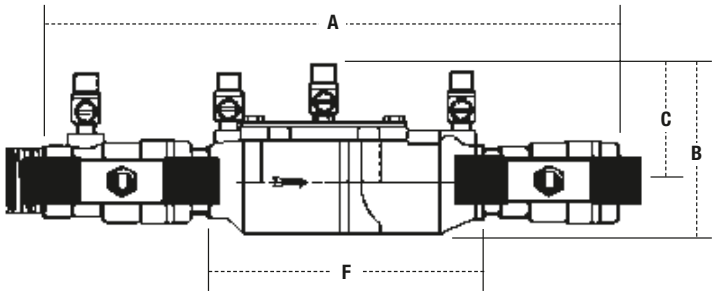
1015
AWWA, IAPMO, UPC
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. Horizontal and vertical "flow up" approval on all sizes.
UL Classified (LF models only)
¾" – 2" (19 – 50mm)
UL Classified with OSY gate valves (2½" & 3")

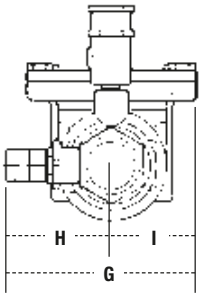


For additional information, request literature ES-007.

Flow Charts on p.58

Dimensions – Weights

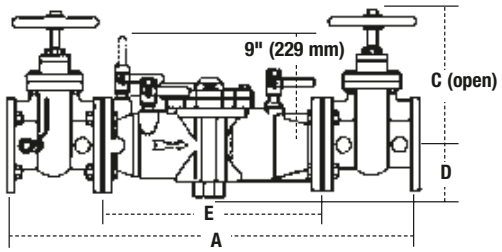


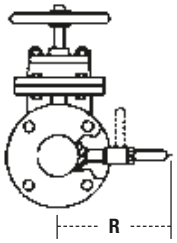


Suffix HC - Fire Hydrant Fittings dimension "A" = 23½" (594mm)

007QT

SIZE (DN)		DIMENSIONS (approx.)														WEIGHT	
		A		B		C		F		G		H		I			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
½	15	10	254	4⅝	117	2 7/16	62	5	127	3⅜	85	2 5/16	59	2 1/16	52	4½	2
¾	20	11⅛	282	4	102	3⅛	79	6 3/16	157	3 7/16	87	2⅛	54	1 5/16	33	5	2.3
1	25	13¼	337	5⅛	130	4	102	7½	191	3⅜	85	1 11/16	43	1 11/16	43	12	5.4
1¼	32	16⅜	416	5	127	3 5/16	84	9½	241	5	127	3	76	2	50	15	6.8
1½	40	16¾	425	4⅞	124	3½	89	9¾	248	5 13/16	148	3⅛	79	2 11/16	68	15⅞	7.2
2	50	19½	495	6¼	159	4	102	13⅜	340	6⅛	156	3 7/16	87	2 11/16	68	25¾	11.7

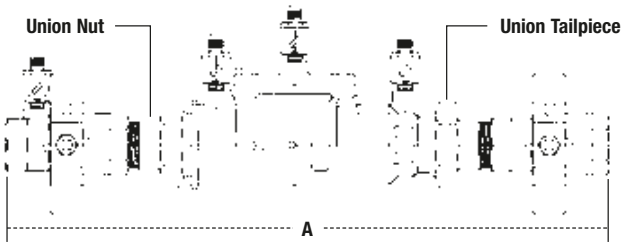




SIZE (DN)		MODEL	DIMENSIONS (approx.)										WEIGHT	
			A		C		D		E		R			
in.	*mm*		*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*
2½	65	007-NRS	33⅛	841	9⅜	238	4 5/16	109	18⅛	230	8¾	222	155	70
2½	65	007-OSY	33⅛	841	16⅜	416	4 5/16	109	18⅛	230	8¾	222	158	72
3	80	007-NRS	34⅛	867	10¼	260	4 5/16	109	18⅛	230	8¾	222	185	84
3	80	007-OSY	34⅛	867	18⅞	479	4 5/16	109	18⅛	230	8¾	222	185	84

U007QT

SIZE (DN)		A	
in.	*mm*	*in.*	*mm*
½	15	12 13/16	325
¾	20	13 13/16	351
1	25	16⅝	422
1¼	32	20¾	527
1½	40	21½	546
2	50	24½	622



IMPORTANT: Inquire with governing authorities for local installation requirements

Series 719
Double Check Valve Assemblies

Sizes: ½" – 2" (15 – 50mm)

719QT

Series 719 Double Check Valve Assemblies are designed to protect drinking water supplies from dangerous cross connections in accordance with national plumbing codes and water authority requirements.

This series may be used in only those cross-connections identified by local inspection authorities as non-health hazard applications. Check with local authority having jurisdiction regarding vertical orientation, frequency of testing or other installation requirements. Series 719 meets the requirements of ASSE Std. 1015 and AWWA Std. C510.

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

Models

add Suffix:
LF – without shutoff valves
LH – locking handle ball valves
SH – stainless steel ball valve handles
HC – 2½" inlet/outlet fire hydrant fittings (2" valve)
QT – quarter-turn ball valves
C&T – testcock caps and tethers
AQT – street elbows with quarter-turn ball valves

add Prefix:
U – union connections

Pressure-Temperature

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

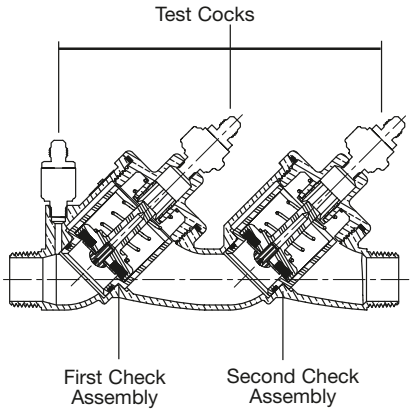
Materials

- Body: Bronze
- Elastomers: Chloramine resistant silicone and EPDM
- Check seats: PPO
- Disc Holder: PPO

Approvals

1015

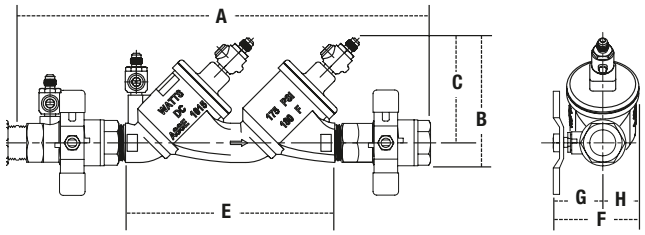
AWWA Std C510 compliant



For additional information, request literature ES-719.

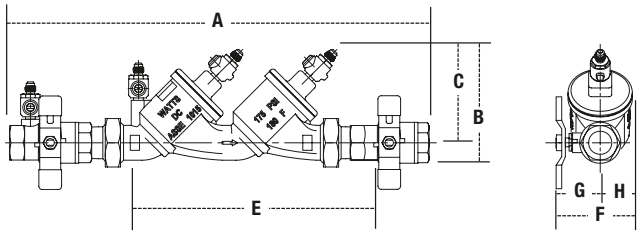
See Flow Charts on p. 61

719QT



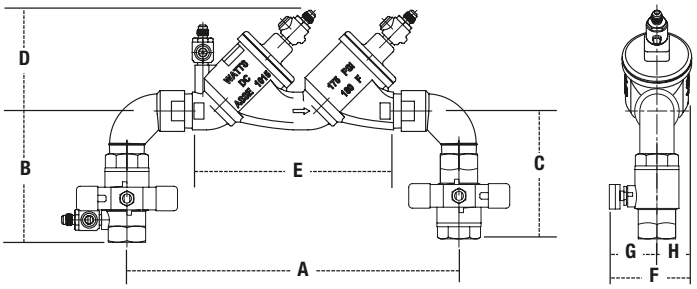
SIZE (DN)		DIMENSIONS																WEIGHT	
		A		B		C		D		E(LF)		F		G		H		719QT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
½	15	9 9/16	242	3 11/16	94	2 15/16	73	12 9/16	318	5 13/16	147	2 7/16	62	1 11/16	43	¾	19	2.8	1.3
¾	20	12 1/8	307	4 1/4	108	3 1/2	88	15 7/16	393	7 11/16	195	3 1/8	79	2 1/16	52	1 1/16	27	4.7	2.1
1	25	14 13/16	376	4 9/16	116	3 7/8	98	19 1/2	495	9 5/8	244	3 3/4	95	2 7/16	62	1 5/16	33	7.4	3.4
1 1/4	32	18 15/16	480	6 1/8	156	5 1/8	129	24 1/16	610	11 11/16	297	4 1/4	108	2 5/8	67	1 5/8	41	14.0	6.3
1 1/2	40	18 15/16	480	6 1/8	156	5 1/8	129	25 1/4	640	11 11/16	297	4 3/4	121	3 1/8	79	1 5/8	41	16.1	7.3
2	50	21 3/16	538	7 1/16	179	5 5/8	142	28 15/16	735	13 3/8	340	5 3/8	137	3 7/16	87	1 15/16	49	25.7	11.6

U719QT



SIZE (DN)		DEMENSIONS																WEIGHT	
		A		B		C		D		E (LF)		F		G		H		U719QT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
½	15	15 13/16	402	4 9/16	116	3 7/8	98	18 13/16	478	11 3/8	289	3	76	1 11/16	43	1 5/16	33	7.4	3.4
¾	20	16 1/4	412	4 9/16	116	3 7/8	98	19 5/8	498	11 5/16	287	3 3/8	86	2 1/16	52	1 5/16	33	7.9	3.6
1	25	17 5/16	439	4 9/16	116	3 7/8	98	22	558	11 3/4	297	3 3/4	95	2 7/16	62	1 5/16	33	8.9	4.0
1 1/4	32	20 7/8	530	6 1/8	156	5 1/8	129	26	660	15 3/8	390	4 1/4	108	2 5/8	67	1 5/8	41	17.6	8.0
1 1/2	40	21 9/16	547	6 1/8	156	5 1/8	129	27 7/8	708	15 3/8	390	4 3/4	121	3 1/8	79	1 5/8	41	19.8	9.0
2	50	24 7/16	621	7 1/16	179	5 5/8	142	32 3/16	817	16 3/4	425	5 3/8	137	3 7/16	87	1 15/16	49	30.0	13.6

719AQT



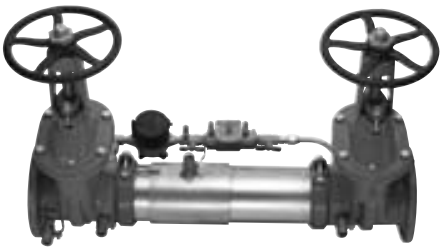
SIZE (DN)		DIMENSIONS																WEIGHT	
		A		B		C		D		E (LF)		F		G		H			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
½	15	7 7/8	200	3 5/16	84	2 15/16	73	2 15/16	73	5 13/16	147	2 7/16	62	1 11/16	43	¾	19	3.4	1.5
¾	20	13 7/16	340	4 13/16	121	4 9/16	116	3 1/2	98	7 11/16	195	3 1/8	79	2 1/16	52	1 1/16	27	5.7	2.6
1	25	12 11/16	322	5	127	4 3/8	110	3 7/8	98	9 5/8	244	3 3/4	95	2 7/16	62	1 5/16	33	8.9	4.0
1 1/4	32	15 3/16	386	5 11/16	144	5 11/16	144	5 1/8	129	11 11/16	297	4 1/4	108	2 5/8	67	1 5/8	41	15.7	7.1
1 1/2	40	15 13/16	401	6 3/16	156	6 3/16	156	5 1/8	129	11 11/16	297	4 3/4	121	3 1/8	79	1 5/8	41	18.4	8.3
2	50	17 3/8	441	6 5/8	168	6 9/16	167	5 5/8	142	13 3/8	340	5 3/8	137	3 7/16	87	1 15/16	49	29.0	13.1

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 757DCDA, 757NDCDA

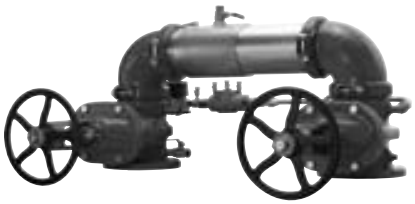
Double Check Detector Assemblies

Sizes: 2½" – 10" (65 – 250mm)



757DCDA OSY

757DCDA BFG



757NDCDA OSY

Series 757DCDA, 757NDCDA Double Check Detector Assemblies are used to prevent backflow of pollutants that are objectionable but not toxic, from entering the potable water supply system. This Series can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. The 757DCDA, 757NDCDA may be installed under continuous pressure service and may be subjected to backpressure. The 757DCDA, 757NDCDA are used primarily on fire line sprinkler systems when it is necessary to monitor unauthorized use of water.

Features

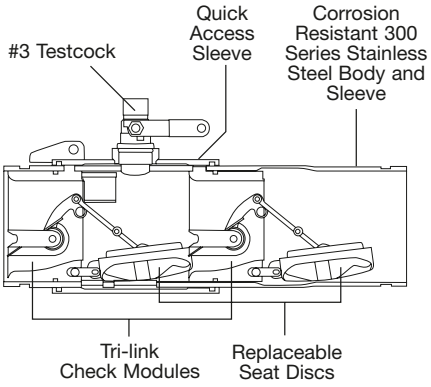
- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented tri-link checks provide lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- May be used for horizontal, vertical or N pattern installations
- Replaceable check disc rubber

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

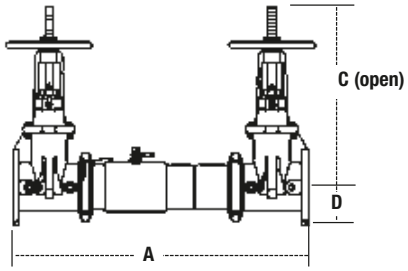
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)

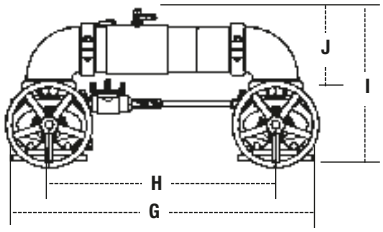


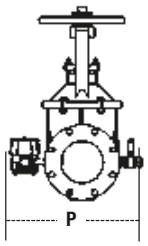
For additional information, request literature ES-757DCDA/757NDCDA.

Flow Charts on p.63

Dimensions – Weights

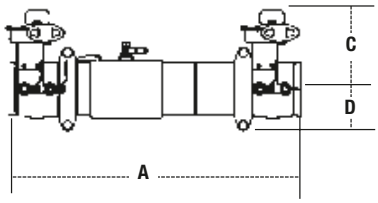


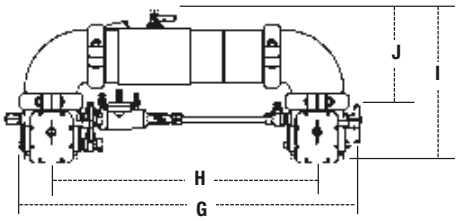


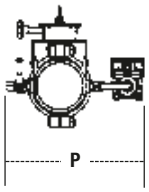


757DCDA, 757NDCDA

SIZE (DN)		DIMENSIONS (APPROX.)																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	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	43½	1105	30⅛	765	5½	140	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	19	483	309	140	350	159
8	200	50	1270	37¾	959	6 11/16	170	54⅛	1375	40⅝	1032	27 7/16	697	15 11/16	399	21 3/16	538	494	224	569	258
10	250	57½	1460	45¾	1162	8 3/16	208	66	1676	50	1270	32½	826	17 5/16	440	24	610	795	361	965	438







757DCDA BFG, 757NDCDA BFG

SIZE (DN)		DIMENSIONS (APPROX.)																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	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
8	200	43	1092	12¼	311	6½	165	51 1/16	1297	40⅝	1032	23 5/16	592	15 11/16	399	18 3/16	462	275	125	351	159

Models

add Suffix:
OSY - UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
BFG - UL/FM grooved gear operated butterfly valves with tamper switch for sizes 2½" – 8"
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

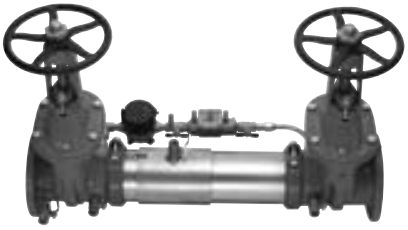
ASSE 1048 · cULus CLASSIFIED (BFG & OSY only) · FM Approved · CSA B64.5

IMPORTANT: Inquire with governing authorities for local installation requirements

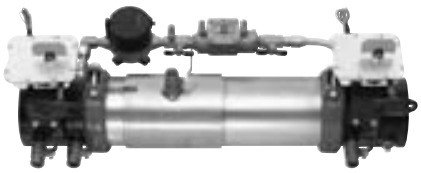
Series 757aDCDA, 757NaDCDA

Double Check Detector Assemblies

Sizes: 2½" – 6" (65 – 150mm)



757aDCDA OSY



757aDCDA BFG

757NaDCDA OSY

Series 757aDCDA, 757NaDCDA Double Check Detector Assemblies are used to prevent backflow of pollutants that are objectionable but not toxic, from entering the potable water supply system. These models can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations. The 757aDCDA, 757NaDCDA may be installed under continuous pressure service and may be subjected to backpressure. The 757aDCDA, 757NaDCDA are used primarily on fire line sprinkler systems when it is necessary to monitor unauthorized use of water.

Features

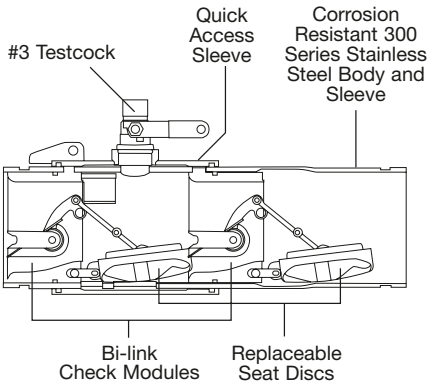
- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented bi-link checks provide lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- May be used for horizontal, vertical or N pattern installations
- Replaceable check disc rubber

Materials

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

Pressure-Temperature

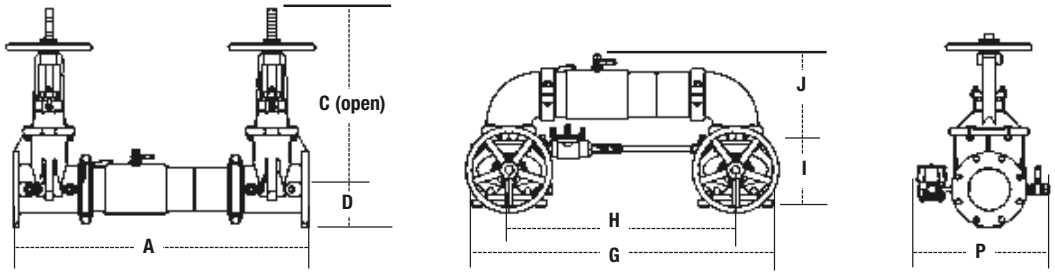
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)



For additional information, request literature ES-757aDCDA/757NaDCDA.

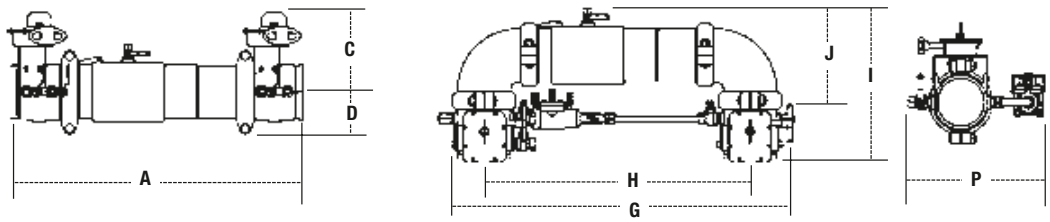
Flow Charts on p.64

Dimensions – Weights



757aDCDA, 757NaDCDA

SIZE (DN)		DIMENSIONS (APPROX.)																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	43½	1105	30⅛	765	5½	140	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	19	483	309	140	350	159



757aDCDA BFG, 757NaDCDA BFG

SIZE (DN)		DIMENSIONS (APPROX.)																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

Models

add Suffix:
OSY - UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
BFG - UL/FM grooved gear operated butterfly valves with tamper switch
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

1048 (BFG & OSY only) B64.5

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 774DCDA

Double Check Detector Assemblies

774DCDA: Sizes 2½" – 12" (65 – 300mm)

774DCDA OSY

Series 774DCDA, Double Check Detector Assemblies are designed for use in accordance with water utility 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 supply. These models can be applied, where approved by the local authority having jurisdiction, on non-health hazard installations.

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
- May be installed in horizontal or vertical flow up position

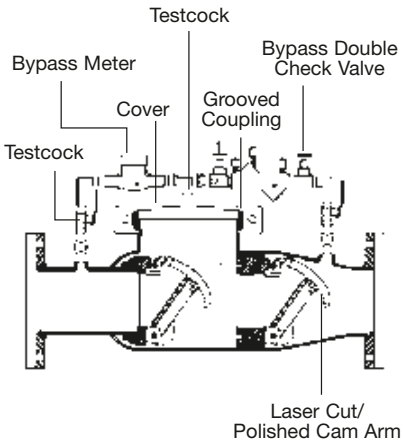
Materials

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

Pressure – Temperature

Temperature Range: to 33˚ – 110°F (0.5˚C – 43°C) continuous
Maximum Working Pressures: 175psi (12.1 bar)

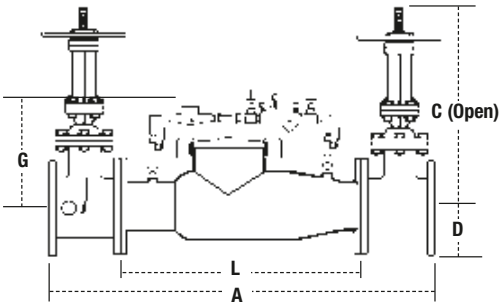
774DCDA

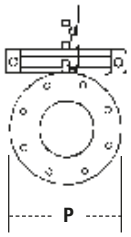


For additional information, request literature ES-774DCDA.

Flow Charts on p.65

Dimensions – Weights





774DCDA

SIZE (DN)		DIMENSIONS (APPROX.)												WEIGHT			
		A		C (open)		D		G		L		P		774DCDA w/Gates		774DCDA w/o Gates	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*	*lb.*	*kgs.*
2½	65	38	965	16⅜	416	3½	89	10	254	22	559	12½	318	155	70	68	31
3	80	38	965	18⅞	479	3¾	95	10	254	22	559	13	330	230	104	70	32
4	100	40	1016	22¾	578	4½	114	10	254	22	559	14½	368	240	109	73	33
6	150	48½	1232	30⅛	765	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	45¾	1162	8	200	15	381	29½	749	19½	495	774	351	190	86
12	300	57½	1461	53⅛	1349	9½	241	15	381	29½	749	21	533	1044	474	220	100

Models

add Suffix:
LF - without shutoff valves
OSY - UL/FM outside stem & yoke resilient seated gate valves
CFM - cubic feet per minute meter
GPM - gallons per minute meter
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals (2½" – 10" only)

1048 (OSY only)

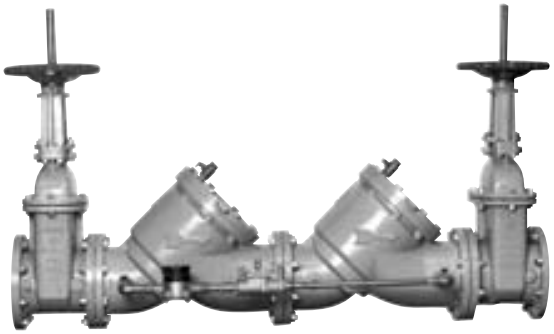
For additional approvals consult factory
Flange dimension in accordance with AWWA Class D

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 709DCDA

Double Check Detector Assemblies

Sizes: 3" – 10" (80 – 250mm)



709DCDA OSY

Series 709DCDA Double Check Detector Assemblies are designed exclusively for use in accordance with water authority containment requirements on non-health hazard applications. 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.

Benefits: detects leaks, with emphasis on the cost of unaccountable water; incorporates a meter which allows the water utility to:

- **Detect leaks underground that historically create great annual cost due to waste.**
- **It provides a detection point for unauthorized use. It can help locate illegal taps.**

Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with resilient seated OSY shutoff valves, ⅝" x ¾" (16 x 19mm) meter and ball type test cocks.

Features

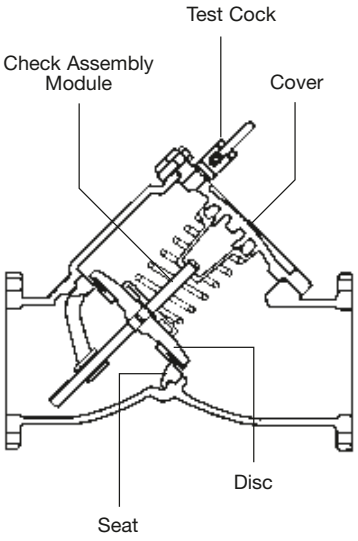
- Body construction fused epoxy coated cast iron
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Compact for economy combined with performance
- Design simplicity for easy maintenance
- Furnished with ⅝" x ¾" (16 x 19mm) meter Model 25, bronze
- No special tools required for servicing

Materials

- Body: Epoxy coated cast iron
- Seat and Disc Holder: Replaceable bronze
- Trim: Stainless steel
- Check Valve Discs: Durable, tight-seating rubber
- Test Cocks: Bronze

Pressure – Temperature

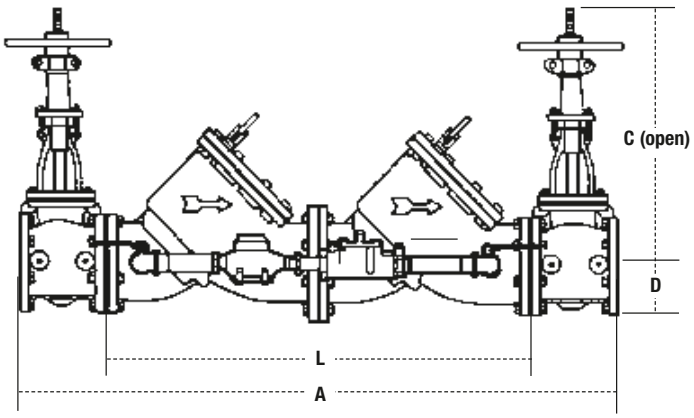
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C) continuous, 140˚ (60˚C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)

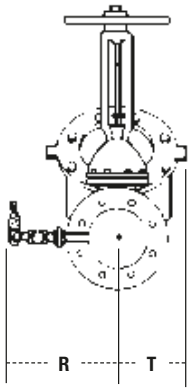


For additional information, request literature ES-709DCDA.

