

SUBMITTAL REVIEW



CLIENT NAME: _____
PROJECT TITLE: _____
SUBMITTAL No.: _____ H2M PROJECT No.: _____
SUBMITTAL NAME: _____

SUBMITTAL REVIEW	
REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DIMENSIONS OR DETAILS	
<input type="checkbox"/> NO EXCEPTIONS TAKEN	<input type="checkbox"/> SUBMIT SPECIFIED ITEM
<input type="checkbox"/> MAKE CORRECTIONS NOTED <small>(RESUBMISSION NOT REQUIRED)</small>	<input type="checkbox"/> NO ACTION TAKEN <small>(REVIEW IS THE RESPONSIBILITY OF ANOTHER PARTY)</small>
<input type="checkbox"/> REVISE & RESUBMIT	<input type="checkbox"/> NO ACTION TAKEN <small>(THIS SUBMITTAL IS NOT REQUIRED BY THE CONTRACT)</small>
<input type="checkbox"/> REJECTED - SEE REMARKS	<input type="checkbox"/> RECEIVED FOR RECORD
<p>Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating their work with that of all other trades; and performing the work in a safe and satisfactory manner.</p>	
Date: _____	By: _____
<small>Rev.: 2020-05-20</small>	

Comments:

CONTRACTOR'S COMPANY NAME
ADDRESS

SUBMISSION TRANSMITTAL FORM
CLIENT NAME: Vails Gate Fire District
PROJECT TITLE: VGFD2001-New Firehouse

H2M PROJECT NO.: VGFD2001

Product, Item, or System Submitted:			
Submission Date:		Submission Log No.:	
Specification Section:		Paragraph Reference:	
Contract Drawing Reference(s):			
Manufacturer's Name:			
Manufacturer's Mailing Address:			
Manufacturer's Contact Information:	<i>Name</i>	() <i>Tel. no.</i>	<i>Email</i>
Supplier's Name:			
Supplier's Mailing Address:			
Supplier's Contact Information:	<i>Name</i>	() <i>Tel. no.</i>	<i>Email</i>
This item is a substitution for the specified item:	<input type="checkbox"/> No	<input type="checkbox"/> Yes	
<p align="center">KEY CONSTRUCTION SERVICES, LLC</p> <p>Project No: VGFD2001</p> <p><small>Reviewed for General Acceptance Only. This review does not relieve the Subcontractors or Suppliers of responsibility for making the work conform to the requirements of the contract. The Subcontractor and Suppliers are responsible for all dimensions, correct fabrication and accurate fit with the work of other trades.</small></p> <p align="center"><u>SUBJECT TO ARCHITECT AND OR ENGINEER APPROVAL</u></p> <p>Signed <i>Joseph Manfredi</i>(PM) Date: 11/13/2023</p> <p>Contractor's Approval Stamp with Signature & Date</p>		<p><u>Contractor's Brief Comments or Remarks</u> (attach separate letter as needed):</p> <p>By making this submission, we represent that we have determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving the item into the enclosed space, materials, catalog and model numbers and similar data and that we have checked and coordinated this submission with other work at or adjacent to the installed location in accordance with the requirements contained in the Contract Documents.</p>	

END OF SECTION 013300

Joe Lombardo

Plumbing & Heating of Rockland, Inc.

321 Spook Rock Road
 Suffern, NY 10901
 Ph. 845-357-6537 Fx 845-357-8529
 E: info@josephlombardo.com
 Website: www.josephlombardo.com

Rockland Cty. Plumbing #1000 Rockland Cty. Cooling # 1468
 Westchester Cty. Plumbing #460 New Jersey State Plumbing #12702

TO: Key Construction
4246 Albany Post Rd. Suite 1
Hyde Park, NY 12538

LETTER OF TRANSMITTAL

DATE: 11.6.23	JOB NO.
ATTENTION: Joe Manfredi	
RE: Vails Gate Firehouse	

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

Shop Drawings Prints Plans Samples Specifications

Copy of letter Change order _____

EMAIL	DATE	No.	DESCRIPTION
1	11.6.23	232007	PIPING SPECIALTIES

THESE ARE TRANSMITTED as checked below:

For approval No Exceptions Taken Resubmit _____ copies for review

For your use Make Corrections Noted Submit _____ copies for distribution

As requested Rejected Return _____ corrected prints

For review and comment _____

FOR BIDS DUE _____ 20__ PRINTS RETURNED AFTER LOAN TO US

COPY TO: Joe Manfredi

SIGNED: Ronald J. Lombardo

2.01 DRAIN VALVES



Lead Free*

70LF-100/200-HC SERIES

Bronze Ball Valve With 3/4" Hose Connection and Protective Cap & Chain

Job Name:	Contractor:
Job Location:	P.O. Number:
Engineer:	Representative:
Tag:	Wholesale Distributor:

DESCRIPTION

The Apollo® 70LF-HC models are ideally suited for direct connection to hoses. Valves feature a heavy duty machined hose thread cover with chain to prevent loss. Standard lever and nut are stainless steel.

