



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
LittleRock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 6/17/2026

Return Request: 6/24/2026

Project: Hot Springs National Park – Rehabilitate Bathhouses – Maurice
Bathhouse **Supplier:** Varies

Manufacturer: Varies

Submittal: Hydronic Specialties (Re-Submittal #1)

Submittal Number: 232116.001

Spec Section: 232116, 2.1 through 2.13

Drawing # and Installation Location: MP1.0 through MP1.3, and MP4.0

ARCHITECT

Strata Architecture
1701 Oak Street, Suite 100
Kansas City, Missouri 64108
(816)474-0900

GENERAL CONTRACTOR

Tepa, LLC
2345 Grand Blvd, Suite 700
Kansas City, Missouri 64108
(816)708-1110

ENGINEER

IMEG Corp.
1600 Baltimore Street, Suite 300
Kansas City, Missouri 64108
(816)842-8437

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Road
North Little Rock, Arkansas 72117
(501)834-3320

Comments:

CSUSA PROJECT NO.

25-7065

joe@comfortar.com

9924 Landers Road
No. LittleRock, AR 72117



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.1, A.

Air Vents

JOB: Maurice Bathhouse - Rehabilitate Bathhouses

REPRESENTATIVE: Boone & Boone Sales

UNIT TAG:
ENGINEER: IMEG Corp.

CONTRACTOR: Comfort Systems USA

ORDER NO.
SUBMITTED BY: Mark Eley

APPROVED BY:
DATE: 8/14/2025

DATE:
DATE:


Miscellaneous Accessories

DESCRIPTION

NO. 87, 67, and 7 AUTOMATIC AIR VENTS - are designed to vent the accumulation of troublesome air wherever it can be trapped. These non-ferrous automatic air vents are 4-3/4"x2-1/4", 3-3/16"x1-1/2", and 4-1/6"x2-3/16"(height and width), respectively, and are rated for a maximum operating temperature of 240°F at pressures of 150, 35, and 75 PSI, respectively. The No. 87 has a combination of 1/2" FPT / 3/4"MPT connection, whereas No's. 67 and 7 have 1/8" MPT and 1/8" FPT connections, respectively.

No. 26 VACUUM BREAKER - Designed to protect closed vessels and piping systems against collapse when the induced vacuum exceeds design conditions. When used on steam heating piping systems, the No. 26 Vacuum Breaker controls induced vacuum permitting normal return of condensate to the boiler. Adjustable range 1/4" to 20" (mercury) vacuum - 150 PSIG maximum working pressure - 240 ° F maximum operating temperature (Factory set at 4" mercury).

No. 17 SR. AUTOMATIC AIR VALVE - No. 17 Sr. Valve is a deluxe, hygroscopic air valve with manual shut-off. 1/8" MNPT connection.

30 PSIG Working Pressure
225 °F Maximum Operating Temperature

No. 4V "COIN-OPERATED" AIR VENT - This vent is specially designed for the new types of radiators. A particular feature is that it projects only slightly, being almost flush with the radiator.

150 PSIG Working Pressure
250 °F Maximum Operating Temperature

NO. 107A HIGH CAPACITY AIR VENT - A rugged High Capacity Air Vent designed to purge free air from liquid systems at operating pressures up to 150 psig. The Model 107A Air Vent has a cast iron body and bonnet, with stainless steel, brass, and EPDM internal components and is suitable for a maximum operating temperature of 250°F. The Model 107A Air Vent has a 3/4" FNPT inlet and 3/8" FNPT outlet.

RV-125A READOUT VALVE AND RP-250B READOUT PROBE - The RV-125A is designed for use wherever pressure tapings are required to monitor flow or pressures. This Readout Valve is fitted with an EPT insert which incorporates a unique check valve feature designed to check flow when the Readout Valve is not being used to monitor flow. Use companion RP-250B Readout Probes with the RV-125A Readout Valve. 300 PSIG working pressure - 250°F maximum operating temperature.

DT-2 DRAIN-O-TANK® AIR CHARGER - The Drain-O-Tank Air Charger offers a sure, quick way to recharge a water-logged compression tank.

125 PSIG Working Pressure
240 °F Maximum Operating Temperature

No. 97 Air Vent - is a float type automatic air vent that is designed to vent troublesome air from hydronic heating systems. The 97 vent has forged brass body and cap with non-ferrous internals. The vent is 3-1/8"x1-7/8" with a maximum operating pressure of 150 PSI and temperature of 240°F.

150 PSIG Working Pressure
240 °F Maximum Operating Temperature

No. 98 Air Vent - is a high capacity automatic air vent that is designed to remove air in closed loop systems. The No. 98 high capacity air vent has brass body and cap with non-ferrous internals. The vent is 4-1/2"x2-1/4" with with 1/2" NPTF connection.

150 PSIG Working Pressure
250 °F Maximum Operating Temperature



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.2, A.

Low-Capacity Auto Air Vents

SCHEDULE

MODEL NUMBER	PART NUMBER	PRODUCT	MAXIMUM WORKING PRESSURE PSIG	MAXIMUM OPERATING TEMPERATURE °F	TAGGING INFORMATION	QUANTITY
4V	113055	Air Vent	150	250		
67	113020	Automatic Air Vent	35	240		
7	113001	Automatic Air Vent	75	240		
 87	113021	Automatic Air Vent	150	240	Std Air Vent (Like ET-1)	2
107A	113076	High Capacity Automatic Air Vent	150	250		
17 Sr.	113004	Automatic Air Valve	30	225		
26	113075	Vacuum Breaker	150	250		
DT-2	113041	Drain-O-Tank	125	240		
97	113222	Automatic Air Vent	150	240		
 98	113246	High Capacity Automatic Air Vent	150	250	HW Makeup Air Vent	1
RV-125A	113100	Readout Valve	300	250		
RP-250B	113102	Readout Probe	300	250		

DIMENSIONS AND WEIGHTS

MODEL NUMBER	PART NUMBER	DIMENSIONS INCHES		CONNECTIONS INCHES NPT		APPROX. SHPG. WT. LBS.	
		WIDTH	HEIGHT	SIZE	TYPE	CARTON OF	TOTAL
4V	113055	5/8	5/8	1/8	M	48	2.0
67	113020	1-1/2	3-3/16	1/8	M	12	3.0
7	113001	2-3/16	4-1/16	1/8	F	12	6.0
 87	113021	2-1/4	4-3/4	3/4 1/2	M F	12	8.0
107A	113076	4-1/2	9-5/8	3/4	F	1	10.0
17 Sr.	113004	13/16	1-1/4	1/8	M	12	2.0
26	113075	1-1/4	3	3/4	M	6	3.0
DT-2	113041	2-1/4	9-5/16	1/2	M	12	8.0
97	113222	1-7/8	3-1/8	1/8	M	10	4.0
 98	113246	2-1/4	4-1/2	1/2	F	10	8.0
RV-125A	113100	1/2	1-3/32	1/8	M	50	4.0
RP-250A	113102	1/2	1-31/32	7/16	M	6	0.1

* All dimensions and weights are approximate and not to be used for construction, pre-piping or freight rating unless certified by Bell & Gossett in writing.

MATERIALS OF CONSTRUCTION

Body (all products except Model 107A High Capacity Air Vent): Brass

Body & Bonnet (Model 107A High Capacity Air Vent): Cast Iron

Internals: Nonferrous

ITT
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone (847)966-3700
Facsimile (847)966-9052
www.bellgossett.com



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.2, B.

High-Capacity Auto Air Vents

SCHEDULE

MODEL NUMBER	PART NUMBER	PRODUCT	MAXIMUM WORKING PRESSURE PSIG	MAXIMUM OPERATING TEMPERATURE °F	TAGGING INFORMATION	QUANTITY
4V	113055	Air Vent	150	250		
67	113020	Automatic Air Vent	35	240		
7	113001	Automatic Air Vent	75	240		
 87	113021	Automatic Air Vent	150	240	Std Air Vent (Like E1-1)	2
107A	113076	High Capacity Automatic Air Vent	150	250		
17 Sr.	113004	Automatic Air Valve	30	225		
26	113075	Vacuum Breaker	150	250		
DT-2	113041	Drain-O-Tank	125	240		
97	113222	Automatic Air Vent	150	240		
 88	113040	High Capacity Automatic Air Vent	150	250	1/2" Maleup Air Vent	1
RV-125A	113100	Readout Valve	300	250		
RP-250B	113102	Readout Probe	300	250		

DIMENSIONS AND WEIGHTS

MODEL NUMBER	PART NUMBER	DIMENSIONS INCHES		CONNECTIONS INCHES NPT		APPROX. SHPG. WT. LBS.	
		WIDTH	HEIGHT	SIZE	TYPE	CARTON OF	TOTAL
4V	113055	5/8	5/8	1/8	M	48	2.0
67	113020	1-1/2	3-3/16	1/8	M	12	3.0
7	113001	2-3/16	4-1/16	1/8	F	12	6.0
 87	113021	2-1/4	4-3/4	3/4 1/2	M F	12	8.0
107A	113076	4-1/2	9-5/8	3/4	F	1	10.0
17 Sr.	113004	13/16	1-1/4	1/8	M	12	2.0
26	113075	1-1/4	3	3/4	M	6	3.0
DT-2	113041	2-1/4	9-5/16	1/2	M	12	8.0
97	113222	1-7/8	3-1/8	1/8	M	10	4.0
 88	113040	2-1/4	4-1/2	1/2	F	10	8.0
RV-125A	113100	1/2	1-3/32	1/8	M	50	4.0
RP-250A	113102	1/2	1-31/32	7/16	M	6	0.1

* All dimensions and weights are approximate and not to be used for construction, pre-piping or freight rating unless certified by Bell & Gossett in writing.

MATERIALS OF CONSTRUCTION

Body (all products except Model 107A High Capacity Air Vent): Brass

Body & Bonnet (Model 107A High Capacity Air Vent): Cast Iron

Internals: Nonferrous

ITT
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone (847)966-3700
Facsimile (847)966-9052
www.bellgossett.com



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.3, A.

Make-Up Water Pressure Reducing Valve

JOB: Maurice Bathhouse

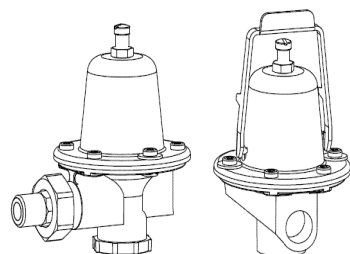
REPRESENTATIVE: Boone & Boone Sales

UNIT TAG: Hot Water Make-Up

ORDER NO.
DATE: 6/16/2026

ENGINEER:
SUBMITTED BY: Mark Eley

DATE:
CONTRACTOR: Comfort Systems USA

APPROVED BY:
DATE:


Lead Free* Reducing Valves Valves and Fittings



DESCRIPTION

B & G reducing valves protect heating and plumbing systems against excessive line pressures. They are factory set at specified limits although adjustment is easily made. Equipped with built-in-strainer and low inlet pressure check valve. Tail piece for union models is combination - 1/2" cooper sweat and 1/2" male NPT.

CONSTRUCTION

Wetted Parts: BODY, cast lead free brass*; DIAPHRAGM, EPT with special insert; CHECK VALVE, EPDM; SEAT, lead free brass*; STEM, lead free brass* with EPDM insert; VALVE PLATE, STAINER AND STRAINER NUT, lead free brass*.

Non-Wetted Parts: steel.

*contains less than .25% lead by weight on wetted surfaces

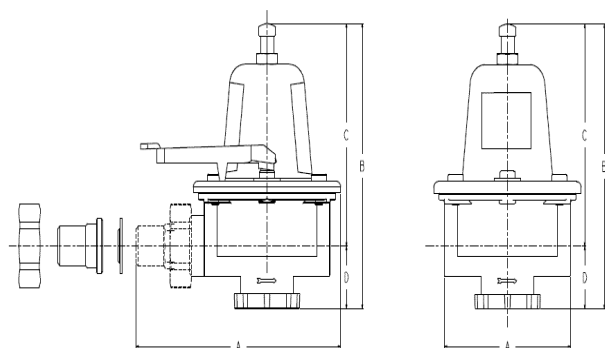
SIZES & PERFORMANCE

MODEL NUMBER	PART NUMBER	SIZE INCHES	FACTORY SETTING PSIG	ADJUSTABLE RANGE PSIG LBS(Kg)	TAGGING INFORMATION	QUANTITY
B-38	110190LF	1/2 NPT	12	10-25		
B7-12	110196LF	3/4 NPT	12	10-25		
B-38TU	110191LF	1/2 UNION NPT/SWEAT	12	10-25		
FB-38*	110192LF	1/2 NPT	12	10-25		
FB-38TU*	110193LF	1/2 UNION NPT/SWEAT	12	10-25		
6	110194LF	1/2 NPT	45	25-60		
➡ 7	110195LF	3/4 NPT	45	25-60		1

MAXIMUM FLOW 5-1/2 - 6 GPM AT 125 PSIG INLET PRESSURE.

*FAST FILL MODELS

MAXIMUM OPERATING TEMPERATURE 225°F(107°C) - MAXIMUM WORKING PRESSURE 125 PSIG (862 kPa)



MODEL NUMBER	DIMENSIONS - INCHES (mm)				APPROX. SHIPPING WT. LBS. (kg)
	A	B	C	D	
B-38	3-1/16 (77.8)	4-7/8 (123.8)	3-3/4 (95.3)	1-1/8 (28.6)	1-3/4 (0.8)
B7-12	3 (76.2)	5-1/32 (127.8)	3-23/32 (94.5)	1-5/16 (33.3)	2-1/4 (1.0)
B-38TU	4-31/32(126.2)	4-7/8 (123.8)	3-3/4 (95.3)	1-1/8 (28.6)	2 (0.9)
FB-38	3-1/16 (77.8)	4-7/8 (123.8)	3-3/4 (95.3)	1-1/8 (28.6)	1-3/4 (0.8)
FB-38TU	3-1/16 (77.8)	4-7/8 (123.8)	3-3/4 (95.3)	1-1/8 (28.6)	2 (0.9)
6	3-1/16 (77.8)	4-7/8 (123.8)	3-3/4 (95.3)	1-1/8 (28.6)	1-3/4 (0.8)
➡ 7	3 (76.2)	5-1/32 (127.8)	3-23/32 (94.5)	1-5/16 (33.3)	2-1/4 (1.0)

TYPICAL SPECIFICATIONS

Furnish and install as shown on plans, a diaphragm operated Pressure Reducing Valve with brass body, low inlet pressure check valve and inlet strainer. The strainer must be easily removed without system shutdown.

Xylem Inc.
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone: (847)966-3700 Fax: (847)965-8379
www.bellgossett.com

Bell & Gossett is a trademark of Xylem Inc. or one of its subsidiaries.
ESP-REP v2026.02 © 2013 Xylem Inc.

The valve seat, strainer and stem must be removable and of non-corrosive material.

Xylem Bell & Gossett, No. _____. Set @ _____ lbs.

xylem
Let's Solve Water



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.3, B.

Make-Up Water Relief Valve



JOB: Maurice Bathhouse - Rehabilitate Bathhouses

REPRESENTATIVE: Boone & Boone Sales

Mark Eley (501) 940-7747
marke@2boonesales.com

UNIT TAG:

ENGINEER: IMEG Corp

CONTRACTOR: Comfort Systems, USA

ORDER NO.

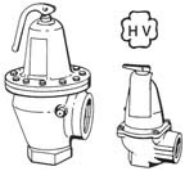
SUBMITTED BY:

APPROVED BY:

DATE:

DATE:

DATE:



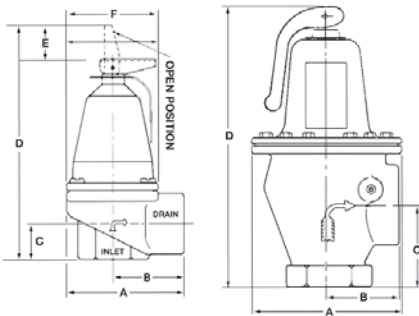
Safety Relief Valves ASME

Valves and Fittings

Patent No. 3,294,114

DESCRIPTION

B&G diaphragm operated cast iron and diaphragm-assist operated bronze ASME Safety Relief Valves are designed to protect fired and unfired hot water pressure vessels against over-pressure conditions. These valves feature a unique failsafe disc with sufficient area to permit the valves to maintain their safety relief function in the event of a diaphragm rupture. These valves are designed, manufactured, tested and labeled in accordance with the requirements of Section IV of the ASME Boiler and Pressure Vessel code. They are offered in a wide range of capacities to permit a close match with the boiler output rating.