Flow Charts on p.60

Dimensions – Weights





709DCDA

SIZE (DN)		DIMENSIONS (APPROX.)												WEIGHT	
		A		C		D		L		R		T			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
3	80	40	1016	18⅞	479	3¾	95	24	610	14	356	3	76	190	86
4	100	52	1321	22¾	578	4½	114	34	864	15	381	6	152	403	183
6	150	63¼	1607	30⅛	765	5½	140	42¼	1073	16	406	7½	191	727	330
8	200	75	1905	37¾	959	6⅝	168	52	1321	17	432	9	229	1327	602
10	250	90	2286	45¾	1162	8	203	64	1626	18	457	10¼	260	2093	949

Models

add Suffix:
OSY - UL/FM outside stem & yoke resilient seated gate valves
CFM - cubic feet per minute
GPM - gallons per minute meter
LF - without shutoff valves (4" – 10") (100 – 250mm)

Approvals

1048

Approved by the foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
(Sizes 4" – 10" (100 – 250mm) approved for horizontal and vertical “flow up”. Size 3" (76mm) approved for horizontal only.)
Factory Mutual approved 4" – 10" - vertical “flow up”

IMPORTANT: Inquire with governing authorities for local installation requirements

Series 007DCDA

Double Check Detector Assemblies

Sizes: 2" – 3" (50 – 80mm)

007DCDA OSY

Series 007DCDA Double Check Detector Assemblies are designed exclusively for use in accordance with water utility authority non-health hazard 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.

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

- **Detect underground leaks that historically create great annual cost due to waste.**
- **Provide a detection point for unauthorized use. It can help locate illegal taps.**

Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with resilient seated OSY shutoff valves and ⅝" x ¾" (16 x 19mm) meter.

Features

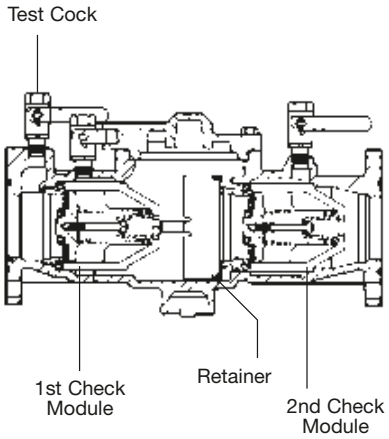
- Fused epoxy coated cast iron unibody (2½" & 3")
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Compact for ease of installation
- Design simplicity for easy maintenance
- No special tools required for servicing
- Bronze body ball valve test cocks
- Modular spring loaded checks
- Furnished with bronze ⅝" x ¾" (16 x 19mm) meter

Materials

- Body: 2" Bronze, 2½" – 3" FDA approved, epoxy coated cast-iron unibody
- Seats: Bronze
- Discs: Durable, tight-seating silicone
- Springs: Stainless steel
- Meter: ⅝" x ¾" (16 – 19mm) bronze

Pressure – Temperature

Temperature Range: 33°F – 110°F (0.5°C – 43°C) continuous, 140°F (60°C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)

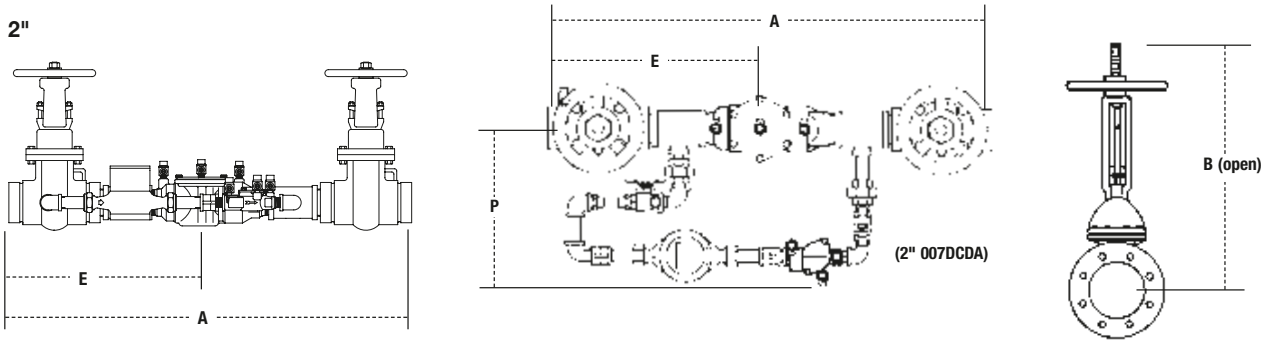


For additional information, request literature ES-007DCDA.

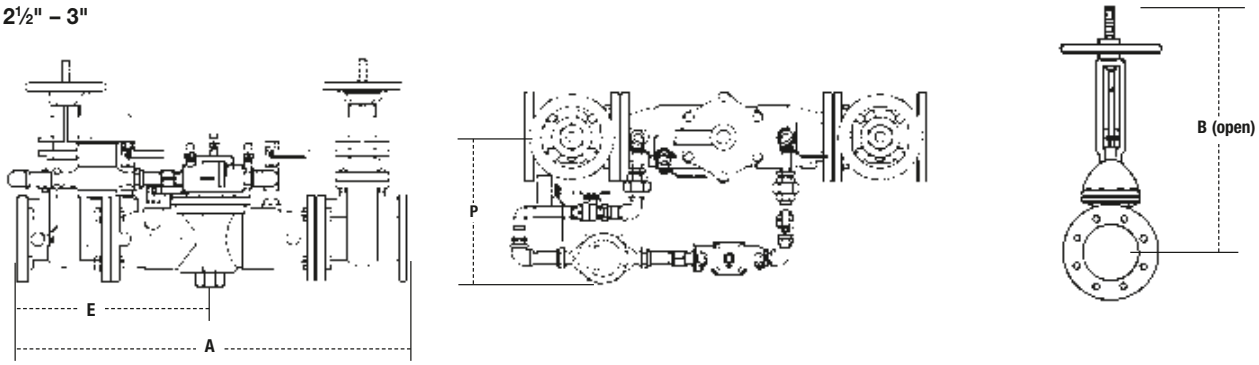
Flow Charts on p.58

Dimensions – Weights

2"



2½" – 3"



007DCDA

SIZE (DN)		DIMENSIONS (APPROX.)								WEIGHT	
		A		B		E		P			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2	50	35⅛	892	13½	343	16¾	426	12¼	311	97	44
2½	65	33¼	845	16⅜	416	16⅜	416	12 5⁄16	313	164	74
3	80	34¼	870	18⅞	479	16⅝	422	12 5⁄16	313	196	89

Models

add Suffix:
OSY - UL/FM outside stem & yoke resilient seated gate valves
CFM - cubic feet per minute meter
GPM - gallons per minute meter
LF - without shutoff valves

Approvals

1048 (OSY only) (2" size only)

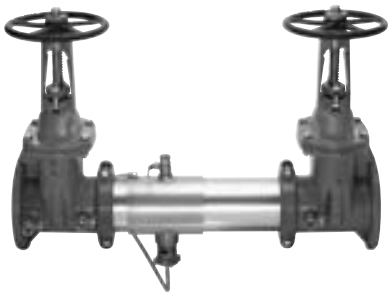
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
2" & 2½" (50 & 64mm) 007DCDA horizontal or vertical flow up position
3" horizontal only

IMPORTANT: Inquire with governing authorities for local installation requirements

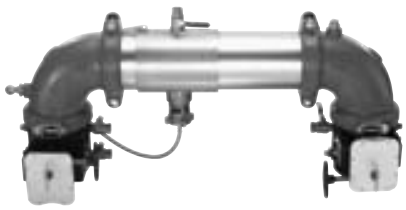
Series 957, 957N, 957Z

Reduced Pressure Zone Assemblies

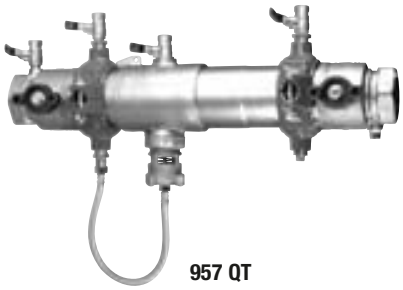
Sizes: 2½" – 10" (65 – 250mm)



957 OSY



957N BFG



957 QT

Series 957, 957N, 957Z Reduced Pressure Zone Assemblies provide protection to the potable water system from contamination in accordance with national plumbing codes. Series 957, 957N, 957Z are normally used in health hazard applications for protection against backsiphonage or backpressure.

Features

- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented torsion spring checks provide lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- Replaceable check disc rubber
- Bottom mounted cast stainless steel relief valve
- 2½" – 3" sizes available with quarter-turn ball valve shutoffs

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

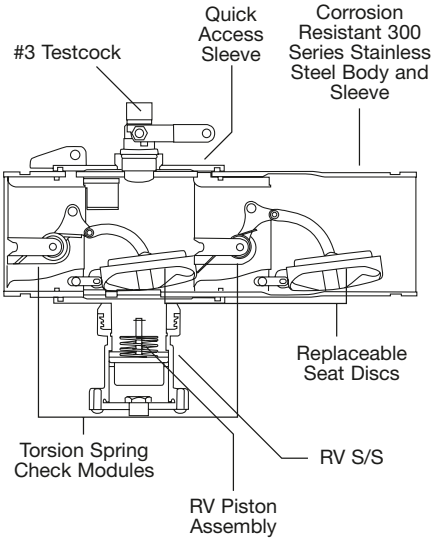
Temperature Range: 33˚F to 110˚F (0.5˚C to 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)

Models

add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
BFG - UL/FM grooved gear operated butterfly valves with tamper switch. Sizes 2½" – 6" N and Z patterns only
QT - 2½" – 3" quarter turn ball valves
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

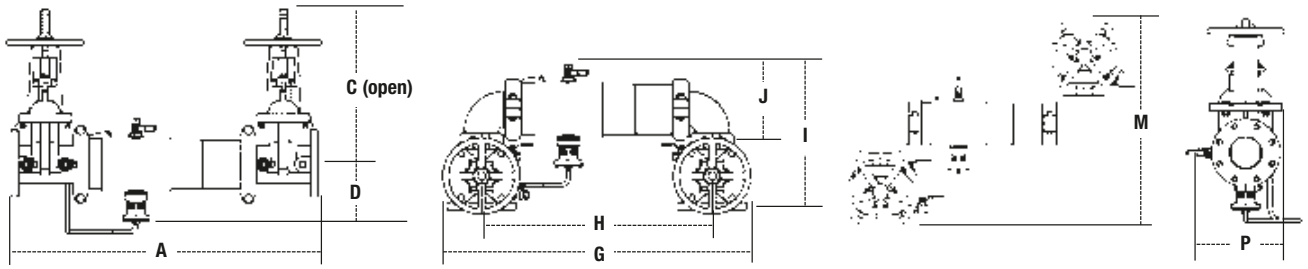
1013 (BFG & OSY only) B64.4



For additional information, request literature ES-957/957N/957Z.

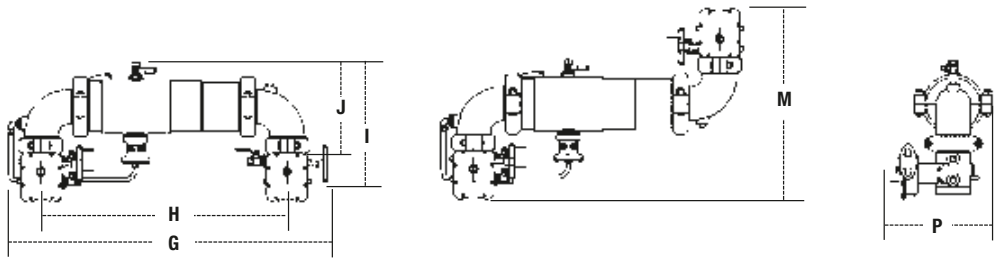
Flow Charts on p.69

Dimensions – Weights



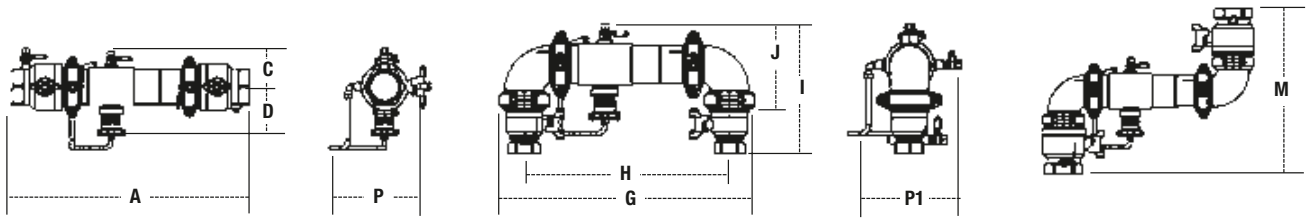
957

SIZE (DN)		DIMENSIONS (APPROX.)																				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	31	787	16⅜	416	9⅜	238	6½	165	29 1/16	738	22	559	15½	393	8 13/16	223	21 9/16	548	9 3/16	234	118	54	128	58	126	57	136	62
3	80	31 11/16	805	18⅞	479	10¼	260	6 11/16	170	30¼	768	22¾	578	17⅛	435	9 3/16	233	23⅛	587	10½	267	134	61	148	67	147	67	161	73
4	100	33 11/16	856	22¾	578	12 3/16	310	7	178	33	838	24	610	18½	470	9 15/16	252	26½	673	11 3/16	284	164	74	164	74	187	85	187	85
6	150	43½	1105	30⅛	765	16	406	8½	216	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	32¾	832	15	381	276	125	298	135	317	144	339	154
8	200	50	1270	37¾	959	19 15/16	506	9 11/16	246	54⅛	1375	40⅝	1032	27 7/16	697	15 11/16	399	37⅛	943	17 3/16	437	441	200	483	219	516	234	558	253
10	250	57½	1460	45¾	1162	23 13/16	605	11 3/16	285	66	1676	50	1270	32½	826	17 5/16	440	46⅜	1178	20	508	723	328	783	355	893	405	950	431



957N BFG, 957Z BFG

SIZE (DN)		DIMENSIONS (APPROX.)												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	23½	597	15½	394	9½	241	21 13/16	555	11 13/16	300	67	30
3	80	34	864	24½	622	16 5/16	414	10 1/16	256	23⅛	587	12⅛	308	70	32
4	100	35⅝	905	26	660	17 3/16	437	10 15/16	279	24 15/16	634	12⅝	321	87	39
6	150	46½	1181	35 13/16	908	20½	521	13½	343	28¼	718	15	382	160	73



957 QT

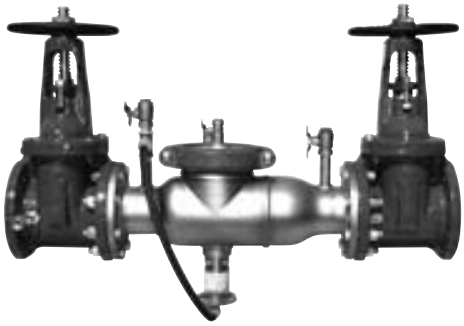
SIZE (DN)		DIMENSIONS (APPROX.)																		WEIGHT	
		A		C		D		G		H		I		J		M		P		P1			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2½	65	28 15/16	735	4⅞	124	6⅞	174	30¼	768	24½	622	16 9/16	421	11⅜	289	20 15/16	532	11 5/16	287	11 5/16	287	46	21
3	80	30 3/16	767	4 13/16	122	6⅞	174	30¼	768	24½	622	17 3/16	437	11¼	258	22 3/16	564	11 5/16	287	11 5/16	287	56	25

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

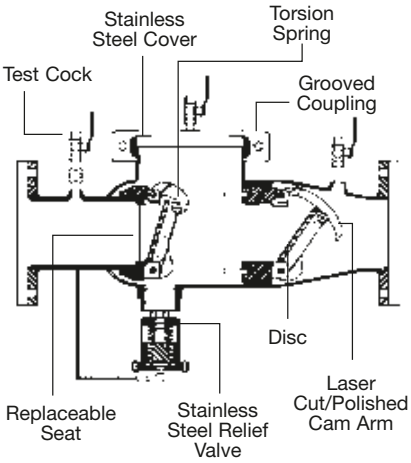
Series 994

Reduced Pressure Zone Assemblies

Sizes 2½" – 10" (65 – 250mm)



994 OSY



Series 994 Reduced Pressure Zone Assemblies are designed to provide protection of the potable water supply in accordance with national codes. This Series can be used, where approved by the local authority having jurisdiction on health hazard cross-connections. Series 994 features short lay length, lightweight stainless steel body, corrosive resistant stainless steel relief valve, and patented torsion spring check valves.

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®

Pressure – Temperature

Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C), continuous
Maximum Working Pressure: 175psi (12.1 bar)

Models

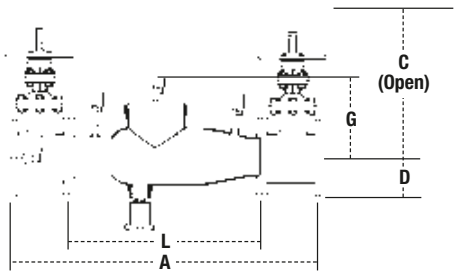
add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem & yoke resilient seated gate valves
LF - without shutoff valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
Available with grooved NRS gate valves - consult factory*
*Consult factory for dimensions

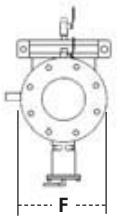
Approvals

1013 (OSY only) B64.5

AWWA
Approved by the Foundation for cross-connection Control & Hydraulic Research at the University of Southern California (2½" – 6" sizes)
Flange dimension in accordance with AWWA Class D

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*	*lb.*	*kg.*	*lb.*	*kgs.*
2½	65	37	940	16⅜	419	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	254	22	559	235	107	65	30
6	150	48½	1232	30⅛	765	11½	292	11	279	15	381	27½	699	380	172	110	50
8	200	52½	1334	37¾	959	12½	318	13½	343	15	381	29½	749	571	259	179	81
10	250	55½	1410	45¾	1162	12½	318	16	406	15	381	29½	749	773	351	189	86

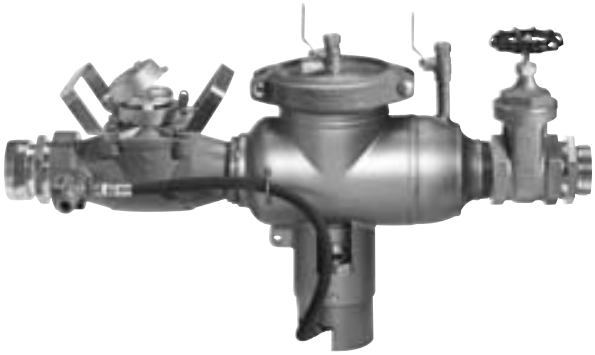
Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

For additional information, request literature ES-994.
Flow Charts on p.70

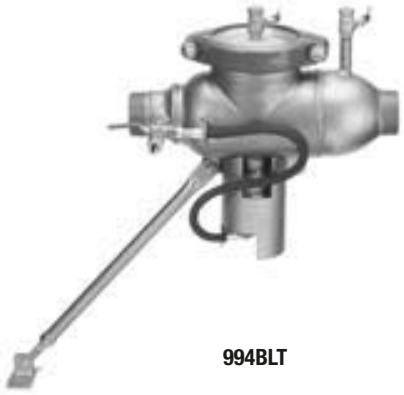
Series 994BLT, 994HMB

Hydrant Meter Backflow Preventers

994BLT: Size 2½" FNPT x 3" MNPT
994HMB: Size 2½" – 7NST x 3"



994HMB



994BLT

Series 994 Hydrant Backflow Preventers are designed to provide protection to the potable water supply from fire hydrant or other non-permanent connections in accordance with national codes. This Series can be used, where approved by the local authority having jurisdiction on health hazard cross-connections. Series 994 features short lay length, lightweight stainless steel body, corrosive resistant stainless steel relief valve, and patented torsion spring check valves.

Features

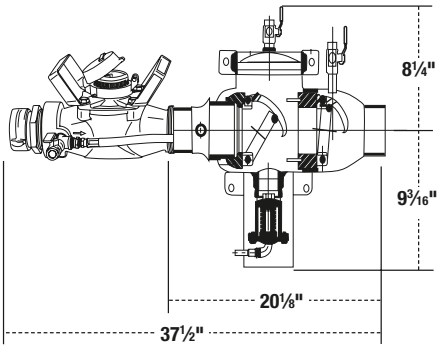
- Heavy duty relief valve cover prevents vandalism and protects valve from damage when 994HMB is transported to another fire hydrant location
- In-line flow restrictor protects the meter measuring element and the backflow preventer components from damage due to excessive flow (994HMB only)
- Backflow preventer made from 300 Series stainless steel for corrosion resistance
- Portable, lightweight design makes device easily transportable between job sites
- Accurately measures flow (HMB Series) and protects the water supply from possible contamination
- Series 994BLT comes less meter
- Built-in support leg is adjustable in the field
- Factory assembled and tested; no field assembly required; eliminates leaks and improper assembly

Options (BLT Series)

Inlet Modules
- 3" female or male hydrant thread
- 2½" female or male hydrant thread
- 2½" male NPT thread
- Customer specified

Outlet Modules
- 3" gate w/female or male hose thread
- 2½" gate w/ female or male hose thread
- 3" gate valve only, w/3" INPT thread
- 2½" gate valve only, w/2½" FNPT
- Customer specified

Dimensions – Weight



MODEL	WEIGHT	
	lbs.	*kgs.*
994BLT	62	28
994HMB-GPM	66	30
994HMB-CFM	66	30

IMPORTANT: Inquire with governing authorities for local installation requirements

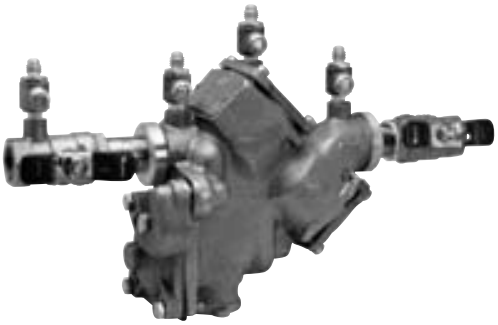
Flow Charts on p.70

For additional information, request literature S-994HMB or ES-994BLT.

Series 909

Reduced Pressure Zone Assemblies

909: Sizes: ¾", 1" (20, 25mm)
909M1: Sizes: 1¼", 1½", 2" (32, 40, 50mm)



909 QT

Series 909 Reduced Pressure Zone Assemblies are designed to provide superior cross-connection control protection of the potable water supply in accordance with national plumbing codes and containment control for water authority requirements. Series 909 can be utilized in a variety of installations, including health hazard cross-connections in plumbing systems or for containment at the service line entrance. With its exclusive, design incorporating the patented "air-in/water-out" principle, it provides maximum relief valve discharge during the emergency conditions of combined back-siphonage and back-pressure with both checks fouled. Series 909 is furnished with full port, resilient seated and bronze ball valve shutoffs. Sizes ¾" and 1" (20, 25mm) shutoffs have tee handles.

Features

- Modular design
- Replaceable bronze seats
- Compact for installation ease
- Horizontal or vertical (up or down) installation
- No special tools required for servicing

Materials

- Body: Bronze
- Seats: Celcon®
- Test cocks: Bronze

Model 909HW

- Check seats: Stainless steel
- Relief valve seats: Stainless steel
- Check and Relief Valve Assemblies: Durable tight seating, rubber

Pressure – Temperature

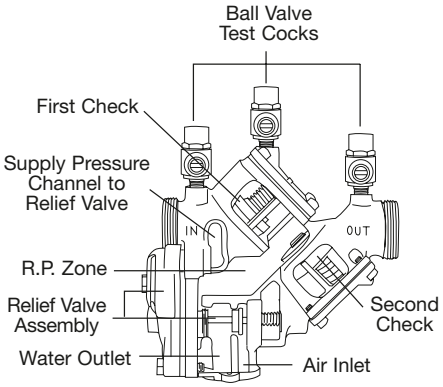
Maximum Operating Pressure: 175psi (12.1 bar)

909

Temperature Range: 33˚F – 140˚F (0.5˚C to 60˚C) continuous, 180˚F (82˚C) intermittent

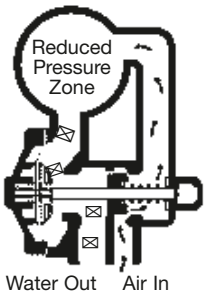
909HW

Temperature Range: 33˚F – 210˚F (0.5˚C – 99˚C)



How it Operates

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

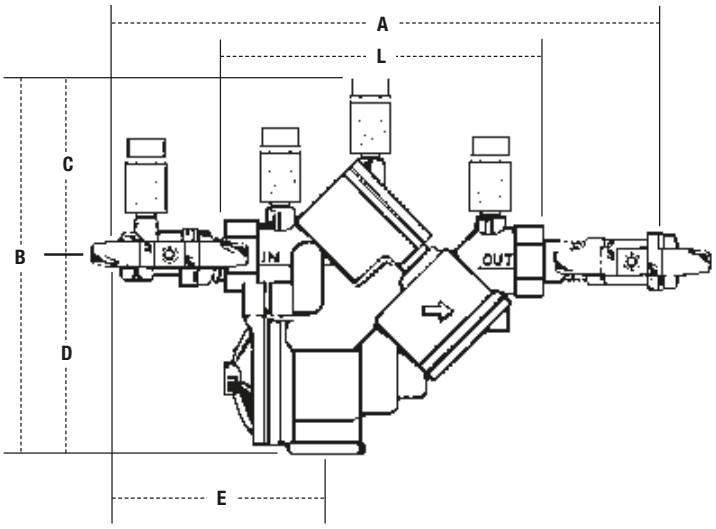


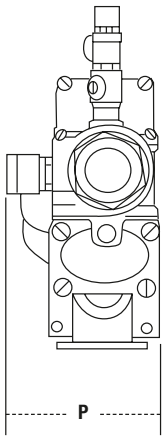
Celcon® is a registered trademark of Hoescht Celanese.

For additional information, request literature ES-909S.

Flow Charts on p.67

Dimensions – Weights





Suffix HC - Fire Hydrant Fittings dimension "A" = 23¾" (603mm)
909

SIZE (DN)		DIMENSIONS (approx.)														WEIGHT	
		A		B		C		D		E		L		P			
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	14	6
1	25	15⅜	391	8¾	222	4	102	4¾	121	7	178	7 5/16	186	3⅞	98	15	7
1¼	32	18½	470	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	40	18
1½	40	19	483	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	40	18
2	50	19½	495	11⅝	295	5½	140	6½	165	7¾	197	10⅜	264	5¼	133	40	18
*U909QT Dimensions - with integral body unions (Prefix "U")																	
¾	20	14⅝	371	8¾	222	4	102	4¾	121	6¾	171	7 5/16	186	3⅞	98	14	6
1	25	15⅝	397	8¾	222	4	102	4¾	121	7	178	7 5/16	186	3⅞	98	15	7
*FAE909QT Dimensions - with flanged adaptor ends (Prefix "FAE")																	
1¼	32	19	483	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	40	18
1½	40	19¾	502	11⅝	295	5½	140	6½	165	7½	191	10⅜	264	5¼	133	40	18
2	50	21	533	11⅝	295	5½	140	6½	165	7¾	197	10⅜	264	5¼	133	40	18

Models

add Suffix:
QT - quarter turn ball valves
HW - stainless steel check modules for hot and harsh water conditions
LF - without shutoff valves
LH - locking handle ball valves (open position)
HC - inlet/outlet fire hydrant fitting (2" only)
PC - polymer coating

add Prefix:
U - union connections - ¾" and 1" only (20 and 25mm)
FAE - flanged adapter ends - 1¼", 1½", 2" only (32, 40, 50mm)

Approvals

1013

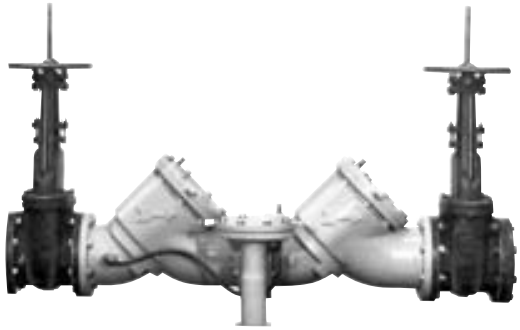
AWWA
Listed by IAPMO
Listed by SBCCI
*Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
Horizontal and vertical "flow-up" USC approval on ¾" and 1" sizes (models 909QT, 909PCQT, and U909QT).

