

Hydronic Heating Specialties



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Watts Quality Sets the Standard in Hydronics

With Watts hydronic products, you get longer valve life, economical control of heating and cooling zones, energy savings for your customers and fewer callbacks. Watts products control and protect hydronic systems and your reputation. No one else offers Watts quality and design.

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HPX -----	16				

Featured Products

PIPFM1



Designed to isolate circulator pumps to facilitate circulator pump replacement or repairs while integral purge port facilitates system purging.

See Page 24.

ETX, ETSX



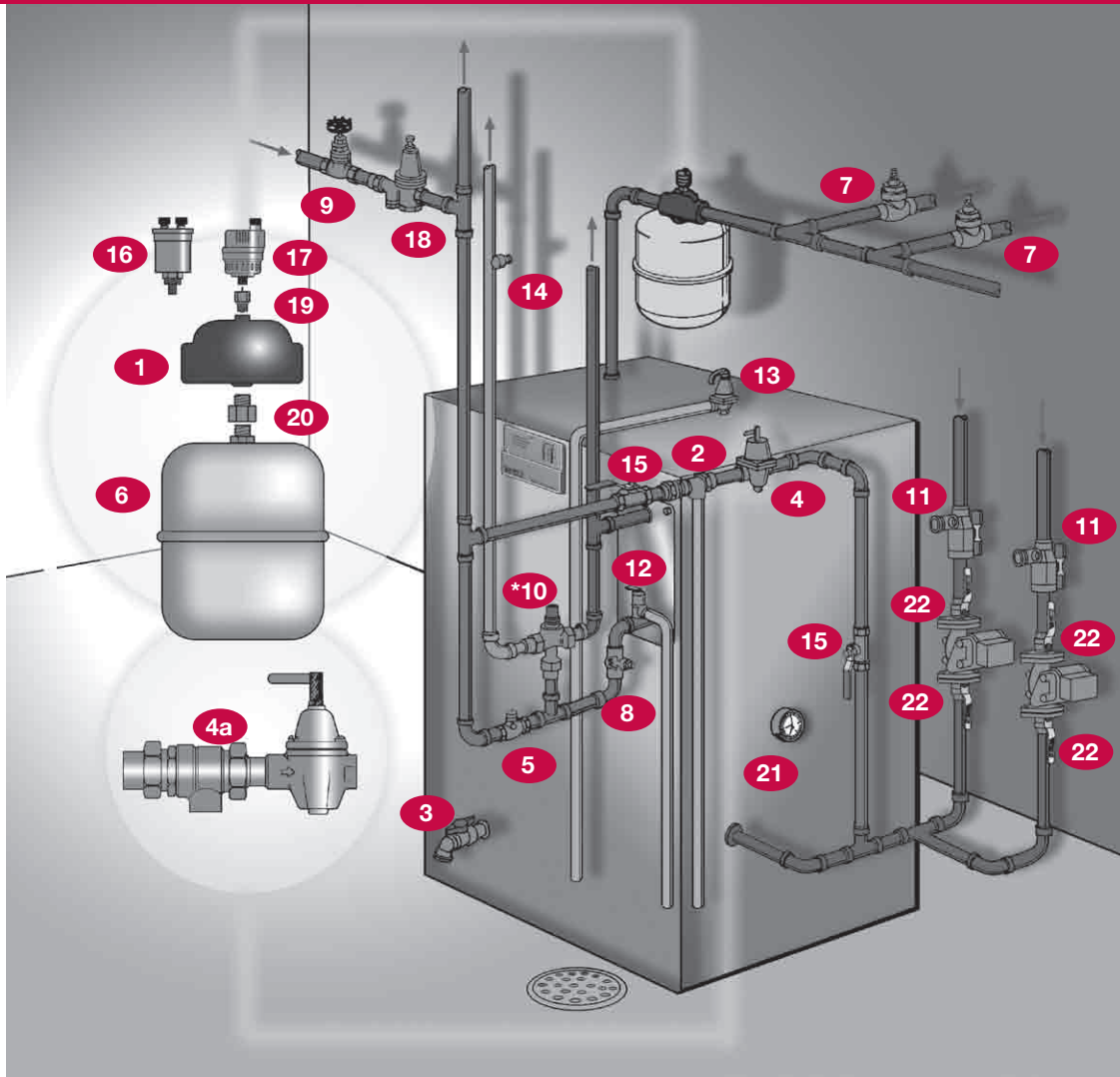
New pressurized expansion tanks. For use with heating and cooling systems.

See Page 19.

A Member of:



Watts Hydronic Heating Specialties



- | | |
|--|--|
| 1 AS, AS-T, AS-B or AS-MB Air Separators - - 10, 11 | 12 3L, 53L Pressure Relief Valve - - - - - 8 |
| 2 9D Backflow Preventer- - - - - 5 | 13 374A, 174A, 740 Hot Water Boiler Safety Relief Valve - - - - - 7 |
| 3 BD, BD-QT, SW, SS Boiler Drain Valve - - - - - 28 | 14 TP Test Plug - - - - - 35 |
| 4 1156F-A, 1156F, SB1156F, B1156F, N256, 1450F, T145B Boiler Fill Valve - - - - - 3-4 | 15 B6000 Ball Valve, FBV-3C Series Ball Valve - 30, 33 |
| 4a 911S: Combines S1156F Fill Valve (4) and 9D Backflow Preventer (2) - - - - - 4-5 | 16 DuoVent Automatic Float Vent Valve or - - - - - 9 |
| 5 CV, CVY Bronze Check Valve - - - - - 26 | 17 FV-4M1 Float Vent - - - - - 9 |
| 6 ETX, ETSX Expansion Tank- - - - - 13-15 | 18 U5B-Z3, 25AUB-Z3 Water Pressure Reducing Valve |
| 7 2000, 2000S Flow Checks - - - - - 12 | 19 SCV 1/8" or 1/4" Service Check Valve - - - - - 12 |
| 8 P3 Flow Control Valve - - - - - 21 | 20 SCV 1/2" Service Check Valve - - - - - 12 |
| 9 GVS, GV Gate or GLV Globe Valve- - - - - 34 | 21 DPTG-3 Combination Temperature & Pressure Gauge- - - - - 39 |
| *10 1170-M2, 70A or N170-M3 Mixing Valve - - - - - 20 | 22 IPF, PIPF Isolation Pump Flange - - - - - 18-19 |
| 11 RPV Purge Valve - - - - - 17 | |

* Valves such as the 70A, the N170-M2 and the ASSE 1017-listed 1170-M2 are for point-of-source applications as shown. ASSE 1016-listed valves such as Watts L111, MMV-M1, or USG should be used at point-of-delivery.
 Note: Product information is subject to change without notice and supersedes all previous publications.

Feed Water Regulators & Dual Controls

Used to fill the boiler and system piping with water and to maintain water pressure in the system at all times. Feed water pressure regulators are also used to provide make up water to the system in the event of system leaks. The fast fill feature is used for speed filling and purging of air from the piping on the initial fill. Dual control units combine the fill valve with a safety pressure relief valve.

High Capacity Feed Water Regulators and Dual Control Units

Speed filling, flushes system and accelerates air purging

Watts feed water pressure regulators and dual controls are offered in a choice of bronze and iron bodies with threaded, union solder or union threaded connections and are standardly equipped with a fast fill purge feature. All are provided with a tight seating check member and stainless steel mesh strainer. They are also supplied in combination with a diaphragm operated pressure relief valve where dual control service is desired.

High Capacity

Standardly furnished with a "purge lever" which is only needed for "purging" because of the high capacity feeding ability of Watts feed water pressure regulators. Watts has higher feeding capacity than most competitive models.

Exceptional Design

Choice of Inlet Connections

Furnished with either threaded, union solder or union threaded connections.

Also furnished with non-union threaded inlet connection for lower cost.

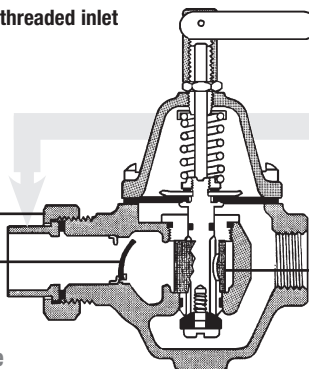
Purge Lever

All 1/2" (15 mm) models furnished with a "purge" lever to manually force the valve open for efficient system purging.



Tight Seating Check Feature

All regulators furnished with tight seating check valve feature.



S1156F

Capacity

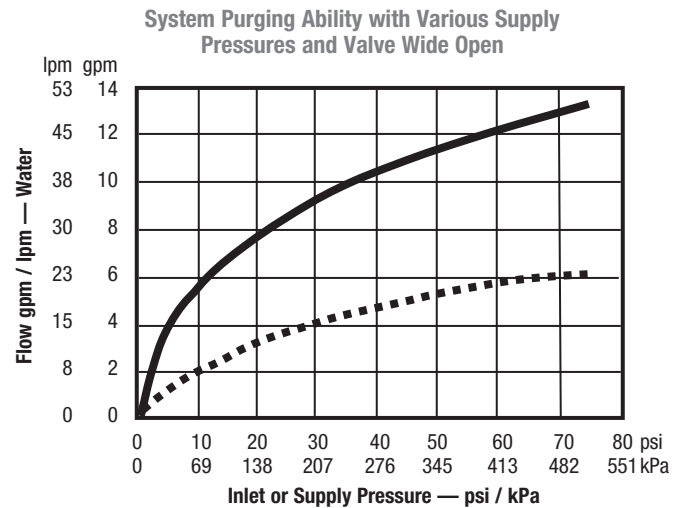
Exceptionally high capacity; far greater than any other feed valve on the market.

S1156F furnished with union solder connection for easy installation.

Other models available with union threaded, union fittings or threaded inlet connection.

Strainer

All models provided with stainless steel strainer to protect valve disc from fouling.



Once the system is pressurized, the purge lever is then utilized for purging the system.

Feed Water Regulators & Dual Controls

Series 1156F

Feed Water Pressure Regulators Iron or Bronze Body

Size: 1/2" (15mm)

Model S1156F features highest purging capacity furnished with union solder inlet connection performance as well as simplified servicing.

Pressure - Temperature

Maximum working pressure: 100psi (6.9 bar)

Maximum temperature: 212°F (100°C)

Adjustment range: 10 – 25psi

(68.7 – 172.4 kPa) Set at 15psi (103.4 kPa)

Models

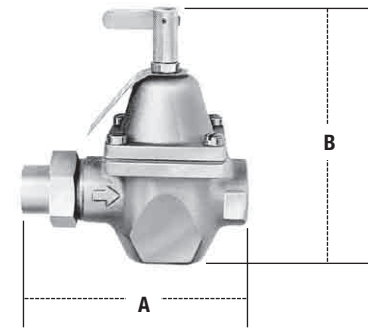
1156F - Identical to the above except it is furnished with threaded inlet connection.

SB1156F - Identical to S1156F except it has a bronze body.

T1156F, TB1156F - Identical to the above except it is furnished with union threaded inlet connection.

1156F-A - Identical to the above except it is furnished with 1/2" female bottom connection for installation of expansion tank.

B1156F - Bronze valve body with threaded inlet connection.



S1156F

Dimensions — Weights

MODEL	SIZE(DN)		DIMENSIONS				WEIGHT	
	in.	mm	A		B		lbs.	kgs.
1156F	1/2	15	3 1/2	89	5 3/8	137	2.1	.95
1156F-A	1/2	15	3 1/2	89	5 3/4	146	2.1	.95
T1156F	1/2	15	4 1/4	108	5 3/8	137	2.2	1
S1156F	1/2	15	4 1/8	105	5 3/8	137	2.3	1
B1156F*	1/2	15	3 1/2	89	5 3/8	137	2.1	1
SB1156F*	1/2	15	4 3/8	111	5 3/8	137	2.2	1
TB1156F*	1/2	15	4 1/8	105	5 3/8	137	2.3	1

*Bronze Body

Models N256, T156B

Feed Water Pressure Regulator Bronze Body

Sizes: 1/2" and 3/4" (15 and 20mm)

Model N256 has tight seating check valve with integral strainer and unitized design for simplified servicing. Set at 15psi (103.4 kPa).

T156B has separate strainer.

Pressure - Temperature

Maximum Temperature: 212°F (100°C)

Maximum pressure: 100psi (6.9 bar)

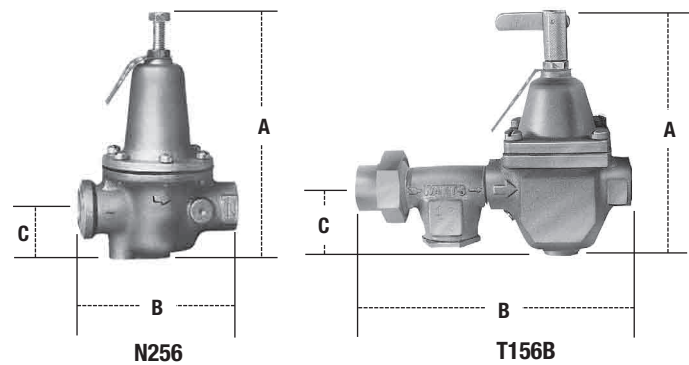
Dimensions — Weights

MODEL	SIZE (DN)		DIMENSIONS						WEIGHT	
	in.	mm	A		B		C		lbs.	kgs.
			in.	mm	in.	mm	in.	mm		

Regulator and strainer

T156B*	1/2	15	5 5/16	135	6 1/16	157	1 3/8	41	2.5	1.1
N256*	3/4	20	6 3/8	162	4	102	1 3/8	35	3.5	1.6

*Bronze Body



N256

T156B

Feed Water Regulators & Dual Controls

Series 1450F

Iron Body Dual Control

Size: 1/2" (15 mm)

Combines construction features of Model 1156F and rugged iron body diaphragm relief valve, set at 30psi (206.9 kPa).

Pressure - Temperature

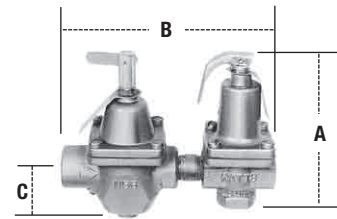
Maximum Working Pressure: 100psi (6.9 bar)

Maximum Temperature: 212°F (100°C)

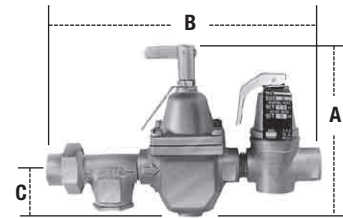
Models

T1450F – Identical to above except furnished with union threaded inlet connection.

S1450F – Identical to above except furnished with union solder inlet connection.



1450F



T145B

Model T145B

Bronze Body Dual Control

Size: 1/2" (15 mm)

All bronze dual control consisting of feed water regulator, 30psi (206.9 kPa) diaphragm relief valve and bronze strainer designed to fill the boiler and system piping with water and to maintain water pressure in the system at all times. These valves also provide make up water to the system in the event of system leaks.

Pressure - Temperature

Maximum Temperature: 212°F (100°C)

Maximum Pressure: 100psi (6.9 bar)

Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS			WEIGHT	
	in.	mm	A in.	B in.	C in.	lbs.	kgs.
Dual Controls - regulator and relief valve							
1450F	1/2	15	5 5/16 135	6 1/2 165	1 5/8 41	3.3	1.5
T1450F	1/2	15	5 5/16 135	7 1/4 184	1 5/8 41	3.3	1.5
S1450F	1/2	15	5 5/16 135	7 178	1 5/8 41	3.3	1.5
Strainer, regulator and relief valve							
T145B	1/2	15	5 5/16 135	8 1/2 216	1 5/8 41	3.5	1.6

Series 911, 911S

Combination Fill Valve and Backflow Preventer for Hot Water Boilers

Size: 1/2" (15mm)

Model 9D Backflow Preventer and Model 1156F Feed Water Pressure Regulator in one pre-assembled unit. Used on boiler feed lines to provide make-up water to the boiler and prevent backflow when supply pressure falls below system pressure.

Features

- Pre-assembled for ease of installation
- Easy service accessibility
- High capacity fill valve for quick system filling and purging

Options:

Suffix:

S – 1/2" (15mm) union solder inlet x 1/2" (15mm) threaded outlet

Prefix:

B – bronze body regulator

Pressure - Temperature

Maximum Pressure: 100psi (6.9 bar)

Maximum Temperature: 212°F (100°C)

Boiler fill valve set at 15psi (103.4 kPa)

Adjustable range 10 – 25psi (68.9 – 172.4 kPa)

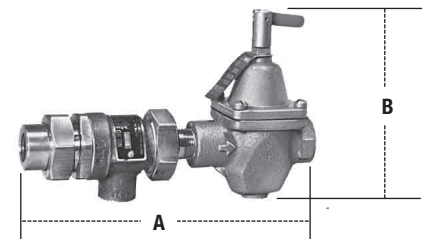
Models

911 – NPT x NPT connections

911S – solder x NPT connections

B911 – all bronze construction

B911S – all bronze construction union solder x NPT connections



911

Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS		WEIGHT	
	in.	mm	A in.	B in.	lbs.	kgs.
911	1/2	15	8 1/2 216	5 1/4 133	4.2	1.9
911S	1/2	15	8 1/2 216	5 1/4 133	4.2	1.9
B911	1/2	15	8 1/2 216	5 1/4 133	4.2	1.9
B911S	1/2	15	8 1/2 216	5 1/4 133	4.2	1.9

Backflow Preventers

Used on boiler feed lines to prevent boiler water from returning to the potable water system. Boiler water may contain chemicals and bacteria that could contaminate the potable water system.

Series 9D

Dual Check Valve with Intermediate Atmospheric Vent

Sizes: 1/2" and 3/4" (15 and 20mm)

Especially made for smaller supply lines. It is typically installed on boiler feed lines to prevent backflow caused by backsiphonage or backpressure. For systems without antifreeze, rust inhibitors or other chemicals. Brass body with stainless steel working parts, integral strainer and durable rubber discs.



Pressure - Temperature

Maximum Working Pressure: 175psi (12.1 bar)

Minimum Required Pressure: 25psi (172 kPa)

Maximum Temperature: 180°F (82°C) sustained, 250°F (121°C) intermittent

Models

9D – sizes 1/2" (15mm), 3/4" (20mm) NPT female union inlet and outlet connections.

9DS – sizes 1/2" (15mm), 3/4" (20mm) with union end solder connections.

9D-SC – with satin chrome finish.

9DS-SC – with satin chrome finish.

Approvals

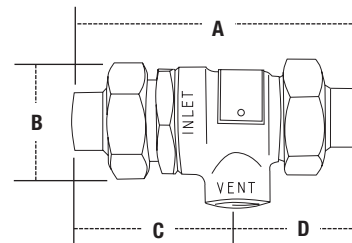


Tested and certified under ASSE Standard 1012 and CSA Standard B64.3.

For additional information, request literature ES-9DM3/M2.

Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS								WEIGHT	
			A		B		C		D			
			in.	mm	in.	mm	in.	mm	in.	mm		
9D-M3	1/2	15	4 ¹⁵ / ₁₆	110	2 ¹⁷ / ₃₂	64	2 ⁹ / ₁₆	65	1 ²⁹ / ₃₂	48	1 1/2	.7
9DS-M3	1/2	15	4 ³ / ₈	111	2 ¹⁷ / ₃₂	64	2 ¹⁷ / ₃₂	64	1 ²⁷ / ₃₂	50	1 1/2	.7
9D-M2	3/4	20	4 ¹⁵ / ₁₆	110	2 ¹⁵ / ₃₂	63	2 ⁹ / ₁₆	65	1 ²⁹ / ₃₂	48	1 3/4	.8
9D-S M2	3/4	20	4 ¹³ / ₁₆	122	2 ¹⁵ / ₃₂	63	2 ³ / ₄	70	2 ¹ / ₁₆	52	1 3/4	.8



Backflow Preventers

Series 909

Reduced Pressure Zone Assemblies

Sizes: 3/4" – 2" (20 – 50mm)

Provides protection against backpressure or backsiphonage backflow in larger systems or those with chemical additives. Unique design of "air-in/water-out" principle provides high capacity relief valve discharge performance during the emergency conditions of combined backsiphonage and backpressure with both checks fouled. Series 909QT is standardly furnished with NPT connections and quarter-turn, full port resilient seated bronze ball valves, 3/4" and 1" (20 and 25mm) have tee handle shutoffs.

Supply pressures up to 175psi (12.06 bar) and water temperatures to 140°F (60°C). Sizes 3/4" and 1" (20 and 25mm) have female threaded body NPT connections. Sizes 1 1/4" – 2" (32 – 50mm) have male threaded body NPT connections.

Features

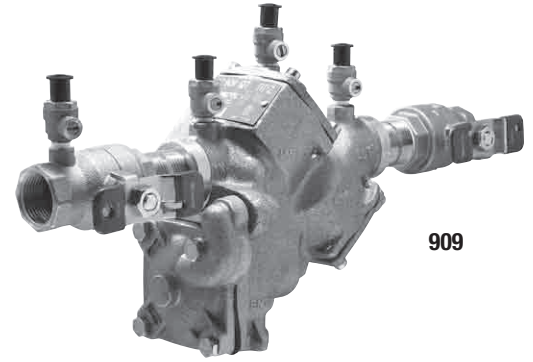
- Bronze body connection
- Replaceable seats
- Ball valve test cocks
- No special tools required for servicing
- Modular design

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

Pressure – Temperature

Maximum Working Pressure: 175psi (12.1 bar)

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



909

Options can be combined

Suffix:

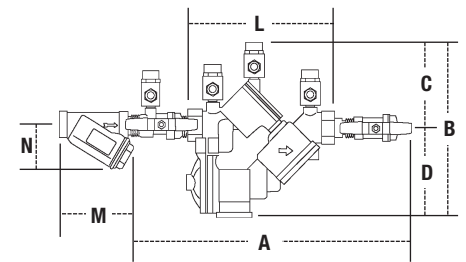
- S** - bronze strainer
- HW** - stainless steel check modules for hot and harsh water conditions to 210°F (99°C)
- LF** - without shutoff valves
- PC** - Internal polymer coating

Prefix:

- U** - 3/4" and 1" (20 and 25mm) union connections
- FAE** - 1 1/4" – 2" (32 – 50mm) flanged adapter ends

For additional information, request literature ES-909S.