OPERATING DATA

MODEL	MAXIMUM WORKING PRESSURE	MAXIMUM OPERATING TEMPERATURE
790	125 PSIG (8.6 bar)	250°F (121°C)
1170		
3301	50 PSIG (3.4 bar)	250°F (121°C)
4100		

CONSTRUCTION

790 & 1170

Body: Brass

Diaphragm & Seat: EPDM

Internal Wetted Parts: Brass

3301 & 4100

Body: Cast Iron

Diaphragm & Seat: EPDM

Internal Wetted Parts: Brass

DIMENSIONS & WEIGHTS

MODEL NUMBER*	BODY	DIMENSIONS-INCHES (mm)								APPROXIMATE SHIPPING WEIGHT LBS. (kg)
		NPT CONNECTIONS		A	B	C	D	E	F	
		INLET	OUTLET							
790	BRASS	3/4	3/4	2-9/16 (65.1)	1-1/2 (38.1)	3/4 (19.1)	4-9/16 (115.9)	1-1/32 (26.2)	2-3/16 (55.6)	1.2 (0.5)
1170	BRASS	1	1	2-7/8 (73.0)	1-3/4 (44.5)	7/8 (22.2)	4-15/16 (125.4)	1-1/32 (26.2)	2-7/16 (61.9)	1.5 (0.7)
3301	IRON	1-1/2	2	6 (152.4)	2-7/8 (73.0)	3-1/4 (82.6)	11 (279.4)	N/A	N/A	17 (7.7)
4100	IRON	2	2	6 (152.4)	2-7/8 (73.0)	3-1/4 (82.6)	11 (279.4)	N/A	N/A	17 (7.7)

*Actual unit model numbers include individual valve pressure settings as a suffix to the basic valve model number noted.

Do Not Use For Construction. Dimensions are approximate and subject to change. Contact factory for certified dimensions.

TYPICAL SPECIFICATIONS

Furnish and install as shown on plans a diaphragm operated Safety Relief Valve, ASME labeled for relieving pressure of psig _____ with a rating of _____ BTU/Hr. The fluid should not discharge into the spring chamber. The valve should have a low blow-down differential.

The valve seat and all moving parts exposed to the fluid are to be of non-ferrous material.

Manufacturer Xylem Bell & Gossett Model No. _____ ASME Safety Relief Valve set at _____psig, rated at _____BTU/Hr.

SAFETY RELIEF VALVES - ASME (Valves and Fittings)

A-434E

SCHEDULE

MODEL NUMBER	PART NUMBER	SIZE TAPPINGS	RELIEF SETTING PSIG	CAPACITY BTU/HR	TAGGING INFORMATION	QUANTITY
790-15	110120	3/4" NPT	15	515,000		
790-20	110750	3/4" NPT	20	610,000		
790-25	110751	3/4" NPT	25	700,000		
790-30	110121	3/4" NPT	30	790,000		
790-36	110122	3/4" NPT	36	900,000		1
790-40	110752	3/4" NPT	40	975,000		
790-45	110123	3/4" NPT	45	1,065,000		
790-50	110124	3/4" NPT	50	1,160,000		
790-55	110753	3/4" NPT	55	1,250,000		
790-60	110754	3/4" NPT	60	1,340,000		
790-65	110755	3/4" NPT	65	1,435,000		
790-70	110756	3/4" NPT	70	1,525,000		
790-75	110125	3/4" NPT	75	1,615,000		
790-80	110757	3/4" NPT	80	1,710,000		
790-85	110758	3/4" NPT	85	1,800,000		
790-90	110759	3/4" NPT	90	1,890,000		
790-95	110760	3/4" NPT	95	1,985,000		
790-100	110126	3/4" NPT	100	2,075,000		
790-105	110761	3/4" NPT	105	2,165,000		
790-110	110762	3/4" NPT	110	2,260,000		
790-115	110763	3/4" NPT	115	2,350,000		
790-120	110764	3/4" NPT	120	2,440,000		
790-125	110127	3/4" NPT	125	2,535,000		
1170-20	110765	1" NPT	20	900,000		
1170-25	110766	1" NPT	25	1,035,000		
1170-30	110129	1" NPT	30	1,170,000		
1170-36	110130	1" NPT	36	1,330,000		
1170-40	110767	1" NPT	40	1,440,000		
1170-45	110131	1" NPT	45	1,575,000		
1170-50	110132	1" NPT	50	1,710,000		
1170-55	110768	1" NPT	55	1,845,000		
1170-60	110769	1" NPT	60	1,980,000		
1170-65	110770	1" NPT	65	2,115,000		
1170-70	110771	1" NPT	70	2,250,000		
1170-75	110133	1" NPT	75	2,385,000		
1170-80	110772	1" NPT	80	2,520,000		
1170-85	110773	1" NPT	85	2,655,000		
1170-90	110774	1" NPT	90	2,790,000		
1170-95	110775	1" NPT	95	2,925,000		
1170-100	110134	1" NPT	100	3,060,000		
1170-105	110776	1" NPT	105	3,195,000		
1170-110	110777	1" NPT	110	3,330,000		
1170-115	110778	1" NPT	115	3,465,000		
1170-120	110779	1" NPT	120	3,600,000		
1170-125	110135	1" NPT	125	3,735,000		
3301-30	110033	1-1/2" x 2"	30	3,300,000		
3301-36	110080	1-1/2" x 2"	36	3,800,000		
3301-45	110081	1-1/2" x 2"	45	4,500,000		
3301-50	110082	1-1/2" x 2"	50	4,900,000		
4100-30	110034	2"	30	4,100,000		
4100-36	110084	2"	36	4,600,000		
4100-45	110085	2"	45	5,515,000		
4100-50	110086	2"	50	5,990,000		



Xylem Inc.
 8200 N. Austin Avenue
 Morton Grove, IL 60053
 Phone: (847)966-3700
 Fax: (847)965-8379
www.xyleminc.com/bellgossett

Bell & Gossett is a trademark of Xylem Inc. or one of its subsidiaries.
 © 2019 Xylem Inc.



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.4.

Safety Relief Valve



Project: Maurice Bathhouse - Rehabilitate Bathhouses
Engineer: IMEG Corp
Contractor: Comfort Systems USA
Factory Rep: Boone & Boone Sales Co., Inc.

Product: Hot Water Make-Up Pressure Relief Valve,
Kunkle Model 537-D01AHM. See last page for model
number configurator.

Sizing: This valve is sized to relieve Qty(2) 750 MBH
boilers with 90 psi set pressure.

KUNKLE MODEL 537 SAFETY RELIEF VALVE

SAFETY AND RELIEF PRODUCTS

A safety relief valve that meet ASME section IV, 'HV', for low pressure hot water boilers and is National Board certified



FEATURES

- Extra heavy construction helps provide long life.
- Top guided disc assembly incorporates resilient seal in seating area.
- Isolating diaphragm protects working parts from corrosion caused by discharged liquid.
- Pivot between disc and spring designed to correct misalignment and compensates for spring side thrust.
- Heavy duty lift lever.
- Tested and inspected for pressure setting and leakage.

GENERAL APPLICATION

These valves serve the dual purpose of relieving overpressure created by thermal expansion under normal firing conditions and overpressure in the form of water or steam created in over-firing due to failure of electrical or other controls on hot water boilers, heat exchangers and generators.

TECHNICAL DATA

Connections: FNPT
Temperature range: -20° to 250°F
(-29° to 121°C)
Pressure range: 15 to 160 psig
(1.0 to 11 barg)
Code: ASME IV



KUNKLE MODEL 537 SAFETY RELIEF VALVE

SAFETY AND RELIEF PRODUCTS

MODEL 537

No.	Part name	Materials
1	Body	[1]
2	Seat O-ring	NBR ^[2]
3	Seat	Bronze, B584 alloy 84400 ^[2]
4	Disc holder	Brass, B16 ^[3]
	Insert	Ethylene propylene (EPDM)
	Diaphragm	NBR/nylon
	Guide	Brass, B36 alloy C26000 ^[4]
	Lock nut	Brass, B16
5	Screw	SS
6	Spring	SS, A313-631
7	Bonnet	[1]
8	Spring step	Brass, B16
9	Compression screw	Brass, B16
10	Lever	Steel, zinc plated
11	Seal and wire	Lead seal and SS wire
12	Lift washer nut	SS
13	Lift washer	SS
14	Stem	SS, A479-316
	Spring pin	SS
	Disc locknut	Brass

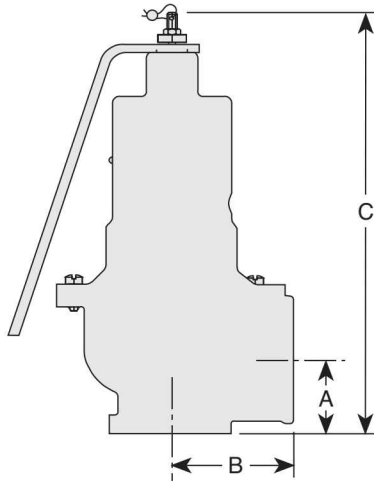
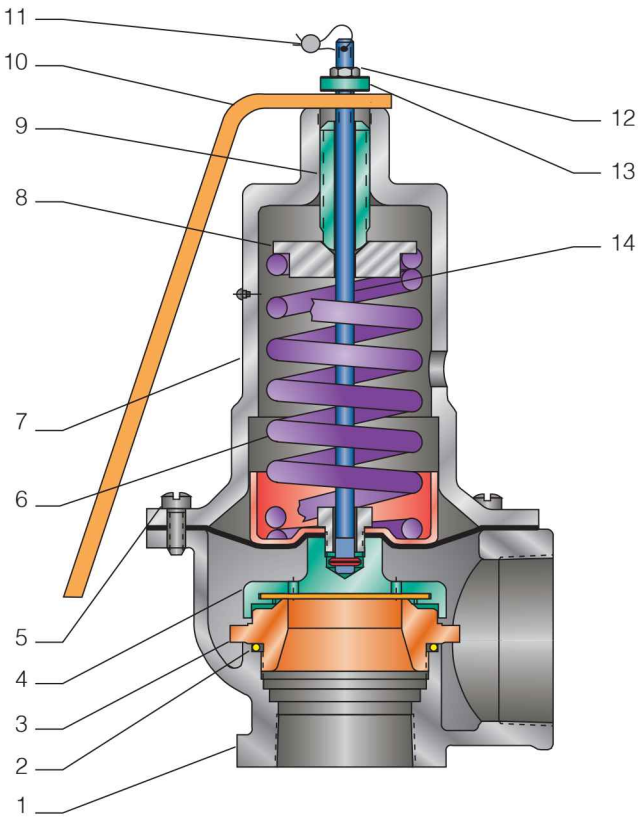
NOTES

- 3/4" and 1": bronze, B584 alloy 84400.
1 1/2" and 2": cast iron, A126 class A/B.
- 3/4" and 1" sizes have an integral seat. 1 1/2" and 2" sizes have an insert seat above a NBR O-ring body seal.
- 1 1/2" size: brass, B283 alloy 37700.
2" size: bronze, B584 alloy 84400.
- 3/4" size: brass, B16.

SPECIFICATIONS

Size		Dimensions, in			Weight (lb)
Inlet	Outlet	A	B	C	
3/4"	1"	1 5/16	1 7/8	6 1/8	2
1"	1 1/4"	1 5/16	2 3/8	7 1/8	5
1 1/2"	2"	1 3/4	2 5/16	10 1/8	12
2"	2 1/2"	2 1/8	3 7/16	11 3/4	22

Dimensions are for reference only.



KUNKLE MODEL 537 SAFETY RELIEF VALVE

SAFETY AND RELIEF PRODUCTS

Capacities

ASME SECTION IV STEAM (Hot water boiler)

Set pressure (psig)	Orifice area, in ²							
	¾"		1"		1½"		2"	
	(0.533 in ²)		(0.833 in ²)		(1.767 in ²)		(3.142 in ²)	
	lb/h	BTU/h	lb/h	BTU/h	lb/h	BTU/h	lb/h	BTU/h
15	690	690278	1079	1078802	2288	2288408	4069	4069144
20	812	811962	1269	1268976	2692	2691813	4786	4786461
30	1055	1055329	1649	1649323	3499	3498623	6221	6221095
40	1299	1298696	2030	2029670	4305	4305434	7656	7655729
50	1542	1542064	2410	2410017	5112	5112244	9090	9090363
60	1785	1785431	2790	2790364	5919	5919055	10525	10524997
70	2029	2028798	3171	3170711	6726	6725865	11960	11959631
80	2272	2272165	3551	3551058	7533	7532676	13394	13394265
90	2516	2515533	3931	3931405	8339	8339486	14829	14828899
100	2759	2758900	4312	4311752	9146	9146296	16264	16263533
110	3002	3002267	4692	4692098	9953	9953107	17698	17698167
120	3246	3245634	5072	5072445	10760	10759917	19133	19132801
125	3367	3367318	5263	5262619	11163	11163323	19850	19850119
130	3489	3489002	5453	5452792	11567	11566728	20567	20567436
140	3732	3732369	5833	5833139	12374	12373538	22002	22002070
150	3976	3975736	6213	6213486	13180	13180349	23437	23436704
160	4219	4219103	6594	6593833	13987	13987159	24871	24871338

KUNKLE MODEL 537 SAFETY RELIEF VALVE

SAFETY AND RELIEF PRODUCTS

SELECTION GUIDE

Example:	0537	-	D	01	-	H	M	0160
Model	0537							
Connection size								
D								
E								
G								
H								
Variation								
01								
Design revision								
-								
A								
Service								
H								
Spring material								
M								
Set pressure								
0015								
0160								



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.5.

Suction Diffuser (for CWP-1M)

Job/Project: Maurice Bathhouse - Rehabilitate Bathhouses		Representative: Boone & Boone Sales	
ESP-Systemwize: WIZE-30485582	08/14/2025	Phone: (918) 664-9756	
Location/Tag: CWP-1M		Email: marke@2boonesales.com	
Engineer: IMEG Corp.		Submitted By:	Date:
Contractor: Comfort Systems USA		Approved By:	Date:

Suction Diffuser Plus

Bell & Gossett Model: EC-3Z

The Bell & Gossett Suction Diffuser Plus is designed for direct application to the pump suction and provides ideal flow conditions for the pump, providing NPSH requirements are met. Its integrated Flow Cone directs flow through the unit and into the pump suction while working with the full length straightening vanes to create a more uniform flow profile. The orifice cylinder has a free area equal to five times the cross section of the pump suction opening and serves as a coarse strainer to protect the pump from large sediment. Type Z-For Domestic Water and Tower Systems.