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series 909

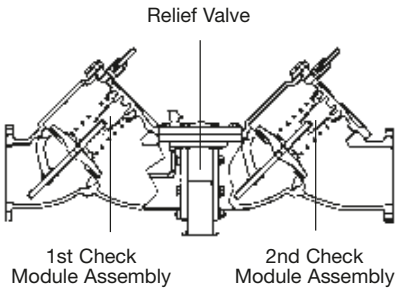
Reduced Pressure Zone Assemblies

Sizes: 2½" – 10" (65 – 250mm)



909 OSY

Series 909 Reduced Pressure Zone Assemblies are designed to provide cross-connection control protection of the potable water supply in accordance with national plumbing codes. This Series can be utilized in a variety of installations, including health hazard cross-connections in plumbing systems or for containment at the service line entrance. Its exclusive patented relief valve design, incorporating the "air-in/water-out" principle, provides substantially improved relief valve discharge performance during the emergency conditions of combined backsiphonage and backpressure with both checks fouled.



Features

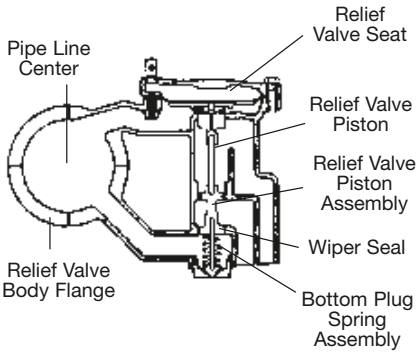
- Replaceable seats
- Stainless steel internal parts
- No special tools required for servicing
- Captured spring check assemblies
- Fused epoxy coated & lined checks
- Industrial strength sensing hose
- Field reversible relief valve
- Air-in/water-out relief valve design provides maximum capacity during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

Materials

- Body: FDA epoxy coated cast iron
- Seals: Bronze
- Trim: Stainless steel
- Relief Valve: 2½" – 3" (60–80mm) bronze
  4" – 10" (100–250mm)
  FDA epoxy coated cast iron
- Test Cocks: Bronze body

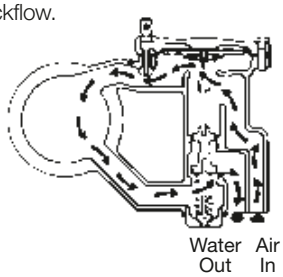
Pressure – Temperature

Temperature Range: 33°F – 110°F (0.5°C – 43°C) continuous, 140°F (60°C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)



How it Operates

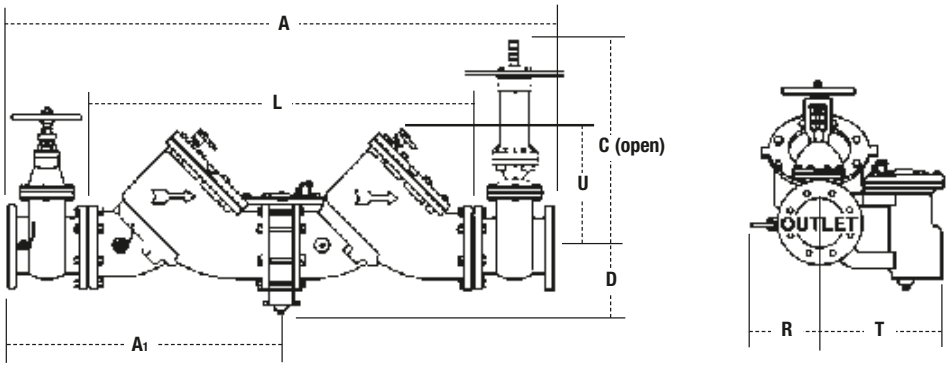
The unique relief valve construction incorporates two channels: one for air, one for water. When the relief valve opens, as in the accompanying air-in/water-out diagram, the right-hand channel admits air to the top of the reduced pressure zone, relieving the zone vacuum. The channel on the left then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



For additional information, request literature ES-909L.

Flow Charts on p.67

Dimensions – Weights



909

SIZE (DN)		DIMENSIONS (APPROX.)																		WEIGHT					
						C						clearance for check													
		A		A1		(OSY)*		(NRS)		D		L		U		R		R (QT)		T		NRS		OSY		QT	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*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	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.

Models

add Suffix:
LF - without shutoff valves
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem and yoke resilient seated gate valves
BB - bronze body
QT - quarter-turn ball valves
QT-FDA - FDA approved coated quarter-turn ball valves

Approvals

1013 B64.5

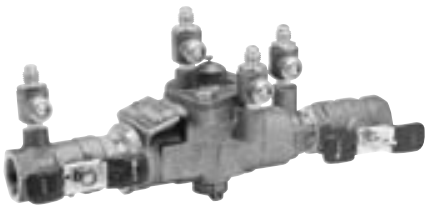
AWWA
IAPMO PS31, SBCCI (Standard Plumbing Code)
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Note: Relief valve section is reversible, therefore, can be on either side and is furnished standardly as shown
Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.

Series 009

Reduced Pressure Zone Assemblies

Sizes: ¼" – 3" (8 – 80mm)



009 QT

U009A QT

009M2 QTHC

Series 009 Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This Series can be used in a variety of installations, including the prevention of health hazard cross-connections in piping systems or for containment at the service line entrance.

The 009 Series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes ¼" – 1" (8 – 25mm) shutoffs have tee handles.

Features

- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability - ¼" – 2" (8 – 50mm)
- Fused epoxy coated cast iron body - 2½" and 3" (65 and 80mm)
- Ball valve test cocks - screwdriver slotted - ¼" – 2" (8 – 50mm)
- Large body passages provide low pressure drop
- Compact, space saving design
- No special tools required for servicing

Materials

Sizes ¼" – 2" (8 – 50mm)

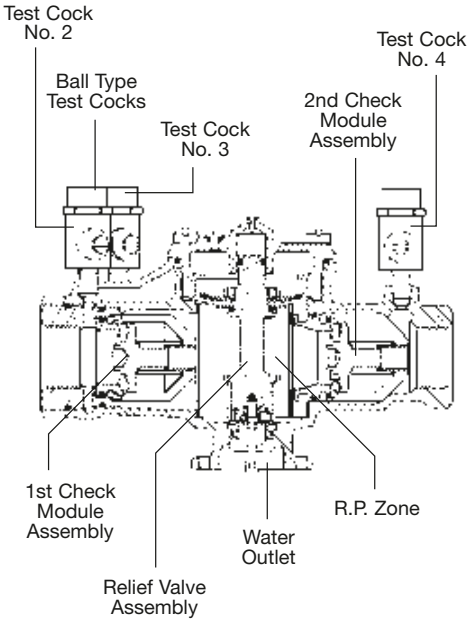
- Body: Bronze
- Check and Relief Valve Discs: Silicone rubber
- Check Seats: Replaceable polymer
- Relief Valve seat: Removable stainless steel
- Cover Bolts: Stainless steel

Sizes 2½" – 3" (65 – 80mm)

- Body: FDA approved epoxy coated cast iron
- Seats: Bronze
- Relief Valve Seat and Trim: Stainless steel
- Test Cocks: Bronze

Pressure – Temperature

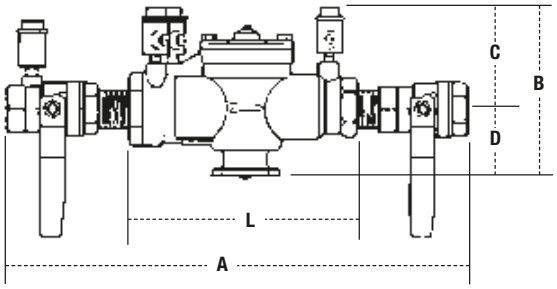
Temperature Range: ¼" – 2" (8 – 50mm) 33˚F – 180˚F (0.5˚C – 82˚C)
2½" – 3" (65 – 80mm) 33˚F – 110˚F (0.5˚C – 43˚C) continuous, 140˚F (60˚C) intermittent
Maximum Working Pressure: 175psi (12.1 bar)



For additional information, request literature ES-009.

Flow Charts on p.59

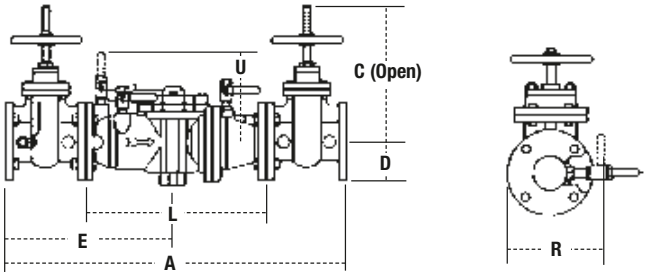
Dimensions – Weights



Suffix HC - Fire Hydrant Fittings dimension "A" = 25 1/16" (637mm)

009

MODEL	SIZE (DN)		DIMENSIONS (approx.)										WEIGHT	
			A		B		C		D		L			
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
009QT	1/4	8	10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	5	2
009QT	3/8	10	10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	5	2
009QT	1/2	15	10	250	4 5/8	117	3 3/8	86	1 1/4	32	5 1/2	140	5	2
009M3QT	3/4	20	10 3/4	273	5	127	3 1/2	89	1 1/2	38	6 3/4	171	6	3
009M2QT	1	25	16 3/4	425	5 1/2	140	3	76	2 1/2	64	9 1/2	241	12	6
009M2QT	1 1/4	32	17 3/8	441	6	150	3 1/2	89	2 1/2	64	11 3/8	289	15	7
009M2QT	1 1/2	40	17 7/8	454	6	150	3 1/2	89	2 1/2	64	11 1/8	283	16	7
009M2QT	2	50	21 3/8	543	7 3/4	197	4 1/2	114	3 1/4	83	13 1/2	343	30	14



009

MODEL	SIZE (DN)		DIMENSIONS (approx.)														WEIGHT	
			A		C		D		E		L		R		U			
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
009LF	2 1/2	65	—	—	—	—	4 1/2	114	—	—	18 1/8	460	—	—	10 5/8	270	76	35
0090SY	2 1/2	65	33 1/4	845	16 3/8	416	4 1/2	114	16 3/8	416	18 1/8	460	7 3/4	197	10 5/8	270	166	75
009NRS	2 1/2	65	33 1/4	845	9 3/8	238	4 1/2	114	16 3/8	416	18 1/8	460	7 3/4	197	10 5/8	270	161	73
009LF	3	80	—	—	—	—	4 1/2	114	—	—	18 1/8	460	—	—	10 5/8	270	76	35
0090SY	3	80	34 1/4	870	18 7/8	479	4 1/2	114	16 5/8	422	18 1/8	460	8 3/4	222	10 5/8	270	198	90
009NRS	3	80	34 1/4	870	10 1/4	260	4 1/2	114	16 5/8	422	18 1/8	460	8 3/4	222	10 5/8	270	191	87

Models

Sizes 1/4" – 2" (8 – 50mm)

add Suffix:
QT - quarter-turn ball valves
LF - without shutoff valves
AQT - elbow fittings for 360° rotation (3/4" – 2" only) (20 – 50mm only)
PC - internal polymer coating
LH - locking handle ball valves (open position)
SH - stainless steel ball valve handles
HC - 2 1/2" inlet/outlet fire hydrant fitting (2" valve)

add Prefix:
U - union connections
SS - 316 stainless steel body and stainless steel ball valve, 1/4" – 1" (8 – 25mm only)

Sizes 2 1/2" and 3"
add Suffix:
NRS - non-rising stem resilient seated gate valves
OSY - UL/FM outside stem & yoke resilient seated gate valves
LF - without shutoff valves
QT-FDA - FDA epoxy coated quarter-turn ball valves

Approvals

1013

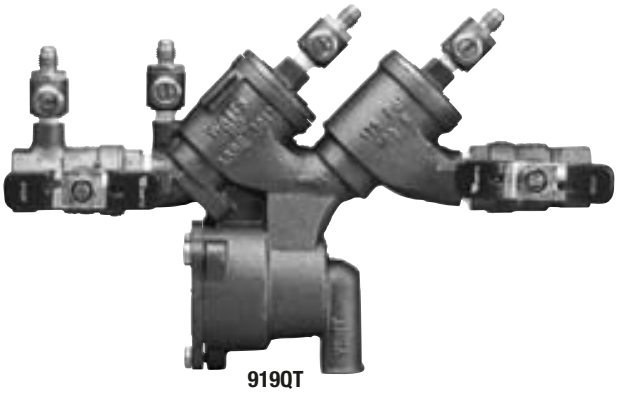
AWWA, IAPMO
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
Approval models QT, AQT, PC, U, NRS, OSY.
UL Classified 3/4" – 2" (20 – 50mm) (LF models only), 2 1/2" and 3" with OSY gate valves.

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series 919

Reduced Pressure Zone Assemblies

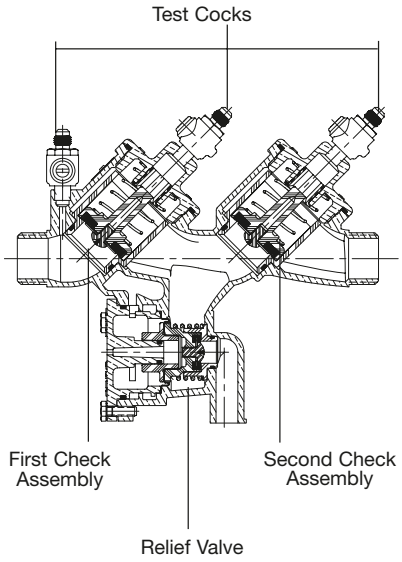
Sizes: ¾" – 2" (20 – 50mm)



919QT

Series 919 Reduced Pressure Zone Backflow Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross-connections or for containment at the service line entrance.

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 ¾" – 1" (20 – 25mm) shutoffs have tee handles.



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

Models

add Suffix:
QT – quarter-turn ball valves
LF – without shutoff valves
AQT – elbow fitting for 360° rotation
ZQT – inlet & outlet flow up

add Prefix:
U – union connections

Materials

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

Pressure — Temperature

Temperature Range: 33ºF – 180ºF (0.5ºC – 82ºC)
Maximum Working Pressure: 175psi (12.1 bar)

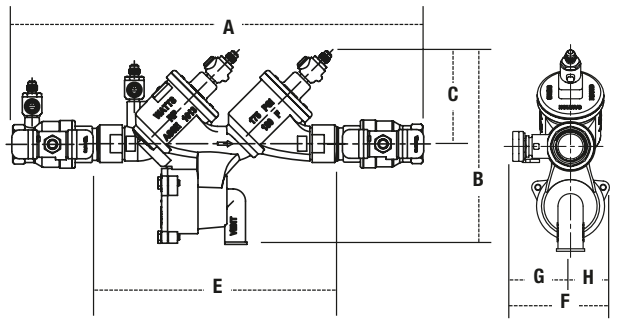
Approvals

ASSE 1013

For additional information, request literature ES-919.

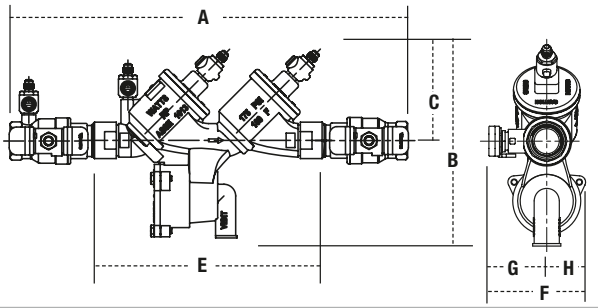
See Flow Charts on p. 68

Dimensions – Weights



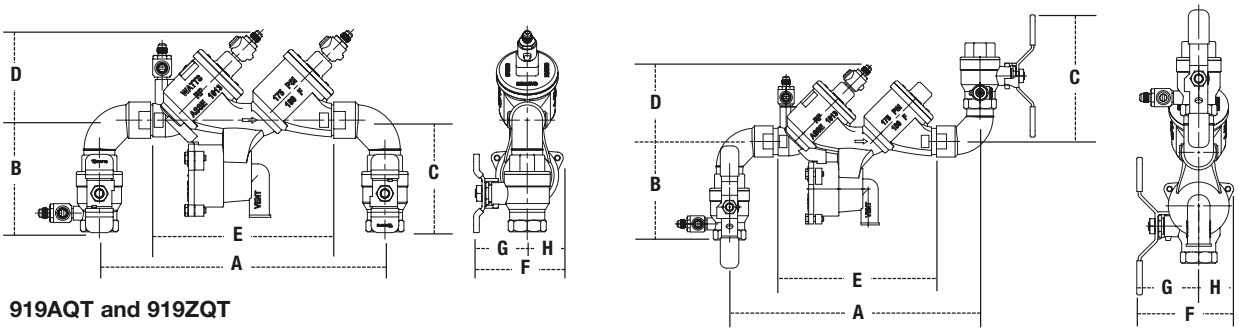
919QT

SIZE (DN)		DIMENSIONS																WEIGHT	
		A		B		C		D		E (LF)		F		G		H		919QT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
¾	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	8.3	3.7
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	11.8	5.4
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	22.3	10.1
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	28.3	12.8
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	37.3	16.9



U919QT

SIZE (DN)		DIMENSIONS																WEIGHT	
		A		B		C		D		E (LF)		F		G		H		U919QT	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
¾	20	16 15/16	430	8 1/16	204	3 7/8	98	20 5/16	515	11 1/2	292	3 5/8	92	2 1/16	52	1 9/16	40	13.4	6.1
1	25	17 1/8	435	8 1/16	204	3 7/8	98	21 13/16	554	11 3/4	297	4	102	2 7/16	62	1 9/16	40	13.3	6.0
1 1/4	32	20 15/16	532	11 7/16	290	5 1/8	129	26 1/16	662	15 3/8	390	5 1/8	130	2 5/8	67	2 1/2	64	25.9	11.8
1 1/2	40	21 9/16	547	11 7/16	290	5 1/8	129	27 7/8	708	15 3/8	390	5 5/8	143	3 1/8	79	2 1/2	64	31.9	14.5
2	50	24 15/16	633	12 1/16	307	5 5/8	142	32 11/16	830	16 3/4	425	5 15/16	151	3 7/16	87	2 1/2	64	41.6	18.9



919AQT and 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.
¾	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	129	13 3/8	340	5 15/16	151	3 7/16	87	2 1/2	64	40.6	18.4

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series 957RPDA, 957NRPDA, 957ZRPDA

Reduced Pressure Detector Assemblies

Sizes: 2½" – 10" (65 – 250mm)

957NRPDA OSY

Series 957RPDA, 957NRPDA, 957ZRPDA Reduced Pressure Detector Assemblies provide protection to the potable water system from contamination in accordance with national plumbing codes. The 957RPDA, 957NRPDA, 957ZRPDA are normally used in health hazard applications to protect against backsiphonage and backpressure. Series 957RPDA, 957NRPDA, 957ZRPDA are used to monitor unauthorized use of water from fire protection systems.

Features

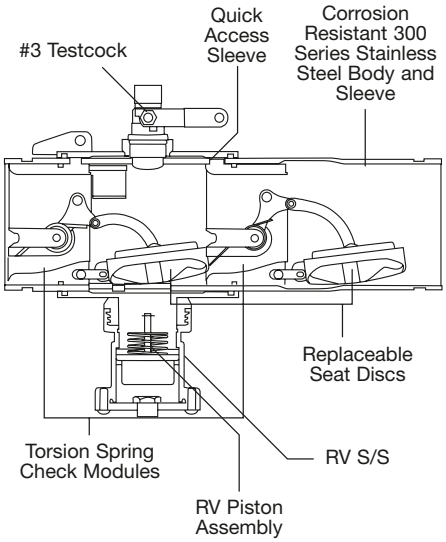
- Extremely compact design
- 70% lighter than traditional designs
- Groove fittings allow integral pipeline adjustment
- Patented torsion spring checks provide lowest pressure loss
- Unmatched ease of serviceability
- Available with grooved butterfly valve shutoffs
- Replaceable check disc rubber
- Bottom mounted cast stainless steel relief valve

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

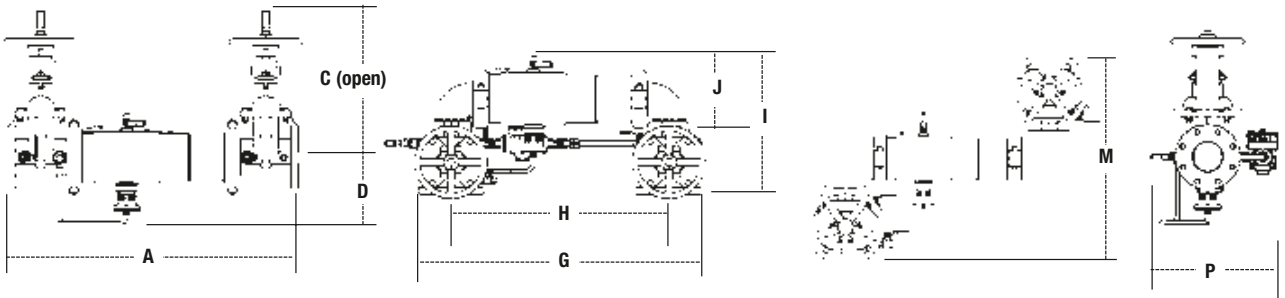
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C)
Maximum Working Pressure: 175psi (12.1 bar)



For additional information, request literature ES-957RPDA/957NRPDA/957ZRPDA.

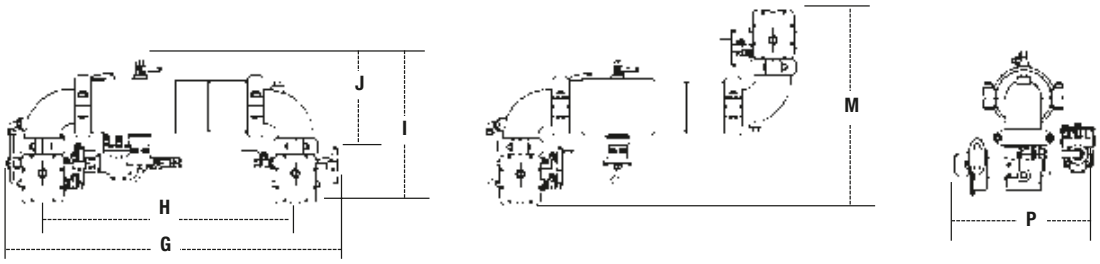
Flow Charts on p.69–70

Dimensions – Weights



957RPDA

SIZE (DN)		DIMENSIONS (APPROX.)																		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	31	787	16⅜	416	6½	165	29 1/16	738	22	559	15½	393	8 13/16	223	21 9/16	548	13 3/16	335	142	64	150	68
3	80	31 11/16	805	18⅞	479	6 11/16	170	30¼	768	22¾	578	17⅛	435	9 3/16	233	23⅛	587	14½	368	162	73	175	79
4	100	33 11/16	856	22¾	578	7	178	33	838	24	610	18½	470	9 15/16	252	26½	673	15 3/16	386	178	81	201	91
6	150	43½	1105	30⅛	765	8½	216	44¾	1137	33¾	857	23 3/16	589	13 1/16	332	32¾	832	19	483	312	142	353	160
8	200	50	1270	37¾	959	9 11/16	246	54⅛	1375	40⅝	1032	27 7/16	697	15 11/16	399	37⅛	943	21 3/16	538	497	225	572	259
10	250	57½	1460	45¾	1162	11 3/16	285	66	1676	50	1270	32½	826	17 5/16	440	46⅜	1178	24	610	797	362	964	437



957NRPDA, 957ZRPDA BFG

SIZE (DN)		DIMENSIONS (APPROX.)												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	23½	597	15½	394	9½	241	21 13/16	555	15 13/16	402	81	37
3	80	34	864	24½	622	16 5/16	414	10 1/16	256	23⅛	587	16⅛	410	84	38
4	100	35⅝	905	26	660	17 3/16	437	10 15/16	279	24 15/16	634	16⅝	422	101	46
6	150	46½	1181	35 12/16	908	20½	521	13½	343	28¼	718	19	483	174	79

Models

add Suffix:
OSY – UL/FM outside stem and yoke resilient seated gate valves
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection

BFG – UL/FM grooved gear operated butterfly valves with tamper switch for 2½" – 6" N and Z patterns only
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

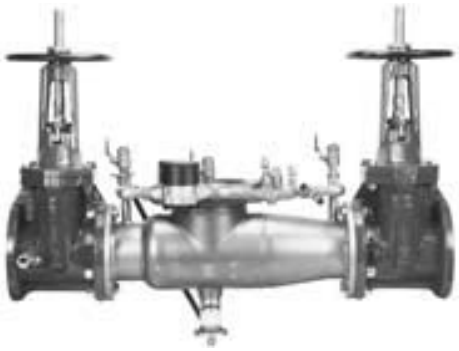
1047 (BFG & OSY only) B64.4

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series 994RPDA

Reduced Pressure Detector Assemblies

Sizes 2½" – 6" (65 – 150mm)



994RPDA OSY

Series 994RPDA Reduced Pressure Detector Assemblies are designed for use in accordance with water authority containment programs. This series is normally used in health hazard applications to protect against backsiphonage and back-pressure. This Series can be used to prevent the reverse flow of fire protection substances, i.e., glycerin wetting agents, foam agents, stagnant water, auxiliary supplies and water of non-potable quality from being pumped or siphoned into the potable water supply.