Dimensions – Weights



909QT-S

MODEL	SIZE (DN)		DIMENSIONS												WEIGHT			
	in.	mm	A		B		C		D		L		M		N		lbs.	kgs.
909QT	3/4	20	14 3/8	365	8 3/4	222	4	102	4 3/4	121	7 1/2	191	–	–	–	–	14	6.3
909QT	1	25	15 3/8	391	8 3/4	222	4	102	4 3/4	121	7 1/2	191	–	–	–	–	15	6.8
909M1QT	1 1/4	32	18 1/2	470	12	305	5 1/2	140	6 1/2	165	12	305	–	–	–	–	40	18.0
909M1QT	1 1/2	40	19	483	12	305	5 1/2	140	6 1/2	165	12	305	–	–	–	–	40	18.0
909M1QT	2	50	19 1/2	495	12	305	5 1/2	140	6 1/2	165	12 1/4	311	–	–	–	–	40	18.0
909QT-S	3/4	20	14 3/8	365	8 3/4	222	4	102	4 3/4	121	7 1/2	191	3 3/16	81	2 3/4	70	15 5/8	7.1
909QT-S	1	25	15 3/8	391	8 3/4	222	4	102	4 3/4	121	7 1/2	191	3 3/4	95	3	76	17 1/2	7.9
909M1QT-S	1 1/4	32	18 1/2	470	11 5/8	295	5 1/2	140	6 1/2	165	12	305	4 7/16	113	3 1/2	89	42 3/4	19.4
909M1QT-S	1 1/2	40	19	483	11 5/8	295	5 1/2	140	6 1/2	165	12	305	4 7/8	124	4	102	44	20.0
909M1QT-S	2	50	19 1/2	495	11 5/8	295	5 1/2	140	6 1/2	165	12 1/4	311	5 15/16	151	5	127	47 3/8	21.5

Backflow Preventers

Series 919

Reduced Pressure Zone Assemblies

Sizes: 1/4" – 2" (5 – 50mm)

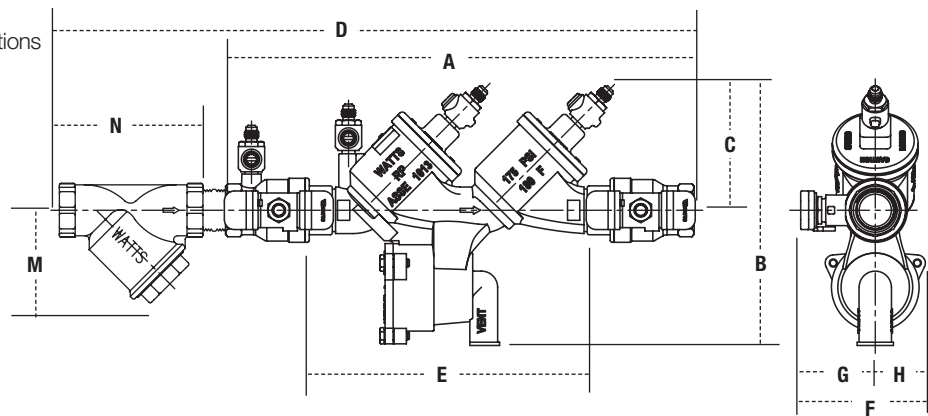
Series 919 Reduced Pressure Zone Backflow Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross-connections or for containment 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 1/4" – 1" (5 – 25mm) shutoffs have tee handles.

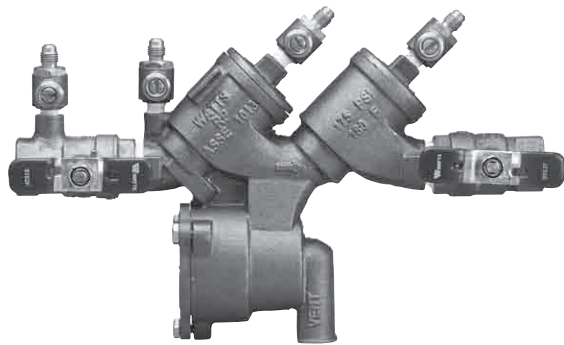
Features

- 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

Dimensions – Weights



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



919

Pressure – Temperature

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

Maximum Working Pressure: 175psi (12.1 bar)

Options

Suffix:

QT – quarter-turn ball valves

S – bronze strainer

LF – without shutoff valves

AQT – elbow fitting for 360° rotation

ZQT – inlet & outlet flow up

Prefix:

U – union connections

Safety Relief Valves

The safety relief valve is mounted directly to the boiler to prevent excess pressure buildup in the boiler. The capacity of the relief valve must be greater than the BTU input of the boiler.

Series 174A, 374A ASME Water Pressure Relief Valves

Sizes: 3/4" – 2" (20 – 50mm)

Bronze body safety relief valves for pressure protection only of all types of hot water heating boiler equipment. Pressure range 30 – 150psi (206.9 kPa – 10.3 bar) with corresponding high BTU/Hr. ratings from 650,000 – 14,370,000 BTU/Hr. Female inlet and outlet connections.

Meets Military Spec. MIL-V-136-12D, Type III.

374A has iron body with forged bronze inlet, 550,000 BTU/Hr. rating.

Series 740

Sizes: 3/4" – 2" (20 – 50mm)

Iron body safety relief valves with expanded outlets for hot water space heating boilers. Pressure range 30 – 75psi (206.9 – 517.1 kPa) with corresponding high ratings from 925,000 – 10,700,000 BTU/Hr. A wide range of relief capacities. Lower BTU per thousand cost because this series provides a much higher BTU rating and size for size than other valves on the market. Female inlet and outlet connections.

Features

- Seat located above drain; water can't be trapped and sediment can't foul seat
- Non-mechanical seat-to-disc alignment
- Water seal of high temperature resisting material isolates spring working parts from water during relief

Dimensions – Weights

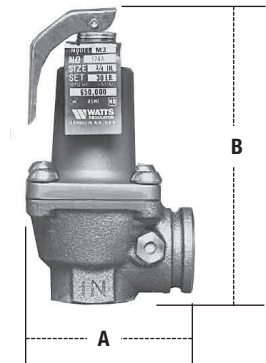
MODEL	SIZE (DN)		DIMENSIONS				WEIGHT	
	in.	mm	A		B		lbs.	kgs.
174A	3/4 x 3/4	20 x 20	2 1/2	64	5 1/8	130	2	.9
174A	1 x 1	25 x 25	3	76	5 3/4	146	3	1.4
174A	1 1/4 x 1 1/4	32 x 32	4 3/4	121	8 3/8	213	6	2.7
174A	1 1/2 x 1 1/2	40 x 40	4 7/8	124	9	229	7	3.2
174A	2 x 2	50 x 50	6 1/4	159	11 1/8	295	14	6.4
374A	3/4 x 3/4	20 x 20	2 1/2	64	3 5/8	92	1	.5
740	3/4 x 1	20 x 25	3	76	5 5/8	143	2	.9
740	1 x 1 1/4	25 x 32	3 1/2	89	7 1/4	184	3	1.4
740	1 1/4 x 1 1/2	32 x 40	4 5/8	117	8 3/4	222	6	2.7
740	1 1/2 x 2	40 x 50	5 1/4	133	9 1/4	235	8	3.6
740	2 x 2 1/2	50 x 65	6 3/4	171	11 1/8	295	17	7.7

Settings and Relieving Capacities

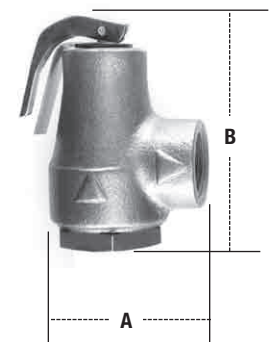
BTU Steam Discharge Capacities

MODEL	SIZE (DN)		30PSI	100PSI	125PSI	150PSI
	in.	mm				
374A	3/4	20	550,000	–	–	–
174A	3/4	20	650,000	1,695,000	2,070,000	2,445,000
174A	1	25	1,005,000	2,635,000	3,215,000	3,795,000
174A	1 1/4	32	1,682,000	4,399,000	5,370,000	6,340,000
174A	1 1/2	40	2,020,000	5,290,000	6,460,000	7,630,000
174A	2	50	3,815,000	9,970,000	12,170,000	14,370,000
MODEL	SIZE (DN)		30PSI	45PSI	50PSI	75PSI
740	3/4 x 1	20 x 25	925,000	1,245,000	1,352,000	1,886,000
740	1 x 1 1/4	25 x 32	1,300,000	1,750,000	1,899,000	2,649,000
740	1 1/4 x 1 1/2	32 x 40	2,105,000	2,830,000	3,075,000	4,285,000
740	1 1/2 x 2	40 x 50	2,900,000	3,903,000	4,237,000	5,909,000
740	2 x 2 1/2	50 x 65	5,250,000	7,067,000	7,672,000	10,700,000

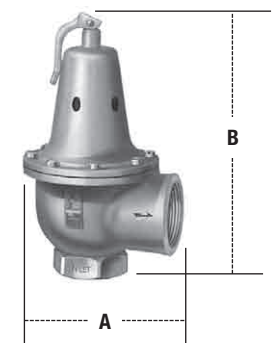
Note: Valve settings, other than shown above, are available in 5psi (34.5 kPa) increments within the pressure ranges shown.



174A



374A



740

Approvals



Rated in accordance with ASME Section IV and the requirements of the national board.

For additional information, request literature ES-174A-740.

Safety Relief Valves

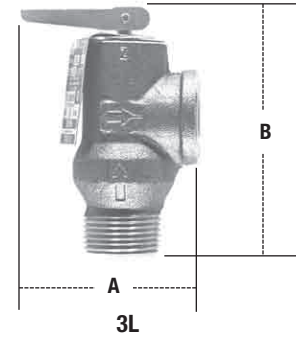
Model 3L

Poppet Type Pressure Relief Valve

Size: 3/4" (20mm)

Provides protection against excessive pressure. Used on domestic storage tanks or tankless water heaters. Pressure range 75 – 150psi (517.1 kPa – 10.3 bar). Standard settings 75, 100, 125 and 150psi (2.1, 6.9, 8.6 and 10.3 bar).

Model 3L has ASME construction and is tested, listed and certified by the National Board of Boiler and Pressure Vessel Inspectors.



Model 53L

Size: 1/2" (15mm)

Same basic design as Model 3L except it is furnished in 1/2" (15mm) size inlet and outlet that does not comply with ASME require ANSI Z21.22 "Relief Valves and Automatic Gas Shutoff Devices", Design Certified and Listed by CSA.

For additional information, request literature ES-FP53L.

MODEL	SIZE (DN)		DIMENSIONS				WEIGHT	
	in.	mm	A		B		lbs.	gm.
*3L	3/4	20	1 3/4	44	3 1/2	89	.625	284
53L	1/2	15	1 7/8	48	3 1/2	89	.5	227

*SOLAR - For solar applications, specify Model 3L-Z9 for stainless steel lever and pin for outside solar applications.

Water Safety Relief Valves

Fig. 31 - ASME Section I

Provides over pressure protection of steam boilers operating up to 250psi (17.2 bar) and 406°F (208°C) saturated steam.

Fig. 41 - ASME Section VIII

For steam service on unfired pressure vessels and pressure reducing valve stations. Figure 41 is rated up to 250psi (17.2 bar) and 406°F (208°C) saturated steam

Fig. 41A - ASME Section VIII

For air, gas and vapors, used on compressors, receivers, burners and other piping systems. Figure 41A is rated up to 250psi (17.2 bar) and 406°F (208°C).



Fig. 31, 41, 41A
Bronze safety valves



Fig. 31, 41, 41A
Flanged cast iron safety valves

Standard Steam Capacities

(lbs./hr. @ 90% rating and 33 1/3% Overpressure)

SET PRESSURE	VALVE SIZE INLET X OUTLET - INCHES						
	3/4 x 1	1 x 1 1/4	1 1/4 x 1 1/2	1 1/2 x 2	2 x 2 1/2	2 1/2 x 2 1/2	3 x 3
*5	230	409	639	924	1637	2557	3698
*10	318	565	882	1276	2260	3530	5106
15	394	700	1093	1581	2801	4375	6328

* Capacities for 5 and 10psi (.3 and .7 bar) are not certified by ASME/National Board.

For additional information, request literature ES-FIG31, ES-FIG41 or ES-FIG41A.

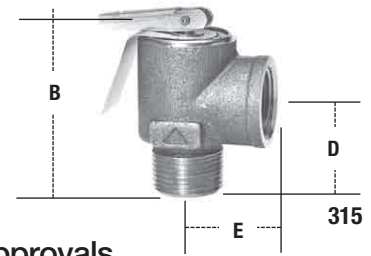
Safety Relief Valves

Series 315-M1, 415-M1 Steam Safety Valves

ASME rated steam safety relief valves up to 643 lbs./hr. (292 kg./hr). Also available with lower settings, such as 8 lbs. (3.6 kg.) for pressure cooker and steam cleaning requirements, which are not ASME rated. Consult factory for rating and quotation.

Dimensions — Weights

MODEL	SIZE (DN)		ASME STEAM DISCHARGE CAPACITY		DIMENSIONS						WEIGHT	
	in.	mm	lbs./hr. @ 15psi	kg./hr. @ 1 bar	B		D		E		lbs.	kgs.
315-M1	3/4 x 3/4	20 x 20	375	170	2 1/16	68	1 3/8	35	1 1/4	32	.55	.24
415-M1	3/4 x 3/4	20 x 20	450	204	2 9/16	71	1 5/16	33	1 1/4	32	.70	.31
415-M1	1 x 1	25 x 25	643	292	3 1/8	78	1 11/16	43	1 5/8	41	.91	.41
415	1 1/4 x 1 1/2	32 x 40	1230	574	4 3/4	121	2 3/8	60	2 1/8	54	2.00	.91
415	1 1/2 x 2	40 x 50	1860	844	5 7/16	138	2 5/8	67	2 5/16	59	3.00	1.36



Approvals



Rated in accordance with ASME Section IV and the requirements of the national board. ANSI Z21.22 "Relief Valves and Automatic Gas Shutoff Devices", CSA Listed. Meets Military Spec. MIL-V-136-12D, Type I.

For additional information, request literature ES-315 and ES-415.

Automatic Air Vent Valves

Used on boiler piping to automatically and continuously vent air from the system water and prevent air collecting in system piping.

Series FV-4M1 Automatic Air Vent-Valve

Sizes: 1/8" – 1" (3 – 25mm) NPTF

Provides automatic air venting for hot or cold water distribution systems. Purges air that may be in the water system and utilizes a float to actuate the valve plug which is located at the top of the valve. Once the air is displaced and the system pressure is sustained, the valve plug seals and prevents any water from escaping the system.

The float vent also operates as an anti-vacuum device since it will permit air to enter the system when it must be drained.

Pressure – Temperature

Minimum Working Pressure: 1.45psi (10 kPa)
Maximum Working Pressure: 150psi (10.3 bar)
Maximum Working Temperature: 240°F (116°C)

For additional information, request literature ES-FV-4M1.

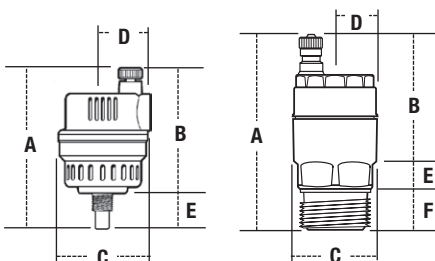


1/8" – 1/4"



1/2" – 1"

FV-4M1



Dimensions — Weights

SIZE (DN)		DIMENSIONS								WEIGHT					
in.	mm	A		B		C		D		E		F		lbs.	kgs.
1/8	3	2 15/16	75	2 5/8	67	1 5/8	41	1 3/16	21	5/16	7.9	5/16	7.9	.40	.18
1/4	8	3 1/8	79	2 5/8	67	1 5/8	41	1 3/16	21	1/8	3.1	1/2	12.7	.43	.20
1/2	15	3 5/16	85	2 11/16	69	1 1/4	32	1 1/4	18	5/8	16	–	–	.44	.20
3/4	20	3 3/8	85	2 11/16	69	1 1/4	32	1 1/4	18	5/8	16	–	–	.45	.20
1	25	3 1/2	89	2 11/16	69	1 3/8	35	1 1/4	18	13/16	20	–	–	.47	.21

Automatic Air Vent Valves

DuoVent

High Capacity Air Vents with Manual Vent Feature

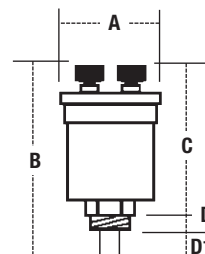
Sizes 1/8" and 1/4" (3 and 8mm) NPTF

Provides automatic air venting for hot or cold water distribution systems. The manual vent feature provides tremendous air elimination capability for lightning fast venting of residential and commercial systems. It utilizes a float to actuate the valve plug, which is located at the top of the valve. Once the air is displaced and the system pressure is sustained, the valve plug seals and prevents any water from escaping the system.

The float vent also operates as an anti-vacuum device since it will permit air to enter the system when it must be drained.



DuoVent



Features

- Body and cover are brass construction
- Air vent with silicone rubber seal
- Impurities do not usually affect functioning as maximum float line of water is always lower than the valve seal
- Float is high temperature resistant polyethylene
- Suitable for use with glycol systems

Pressure – Temperature

Minimum Working Pressure: 1.45psi (10 kPa)
 Maximum Working Pressure: 150psi (10.3 bar)
 Maximum Working Temperature: 240°F (116°C)

Dimensions – Weights

SIZE (DN)		DIMENSIONS										WEIGHT	
in.	mm	A		B		C		D		D1		lbs.	kg.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/8	3	1 5/16	33	3	76	2 1 1/16	68	5/16	8	5/16	8	4.2	119
1/4	8	1 5/16	33	3 1/8	79	2 1 1/16	68	7/16	11	5/16	8	4.2	119

For additional information, request literature ES-DuoVent

Series HAV

Automatic Air Vent Valves with Manual Override

Sizes 1/8" and 1/4" (3 and 8mm)

The HAV hot water vent is designed for automatic or manual air release on baseboards, convectors, radiators, and high points in piping systems.

Features

- Attractive chromed brass body
- Durable stainless steel check valve
- Automatic or manual operation
- Quick venting design and positive shutoff ball check
- Heat resistant handwheel
- Suitable for use with hot water systems
- Easily maintained - replacement cartridge can be installed without system shutdown
- Simple two-piece construction
- HAV-RC replacement cartridge is available

Pressure – Temperature

Working Pressure Range: 1.45 – 125psi (10 kPa – 8.6 bar)

Suitable for water and steam to 10psi (69 kPa)

Working Temperature Range: 140°F – 240°F (60 °C – 116 °C)

Only inhibited glycol based additives should be used with this product.



HAV

For additional information, request literature ES-HAV.

Air Separators

Used on hydronic system piping to separate air from water.

Series AS, AS-T Heavy Duty Cast Iron Air Separators

Sizes: 1" – 3" (25 – 80mm)

Series AS air separators are designed for efficient separation of air from water in hydronic heating systems. All the Series AS air separators have tapplings for the installation of an expansion tank and air vent. Entrapped air in the hot water heating system piping is dispersed by the internal agitator of the air separator as the water is recirculated within the heating system piping. This provides quiet efficient operation of the hot water heating system radiation.

Pressure - Temperature

Maximum Working Pressure: 80psi (551 kPa)
Maximum Operating Temperature: 275°F (135°C)

Features

- AS-T Model includes 1/2" (15mm) tapplings on each side for fill valve piping
- Heavy cast iron construction
- Sizes 1", 1 1/4", 1 1/2", 2", 2 1/2", 3" (25, 32, 40, 50, 65, 80mm) NPT
- Standardly furnished with tapplings for expansion tank and air vent
- Provides complete, continuous purging and venting of air in the system when installed in conjunction with the Watts FV-4M1 or DuoVent float vent

Dimensions — Weights

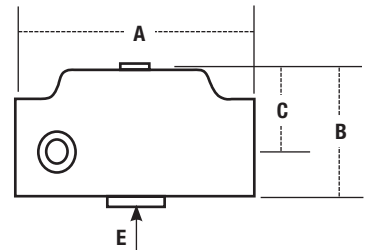
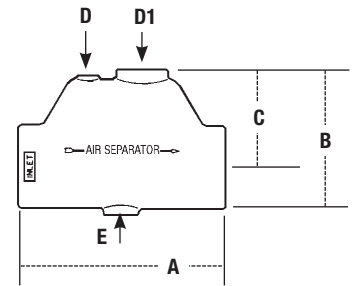
MODEL	SIZE (DN)		DIMENSIONS								WEIGHT					
	in.	mm	A		B		C		D		D1		E		lbs.	kgs.
AS-M1	1	25	6 1/4	159	4	102	2 3/4	70	1/8	3	—	—	1/2	13	4.5	2.0
AS-T-M1	1	25	6 1/4	159	4	102	2 3/4	70	1/8	3	1/2	13	1/2	13	4.5	2.0
AS-M1	1 1/4	32	6 1/4	159	4	102	2 3/4	70	1/8	3	—	—	1/2	13	4.5	2.0
AS-T-M1	1 1/4	32	6 1/4	159	4	102	2 3/4	70	1/8	3	1/2	13	1/2	13	4.5	2.0
AS-M1	1 1/2	40	8	203	5 5/16	135	3 3/8	92	1/8	3	1	25	1/2	13	7.4	3.4
AS-M1	2	50	8	203	5 5/16	135	3 3/8	92	1/8	3	1	25	1/2	13	7.4	3.4
AS-M1	2 1/2	65	10 5/16	262	7 1/4	184	5	127	1/8	3	1	25	1/2	13	15.0	6.8
AS-M1	3	80	10 5/16	262	7 1/4	184	5	127	1/8	3	1	25	1/2	13	15.0	6.8



AS



AS-T



For additional information, request literature ES-AS/AST.

Series AS-B Bronze Air Separators

Sizes: 3/4", 1" and 1 1/4" (20, 25 and 32mm)

Series AS-B is all bronze and perfect for radiant heating applications. It's unique design separates and collects even the smallest micro-bubbles for fast efficient and continuous air removal from all hydronic systems. Series AS-B has tapplings for the installation of an expansion tank, air vent and for boiler fill piping. It also includes 1/2" FV-4M1 air vent.