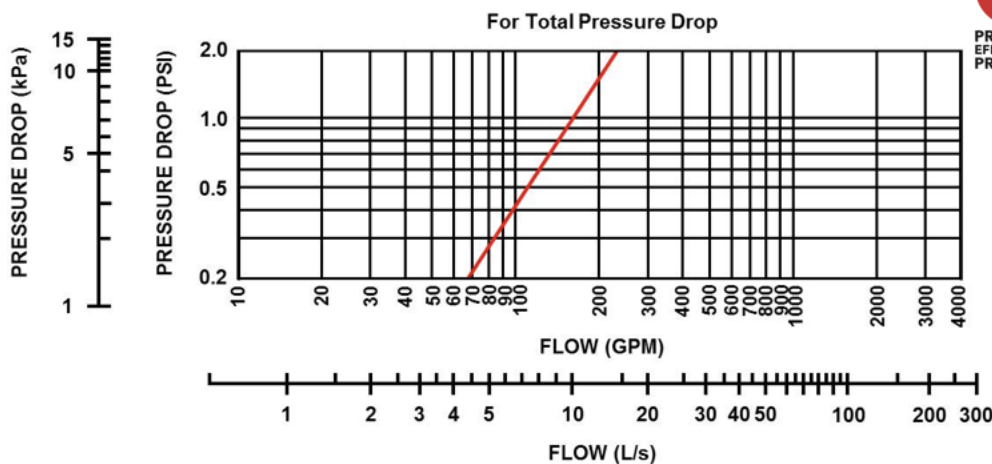
<http://bellgossett.com/hydronic-plumbing-accessories/pump-accessories/suction-diffuser/>



Suction Diffuser Selection

Model	EC-3Z
System Size	4.0 in
Pump Size	2.5 in
Pressure Drop @ Design Flow	4.65'
Connection Type	Flanged/Flanged
Cv	155
Fluid Type	Water
Fluid Temp	68 °F

Performance characteristics:



EC-3Z

Materials of construction

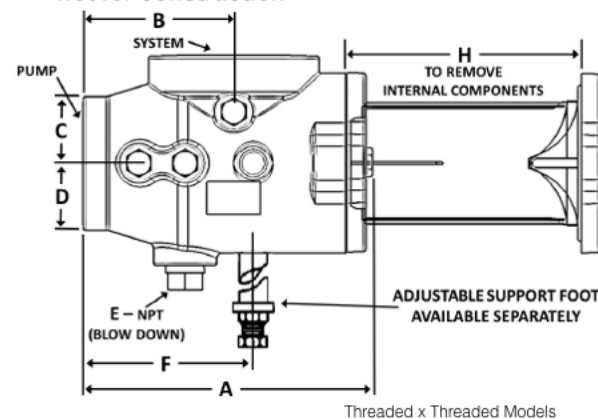
Body	Cast Iron
Inlet Vanes	Stainless Steel
Orifice Cylinder	Stainless Steel
Start-up Strainer	16 Mesh Bronze

Operating Data

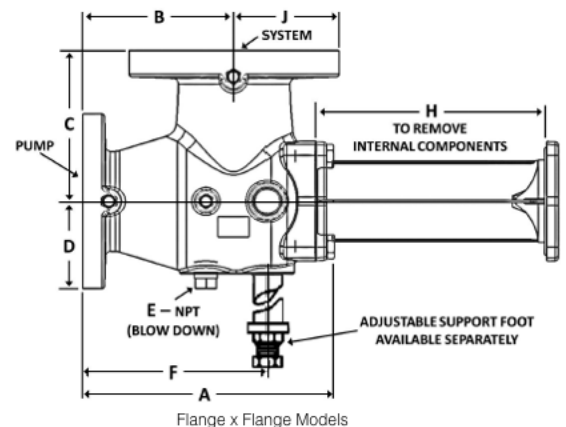
Max Working Pressure	175 psi
Max Temp	250°F

Dimensional data:

not for construction



Threaded x Threaded Models



Flange x Flange Models

*Dimensions include orifice cylinder + 2-1/2 (64) inch clearance.

DIMENSIONS - INCHES (mm)

Model No.	System Side	Pump Side	A	B	C	D	E	F	G	H	J	Orifice Cylinder Free Area in ² (cm ²)	Approx. Shpg. Wt. Lbs. (Kg)
EC-3	4 (101.6)	F 2-1/2 (63.5)	11 (279)	6.50 (165)	6.50 (165)	3.50 (95)	3/4 (19)	5.77 (147)	N/A	7.63 (193.7)	4.50 (114)	26 (168)	42 (19)



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.6, B.

Nomograph

Not Applicable!

Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
LittleRock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Spec Section 232116, 2.6, C.

Meter Kit (RO-5)

**These Bell & Gossett Meter
Kits are No Longer
Available. Our Test and
Balance Crew Will Have A
Meter Available for
Testing.**



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.6, D.

**Hydronic Balancing Valves (2”
and Below)**



RE-SUBMITTAL DATA

Date: May 22, 2026
Project: Hot Springs Bathhouses - Maurice
Contractor: Comfort Systems USA

This resubmittal is in regards to submittal comments on 4/3/26.

Spec section 232116, 2.6, D

1. Valves will be supplied with stainless steel ball and stem.
2. PT port will be supplied upstream of strainer on Isolator S valve.
3. The Isolator S cut sheet states ½" – 3" at the top. That's ½" through 3".
4. Handle extensions will be provided for insulation purposes.
5. Standard isolation valves will be supplied by the contractor in addition to the ¼ turn combination manual balance shutoff valves.
6. Variable orifice 360 degree turn balancing valves will be provided.

6815 Dewaffelbaker Dr., Maumelle, AR 72113

Phone (501) 663-8886 • Fax (501) 663-8738

www.fluidsolutionsinc.com



SUBMITTAL DATA

DATE: August 19, 2025

PROJECT: Hot Springs Bath Houses - Maurice

CONTRACTOR: Comfort Systems USA

GRISWOLD VALVE PACKAGES

ATC valve size & coil connection size will be coordinated when we receive approved submittals.

Incoming line size will be verified with field conditions.

TAG	MODEL	PIPE SIZE	ATC VALVE SIZE	COIL SIZE	GPM
AHU's, UH, & Terminal Boxes	CPP2QIS	Per Plans	TBD	TBD	Per Schedules

HCI VALVE

~~QuickSet®: Manual Balance Valve~~

Control Valve (CV):
Supplied By Others

2-WAY ATC F x F

Isolator U: Union with CPTA (Optional CPTA and Coin-Op Airvent or CPTA and Drain Valve)

Select Supply Side Valve:
Isolator B: Union Ball Valve with CPTA & Drain Valve

Isolator S: Combination Y-Strainer & Ball Valve with CPTA & Drain Valve (Optional 2nd CPTA)

LINE TYPE:		COIL TYPE:	
☐ FNPT	☐ SWT	☐ FNPT	☐ MNPT
☐ QuickPress ¹		☐ QuickPress ¹	

LINE SIZE:	COIL SIZE:	CV SIZE:
☐ 1/2"	☐ 1/2"	☐ 1/2"
☐ 3/4"	☐ 3/4"	☐ 3/4"
☐ 1"	☐ 1"	☐ 1"
☐ 1-1/4"	☐ 1-1/4"	☐ 1-1/4"
☐ 1-1/2"	☐ 1-1/2"	☐ 1-1/2"
☐ 2"	☐ 2"	☐ 2"

BALL & STEM:

☐ Nickel-plated brass ball & brass stem

☒ Stainless Steel ball & stem

COMPONENT OPTIONS:

☐ 1-1/2" Ext Kit ☐ 2" Ext Kit

☐ Strainer 20 Mesh ☐ Strainer 50 Mesh

☐ Union Coin-Op&CPTA ☐ Union CPTA&DV

☐ Isolator S 2nd CPTA ☐ Isolator B in lieu IS

HOSE OPTIONS (FNPT COIL):

Swivel Type: ☐ MNPT ☐ SWT

Length: ☐ 12" ☐ 18" ☐ 24" ☐ 36"

CONTROL VALVE (CV):

☐ Customer Supplied and Installed CV

☐ Customer Supplied CV - Installed By Griswold Controls

SPECIFICATIONS

QuickSet®: Forged brass manual balance valve with brass venturi insert and graduated memory stop. Valve housing includes field repairable dual Teflon and EPDM o-ring seal stem. Valve includes one fixed end (FNPT or SWT) connection and one union (MNPT) connection. Union end includes union nut and EPDM o-ring. Valve body has two ports with (1) combination Pressure/Temperature Test Valves and manual air vent (CPTA), and (1) Pressure/Temperature Test Valve. PSI/Temp Rating: 600WOG-400PSI/250°F

Isolator S: Ball valve and integrated strainer. Valve housing is forged brass with field repairable dual Teflon and EPDM o-ring seal stem. Strainer is Stainless Steel and can be removed from housing without disturbing pipe connections for inspection or replacement. Valve includes one fixed connection and one union connection. Union end includes union nut and EPDM o-ring. Body has one port with combination Pressure/Temperature Test Valves (CPTA). Assembly includes drain valve with 3/4" hose connection with cap. PSI/Temp Rating: 600WOG-400PSI/250°F

Isolator B: Forged brass union ball valve. Valve housing includes field repairable dual Teflon and EPDM o-ring seal stem. Valve includes one fixed end (FNPT or SWT) connection and one union (FNPT or SWT) connection. Union end includes union nut and EPDM o-ring. Valve body has two ports with one combination Pressure/Temperature Test Valve and Manual Air Vent (CPTA), and one Drain Valve. PSI/Temp Rating: 600WOG-400PSI/250°F.

Union: Forged brass (ASTM B283) union. Union includes one fixed end (FNPT or SWT) connection and one union (MNPT) connection. Union end includes union nut and EPDM o-ring. Union body has one port with combination Pressure/Temperature Test Valves and manual air vent (CPTA). PSI/Temperature Rating: 400 PSI / 250°F.

Drain Valve: Brass housing, Nickel plated ball. 1/2"-1":1/2"UNFx3/4"NPSH. 1-1/4"-2":3/4"UNFx3/4" NPSH. Rated 300PSI/250°F

Combination Pressure/Test Valve & Manual Air Vent (CPTA): Brass Housing, EPDM Seal. Rated 1000PSI/350°F Pressure/Temperature Test Valve works in conjunction with valve body feature to function as Manual Air Vent. Requires both components to operate as manual air vent.

NOTES

¹ QuickPress connections are compatible with popular press tools and are rated for maximum 200 PSI.

MODEL NUMBER SELECTION

Size	Model Number- FNPT Line	Model Number- SWT Line	Model Number- PRESS Line	Select Coil Size & Type ² for Model Number	Select CV Size for Model Number
1/2"	CP2Q0_E__0	CP2Q0_L__0	CP2Q0_2__0	FNPT:(E=1/2,F=3/4) MNPT:(H=1/2, I=3/4) SWT: (K=3/8",L=1/2,M=3/4) PRESS:(2=1/2,3=3/4)	MNPT:(H=1/2)
3/4"	CP2Q0_F__0	CP2Q0_M__0	CP2Q0_3__0		MNPT:(1/2=H,I=3/4)
3/4"L	CP2Q1_F__0	CP2Q1_M__0	CP2Q1_3__0	FNPT:(E=1/2,F=3/4,G=1) MNPT:(H=1/2,I=3/4,J=1) SWT:(L=1/2,M=3/4,N=1) PRESS:(2=1/2,3=3/4,1=1)	MNPT:(1/2=H,I=3/4)
1"	CP2Q1_G__0	CP2Q1_N__0	CP2Q1_1__0		MNPT:(1/2=H,I=3/4,J=1)
1-1/4"	CP2Q2_P__0	CP2Q2_K__0	CP2Q2_4__0	FNPT:(G=1,P=1-1/4,Q=1-1/2) MNPT:(J=1, S=1-1/4,T=1-1/2) SWT:(N=1,K=1-1/4,W=1-1/2) PRESS:(1=1, 4=1-1/4, 5=1-1/2)	MNPT:(1/2=H,I=3/4,J=1,S=1-1/4)
1-1/2"	CP2Q2_Q__0	CP2Q2_W__0	CP2Q2_5__0		MNPT:(J=1,S=1-1/4,T=1-1/2)
2"	CP2Q3_R__0	CP2Q3_Y__0	CP2Q3_6__0	FNPT:(P=1-1/4,Q=1-1/2,R=2) MNPT:(S=1-1/4, T=1-1/2,U=2) SWT:(K=1-1/4,W=1-1/2,Y=2) PRESS:(4=1-1/4, 5=1-1/2, 6=2)	MNPT:(T=1-1/2,U=2)

Some Control Valve sizes have QuickSet Cv limitations. 1/2" Control Valve may not be compatible with Cv of 12.2, 21.8, 22.1, 54.7; 3/4" Control Valve may not be compatible with Cv of 21.8, 22.1, 54.7; 1" Control Valve may not be compatible with Cv of 54.7 or 105.2; 1-1/4" Control Valve may not be compatible with Cv of 105.2.

NOTES:

- Standard CPPs include nickel-plated brass ball and brass stem. For optional Stainless Steel ball and stem change "CP" to "CS" in model number.
- Insert Venturi Cv letter Code in 6th digit from flow table.
- Insert Coil Size & Type in 8th digit.
- Insert Control Valve (CV) Size in 9th digit.
- Insert Supply Side Product Code: **Isolator S** ("B"=(1) CPTA/DV, 20 mesh screen, "D"=(2) CPTAs & (1) DV, 20 mesh screen, "G"=(1) CPTA/DV, 50 mesh screen, "J"=(2) CPTAs & (1) DV, 50 mesh screen) or **Isolator B** ("V"=(1) CPTA/DV)
- Optional Extension Kit- includes cap and tube for insulation around handle and appropriate number of extensions for PT/CPTA included in package. Change "0" to "1" for 1-1/2" extension option or "2" for 2" extension option.³
- If Control Valve (CV) is installed at the factory by Griswold Controls add an "A" to end of model number.

FLOW RATES (+/-1%⁴)

OUTLET SIZE	QUICKSET MODEL NO.	FLOW GPM ⁽⁵⁾ AT 4 FT/SEC	Cv ⁽⁶⁾	GPM RANGE FOR 5"-100" W.C. ΔP (SET W/100" GAUGE)	GPM RANGE FOR 5"-300" W.C. ΔP (SET W/300" GAUGE)
1/2", 3/4"	QS0	3.8	A=0.39	0.15 – 0.67	0.15 – 1.16
			B=1.1	0.3 – 1.4	0.3 – 2.4
			C=2.5	0.6 – 2.8	0.6 – 4.6
			D=4.2	1.2 – 5.4	1.2 – 9.4
3/4"L	QS1	6.7	B=0.9	0.3 – 1.4	0.3 – 2.5
			C=1.9	0.6 – 2.8	0.6 – 4.9
			D=3.9	1.3 – 5.6	1.3 – 9.7
			E=7.0	2.6 – 11.5	2.6 – 19.9
1"	QS1	10.8	C=1.8	0.6 – 2.8	0.6 – 5.0
			D=3.8	1.3 – 5.6	1.3 – 9.7
			F=7.6	2.6 – 11.5	2.6 – 19.9
			G=12.2	3.9 – 17.3	3.9 – 30.0
1-1/4"	QS2	18.7	H=10.0	3.4 – 15.0	3.4 – 26.2
			I=21.8	7.2 – 32.3	7.2 – 55.9
1-1/2"	QS2	25.4	J=22.1	7.4 – 33.0	7.4 – 57.2
			N=54.7	13.9 – 62.0	13.9 – 107.4
2"	QS3	41.9	M=65.2 ⁷	21.6 – 96.5	21.6 – 167.1
			P=105.2	21.6 – 96.5	21.6 – 167.1

NOTES

² Coil Type must be FNPT if hoses are required.

³ Extension Option includes handle cover and accessory extensions for either 1-1/2" or 2" Insulation.

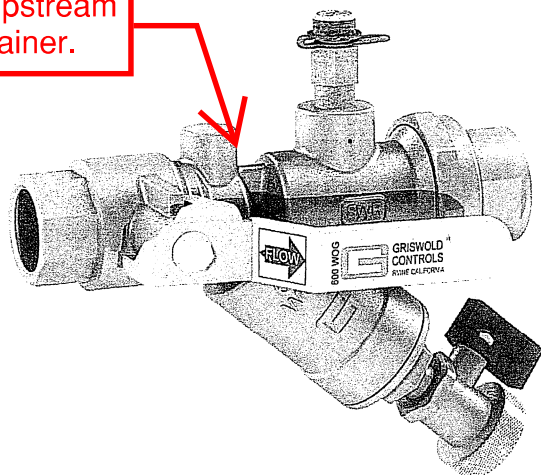
⁴ Accuracy is for venturi portion of valve only. Pressure readability is dependent on accuracy of gauge and system pressure stability.

⁵ The generally accepted upper limit as recommended by ASHRAE to prevent pipe noise is 4 ft/sec.

⁶ Cv's are used to calculate the permanent pressure drop. $PSID=(Flow/Cv)^2$. Use the Flow Curve for flow measurement.

⁷ 65.2 Cv includes an optimizer insert in the ball.

P/T upstream
of strainer.