Features

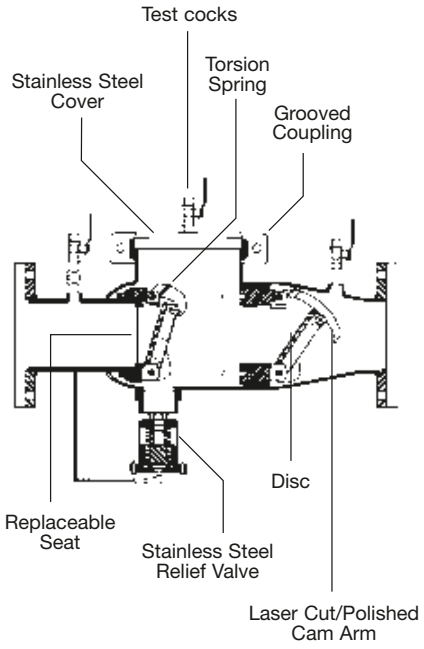
- Stainless steel construction provides long term corrosion resistance and maximum strength
- Stainless steel body is half the weight of competitive designs reducing installation and shipping costs
- Short end to end dimensions makes retrofit easy
- Bottom mounted relief valve reduces clearance requirements 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

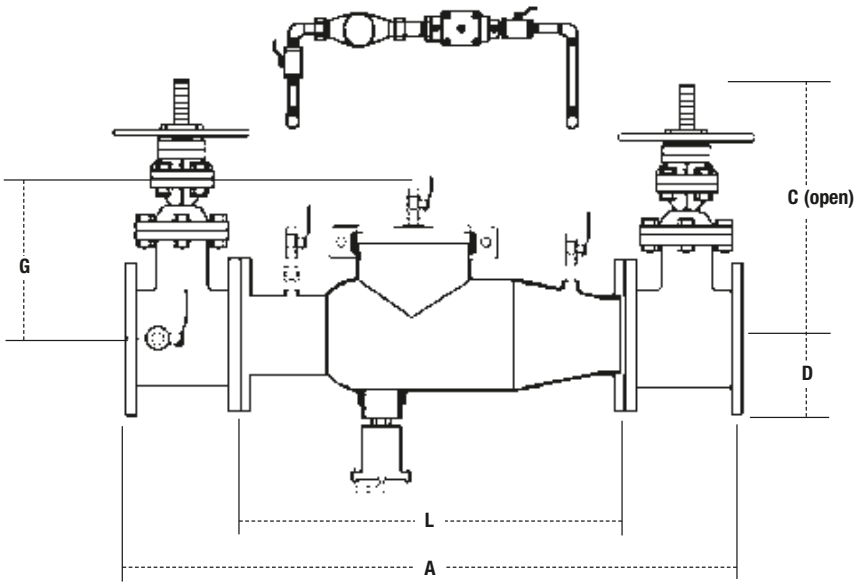
Temperature Range: 33˚F – 110˚F (0.5˚C – 43˚C) continuous
Maximum Working Pressure: 175psi (12.1 bar)

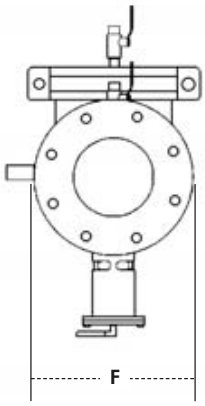


For additional information, request literature ES-994RPDA.

Flow Charts on p.71

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.*	*kgs.*
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	254	22	559	235	107	65	30
6	150	48½	1232	30⅛	765	11½	292	11	279	15	381	27½	699	380	172	110	50

Models

add Suffix:
LF - without shutoff valves
OSY - UL/FM outside stem & yoke resilient seated gate valves
CFM - cubic feet per minute meter
GPM - gallons per minute meter
***OSY FxG** - flanged inlet gate connection and grooved outlet gate connection
***OSY GxF** - grooved inlet gate connection and flanged outlet gate connection
***OSY GxG** - grooved inlet gate connection and grooved outlet gate connection
Available with grooved NRS gate valves - consult factory*
Post indicator plate and operating nut available - consult factory*
*Consult factory for dimensions

Approvals

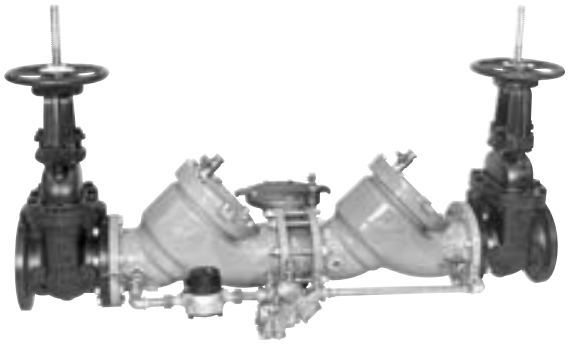
1047
AWWA
Flange dimension in accordance with AWWA Class D

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series 909RPDA

Reduced Pressure Detector Assemblies

Sizes: 2½" – 10" (65 – 250mm)



909RPDA OSY

Series 909RPDA Reduced Pressure Detector Assemblies are designed exclusively for use in accordance with water utility authority containment requirements on health hazard applications. 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.

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

- **Detect leaks that historically create great annual cost due to waste.**
- **It provides a detection point for unauthorized use. It can help locate illegal taps.**

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

Features

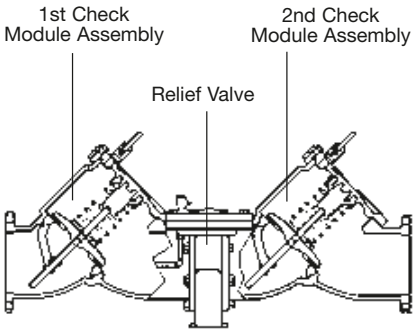
- Body construction fused epoxy coated cast iron
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Compact for economy combined with performance
- Design simplicity for easy maintenance
- Furnished with ⅝" x ¾" (16 x 19mm) recordall meter
- Air-in/water-out relief valve design provides maximum capacity during emergency conditions
- No special tools required for servicing

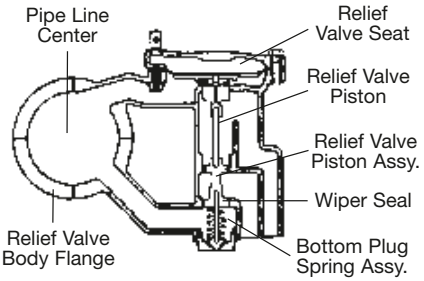
Materials

- Body: Epoxy coated cast iron
- Seat and Disc Holder: Bronze
- Trim: Stainless steel
- Check Valve Disc: Durable, tight seating rubber

Pressure – Temperature

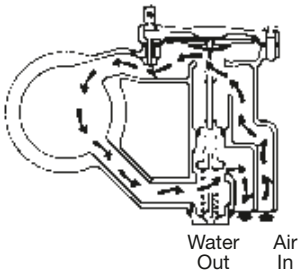
Temperature Range: 33˚F – 140˚F (0.5˚C – 60˚C)
Maximum Working Pressures: 175psi (12.1 bar)





How it Operates

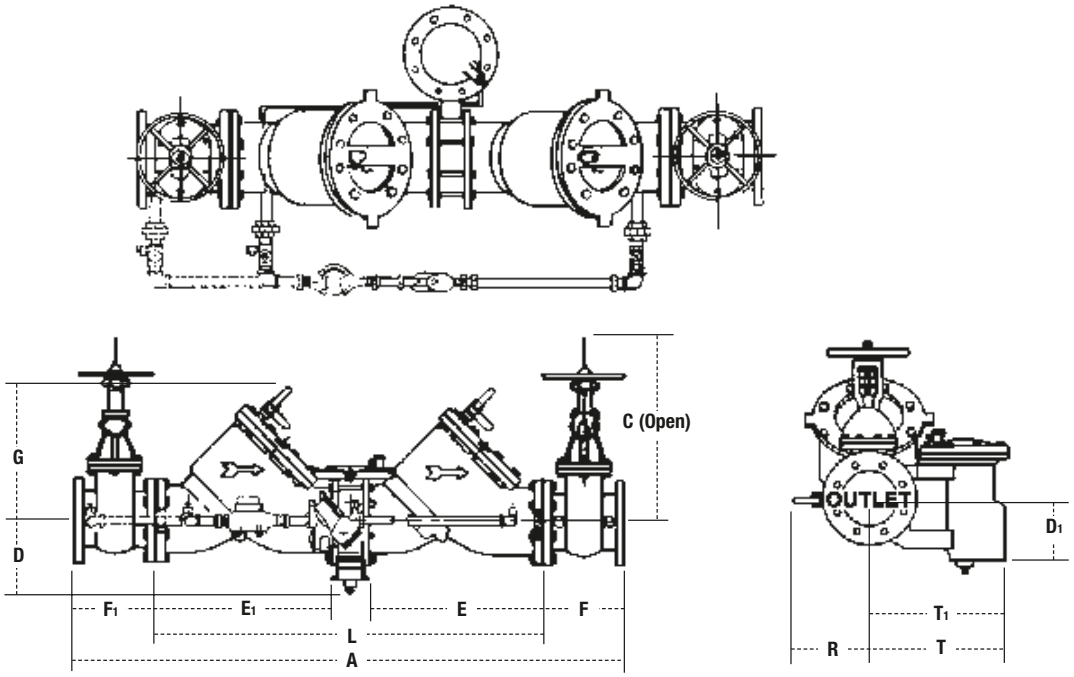
The unique relief valve construction incorporates two channels: one for air, one for water. When the relief vale opens, as in the accompanying air-in/water-out diagram, the right-hand channel admits air to the top of the reduced pressure zone, relieving the zone vacuum. The channel on the left then drains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



For additional information, request literature ES-909RPDA

Flow Charts on p.68

Dimensions – Weights



SIZE (DN)		DIMENSIONS (APPROX.)																				WEIGHT	
		A		C (OSY)		D		D1		E, E1		F, F1		G		L		R		T		T1			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
2½	65	42⅛	1070	16⅜	416	5¼	133	4¼	114	12	305	8	203	7	178	26⅛	664	14	356	9	229	7⅝	194	230	104
3	80	42⅛	1070	18⅞	479	5¼	133	4¼	114	12	305	8	203	7	178	26⅛	664	14	356	9	229	7⅝	194	230	104
4	100	55⅛	1400	22¾	578	6	152	5⅞	149	17	432	9	229	9½	241	37	940	15	381	13⅝	346	11¾	299	470	213
6	150	65½	1664	30⅛	765	6	152	6	152	20¾	527	10½	267	14½	368	44½	1130	16	406	13⅝	346	11¾	299	798	362
8	200	78½	1988	37¾	959	9¾	248	8⅝	219	26	660	11½	292	18½	470	55¼	1403	17	432	18½	470	16⅜	416	1456	660
10	250	93⅝	2378	45¾	1162	9¾	248	8⅝	219	32	813	13	330	21½	546	67½	1715	18	457	18½	470	16⅜	416	2230	1012

Models

add Suffix:
OSY - UL/FM outside stem & yoke resilient seated gate valves
LF - without shutoff valves (4" – 10") (100 – 250mm)
CFM - cubic feet per minute meter
GPM - gallons per minute meter

Approvals

1047

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

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary. See page 50.
Note: Piping for 3" 909 will start from #1 gate valve and connect at #2 check valve.
IMPORTANT: Inquire with governing authorities for local installation requirements

Series PVS-1000
Pre-Engineered Valve Stations

Watts Series PVS-1000 Pre-Engineered Valve Stations are custom configured water flow control systems that are assembled from proven, reliable Watts components to meet exacting project application requirements. Watts pre-engineered valve stations are factory pre-assembled, tested, and optionally certified by independent agencies to ensure flow performance for critical building demands.

Benefits

Watts pre-engineered valve stations provide the following benefits:

- Reduction of installation time from days to hours, minimizing installations costs
- Redundant flow paths provide uninterrupted water flow while device is being tested or maintained, reducing overtime labor costs
- Operates below OSHA mandated maximum noise levels
- Corrosion resistant design reduces component maintenance costs
- Optional pre-installation performance certification ensures conformance to design criteria at site
- Reduction in the number of overall components needed through Watts' innovative design program
- One supplier of components, one source of responsibility, Watts, a leader in valve technology for over 125 years

Features

- Uninterrupted water flow during maintenance and emergency conditions
- Maximum flow performance with low pressure drops
- Wide flow control ranges meet standard end emergency peak flow requirements
- Standard flow design to >10,000gpm (38,000lpm)
- Integral backflow prevention devices, meters, pressure regulators, automatic control valves, strainers, headers, shutoff valves, and instrumentation as needed to suit specific applications
- UL/FM, ASSE, IAPMO, USC certified or listed components as required for service
- Single point of connection for fire protection, potable water and irrigation services (where approved by local codes)
- Corrosion resistant material construction
- Redundant flow path design
- Standard vault, vertical, and horizontal mounting configurations
- Integral slip and alignment flanges correct for site variations and relieve pipe stress
- Field proven in over 100 installations and years of history
- Expansion capability
- Built-in protection for system upsets (i.e.: seismic shocks)

Applications

Watts pre-engineered valve stations are custom fit to your specifications and are ideal for a wide variety of flow control applications including:

- Hospitals
- Schools
- Multi-Family Dwellings
- Restaurants
- Industrial Facilities
- And other similar buildings

For additional information, contact your local authorized Watts representative.

Watts Transition Riser

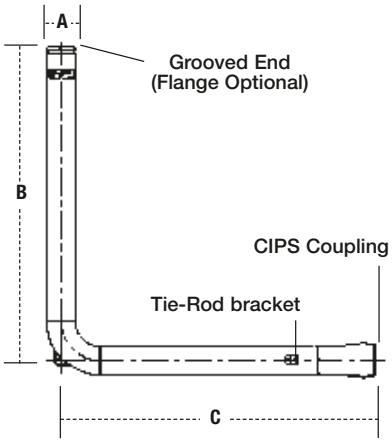
Transition Riser Series TR is manufactured of Series 300 stainless steel. Using Twenty-First Century technology, Watts has succeeded in the manufacture of a durable and easy to install underground transition fitting to bring municipal water supply into a building.

Features

- Cost savings
- Corrosion resistant stainless steel construction, type 304SST
- Ease of installation and lightweight allow one person to position and handle the riser
- Minimal site preparation; joint restraint one-piece-construction reduces time and labor; no missing parts, no leaks; easily identifiable for approvals
- Sizes: available in 4" – 10" (100 – 250mm) with various lengths to meet all local requirements
- Designed to meet NFPA 24 Section 8-3.2

Approvals

Fittings FM class 1920
UL (HKQA) (4" – 10") (100 – 250mm)
AWWA C900 Inlet/CIPS
AWWA C606 Outlet



Dimensions – Weight

SIZE (DN)		DIMENSIONS (approx.)			WEIGHT		END CONNECTIONS	TESTING
		A	B	C			Mating Pipe OD	Design Proof Pressure
in.	*mm*	*in.*	*ft.*	*ft.*	*lbs.*	*kg*	*in.*	*psi*
4	100	4½ OD	6	6	71	201	4.80	1000
6	150	6⅝ OD	6	6	98	216	6.90	1000
8	200	8⅝ OD	6	6	129	284	9.05	800
10	250	10¾ OD	6	6	202	445	11.1	800

Consult factory for custom leg dimensions.

Series SS07F

Stainless Steel Single Detector Check Valves

Sizes: 4" – 10" (100 – 250mm)

SS07F 4" and 6" (100 and 150mm)

SS07F 8" and 10" (200 and 250mm)

Series SS07F Single Detector Check Valve (DCV) detects any leakage or unauthorized use of water from fire sprinkler systems. During times of minimal water flow, the valve clapper remains closed so that the water flows through a bypass meter (optional). When fire flow is required, the increased demand will open the clapper to allow full flow.

Features

- Lightest weight in the industry - reduces shipping and handling costs
- Non-corrosive stainless steel construction eliminates pin holes and voids associated with epoxy coated valves
- Can be installed in horizontal or vertical positions
- When ordering bypass assembly, please specify gallons per minute or cubic feet per minute meter reading
- Optional sized bypass tappings available
- AWWA classes 1 and 2 systems utilization

Pressure – Temperature

Rated working pressure: 175psi (12.1 bar)
Flange bolt pattern and hole diameter in accordance with ANSI B16.5 Class 125/AWWA C207 Class D
Body name plate provides nominal size, direction of flow, psi rating, year of manufacture, and approval marks
Maximum water temperature: 110°F (43°C)

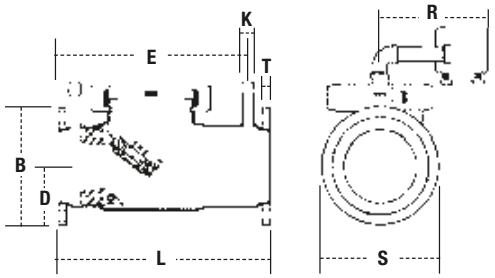
Approvals

UL Listed FM Approved

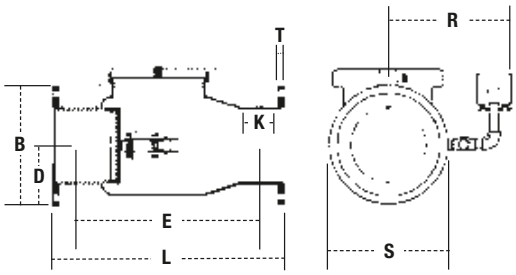
(8" and 10")

Dimensions – Weight

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



Sizes: 8", 10" (200, 250mm)



SIZE (DN)		DIMENSIONS (approx.)																WEIGHT			
		B		D		E		K (NPT)		L		R		S		T		Less Bypass		With Bypass	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*	*lb.*	*kg.*
4	100	11½	292	4½	114	12⅞	327	½	13	16½	419	8	203	9	229	⅝	16	30	13.6	35	15.9
6	150	13½	343	5½	140	17	432	¾	19	22½	572	10½	267	11	279	11/16	17	65	29.5	70	31.8
8	200	15½	394	6¾	171	21¼	540	2	51	26½	673	12¼	311	13½	343	11/16	17	143	64.9	153	69.3
10	250	17½	445	8	203	28¼	718	2	51	36	914	14½	368	16	406	11/16	17	163	73.9	173	78.5

For additional information, request literature ES-SS07F.

Flow Charts on p.72

Series 07S

Residential Fire Sprinkler System Dual Check Valves

Size: 1" and 1¼" (25 and 32mm)

07S

Series 07S Dual Check Valve is installed at the residential fire sprinkler service connection to the main and protects the water supply against polluted water being siphoned back from the sprinkler system.

Materials

- Body: Cast bronze
- Check Modules: Plastic
- Discs: Silicone
- Seals: Buna-N
- Springs: Stainless steel

Pressure – Temperature

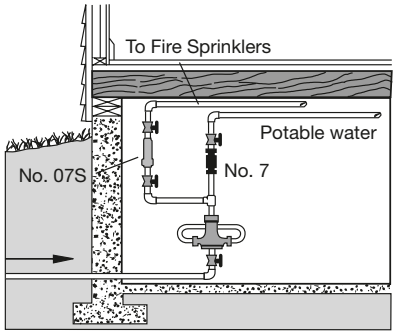
Maximum pressure: 175psi (12.1 bar)
Working temperature: 33°F – 140°F (0.5°C – 60°C) sustained; intermittent to 180°F (82.2°C) sustained; intermittent to
Maximum recommended flow: 50 gpm (190 lpm)

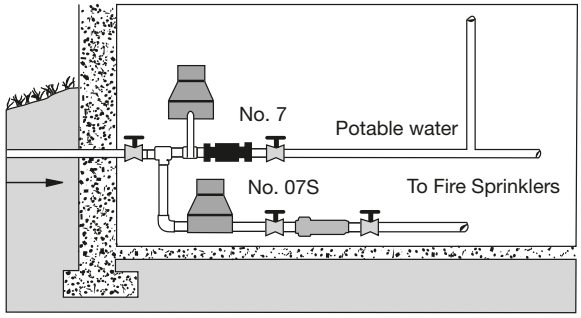
Approvals

1024

Product Availabilities

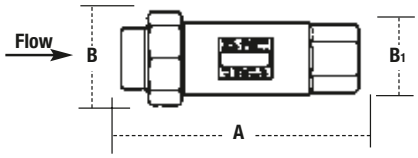
CONNECTION TYPE	CONNECTION CODE	SIZES AVAILABLE	
		in.	*mm*
Series 07S: Inlet Connections			
Meter Thread Female	4	1, 1¼	25, 32
National Pipe Thread Male	2	1, 1¼	25, 32
Series 07S: Outlet Connections			
Meter Thread Male	5	1, 1¼	25, 32
National Pipe Thread Male	3	1, 1¼	25, 32





Dimensions – Weight

DIMENSIONS (approx.)						WEIGHT	
A		B		B1			
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
6¾	171	2 13/16	71	2	50	3	1.36



Flow Charts on p.60

For additional information, request literature F-7.

Series FP53L

½" (15mm) Fire Protection Pressure Relief Valve

Series FP53L Fire Protection Pressure Relief Valves are designed for use in fire protection grid systems to provide protection against excessive water pressure caused by thermal expansion or line surge. This series has a standard 175psi (12.1 bar) pressure relief setting and can be installed horizontally or vertically. Bronze body construction with stainless steel spring to inhibit corrosion. The valve is constructed with a precision stem guide to ensure proper reseating. The test lever affords periodic manual testing and flushing of waterways and seating surfaces.

½" (15mm) NPT Female Outlet

½" (15mm) NPT Male Outlet

Features

- Underwriters laboratory listed
- Forged stainless steel spring
- Bronze body construction for superior strength and to prevent corrosion
- Manual test lever
- Valve stem is guided to enhance reseating
- ½" (15mm) male inlet x female outlet
- 175psi (12.1 bar) pressure setting

Approvals

Listed

Dimensions – Weight

SIZE (DN)		HEIGHT		WIDTH		WEIGHT	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*lb.*	*kg.*
½	15	3½	89	1⅞	48	.5	.23

Series 530FP

Calibrated Pressure Relief Valves for Fire Protection Systems

Sizes: ½" – ¾" (15 – 20mm)

Series 530FP Calibrated Pressure Relief Valves are spring operated bronze relief valves designed to be used only as protection from the build up of excessive pressure in systems containing water, oil or air. Series 530FP is not an ASME approved safety relief valve and should not be used in system applications with this requirement. This series also incorporates a calibrated adjustment feature for setting the valve to the relief pressure required.

530FP

Features

- Calibrated adjustment feature for setting valve to relief pressure required
- Adjustable range 50 – 175psi (3.45 – 12.1 bar)
- All bronze construction
- All stainless steel springs
- Buna-N disc on machined body seat
- Inlet (bottom) male threaded, NPT
- Outlet (side), female threaded, NPT
- All brass construction and stainless steel spring
- Ideally suited as a bypass thermal expansion relief valve

Pressure – Temperature

Maximum Pressure: 300psi (20.7 bar)
Maximum Temperature: 180°F (82°C)

Dimensions – Weight

SIZE (DN)		HEIGHT		WIDTH		WEIGHT	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*gm.*
½ or ¾	15 or 20	3	76	1⅝	41	.63	286

Materials

- Body: Bronze casting
- Bonnet: F.C. brass
- Disc Holder: F.C. brass
- Disc: Buna-N
- Adjustable Spring: Stainless steel
- O-Ring: Buna-N
- Spring Washer: Sheet brass

For additional information, request literature ES-FP53L or ES-530C.

Test Kits

Model TK-7

- Water column sight tube for testing dual check and double check valves.
- Tests individual check modules of the Watts Model 7, 709 and 007.

MODEL	WEIGHT	
	lbs.	*kgs.*
TK-7	5	2.3

For additional information, request literature IS-TK7 or PG-TK.

Model TK-9A

- ± 2% accuracy full scale
- Test kit easily connects to any testable backflow preventer assembly.
- Designed for testing all testable backflow preventers.

Maximum pressure 175psi (12.1 bar).
Maximum temperature 210°F (98.9°C).

MODEL	WEIGHT	
	lbs.	*kgs.*
TK-9A	8	3.6

For additional information, request literature IS-TK9A or PG-TK.

Model TK-99D

- Features 0.25% full scale accuracy.
- Compact, hand held, digital backflow preventer test kit.
- LCD display with oversized differential characters and separate supply pressure readout gauge, high impact casing.
- Tests RPZ's, Double checks or PVB's.

MODEL	WEIGHT	
	lbs.	*kgs.*
TK-99D	3	1.4

For additional information, request literature IS-TK-99D or PG-TK.

Model TK-99E

- ± 1% accuracy full scale.
- Compact test kit with color coded valves, hoses and top mounted bleed valves.
- Designed for testing all testable backflow preventers.

MODEL	WEIGHT	
	lbs.	*kgs.*
TK-99E	8	3.6

For additional information, request literature IS-TK-99E or PG-TK.

Model TK-DL

With Digital Print-Out and Computer Download Capability

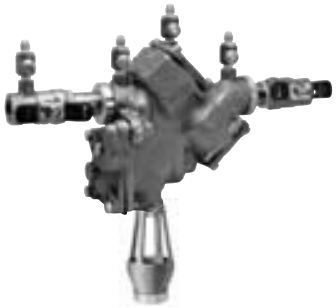
- ± 0.2% accuracy full scale.
- An advanced piece of test equipment designed to make pressure and differential gauges obsolete in the testing of backflow preventers.
- Accuracy, portability, versatility and documentation.
- Contains hoses, adapters, digital printout unit and a rugged case.

MODEL	WEIGHT	
	lbs.	*kgs.*
TK-DL	15	6.8

For additional information, request literature IS-TK-DL or PG-TK.

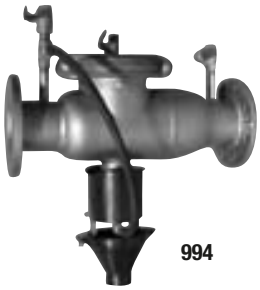
Air Gaps and Elbows
for Reduced Pressure Zone Assemblies

Sizes: ¼" – 10" (8 – 250mm) for RPZ and RPDA



909

909



994

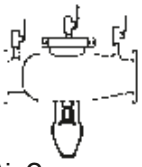
Splash Guard

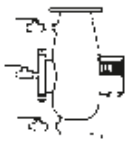
957 AG

Air Gaps

An air gap provides the unobstructed, physical separation between the discharge end of a potable water supply line and an open receiving vessel. The installation of an air gap and drain line are recommended.

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



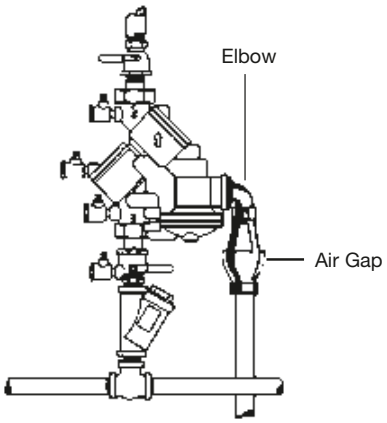


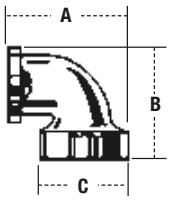
Horizontal Air Gaps

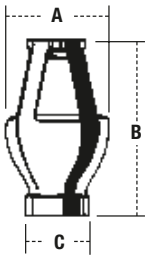
1. Remove two of the relief valve capscrews 180° apart.
2. Remove the relief valve hose from fitting below inlet ball valve.
3. From the top of the air gap, thread the relief valve hose down and out the slot.
4. Use ¼" - 20 UNC x 1" long stainless steel screws.
5. Reconnect relief valve hose to the fitting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







Air Gaps

MODEL NO.	SERIES/SIZES	DIMENSIONS						WEIGHT	
		A		B		C			
		in.	mm	in.	mm	in.	mm	lbs.	kgs.
909AG-A	¼" – ½" 009, ¾" 009M2/M3, ½" – 1" 995	2⅜	60	3⅛	79	½	13	.63	.28
909AG-C	¾" – 1" 009/909, 1 – 1½" 009M2, 1¼" – 2" 995	3¼	83	4⅞	124	1	25	1.50	.68
909AG-F	1¼" – 3" 009/909, 1¼" – 2" 009M1, 2" 009M2	4⅜	111	6¾	171	2	51	3.25	1.47
909AG-K	4" – 6" 909, 8" – 10" 909M1	6⅜	162	9⅝	244	3	76	6.25	2.83
909AG-M	8" – 10" 909	7⅜	187	11¼	286	4	102	15.50	7.03
919AGC	¾" & 1" 919	2⅜	60	3⅛	79	½	13	.63	.28
919AGF	1¼" - 2" 919	4⅜	111	8 7/16	214	3	76	4.26	1.93
957-AG (Complete)	2½" – 10" 957	7½	190	10 3/16	258	2	51	1.5	.68
957-AG (Splash Guard Only)	2½" – 10" 957	—	—	—	—	—	—	—	—
994AGK-P	2½" – 10" 994	8	203	11¼	286	2	51	1.50	0.68
995-AG	3" – 6" 995	5	127	8	203	2⅜	60	—	—

Vent Elbows

Used with Watts Air Gaps for vertical installation of reduced pressure zone assemblies.