Features

- Bronze construction
- Sizes 3/4", 1", 1 1/4" (20, 25, 32mm) NPT threaded or sweat
- Comes standard with tapplings for boiler fill, expansion tank and air vent
- Provides complete, continuous purging and venting of air in the system when installed with the Watts FV4-M1 float vent which is provided with the air separator
- Ideal for radiant heat systems

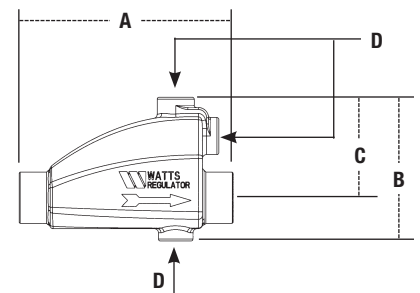
Dimensions — Weights

MODEL	SIZE (DN)		DIMENSIONS								WEIGHT	
	in.	mm	A		B		C		D		lbs.	kgs.
*AS-B-S	3/4	20	5	127	3 7/16	87	2 5/16	59	1/2	13	1.7	.77
*AS-B-S	1	25	6 1/2	165	4 5/16	110	3	76	1/2	13	3.4	1.6
*AS-B-S	1 1/4	32	6 1/2	165	4 9/16	110	3	76	1/2	13	3.4	1.6

*Includes 1/2" FV-4M1 Air Vent and 1/2" brass pipe plug



AS-B-T



For additional information, request literature ES-AS-B.

Air Separator

Used on hydronic system piping to separate air from water.

Series AS-MB Microbubble Air Separator

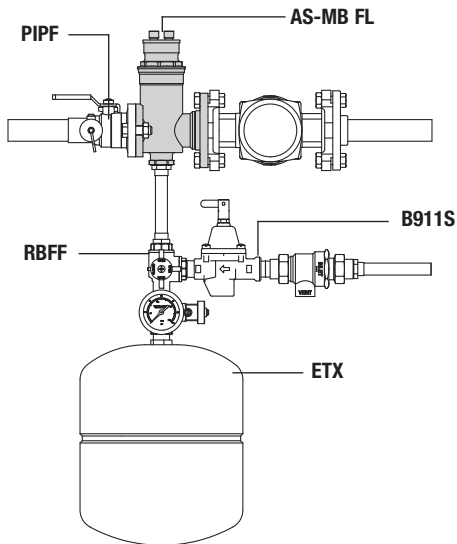
Sizes: 3/4" – 1 1/4" (20 –32mm) Solder
3/4" – 2" (20 –50mm) Threaded and
1 1/4" (32mm) Flanged

Series AS-MB Microbubble Air Separator is designed for efficient separation and elimination of entrained air in hydronic heating systems. No minimum inlet/outlet piping length is required for proper operation.

Features

- Durable forged brass body construction in flanged, 3/4, 1 and 1 1/4 FPT sizes requires no minimum inlet/outlet piping length for proper operation
- Rugged, corrosion-resistant polyphenylsulfone (PPSU) coalescing media withstands petroleum based cleaners, glycol antifreeze and temperatures up to 240 degrees F.
- DuoVent air vent assembly consists of a brass cover, air vent with silicone rubber seal, shutter, polyethylene float with valve plug, automatic vent with black cap and manual vent with red cap. Air vent assembly has a high capacity and high temperature rating and is ideal for use with glycol systems or for use as an anti-vacuum device.
- Fully serviceable - can be disassembled for inspection and cleaning.
- 1/2" FPT bottom tapping for use with Series RBFF Residential Boiler Fill Fitting
- AS-MB FL flanged model can be used with Series PIPF Isolation Pump Flanges with Purge Port & Swivel Flange to create a compact system purge/air elimination module

Typical Installation



Model AS-MB FL shown with Series PIPF Isolation Flange with Purge Port and Swivel Flange, Series RBFF Residential Boiler Fill Fitting, Series ETX Expansion Tank and Series B911S Bronze Combination Fill Valve and Backflow Preventer.

Pressure – Temperature

Maximum Working Pressure: 150psi (10.3 bar)
Maximum Operating Temperature: 240°F (116°C)

For additional information, request literature ES-AS-MB or PF-AS-MB.



AS-MB-SWEAT



AS-MB-THREADED



AS-MB-FLANGED

C_v Ratings
3/4" C_v = 10.2 GPM
1" C_v = 15.0 GPM
1 1/4" (thread, solder and flange) C_v = 23.1 GPM
1 1/2" (thread) C_v = 25.0 GPM
2" (thread) C_v = 37.5 GPM

Service Check Valve

Used between boiler piping and system components to facilitate the servicing of components such as thermal expansion tanks and float vents without draining the piping.

Series SCV

Sizes: 1/8" – 3/4" (3 – 20mm)

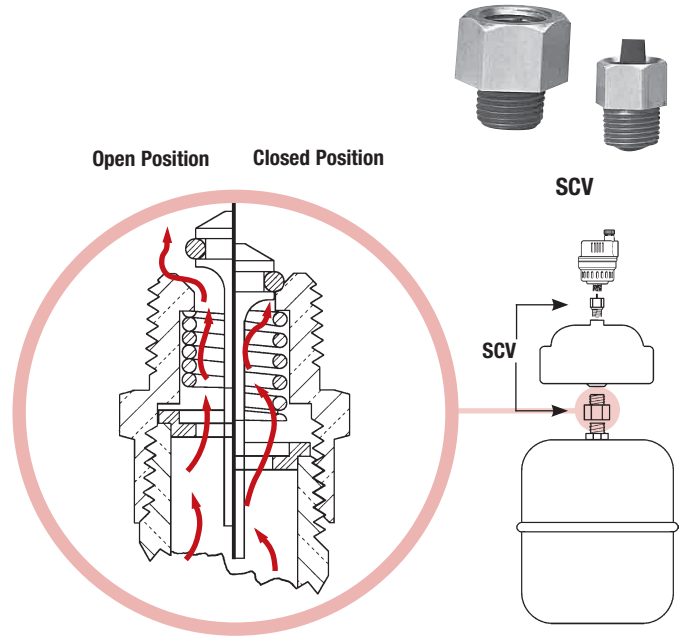
Service Check Valves facilitate the servicing of components in systems under pressure. They install between the system and the component.

As the component is threaded into the Service Check Valve, the spring loaded valve opens to system pressure.

As the component is removed, the valve closes, maintaining system integrity while the component is being inspected.

Note: This device is not to be used on safety relief valves or other safety or flow sensitive components.

Important: System pressure must be reduced prior to removing system components



Flow Checks

Used in hydronic heating systems to provide positive shutoff, preventing flow of water to radiation units by gravity circulation.

Series 2000, 2000S

Two-Way Flow Checks

Sizes: 3/4" – 3" (20 – 80mm)

Designed to provide positive gravity shutoff when circulator is not running. Easily opened for gravity circulation.

Temperature

Maximum Temperature: 250°F (121°C).

Models

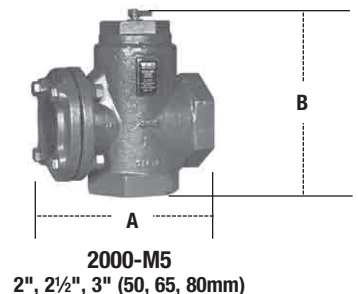
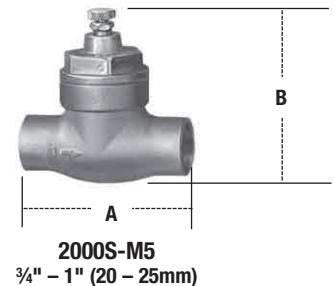
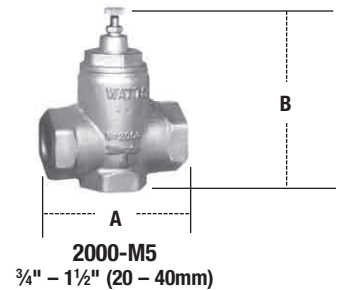
2000S-M5 is furnished with a bronze body and solder connections. Maximum pressure 50psi (344.8 kPa).

2000-M5 combines angle and horizontal checks. Extra expansion tank connection when installed as an angle check. Maximum pressure 50psi (344.8 kPa) for sizes 3/4" – 1 1/4" (20 – 32 mm), 125psi (8.6 bar) for sizes 1 1/2" – 3" (40 – 80 mm).

Repair kit available.

Dimensions — Weights

MODEL	SIZE (DN)		DIMENSIONS				WEIGHT	
	in.	mm	B		mm	lbs.	kgs.	
2000-M5	3/4	20	4 1/8	108	5	127	3	1.4
2000-M5	1	25	4 1/8	108	5	127	3	1.4
2000-M5	1 1/4	32	4 3/4	121	5 5/8	137	4.5	2.0
2000-M5	1 1/2	40	5	127	7 1/4	184	8	3.6
2000-M5	2	50	6 7/8	174	7 1/2	191	12	5.4
2000-M5	2 1/2	65	8 3/8	213	9 5/8	244	22	10.0
2000S-M5	3	80	9	229	10	254	24	10.9
2000S-M5	3/4	20	3	76	3 3/4	92	1	.5
2000S-M5	1	25	3 3/4	95	3 7/8	98	2	.9



For additional information, request literature ES-2000.

Expansion Tanks

Series HPX

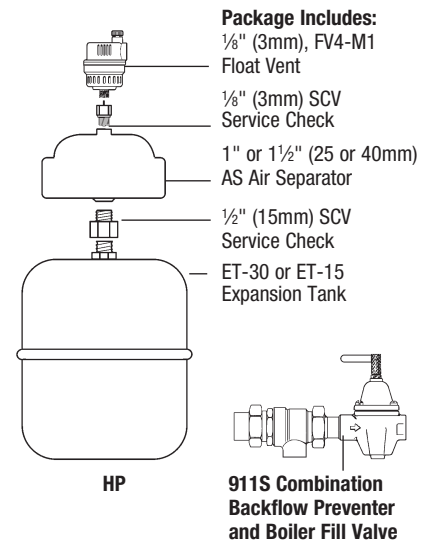
Boiler Trim Packages

Model HPX boiler trim packages contain all the essential trim components of a quality boiler installation in a single easy to carry package.



Package Selection Chart

MODEL	AIR SEPARATOR		SERVICE CHECK VALVE		FLOAT VENT		FILL VALVE	FILL VALVE/ BACKFLOW PREVENTER		FLOW CHECK	EXPANSION TANK	
	1"	1 1/4"	1/8"	1/2"	FV-4M1 1/8"	DuoVent 1/8"		B1156	911S		B911S	2000S-M5 1"
HPX-C	X		X	X	X				X			X
HPX-D		X	X	X	X				X			X
HPX-15C	X		X	X	X				X		X	
HPX-30 BC	X		X	X			X			X		X
HPX-30 BD		X	X	X			X		X			X
HPX-15 BC	X		X	X			X		X		X	
HPX-15 BD		X	X	X			X		X		X	
HPX-15 BF		X	X	X	X		X				X	
HPX-30 BF		X	X	X	X		X				X	X



Boiler Header Module and Pro Hydronic Packages

Our Boiler Header Module and Pro Hydronic Packages are the newest additions to our combination of key boiler piping products packaged in a single master carton. The Pro Hydronic Packages include our newly introduced AS-MB Air Separator and RBFF Service Fitting. Service technicians will appreciate the ease of "wet side" service these packages provide.

Boiler Header Modules

MODEL	INCLUDES
HP-BHM-75	AS-MB FL (0858549), RBFF (0386466), 3/4" PIPF-T (0067790)
HP-BHM-100	AS-MB FL (0858549), RBFF (0386466), 1" PIPF-T (0067791)
HP-BHM-125	AS-MB FL (0858549), RBFF (0386466), 1-1/4" PIPF-T (0067792)



Boiler Header Module Pro Hydronic Packages

Model	Includes
HP-30PRO-P100	HP-BHM-100, ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-P125	HP-BHM-125, ETX-30 (0066606), B911S-M3 (0386462)



Pro Hydronic Packages with NPT AS-MB & RBFF

MODEL	INCLUDES
HP-30PRO-100	AS-MB-100 (0858547), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-125	AS-MB-125 (0858548), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-100S	AS-MB-S-100 (0858551), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-125S	AS-MB-S-125 (0858552), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)



For additional information, see F-BHM.

Expansion Tanks

Series ETA 15 – ETA 240

ASME Pressurized Expansion Tanks for Heating and Cooling Systems

Model ETA Tanks are ASME fixed bladder type pre-charged expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating and cooling systems. The water is contained in the heavy duty bladder preventing tank corrosion and waterlogging problems.

Features

- ASME Section VIII Construction
- Heavy Duty Butyl Bladder
- Precharged to 12psi (82.7 kPa) (Field Adjustable)
- Shell: Carbon steel
- Primer coated exterior

Pressure - Temperature

Maximum Design Pressure:

ETA 15 through ETA 60: 150psi (10.3 bar)

ETA 80 through ETA 240: 125psi (8.5 bar)

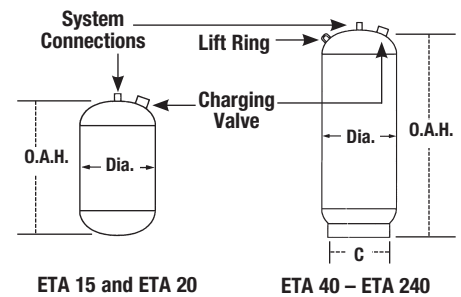
Precharged to 12psi (83 kPa)

Maximum Design Temperature: 240°F (115°C)

For additional information, request literature ES-ETA.



ETA



ETA 15 and ETA 20

ETA 40 – ETA 240

Dimensions – Weights

MODEL	SYSTEM CONNECTION		TANK VOLUME Gallons	ACCEPTANCE VOLUME Gallons	MAX. OPERATING Pressure (psig)	DIMENSIONS						WEIGHT	
	(DN)					Dia.		Height		C		lbs.	kgs.
	in.	mm				in.	mm	in.	mm	in.	mm		
ETA 15	3/4	20	7.8	2.5	150	12	305	19	483	-	-	42	19
ETA 20	3/4	20	10.9	2.5	150	12	305	26	660	-	-	52	24
ETA 40	1	25	25	10	150	16	356	33	1069	12	305	84	38
ETA 60	1	25	35	10	150	16	356	45	1448	12	305	97	44
ETA 80	1	25	45	21	125	20	508	38	968	18	457	148	67
ETA 100	1	25	60	21	125	20	508	49	1245	18	457	175	79
ETA 120	1 1/2	40	70	48	125	24	610	46	1168	22	559	259	117
ETA 144	1 1/2	40	80	48	125	24	610	49	1245	22	559	268	122
ETA 180	1 1/2	40	90	48	125	24	610	52	1321	22	559	283	128
ETA 200	1 1/2	40	115	48	125	24	610	66	1676	22	559	325	147
ETA 240	1 1/2	40	140	52	125	24	610	78	1981	22	559	362	164

Expansion Tanks

Series ET-RA 35 – ET-RA 2000

ASME Pressurized Expansion Tanks for Heating and Cooling Systems

Model ET-RA Tanks are ASME removable bladder type pre-charged expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating and cooling systems. The water is contained in the heavy duty bladder preventing tank corrosion and waterlogging problems. ET-RA expansion tanks reduce tank sizes up to 80%.



ET-RA

Features

- ASME Section VIII Code Construction
- Removable Heavy Duty Butyl Bladder
- Precharged to 12psi (8.7 kPa) (Field Adjustable)
- Shell: Carbon steel
- Primer coated exterior

Pressure – Temperature

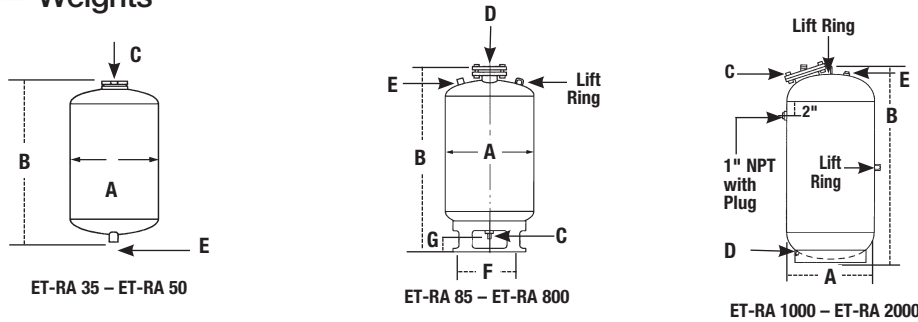
Maximum Design Pressure: 125psig* (8.5 bar)

Maximum Design Temperature: 240°F (115°C)

Precharged to 12psi (83 kPa) *200 and 250psig available.

For additional information, request literature ES-ET-RA.

Dimensions – Weights



MODEL	TANK VOLUME	DIMENSIONS										WEIGHT				
		A		B		C		D		E	F		G	lbs.	kgs.	
	Gallons	in.	mm	in.	mm	in.	mm	in.	mm	Charging Valve	in.	mm	in.	mm		
ET-RA 35	10	12	300	25	635	3/4	19	–	–	.302"	–	–	–	–	40	18
ET-RA 50	13	14	350	25	635	3/4	19	–	–	-32NC	–	–	–	–	50	23
ET-RA 85	23	16	400	37	940	1	25	1/2	13	–	12	305	5 1/2	140	90	41
ET-RA 130	35	20	500	37	940	1	25	1/2	13	–	16	406	5 1/2	140	125	57
ET-RA 200	53	24	600	43	1092	1 1/2	38	1/2	13	.302"	20	508	5 1/4	133	210	95
ET-RA 300	79	24	600	55	1397	1 1/2	38	3/4	19	-32NC	20	508	5 1/4	133	225	102
ET-RA 400	106	30	750	49	1245	1 1/2	38	3/4	19	–	24	610	5 1/4	133	300	136
ET-RA 500	132	30	750	57	1448	1 1/2	38	3/4	19	–	24	610	5 1/4	133	335	152
ET-RA 600	158	30	750	65	1651	1 1/2	38	3/4	19	–	24	610	5 1/4	133	360	163
ET-RA 800	211	36	900	63	1600	1 1/2	38	3/4	19	–	30	762	5 1/4	133	475	215
ET-RA 1000	264	36	900	74	1880	1 1/2	38	3/4	19	–	–	–	–	–	710	322
ET-RA 1200	317	36	900	86	2184	1 1/2	38	3/4	19	–	–	–	–	–	720	327
ET-RA 1400	370	36	900	99	2515	1 1/2	38	3/4	19	.302"	–	–	–	–	875	397
ET-RA 1600	422	48	1200	72	1829	1 1/2	38	3/4	19	-32NC	–	–	–	–	1100	499
ET-RA 2000	528	48	1200	85	2159	1 1/2	38	3/4	19	–	–	–	–	–	1280	581

Note: On models ET-RA 85 thru ET-RA 800 both top and bottom connections (C and D) access the bladder.

Expansion Tanks

Series ETX, ETSX

Pressurized Expansion Tanks for Heating and Cooling Systems*

Series ETX and ETSX Pressurized Expansion Tanks for Heating and Cooling Systems are designed to absorb the increased volume of water created when water is heated. These tanks maintain system pressure below the relief setting of the relief valve. The Series ETX and ETSX's pre-pressurized steel tank features a durable expansion membrane that prevents contact of the water with the air in the tank. This rugged diaphragm minimizes loss of the air change and ensures long and trouble-free life for the system.

Features

- Precharged at 12psi (82.7 kPa)
- Rugged flexible butyl diaphragm
- In-line and free standing models
- Compatible with glycol in systems
- Steel construction

Models

ETX - Mounts to supply piping

ETSX - Free standing

Specifications

Furnish and install as shown on plans a Watts Model ETX, ETSX ____ gallon ____ " diameter x ____ " (high) pre-charged steel expansion tank with a fixed butyl bladder. The tank shall have an NPT system connection and a .302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank shall be factory precharged to 12psi. The tank shall be a Watts Regulator Company Series ETX or ETSX.



ETX



ETSX

Pressure - Temperature

Maximum Working Temperature: 220°F (104°C)

Maximum Working Pressure:

ETX-15, ETX-30, ETX-60: 75psi (517 kPa)

ETX-90 and ETSX Series: 100psi (6.89 bar)

Precharge (field adjustable): 12psi (82.7 kPa)

*Not for use on potable water systems.

Combination Packages

Series ETX-ASF

MODEL	AIR SEPARATOR		FLOAT VENT FV-4M1	EXPANSION TANK		
	1" (25mm)	1 1/4" (32mm)	1/8" (3mm)	15	30	90
Combination Packages						
ETX-15-ASF	X		X	X		
ETX-15-ASF		X	X	X		
ETX-30-ASF	X		X		X	
ETX-30-ASF		X	X		X	
ETX-60-ASF	X		X			X
ETX-60-ASF		X	X			X



Series ETX-ASF hydronic boiler combination packages make it easier to buy system components by including an expansion tank, AS air separator, and FV4 float vent valve all in one package and for a lower cost than buying each of the components separately.