SPECIFICATIONS

2"

PSI/Temperature Rating: 1/2"-1-1/2": 600 WOG 400 PSI / 250° F
1-1/2"L-3": 400 WOG 275 PSI / 250° F

Body Material: 1/2"-1-1/2": Forged Brass ASTM B283-06
1-1/2"L-3": Cast brass

End Connections: Brass – NPT, Sweat, QuickPress¹, Grooved²

Ball Valve Seals: Teflon

Union Seal: EPDM O-Ring

Body Tappings³: (3) Bosses for CPTAs and Drain Valve

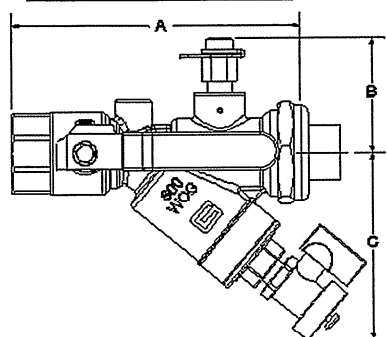
Ball Valve: ~~Nickel plated brass ball~~
Optional: Stainless Steel ball

Field Repairable Stem: Dual Teflon seals and EPDM O-ring

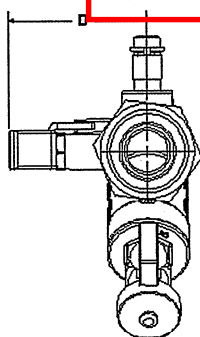
Strainer: 20 mesh stainless steel (optional 50 mesh)

Options: Combination P/T Test Valve and Manual Air Vent (CPTA), Drain Valve, or 1/2" Bypass⁴, Extension Option

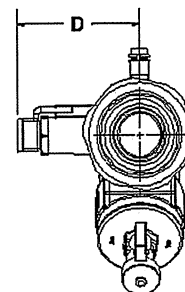
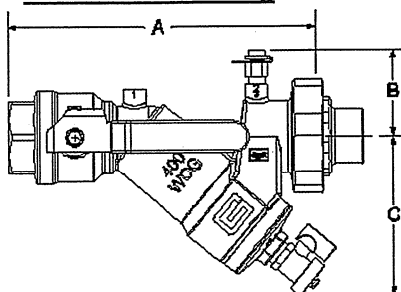
1/2" – 1-1/2" Housing



Stainless steel



1-1/2"L - 3" Housing



DIMENSIONS & WEIGHTS (NOMINAL)

All dimensions are for planning purposes only and may change without notice.

SIZE	A - FIXED END CONNECTION		UNION END CONNECTION ⁵							B	C	D ⁶	Cv ⁷	WEIGHT (LBS.)							
	FNPT	SWT	FNPT		MNPT		SWT														
1/2"	3.9	3.8	1/2":1.0	3/4":N/A ⁸	1/2":1.0	3/4":1.2	3/8",1/2":0.8		3/4":1.1	1.9	2.9	0.5,1.5 2.2	4.7	0.9							
3/4"	3.9	4.0																			
3/4"L	5.4	5.4	1/2",3/4":1.0	1":N/A ⁸	1/2"-3/4":1.0	1":1.4	3/8",3/4":1.0	1/2":0.7	1":1.3	2.2	3.6	2.6, 3.2	9.1	2.3							
1"	5.4	5.6																			
1-1/4"	7.6	7.7	1",1-1/4",1-1/2":1.7		1",1-1/4",1-1/2":1.7 ⁹		1",1-1/4":1.7	1-1/2":1.4		2.5	3.1	3.1, 3.7	24.6	5.0							
1-1/2"	7.5	7.9																			
1-1/2"L, 2"	9.3	9.8	1-1/4", 1-1/2":1.6	2": N/A ⁸	1",1-1/4":1.8	1-1/2", 2":1.6	1-1/4",2":1.6	1-1/2":1.7		2.6	3.7	3.7, 4.3	35	8.8							
2"L	10.9	11.2	2": 2.5												2": 1.6	2": 1.6					
2-1/2"	11.1	N/A	N/A ¹⁰												2.9	4.0	4.0, 4.6	60	12.4		
3"	11.3	N/A																			

For QuickPress connections add 3.1" (1/2") 3.6" (3/4", 3/4"L), 4.1" (1"), to the FNPT length (A) listed for a valve.

NOTES

Provide for all valves in insulated piping

¹ QuickPress is available on 1/2" to 1" valves only. Connections are compatible with popular press tools and are rated for maximum 200 PSI.

² Grooved End connection is available on 2-1/2" and 3" valves only.

³ Body Tappings for accessories are a leak proof metal to metal seal and do not require pipe dope or tape. Tape or dope should not be used.

⁴ Bypass is only available on 1/2" to 1-1/2" valves.

⁵ For overall length, add union end connection length to body length.

⁶ Space Saver handle standard on 1/2"-3/4" valves. Standard handle on 1" to 3" valves and 1-1/2" extended handle in 1/2" to 3" is compatible with 1-1/2" insulation. Largest extended handle is compatible with 2" insulation.

⁷ Cv's are based on a clean 20 mesh stainless steel strainer. When a 50 mesh screen is used, multiply PSID by 1.3.

⁸ Tailpiece is not available for this size. Male tailpiece used with coupling.

⁹ 1-1/4"-1-1/2" valves can also take 1/2"-3/4" MNPT tailpieces.

¹⁰ 2-1/2" and 3" Valves are fixed end by fixed end connection. Union connection is not available.

MODEL NUMBER SELECTION¹¹

Select a Housing Size (0=1/2"-3/4", 1=3/4"L-1", 2=1-1/4"-1-1/2", 3=1-1/2"L-2", 4=2"L-3")

Select an Accessory Package
(B=CPTA & Drain Valve (20 mesh),
C=CPTA, Drain Valve & Bypass (20 mesh)¹²
D=(2) CPTAs & Drain Valve(20 mesh),
E=Bypass Plug (20 mesh), G=CPTA & Drain
Valve (50 mesh) H= CPTA, Drain Valve &
Bypass (50 mesh))

Select Ball and Stem Package (P=Plated
Ball, S=SS Ball and Stem)

Extension Option¹³ (0=No, 1=1-1/2", 2=2")

I S

T=Optional
3"x3"
Aluminum
Hanging
I.D. Tag

Valve	FIXED END OR UNION END ¹⁴ (No Union Tailpiece=Z)			UNION END ONLY ¹⁴
	Female Threaded	Female Sweat	QuickPress	Male Threaded
IS0	1/2"=E, 3/4"=F ¹⁵	3/8"=K ¹⁶ , 1/2"=L, 3/4"=M	1/2"=2, 3/4"=3	1/2"=H, 3/4"=I
IS1	1/2"=E ¹⁶ , 3/4"=F, 1"=G ¹⁵	3/8"=K ¹⁶ , 1/2"=L ¹⁶ , 3/4"=M, 1"=N	1/2"=2 ¹⁶ , 3/4"=3, 1"=1	1/2"=H, 3/4"=I, 1"=J
IS2	1"=G ¹⁶ , 1-1/4"=P, 1-1/2"=Q	1"=N ¹⁶ , 1-1/4"=K, 1-1/2"=W	N/A	1/2"=H, 3/4"=I, 1"=J, 1-1/4"=S, 1-1/2"=T
IS3	1-1/4"=P ¹⁶ , 1-1/2"=Q, 2"=R ¹⁵	1-1/4"=K ¹⁶ , 1-1/2"=W, 2"=Y	N/A	1-1/4"=S, 1-1/2"=T, 2"=U
IS4 ¹⁴ (Union)	2"=L	2"=Y	N/A	1-1/4"=S, 1-1/2"=T, 2"=U
IS4 ¹⁴ (Fixed End)	2"=L, 2-1/2"=M, 3"=N ¹⁷	N/A	N/A	N/A

NOTES

¹¹ Model no. and flow rate are indicated on label affixed to body.

¹² C option with bypass is only available for 1/2" to 1-1/2" size.

¹³ Extension Option includes handle cover and accessory extensions for either 1-1/2" or 2" insulation.

¹⁴ Select the Fixed End First and the Union End Second. For 2-1/2" and 3" size select a 2nd fixed end instead of a union end.

¹⁵ Tailpiece is not available for this size. Male tailpiece used with coupling.

¹⁶ Fixed end not available for this size. Union tailpiece only.

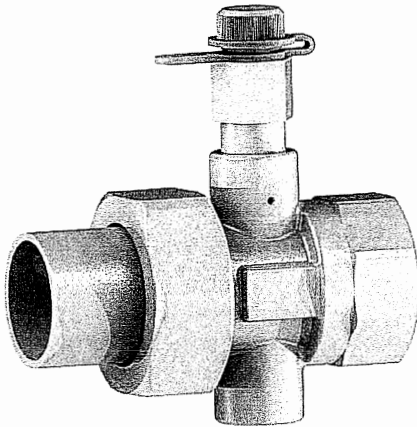
¹⁷ For Grooved End option use MG=2-1/2" and NG=3".

This specification © 2020 Griswold Controls

1700 Barranca Parkway, Irvine, CA 92606
(949) 559-6000 Fax (949) 559-6088
www.GriswoldControls.com

GRISWOLD[®]
CONTROLS
A FlowCon International/Grisswold Controls LLC. Company

7/20
F-5387M



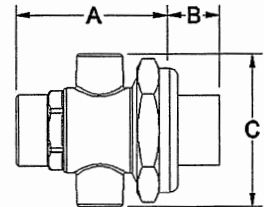
SPECIFICATIONS

PSI / Temperature Rating:	400 PSI / 250°F
Body Material:	Forged Brass ASTM B283-06
End Connections:	Brass – NPT, Sweat or QuickPress ¹
Union Seal:	EPDM O-ring
Body Tappings²:	(2) Bosses for CPTAs, Airvent. and Drain Valve
Options:	Combination P/T Test Valve and Manual Air Vent (CPTA), Drain Valve, Coin Operated Airvent, Extension Option

DIMENSIONS & WEIGHTS (NOMINAL)

All dimensions are for planning purposes only and may change without notice.

SIZE	A - FIXED END CONNECTION		B - UNION END CONNECTION ³							C	WEIGHT (LBS.)	
	FNPT	SWT	FNPT		MNPT		SWT					
3/8"	N/A	1.7	1/2":1.0	3/4":N/A ⁴	1/2":1.0	3/4":1.2	3/8",1/2":0.8		3/4":1.1		1.2	0.3
1/2"	2.0	1.9										
3/4"	1.9	1.9										
1"	2.2	2.2	1/2",3/4":1.0	1":N/A ⁴	1/2"-3/4":1.0	1":1.4	3/8",3/4":1.0	1/2":0.7	1":1.3	2.0	1.1	
1-1/4"	2.6	2.6	1",1-1/4",1-1/2":1.7		1",1-1/4",1-1/2":1.7 ⁵		1",1-1/4":1.7		1-1/2":1.4		2.7	2.4
1-1/2"	2.8	2.8										
2"	2.8	2.8	1-1/4",1-1/2":1.6	2": N/A ⁴	1",1-1/4":1.8	1-1/2",2":1.6	1-1/4",2":1.6		1-1/2":1.7		3.4	3.2
2-1/2"	3.0	N/A	1-1/2" – 2-1/2": 1.2	3": 2.2	1-1/2"-2-1/2": 1.5	3": 2.5	2":2.0			3.7	5.1	
3"	3.2	N/A									5.6	



For QuickPress connections add 3.1" (1/2"), 3.6" (3/4"), 4.1" (1") to the FNPT length (A) listed for a valve.

MODEL NUMBER SELECTION

Select a Housing Size (0=1/2"-3/4", 1=1", 2=1-1/4"-1-1/2", 3=2", 4=2-1/2"-3")

Select an Accessory Package (0=No Port, B=CPTA, C=CPTA & Drain Valve, D=Coin-Op Airvent, E=Coin-Op Airvent and CPTA)

Extension Option⁶ (0=No, 1=1-1/2", 2=2")

I U

Valve	FIXED END OR UNION END ⁷ (No Union Tailpiece=Z)			UNION END ONLY ⁷
	Female Threaded	Female Sweat	QuickPress	
IU0	1/2"=E, 3/4"=F ⁴	3/8"=K, 1/2"=L, 3/4"=M	1/2"=2, 3/4"=3	1/2"=H, 3/4"=I
IU1	1/2"=E ⁸ , 3/4"=F ⁸ , 1"=G ⁴	3/8"=K ⁸ , 1/2"=L ⁸ , 3/4"=M ⁸ , 1"=N	1/2"=2 ⁸ , 3/4"=3 ⁸ , 1"=1	1/2"=H, 3/4"=I, 1"=J
IU2	1"=G ⁸ , 1-1/4"=P, 1-1/2"=Q	1"=N ⁸ , 1-1/4"=K, 1-1/2"=W	N/A	1/2"=H, 3/4"=I, 1"=J, 1-1/4"=S, 1-1/2"=T
IU3	1-1/4"=P ⁸ , 1-1/2"=Q ⁸ , 2"=R ⁴	1-1/4"=K ⁸ , 1-1/2"=W ⁸ , 2"=Y	N/A	1-1/4"=S, 1-1/2"=T, 2"=U
IU4	1-1/2"=Q ⁸ , 2"=R ⁸ , 2-1/2"=A, 3"=B	2"=Y ⁸	N/A	1-1/2"=T, 2"=U, 2-1/2"=C, 3"=D

NOTES

- ¹ QuickPress is available on 1/2" to 1" valves. Connections are compatible with popular press tools and are rated for maximum 200 PSI.
- ² Body Tappings for accessories are a leak proof metal to metal seal and do not require pipe dope or tape. Tape or dope should not be used.
- ³ For overall length, add union end connection length to body length.
- ⁴ Tailpiece is not available for this size. Male tailpiece used with coupling.
- ⁵ 1-1/4"-1-1/2" valves can also take 1/2"-3/4" MNPT tailpieces.
- ⁶ Extension Option includes accessory extensions for either 1-1/2" or 2" insulation.
- ⁷ Select the Fixed End First and the Union End Second.
- ⁸ Fixed end not available for this size. Union tailpiece only.

This specification © 2020 Griswold Controls

1700 Barranca Parkway, Irvine, CA 92606
(949) 559-6000 Fax (949) 559-6088
www.GriswoldControls.com

GRISWOLD CONTROLS
A FlowCon International/Griswold Controls LLC. Company

11/20
F-5388F

Manual Balancing Valve

Variable Orifice • Globe Valve • Threaded & Solder Connections • Memory Stop • 300 WOG



TGV

Features

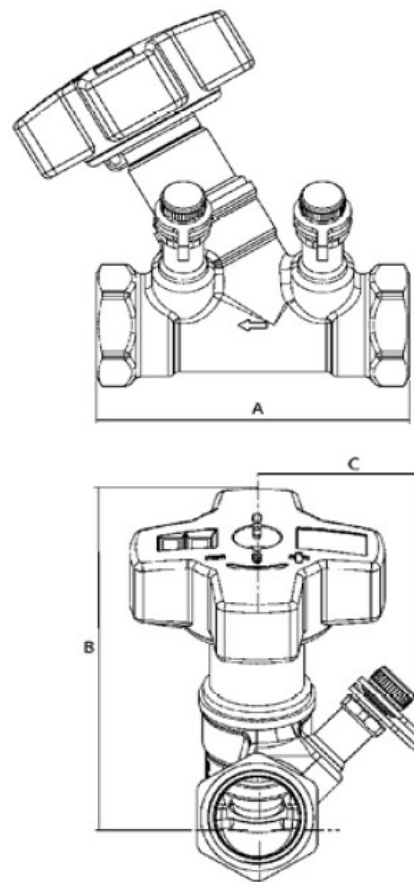
- "Y" pattern globe style design
- Dezincification resistant brass
- Positive shut-off
- Offsetting pressure/temperature ports
- Multi-turn, 360° handwheel with vernier scale and digital readouts
- Built-in memory stop
- Precise flow measurement and flow balancing

Pressure / Temperature Rating

- 300 PSI
- -4°F to 250°F



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Material Specifications

Part	Material
Body, Bonnet	Brass - C35330
Gasket	EPDM
Seat Seal	EPDM
Hand Wheel	Plastic

Dimensions

Part Number	Size	A	B	C	Minimum Flow	Nominal Flow	Maximum Flow
Threaded Connection							
TGV-AFF	1/2"	3.39	3.74	1.57	0.14	0.50-3.08	12.10
TGV-BFF	3/4"	3.54	3.74	1.65	0.26	3.80-5.50	17.40
TGV-CFF	1"	4.02	3.78	1.73	0.37	5.50-9.50	30.00
TGV-DFE	1-1/4"	4.72	3.78	1.85	0.60	9.50-14	44.60
TGV-EFF	1-1/2"	5.20	4.25	1.93	0.91	14-20	66.40
TGV-FFF	2"	6.46	4.37	2.09	1.52	20-33	107.20
Sweat Connection							
TGV-ACC	1/2"	3.39	3.74	1.57	0.14	0.50-3.08	12.10
TGV-BCC	3/4"	3.54	3.74	1.65	0.26	3.80-5.50	17.40
TGV-CCC	1"	4.02	3.78	1.73	0.37	5.50-9.50	30.00
TGV-DCC	1-1/4"	4.72	3.78	1.85	0.60	9.50-14	44.60
TGV-ECC	1-1/2"	5.20	4.25	1.93	0.91	14-20	66.40
TGV-FCC	2"	6.46	4.37	2.09	1.52	20-33	107.20

TGV

0.50" - 2.00"

This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

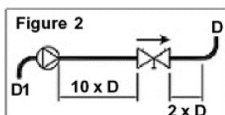
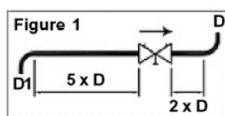
Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.