909EL-A	¼" – ½" 009, ¾" 009M2/M3, ½" – 1" 995	—	—	—	—	—	—	—	—
*909EL-C	¾ – 1" 009/909, 1" – 1½" 009M2, 1¼" – 2" 995	2⅜	60	2⅜	60	—	—	.38	.17
*909EL-F	1¼" – 2" 009M1, 1¼" – 2" 009/909, 2" 009M2	3⅝	92	3⅝	92	—	—	2	.91
*909EL-H	2½" – 3" 009/909	—	—	—	—	2	51	—	—
994EL-F (vertical)	2½" – 10" 994	4⅞	124	9	229	2	51	4	1.8

*Epoxy coated

IMPORTANT: Inquire with governing authorities for local installation requirements

For additional information, request literature ES-AG/EL/TC.

Series 97FB-FSFE

UL/FM Fire Service Strainer

Sizes: 3" – 10" (80 – 200mm)

97FB-FSFE

Series 97FB-FSFE Fire Service Strainer protects water systems from damage caused by debris. Series 97FB-FSFE is used in conjunction with a water spray system to protect the system against clogging that can be caused by particles fouling the small discharge opening of the sprinkler heads. Strainers for fire systems are designed to trap foreign material ⅛" (3mm) diameter or larger. This type of strainer is usually installed upstream of most of the devices in the system including the Meters, Backflow Preventers (or Detector Check Valves), and Flow Alarms, in order to protect these devices from damage caused by large particles.

Features

- Fabricated steel, epoxy lined and coated
- Available flange x flange, groove x groove or groove x flange
- With cleanout port
- Large solids trap to minimize screen blockage
- 304 Stainless Steel strainer element

Materials

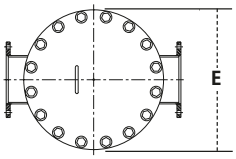
- Body & cover: Fusion bonded epoxy coated steel
- Body material: Corrosion resistant fusion-bonded epoxy coated steel
- Strainer element: 304 stainless steel
- Clean-out plug: Brass or bronze

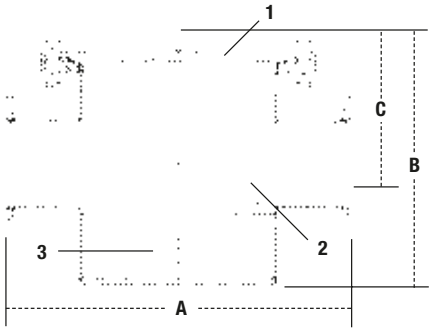
Pressure – Temperature

Rated working pressure: 175psi (12.1 bar)
Temperature range: 140°F (60°C)

Approvals

UL Listed 321 and FM class 5551approved
Flanges AWWA Class “D”
Grooves AWWA C606



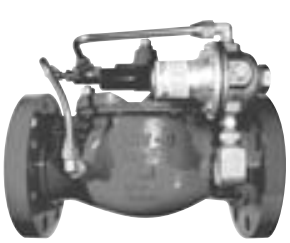


Dimensions – Weight

SIZE (DN)		DIMENSIONS (approx.)								SHIPPING WEIGHT		STD PERF	
		A		B		C		E				Diameter	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	In.	mm
3	80	14⅛	359	20⅝	524	10	254	13½	343	70	32	¼	8
4	100	21	533	20⅝	524	10⅝	270	13½	343	120	54	¼	8
6	150	26⅞	683	22⅜	568	11¼	286	19	483	232	105	¼	8
8	200	31¼	794	25 1⁄16	637	13	330	25	635	560	254	¼	8
10	250	30	762	29 5⁄16	745	14½	368	27½	699	570	259	¼	8

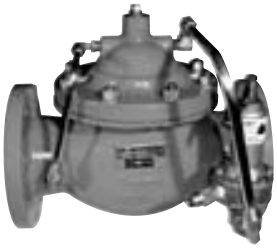
Automatic Control Valves

For Fire Protection Systems

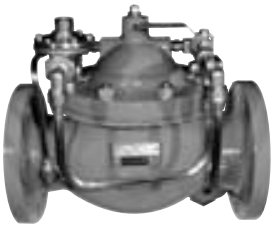


115F/1115F

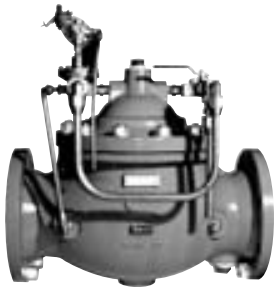
116F/1116FM



116-1FM/1116-1FM



100D-A



100D-B

Specifying automatic control valves (ACVs) for water-based fire protection systems is a critical balancing act. On the one hand, you must have utmost confidence in the quality and performance of the valves. They must be UL Listed and/or Factory Mutual Approved. In short, the reliability of these valves must be unquestioned to meet the design and operating parameters specified by UL and FM requirements.

On the other hand, to finish the job within the required timeframe and budget constraints, the ACVs you specify must be readily available off the shelf and they must be priced competitively. This ensures that you make a reasonable profit while delivering a system in a timely manner that is fail-safe and reliable.

Watts has manufactured automatic control valves since 1967 and is one of the world's largest providers of valves, water quality and other flow control products. Our reputation for quality and service is unrivaled in the industry and we provide a broad offering of ACVs for water-based fire protection systems as outlined below.

Features

- Diaphragm actuated, pilot-controlled; flow capacity not affected by pressure drop
- Top and bottom guided stem prevents stem deflection and provides precise throttling
- Quad Seal™ provides drip-tight closure and a "spare" seal on reverse side
- Non-edged seat provides longer seat and seal life
- Epoxy coated body and cover are fusion bonded inside and out to stop rust, extend pilot and valve life and reduce maintenance
- Anti-scale stem and seat prevent mineral deposit build-up to assure stem movement and positive shutoff

Pressure Reducing Valves Series 115F/1115F

Series 115F (globe style) and 1115F (angle style) Pressure Reducing Valves automatically reduce the higher inlet pressure to an adjustable lower outlet pressure, regardless of the changing flow rate or varying inlet pressure.

LISTED
UL LISTED
8L00
Pressure Control Valve

UL Listed - 3", 4", 6", 8" Globe and Angle in 125#
UL Listed - 3", 4", 6" Globe and Angle in 300#

Fire Pump Pressure Relief Valves Series 116FM/1116FM

Series 116FM (globe type) and 1116FM (angle type) Fire Pump Pressure Relief Valves meet all requirements for UL Listed, FM approved fire protection service. When the upstream pressure increases to the relief set point, the control pilot begins to open, increasing flow through the control tubing. This causes pressure to decrease in the main valve, causing it to open the appropriate amount to relieve excess upstream pressure, thus maintaining desired system pressure.

FM Approved

FACTORY MUTUAL APPROVED
(Patent No. 1A2A3AH)

LISTED
UL LISTED
(40-H-1)

UL Listed - 3", 4", 6", 8" Globe and Angle in 125#
UL Listed - 3", 4", 6" Globe and Angle in 300#

ULC
(CEX757)

Pump Suction Control Valves Series 116-1FM/1116-1FM

Series 116-1FM Automatic Control Valves are designed for Fire Pump Suction Control Service to assure that the suction head pressure does not fall below the preset minimum. Series 1116-1FM valves automatically modulate to keep the pump discharge in relation to the available suction head.

FM Approved

FM Approved - 4", 6", 8", Globe and Angle

For additional information, request literature C-CACV.

Deluge Valve – Pneumatic-Hydraulic Series 100D-A,

Series 100D-A Deluge Valve opens on demand to provide water flow to the fire protection sprinkler system. The 100D-A's pilot system can be hydraulically, pneumatically, or manually operated. The valve opens as a result of a loss of pressure or from manual operation.

LISTED

Valve sizes approved by *Underwriter's Laboratories*: 4", 6", 8", 10"
Available in Cast Iron 125# and Cast Steel 150#, with either Copper tubing and Brass fittings, or Stainless Steel tubing and fittings.

UL LISTED
6M88

Deluge Valve – Electronically Actuated Series 100D-B

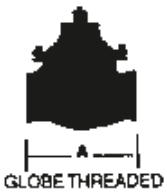
Series 100D-B Deluge Valve opens on demand to provide water flow to the fire protection sprinkler system. The 100D-B's pilot controller can be hydraulically, pneumatically, or manually operated. Valve can be opened by electrical signal to a solenoid or by manual operation. 2" (50mm) NPT ports provide access for testing and drainage.

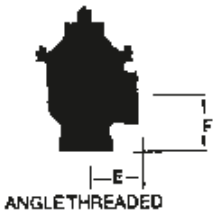
LISTED

Valve sizes approved by *Underwriter's Laboratories*: 4", 6", 8", 10"
Available in Cast Iron 125# and Cast Steel 150#, with either Copper tubing and Brass fittings, or Stainless Steel tubing and fittings.

UL LISTED
6M88

VALVE SIZE	DIMENSION	GLOBE FLANGED		ANGLE FLANGED		GLOBE THREADED	ANGLE THREADED
		125/150#	250/300#	125#	250#		
	A	8½	9	–	–	7¼	–
1¼	E	–	–	4	4¼	–	3¼
(32mm)	F	–	–	4	4¼	–	1⅞
	A	8½	9	–	–	7¼	–
1½	E	–	–	4	4¼	–	3¼
(40mm)	F	–	–	4	4¼	–	1⅞
	A	9⅜	10	–	–	9⅜	–
2	E	–	–	4	4¼	–	4
(50mm)	F	–	–	4	4¼	–	4
	A	11	11⅝	–	–	11	–
2½	E	–	–	5½	5 13/16	–	5½
(65mm)	F	–	–	4	4 5/16	–	4
	A	12	13¼	–	–	10½	–
3	E	–	–	5¾	6⅛	–	5¼
(80mm)	F	–	–	5¾	6⅛	–	5¼
	A	15	15⅝	–	–		
4	E	–	–	6¾	7⅛		
(100mm)	F	–	–	6¾	7⅛		
	A	20	21	–	–		
6	E	–	–	8½	8⅞		
(150mm)	F	–	–	8½	8⅞		
	A	25⅜	26⅜	–	–		
8	E	–	–	11	11½		
(200mm)	F	–	–	11	11½		
	A	29¾	31⅛	–	–		
10	E	–	–	14⅞	15⅝		
(250mm)	F	–	–	14⅞	15⅝		
	A	34	35½	–	–		
12	E	–	–	17	17¾		
(300mm)	F	–	–	17	17¾		
	A	39	40½	–	–		
14	E	–	–	CONSULT	CONSULT		
(350mm)	F	–	–	CONSULT	CONSULT		
	A	41⅜	43½	–	–		
16	E	–	–	CONSULT	CONSULT		
(400mm)	F	–	–	CONSULT	CONSULT		
18	A	48	49⅝	CONSULT	CONSULT		
(450mm)							
20	A	48	49⅝	CONSULT	CONSULT		
(500mm)							
24	A	48¼	50	CONSULT	CONSULT		
(600mm)							





End Connections/ Maximum Working Pressure
Cast Iron: 125# F.F. Flange: ANSI B16.1 / 200psig
250# R.F. Flange: ANSI B16.1 / 300psig
Threaded: ANSI B16.4 / 400psig
Ductile Iron: 150# F.F. Flange: ANSI B16.42 / 250psig
300# R.F. Flange: ANSI B16.42 / 500psig

Series FS10-F

Waterflow Indicators For Automatic Sprinkler Fire Protection Service

FS10-F

Series FS10-F waterflow indicators provide a positive way of detecting the flow of water in any distribution, branch or mainline piping of a sprinkler system. They are designed to be used in pipe sizes 1", 1¼", or 1½" (25, 32, or 40mm) standard ASTM test. When wired to alarms or signaling systems, it immediately indicates the location of an open head.

Quick detection and signaling of an open head can assist in:

- **pinpointing the exact fire location**
- **increasing supplementary firefighting activities**
- **speeding up the fire extinguishing process**
- **providing effective building evacuation**
- **minimizing water damage**

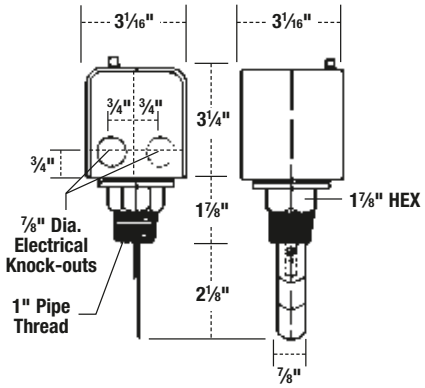
The supplied paddle is made of beryllium copper which is superior to stainless steel in the area of flex memory, tensile strength and corrosion resistance. The indicator light is integral with switch cover and standardly furnished. Factory set and sealed for a minimum alarm flow rate of 4 to 19 gpm (15 to 72 lpm).

Features

- Parts in contact with liquid in pipe are of brass and beryllium copper
- Waterflow indicator installs in tee in horizontal or vertical piping
- Single cover retaining screw mounted on tip of the indicator for easy access
- Two electrical conduit knockouts for ease of wiring
- Easy accessibility to switch terminals where wiring will not interfere with operating mechanism
- Furnished with 1" (25mm) NPT connection
- Switch assembly independent and removable from mounting adaptor
- Allow proper paddle measurement, avoiding improper operation
- Flow indicator light integral with switch cover Indicates flow or no flow conditions

Pressure – Temperature

Maximum Pressure: 175psi (12.1 bar)
Maximum Temperature: 300°F (149°C)
Weight: 2.5 lbs. (5.5 kgs)



Dimensions – Weight

Approvals

Canadian Standards Assoc. Listed No. LR-5827
Underwriter's Laboratories Listed Canada No. CS-515
Underwriter's Laboratories Listed U.S.A. No. 11S2

Installation Waterflow Indicator FS10-F Series

Special Purpose - Fire Protective Signaling:
Underwriters Laboratories listed for automatic sprinklers fire protection services and signaling systems. Watts waterflow indicator provides a positive way of detecting the flow of water in any distribution, branch or mainline piping of a sprinkler system, in pipe sizes from 1" (25mm) to 1½" (40mm) only. Wired to alarms or signaling systems, it immediately indicates the location of an open sprinkler head.

For additional information, request literature F-FS10C/FS10/FS20.

Series 408OSY

Flanged Gate Valves

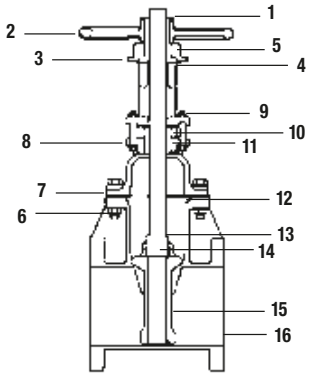
Sizes 2½" – 12" (65 – 300mm)

Series 408OSY Flanged Gate Valves are recommended for fire main shutoff and distribution service. The valve body is fusion bonded powder coated cast iron and it is operated by a handwheel. The resilient seated disc design offers positive seating and resistance against high differential pressure. Series 408OSY is best suited for service in either the fully open or closed position. It is also suitable for use as a throttling valve.

408 OSY

Features

- 200psi (14 bar) CWP, non-shock
- Full port flow, low head loss
- Fusion bonded coating, internal and external
- Encapsulated resilient seated
- Easy in-line service
- Replaceable disc
- Boss-tapped and plugged
- Maximum temperature: 140°F (60°C)

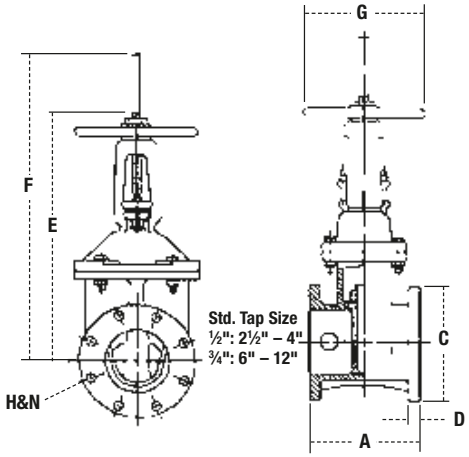


Materials

1. Handwheel Nut: Bronze (AWWA Grade A)
2. Handwheel: Cast Iron
3. Upper Thrust Washer: Brass
4. Lower Thrust Washer: Nylatron®
5. Yoke Nut: Manganese Bronze
6. Hex Head Cover, Bolt & Nuts: Zinc Plated Steel
7. Bonnet: Cast Iron
8. Packing Bolts: Zinc Plated Steel
9. Packing Bolt Nuts: Brass
10. Packing Gland: Cast Iron
11. Packing: Sq. Braided Non-Asbestos
12. O-ring: Buna-N
13. O-ring (Stem): Buna-N
14. Stem Assembly: Bronze
15. Wedge Disc: CI SBR Coated
16. Body: Cast Iron

Approvals

ASTM A126 Class B Iron
UL Listed/FM Approved
AWWA C-509 conformance
MSS SP-70 conformance



Dimensions

SIZE (DN)		FLANGE DIMENSIONS (approx.)														
		A		C		D		E		F (open)		G		H		Bolt Holes N
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	# of holes
2½	65	7½	191	7	178	11/16	18	13⅞	352	16⅜	416	7¼	184	⅝	16	4
3	80	8	200	7½	191	¾	19	15⅝	397	18⅞	479	10	254	⅝	16	4
4	100	9	229	9	229	15/16	24	18¼	464	22¾	578	10	254	⅝	16	8
6	150	10½	267	11	279	1	25	23¾	603	30⅛	765	12	305	¾	19	8
8	200	11½	292	13½	343	1⅛	29	29¼	743	37¾	959	14	356	¾	19	8
10	250	13	330	16	406	13/16	30	35⅜	899	45¾	1162	18	457	⅞	22	12
12	300	14	356	19	483	1¼	32	40⅝	1032	53⅛	1349	18	457	⅞	22	12

Face-to-face dimensions of the valves comply with the American Standard for face-to-face dimensions (ANSI B16.10) for Class 125 cast iron flanged valves.

End Flanges: The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 125 (ANSI B16.1). The flanges are flat faced and smooth finished.

Series FBV-3, F-BVS-3

2-Piece, Full Port, Brass Ball Valves

Sizes: ¼" – 3" (8 – 80mm)

Series FBV-3, FBVS-3 uses a Two-piece design and is constructed of forged brass body and end adaptor. Ball is full port, chrome plated brass. Seats and stem packing are virgin PTFE. Stem is brass with adjustable stem packing nut threaded to body to prevent stem leakage if lever is removed.

Features

- Suitable for full range of liquids and gases
- Minimal pressure drop due to full size ports
- Bottom loaded, blow-out proof stem
- Sizes ¼" – 2" FBV-3 and FBVS-3 pressure rated at 600psi (41 bar) WOG non-shock and 150psi (10.3 bar) WSP
- Sizes 2½" – 3" FBV-3 pressure rated at 400psi (27.5 bar) WOG non-shock and 125psi (8.6 bar) WSP
- Sizes 2½" – 3" FBVS-3 pressure rated at 600psi (41 bar) WOG non-shock and 125psi (8.6 bar) WSP
- Virgin PTFE stem packing seal, thrust washer and seats
- Vinyl insulator on heavy duty, zinc-plated carbon steel handles
- Fast quarter-turn open or close operation
- Excellent for throttling and balancing applications of nonabrasive fluids where minimum flow is 20% to 100% of valve capacity
- Low operating torque
- Adjustable stem packing gland
- Maximum operating temperature: 400˚F (204˚C)
- Minimum operating temperature: -40˚F (-40˚C)

Materials

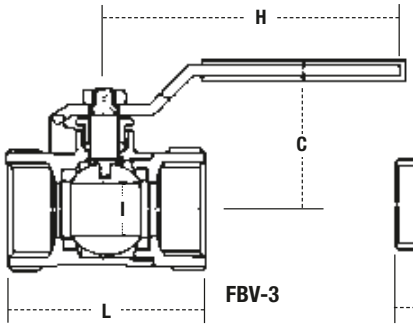
Handle Nut: Zinc plated carbon steel
Handle: Zinc plated carbon steel with vinyl insulator
Packing Nut: Brass
Stem Packing: Virgin PTFE
Thrust Washer: Virgin PTFE
Stem: Machined Brass
Body: Forged brass
Seats: Virgin PTFE
Ball: Chrome plated brass
Adaptor: Forged brass

Models

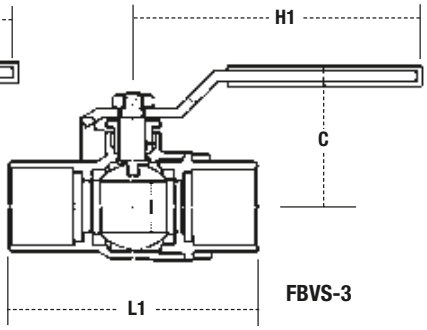
FBV-3: Sizes ¼" – 3" (8 – 80mm) with threaded end connections
FBVS-3: Sizes ½" – 3" (15 – 80mm) with solder end connections

FBV-3

FBVS-3



FBV-3



FBVS-3

Dimensions

SIZE (DN)		DIMENSIONS (approx.)												WEIGHT	
		C		H		H1		I		L		L1			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
¼	8	1 7/16	36	3 3/16	81	—	—	3/8	10.5	1 13/16	46	—	—	.3	.1
3/8	10	1 7/16	36	3 3/16	81	—	—	3/8	10.5	1 13/16	46	—	—	.3	.1
½	15	1 15/16	50	3 5/8	91	3 5/8	91	19/32	12.5	2 3/8	60	2 1/8	53	.5	.2
¾	20	2 1/16	52	4 1/2	114	4 1/2	114	13/16	20.0	2 11/16	68	2 13/16	72	.8	.3
1	25	2 7/16	62	4 15/16	125	4 15/16	125	1	25.0	3 1/8	80	3 3/8	86	1.4	.6
1 1/4	32	2 5/8	66	4 15/16	125	4 15/16	125	1 1/4	31.0	3 11/16	90	3 7/8	98	2.0	.9
1 1/2	40	2 15/16	75	5 1/2	140	5 1/2	140	1 1/2	39.0	3 7/8	99	4 3/8	112	2.6	1.2
2	50	3 1/8	80	7 7/8	200	7 7/8	200	1 15/16	50.0	4 7/16	113	5 5/16	135	4.0	1.8
2 1/2	65	4 5/16	109	9 7/8	250	7 7/8	200	2 3/8	60.5	5 1/2	140	6 5/16	161	9.0	4.1
3	80	4 5/8	118	9 7/8	250	7 7/8	200	2 15/16	74.0	6 1/4	159	7 3/16	182	12.8	5.8

Approvals

UL Listed
FM Approved

Trim and Drain
½ – 2" (15 – 50mm)

MSS-SP-110
¼" – 3" (8 – 80mm)

Fire Service Approvals

Size ¼" – 2" (8 – 50mm)
UL/FM rated at 300psi (20 bar)

For additional information, request literature ES-FBV-3.

Series 411
Swing Check Valve
Sizes 2" – 12" (50 – 300mm)

411

Recommended for use on municipal and private fire mains and sprinkler systems.

Series 411 Swing Check Valve operates automatically by opening on a hinge arm against flow and closes when flow stops or reverses. It is not recommended for service where the system is cycling or causing the valve to open or shut excessively as this may cause premature wear of the seating surfaces.

Features

- Full port
- Epoxy coated, internal and external
- Replaceable seat and disc
- In-line service

Pressure – Temperature

Maximum pressure: 200psi (14 bar) WOG
Maximum temperature: 180°F (82°C)

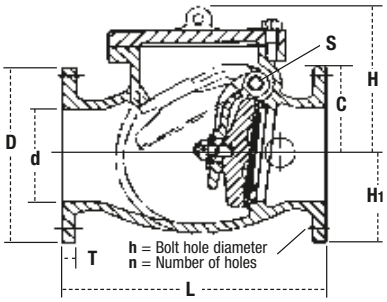
Approvals

UL Listed FM Approved

ASTM A126 Class B Iron
MSS SP-71 conformance

Materials

- Body: Epoxy Coated Cast Iron
- Cover: Cast Iron
- Disc: Cast Iron
- Arm: Cast Iron
- Body Seat: Bronze
- Disc Seat: Rubber (Buna-N)
- Knock Pin: Stainless Steel
- Hinge Pin: Stainless Steel
- Disc Nut: Brass
- Disc Stud: Bronze
- Washer: Bronze
- Arm Bushing: Bronze
- Plug: Brass
- Cover Gasket: Rubber (NR)
- Cover Stud & Nut (1 set): Steel
- O-ring: Rubber (Buna-N)
- Seat Holder: Bronze
- Seat Bolt (1 set): Stainless Steel
- Body Bushing (2): Bronze
- Arm Disc Bushing: Bronze
- Spacer (2): Bronze



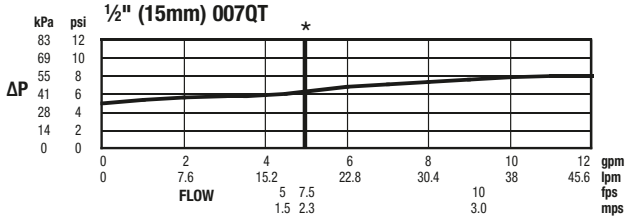
Dimensions

SIZE (DN)		FLANGE DIMENSIONS (APPROX.)															
d		L		D		C		h		Bolt Holes n	T		H		H1		S	
in.	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*# of holes*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*
2	50	8	203	6	152	–	–	–	–	–	5/8	16	3 3/4	95	3	76	3/8	10
2 1/2	65	8 1/2	216	7	178	5 1/2	140	3/4	19	4	11/16	18	6 1/2	165	3 1/2	89	3/8	10
3	80	9 1/2	241	7 1/2	191	6	152	3/4	19	4	3/4	19	7 1/2	191	3 3/4	95	3/8	10
4	100	11 1/2	292	9	229	7 1/2	191	3/4	19	8	15/16	24	8 15/16	211	4 1/2	114	3/8	10
6	150	14	356	11	279	9 1/2	241	7/8	22	8	1	25	10 9/16	268	5 1/2	140	5/8	16
8	200	19 1/2	495	13 1/2	343	11 3/4	298	7/8	22	8	1 1/8	29	12 3/16	310	6 3/4	171	3/4	19
10	250	24 1/2	622	16	406	14 1/4	362	1	25	12	13/16	30	13 7/8	352	8	203	7/8	22
12	300	27 1/2	699	19	483	17	432	1	25	12	1 1/4	32	16 1/4	413	9 1/2	241	7/8	22

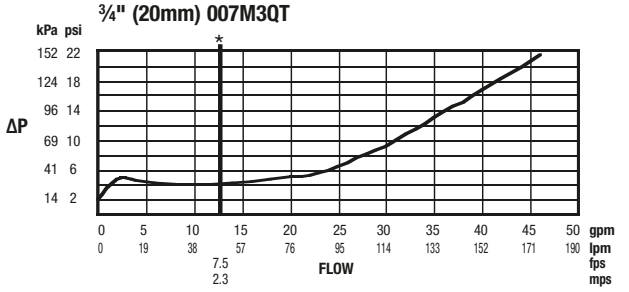
Face-to-face dimensions of these valves comply with the American Standard for face-to-face dimensions (ANSI B16.10) for Class 125 cast iron flanged valves.
End Flanges: The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 125 (ANSI B16.1). The flanges are flat faced and smooth finished.