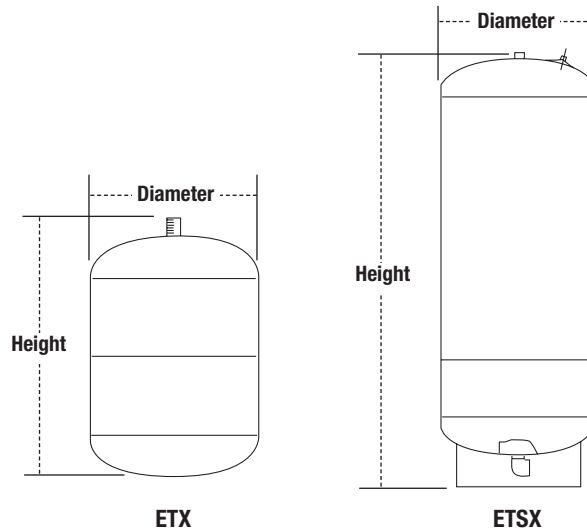
Expansion Tanks

Quick Sizing Chart

Boiler Output Net BTU/H	Finned Tube Baseboard	Convectors or Unit Heaters	Cast Iron Radiators	Cast Iron Baseboard
Suggested Selection				
20,000	ETX-15	ETX-15	ETX-15	ETX-15
30,000	ETX-15	ETX-15	ETX-15	ETX-15
40,000	ETX-15	ETX-30	ETX-30	ETX-30
50,000	ETX-15	ETX-30	ETX-30	ETX-30
60,000	ETX-30	ETX-30	ETX-60	ETX-60
70,000	ETX-30	ETX-30	ETX-60	ETX-60
80,000	ETX-30	ETX-30	ETX-60	ETX-60
90,000	ETX-30	ETX-30	ETX-60	ETX-60
100,000	ETX-30	ETX-60	ETX-60	ETX-60
125,000	ETX-30	ETX-60	ETX-60	ETX-90
150,000	ETX-30	ETX-60	ETX-90	ETX-90
175,000	ETX-60	ETX-60	ETX-90	ETX-90
200,000	ETX-60	ETX-60	ETX-90	ETX-90
250,000	ETSX-30	ETSX-30	ETSX-40	ETSX-30
300,000	ETSX-30	ETSX-40	ETSX-40	ETSX-30
350,000	ETSX-30	ETSX-40	ETSX-60	ETSX-30
400,000	ETSX-30	ETSX-60	ETSX-90	ETSX-40
500,000	ETSX-40	ETSX-60	ETSX-90	ETSX-40
600,000	ETSX-40	ETSX-90	ETSX-90	ETSX-60
700,000	ETSX-60	ETSX-90	ETSX-90	ETSX-60
800,000	ETSX-60	ETSX-110	ETSX-110	ETSX-90
900,000	ETSX-60	ETSX-110	ETSX-110	ETSX-90
1,000,000	ETSX-90	ETSX-110	ETSX-110	ETSX-90
1,200,000	ETSX-90	ETSX-110	ETSX-160	ETSX-90
1,400,000	ETSX-110	ETSX-160	ETSX-160	ETSX-110
1,500,000	ETSX-110	ETSX-160	ETSX-110 (2)	ETSX-110

Note: These recommendations are based on the average water volume of typical closed systems.

Fill pressure 12psi, relief valve set pressure of 30psi and system temperature of 200°F.



Dimensions – Weights

MODEL	CONNECTION SIZE (DN)		TANK VOLUME		ACCEPT. VOLUME		DIAMETER		HEIGHT		WEIGHT	
	in.	mm	gal.	liters	gal.	liters	in	mm.	in	mm.	lbs.	kgs.
ETX-15	1/2" MNPT	15	2.1	7.9	1.0	3.8	8	203	12 1/2	318	5	2.3
ETX-30	1/2" MNPT	15	4.5	17.1	2.5	9.5	11	279	14	356	10.0	4.54
ETX-60	1/2" MNPT	15	6.0	22.8	3.0	11.4	11 3/8	290	17 3/16	437	11.5	5.22
ETX-90	3/4" MNPT	20	15.0	57.0	6.0	22.8	16	406	20 13/16	528	28.0	12.70
ETSX-30	1" FNPT	25	15.0	57.0	6.0	22.8	16	406	21 11/16	551	32.0	14.51
ETSX-40	1" FNPT	25	20.0	76.0	8.0	30.4	16	406	28 13/16	732	39.0	17.69
ETSX-60	1" FNPT	25	33.0	125.4	13.3	50.5	16	406	42 13/16	1087	57.0	28.85
ETSX-90	1 1/4" FNPT	32	44.0	167.2	17.7	67.3	21	533	36 3/16	919	72.0	32.66
ETSX-110	1 1/4" FNPT	32	62.0	235.6	24.9	94.6	21	533	47 7/8	1217	112.0	50.80
ETSX-160	1 1/4" FNPT	32	81.0	307.8	32.6	123.9	21	533	62	1575	123.0	55.79

Purge and Balancing Valves

Used on boiler return piping to facilitate removal of air from heating zones on initial fill and to control water flow through circulation loop. A purge and balancing valve also serves as a shutoff valve and a drain valve for each zone or loop.

Series RPV

Residential Purge, Drain and Balancing Valves

Sizes: 3/4" – 1 1/4" (20 – 32mm)

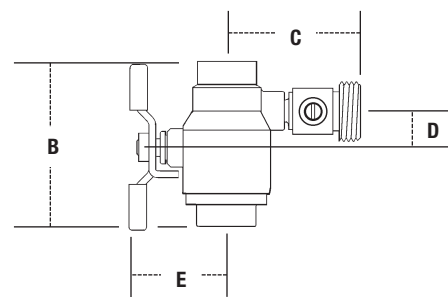
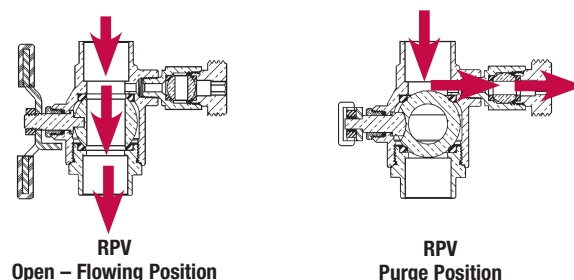
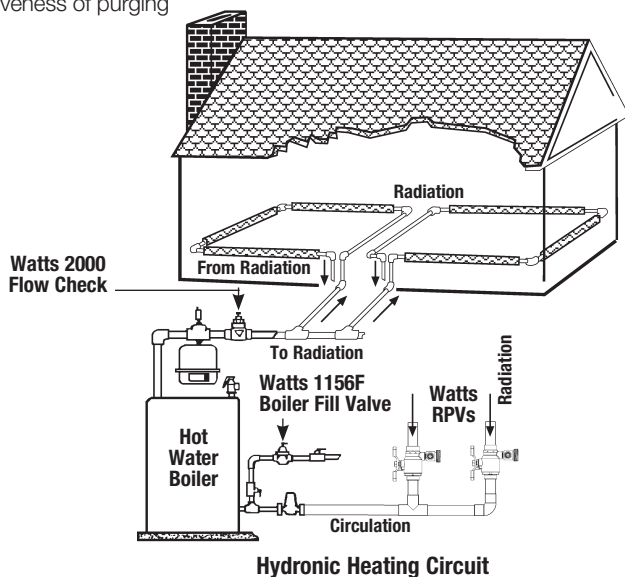
Residential Purge, Drain and Balancing Valves, (RPV) provide a unique and low cost solution for start-up purging, balancing and draining of hydronic heating loops. Using a rugged, dual-ball valve design, the small and compact RPV facilitates: 1) high-volume purging; 2) accurate balancing; 3) a tight shutoff; 4) hose connection for draining and purging.

Features

- One-piece convenience — no extra assembly required
- Maximum air purging — purges 500 foot loop in 10 seconds
- Positive shutoff dual-ball valve design — drip tight seal on balance port maximizes effectiveness of purging

Pressure – Temperature

Working Pressure: 50psi (344 kPa)
Maximum Inlet Temperature: 250°F (121°C)



Dimensions — Weights

MODEL	INLET X OUTLET	SIZE (DN)		DIMENSIONS						WEIGHT			
		in.	mm	B	C	D	E	lbs.	kgs.				
RPV-S	Solder x Solder	3/4	20	2 15/16	75	2 3/8	60	1 1/16	17	1 3/4	44	1.1	0.5
RPV-S	Solder x Solder	1	25	3 3/4	95	2 3/8	60	7/8	22	2 3/8	60	1.2	0.5
RPV-S	Solder x Solder	1 1/4	32	4 1/2	114	2 7/8	73	1 1/4	27	2 7/8	73	1.2	0.5

For additional information, request literature ES-RPV.

Isolation Pump Flanges

Designed to isolate circulator pumps to facilitate circulator pump replacement or repairs.

Series IPF

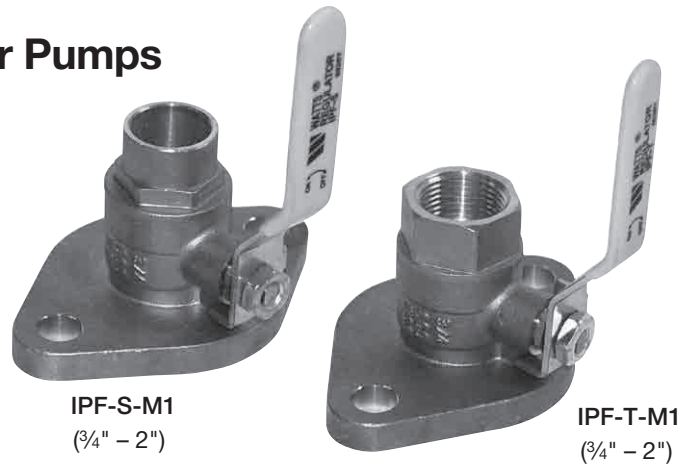
Isolation Pump Flanges for Circulator Pumps

Sizes: 3/4" – 2" (20 – 50mm)

Series IPF Isolation Pump Flanges are designed to isolate circulator pumps to facilitate circulator pump replacement or repairs.

Features

- Brass body and flange
- Adjustable Virgin PTFE packing
- Buna-N stem O-ring seal
- Supplied with lever handle
- Optional T-handle included
- Virgin PTFE seats
- Bottom loaded, blowout proof stem



IPF-S-M1
(3/4" – 2")

IPF-T-M1
(3/4" – 2")

Models

IPF-T-M1 - 3/4" – 2" (20 – 50mm) NPT threaded end connection

IPF-S-M1 - 3/4" – 2" (20 – 50mm) Solder end connection

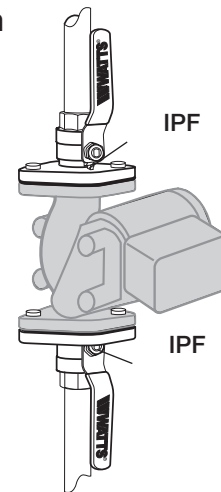
Pressure – Temperature

Maximum Working Pressure: 600psi (41.4 bar) WOG

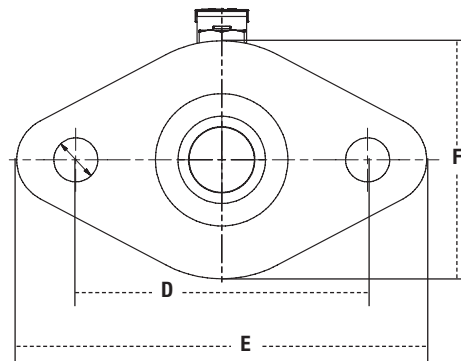
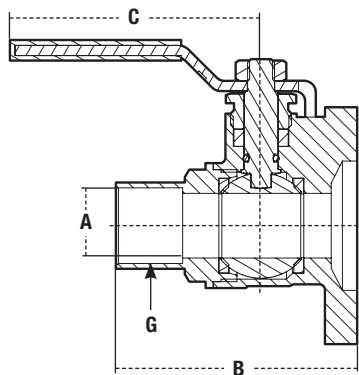
Maximum Temperature: 406°F (208°C) at 100psi (6.9 bar)

For additional information, request literature ES-IPF-M1.

Typical Installation



Dimensions – Weights



SIZE		DIMENSIONS										WEIGHT				
(DN)		A		B		C		D		E		F		G	lbs.	kg
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
IPF-T-M1																
3/4	20	3/4	19	2 1/4	54	3	77	3 3/16	80	4 5/8	118	2 1/16	69	3/4" NPT	1.3	.61
1	25	1	25	2 5/8	63	3	77	3 3/16	80	4 5/8	118	2 1/16	69	1" NPT	1.6	.72
1 1/4	32	1 1/4	31	2 13/16	72	4	107	3 3/16	80	4 5/8	118	2 1/16	69	1 1/4" NPT	2.1	.97
1 1/2	40	1 1/2	39	3 1/4	79	4	107	3 3/16	80	4 5/8	118	2 1/16	69	1 1/2" NPT	2.5	1.13
2	50	1 7/8	47	3 3/4	90	4	107	3 7/16	87	4 5/8	118	2 1/16	69	2" NPT	2.5	1.16
IPF-S-M1																
3/4	20	3/4	19	2 1/8	54	3	77	3 3/16	80	4 5/8	118	2 1/16	69	—	1.3	.60
1	25	1	25	2 1/2	63	3	77	3 3/16	80	4 5/8	118	2 1/16	69	—	1.6	.72
1 1/4	32	1 1/4	31	2 13/16	72	4	107	3 3/16	80	4 5/8	118	2 1/16	69	—	2.1	.97
1 1/2	40	1 1/2	39	3 1/8	79	4	107	3 3/16	80	4 5/8	118	2 1/16	69	—	2.5	1.13
2	50	1 7/8	47	3 1/2	90	4	107	3 7/16	87	4 5/8	118	2 1/16	69	—	3.0	1.36

Isolation Pump Flanges

Series PIPF

Isolation Pump Flanges with Purge Port & Swivel Flange

Sizes: 3/4" – 1 1/4" (20 – 32mm)

Series PIPF Isolation Pump Flanges with Purge Port & Swivel Flange are designed to provide circulator pump isolation to facilitate the circulator pump replacement or repair while the integral purge port facilitates system purging.

Features

- Ball valve isolation for circulator pumps
- Integral purge port saves time and money compared to purge stations made with ball valves, boiler drains, and copper tees
- Swivel flange allows purge port to be positioned for optimal purging convenience
- Brass body and flange
- Pressure rated to 400psi (28 bar) WOG
- Double O-ring stem sealing technology eliminates packing leaks
- Bottom loaded, blowout, proof stem

Models

PIPF-T - 3/4" – 1 1/4" (20-32mm) threaded NPT end connections

PIPF-S - 3/4" – 1 1/4" (20-32mm) solder end connections

Pressure – Temperature

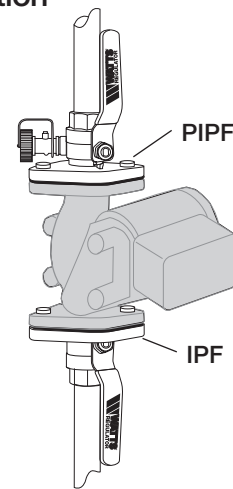
Pressure Rated: 400psi (28 bar) WOG

Maximum Operating Temperature: 406°F (208°C) at 100psi (6.9 bar)

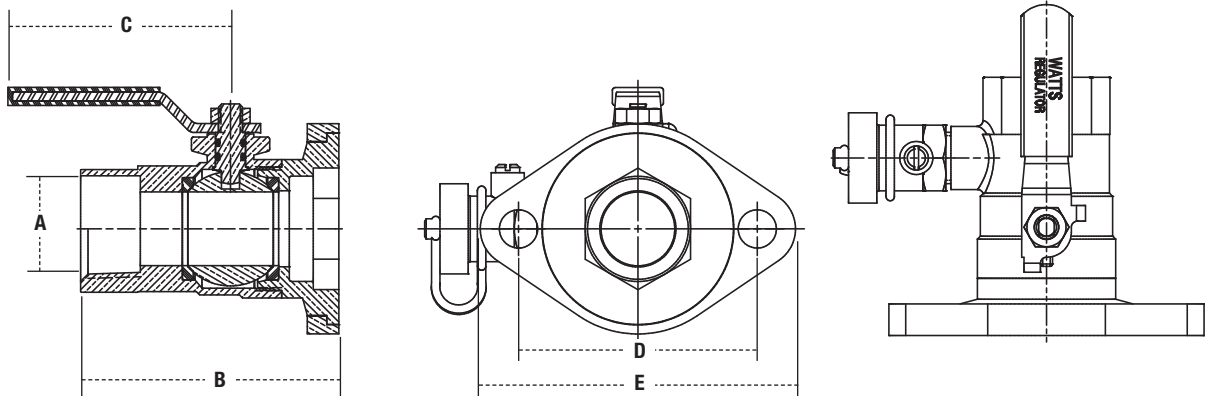
For additional information, request literature ES-PIPF.



Typical Installation



Dimensions – Weights



MODEL	SIZE (DN)		DIMENSIONS										WEIGHT	
	in.	mm	A		B		C		D		E		lbs.	kg.
PIPF-T	3/4	20	3/4	19	3	76	2 15/16	74	3 1/8	79	4 1/8	105	1.86	0.84
	1	25	1	25	3 3/8	86	2 15/16	74	3 1/8	79	4 1/8	105	2.24	1.02
	1 1/4	32	1 1/4	31	3 11/16	93	4 1/16	103	3 1/8	79	4 1/8	105	2.83	1.28
PIPF-S	3/4	20	3/4	19	3 1/8	80	2 15/16	74	3 1/8	79	4 1/8	105	1.71	0.77
	1	25	1	25	3 1/2	89	2 15/16	74	3 1/8	79	4 1/8	105	1.99	0.90
	1 1/4	32	1 1/4	31	3 13/16	98	4 1/16	103	3 1/8	79	4 1/8	105	2.43	1.10

Isolation Pump Flanges

Series PIPFM1

Isolation Pump Flanges with Purge Port and Swivel Flange

Sizes: 3/4" – 1 1/4" (20-32mm)

Series PIPFM1 Isolation Pump Flanges with Purge Port and Swivel Flange are designed to provide circulator pump isolation to facilitate circulator pump replacement or repair while the integral 1/2" purge port provides fast system purging.

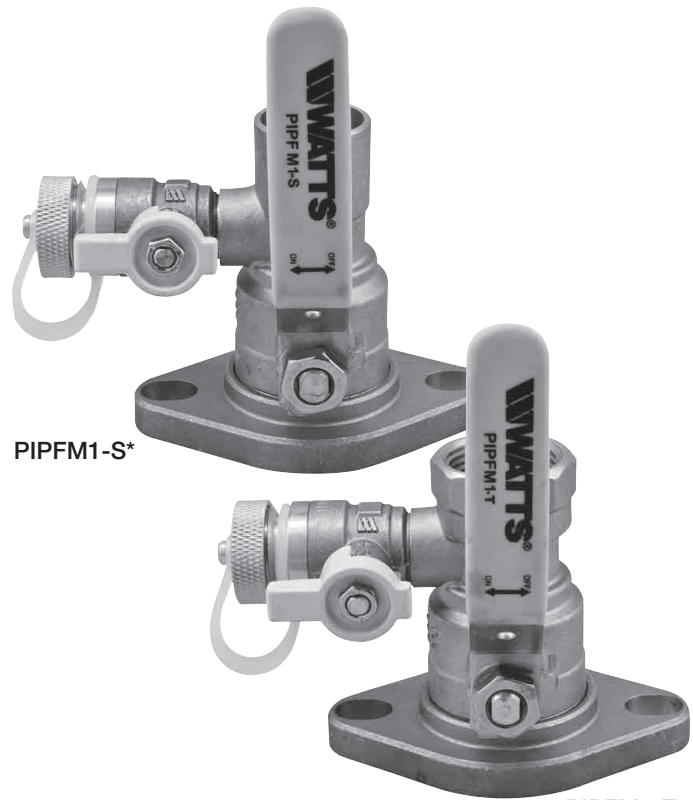
Features:

- Ball valve isolation of circulator pumps
- Integral purge port saves time and money compared to purge stations made with a ball valve, boiler drain and copper tee.
- 1/2" purge port provides fast complete system purging.
- Swivel flange allows purge port to be positioned for optimal purging convenience and provides for neat attractive installations.
- Brass body and flange pressure rated to 600 psi (41 bar) WOG.
- Stem seal is PTFE adjustable packing design.
- Purge port has compact aluminum die cast handle for easy operation.

Models:

PIPFM1-T - 3/4" – 1 1/4" (20-32mm) threaded NPT end connection

PIPFM1-S - 3/4" – 1 1/4" (20-32mm) solder end connection



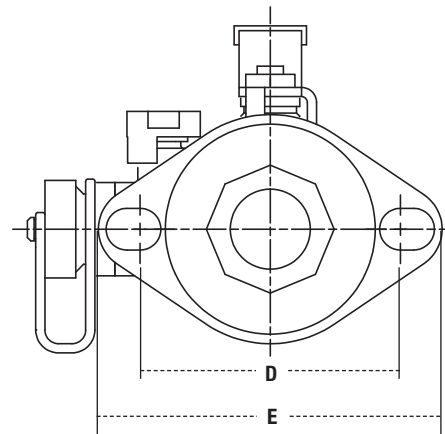
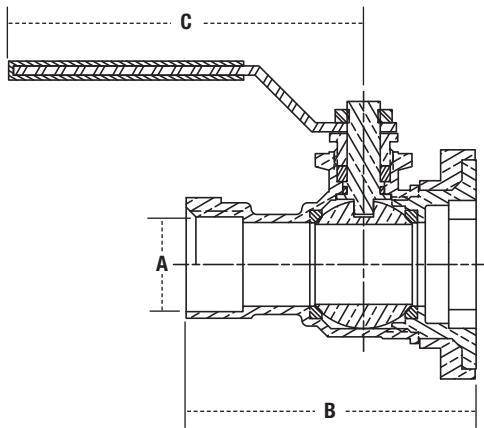
Pressure – Temperature

Maximum Working Pressure: 600psi (41 bar) WOG

Maximum Temperature: 406°F (208°C) @ 100psi (6.9 bar)

*This valve is designed to be soft soldered into lines without disassembly, using a low temperature solder to 420°F (216°C). Higher temperature solders may damage the seat material. Apply heat with the flame directed AWAY from the center of the valve body. Excessive heat can harm the seats.

Dimensions – Weights



MODEL	SIZE (DN)		DIMENSIONS								WEIGHT			
	in.	mm	A		B		C		D		E		lbs.	kg
PIPFM1-T	3/4	20	3/4	19	3 1/8	80	4	101	3 1/8	79	4 1/8	105	2.15	0.98
	1	25	1	25	3 1/2	88	4 1/4	108	3 1/8	79	4 1/8	105	2.51	1.14
	1 1/4	32	1 1/4	31	3 13/16	97	4 1/4	108	3 1/8	79	4 1/8	105	2.97	1.35
PIPFM1-S	3/4	20	3/4	19	3 5/16	84	4	101	3 1/8	79	4 1/8	105	2.09	0.95
	1	25	1	25	3 11/16	94	4 1/4	108	3 1/8	79	4 1/8	105	2.44	1.11
	1 1/4	32	1 1/4	31	4 1/16	104	4 1/4	108	3 1/8	79	4 1/8	105	2.88	1.31

Thermostatic Mixing Valves

Used on boiler supply lines to control the temperature of supply water to heating zones by mixing hot boiler water with cooler return water. They are used to provide control of tempered water to the domestic hot water system. They are also used to prevent re-circulation of cold return water to the boiler to prevent condensation in the boiler.