Example: A 1" valve is required to be open 8 turns for a Cv value of 7.5 at a flow rate of 10 gpm and a pressure drop of 4ft.

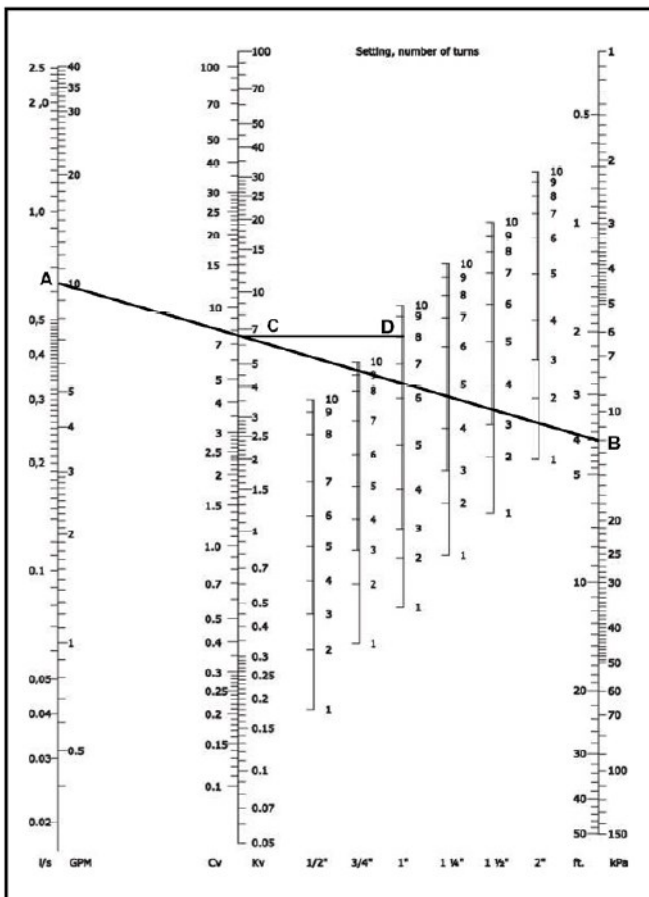
Installation Recommendations

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1. (Note: D = pipe diameter).



When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.

Turbulence can influence the measurements by up to 20% if this recommendation is not followed.



Cv Values for Valve TGV

Flow coefficient values (Cv's) at various handwheel settings						
Handwheel Setting	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	
1	0.21	0.39	0.56	0.92	1.39	2.32
1.5	0.29	0.56	0.75	1.28	1.97	3.25
2	0.37	0.70	0.89	1.53	2.38	4.18
2.5	0.44	0.82	1.04	1.80	2.78	5.10
3	0.52	0.96	1.19	2.09	3.25	6.03
3.2	0.56	1.02	1.28	2.26	3.48	6.50
3.4	0.59	1.09	1.39	2.44	3.71	6.96
3.6	0.63	1.16	1.51	2.67	4.06	7.54
3.8	0.67	1.23	1.62	2.90	4.41	8.12
4	0.72	1.31	1.74	3.13	4.76	8.82
4.2	0.77	1.39	1.91	3.42	5.10	9.74
4.4	0.81	1.48	2.09	3.71	5.57	10.70
4.6	0.87	1.58	2.26	4.06	6.03	11.70
4.8	0.93	1.68	2.44	4.41	6.61	12.80
5	1.00	1.80	2.67	4.76	7.19	13.80
5.2	1.07	1.91	2.90	5.16	7.77	15.00
5.4	1.14	2.03	3.19	5.57	8.35	16.00
5.6	1.21	2.16	3.48	5.97	8.93	17.20
5.8	1.28	2.30	3.83	6.38	9.63	18.30
6	1.36	2.44	4.18	6.84	10.30	19.40
6.2	1.44	2.60	4.47	7.25	11.00	20.40
6.4	1.52	2.76	4.76	7.66	11.80	21.50
6.6	1.62	2.96	5.10	8.12	12.50	22.50
6.8	1.74	3.16	5.54	8.58	13.20	23.50
7	1.88	3.36	5.80	9.05	13.90	24.60
7.2	2.06	3.60	6.15	9.51	14.60	25.50
7.4	2.26	3.83	6.50	9.98	15.30	26.40
7.6	2.49	4.06	6.84	10.40	15.90	27.40
7.8	2.73	4.27	7.19	10.80	16.50	28.20
8	2.96	4.47	7.54	11.30	17.10	29.00
8.2	3.13	4.63	7.89	11.70	17.60	29.90
8.4	3.29	4.78	8.24	12.20	18.20	30.70
8.6	3.42	4.93	8.58	12.60	18.80	31.60
8.8	3.54	5.08	8.87	13.00	19.40	32.40
9	3.65	5.22	9.16	13.30	19.80	33.20
9.2	3.77	5.36	9.40	13.70	20.30	33.90
9.4	3.87	5.50	9.63	14.20	20.90	34.60
9.6	3.98	5.64	9.86	14.50	21.50	35.30
9.8	4.06	5.78	10.00	14.80	22.00	36.00
10	4.12*	5.92*	10.2*	15.2*	22.6*	36.5*

* Valve is fully open

Flow Measurement & Accuracy

Determined using the pressure drop diagram that is included in the operating instructions with each HCI Balancing Valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to hand-wheel turns.

Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (Y) according to this formula. See Figure 4.

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5.

Figure 3

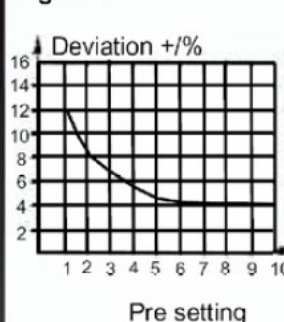


Figure 4

$$\text{Actual Flow} = \frac{q_{CB}}{\sqrt{Y}}$$

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δp in Ft. of H₂O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, $\sqrt{p}$ in PSI

General							System				Balance Valve					Control Valve				
ITEM	QTY	EQUIPMENT TYPE	TAG	DESIGN GPM	HCI PKG KEY	BALANCE VALVE TYPE	RUNOUT SIZE	RUNOUT CONN. TYPE	COIL SIZE	COIL CONN. TYPE	BALANCE VALVE MODEL	BALANCE VALVE SIZE	BALANCING COMPONENT PN	TAB DP In-H2O or (CART MARK)	Valve PD - ft-H2O or (ACTUAL GPM)	CONTROL VALVE TYPE	PORT TYPE 2 / 3 WAY	CONTROL VALVE SIZE & TYPE	CONTROL VALVE ASSEMBLY	ACTUATOR SIGNAL FAIL-TYPE
55	1	TU	TAB-1-10M	2.10	B	TGV	1"	MNPT	1"	MNPT	TBD	1"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
56	1	TU	TAB-1-11M	0.50	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
57	1	TU	TAB-1-12M	2.20	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
58	1	TU	TAB-2-1M	1.80	B	TGV	1"	MNPT	1"	MNPT	TBD	1"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
59	1	TU	TAB-2-2M	2.40	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
60	1	TU	TAB-2-3M	1.40	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
61	1	TU	TAB-2-4M	1.80	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
62	1	TU	TAB-2-5M	1.00	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A
63	1	TU	TAB-2-6M	2.40	A	TGV	3/4"	MNPT	3/4"	MNPT	TBD	3/4"	-	-	-	3rd Party (CV)	2-WAY	TBD	NO	N/A

Bronze Ball Valves

Two-Piece Body • Full Port • Stainless Trim • Blowout-Proof Stem • Vented Ball

600 PSI/41.4 bar non-shock cold working pressure
150 PSI/10.3 bar saturated steam*

CONFORMS TO MSS SP-110

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Stainless Steel 300 Series
2. Handle	Zinc Plated Steel Clear Chromate Plastisol Coated
3. Threaded Pack Gland	Brass ASTM B 16 Alloy C36000
4. Packing	PTFE
5. Stem	Stainless Steel ASTM A 276 Type 316
6. Thrust Washer	Reinforced PTFE
7. Ball (Vented)	Stainless Steel ASTM A 276 Type 316 or ASTM A 351 Type CF8M
8. Seat Ring (2)	Reinforced PTFE
9. Body	Bronze ASTM B 584 Alloy C84400
10. Body End Piece	Bronze ASTM B 584 Alloy C84400

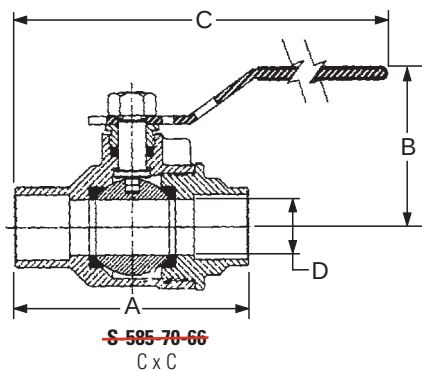
¼" size only has a 304 stainless steel grounding washer.



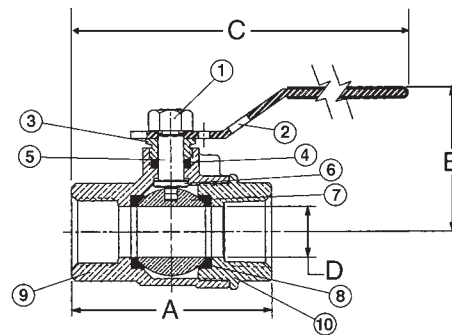
T-585-70-66
Threaded



S-585-70-66
Solder



S-585-70-66
C x C



T-585-70-66
NPT x NPT

DIMENSIONS—WEIGHTS—QUANTITIES

Dimensions

Size	A	A	B	C	C	D	T-585-70-66	S-585-70-66	Master
In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	In. mm.	Lbs. Kg.	Lbs. Kg.	Ctn. Qty.
¼	8 2.00 51	1.75 44	1.75 44	5.00 127	4.75 121	.38 10	.45 .21	.42 .19	100
⅜	10 2.00 51	1.84 47	1.75 44	5.00 127	4.81 122	.38 10	.45 .21	.42 .19	100
½	15 2.44 62	2.56 65	1.88 48	5.19 132	5.25 133	.50 13	.64 .29	.60 .27	100
¾	20 2.94 75	3.25 82	2.25 57	6.25 159	6.25 159	.75 19	1.33 .60	1.27 .58	50
1	25 3.34 85	3.75 95	2.38 60	6.44 164	6.63 168	1.00 25	1.79 .81	1.72 .78	40
1¼	32 4.19 106	5.06 128	3.00 76	6.75 171	7.19 183	1.25 32	3.34 1.52	3.40 1.55	20
1½	40 4.72 120	5.99 151	3.16 80	9.06 230	9.69 246	1.50 38	4.84 2.20	5.18 2.35	10
2	50 5.16 131	6.72 170	3.50 89	9.25 235	10.06 256	2.00 51	7.41 3.37	7.83 3.56	8

Note: solder end is designed to be soft-soldered into lines using solders with the melting point not exceeding 500°F.
Higher temperature solders will damage the seat material. See installation sheet packaged with valves.

*For detailed operating pressure, refer to pressure temperature chart on page 41.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

LEAD FREE*
OPTION
AVAILABLE

OXYGEN
SERVICE
OPTION
AVAILABLE

Visit our website for the most current information.

*Weighted average lead content ≤ 0.25%

Bronze Threaded, Solder, NIBCO® Press System and Grooved Ball Valves

NIB-SEAL® Technical Data

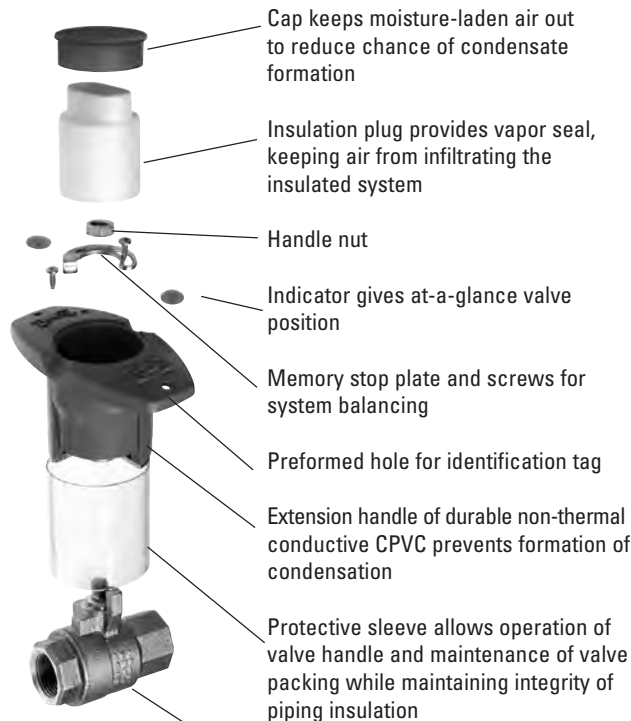
NIBCO bronze ball valves installed with NIB-SEAL® insulated handles are the only approach that keeps your insulated piping system completely intact.

The revolutionary NIB-SEAL insulated handle system used with a NIBCO bronze ball valve, stops condensate, cold. Its unique thermal barrier design keeps moisture from infiltrating your insulated system while preventing thermal energy loss through exposed metal handles.

Designed for new installations or retrofitting existing systems, NIB-SEAL bronze ball valves offer a wide range of advantages for typical commercial HVAC systems as well as industrial applications where insulated piping is desirable.

In addition, the NIB-SEAL handle was tested to UL 2043 and is UL listed for installation in air-handling spaces (plenums).

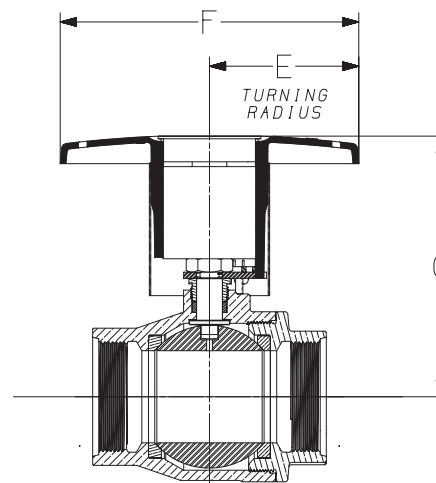
- Protective sleeve provides a stationary surface to affix the insulation, allowing operation of the valve without destroying the integrity of the insulated system.
- High-strength cylindrical handle design features easy access to standard adjustable memory stop for system balancing.
- Cap and insulating plug provide a vapor seal to prevent exchange of air, to maximize the efficiency of your insulated piping system.
- Position indicators allow at-a-glance determination of whether valve is in open or closed position.
- Preformed hole allows for convenient tagging.