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

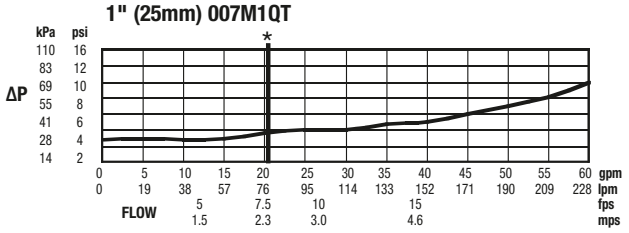
½" (15mm) 007QT



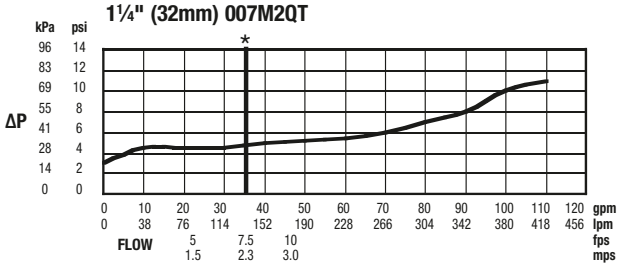
¾" (20mm) 007M3QT



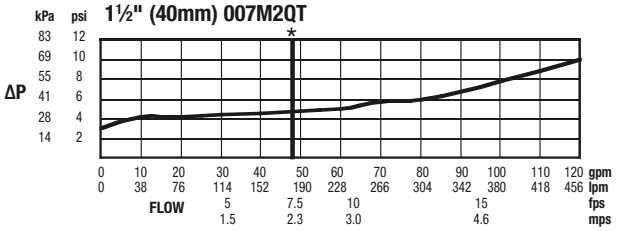
1" (25mm) 007M1QT



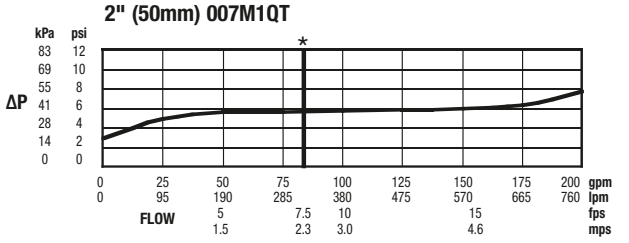
1¼" (32mm) 007M2QT



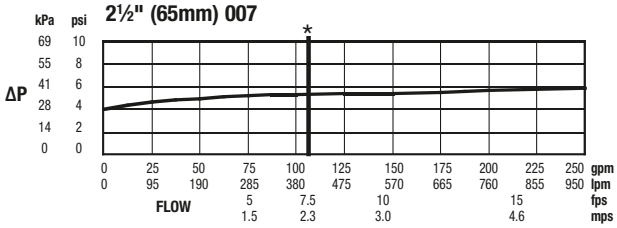
1½" (40mm) 007M2QT



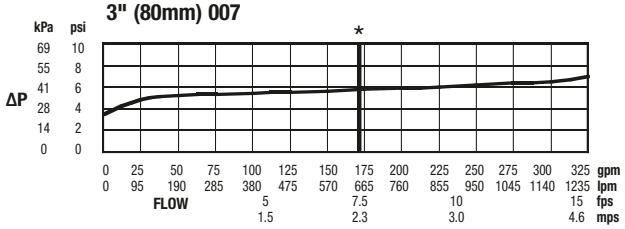
2" (50mm) 007M1QT



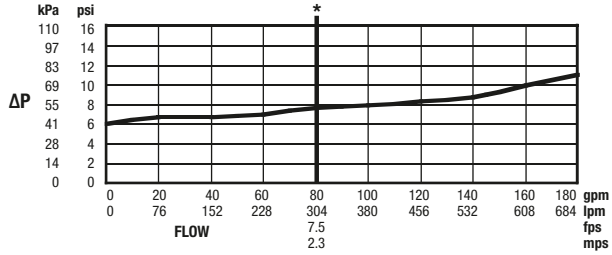
2½" (65mm) 007



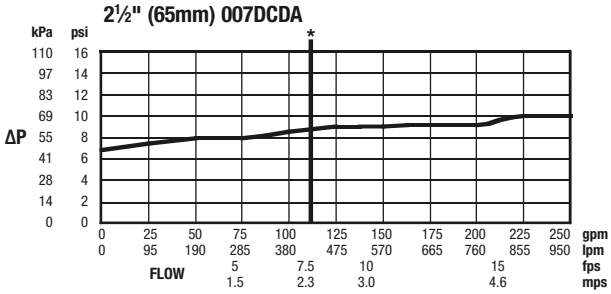
3" (80mm) 007



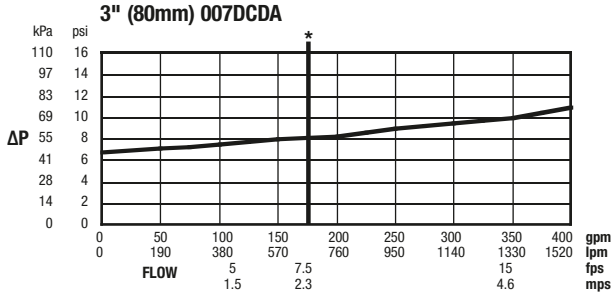
2" (50mm) 007DCDA



2½" (65mm) 007DCDA

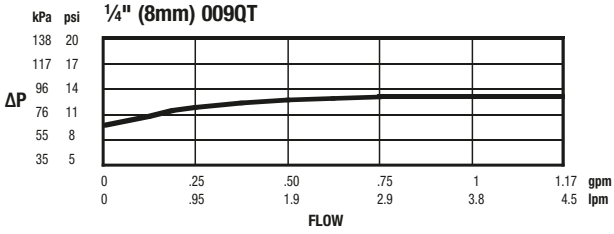


3" (80mm) 007DCDA

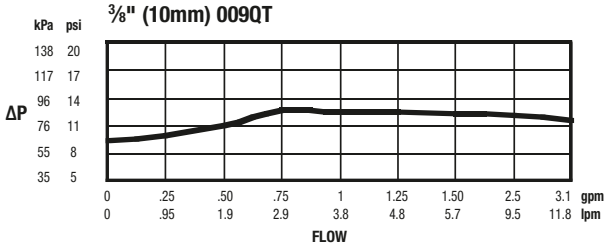


Flow Charts *Typical maximum system flow rate (7.5 feet/sec.)*

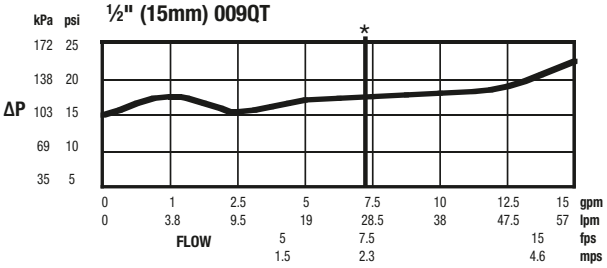
¼" (8mm) 009QT



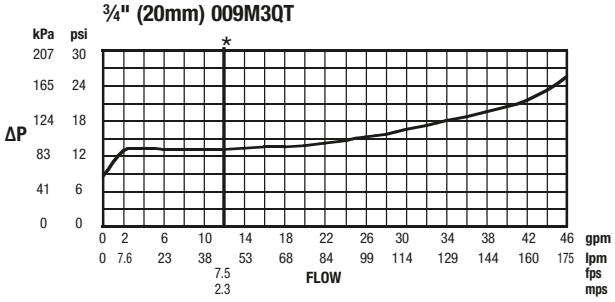
⅜" (10mm) 009QT



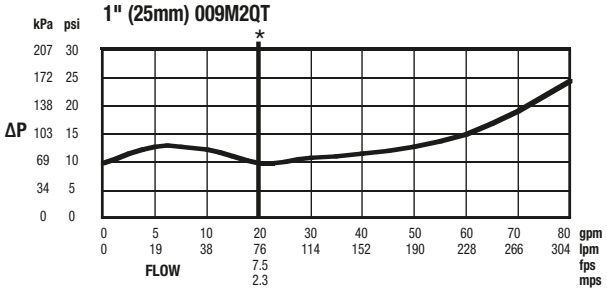
½" (15mm) 009QT



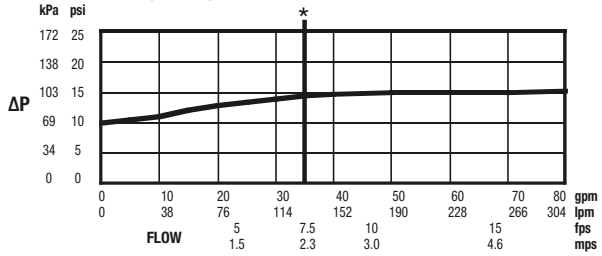
¾" (20mm) 009M3QT



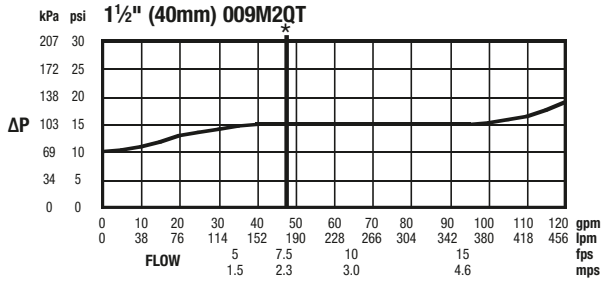
1" (25mm) 009M2QT



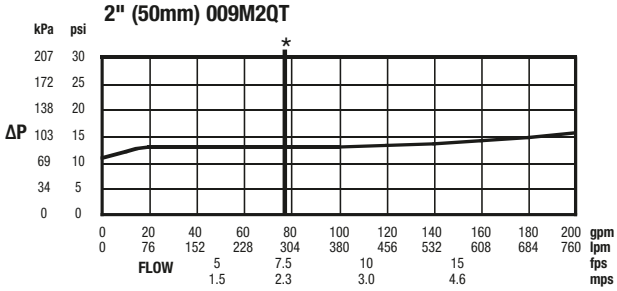
1¼" (32mm) 009M2QT



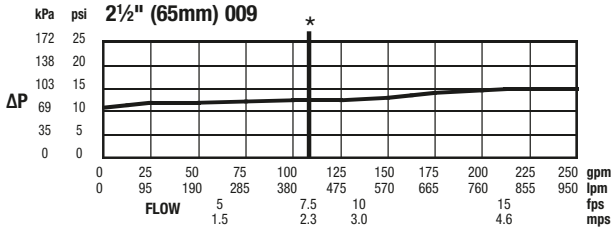
1½" (40mm) 009M2QT



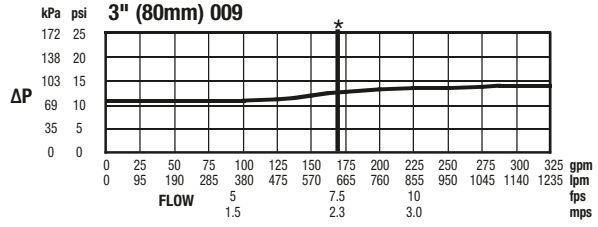
2" (50mm) 009M2QT



2½" (65mm) 009

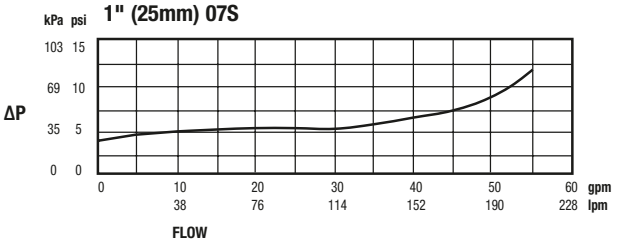


3" (80mm) 009

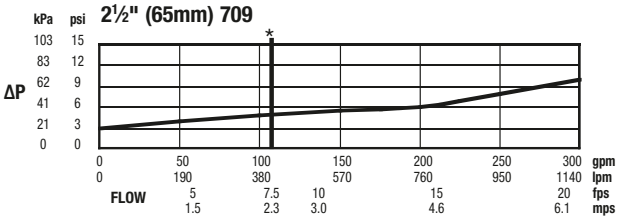


Flow Charts *Typical maximum system flow rate (7.5 feet/sec.)*

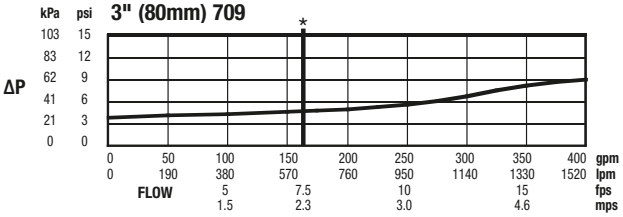
1" (25mm) 07S



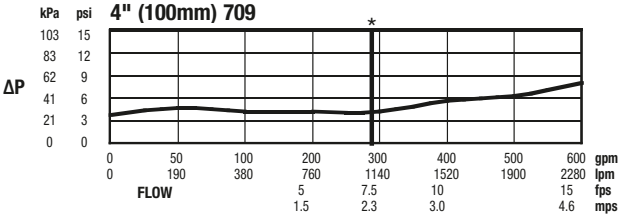
2½" (65mm) 709



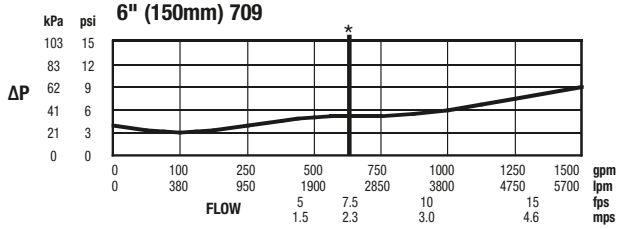
3" (80mm) 709



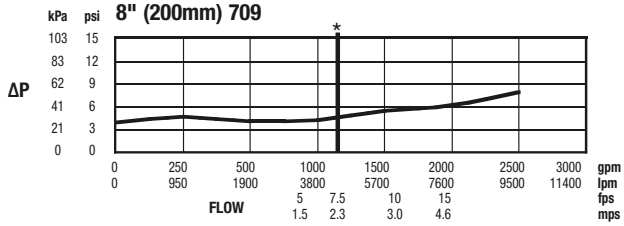
4" (100mm) 709



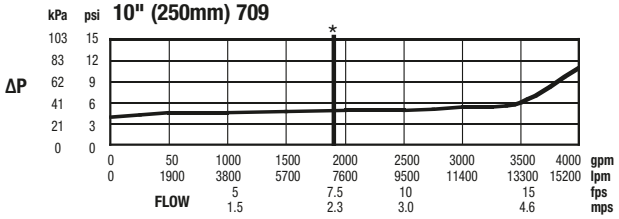
6" (150mm) 709



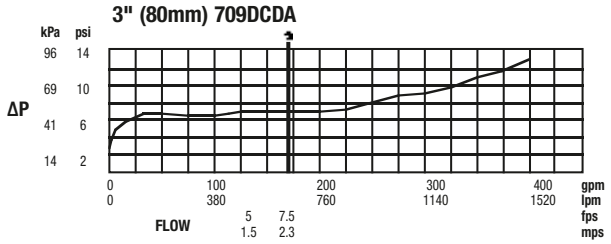
8" (200mm) 709



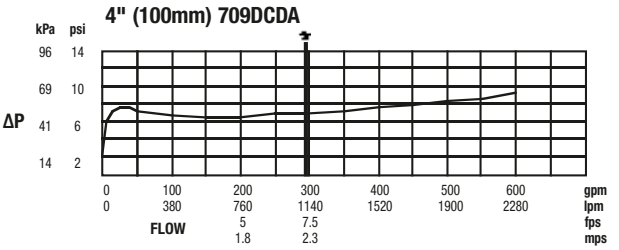
10" (250mm) 709



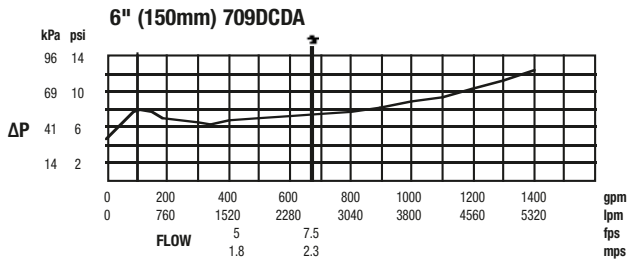
3" (80mm) 709DCDA



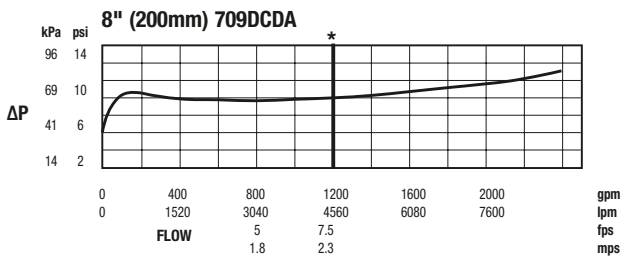
4" (100mm) 709DCDA



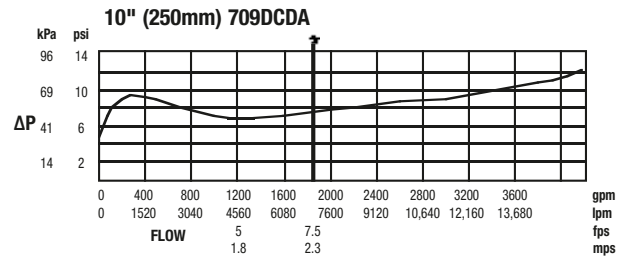
6" (150mm) 709DCDA



8" (200mm) 709DCDA



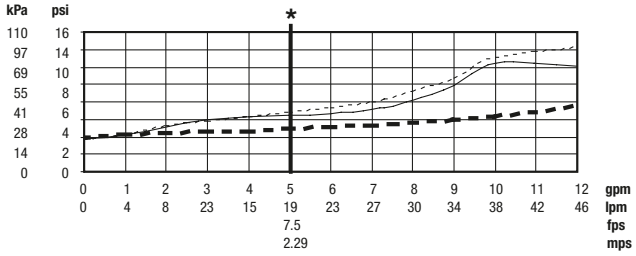
10" (250mm) 709DCDA



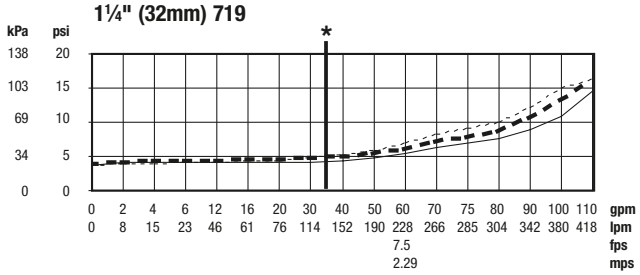
Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