Series 1170-M2, L1170-M2 ASSE 1017 Listed*

Hot Water Temperature Control Valves

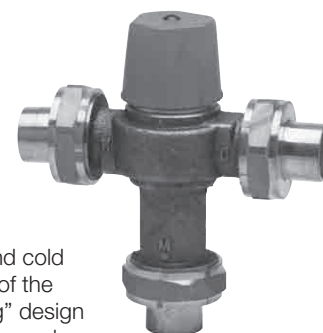
Sizes: 1/2" – 1" (15 – 25mm)

Ideal for use at the hot water source to maintain and limit temperature in domestic systems.

Series 1170-M2, L1170-M2 Hot Water Temperature Control Valves are specifically designed for mixing hot and cold water on hot water supply systems. They can be used for a variety of applications to reduce the temperature of the hot water from the system, and are ideal for radiant heat applications. This series features a "double throttling" design which combines the control of the hot and cold water to provide a sensitive response to changes in water temperature passing through the mixing chamber.

These valves also provide additional safety as they restrict mixed water out to a drip upon loss of cold water supply to the valve.

As an added feature, the 1170-M2, L1170-M2 series incorporates integral check valves and filter washers in both the hot and cold water inlets to protect against cross flow. Available with threaded (-UT), solder (-US), PEX, (-QC) Quick Connect or CPVC connections.



1170-US-M2

Pressure – Temperature

Minimum Flow Requirements to Maintain Set Temperature for Series 1170-M2:

0.5 gpm (1.9 lpm)

Pressure – Temperature

Minimum Supply Static Pressure:

30psi (207 kPa)

Inlet Temperatures:

Hot inlet: 120°F – 200°F (48.9°C – 93°C)

Cold inlet: 40°F – 85°F (5°C – 29°C)

Minimum Differential Temperature: 5°F (3°C)

1170-M2 Temperature Out:

Field range: 90°F – 160°F (32°C – 71°C), adjustable, Accurate within ±3°F (±1.5°C)

L1170-M2 Temperature Out:

Field range: 60°F – 120°F (16°C – 49°C), adjustable, Accurate within ±3°F (±1.5°C)

Maximum Temperature: 200°F (93°C)

Maximum Pressure: 150psi (10.3 bar)

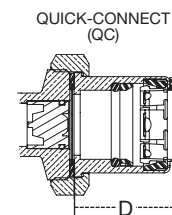
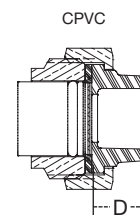
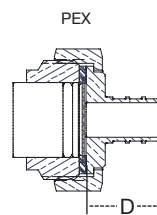
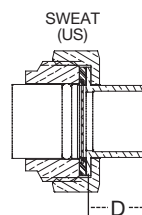
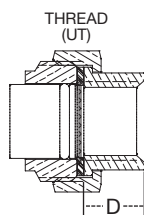
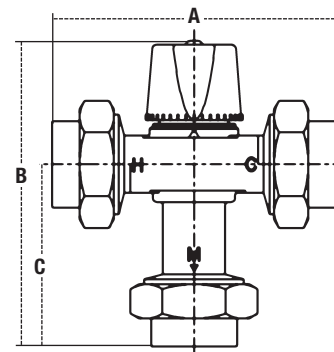
Maximum Pressure differential between hot and cold water supplies: 25%

Materials

- Body – Bronze
- Disc – Stainless Steel
- Thermostat Assembly – Copper
- O-rings – Buna-N; EPDM
- Pistons – Udel-P1700
- Springs – Stainless Steel

* See page 26.

For additional information, request literature ES-1170_L1170



Dimensions – Weights

SIZE (DN)		MODEL	A		B		C		D		WEIGHT	
in.	mm.		in.	mm.	in.	mm.	in.	mm.	in.	mm.	lbs.	kgs.
1/2	15	1170-UT-M2	4 7/8	124	5 7/16	137	3 9/16	80	1/2	13	1.5	.68
3/4	20		4 7/8	124	5 7/16	137	3 9/16	80	9/16	14	1.6	.73
1	32	1170-US-M2	5 5/16	135	5 5/8	143	3 3/8	86	1 1/16	17	1.6	.73
1/2	15		4 13/16	123	5 3/8	137	3 1/8	80	1/2	14	1.5	.68
3/4	20	1170-PEX-M2	5 5/16	135	5 5/8	143	3 3/8	86	3/4	19	1.6	.73
1	32		5 13/16	148	5 7/8	149	3 3/8	92	1 5/16	24	1.6	.73
1/2	15	1170-CPVC-M2	5 1/4	133	5 9/16	142	3 9/16	85	5/8	16	1.5	.68
3/4	20		5 1/2	140	5 11/16	145	3 7/16	88	5/8	16	1.6	.73
1	32	1170-QC-M2	5 7/8	149	5 7/8	150	3 3/8	93	1 3/16	21	1.6	.73
1/2	15		4 3/4	121	5 5/16	136	3 1/16	79	1/2	13	1.5	.68
3/4	20	1170-PEX-M2	5 1/4	133	5 9/16	142	3 9/16	85	3/4	19	1.6	.73
1	32		5 11/16	144	5 13/16	147	3 9/16	90	1 5/16	24	1.6	.73
1/2	15	1170-US-M2	6 5/8	168	6 1/4	159	4	102	1 1/2	38	2.17	.98
3/4	20		6 15/16	177	6 7/16	163	4 3/16	106	1 11/16	42	2.88	1.31
1	32	1170-UT-M2	7 1/8	181	6 1/2	165	4 1/4	108	1 3/4	44	3.65	1.66

Thermostatic Master Mixing Valve

Used to provide control of tempered water to the domestic hot water system.

Series N170-M3 ASSE 1017*

Hot Water Master Tempering Valves

Sizes: 3/4" – 2" (20 – 50mm)

For use on large hot water supply system for mixing hot & cold water for Variety of applications to extend the hot water supply. This series uses paraffin-based thermostat to sense and adjust outlet temperature.

Features

- Dirt & lime resistant poppet and seat design
- Virtual shutoff if supply pressure fails
- Vandal-resistant locking mechanism to secure temperature setting
- Available with and without checkstops

Pressure – Temperature

Maximum Operating Pressure: 125 psig (861 kPa0)
 Maximum Hot Water Temperature: 200°F (93°C)
 Minimum Hot Water Supply Temperature (with Equal Pressure): 5°F (3°C) Above Set Point
 Temperature Adjustment Range: 90°- 180°F (32° – 82°C)
 Hot Water Inlet Temperature Range: 120°-180°F (42°-82°C)
 Cold Water Inlet Temperature Range: 40°-80°F (4°-27°C)



N170-M3



N170-M3-CSUT

For additional information, request literature ES-N170-M3.

Hot Water Extender Tempering Valve

Series 70A, L70A*

Hot Water Extender Tempering Valves for residential installations

Sizes: 1/2" and 3/4" (15 and 20mm)

For domestic hot water service. Mixes cold water and hot water. For automatic storage water heaters it increases draw capacity.

Convenient adjusting dial for "fingertip" temperature control. Heavy stainless steel springs.

Features

- All bronze construction
- Thermostat interchangeable in all sizes

Pressure – Temperature

Maximum Pressure: 150psi (10.3 bar)
 Standard Temperature Range: 120°F – 160°F (49°C – 71°C).
 Maximum Temperature: 210°F (99°C).



70A

Models L70A , L70A-F, L70AT are available for low temperature range 100°F – 130°F (38°C – 54°C).

For additional information, request literature ES-70A.

Flow Control Valve

Model P3

Multi-Orifice Flow Control for Tankless Heaters

Size: 1/2" (15mm)

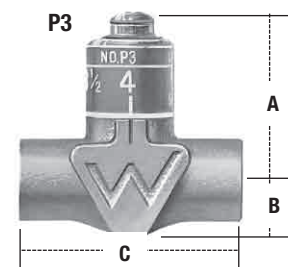
Designed to limit the flow of water to equipment on tankless heater installations. Features a multi-orifice design which lets you select desired flows simply and quickly by turning the cap to the required setting. Setting is obtained by locating multi-orifice cylinder adjusting cap to the marking over the matching line on the body.

Adjusts to 2½, 3, 3½ or 4 GPM (9.5, 11.4, 13.2, or 15.1 LPM).

Pressure – Temperature

Maximum Pressure: 150psi (10.3 bar)
 Maximum Temperature: 250°F (121°C)

For additional information, request literature ES-P3.



Dimensions – Weights

SIZE (DN)		DIMENSIONS				WEIGHT	
A	B	C				oz.	gm.
in.	mm	in.	mm	in.	mm		
1/2	15	1 5/8	41	1/2	13	2 51	6 170

*** Watts Hot Water Extender Tempering Valves and Thermostatic Master Mixing Valves cannot be used for tempering water temperature at fixtures. Severe bodily injury (i.e., scalding or chilling) and/or death may result depending upon system water pressure changes and/or supply water temperature changes. ASSE Standard 1016 or ASSE 1069, 1070 listed devices such as Watts USG, MMV-M1 and L111 Series Valves should be used at fixtures to prevent possible injury.**

The Watts hot water tempering valves are designed to be installed at or near the boiler or water heater. They are not designed to compensate for system pressure and/or temperature fluctuations and should not be used where ASSE 1016 or ASSE 1070 valves are required. These Watts valves should never be used to provide "anti-scald" or "anti-chill" service.

For radiant heat application we recommend Watts models 1170-M2, L1170-M2.

Flow Measurement / Balancing Valves

Used to measure and control the flow of water to individual heating units, assuring proper heat transfer. They are used on pipe risers and headers and at pumps to measure and control flow.

Series CSM-61

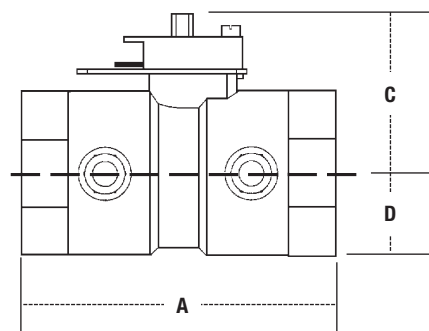
Sizes: 1/2" – 3" (15 – 80mm)

Series CSM-61 valves are specifically designed for application on low or medium flow rate HVAC units. Its compact size allows for easy installation and use on crowded piping compartments. Provides positive shutoff, eliminating the need for a separate service valve.

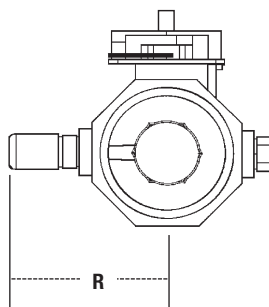
Features

- Accurate flow measurement
- Easy to use memory stop
- Safe "blowout" proof design
- Bidirectional flow
- Positive shutoff
- Available with threaded and solder end connections
- Integral drain port

Dimensions – Weights



CSM-61-M1
1/2" – 3" (15 – 80mm)



CSM-61-M1
1/2" – 1" (15 – 25mm)



CSM-61-M1-T
1 1/4" – 3" (32 – 80mm)

BAA/ARRA Compliant*

*This product complies with the Buy American Act and The American Recovery and Reinvestment Act. For more information, visit watts.com.

MODEL	SIZE (DN)		DIMENSIONS								WEIGHT	
	A in.	mm	C mm	in.	D mm	in.	R mm	in.	mm	lbs.	kg.	
CSM-61-M1-S	1/2	15	2 1/16	68	1 5/8	41	1/2	13	1 3/4	45	1.0	0.45
CSM-61-M1-S	3/4	20	3 1/8	79	1 11/16	43	9/16	15	1 7/8	47	1.3	0.59
CSM-61-M1-S	1	25	3 3/16	97	1 7/8	47	1 3/16	20	2 1/16	52	1.8	0.82
CSM-61-M2-S	1 1/4	32	4 9/16	116	1 7/8	47	1 1/8	29	2 3/16	56	1.5	0.68
CSM-61-M2-S	1 1/2	40	4 7/8	123	2	50	1 5/16	33	2 5/16	59	1.9	0.86
CSM-61-M2-S	2	50	6	153	2 9/16	66	1 9/16	40	2 5/8	67	3.4	1.54
CSM-61-M1-T	1/2	15	2 3/8	60	1 5/8	41	1/2	13	1 3/4	45	1.0	0.45
CSM-61-M1-T	3/4	20	2 5/8	67	1 11/16	43	9/16	15	1 7/8	47	1.3	0.59
CSM-61-M1-T	1	25	3 1/8	80	1 7/8	47	1 3/16	20	2 1/16	52	1.9	0.86
CSM-61-M1-T	1 1/4	32	3 3/4	94	1 7/8	47	1	25	2 3/16	56	1.9	0.86
CSM-61-M1-T	1 1/2	40	3 15/16	100	2	50	1 1/16	27	2 5/16	59	2.3	1.04
CSM-61-M1-T	2	50	4 1/2	114	2 9/16	66	1 9/16	33	2 9/16	66	4.0	1.81
CSM-61-M1-T	2 1/2	65	6 1/2	165	4 1/8	104	2 3/16	55	3 3/8	80	13.0	5.90
CSM-61-M1-T	3	80	6 13/16	173	4 3/8	112	2 7/8	73	3 5/8	92	17.0	7.71

Suffix: S = Solder Ends, T = Threaded Ends

Series CSM-81-F

Sizes: 2½" – 8" (65 – 200mm)

Series CSM-81-F valves are designed for application on medium to high volume flow rate HVAC units. The valve construction allows the flow measurement valve to function reliably both as a balancing valve and bubble-tight service valve, in closed hot or cold water service.

Features

- Accurate flow measurement
- Flanged end connections
- Checked metering ports
- Low torque
- Positive shutoff
- Face to face dimensions to ANSI B16.10

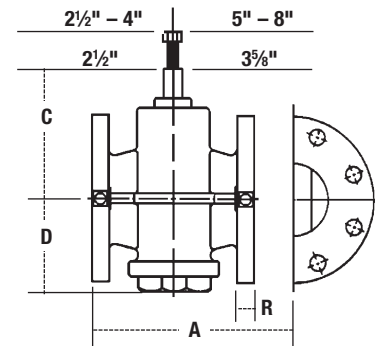
For additional information, request literature ES-CSM-81.

Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS						WEIGHT			
	in.	mm	A		C		D		R			
			in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
CSM-81-F	2½	65	7½	191	5½	130	3¼	100	1¼	17	29.5	13.4
CSM-81-F	3	80	8	203	5¾	138	4¾	113	¾	19	39	17.7
CSM-81-F	4	100	9	229	6½	165	4½	125	15/16	24	61.5	27.9
CSM-81-F	5	125	10½	267	7¾	197	6	152	1	25	88	39.9
CSM-81-F	6	150	10½	267	7¾	197	6	152	1	25	100	45.4
CSM-81-F	8	200	11½	292	9¾	233	6½	165	1⅛	29	172	78.0



CSM-81-F



CSM-81-F

BAA/ARRA Compliant*

*This product complies with the Buy American Act and The American Recovery and Reinvestment Act. For more information, visit watts.com.

Series HBV

Hydronic Balancing (Ball) Valve for forced hot water systems

Sizes: ½" – 1" (15–25mm)

Features

- Brass body construction
- Slotted stem
- Teflon® seats
- Solder ends

Pressure – Temperature

Working Pressure Non-Shock: 600psi (41.1 bar) WOG

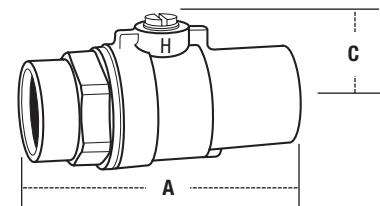
For additional information, request literature ES-HBV.

Dimensions – Weights

SIZE (DN)		DIMENSIONS				WEIGHT	
A	C	C		C		C	
in.	mm	in.	mm	in.	mm	lbs.	kgs.
½	15	2¼	52	1¾	21	.27	.12
¾	20	2¾	71	1	25	.59	.27
1	25	3¼	160	5/16	8	.78	.35



HBV



Flow Measurement / Balancing Valves

Series CSM-91

Sizes: 2½" – 10" (65 – 250mm)

For medium or large flow rate HVAC systems, pump packages, and cooling towers. They feature a multi-turn adjustment range for maximum control, pressure differential readout ports on both sides of the valve to allow for easier installation and positive shutoff for servicing equipment.

Features

- Multi-turn adjustment
- Interchangeable metering and drain ports on both sides of valve
- Positive shutoff
- Tamper-proof memory stop
- Micrometer type handwheel adjustment - visually readable from a distance
- Field convertible for straight or angle pattern
- Grooved end connections with optional flange adapters

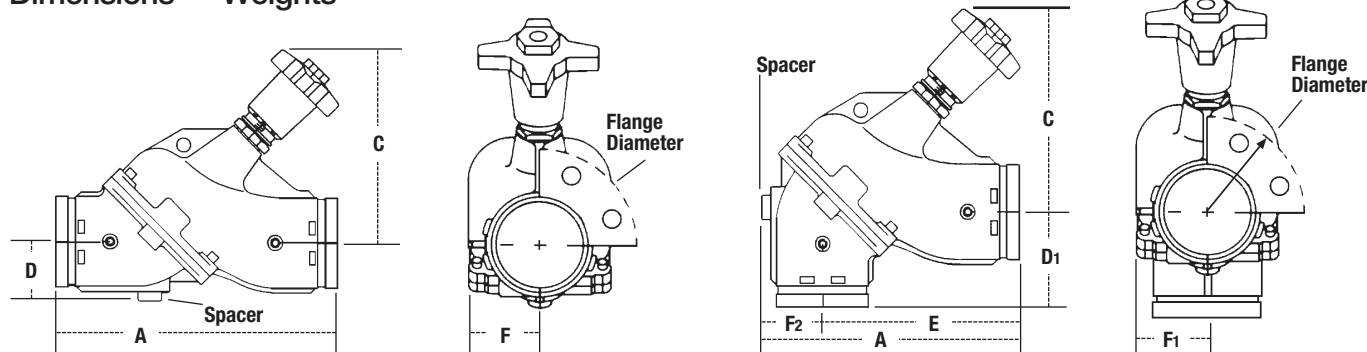


CSM-91
Straight



CSM-91
Angle

Dimensions — Weights



CSM-91 - Factory Standard
Straight Design

Series CSM-91
Field Convertible Angle Pattern

Series CSM-91 - Straight

SIZE (DN)		DIMENSIONS								FLANGED DIAMETER		SPACER		WEIGHT	
A	C	D		F		125#									
in.	mm.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
2½	65	12	305	9⅝	245	2¾	70	2⅞	64	7	178	1	25	19	8.6
3	80	12	305	10½	267	2⅞	61	3	76	7½	191	1	25	24	10.9
4	100	14	356	10⅞	264	3	76	3⅞	87	9¼	235	1¼	32	42	19.0
5	125	17½	445	13⅞	332	3⅝	92	4⅞	124	10	150	1¼	32	81	36.7
6	150	20⅞	526	13¾	349	4⅞	111	5⅞	149	11	279	2	50	120	54.4
8	200	28⅞	716	24⅝	626	5⅞	145	7⅞	200	13½	343	2¼	57	310	140.6
10	250	30	762	26½	673	6⅞	161	9⅞	240	16	406	2¼	57	460	208.6

Series CSM-91 - Angle - Field Convertible*

SIZE (DN)		DIMENSIONS								FLANGED DIAMETER		SPACER		WEIGHT					
A	C	D1		E		F1		F2		125#									
in.	mm.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.		
2½	65	10⅞	257	9⅝	245	4⅝	117	7⅞	187	2⅞	64	2¾	70	7	178	1	25	19	8.6
3	80	10⅞	275	10½	267	3⅞	98	8⅞	213	3	76	2⅞	61	7½	191	1	25	24	10.9
4	100	12⅝	321	10⅞	264	4⅞	111	9⅞	245	3⅞	87	3	76	9¼	235	1¼	32	42	19.0
5	125	15⅝	397	13⅞	332	5½	140	12	305	4⅞	124	3⅞	92	10	150	1¼	32	81	36.7
6	150	18⅞	471	13¾	349	6⅞	168	14⅞	359	5⅞	149	4⅞	111	11	279	2	50	120	54.4
8	200	24⅝	625	24⅝	626	9⅞	234	18⅞	481	7⅞	200	5⅞	145	13½	343	2¼	57	310	140.6
10	250	26⅞	683	26½	673	9¼	248	20⅞	516	9⅞	240	6⅞	161	16	406	2¼	57	460	208.6

*Note: Series CSM-91 valves are shipped as straight pattern from factory. To convert to angle pattern refer to installation sheet shipped with valve.

Low Water Cut-Offs

Protect boilers against emergency low water conditions.

Series N50

Low Water Cut-offs

Size: 1" (25mm)

- Protects hot water heating boilers against emergency low water conditions
- Used on low pressure process boilers

Specifications

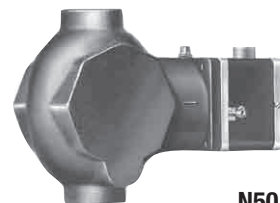
- Float chamber has 1" (25mm) NPT female top and bottom connections.

Models

N50S – Single switch assembly for burner service with extra terminal for line voltage single pole, double throw service

N50D – Dual switch assembly for line voltage burner service and independent low (or high) voltage alarm, feed valve or pump starter

For additional information, request literature IS-N89.



N50

Series SAN89, SAN50

Float and Switch Assemblies for Servicing Low Water Cut-offs

Sizes: 1/2" – 1" (15–25mm)

One piece unit facilitates installation and assures user of the most up-to-date construction

Models

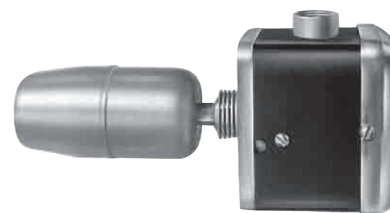
SAN89D – Complete float and dual switch assembly. Maximum steam pressure 15psi (103.4 kPa).

SAN89S – Same as above, but with single switch assembly for Watts N89S and N101S.