Temperature range: 15° F to 250° F

Not intended for steam applications in excess of 15 PSI

NIBCO two-piece or three-piece bronze ball valve is an integral part of the NIB-SEAL valve system



Size	Dimensions					
	Valve Series 580-70*/590*			Valve Series 585-70/595		
	C	E	F	C	E	F
.250	—	—	—	3.750	2.188	4.25
.375	—	—	—	3.750	2.188	4.25
.500	3.750	2.188	4.25	3.750	2.188	4.25
.750	3.750	2.188	4.25	4.000	2.188	4.25
1.000	4.000	2.188	4.25	4.25	2.188	4.25
1.250	4.250	2.188	4.25	5.375	3.375	6.50
1.500	5.375	3.375	6.50	5.563	3.375	6.50
2.000	5.563	3.375	6.50	5.875	3.375	6.50
2.500	5.875	3.375	6.50	—	—	—

*Use 585-70/595 for 1/4" - 1"

For bronze ball valves with factory-installed NIB-SEAL insulated handle, order appropriate NIBCO valve figure number with suffix "NS."

Example: T-585-70-NS, 1/2"

NIB-SEAL on sweat ball valves are shipped unassembled.

Sample Specification

For piping systems requiring up to 2" of insulation, specify a non-conductive CPVC extended-handle bronze ball valve tested to UL 2043, is UL listed for installation in air handling spaces (plenums), that offers a vapor seal, adjustable memory stop, position indicators and convenient valve packing maintenance—all without disturbing the insulation. Specify NIB-SEAL insulated handle.

Example: T-585-70-NS

Visit our website for the most current information.



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
LittleRock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Spec Section 232116, 2.6, E.

**Hydronic Balancing Valves (2-1/2”
and Above)**

CIRCUIT BALANCING VALVES | ANSI FLANGED 125/250 STRAIGHT AND ANGLE | SIZES 2½" - 12" |

File No: 36.57
Date: NOVEMBER 27, 2019
Supersedes: 36.57
Date: JANUARY 25, 2018

SUBMITTAL

Job: Maurice Bathhouse Representative: _____
Engineer: IMEG Corporation Ordered by: _____ Date: _____
Contractor: Comfort Systems, USA Submitted by: Mark Eley, Boone & Boone Date: 5/4/2026
Approved by: _____ Date: _____

TAG	QTY	SIZE	ANSI FLANGE RATING	CONFIGURATION						PUMP DESCRIPTION
				STRAIGHT			ANGLED			
			125 / 250							
HX-1	1	3"	125 / 250	✓						Heat exchanger balancing valve
B-1M	1	2.5"	125 / 250	✓						Boiler balancing valve
B-2M	1	2.5"	125 / 250	✓						Boiler balancing valve
			125 / 250							
			125 / 250							

MATERIALS OF CONSTRUCTION

Valve body: Cast Iron ASTM A48 Class 30B / Ductile Iron
ASTM A536 grade 65-42-12

Disc: Bronze (B584-844)

Seat: Ultra - High strength engineered resin

Stem: Brass - ASTM B - 16

Spring: Stainless steel ASTM A313 type 302

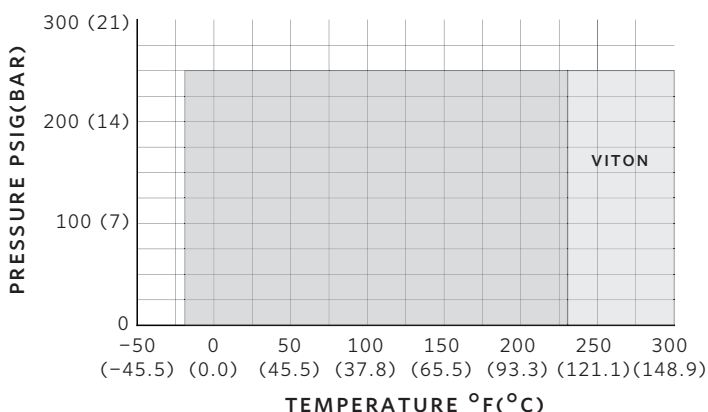
O rings: BUNA (STEM) and EPDM^① (body gasket)
ELASTOMERS

Meter ports (2): Brass body with EPDM check and
Gasket cap

Drain tappings (2): ¼" NPT with Brass plug

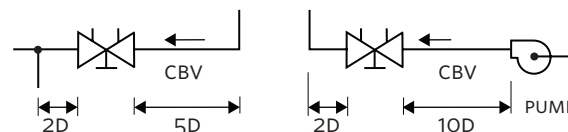
① EPDM not suitable for oil service.

OPERATING PARAMETERS PRESSURE/TEMPERATURE



INSTALLATION

Generally locate the valve five pipe diameters downstream from a fitting; with two diameters downstream from the balancing valve free from fittings. If a balancing valve is located downstream from a circulation pump, allow a distance of ten (10) diameters between the pump and balancing valves (as illustrated below). To save space, the valve may be used in the angled configuration as an elbow.



DIMENSIONS

125 PSI	DIMENSIONS inches (mm)							
CONNECTION SIZE	2½"	3"	4"	5"	6"	8"	10"	12"
A	7.38 (187)	8.19 (208)	9.63 (245)	12.00 (305)	14.13 (359)	19.00 (483)	20.33 (516)	24.07 (611)
B (FULLY OPEN)	9.62 (244)	10.50 (267)	10.56 (268)	13.06 (332)	13.75 (349)	24.62 (625)	26.50 (673)	28.43 (722)
C	2.75 (70)	2.44 (62)	3.00 (76)	3.63 (92)	4.44 (113)	5.69 (145)	6.56 (167)	7.63 (194)
D	4.63 (118)	3.88 (99)	4.38 (111)	5.50 (140)	6.63 (168)	9.19 (233)	9.78 (248)	14.05 (357)
E	1.00 (25)	1.00 (25)	1.25 (32)	1.25 (32)	2.00 (51)	2.25 (57)	2.25 (57)	2.25 (57)
F	2.56 (65)	3.00 (76)	3.44 (87)	4.94 (125)	5.88 (149)	7.88 (200)	9.47 (241)	12.63 (321)
G	7.00 (178)	7.50 (191)	9.00 (229)	10.00 (254)	11.00 (279)	13.50 (343)	16.00 (406)	19.00 (483)
S	12.00 (305)	12.00 (305)	14.00 (356)	17.50 (445)	20.69 (526)	28.00 (711)	30.01 (762)	38.09 (967)
WEIGHT lbs (kg)	33 (15)	39 (17.7)	59 (26.8)	108 (49)	167 (75.7)	344 (156)	603 (273)	1006 (456)

250 PSI	DIMENSIONS inches (mm)		
CONNECTION SIZE	8"	10"	12"
A	19.11(485)	20.33(516)	24.05(611)
B (FULLY OPEN)	24.62(625)	26.50(673)	28.43(722)
C	5.69(145)	6.56(167)	7.63(194)
D	9.69(246)	9.80(249)	14.03(356)
E	2.25(57)	2.25(57)	2.25(57)
F	7.88(200)	9.47(241)	12.63(321)
G	15.00(380)	17.50(445)	20.50(521)
S	28.20(716)	30.01(762)	38.05(966)
WEIGHT lbs (kg)	396(180)	712(323.6)	1163(456)

DESIGN DATA

CONNECTION SIZE	STEM: NO. OF 360° TURNS	MAX. WORKING TEMP
2.5	5	Standard material 230°F (110°C)
3	5	
4	6	
5	9	
6	10	
8	12	
10	18	
12	28	

TORONTO
+1 416 755 2291

BUFFALO
+1 716 693 8813

BIRMINGHAM
+44 (0) 8444 145 145

MANCHESTER
+44 (0) 8444 145 145

BANGALORE
+91 (0) 80 4906 3555

SHANGHAI
+86 (0) 21 5237 0909

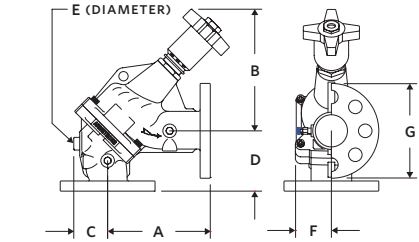
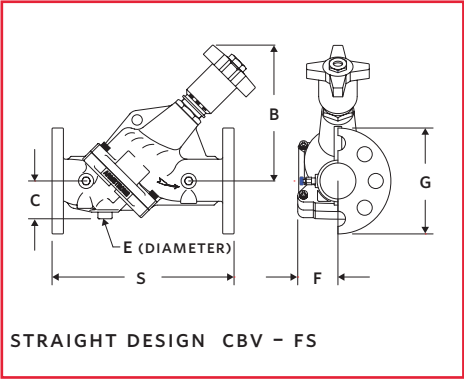
SÃO PAULO
+55 11 4785 1330

LYON
+33 (0) 420 102 625

DUBAI
+971 4 887 6775

MANNHEIM
+49 (0) 621 3999 9858

Dimensional Tolerance up to ±0.125" (3mm)



STRAIGHT DESIGN CBV - FS

ANGLE DESIGN CBV - FA

CIRCUIT BALANCING VALVES | 2½" – 12" |

PERFORMANCE CURVE

File No: 36.21
 Date: SEPTEMBER 29, 2023
 Supersedes: 36.21
 Date: SEPTEMBER 05, 2013

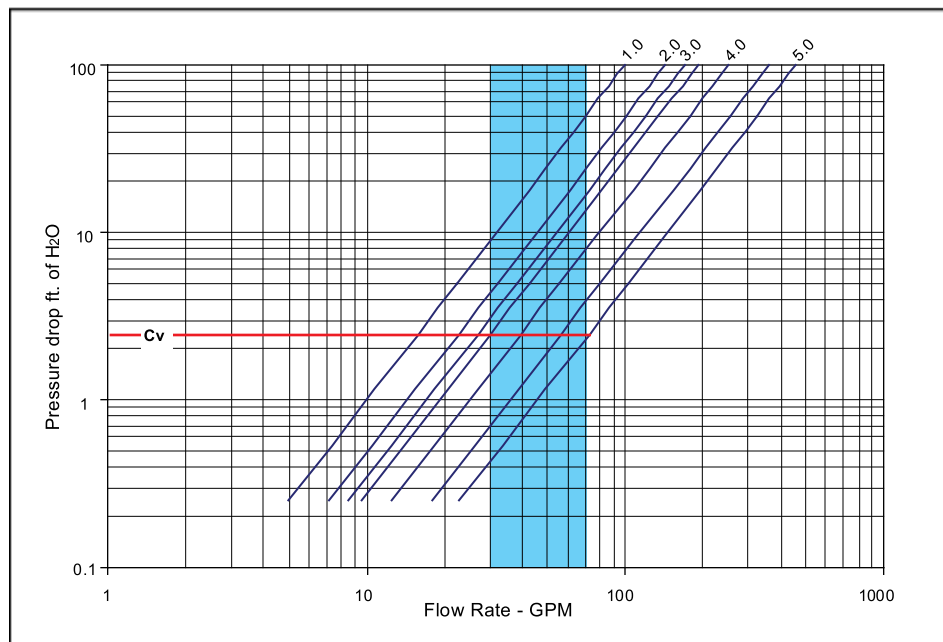
For head loss determination, valve selection, and valve pressure drop to flow correlation.

For reliable flow measurement with less than 3" (water gauge) of differential pressure across the valve, use a separate Armstrong flowmeter or equivalent.

The shaded area is the flowrate range representing headloss between 1 to 4 ft/100 ft for the nominal pipe size. Operating below 1 ft/100 ft may reduce system air extraction efficiency, and above 4 ft/100 ft may induce velocity related noise or erosion in system components.

Tags: B-1M, B-2M

CBV Straight and CBV Angled - 2.5 G/F

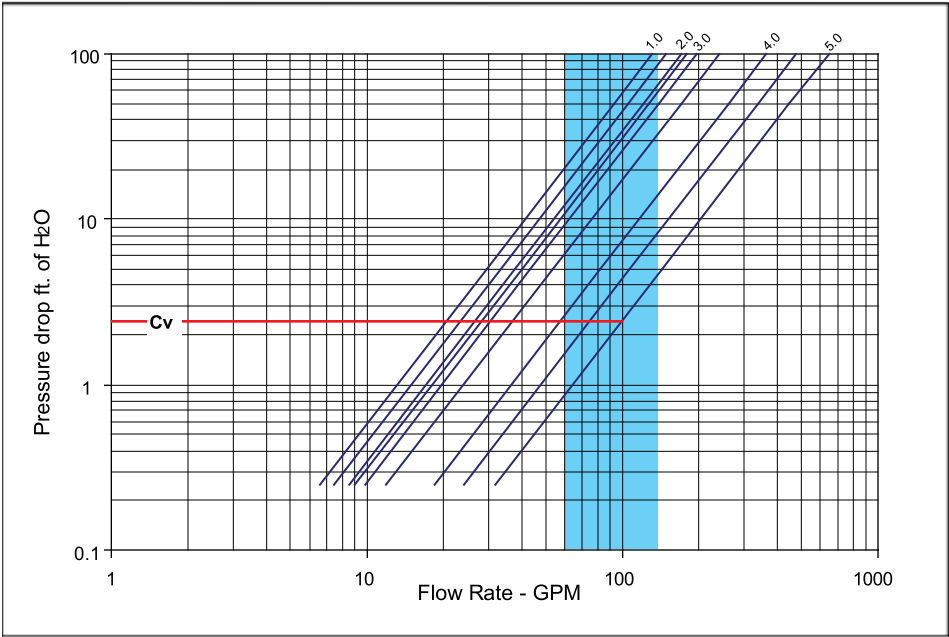


SUBMITTAL
2½" - 12"

Circuit balancing
valves

2
Tag: HX-1

CBV Straight and CBV Angled - 3 G/F



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.7.

Venturi Flow Measurement

Not Applicable!



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

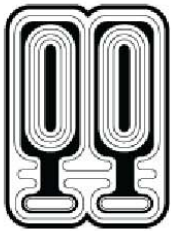
LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.8.

Expansion Tanks (ET-1 and ET-2)



SINCE 1908
wessels
company

SUBMITTAL

NLA-SERIES

HVAC EXPANSION TANKS

Models: NLA-35 to NLA-800L

Submittal Sheet No. A-1010A Rev.1

Job Name _____
Location _____
Engineer _____
Contractor _____
Sales Rep. Boone & Boone Sales Co. _____

Submitted By _____ Date _____
Approved By _____ Date _____
Order No. _____ Date _____
Notes Hydronic Specialties _____

Description:

Wessels patented NLA tanks are ASME removeable bladder type pre-charged HVAC expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating/cooling systems. The system's expanded water (fully compatible with water/glycol mixtures) is contained in a full acceptance heavy-duty butyl bladder that prevents tank corrosion and waterlogging problems. All NLA expansion tanks can be installed vertically or horizontally.

Construction:

Shell: Carbon Steel
Heads: Carbon Steel
Exterior: Carbocoat 140 - Harvester Red
Interior: Heavy Duty Butyl Bladder

Design Parameters:

Maximum Design Pressure: 125 PSIG*
Temperature Range: -20°F to 240°F

*150, 200 & 250 PSIG available

Model Number	Part Number	Tank Volume (Gallons)	Tagging Information	Quantity
NLA-35	22010035	10		
NLA-50	22010050	13		
→ NLA-85	22010085	23	ET-1, ET-2	2
NLA-130	22010130	35		
NLA-200	22010200	53		
NLA-300	22010300	79		
NLA-400	22010400	106		
NLA-500	22010500	132		
NLA-600	22010600	158		
NLA-800L	22010805	211		

Typical Specification

Furnish and install, as shown on plans, a _____ gallon _____" diameter X _____" (high) pre-charged steel HVAC expansion tank with heavy-duty butyl bladder. The tank shall have multiple water-side connections to eliminate stagnate water within the tank, a 0.302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements, a pressure gauge, and bladder integrity monitor. The tank must be constructed in accordance with the most recent addendum of Section VIII Division 1 of the ASME Boiler and Pressure Vessel Code and rated for 125 psig.

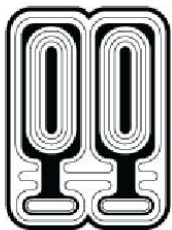
Each tank shall be Wessels model number NLA-_____ or approved equal.