QT AQT UQT

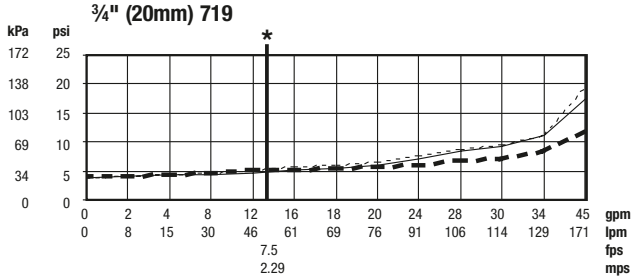
½" (15mm) 719



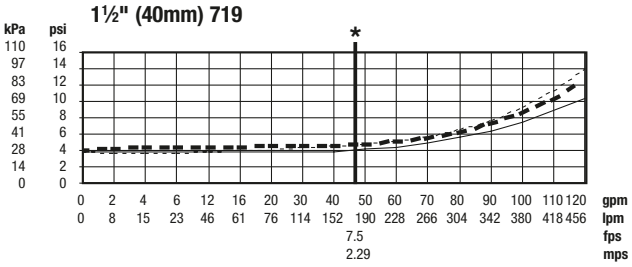
1¼" (32mm) 719



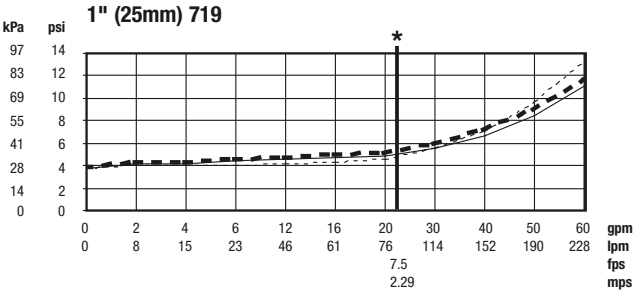
¾" (20mm) 719



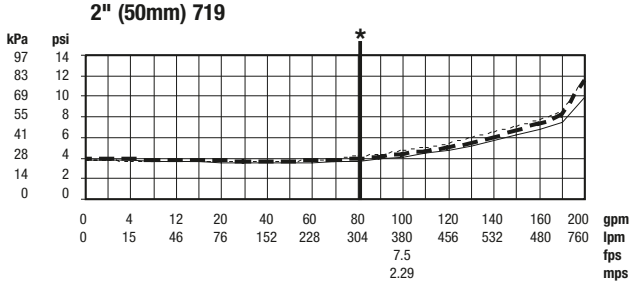
1½" (40mm) 719



1" (25mm) 719



2" (50mm) 719

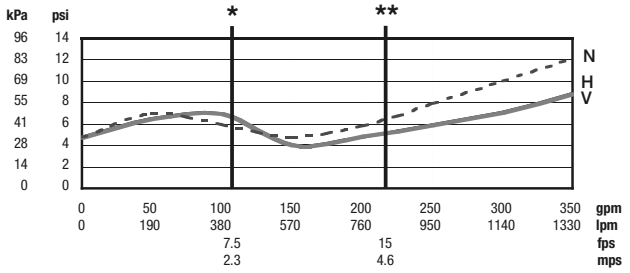


Flow Charts *Typical maximum system flow rate (7.5 feet/sec.)*

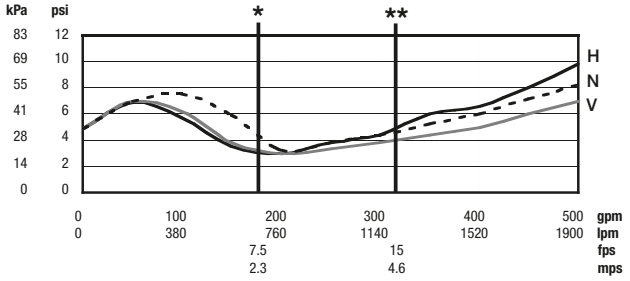
H V N

* = Rated flow ** = UL Rated flow

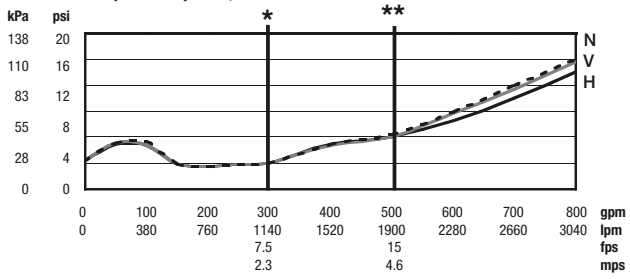
2½" (65mm) 757, 757N



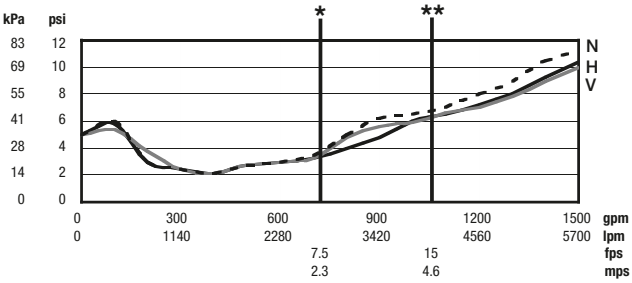
3" (80mm) 757, 757N



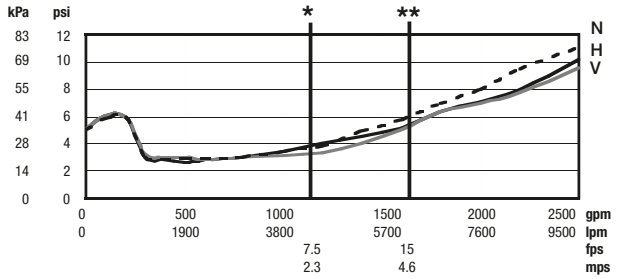
4" (100mm) 757, 757N



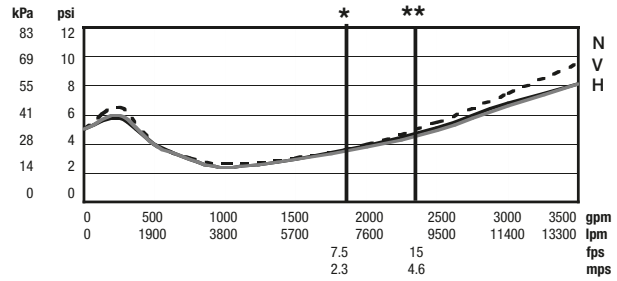
6" (150mm) 757, 757N



8" (200mm) 757, 757N



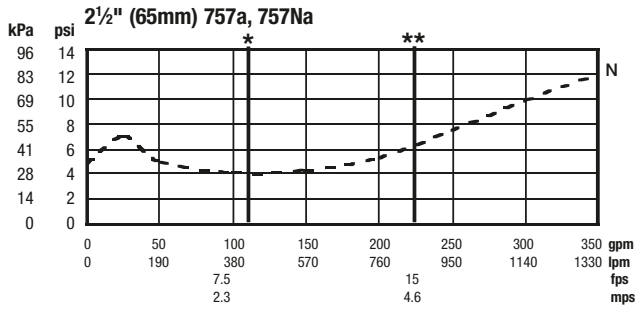
10" (250mm) 757, 757N



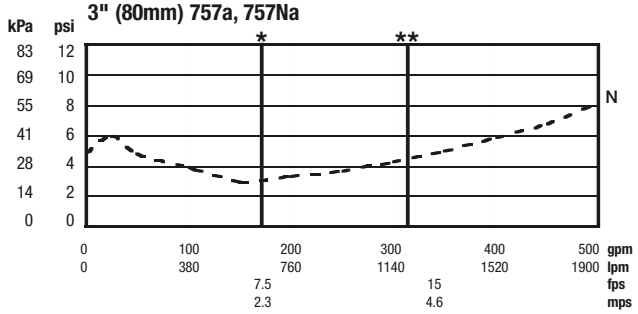
H V N

* = Rated flow ** = UL Rated flow

2½" (65mm) 757a, 757Na

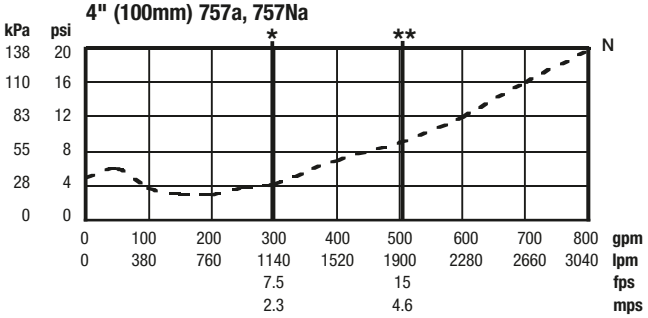


3" (80mm) 757a, 757Na

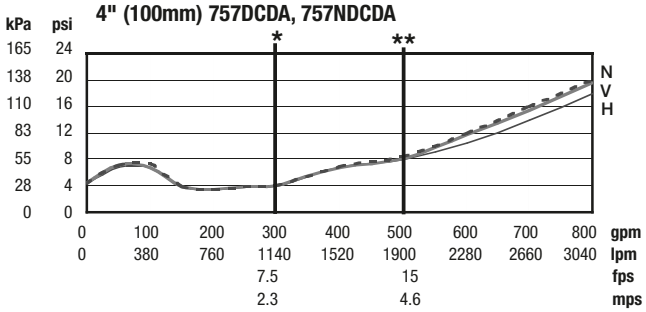


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

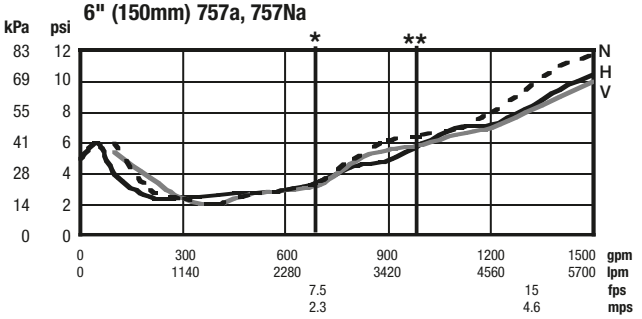
4" (100mm) 757a, 757Na



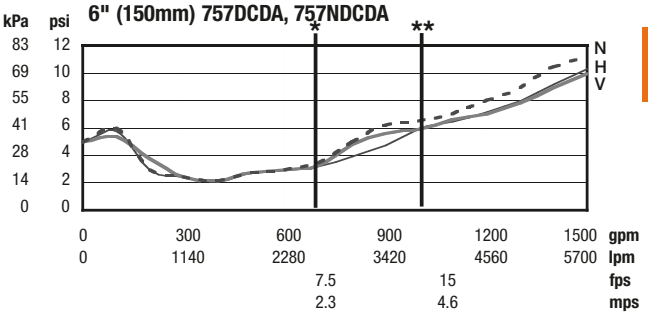
4" (100mm) 757DCDA, 757NDCDA



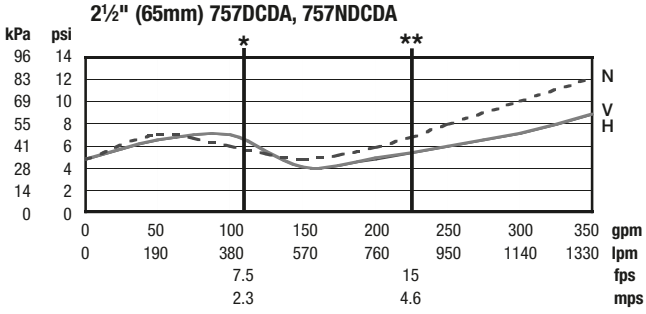
6" (150mm) 757a, 757Na



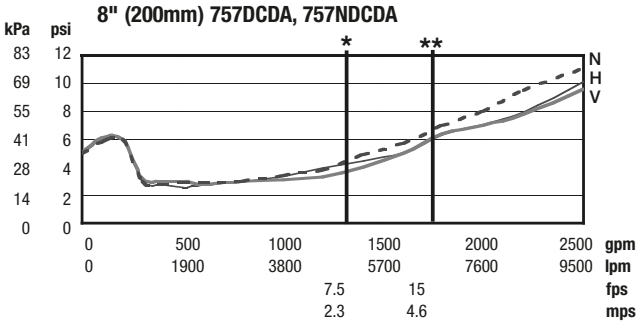
6" (150mm) 757DCDA, 757NDCDA



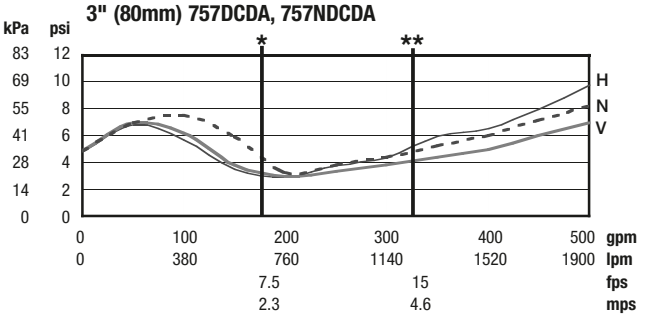
2½" (65mm) 757DCDA, 757NDCDA



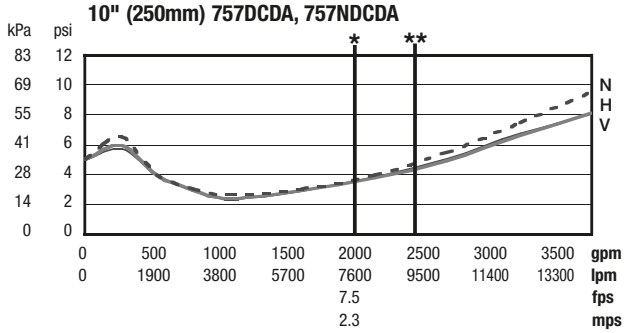
8" (200mm) 757DCDA, 757NDCDA



3" (80mm) 757DCDA, 757NDCDA

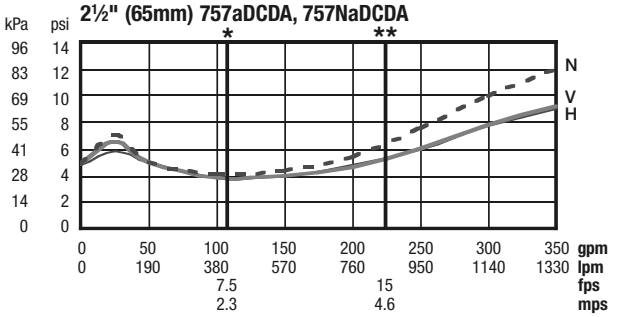


10" (250mm) 757DCDA, 757NDCDA

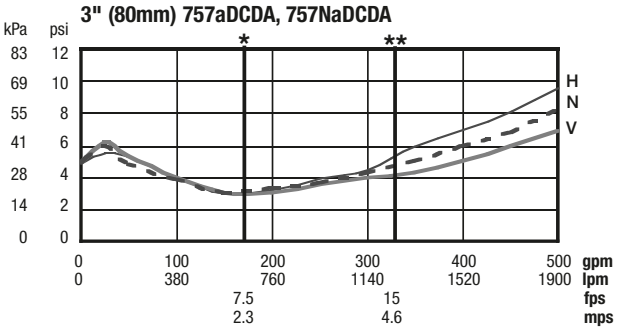


Flow Charts *Typical maximum system flow rate (7.5 feet/sec.)