SAN50D – Complete assembly with dual switch. Maximum boiler pressure 50psi (344.8 kPa).

SAN50S – Same as above, but furnished with single switch assembly.

For additional information, request literature IS-N89.



SAN89

Series CVY, CVYS

Wye Pattern Bronze Check Valves for Water and Steam Service

Sizes: 3/8" – 2" (10 – 50mm)

For industrial and commercial lines to prevent reverse flow.

Rating: 125 WSP/200 WOG

Features

- Bronze body
- Metal to metal seating
- Wye type pattern

Models

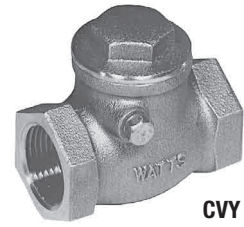
CVY – Sizes 3/8" – 2" (10 – 50mm), IPS threaded connections

CVYS – Sizes 1/2" – 2" (15 – 50 mm), CxC solder connections,

Pressure - Temperature

Maximum Steam: 15psi (103.4 kPa)

For additional information, request literature ES-CVY or ES-CVYS.



CVY

Dimensions – Weights

MODEL	SIZE (DN)		WEIGHT	
	in.	mm	lbs.	kgs.
CVY	3/8	10	.62	.28
CVY	1/2	15	.62	.28
CVY	3/4	20	.88	.40
CVY	1	25	1.32	.60
CVY	1 1/4	32	2.00	.91
CVY	1 1/2	40	2.87	1.30
CVY	2	50	4.76	2.16
CVYS	1/2	15	.60	.27
CVYS	3/4	20	.82	.37
CVYS	1	25	1.24	.56
CVYS	1 1/4	32	1.87	.85
CVYS	1 1/2	40	2.71	1.23
CVYS	2	50	4.76	2.16

Series 600

Bronze Silent Check Valves

Sizes: 1/4" – 2" (8 – 50 mm)

Features

- PTFE seats and brass disc
- Install in a horizontal or vertical position
- Stainless steel guide rod and spring
- Silent check operation
- Prevents water hammer

For additional information, request literature ES-600.



600

Series HWA

Hot Water Angle Valves

Sizes: 1/2" – 1 1/4" (15 – 32mm)

1/2" – 1 1/4" bronze — FIP x male union.

1/2" – 3/4" bronze — solder x male union.

Phenolic handwheel.

Working Pressure non-shock for hot water: 60psi (413.7 kPa).

For additional information, request literature ES-HWA.



HWA

Series UL

Union Elbows

Models

UL-1 - 1/2" – 1 1/4" (15 – 32mm)

Bronze body, FIP x male union

UL-2 - 1/2", 3/4" (15, 20mm)

Bronze body, solder x male union

For additional information, request literature ES-UL.



UL-1

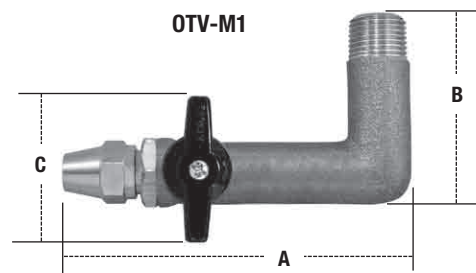
Series OTV-M1 Oil Tank Valves

Features

- 1/4-Turn ball valve design
- Heavy duty brass
- Adjustable packing nut
- PTFE seat and packing

Pressure

Working Pressure Non-Shock:
125psi WOG



Dimensions — Weights

MODEL	SIZE		DIMENSIONS						WEIGHT	
	in.	mm	A		B		C		lbs.	kgs
OTV-FL-M1	1/2 M x 3/8 FL	15 x 10	4 ¹⁵ / ₁₆	125	2 ⁹ / ₁₆	65	1 ¹⁵ / ₁₆	49	.76	.34
OTV-M-M1	1/2 M x 3/8 M	15 x 10	4 ¹ / ₂	114	2 ⁹ / ₁₆	65	1 ¹⁵ / ₁₆	49	.70	.32

For additional information, request literature ES-OTV-M1.

Model RBFF Residential Boiler Fill Fitting

Size: 1/2" (15mm)

Model RBFF Residential Boiler Fill Fitting provides a convenient solution to comply with boiler manufacturers' piping requirements and provide ease of service for expansion tanks and water pressure regulator valves in closed-loop hot water heating systems. Using a unique 3-way ball valve design, the RBFF eliminates up to twelve 1/2 inch fittings in a compact package.

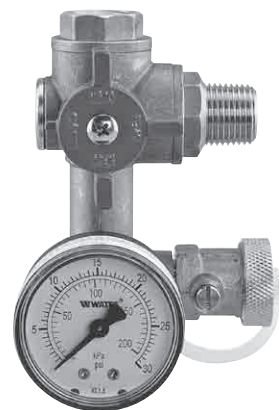
Features

- One-piece construction, eliminating up to 11 threaded joints
- Unique 3-way ball valve for isolation of water pressure regulator and expansion tank from system pressure
- Drain port with integral ball valve for unloading pressure from waterside of expansion tank diaphragm for air charge servicing and maintenance. Drain port can also be used for a variety of system draining and filling operations.
- 0 to 30psi (0 to 87kPa) pressure gauge for convenient system pressure reference

Pressure – Temperature

Maximum Working Pressure: 125psi (860 kPa)
Maximum Inlet Temperature: 250°F (121°C)

For additional information, request literature ES-RBFF.



RBFF

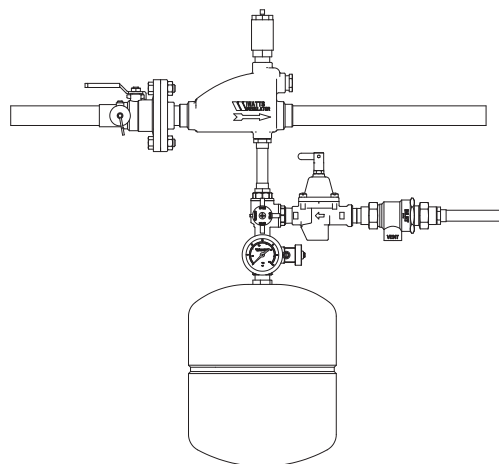


Fig. 1

Series BD-QT

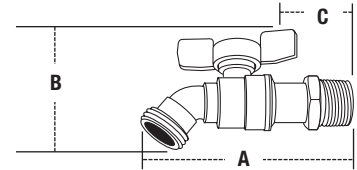
Quarter-Turn Boiler Drains

Sizes: 1/2" and 3/4" (15 and 20mm)

Provide speed and convenience of quarter-turn ball valve performance for boiler drain or sill cock applications. Uses rugged forged brass body, adjustable Teflon® stem packing, and aluminum tee handle. The 1/2" (15mm) model has a dual-pattern combination threaded and solder end by 3/4" (20mm) hose connection. The 3/4" (20mm) model is available in either solder or threaded ends.



BD-QT
3/4" (20mm)



Features

- Quarter-turn ball valve design
- Positive shutoff
- Rugged aluminum Tee-handle design
- Adjustable Teflon® stem packing

Pressure – Temperature

Maximum Pressure: 200psi (13.8 bar)

Maximum Temperature: 250°F (121°C)

For additional information, request literature ES-BD-QT.

Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS						WEIGHT	
	in.	mm	A		B		C		lbs.	kgs.
BD-QT	1/2	15	3 3/8	86	2 1/4	57	1 5/16	24	.04	.018
BD-QT	3/4	20	4 1/8	104	2 7/16	62	1 1/8	29	.05	.022

Series BD

Brass Boiler Drains

Sizes: 1/2" x 3/4" – 3/4" x 3/4" (15 x 20mm – 20 x 20mm)

Pressure – Temperature

Pressure Rating: 200psi (13.8 bar) non-shock WOG

Maximum Temperature: 180°F (82°C)

Models

BD1C Size 1/2" (15mm) dual connection, solder or male IPS x 3/4" (20mm) hose thread connection, angle pattern

BD2 Size 3/4" (20mm) male IPS x 3/4" (20mm) hose thread connection, angle pattern

BD2C Size 3/4" (20mm) MIP x 3/4" (20mm) hose thread connection, angle pattern

BD3F Size 1/2" (15mm) female IPS x 3/4" (20mm) hose thread connection, angle pattern

BD4F Size 3/4" (20mm) female IPS x 3/4" (20mm) hose thread connection, angle pattern

BD5 Size 1/2" (15mm) dual connection, solder or male IPS x 3/4" (20mm) hose thread connection, straight pattern, hose thread connection

BD6 Size 3/4" (20mm) Male IPS x 3/4" (20mm) hose thread connection, straight pattern

For additional information, request literature ES-BD.



BD1C



BD2



BD3F



BD4F



BD5



BD6

Series GBV

2-Piece, Brass Gas Ball Valves

Sizes: 3/8" – 1" (10 – 25mm)

- Brass two-piece body construction
- Available with tee handle or square handle

Models

GBV – Sizes: 3/8" – 1" (10 – 25mm), NPT female connections and tee handle.

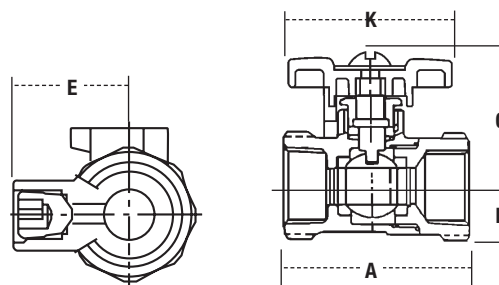
GBV-FL – Sizes: 1/2" x 3/8", 1/2" x 1/2", 3/4" x 15/16" (15 x 10, 15 x 15, 20 x 24mm), Female NPT x Flare connections and tee handle.

GBV and GBV-FL – rated 20°F – 125°F (-29° – 52°C). CSA approved @ 1/2, 2 and 5psi (3.4, 13.8, 34.5 kPa). UL listed @ 5psi (34.4 kPa).

For additional information, request literature ES-GBV.



GBV



Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS						WEIGHT					
	in.	mm	A		C		D		K		E		lbs.	kgs.
GBV	3/8	10	1 13/16	46	1 3/8	35	3/8	10	1 3/4	45	–	–	.41	.19
GBV	1/2	15	2 3/16	55	1 3/8	35	3/8	10	1 3/4	45	–	–	.51	.23
GBV	3/4	20	2 7/16	62	1 7/16	36	9/16	15	1 3/4	45	–	–	.73	.33
GBV	1	25	2 7/8	73	1 9/16	40	1 3/16	20	1 3/4	45	–	–	.59	.27
GBV-FL	1/2 x 3/8	15 x 10	2 7/16	62	1 1/4	32	1/2	13	1 3/4	45	–	–	.53	.24
GBV-FL	1/2 x 1/2	15 x 15	2 1/2	64	1 1/4	32	1/2	13	1 3/4	45	–	–	.58	.26
GBV-FL	3/4 x 15/16	20 x 24	3 1/16	77	1 7/16	36	5/8	16	1 3/4	45	–	–	.86	.39

Series GBV-1

One Piece Gas Ball Valves

Sizes: 1/2" and 3/4" (15 and 20mm)

- Sizes 1/2" and 3/4" (15 and 20mm) NPT female connections.
- Blowout proof stem design.

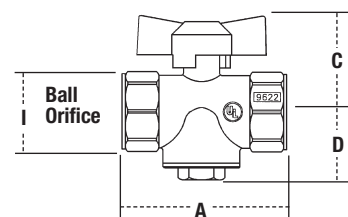
Features

- Blowout proof stem design
- One-piece body
- UL approved @5psi (34.4 kPa)
- Approved by CSA @ 1/2, 2 and 5psi (3.4, 13.8, 34.5 kPa). UL Listed @ 5psi (34.4 kPa).
- Capacity: 1/2" @ 295 ft.3/hr., 3/4" @ 760 ft.3/hr
- Tested under Standards Z21.15 IAS Requirement

For additional information, request literature ES-GBV-1.



GBV-1



Dimensions – Weights

SIZE (DN)		DIMENSIONS						WEIGHT			
in.	mm	A		C		D		I		lbs.	kgs.
1/2	15	2 5/16	59	1 7/16	37	1 5/16	24	1/2	15	.41	.19
3/4	20	2 11/16	68	1 5/8	41	1 1/2	29	9/16	15	.65	.30

Note: This valve is not to be used as a mainline shutoff valve. Refer to literature ES-FBV-3 for mainline shutoff applications.

Series B6000, B6001†

2-Piece, Bronze, Standard Port for residential, commercial and industrial use Ball Valves

Sizes: 1/4" – 4" (8 – 100mm)

- Glass reinforced Durafill 1/2" – 3" (15 – 80mm) or Virgin PTFE 4" (100mm) seats standard
- Hard chrome plated brass ball
- Sizes 1/4" – 2" (8 – 50mm) pressure rated at 150 WSP/600 WOG, 2 1/2" – 4" (50 – 100mm) 400 WOG (non-shock) and 125psi (8.6 bar) saturated steam
- Adjustable stem packing gland
- Suitable for temperatures from 0°F – 450°F (-18°C – 232°C)

Pressure – Temperature

Temperature Range: 0°F – 450°F (-18°C – 232°C) @ 50psi (3.4 bars)

Pressure Range:

1/4" – 3" (8 – 80mm), 600psi (41 bar) WOG non-shock; 150psi (10 bar) WSP

4" (100mm), 400psi (28 bars) WOG non-shock; 125psi (8.6 bar) WSP

Use stainless steel trim (option SS) for steam pressures over 150psi (10 bar).

Available Options

CC – Cap & Chain 1/2", 3/4" (13mm, 19mm)

GS – Grounded stem

TH – Tee handle

RH – Round handle 1/4" – 2" (6 – 51mm)

SS – Stainless steel ball and stem

SH – Stainless steel handle and nut

XH – Extended handle

OV – Oval handle, low profile

VT (01) – Virgin PTFE seat material

BS – Balancing stop

04 – Mineral-filled PTFE seats and seals (available in all 316SS ball and stem option)

*Z15 – Less lever and nut

Chain lever kit 3/4", 1" (20, 25mm)

Available Optional Valves

UL Listed: 

Flammable Liquids (YRBX)

Compressed Gas (YQNZ)

Fire Protection (HNFX) 1/4" – 2" (8 – 51mm)

LP Gas (YSdT) 1/4" – 3" (8 – 80mm)

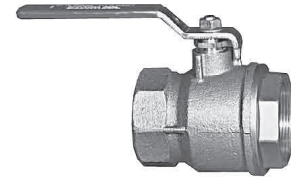
Natural/Manufactured Gas (YRPV)

1/4" – 3" (8 – 80mm)

For #1 and #2 Fuel Oils (MHKZ)

1/4" – 3" (8 – 80mm)

For additional information, request literature ES-B6000.



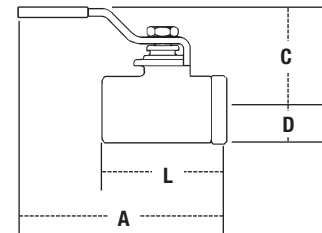
B6000
1/4" – 4" (8 – 100mm)
Threaded Ends



B6001
3/8" – 3" (10 – 80mm)
†Solder Ends

BAA/ARRA Compliant*

*This product complies with the Buy American Act and The American Recovery and Reinvestment Act. For more information, visit watts.com.



Dimensions – Weights

MODEL	SIZE (DN)		DIMENSIONS								WEIGHT		
	in.	mm	A		C		D		L		lbs.	kgs.	
B6000	1/4	8	3/8	5	127	1 3/4	44	5/8	16	2 1/16	54	0.6	.3
B6000	3/8	10	3/8	5	127	1 3/4	44	5/8	16	2 1/16	54	0.6	.3
B6000	1/2	15	1/2	5	127	1 3/4	44	5/8	16	2 1/4	57	0.6	.3
B6000	3/4	20	1 1/16	5 5/16	135	2	51	3/4	19	2 13/16	71	1.0	.5
B6000	1	25	7/8	5 1/2	140	2 1/4	57	7/8	22	3 1/16	87	1.6	.7
B6000	1 1/4	32	1	7	178	2 1/2	64	1 1/8	29	3 7/8	98	2.2	1.0
B6000	1 1/2	40	1 1/4	7	178	3	76	1 5/16	33	4 1/4	108	3.2	1.5
B6000	2	50	1 1/2	11	279	3 15/16	100	1 1/2	38	4 13/16	122	4.9	2.2
B6000	2 1/2	65	2	11 9/16	293	4	102	2 3/16	56	6 1/2	165	13.2	6.0
B6000	3	80	2 1/2	11 5/8	295	4 1/4	108	2 3/8	60	6 13/16	173	17.5	7.9
B6000	**4	100	3	15 7/8	384	4 13/16	122	2 15/16	70	7 11/16	195	29.3	13.3
B6001	3/8	10	3/8	5 1/16	128	1 1/2	38	5/8	16	2 5/16	59	0.5	.2
B6001	1/2	15	1/2	5 3/16	132	1 3/4	44	5/8	16	2 3/8	60	0.6	.3
B6001	3/4	20	1 1/16	5 3/4	146	2	51	3/4	19	3 5/16	70	1.1	.5
B6001	1	25	7/8	6	152	2 1/4	57	7/8	22	3 3/4	95	1.4	.6
B6001	1 1/4	32	1	8	203	2 1/2	64	1 1/8	29	4 1/2	108	2.0	.9
B6001	1 1/2	40	1 1/4	8 1/8	207	3	76	1 5/16	33	5	127	3.3	1.5
B6001	2	50	1 1/2	11 7/16	290	3 5/16	84	1 1/2	38	6 1/4	159	5.2	2.4
B6001	2 1/2	65	2	12 1/8	308	4	102	2 3/16	56	7 5/8	186	13.2	6.0
B6001	3	80	2 1/2	12 5/16	313	4 1/4	108	2 3/8	60	8 1/16	208	15.6	7.1

**Virgin PTFE seats on 4" size, maximum temperature 350°F.

† Solder ends

Series FBV

2-Piece, Full Port Bronze Ball Valves

Sizes: 1/2" – 2" (15 – 50mm)

Features

- Excellent for throttling and balancing applications
- For non-abrasive liquids or gases
- Two-piece construction

Pressure – Temperature

Temperature Range: 0°F – 350°F (-18°C – 177°C) @ 50psi (3.4 bar)

Maximum Working Pressure: 600psi (41 bar) WOG non-shock @ 100°F (38°C) and 125psi (8.6 bar) WSP

Models

FBV - NPT female connections

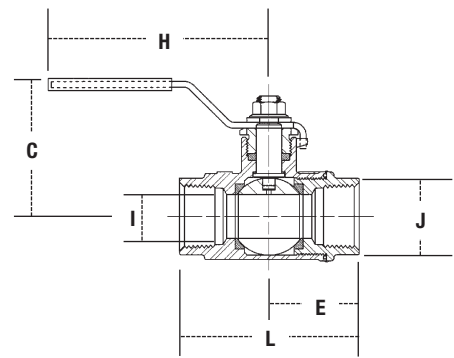
For additional information, request literature ES-FBV.



FBV

Dimensions — Weights

SIZE (DN)		DIMENSIONS										WEIGHT	
in.	mm	C		E		H		I		L		lbs.	kgs.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/2	15	1 3/4	44	1 3/32	28	3 3/8	86	1/2	13	2 3/16	56	.6	.3
3/4	20	2 1/16	52	1 9/32	33	3 5/8	92	3/4	19	2 9/16	65	.8	.4
1	25	2 1/2	64	1 7/32	31	4 3/8	111	1	25	3 1/16	78	1.5	.7
1 1/4	32	2 5/8	67	1 9/16	40	4 3/8	111	1 1/4	32	3 1/2	89	2.5	1.1
1 1/2	40	3 1/8	79	1 9/16	49	6 1/8	156	1 1/2	38	3 7/8	98	3.5	1.6
2	50	3 1/2	89	2 7/32	56	6 1/8	156	2	51	4 7/16	113	5.5	2.5



Series FBV-3C, FBVS-3C 2-Piece Full Port Brass Ball Valves

Sizes: 1/4" – 4" (8 – 100mm)

Features

- Certified to NSF to NSF/ANSI standard 61/8
- CSA approved threaded valves only 1/4" – 3" (15 – 80mm)
- Metal to metal adapter body seal to eliminate adapter leaks after soldering
- Bottom loaded, blow-out proof stem
- Adjustable stem packing gland and stem O-ring
- Virgin PTFE stem packing seal, thrust washer, and seats
- Complies with MSS-SP-110

FBV-3C – Sizes: 1/4" – 4" (8 – 100mm), NPT female connections.

FBVS-3C – Sizes: 1/2" – 3" (15 – 80mm), solder connections.