E-mail



SINCE 1908
wessels
company

101 Tank Street Greenwood, IN 46143
P: 317-888-9800 F: 317-865-7411
www.westank.com



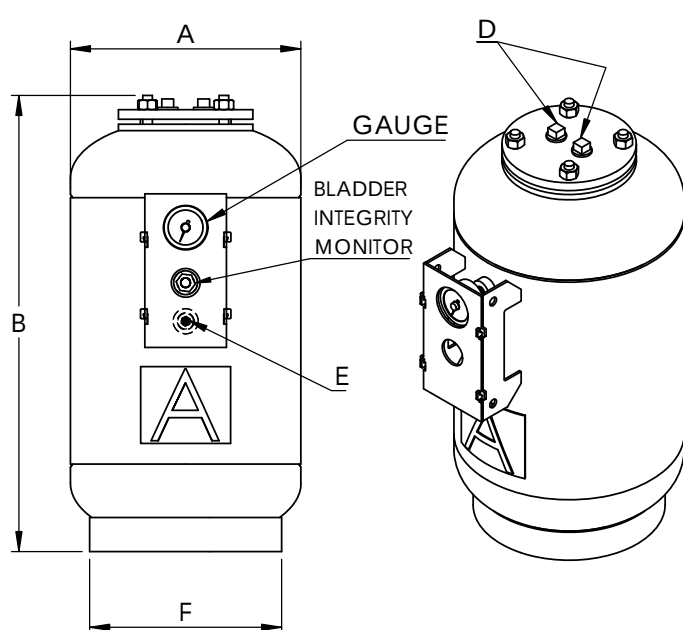
SINCE 1908
wessels
company

SUBMITTAL

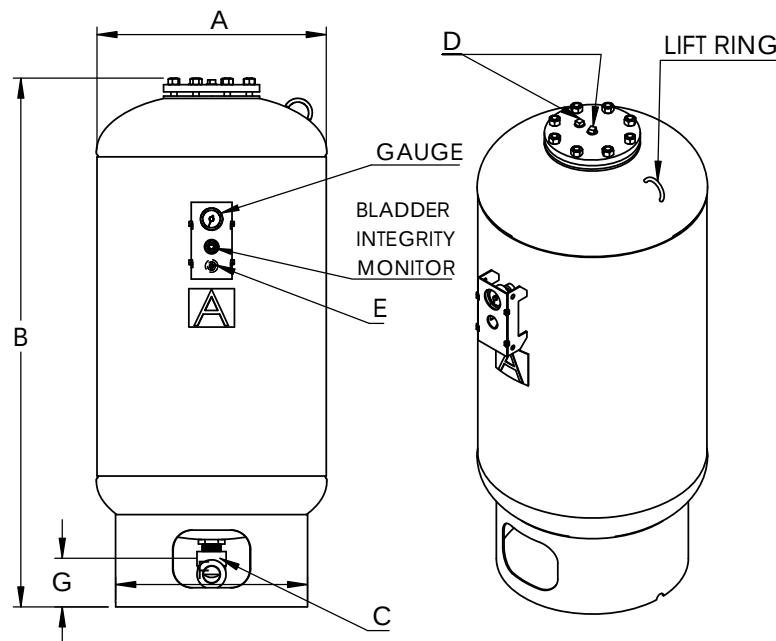
NLA-SERIES HVAC EXPANSION TANKS

Models: NLA-35 to NLA-800L

Submittal Sheet No. A-1010A Rev. 1 5/17/2018



NLA-35 & NLA-50



NLA-85 TO NLA-800L

Dimensions & Weights:

Model Number	Dimensions in Inches							Approx. Shipping Weight (lbs)
	A	B	System Connection		Charging Valve	F	G	
			C	D	E			
NLA-35	12	23 1/2	-	3/4 NPT	0.302"-32NC	10	-	40
NLA-50	14	24						50
NLA-85	16	37	1 NPT			12	5 1/2	90
NLA-130	20					16		125
NLA-200	24	43	1 1/2 NPT			20	5 1/4	210
NLA-300		55						225
NLA-400	49	2 NPT	24			300		
NLA-500	57					335		
NLA-600	65		360					
NLA-800L	32		76			28		475

Notes:

- Tanks are factory pre-charged at 40 psig and field adjustable.
- California code-sight glass is available upon request.
- Both top and bottom connections (C & D) access the bladder.
- Mounting clips are available upon request.
- U.S. Patent No. 8,633,825 B2



SINCE 1908
wessels
company

101 Tank Street Greenwood, IN 46143
P: 317-888-9800 F: 317-865-7411
www.westank.com



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

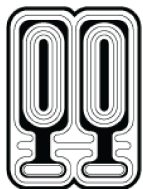
LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.9.

Coalescing Air/Dirt Separators



SINCE 1908
wessels
company

SUBMITTAL

WVA-SERIES

AIR & DIRT SEPARATOR

Models: WVA-2 thru WVA-12

Submittal Sheet No. D-1006A

Job Name	Maurice Bathhouse - Rehabilitate Bathhouses	Submitted By		Date	
		Approved By		Date	
		Order No.		Date	
Engineer	IMEG Corp	Notes	Hydronic Specialties		
Contractor	Comfort Systems, USA				
Sales Rep.	Boone & Boone Sales Co.				

Description

Wessels WVA series Air & Dirt Separators are designed to eliminate entrained air and separate debris associated with start-up and maintenance of any hydronic systems. The design incorporates a skim valve, used to eliminate floating debris, removable end cover for coalescing medium access, and an air vent to automatically release air from the separator.

Construction

Shell: Carbon Steel
Coalescing Medium: Stainless Steel
Blow Down Valve (optional): Bronze
Skim Valve (optional): Bronze
Vent (optional): Cast Iron
Exterior: Primer Painted

Performance Limitations

Maximum Design Temperature: 250°F
Maximum Design Pressure: 150 PSIG*

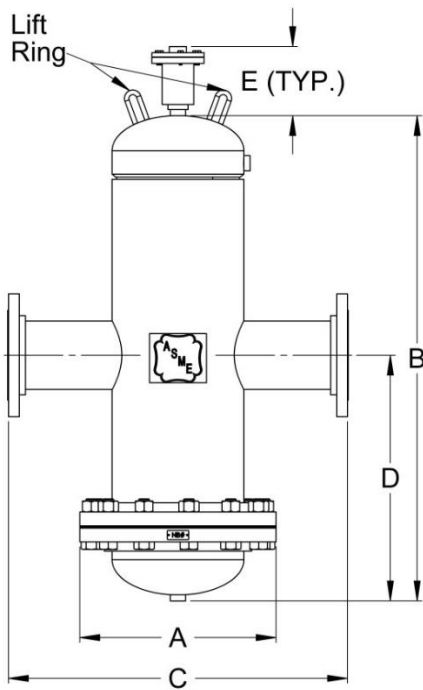
*125, 200 & 250 PSIG available

Model Number	Part Number	Max Flow (GPM)	Tagging Information	Quantity
WVA-2	72302001	69		
WVA-2-NPT	72302012	69		
WVA-2.5	72302035	108		
WVA-2.5-NPT	72302046	108		
→ WVA-3	72302069	144	AS-HW	1
WVA-3-NPT	72302080	144		
→ WVA-4	72302103	255		
→ WVA-5	72302137	398	AS-CW	1
WVA-6	72302160	570		
WVA-8	72302183	945		
WVA-10	72302206	1440		
WVA-12	72302229	2100		

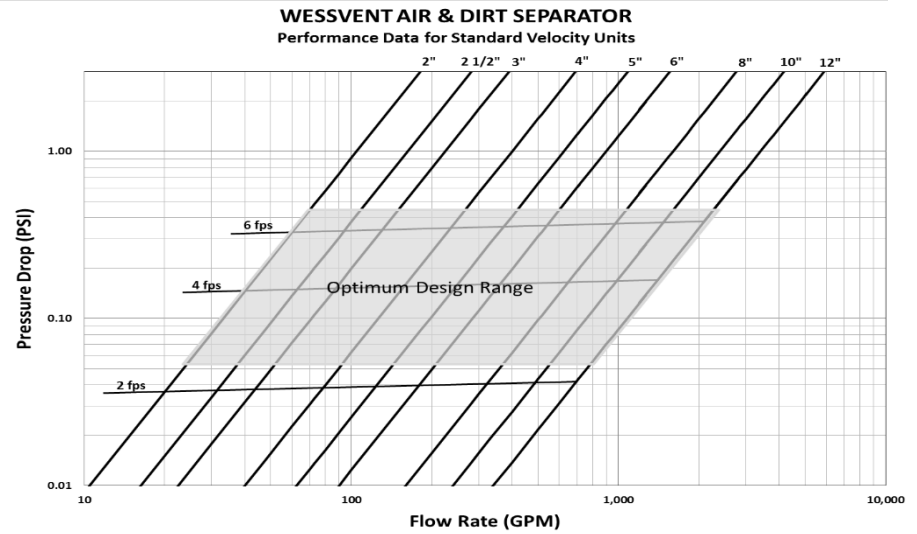
Typical Specification

Furnish and install, as shown on plans, a WVA- [] Air & Dirt Separator as manufactured by Wessels Company. Each separator must be designed with a blow down valve, skim valve, and automatic air vent. The separator must also utilize in its design a stainless steel coalescing medium to aid in the separation of air and dirt in the systems entrained water. The separator must be constructed in accordance with most recent addendum of Section VIII Division 1 of the ASME Boiler and Pressure Vessel Code and shall be constructed and stamped for 150 PSI working pressure @ 250°F.

Each air separator shall be Wessels model number WVA- [] or approved equal.



WVA-2 thru WVA-12



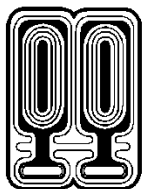
Model	Pipe Size	Width	Standard Height	Standard GPM	CV Rating
WVA-2	2	15 1/4	23	69	99
WVA-2.5	2 1/2	15 3/4	23	108	163
WVA-3	3	20 1/4	29	144	204
WVA-4	4	20 5/8	29	255	361
WVA-5	5	27 3/4	39	398	588
WVA-6	6	27 3/4	39	570	864
WVA-8	8	33 5/8	49	945	1378
WVA-10	10	37 1/2	65	1440	2268
WVA-12	12	42 1/2	76	2100	3095

Dimensions & Weights

Model Number	Dimensions in Inches						Approx Shipping Wt (lbs)
	Connection Size	A	B	C	D	E	
WVA-2	2	9	23	15 1/4	11 1/2	8 5/8	100
WVA-2-NPT				9			90
WVA-2.5	2.5	10		15 3/4			125
WVA-2.5-NPT				10 1/2			115
WVA-3	3	11	29	20 1/4	14 1/2		150
WVA-3-NPT				12 3/4			130
WVA-4	4	13 1/2		20 5/8			250
WVA-5	5	16	39	27 3/4	19 1/2		310
WVA-6	6	19					375
WVA-8	8	23 1/2	49	33 5/8	24 1/2		700
WVA-10	10	27 1/2	65	37 1/2	32 1/2		1000
WVA-12	12	32	76	42 1/2	38		1500

Notes

- Trim package is optional.
- U.S. Patent No. 10,708,538



SINCE 1908
wessels
company

SUBMITTAL

WVA TRIM PACKAGE

Models: WVA-2 thru WVA-36
Submittal Sheet No. D-1123A

Job Name	Maurice Bathhouse - Rehabilitate Bathhouses	Submitted By	_____	Date	_____
	_____	Approved By	_____	Date	_____
	_____	Order No.	_____	Date	_____
Engineer	IMEG Corp	Notes	Hydronic Specialties		
Contractor	Comfort Systems, USA		_____		
Sales Rep.	Boone & Boone Sales Co.		_____		

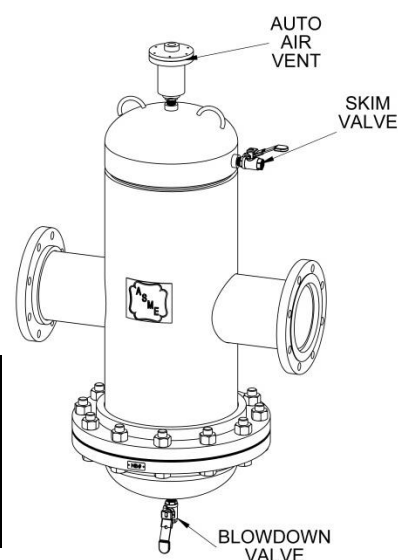
Description

Wessels WessVent Trim Package is designed to remove the harmful air and contaminants normally found in a closed loop heating or cooling system. When installed, the trim package includes all essential parts for taking full advantage of the WessVent Air/Dirt Separator's potential.

Performance Limitations

Maximum Design Pressure: 150 PSI
Maximum Design Temperature: 240°F

Model Number	Part Number	Tagging Information	Quantity
WVA-2 thru WVA-14	74099993	AS-CW, AS-HW	2
WVA-16 thru WVA-36	74099995		



Dimensions & Weights

Model Number	Part Description	Quantity	Material	Approx Shipping Weight
WVA-2 thru WVA-14	#706 Air Vent	1	Cast Iron	9 lbs
	1" Ball Valve	1	Brass	
	1/2" Ball Valve	1		
	3/4" x 1/2" Bushing	1	Carbon Steel	
	1/2" x Close Nipple	1		
WVA-16 thru WVA-36	#706 Air Vent	1	Cast Iron	12 lbs
	2" Ball Valve	1	Brass	
	1" Ball Valve	1		
	1" x 3/4" Reducer Bushing	1	Carbon Steel	
	3/4" x Close Nipple	1		



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.10.

Drain Valves and Blowdown Valves

Bronze Ball Valves

Two-Piece Body • Full Port • Stainless Trim • Blowout-Proof Stem • Vented Ball

600 PSI/41.4 bar non-shock cold working pressure
150 PSI/10.3 bar saturated steam*

CONFORMS TO MSS SP-110

MATERIAL LIST

PART	SPECIFICATION
1. Handle Nut	Stainless Steel 300 Series
2. Handle	Zinc Plated Steel Clear Chromate Plastisol Coated
3. Threaded Pack Gland	Brass ASTM B 16 Alloy C36000
4. Packing	PTFE
5. Stem	Stainless Steel ASTM A 276 Type 316
6. Thrust Washer	Reinforced PTFE
7. Ball (Vented)	Stainless Steel ASTM A 276 Type 316 or ASTM A 351 Type CF8M
8. Seat Ring (2)	Reinforced PTFE
9. Body	Bronze ASTM B 584 Alloy C84400
10. Body End Piece	Bronze ASTM B 584 Alloy C84400

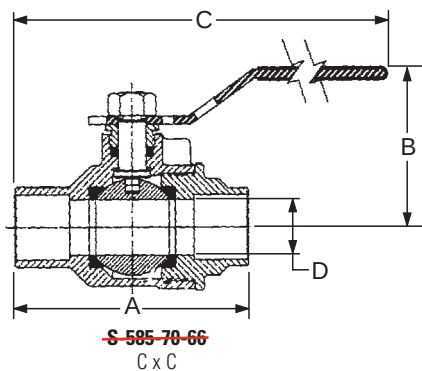
¼" size only has a 304 stainless steel grounding washer.



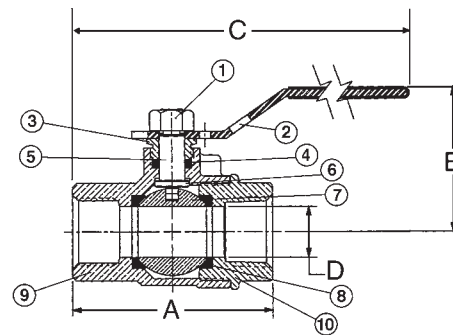
T-585-70-66
Threaded



S-585-70-66
Solder



S-585-70-66
C x C



T-585-70-66
NPT x NPT

DIMENSIONS—WEIGHTS—QUANTITIES

Dimensions

<u>T-585-70-66</u>				<u>~~S-585-70-66~~</u>				<u>T-585-70-66</u>				<u>~~S-585-70-66~~</u>											
Size	A			A			B			C			C			D			<u>T-585-70-66</u>		<u>~~S-585-70-66~~</u>		Master Ctn. Qty
In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	Lbs.	Kg.	Lbs.	Kg.				
¼	8	2.00	51	1.75	44	1.75	44	5.00	127	4.75	121	.38	10	.45	.21	.42	.19	100					
⅜	10	2.00	51	1.84	47	1.75	44	5.00	127	4.81	122	.38	10	.45	.21	.42	.19	100					
½	15	2.44	62	2.56	65	1.88	48	5.19	132	5.25	133	.50	13	.64	.29	.60	.27	100					
¾	20	2.94	75	3.25	82	2.25	57	6.25	159	6.25	159	.75	19	1.33	.60	1.27	.58	50					
1	25	3.34	85	3.75	95	2.38	60	6.44	164	6.63	168	1.00	25	1.79	.81	1.72	.78	40					
1¼	32	4.19	106	5.06	128	3.00	76	6.75	171	7.19	183	1.25	32	3.34	1.52	3.40	1.55	20					
1½	40	4.72	120	5.99	151	3.16	80	9.06	230	9.69	246	1.50	38	4.84	2.20	5.18	2.35	10					
2	50	5.16	131	6.72	170	3.50	89	9.25	235	10.06	256	2.00	51	7.41	3.37	7.83	3.56	8					

Note: solder end is designed to be soft-soldered into lines using solders with the melting point not exceeding 500°F.
Higher temperature solders will damage the seat material. See installation sheet packaged with valves.