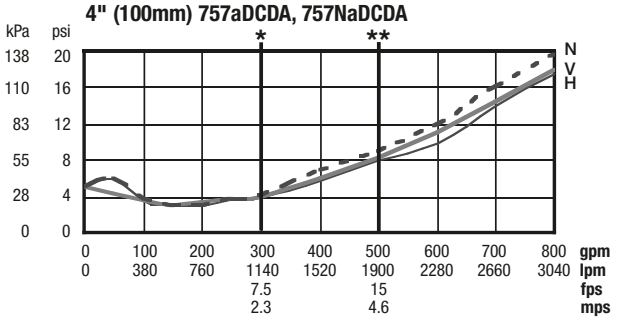
2½" (65mm) 757aDCDA, 757NaDCDA



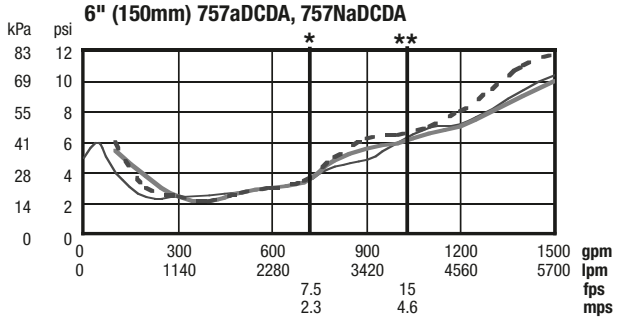
3" (80mm) 757aDCDA, 757NaDCDA



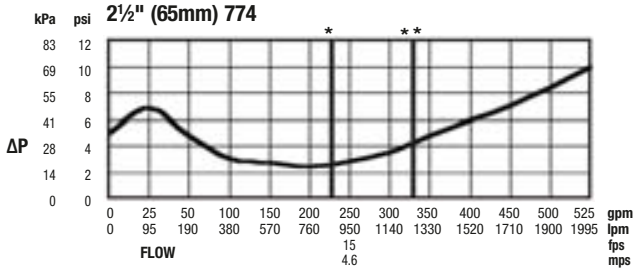
4" (100mm) 757aDCDA, 757NaDCDA



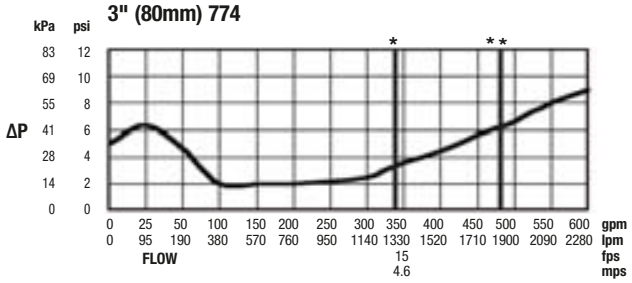
6" (150mm) 757aDCDA, 757NaDCDA



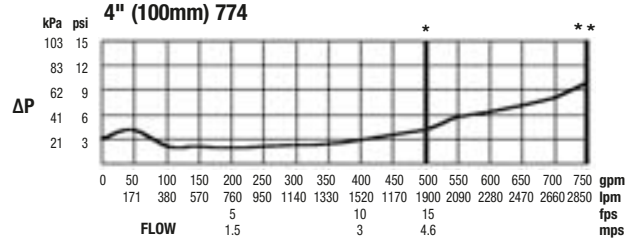
2½" (65mm) 774



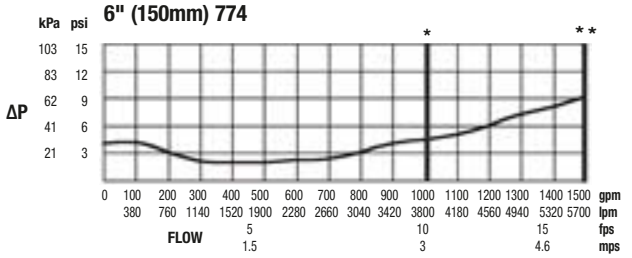
3" (80mm) 774



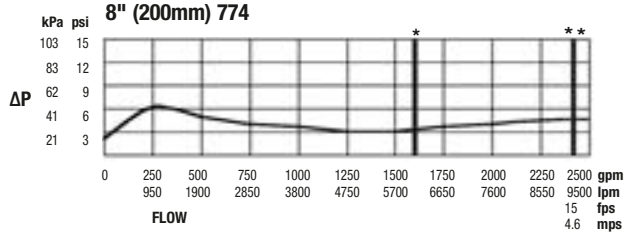
4" (100mm) 774



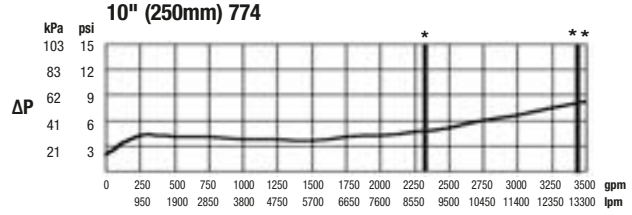
6" (150mm) 774



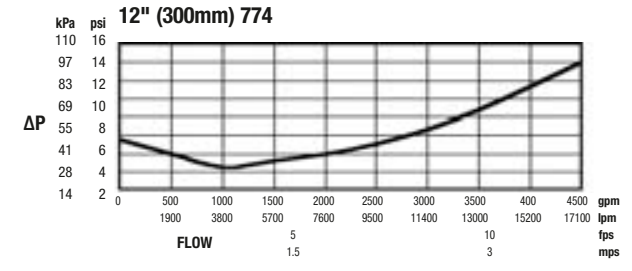
8" (200mm) 774



10" (250mm) 774

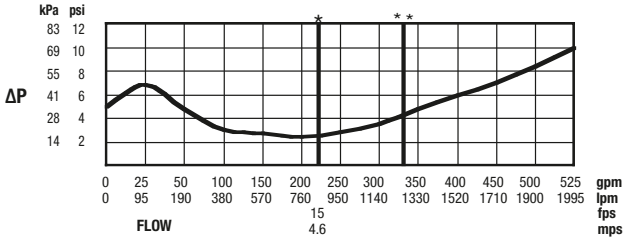


12" (300mm) 774

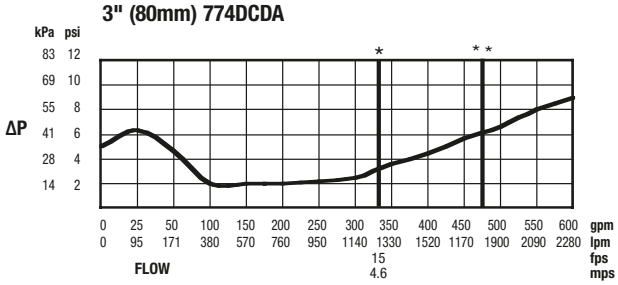


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

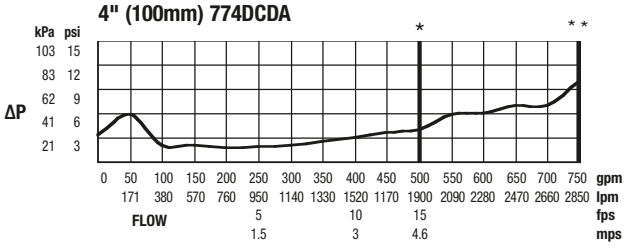
2½" (65mm) 774DCDA



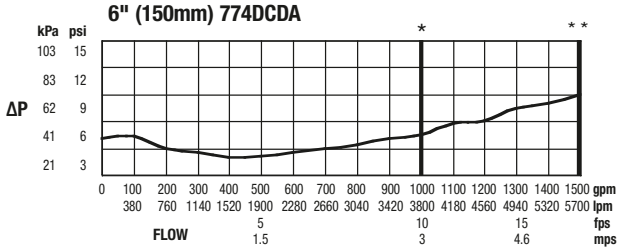
3" (80mm) 774DCDA



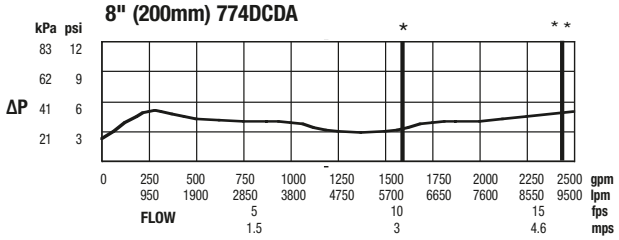
4" (100mm) 774DCDA



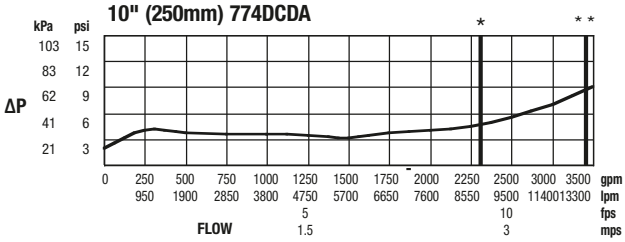
6" (150mm) 774DCDA



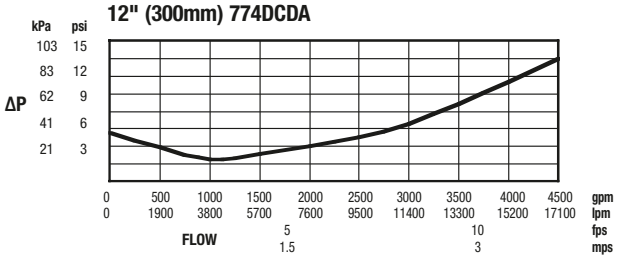
8" (200mm) 774DCDA



10" (250mm) 774DCDA

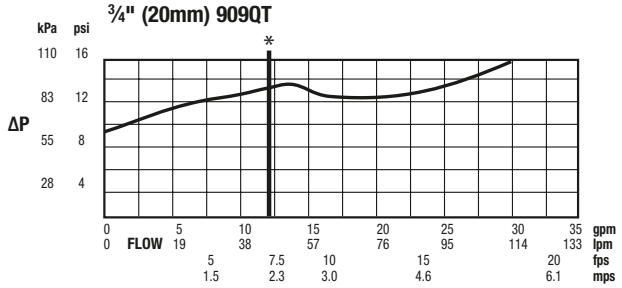


12" (300mm) 774DCDA

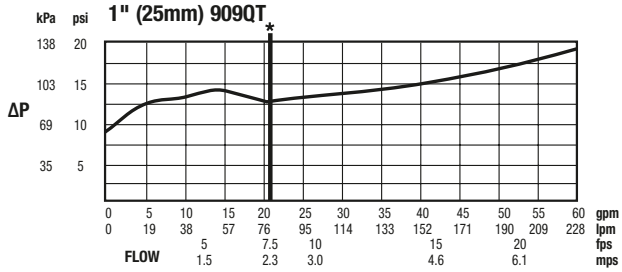


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

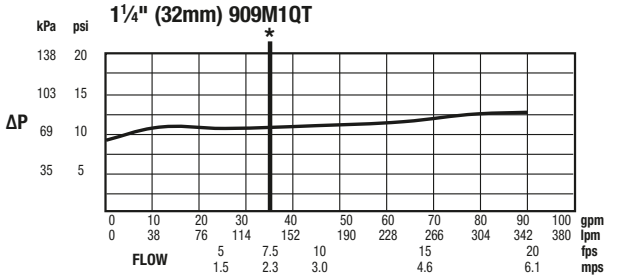
¾" (20mm) 909QT



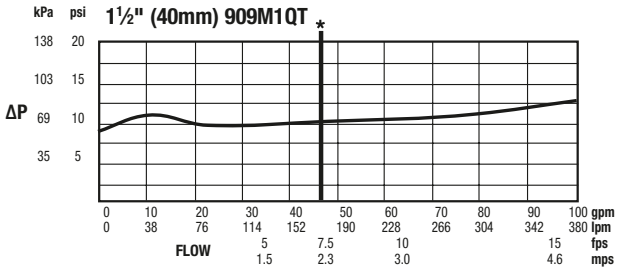
1" (25mm) 909QT



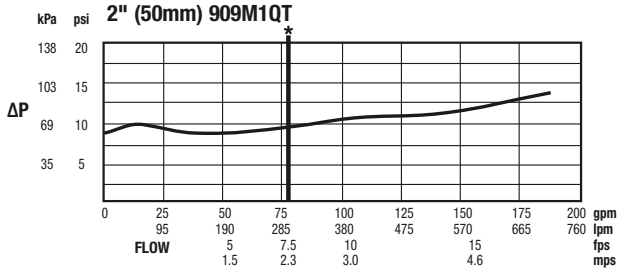
1¼" (32mm) 909M1QT



1½" (40mm) 909M1QT

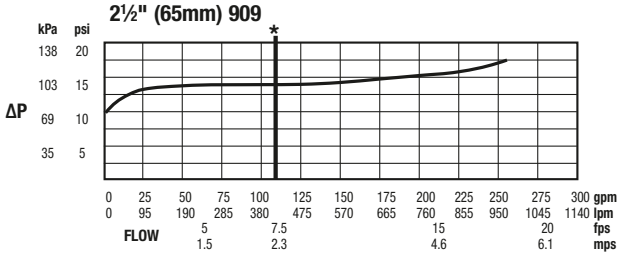


2" (50mm) 909M1QT

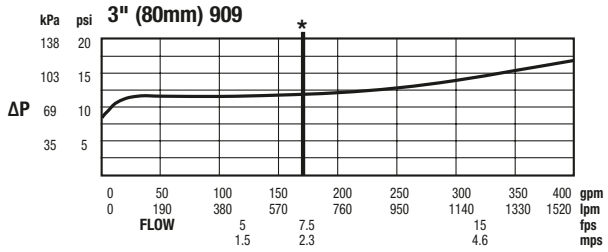


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

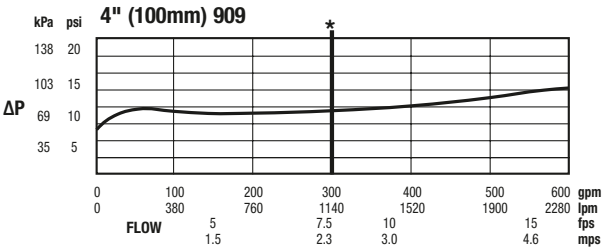
2½" (65mm) 909



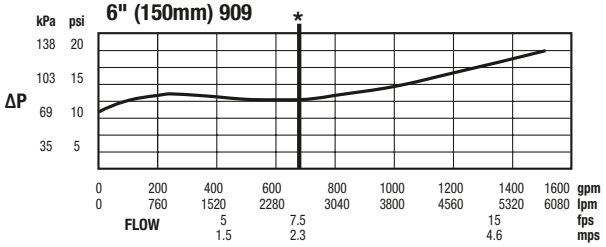
3" (80mm) 909



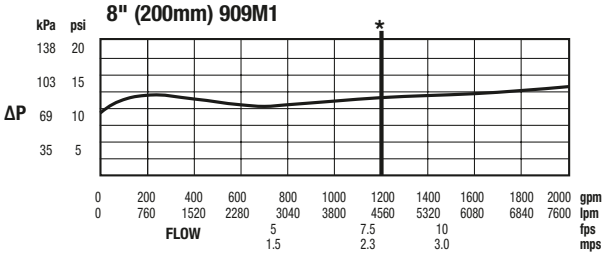
4" (100mm) 909



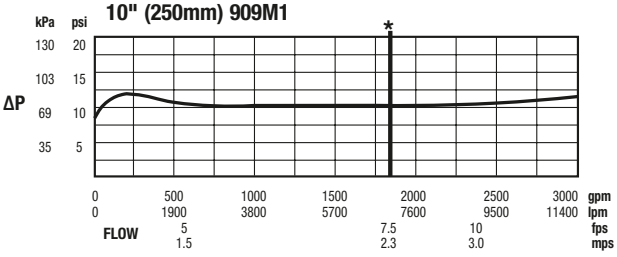
6" (150mm) 909



8" (200mm) 909M1

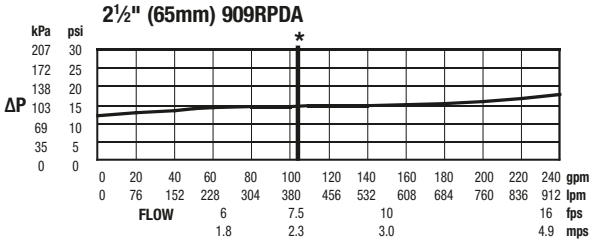


10" (250mm) 909M1

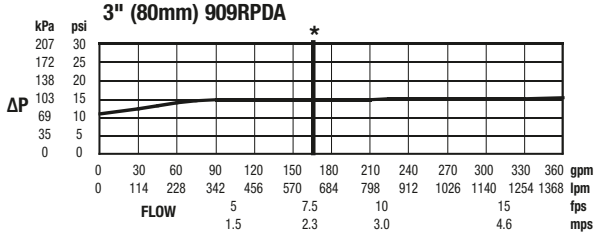


Flow Charts *Typical maximum system flow rate (7.5 feet/sec.)*

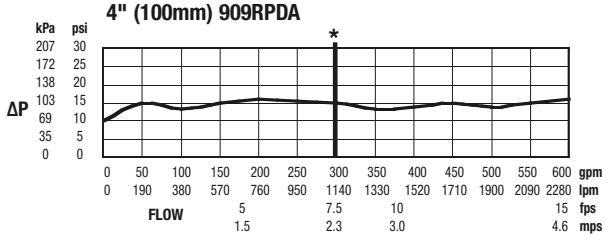
2½" (65mm) 909RPDA



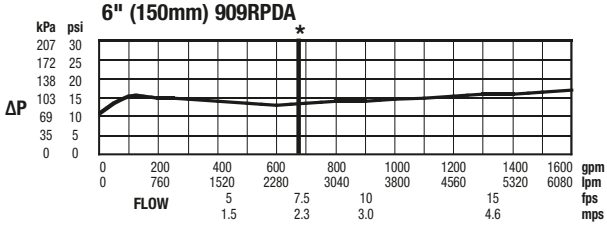
3" (80mm) 909RPDA



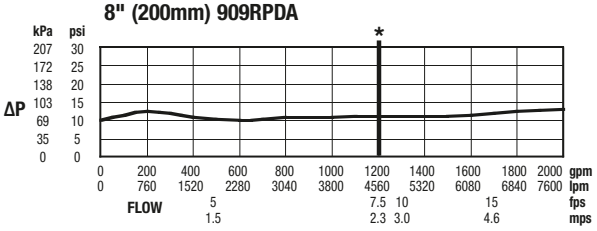
4" (100mm) 909RPDA



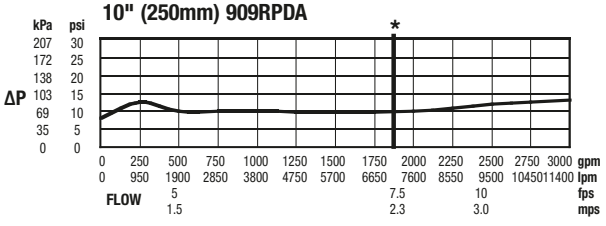
6" (150mm) 909RPDA



8" (200mm) 909RPDA

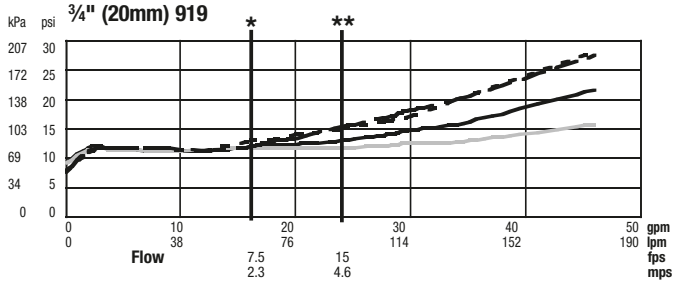


10" (250mm) 909RPDA

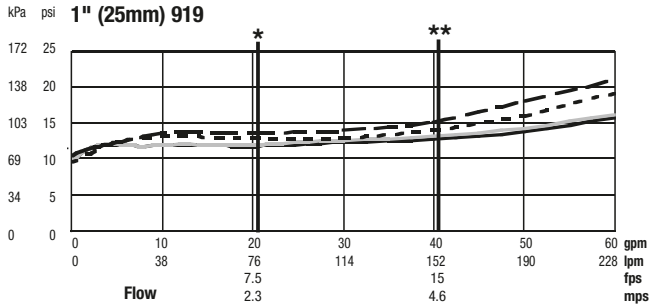


919QT U919QT 919AQT 919ZQT

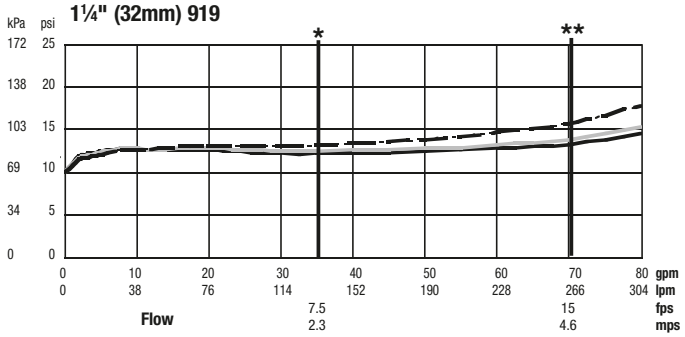
¾" (20mm) 919



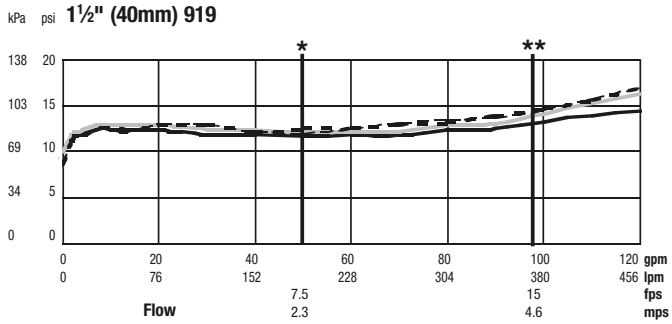
1" (25mm) 919



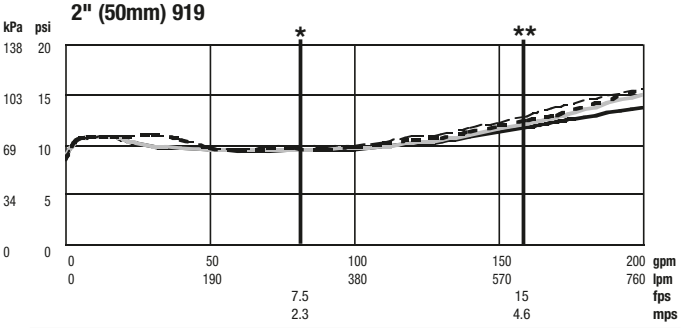
1¼" (32mm) 919



1½" (40mm) 919



2" (50mm) 919



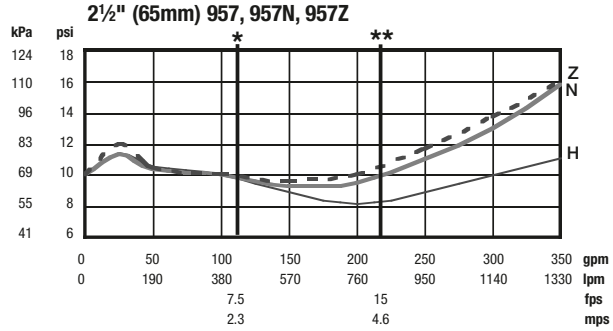
Flow Charts

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

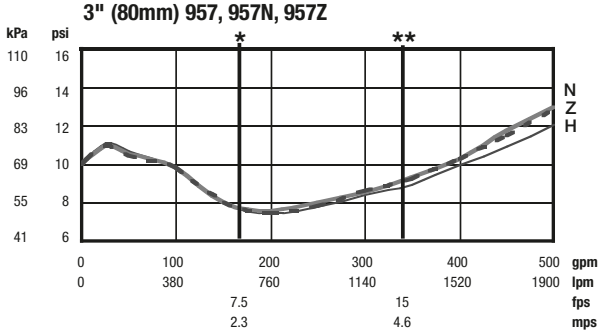
—— H —— V - - - - - Z

* = Rated flow ** = UL Rated flow

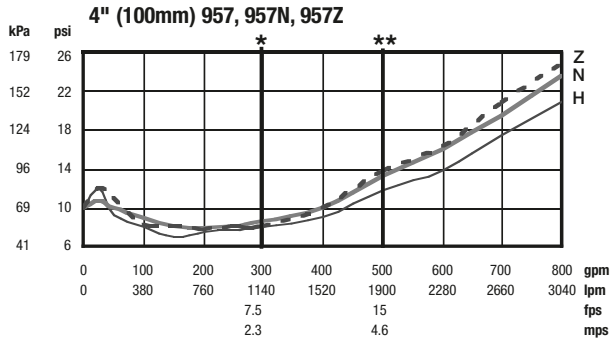
2½" (65mm) 957, 957N, 957Z



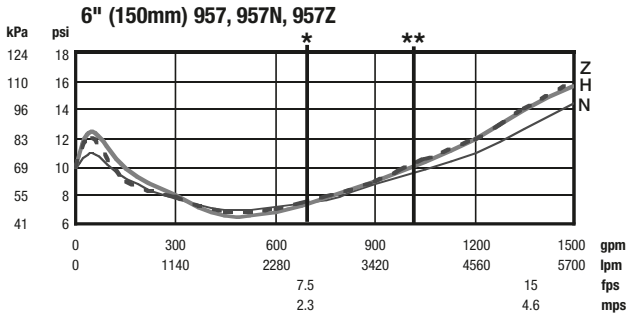
3" (80mm) 957, 957N, 957Z



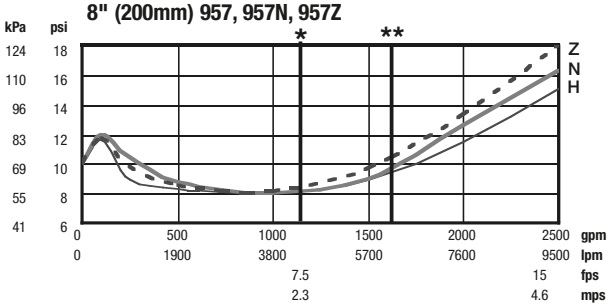
4" (100mm) 957, 957N, 957Z



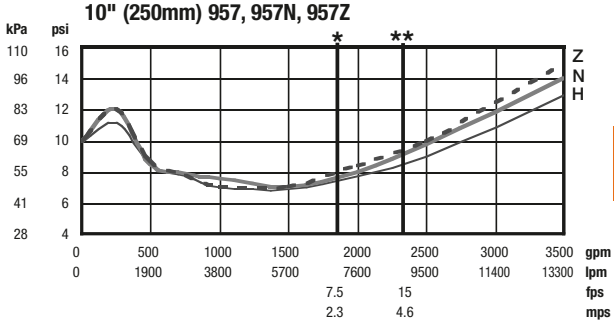
6" (150mm) 957, 957N, 957Z



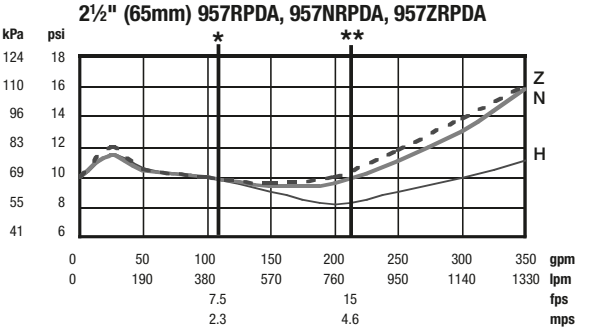
8" (200mm) 957, 957N, 957Z



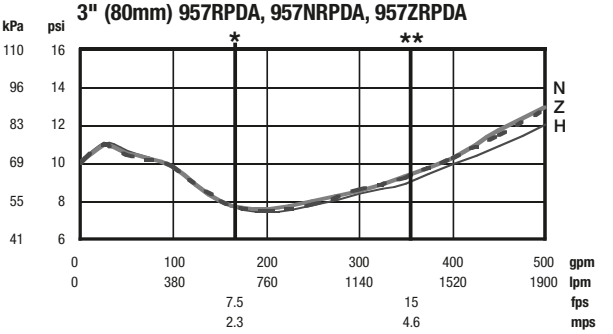
10" (250mm) 957, 957N, 957Z



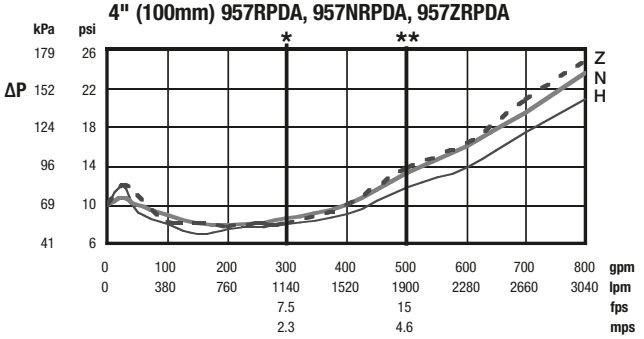
2½" (65mm) 957RPDA, 957NRPDA, 957ZRPDA



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

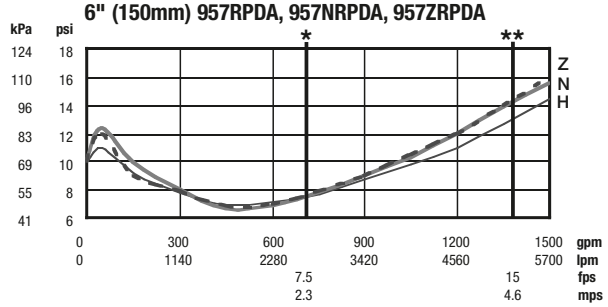


4" (100mm) 957RPDA, 957NRPDA, 957ZRPDA

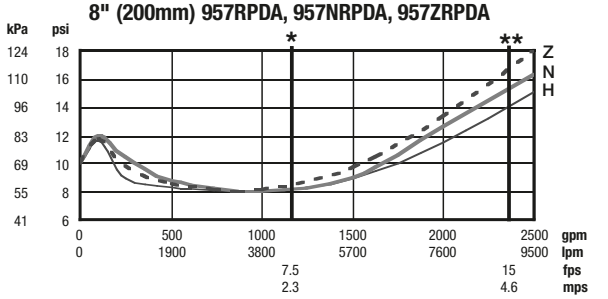


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

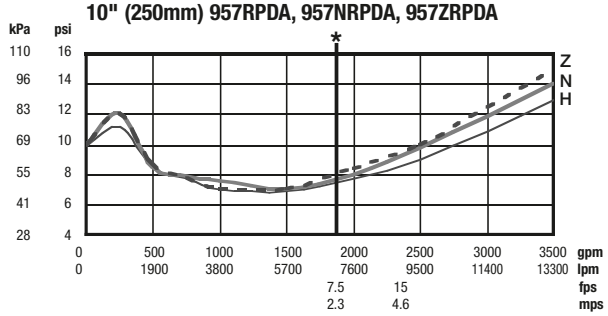
6" (150mm) 957RPDA, 957NRPDA, 957ZRPDA



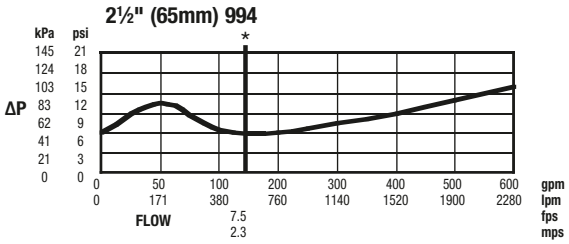
8" (200mm) 957RPDA, 957NRPDA, 957ZRPDA



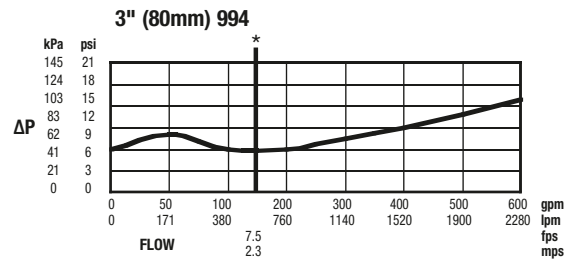
10" (250mm) 957RPDA, 957NRPDA, 957ZRPDA



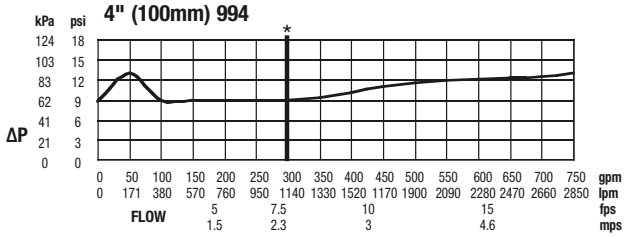
2½" (65mm) 994



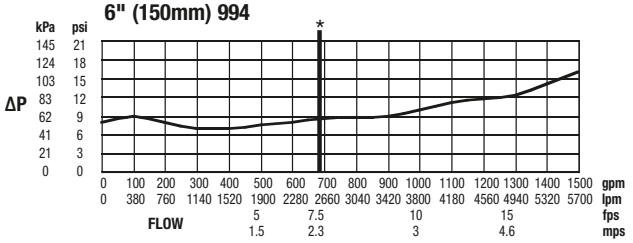
3" (80mm) 994



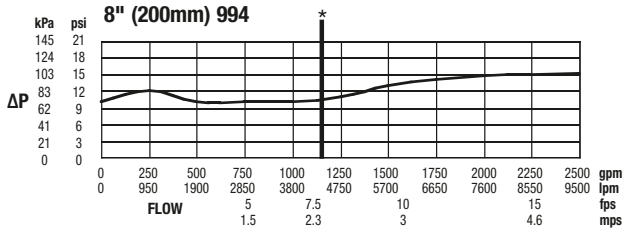
4" (100mm) 994



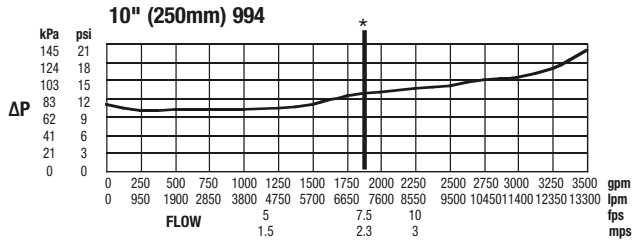
6" (150mm) 994



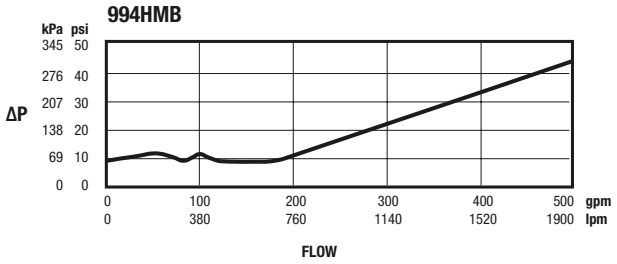
8" (200mm) 994



10" (250mm) 994

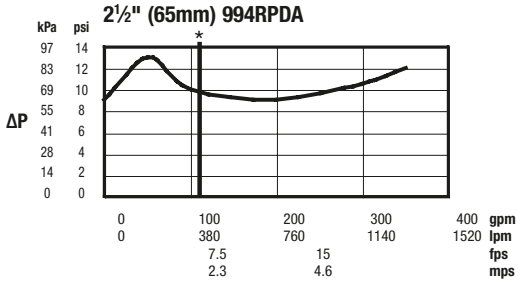


994HMB

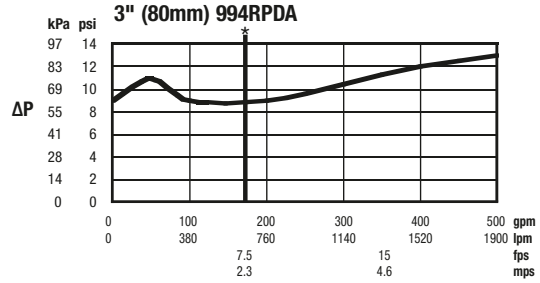


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*

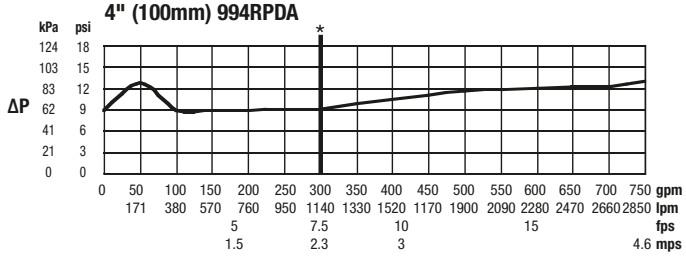
2½" (65mm) 994RPDA



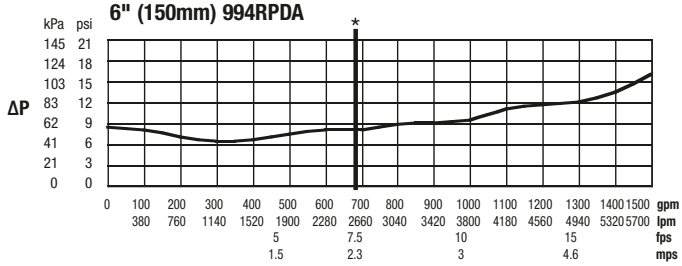
3" (80mm) 994RPDA



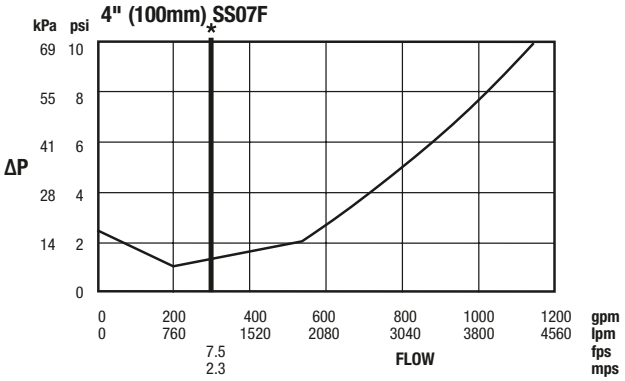
4" (100mm) 994RPDA

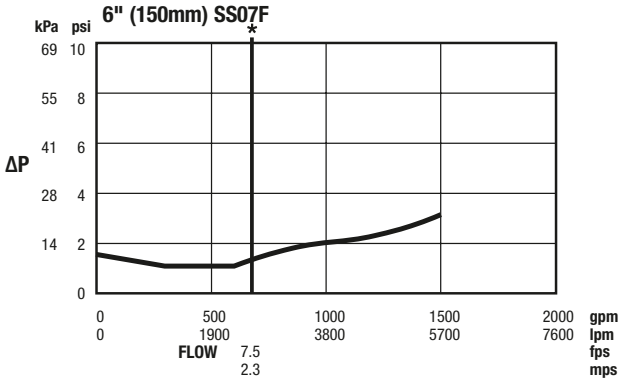


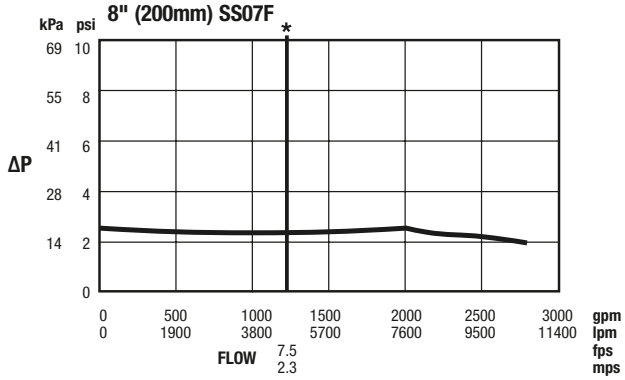
6" (150mm) 994RPDA

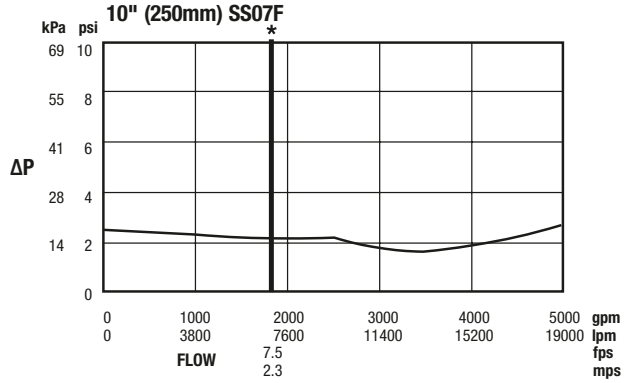


Flow Charts **Typical maximum system flow rate (7.5 feet/sec.)*









For Technical Assistance Call Your Authorized Watts Agent.

			Telephone #	Fax #
	HEADQUARTERS: Watts Regulator Company	815 Chestnut St., North Andover, MA 01845-6098 U.S.A.	978 688-1811	978 794-1848
North East	Edwards, Platt & Deely, Inc.	271 Royal Ave., Hawthorne, NJ 07506	973 427-2898	973 427-4246
	Edwards, Platt & Deely, Inc.	368 Wyandanch Ave., North Babylon, NY 11703	631 253-0600	631 253-0303
	W. P. Haney Co., Inc.	51 Norfolk Ave., South Easton, MA 02375	508 238-2030	508 238-8353
Mid Atlantic	J. B. O'Connor Company, Inc.	P.O. Box 12927, Pittsburgh, PA 15241	724 745-5300	724 745-7420
	RMI	Glenfield Bus. Ctr., 2535 Mechanicsville Tpk., Richmond, VA 23223	804 643-7355	804 643-7380
	The Joyce Agency, Inc.	8442 Alban Rd., Springfield, VA 22150	703 866-3111	703 866-2332
	Vernon Bitzer Associates, Inc.	980 Thomas Drive, Warminster, PA 18974	215 443-7500	215 443-7573
	WMS Sales, Inc. (Main office)	9580 County Rd., Clarence Center, NY 14032	716 741-9575	716 741-4810
South East	Billingsley & Associates, Inc.	2728 Crestview Ave., Kenner, LA 70062-4829	504 602-8100	504 602-8106
	Billingsley & Associates, Inc.	478 Cheyenne Lane, Madison, MS 39110	601 856-7565	601 856-8390
	Francisco J. Ortiz & Co., Inc.	Charlyn Industrial Pk., Road 190 KM1.9 - Lot #8, Carolina, Puerto Rico 00983	787 769-0085	787 750-5120
	Mid-America Marketing, Inc.	203 Industrial Drive, Birmingham, AL 35211	205 879-3469	205 870-5027
	Mid-America Marketing, Inc.	1364 Foster Avenue, Nashville, TN 37210	615 259-9944	615 259-5111
	Mid-America Marketing, Inc.	5466 Old Hwy. 78, Memphis, TN 38118	901 795-0045	901 795-0394
	Smith & Stevenson Co., Inc.	4935 Chastain Ave., Charlotte, NC 28217	704 525-3388	704 525-6749
	Harry Warren, Inc.	1400 North Orange Blossom Trail, Orlando, FL 32804	407 841-9237	407 841-9246
	Watts Georgia	2861-B Bankers Industrial Drive, Atlanta, GA 30360	770 209-3310	770 447-4583
North Central	Aspinall Associates, Inc.	6840 Hillsdale Court, Indianapolis, IN 46250	317 849-5757	317 845-7967
	Dave Watson Associates	1325 West Beecher, Adrian, MI 49221	517 263-8988	517 263-2328
	Disney McLane & Associates	428 McGregor Ave., Cincinnati, OH 45206	800 542-1682	877 476-1682
	BWA Company	17610 S. Waterloo Rd., Cleveland, OH 44119	216 486-1010	216 486-2860
	Mid-Continent Marketing Services Ltd.	1724 Armitage Ct., Addison, IL 60101	630 953-1211	630 953-1067
	Soderholm & Associates, Inc.	7150 143rd Ave. N.W., Anoka, MN 55303	763 427-9635	763 427-5665
	Stickler & Associates	333 North 121 St., Milwaukee, WI 53226	414 771-0400	414 771-3607
South Central	Hugh M. Cunningham, Inc.	13755 Benchmark, Dallas, TX 75234	972 888-3808	972 888-3838
	HMC Sandia Group	13755 Benchmark, Dallas, TX 75234	505 222-3134	800 339-0191
	Mack McClain & Associates	4407 Meramec Bottom, Suite G, St. Louis, MO 63129	314 894-8188	314 894-8388
	Mack McClain & Associates, Inc.	1450 NE 69th Place, Ste. 56 Ankeny, IA 50021	515 288-0184	515 288-5049
	Mack McClain & Associates, Inc.	15090 West 116th St., Olathe, KS 66062	913 339-6677	913 339-9518
	OK! Sales, Inc.	214-A NE 12th., Moore, OK 73160	405 794-5200	405 794-5250
Western	Delco Sales, Inc.	1930 Raymer Ave., Fullerton, CA 92833	714 888-2444	714 888-2448
	Delco Sales, Inc.	111 Sand Island Access Rd., Unit I-10, Honolulu, HI 96819	808 842-7900	808 842-9625
	Fanning & Associates, Inc.	6765 Franklin St., Denver, CO 80229-7111	303 289-4191	303 286-9069
	Hollabaugh Brothers & Associates	6915 South 194th St., Kent, WA 98032	253 867-5040	253 867-5055
	Hollabaugh Brothers & Associates	3028 S.E. 17th Ave., Portland, OR 97202	503 238-0313	503 235-2824
	P I R Sales, Inc.	3050 North San Marcos Place, Chandler, AZ 85225	480 892-6000	480 892-6096
	Preferred Sales	31177 Wiegman Road, Hayward, CA 94544	510 487-9755	510 476-1595
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	Con-Cur West Marketing, Inc.	71B Clipper Street, Coquitlam, British Columbia V3K 6X2	604 540-5088	604 540-5084
	D.C. Sales Ltd.	#10-6130 4th St. S.E., Calgary, Alberta T2H 2B6	403 253-6808	403 259-8331
	D.C. Sales Ltd.	16726 111 Ave, Edmonton, Alberta T5M 2S6	780 496-9495	780 496-9621
	GTA Sales Team.	Greater Toronto Area	888 208-8927	888 479-2887
	Hydro-Mechanical Sales, Ltd.	3700 Joseph Howe Drive, Suite 1, Halifax, Nova Scotia B3L 4H7	902 443-2274	902 443-2275
	Hydro-Mechanical Sales, Ltd.	P.O. Box 1445 (Mailing), 297 Collishaw St., Suite 7 (shipping) Moncton, New Brunswick E1C 9R2	506 859-1107	506 859-2424
	J.D.S. Sales Ltd.	4 Lancaster Street, St. John's, Newfoundland A1A 5P7	709 579-5771	709 579-1558
	Les Ent. Roland Lajoie	6221 Marivaux, St-Leonard, QC H1P 3H6	514 328-6645	514 328-6131
	Les Ent. Roland Lajoie	23 du Buisson, Pont Rouge, QC G3H 1X9	418 873-2500	418 873-2505
	Mar-Win Agencies, Ltd.	1333 Clifton St., Winnipeg, Manitoba R3E 2V1	204 775-8194	204 786-8016
	Northern Mechanical Sales	P.O. Box 280 (mailing) 163 Pine St. (shipping), Garson, Ontario P3L 1S6	705 693-2715	705 693-4394
	Palser Enterprises, Ltd.	P.O. Box 28136 (mailing), 1885 Blue Heron Dr., #4, London, Ontario N6H 5L9	519 471-9382	519 471-1049
	RAM Mechanical Marketing Inc.	1401 St. John Street, Regina, Saskatchewan S4R 1S5	306 525-1986	306 525-0809
	RAM Mechanical Marketing Inc.	510 Ave M South, Saskatoon, Saskatchewan S7M 2K9	306 244-6622	306 244-0807
	Walmar Mechanical Sales	24 Gurdwara Rd., Nepean, Ontario K2E 8B5	613 225-9774	613 225-0673
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