Pressure – Temperature

Pressure Ratings:

FBV-3C: Sizes 1/4" – 2" (8 – 50mm) 600psi (41 bar) WOG non-shock, 150psi (10.3 bar) WSP

Sizes 2 1/2" and 4" (65 and 100mm) 400psi (27.5 bar) WOG non-shock, 125psi (8.6 bar) WSP

FBVS-3C: Sizes 1/2" – 2" (15 – 50mm) 600psi (41 bar) WOG non-shock, 150psi (10.3) WSP

Sizes 2 1/2" and 3" (65 and 80mm) 400psi (27.5 bar) WOG non-shock, 125psi (8.6 bar) WSP


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



Approvals

1/4" – 3" (8 - 80mm) FBV-3C

1/2" – 1" (15 - 25mm) FBV-3C-TH

Certified to NSF/ANSI standard 61/8* 

1/2" – 3" (15 – 80mm) FBVS-3C


1/2" – 1" (15 – 25mm) FBVS-3C-TH

Certified to NSF/ANSI standard 61/8* 

*Domestic cold water at 73°F (23°C)

1/2" – 2" (15 – 50mm) FBV-3C UL/FM approved


1/2" – 1" (15 – 25mm) FBVL-3C-TH

1/2" – 2" (15 – 50mm) FBVS-3C UL Listed 

1/2" – 1" (15 – 25mm) FBVS-3C-TH




Gas Approvals (Threaded Valves Only)

1/4" – 3/8" (8 – 10mm) 

ASME B16.33, CSA


1/2 psig, 5psig, (14, 34 kPa)

@ -40°F to 125°F (-40°C to 52°C) 

1/2" – 2" (15 – 50mm) ASME B16.33, CSA

1/2 psig, 5psig, and 125psig (14, 34 and 862 kPa)

@ -40°F to 125°F (-40°C to 52°C)

2 1/2" – 3" (65 – 80mm) 

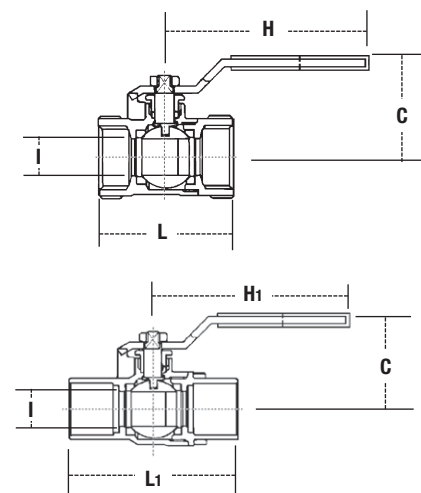
ASME B16.38, CSA

1/2 psig, 5psig, and 125psig (14, 34 and 862 kPa)

@ -40°F to 125°F (-40°C to 52°C)

Dimensions – Weights

SIZE (DN)		DIMENSIONS										WEIGHT			
in.	mm	C		H		H1		I		L		L1		lbs.	kgs.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/4	8	1 1/16	36	3 3/16	81	–	–	3/8	10.5	1 13/16	46	–	–	.3	.1
3/8	10	1 1/16	36	3 3/16	81	–	–	3/8	10.5	1 13/16	46	–	–	.3	.1
1/2	15	1 15/16	50	3 5/8	91	3 5/8	91	1 9/32	12.5	2 3/8	60	2 1/8	53	.5	.2
3/4	20	2 1/16	52	4 1/2	114	4 1/2	114	1 3/16	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 3/8	80	7 7/8	200	7 7/8	200	1 5/8	50.0	4 7/16	113	5 1/16	135	4.0	1.8
2 1/2	65	4 5/16	109	9 7/8	250	9 7/8	250	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	9 7/8	250	2 15/16	74.0	6 1/4	159	7 3/16	182	12.8	5.8
4	100	5 3/8	136	9 5/8	245	–	–	4	101.6	7 7/16	189	–	–	17.7	8.0



Series FBV-4, FBVS-4 2-Piece, Full Port, Brass Ball Valves

Sizes: 1/4" – 3" (8 – 80mm)

Features

- Certified to NSF/ANSI standard 61/8
- CSA approved threaded valves only 1/4" – 3" (15 – 80mm)
- Metal-to-metal adapter body seal to eliminate adapter leaks after soldering
- Fluorocarbon elastomer stem O-ring prevents stem leaks
- Adjustable stem packing gland
- PTFE stem packing seal, thrust washer, and seats
- Bottom loaded blowout proof stem
- Machined chrome plated brass ball
- Valves comply to MSS-SP-110 standard

Models

FBV-4 1/4" – 3" (8 – 80mm) threaded end connections

FBVS-4 1/2" – 3" (15 – 80mm) solder end connections*

Pressure — Temperature

Temperature Range: -40°F to 400°F (-40°C to 204°C)

Pressure Rating:

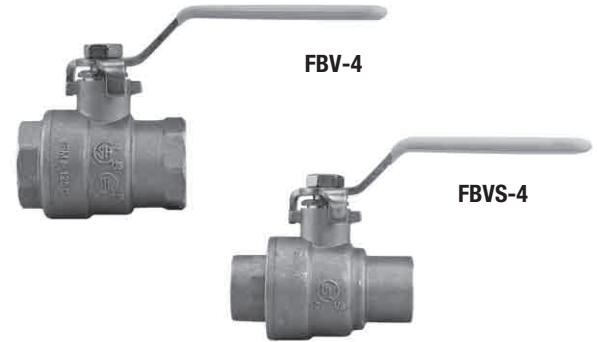
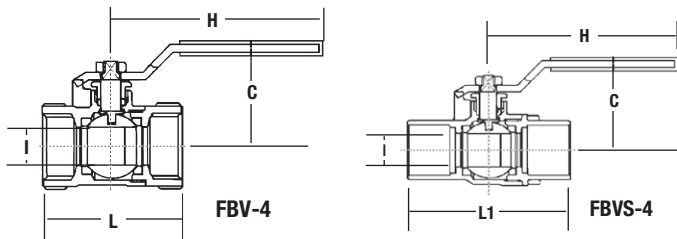
Sizes 1/4" – 2" (8 – 50mm)

600psi (41 bar) WOG non-shock, 150psi (10.3 bar) WSP

Sizes 2 1/2" and 3" (65 and 80mm)

400psi (28 bar) WOG non-shock, 125psi (8.6 bar) WSP

Dimensions — Weights



Approvals

1/4" – 3" FBV-4



1/2" – 3" FBVS-4

Certified to NSF/ANSI Standard 61/8
Domestic cold water at 73°F

Gas Approvals (Threaded Valves Only)

1/4" – 3"

CSA

1/2 psig, 5 psig

@ -40°F to 125°F



SIZE (DN)		DIMENSIONS								WEIGHT					
in.	mm	C		H		I		L		L1		FBV-4		FBVS-4	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.	lbs.	kg.
1/4	8	1 13/16	46	3 7/16	87	7/16	11	1 3/4	45	—	—	0.4	0.16	—	—
3/8	10	1 13/16	46	3 7/16	87	1/2	13	1 3/4	44.7	—	—	0.4	0.17	—	—
1/2	15	1 13/16	46	3 7/16	87	1/2	13	2	50	2 1/16	53	0.4	0.18	0.4	0.16
3/4	20	2 1/16	53	3 15/16	101	1 1/4	18	2 1/4	57	2 5/8	67	0.6	0.27	0.5	0.24
1	25	2 7/16	62	4 1/4	108	1 5/8	24	2 13/16	71	3 1/8	83	1.1	0.49	1.0	0.44
1 1/4	32	2 1/2	64	4 1/4	108	1 3/8	31	3 1/8	80	3 11/16	93	1.5	0.68	1.4	0.64
1 1/2	40	3	76	5 5/16	135	1 7/8	37	3 7/16	88	4 3/16	107	2.3	1.06	2.1	0.95
2	50	3 1/2	89	6	153	2	51	4 1/8	105	5 5/16	135	3.7	1.69	3.8	1.74
2 1/2	65	4 1/16	104	7 3/8	188	2 1/2	64	5 5/16	134	6 3/16	158	7.9	3.57	7.2	3.27
3	80	4 1/2	114	7 3/4	197	3	76	6 1/8	155	7 1/4	184	11.8	5.37	11.0	4.99

Series GV, GVS†, GLV Bronze Gate and Globe Valves

Sizes: 1/4" – 4" (8 – 100mm)

Series GV - bronze gate valves - threaded IPS connections

Dimensions — Weights

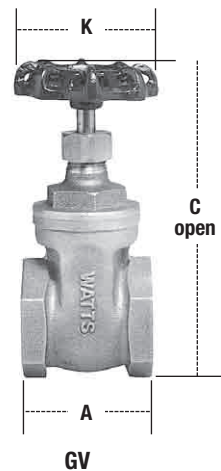
SIZE (DN)		DIMENSIONS						WEIGHT	
in.	mm	A		C		K		lbs.	kgs.
		in.	mm	in.	mm	in.	mm		
1/4	8	1 5/8	41	3	76	1 15/16	43	.62	.28
3/8	10	1 5/8	41	3 3/16	81	1 15/16	43	.62	.28
1/2	15	1 3/4	44	3 3/8	86	2 3/16	55	.71	.32
3/4	20	1 15/16	49	3 5/8	92	2 3/8	60	.93	.42
1	25	2 1/8	54	4 7/16	111	2 3/8	64	1.2	.54
1 1/4	32	2 3/8	60	5	127	2 3/4	70	2.0	.91
1 1/2	40	2 1/2	64	5 3/8	137	3 1/8	79	2.7	1.22
2	50	2 7/8	73	6 1/2	165	3 3/8	90	3.4	1.54
2 1/2	65	3 1/2	89	8	200	4 3/8	108	6.4	2.90
3	80	3 15/16	100	9 3/16	234	4 15/16	124	29.3	13.29
4	100	4 3/4	121	10 3/4	273	5 3/4	146	118.0	53.57

Series GVS - bronze gate valves - solder ends

3/8	10	1 3/4	44	3 3/8	86	2 1/8	54	.62	.28
1/2	15	1 3/4	44	3 3/8	86	2 1/8	54	.62	.28
3/4	20	2 3/8	60	3 5/8	92	2 3/8	60	.88	.40
1	25	2 13/16	71	4 7/16	121	2 5/8	58	1.15	.52
1 1/4	32	3	76	5	127	2 3/4	70	1.72	.78
1 1/2	40	3 3/8	86	5 7/16	138	3 1/8	79	1.85	.84
2	50	4	100	6 1/2	165	3 1/2	89	3.53	1.60
2 1/2	65	4 1/2	114	8 5/16	209	4 3/8	111	5.95	2.70
3	80	5 3/16	132	9 3/16	234	4 15/16	124	8.82	4.00

Series GLV - bronze globe valves - threaded bonnet - swivel type disc, threaded ends

1/4	8	1 13/16	41	2 15/16	74	2	50	.71	.32
3/8	10	1 13/16	41	2 15/16	74	2	50	.71	.32
1/2	15	1 15/16	49	2 15/16	74	2 5/16	58	.74	.34
3/4	20	2 1/4	57	3 3/8	79	2 1/2	64	1.25	.57
1	25	2 5/8	105	3 3/4	95	2 13/16	71	1.93	.88
1 1/4	32	2 15/16	74	4 1/8	105	3 1/2	89	2.33	1.06
1 1/2	40	3 5/16	114	4 3/4	121	3 5/8	92	4.20	1.90
2	50	3 3/8	98	5 1/2	140	4 1/8	105	5.50	2.50



Features

- Threaded bonnet
- Non-rising stem
- Bronze body

GV - 125 WSP to 353°F/200 WOG

GVS - 125 WSP to 353°F/200 WOG

For additional information, request literature ES-GV, ES-GVS or ES-GLV.

Series EMVII-6400SS

Electric Motor Valves

Sizes 1/4" – 3" (8 – 80mm)

Combines our positive shutoff, quarter-turn ball valves with a highly efficient, reliable, electric operator. Compact, completely assembled. Steam working pressure 100psi (6.9 bar), 600psi (41.4 bar) WOG for 1/4" – 2" (8 – 50mm), 400psi (27.6 bar) WOG for 2 1/2" and 3" (65 and 80mm). Maximum operating temperature 150°F (66°C). 24VAC and 115 VAC models.

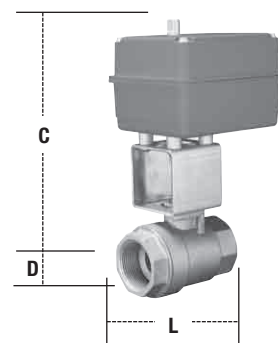
Dimensions — Weights

MODEL	SIZE (DN)		DIMENSIONS						CV Ratings	WEIGHT	
	in.	mm	C		D		L			lbs.	kgs.
			in.	mm	in.	mm	in.	mm			
† EMVII-6400SS-115-8	1/4	8	7 7/8	200	5 5/8	16	2 1/4	57	6.3	8.75	4.0
† EMVII-6400SS-115-8	3/8	10	7 7/8	200	5 5/8	16	2 1/4	57	6.3	8.75	4.0
† EMVII-6400SS-115-8	1/2	15	7 7/8	200	5 5/8	16	2 1/4	57	9.0	8.75	4.0
† EMVII-6400SS-115-35	3/4	20	8	203	3 1/4	19	2 7/8	73	24.5	9.25	4.2
† EMVII-6400SS-24-40	1	25	8 1/8	206	1	25	3 3/8	86	45.5	10.25	4.6
† EMVII-6400SS-115-35	1 1/4	32	8 7/8	225	2 1/8	29	4	102	45.5	10.75	4.9
† EMVII-6400SS-24-40	1 1/2	40	9 1/8	232	1 3/8	35	4 3/8	111	73.0	11.75	5.3
† EMVII-6400SS-24-40	2	50	9 1/2	241	1 5/8	41	4 7/8	124	102.0	14.25	6.5
†† EMVII-6400SS-115-25	2 1/2	65	14	356	—	—	6 1/2	165	200.0	23.00	10.4
†† EMVII-6400SS-115-25	3	80	14 1/2	368	—	—	6 7/8	175	300.0	27.50	12.5

Features

- Zone control valve for space heating with hot water or steam
- Zone control valve for air conditioning with chilled water

For additional information, request literature ES-EMVII-6400SS.



EMVII-6400SS

† Sizes 1/4" – 2" (8 – 50mm) are available 115-8, 115-35 and 24-40.

†† Sizes 2 1/2" & 3" (65 & 80mm) also available 24 – 25. Contact your local Watts Agent.

Series TP

Temperature or Pressure Test Plugs

Sizes: 1/4" and 1/2" NPT (8, 15mm)

Take pressure or temperature readings quickly and eliminate the need for leaving costly gauges or temperature recorders on the line. Can be used on various applications of gas, air, water or chemicals to 500psi (34.5 bar).

The pressure gauge adapter has a .076 diameter probe of 300 Series stainless steel with brass union nut. The probe operates in either 1/4" or 1/2" (8 or 15mm) NPT test plugs. Plug extensions are also available in 1/4" and 1/2" (8 and 15mm) NPT sizes to accommodate insulated pipe applications.

Features

- Allows quick and efficient temperature or pressure readings
- Eliminates leaving expensive gauges or temperature recorders in line
- Economical means of balancing heating and air conditioning systems
- Eliminates shutting down system for temperature and pressure checks

Models

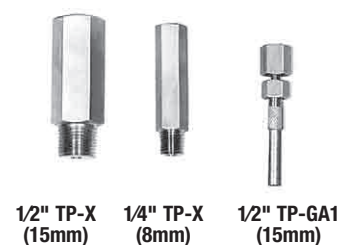
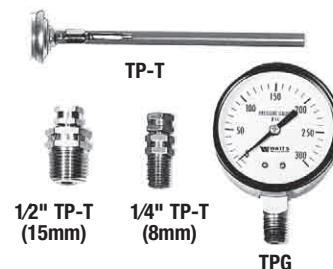
Neoprene (Blue) – Natural gas and petroleum products. Temperature range -40°F – 200°F (-40°C – 93°C)

EPDM (White) – Hot and cold water service. Temperature range -40°F – 275°F (-40°C – 135°C)

Viton® (Green) – Hot oil service, chemical resistance. Temperature range -10°F – 400°F (-23°C – 205°C)

Note: Viton® test plugs are not recommended for use with probes larger than .080 diameter or continuous leakage may occur.

For additional information, request literature ES-TP.



Dimensions — Weights

MODEL	SIZE (DN)		MATERIAL	MAX TEMP		MAX PRESSURE		WEIGHT	
	in	mm		°F	°C	psi	bar	lbs	kgs.
TP-N (Neoprene)	1/4" NPT	8mm NPT	Brass	200°F	93°C	500	34	.09	.04
TP-E (EPDM)	1/4" NPT	8mm NPT	Brass	275°F	135°C	500	34	.09	.04
TP-V (Viton®)	1/4" NPT	8mm NPT	Brass	400°F	204°C	500	34	.09	.04
TP-N (Neoprene)	1/2" NPT	15mm NPT	Brass	200°F	93°C	500	34	.19	.09
TP-E (EPDM)	1/2" NPT	15mm NPT	Brass	275°F	135°C	500	34	.19	.09
TP-V (Viton®)	1/2" NPT	15mm NPT	Brass	400°F	204°C	500	34	.19	.09

Extensions

TP-X • 3" (76mm)	1/4"m x 1/4" f	8m x 8 f	Brass	–	–	–	–	.25	.11
TP-X • 3" (76mm)	1/2"m x 1/2" f	15m x 15 f	Brass	–	–	–	–	.63	.29

Thermometer

TP-T	2° graduation	SS	220°F	104°C	–	–	–	–	–
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Gauges

TPG-30	1/4" NPT	8mm NPT		185°F	85°C	30	2	.06	.03
TPG-160	1/4" NPT	8mm NPT		185°F	85°C	160	11	.06	.03
TPG-300	1/4" NPT	8mm NPT		185°F	85°C	300	21	.06	.03

Gauge Adapters

TP-GA1	1/4" NPT	8mm NPT	Brass 300 Series SS Probe	–	–	–	–	.25	.11
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Series DPG1 Pressure Gauges

Size: 2", 2½", 3", 4" (50, 65, 80, 100)
Bottom Entry Pressure Gauges

- Type: Bottom Entry
- Case: ABS polymer
- Window: Kostil polymer
- Connection: ¼" NPT
- Accuracy: ASME Type "B"
- Sensing Element: Copper Alloy Bourdon Tube
- Welding: Tin Alloy

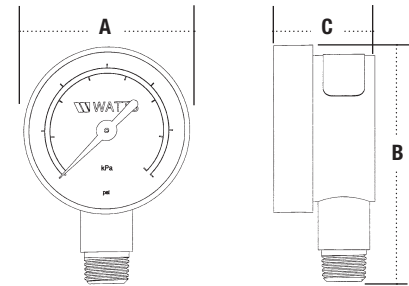
Temperature

Working Temperature: -4°F to 176°F (-20°C to 80°C)

Dimensions — Weights



DPG1



MODEL	SCALE		SIZE (DN)		DIMENSIONS						WEIGHT	
					A		B		C		lbs.	kgs.
					in.	mm	in.	mm	in.	mm		
DPG1-2	0 – 15psi	103 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 30psi	207 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 60psi	413 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 100psi	689 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 160psi	1103 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 200psi	1379 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2	0 – 300psi	2069 kPa	¼	8	2	50	2 ¹³ / ₁₆	72	1 ¹ / ₁₆	28	.2	0.09
DPG1-2½"	0 – 15psi	103 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 30psi	207 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 60psi	413 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 100psi	689 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 160psi	1103 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 200psi	1379 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-2½"	0 – 300psi	2069 kPa	¼	8	2½	63	3 ⁵ / ₁₆	85	1½	28	.3	0.14
DPG1-3	0 – 15psi	103 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 30psi	207 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 60psi	413 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 100psi	689 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 160psi	1103 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 200psi	1379 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-3	0 – 300psi	2069 kPa	¼	8	3	80	3 ⁷ / ₈	99	1½	29	.4	0.18
DPG1-4	0 – 15psi	103 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 30psi	207 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 60psi	413 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 100psi	689 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 160psi	1103 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 200psi	1379 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 300psi	2069 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 600psi	4137 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23
DPG1-4	0 – 1000psi	6895 kPa	¼	8	4	100	4 ³ / ₄	120	1¼	31	.5	0.23

Series DPG3

Pressure Gauges

Dial Sizes: 1½", 2", 2½", 3" (40, 50, 65, 80mm)

Center Back-Entry Pressure Gauge

Type: Center Back-Entry

Case: ABS polymer

Window: Kostil polymer

Connection: ⅛", ¼" NPT

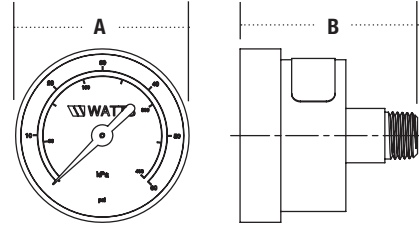
Accuracy: ASME Type "B"

Sensing Element: Copper Alloy Bourdon Tube

Welding: Tin Alloy



DPG3



Temperature

Working Temperature: -4°F to 176°F (-20°C to 80°C)

Dimensions — Weights

MODEL	SCALE		SIZE (DN)		DIMENSIONS				WEIGHT	
					A		B		lbs.	kgs.
			in.	mm	in.	mm	in.	mm		
DPG3-1½	0 – 60psi	413 kPa	⅛	3	1½	38	1⅞	40	.1	.05
DPG3-1½	0 – 160psi	1103 kPa	⅛	3	1½	38	1⅞	40	.1	.05
DPG3-2	0 – 15psi	103 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 30psi	207 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 60psi	413 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 100psi	689 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 160psi	1103 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 200psi	1379 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2	0 – 300psi	2069 kPa	¼	8	2	50	1⅝	49	.2	.09
DPG3-2½	0 – 15psi	103 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 30psi	207 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 60psi	413 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 100psi	689 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 160psi	1103 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 200psi	1379 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-2½	0 – 300psi	2069 kPa	¼	8	2½	63	1⅝	49	.3	.14
DPG3-3	0 – 15psi	103 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 30psi	207 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 60psi	413 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 100psi	689 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 160psi	1103 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 200psi	1379 kPa	¼	8	3	80	1⅝	49	.4	.18
DPG3-3	0 – 300psi	2069 kPa	¼	8	3	80	1⅝	49	.4	.18

Series DPG5

Pressure Gauges

Dial Sizes: 2", 2½", 3" (50, 65, 80mm)

Top Entry Pressure Gauges

Type: Top Entry

Case: ABS polymer

Window: Kostil polymer

Connection: ⅛", ¼" NPT

Accuracy: ASME Type "B"

Sensing Element: Copper Alloy Bourdon Tube

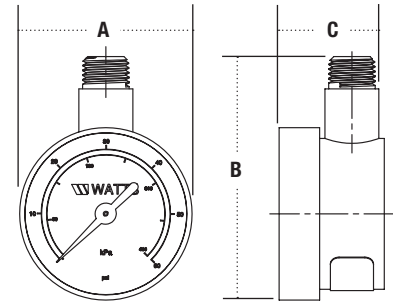
Welding: Tin Alloy

Temperature

Working Temperature: -4°F to 176°F (-20°C to 80°C)