*For detailed operating pressure, refer to pressure temperature chart on page 41.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**LEAD FREE*
OPTION
AVAILABLE**

**OXYGEN
SERVICE
OPTION
AVAILABLE**

Visit our website for the most current information.

*Weighted average lead content ≤ 0.25%



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.11.

Dielectric Union

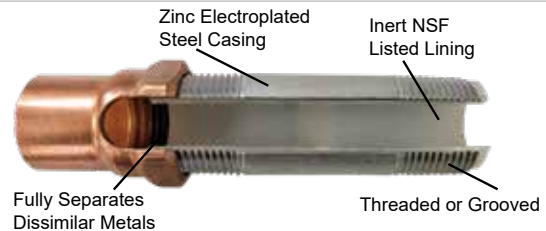


Precision Plumbing Products

"Specify with Confidence - Install with Pride"

LEAD FREE

Precision Dielectric Waterway® Fittings



Dimensions:

Part No.	Pipe Inches(mm)		Max.Wk. Press. PSI (kpa)	Dimen. End to End Inches(mm)	Units Per Box	Approx. Wgt.Each Lbs. (kg)
	Nom. Size	Actual Size				
Threaded x Threaded						
PDW-500TT	1/2 (15)	0.840 (16,7)	300 (2065)	3 (76)	25	0.2 (0,1)
PDW-750TT	3/4 (20)	1.050 (26,9)	300 (2065)	3 (76)	25	0.2 (0,1)
PDW-1000TT	1 (25)	1.315 (33,4)	300 (2065)	4 (102)	25	0.3 (0,3)
PDW-1250TT	1 1/4 (32)	1.660 (42,4)	300 (2065)	4 (102)	10	0.3 (0,3)
PDW-1500TT	1 1/2 (40)	1.900 (48,3)	300 (2065)	4 (102)	10	0.8 (0,3)
PDW-2000TT	2 (50)	2.375 (60,3)	300 (2065)	4 (102)	10	1.0 (0,5)
PDW-2500TT	2 1/2 (60)	2.875 (73,0)	300 (2065)	6 (152)	6	1.6 (0,7)
PDW-3000TT	3 (80)	3.500 (88,9)	300 (2065)	6 (152)	6	2.0 (0,9)
PDW-4000TT	4 (100)	4.500 (114,3)	300 (2065)	6 (152)	6	4.5 (2,0)
Threaded x Grooved						
PDW-1000TG	1 (25)	1.315 (33,4)	300 (2065)	4 (102)	25	0.3 (0,2)
PDW-1250TG	1 1/4 (32)	1.660 (42,4)	300 (2065)	4 (102)	10	0.6 (0,3)
PDW-1500TG	1 1/2 (40)	1.900 (48,3)	300 (2065)	4 (102)	10	0.8 (0,3)
PDW-2000TG	2 (50)	2.375 (60,3)	300 (2065)	4 (102)	10	1.0 (0,5)
PDW-2500TG	2 1/2 (65)	2.875 (73,0)	300 (2065)	6 (152)	6	1.6 (0,7)
PDW-3000TG	3 (80)	3.500 (88,9)	300 (2065)	6 (152)	6	2.0 (0,9)
PDW-4000TG	4 (100)	4.500 (114,3)	300 (2065)	6 (152)	6	4.5 (2,0)
Grooved x Grooved						
PDW-2000GG	2 (50)	2.375 (60,3)	300 (2065)	4 (102)	10	1.0 (0,5)
PDW-2500GG	2 1/2 (65)	2.875 (73,0)	300 (2065)	6 (152)	6	1.6 (0,7)
PDW-3000GG	3 (80)	3.500 (88,9)	300 (2065)	6 (152)	6	2.0 (0,9)
PDW-4000GG	4 (100)	4.500 (114,3)	300 (2065)	6 (152)	6	4.5 (2,0)

Precision Dielectric Waterway® fittings protect your plumbing system through an exclusive steel-to-plastic design that establishes an effective dielectric waterway.

The Precision Dielectric Waterway® line of dielectric fittings separates dissimilar metals in the electrolyte (waterway) eliminating the local galvanic cell. In addition, Precision Dielectric Waterway® metal-to-metal joint design maintains external electrical continuity, with the intent of preventing stray current corrosion. This feature becomes critical when stray current is present due to intentional or non-intentional grounding of direct current (DC) sources, e.g. phone systems and appliances.

Our Precision Dielectric Waterway® fittings are able to reduce the current flow that causes internal corrosion in a waterway system. This current flow exists when dissimilar metals are exposed to an electrolyte (water) and is directly proportional to the rate at which corrosion occurs.

Precision Dielectric Waterway® fittings are designed to meet the requirements of ASTM standard F1545 for continuous use at temperatures up to +225°F (- +5°F) and for pressures up to 300psi, and will achieve a dielectric waterway in all potable water and appropriate HVAC applications.

Precision Dielectric Waterway® is listed by IAPMO/UPC.

Meets BABAA Build American Buy America Act and American Iron and Steel. Made in the USA, and assembled at our ISO 9001 and ISO 14001 certified-green factory in Portland, Oregon.



Precision Plumbing Products

802 SE 199th Ave
Portland, Oregon 97233

T (503) 256-4010
F (503) 253-8165

www.pppinc.net

JL Industries, Inc.

NSF 61



DIELECTRIC WATERWAY FITTINGS

Test results:

A test was conducted by Pittsburgh testing Laboratory to determine a dielectric waterway connector fitting's ability to reduce the current flow that causes internal corrosion in a waterway system. This current flow exists when dissimilar metals are exposed to an electrolyte (water) and is directly proportional to the rate at which corrosion occurs. The test fittings were installed between a piece of copper tubing and galvanized steel pipe. The current flow across these fittings was measured and recorded.

PROJECT SUBMITTAL**Fittings tested:**

Sample #1 $\frac{3}{4}$ "x3" dielectric waterway connector
Sample #2 $\frac{3}{4}$ "x 3" galvanized pipe nipple
Sample #3 $\frac{3}{4}$ " insulated dielectric union
Sample #4 $\frac{3}{4}$ " x 2" insulated coupling

Model #: _____

Project: _____

Contractor: _____

Engineer: _____

Date Submitted: _____

Prepared By: _____

Four test samples:

Sample #1 A 12" section of copper tubing was connected to a copper sweat $\frac{3}{4}$ " NPT adapter, Plexiglas test insulator, galvanized coupling, a $\frac{3}{4}$ "x 3" dielectric waterway connector, and a 12" section of galvanized steel pipe.

Sample #2 A 12" section of copper tubing was connected to a copper sweat $\frac{3}{4}$ " NPT adapter, Plexiglas test insulator, galvanized coupling, a $\frac{3}{4}$ "x 3" dielectric waterway connector, and a 12" section of galvanized steel pipe.

Sample #3 A 12" section of copper tubing was connected to a $\frac{3}{4}$ " insulated dielectric union and a 12" section of galvanized pipe.

Sample #4 A 12" section of copper tubing was connected to a $\frac{3}{4}$ "x 2" insulated coupling and a 12" section of galvanized pipe.

The test equipment used was a Micronta digital multimeter, #22-191 that is sensitivity rated at 20,000 VDC.

Test procedures:

After each test sample was assembled, a plastic cap was installed on the copper tubing. Each sample was filled with 70°F tap water. One lead of the multimeter was connected to the copper tubing. The other lead was connected to the galvanized pipe. A current reading was taken for each sample.

The results:

Sample #1 (Dielectric Waterway Connectors): 0.066 ma
Sample #2 (Galvanized Pipe Nipple): 0.345 ma
Sample #3 (Insulated Dielectric Union): 0.441 ma
Sample #4 (Insulated Coupling): 0.209 ma

Test data/results and listings:

Note: These results are a reference to a prior study recommending usage of dielectric fittings. The corrosion protection effects of Precision Dielectric Waterway type fittings have been proved in tens of millions of water heaters. We have been supplying fittings world wide to water heater manufacturers for more than 20 years.

**J Industries, inc.****Precision Plumbing Products**

802 SE 199th Ave
Portland, Oregon 97233

T (503) 256-4010
F (503) 253-8165

www.pppinc.net



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.12.

Propylene Glycol

GLYCOL PG-HDY

Industrial Heat Transfer Fluid

Description

Chem-Aqua inhibited propylene glycol is an industrial heat transfer fluid formulated with a heavy-duty inhibitor package to maximize fluid life and corrosion protection. Solutions in water provide freeze protection and burst protection to below -60°F (-51°C). It is dyed fluorescent yellow for easy identification of treated glycol systems and leak detection.

The industry standard corrosion inhibitor package is specifically designed for glycol systems containing carbon steel and copper metallurgies with reserve alkalinity buffers to combat glycol degradation. It is NOT intended for use in systems that contain aluminum.

Chem-Aqua inhibited propylene glycol is used in HVAC systems, process cooling loops, or wherever low freezing water-based heat transfer fluids are needed. System glycol concentration should be adjusted to achieve the target temperature for freeze or burst protection. Glycol concentrations less than 20% should be avoided to avoid biological growth issues. It is available in three standard concentrations:

- Glycol PG-HDY Concentrate
- Glycol PG-HDY 40%
- Glycol PG-HDY 30%

Features

- Freeze and burst protection for industrial water systems at low temperatures
- Heavy-duty industrial corrosion inhibitor and buffer package
- Extends heat transfer fluid service life and reduces replacement costs
- Provides buffering against acidic conditions due to thermal or oxidative degradation of glycol

Physical Properties

Inhibited Propylene Glycol	Glycol PG-HDY Concentrate	Glycol PG-HDY 40%	Glycol PG-HDY 30%
Physical State:	Liquid	Liquid	Liquid
Appearance:	Transparent to Hazy	Transparent to Hazy	Transparent to Hazy
Color:	Yellow	Yellow	Yellow
Glycol Weight:	94.6%	40.5%	30.4%
pH (10% Solution):	9.3 – 10.3	8.2 – 9.2	8.3 – 9.3
Specific Gravity:	1.06	1.04	1.03
Density:	8.84 lb. / gal	8.67 lb. / gal	8.59 lb. / gal

Consult the label for complete directions and precautions before using this product.



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.

P.O. Box 16620

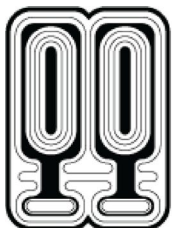
LittleRock, AR 72231

Phone 501-834-3320

Fax 501-834-5416

Spec Section 232116, 2.13.

Glycol Feed System (GFS)



SINCE 1908
wessels
company

SUBMITTAL

GMP-SERIES

GLYCOL MAKE-UP PACKAGE

Models: GMP-13050 to GMP-15100
Submittal Sheet No. I-1102B Rev. 2

Job Name	Maurice Bathhouse - Rehabilitate Bathhouses	Submitted By	_____	Date	_____
Location	_____	Approved By	_____	Date	_____
	_____	Order No.	_____	Date	_____
Engineer	IMEG Corp	Notes	Hydronic Specialties		
Contractor	Comfort System, Inc.		_____		
Sales Rep.	Boone & Boone Sales Co.		_____		

Description:

The single GMP unit is designed to automatically supply a pressurized solution, such as glycol and water, to a closed loop heating, chilled water, snowmelt, radiant heating, sprinkler, or process control system to ensure minimum system pressure requirements are met. These systems are equipped with HOA controls, an adjustable pressure reducing valve (PRV), pressure gauge, and a low level alarm that cuts power to the pump and actuates an audible and visual alarm when solution levels are too low.

Performance Limitations:

Maximum Temperature: 160°F
Factory Discharge Pressure Setting: 12 PSIG
Maximum Discharge Pressure: 70 PSIG*
All electrical components are listed UL/CSA
Standard Starter Panel UL/CSA 60947-4-1
Optional NEMA 4X Panel UL/CSA LR19791

*Higher discharge pressures available.

Available Options:

- High level alarm
- Protective skirt

MODEL NUMBER	PART NUMBER	TANK VOLUME (GAL)	TAGGING INFORMATION	QUANTITY
→ GMP-13050	07101052	50	GFS-1	1
GMP-13100	07101102	100		
GMP-15050	07102052	50		
GMP-15100	07102102	100		

Typical Specification:

Furnish and install, as indicated on the plans and specifications, a prefabricated, automatic and autonomous make-up package capable of producing _____ GPM at _____ psi to each glycol system. The package shall consist of a sturdy steel frame, a graduated polyethylene solution container with removable lid, and a 110V, 60Hz powered autonomous pumping assembly designed to maintain a specific fill pressure in the glycol system. The make-up package must feature a protective low water cut-off alarm, HOA controls, _____ HP (1/3 or 1/2) motor with a brass rotary vane pump, magnetic starter, pressure tank with pressure control, pressure reducing valve, pressure gauge, and a system isolation valve. A 110V signal shall be available for a remote alarm.

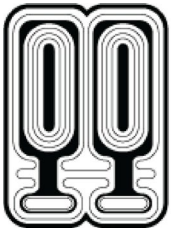
Each glycol make-up package shall be model GMP - _____ as manufactured by Wessels Company or approved equal.

E-mail



SINCE 1908
wessels
company

101 Tank Street Greenwood, IN 46143
P: 317-888-9800 F: 317-865-7411
www.westank.com



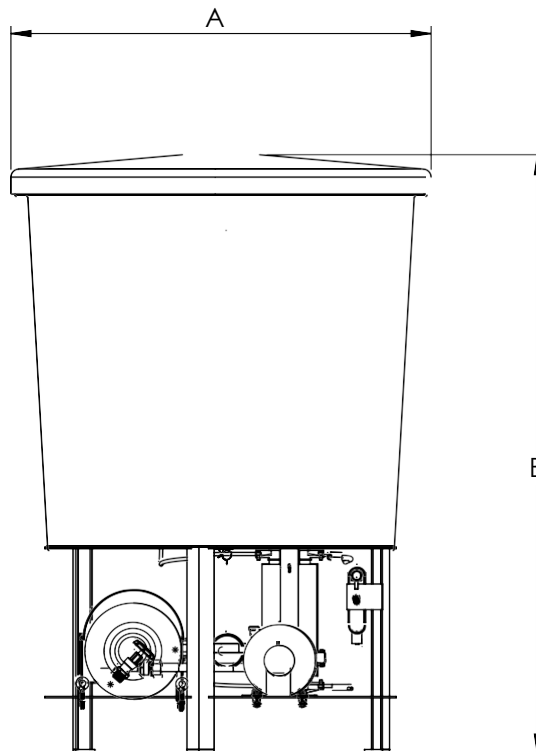
SINCE 1908
wessels
 company

SUBMITTAL

GMP-SERIES
 GLYCOL MAKE-UP PACKAGE

Models: GMP-13050 to GMP-15100

Submittal Sheet No. I-1102B **Rev.** 2 923/2020



GMP-13050 TO GMP-15100

Dimensions & Weights:

Model Number	Dimensions in Inches		HP	Pressure Range (psi)	Make-Up Capacity (gpm @ psi)	Approx. Shipping Weight (lbs)
	A	B				
GMP-13050	34	45	1/3	10-70	1.8 @ 70	134
GMP-13100		68				140
GMP-15050		45	1/2			138
GMP-15100		68				144



SINCE 1908
wessels
 company

101 Tank Street Greenwood, IN 46143
 P: 317-888-9800 F: 317-865-7411
www.westank.com