DPG5



Dimensions — Weights

MODEL	SCALE		SIZE (DN)		DIMENSIONS						WEIGHT	
					A		B		C		lbs.	kgs.
			in.	mm	in.	mm	in.	mm	in.	mm		
DPG5-2	0 – 160psi	11 kPa	⅛	3	2	50	2 ¹¹ / ₁₆	68	1 ¹ / ₁₆	27	.15	.07
DPG5-2	0 – 30psi	207 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 30psi	207 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 60psi	413 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 100psi	689 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 160psi	1103 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 200psi	1379 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2	0 – 300psi	2069 kPa	¼	8	2	50	2 ¹³ / ₁₆	71	1 ¹ / ₁₆	27	.2	.09
DPG5-2½"	0 – 15psi	103kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-2½"	0 – 30psi	207kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-2½"	0 – 100psi	689kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-2½"	0 – 160psi	1103 kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-2½"	0 – 200psi	1379 kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-2½"	0 – 300psi	2069 kPa	¼	8	2½	63	3 ⁵ / ₁₆	84	1½	29	.3	.14
DPG5-3	0 – 15psi	103 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 30psi	207 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 60psi	413 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 100psi	689 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 160psi	1103 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 200psi	1379 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18
DPG5-3	0 – 300psi	2069 kPa	¼	8	3	80	3 ⁷ / ₈	98	1½	29	.4	.18

Series DPTG1, DPTG3, DPTG3A, DPTG3L Combination Pressure/Temperature Gauges

Dial Size: 2½" and 3" (65, 80mm)

Type: DPTG1 – Bottom Entry
 DPTG3 – Center Back Entry
 DPTG3A – Center Back Entry with Extended Temperature Element
 DPTG3L – Center Back Entry with Extended Mounting Nut

Case: Steel – Black Enamel

Window: Kostil Polymer

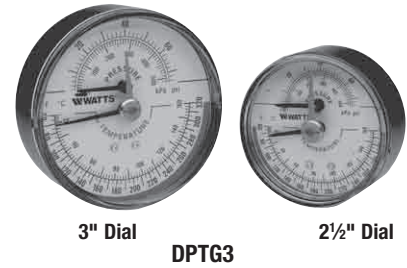
Connection: ½" NPT

Accuracy: ASME Type "B"

Pressure Element: Copper Alloy Bourdon Tube

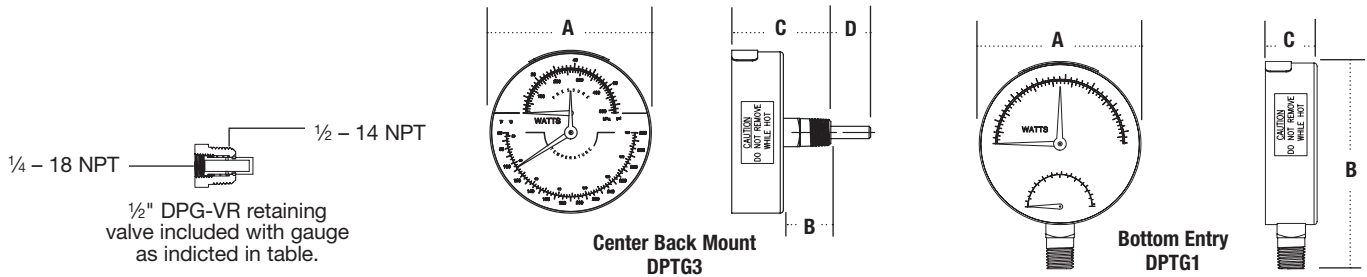
Temperature Element: Bimetal Spiral Spring

Welding: Tin Alloy



Temperature

Working Temperature: 14°F to 176°F (-10°C to 80°C)



Dimensions – Weights

MODEL	SCALE		TEMP. RANGE	INCLUDES VR RETAINING VALVE	SIZE (DN)		DIMENSIONS								WEIGHTS	
							A		B		C		D			
			°F		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
DPTG1-3	0 – 50psi	345 kPa	32 – 248	Y	½	10	3	76	4	101	1	25	–	–	.5	13
DPTG1-3	0 – 75psi	517 kPa	32 – 248	Y	½	10	3	76	4	101	1	25	–	–	.5	13
DPTG1-3	0 – 100psi	689 kPa	32 – 248	Y	½	10	3	76	4	101	1	25	–	–	.5	13
DPTG3-2½	0 – 50psi	340 kPa	60 – 260	Y	½	10	2½	64	1	25	1½	49	⅞	23	.5	13
DPTG3-2½	0 – 75psi	500 kPa	60 – 260	Y	½	10	2½	64	1	25	1½	49	⅞	23	.5	13
DPTG3-2½	0 – 200psi	1379 kPa	80 – 320	Y	½	10	2½	64	1	25	1½	49	⅞	23	.5	13
DPTG3-2½	0 – 75psi	520 kPa	32 – 248	N	¼	6	2½	64	1	25	1½	49	⅞	23	.5	13
DPTG3-3	0 – 50psi	340 kPa	60 – 260	Y	½	10	3	76	1	25	1½	49	⅞	23	.5	13
DPTG3-3	0 – 75psi	520 kPa	60 – 260	Y	½	10	3	76	1	25	1½	49	⅞	23	.5	13
DPTG3-3	0 – 200psi	1379 kPa	80 – 320	Y	½	10	3	76	1	25	1½	49	⅞	23	.5	13
DPTG3A-2½	0 – 75psi	520 kPa	32 – 248	N	¼	6	2½	64	1	25	1½	49	2	51	.5	13
DPTG3A-3	0 – 75psi	520 kPa	32 – 248	N	¼	6	3	76	1	25	1½	49	2	51	.5	13
DPTG3L-2½	0 – 75psi	520 kPa	32 – 248	N	¼	6	2½	64	2	51	3½	75	1	21	.5	13
DPTG3L-3	0 – 75psi	520 kPa	32 – 248	N	¼	6	3	76	2	51	3½	75	1	21	.5	13

Series TBR

Bimetal Thermometers

Dial Size: 3" (80mm)

Bottom Entry

Type: Bottom Entry

Case: Chromed Steel

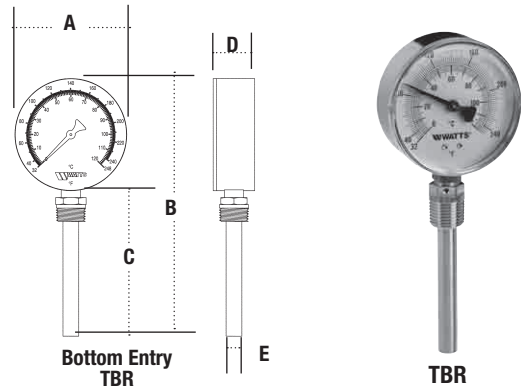
Window: Kostil Polymer

Stem: Brass

Sensing Element: Bimetal Spiral Spring

Amplifying Movement: Brass

Thermowell: 1/2" NPT Brass - snap-in



Dimensions — Weights

MODEL	SIZE		SCALE	PROBE SIZE		DIMENSIONS										WEIGHT	
	in.	mm		in.	mm	A		B		C		D		E		lbs.	kgs.
TBR-3-2	1/2	15	-22 – 122	2	51	3	80	5 3/8	137	2	51	1 1/16	30	7/16	11	.4	.18
TBR-3-2	1/2	15	32 – 248	2	51	3	80	5 3/8	137	2	51	1 1/16	30	7/16	11	.4	.18
TBR-3-3	1/2	15	-22 – 122	3	76	3	80	6 5/16	160	2 15/16	75	1 3/16	30	7/16	11	1.2	.54
TBR-3-3	1/2	15	32 – 140	3	76	3	80	6 5/16	160	2 15/16	75	1 3/16	30	7/16	11	1.2	.54
TBR-3-4	1/2	15	-22 – 122	4	102	3	80	7 7/16	186	3 15/16	100	1 3/16	30	7/16	11	.8	.36
TBR-3-4	1/2	15	32 – 140	4	102	3	80	7 7/16	186	3 15/16	100	1 3/16	30	7/16	11	.8	.36
TBR-3-4	1/2	15	32 – 248	4	102	3	80	7 7/16	186	3 15/16	100	1 3/16	30	7/16	11	1.2	.54

Series TB

Bimetal Thermometers

Dial Size: 1 1/2", 2", 3", 4" (40, 50, 80, 100mm)

Center Back Entry

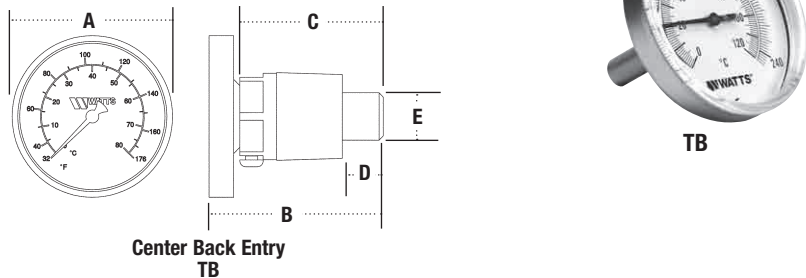
Type: Center Back Entry

Case: Zinc Plated Steel

Window: Kostil Polymer

Sensing Element: Bimetal Spiral Spring

Thermowell: 1/2" NPT Brass with Set Screw



Dimensions — Weights

MODEL	SIZE		SCALE	PROBE SIZE		DIMENSIONS										WEIGHT	
	in.	mm		in.	mm	A		B		C		D		E		mm	lbs.
TB-1 1/2-1	1/2	15	32 – 176	1	25	1 1/2	40	1 9/16	40	1 3/8	35	3/8	10	7/16	11	.4	.8
TB-2 1/2-2	1/2	15	32 – 140	2	51	2 1/2	63	2 3/8	60	1 15/16	49	1	25	7/16	11	.4	.8
TB-2 1/2-3	1/2	15	32 – 248	3	76	2 1/2	63	2 3/8	60	1 15/16	49	1	25	7/16	11	.4	.8
TB-2 1/2-4	1/2	15	32 – 248	4	102	2 1/2	63	4 3/8	111	3 15/16	100	2 15/16	75	7/16	11	.4	.8
TB-3-2	1/2	15	-22 – 122	2	51	3	80	2 5/8	67	1 15/16	49	1	25	7/16	11	.4	.8
TB-3-2	1/2	15	32 – 140	2	51	3	80	2 9/16	65	1 15/16	49	1	25	7/16	11	.4	.8
TB-3-2	1/2	15	32 – 248	2	51	3	80	2 9/16	64	1 15/16	49	1	25	7/16	11	.4	.8
TB-3-4	1/2	15	-22 – 122	4	102	3	80	4 9/16	126	3 15/16	100	2 15/16	75	7/16	11	.8	.36
TB-3-4	1/2	15	32 – 140	4	102	3	80	4 9/16	126	3 15/16	100	2 15/16	75	7/16	11	.8	.36
TB-3-4	1/2	15	32 – 248	4	102	3	80	4 9/16	126	3 15/16	100	2 15/16	75	7/16	11	.8	.36
TB-4-2	1/2	15	-22 – 122	2	51	4	100	2 5/8	67	1 15/16	49	1	25	7/16	11	1.2	.54
TB-4-2	1/2	15	32 – 140	2	51	4	100	2 5/8	67	1 15/16	49	1	25	7/16	11	1.2	.54
TB-4-2	1/2	15	32 – 248	2	51	4	100	2 5/8	67	1 15/16	49	1	25	7/16	11	1.2	.54
TB-4-4	1/2	15	-22 – 122	4	102	4	100	4 5/8	118	3 15/16	100	2 15/16	75	7/16	11	1.2	.54
TB-4-4	1/2	15	32 – 140	4	102	4	100	4 5/8	118	3 15/16	100	2 15/16	75	7/16	11	1.2	.54
TB-4-4	1/2	15	32 – 248	4	102	4	100	4 5/8	118	3 15/16	100	2 15/16	75	7/16	11	1.2	.54

Series TBP Pipe-Mount Bimetal Thermometers

Dial Size: 2 1/2" (65mm)

Type: Pipe Mount

Case: Steel, Black Enamel

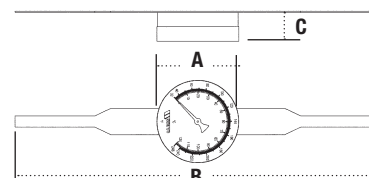
Ring: Chromed Steel

Window: Kostil Polymer

Sensing Element: Bimetal Spiral Spring



TBP



Dimensions — Weights

MODEL	SIZE (DN)		SCALE	FIXING PART	DIMENSIONS						WEIGHT	
	in.	mm			A		B		C		lbs.	kgs.
TBP-M-2 1/2	1/2	15	32 – 248	spring	2 1/2	63	–	–	7/8	22	.4	.18
TBP-F-2 1/2	1/2	15	32 – 248	strip	2 1/2	63	11	279	7/8	22	.4	.18

Series TBC Bimetal Thermometers Chimney Mount Center Back Entry

Dial Size: 2 1/2" (65mm)

Type: Chimney Mount-Center Back Entry

Case: Steel, Zinc Plate

Ring: Chromed Steel

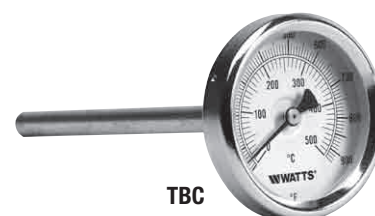
Window: Glass

Stem: Brass

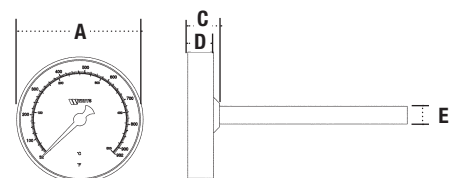
Sensing Element: Bimetal Spiral Spring

Stem: Zinc Plated Steel

Thermowell: None



TBC



Dimensions — Weights

MODEL	SCALE	PROBE SIZE		DIMENSIONS								WEIGHTS			
		in.	mm	A		B		C		D		E		lbs.	kgs.
TBC-2 1/2-4	32 – 932	4	102	2 1/2	63	4 3/8	111	1/2	13	5/8	16	3/8	9	.5	.23
TBC-2 1/2-6	32 – 932	6	152	2 1/2	63	6 3/16	160	1/2	13	5/8	16	3/8	9	.5	.23
TBC-2 1/2-8	32 – 932	8	203	2 1/2	63	8 5/16	211	1/2	13	5/8	16	3/8	9	.5	.23
TBC-2 1/2-12	32 – 932	12	305	2 1/2	63	12 1/4	311	3 15/16	100	2 15/16	75	3/8	9	.5	.23

Series TA

Liquid Fill Thermometers

Adjustable Angle Thermometer

Scale Size: 9"

Type: Sealed Glass Tube

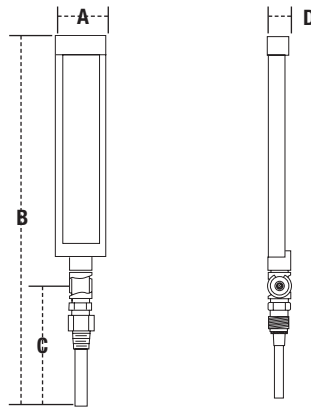
Case: Valox®

Lens: Glass

Sensing Fluid: Organic Fill

Accuracy: ±1% of Full Scale

Thermowell: Brass



TA

Dimensions — Weights

MODEL	TEMP. RANGE °F	SIZE		STEM		DIMENSIONS								WEIGHT	
		in.	mm	in.	mm	A		B		C		D		lbs.	kgs.
TA-9-3½	-40 – 110	¾	20	3½	89	2⅝	60	17⅜	442	5⅝	144	1⅙	26	1.65	.75
TA-9-3½	0 – 120	¾	20	3½	89	2⅝	60	17⅜	442	5⅝	144	1⅙	26	1.65	.75
TA-9-3½	0 – 160	¾	20	3½	89	2⅝	60	17⅜	442	5⅝	144	1⅙	26	1.65	.75
TA-9-3½	30 – 240	¾	20	3½	89	2⅝	60	17⅜	442	5⅝	144	1⅙	26	1.65	.75
TA-9-3½	30 – 300	¾	20	3½	89	2⅝	60	17⅜	442	5⅝	144	1⅙	26	1.65	.75
TA-9-6	-40 – 110	¾	20	6	152	2⅝	60	20⅛	509	8⅞	211	1⅙	26	1.65	.75
TA-9-6	0 – 120	¾	20	6	152	2⅝	60	20⅛	509	8⅞	211	1⅙	26	1.65	.75
TA-9-6	0 – 160	¾	20	6	152	2⅝	60	20⅛	590	8⅞	211	1⅙	26	1.65	.75
TA-9-6	30 – 240	¾	20	6	152	2⅝	60	20⅛	509	8⅞	211	1⅙	26	1.65	.75
TA-9-6	30 – 300	¾	20	6	152	2⅝	60	20⅛	509	8⅞	211	1⅙	26	1.65	.75

Series TL

Liquid Fill Thermometers

Angle Thermometer

Scale Size: 5"

Type: Sealed Glass Tube

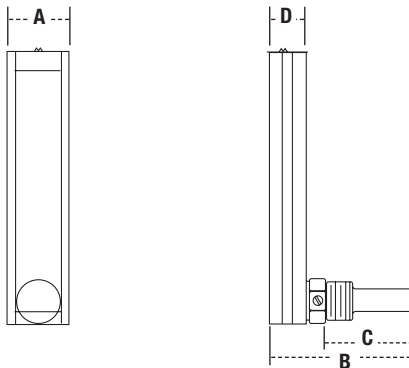
Case: Polypropylene

Lens: Glass

Sensing Fluid: Bed (Non-Mercury)

Accuracy: ±2% of Full Scale

Thermowell: Brass



TL

Dimensions — Weights

MODEL	TEMP. RANGE °F	SIZE		STEM		DIMENSIONS								WEIGHT	
		in.	mm	in.	mm	A		B		C		D		lbs.	kgs.
TL-5-2	-40 – 110	¾	20	1⅝	33	1⅝	34	3⅜	79	1⅞	48	1⅜	21	.52	24
TL-5-2	20 – 180	¾	20	1⅝	33	1⅝	34	3⅜	79	1⅞	48	1⅜	21	.52	24
TL-5-2	30 – 240	¾	20	1⅝	33	1⅝	34	3⅜	79	1⅞	48	1⅜	21	.52	24
TL-5-2	30 – 300	¾	20	1⅝	33	1⅝	34	3⅜	79	1⅞	48	1⅜	21	.52	24

Series FS10-C

Paddle-Type Flow Switch Actuated by Liquid Flow for Automatic Control or Safety Devices

Used to monitor liquid flow in pipelines servicing water systems, heating systems, air conditioning and processing installations. An automatic control or safety device will start/stop a motor when a flow or no flow condition exists or actuate an alarm when flow is inadequate.

Features

- Segmented 3 in 1 paddle-beryllium copper
- Paddle adaptable for 1" – 3" (25 – 80mm) pipe
- Extended paddle for large pipe sizes up to 6" (150 mm)

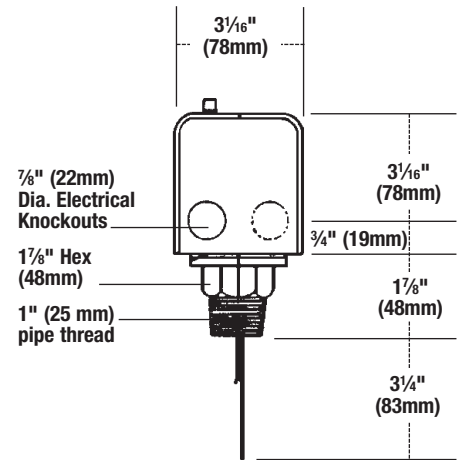


Underwriter's Laboratories Listed U.S.A. No. 11S1

Pressure – Temperature

Maximum Pressure: 175psi (12.1 bar).
Maximum Temperature: 300°F (93°C). 1" (25mm) NPT connection

FS10-C – Standard unit
FS10-CL – with indicator light



For additional information, request literature F-FS10C/FS10F/FS20.

Series FS20

Nema 4X Type Flow Switch

Sizes: For Pipes 1" - 6" (25 - 150mm)

Used as an automatic control or safety device. Provides accurate monitoring of flow in pipelines servicing water systems. Recommended for use in installations requiring Nema 4X watertight, dust-tight and corrosion-resistant enclosures. It can be wired to start or stop a motor when a flow or no flow condition exists or actuate an alarm.

Features

- Segmented 3 in 1 paddle - beryllium copper
- Paddle adaptable for 1" – 3" (25mm – 80mm) pipe
- Extended paddle for larger pipe size to 6" (150mm)

Pressure – Temperature

Maximum Pressure: 150psi (10.3 bar)
Maximum Temperature: 300°F (149°C). Shipping weight 3 lbs (1.4 kg.).
1" (25mm) NPT connection

For additional information, request literature F-FS10C/FS10F/FS20.



FS20

Series 77SM1

Cast Iron Wye Type Strainers with Threaded End Connections

Sizes 1/4" – 3" (8 – 80mm)

For liquid or steam service. Furnished with 250psi (114 kg.) extra heavy iron body. Install strainers up stream to protect valves, regulators, solenoids and meters from dirt, rust and pipe scale. Self-cleaning can be accomplished by opening the valve or plug connected to the blow-off outlet. Iron retainer cap and gasket, straight threads and tapped for closure plug. (Closure plug not normally furnished). Standardly furnished with 20 mesh stainless steel screen*.

2 1/2" & 3" (65-80mm) size has 3/64" (5mm) perforated screen.

*Other screens available.

Pressure – Temperature

Working Pressure - Non-Shock: 250 WSP psi @ 406°F (208°C)
400 WOG psi @ 100°F (38°C)

For additional information, request literature F-C77 or ES-77S-M1.



77S-M1

BAA/ARRA Compliant*

*This product complies with the Buy American Act and The American Recovery and Reinvestment Act. For more information, visit watts.com.

Series 777S, S777, 777, S777S

Bronze Wye Type Strainer for Water and Steam Service

Sizes 1/2" – 4" (15 – 100mm)

Features

- 20 mesh stainless steel screen**
- 400psi WOG @ 210°F (99°C); 4" (100mm) 777 & 777S 300psi WOG
- 125psi WSP @ 400°F (204°C)

Models

777S – NPT threaded connections, tapped for closure plug.

777 – NPT threaded connections, not tapped for closure plug.

S777 – 1/2" – 2" (15 – 50mm) solder end connections, not tapped for closure plug.

S777S – 1/2" – 2" (15 – 50mm) solder connections tapped for closure plug.

**Other screens available and #40, 60, 80 and 100 wire mesh liners.

For additional information, request literature F-C77 or ES-777S, ES-777S-M1.



777

BAA/ARRA Compliant*

*This product complies with the Buy American Act and The American Recovery and Reinvestment Act. For more information, visit watts.com.

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