FEATURES

- NPT or Solder End x 3/4" NPSH
- Full Pressure Rated Heavy Brass Hose Cap
- **Lead Free*** Brass & Bronze Materials
- Easily Identifiable Blue "Lead Free" Hang Tag
- Blow-Out-Proof Stem Design
- Adjustable Packing Gland
- Premium RPTFE Seats and Stem Packing
- Stainless steel lever and stem nut
- 100% Factory Tested
- **Made in USA**

PERFORMANCE RATING

- Maximum Pressure: 600 psi CWP
- Maximum Temperature: 210°F
- Vacuum Service to 29 in. Hg

STANDARD MATERIALS LIST

Part Name	Material
Lever and Grip	Stainless Steel w/ Vinyl
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	C27451 Lead Free* Brass, Cr Plated
Seat (2)	RPTFE
Retainer	C27451 Lead Free* Brass
Gland Nut	C27451 Lead Free* Brass
Stem	C27451 Lead Free* Brass
Lever Nut	Stainless Steel
Body	C89836 Lead Free* Bronze
Hose Cap	ASTM B16 Brass

APPROVALS

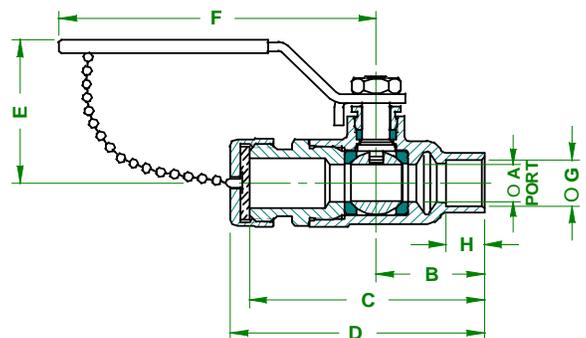
- MSS SP-110; Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends
- ANSI 3rd Party Approval to 0.25% Lead Max.
- ANSI/NSF 61 Section 8

* **LEAD FREE:** The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with CA AB1953, VT Act 193, MD HB372, LA HB471 and Federal Public Law 111-380. ANSI 3rd party approved and listed.



DIMENSIONS

PART #	SIZE	A	B	C	D	E	F	G	H	WT
NPT X 3/4" HOSE THREAD										
70LF103HC	1/2"	0.50	1.09	2.75	2.99	1.94	4.18	-	-	0.63
70LF104HC	3/4"	0.68	1.50	3.41	3.66	2.32	5.31	-	-	1.30
SOLDER X 3/4" HOSE THREAD										
70LF203HC	1/2"	0.50	1.42	3.08	3.32	1.94	4.18	0.63	0.50	0.71
70LF204HC	3/4"	0.68	1.93	3.84	4.09	2.32	5.31	0.88	0.75	1.44



OPTIONS

- | | |
|---|-------------|
| <input type="checkbox"/> (-04) 2 1/4" CS Stem Extension | 1/2" - 3/4" |
| <input type="checkbox"/> (-07) Steel Tee Handle | 1/2" - 3/4" |
| <input type="checkbox"/> (-11) Thermo-Seal™ Insulating Tee Handle | 1/2" - 3/4" |
| <input type="checkbox"/> (-15) Wheel Handle, Steel | 1/2" - 3/4" |
| <input type="checkbox"/> (-27) SS Latch-Lock Lever & Nut | 1/2" - 3/4" |
| <input type="checkbox"/> (-94) 2-1/4" Extension w/ Balancing stop | 1/2" - 3/4" |
| <input type="checkbox"/> 70LF-140 & 70LF-240 series w/ SS Ball & Stem | 1/2" - 3/4" |

Conbraco Industries, Inc. 701 Matthews Mint Hill Rd. Matthews NC 28106 USA; www.apollovalves.com ; 704-841-6000

This specification is provided for reference only. Conbraco reserves the right to change any portion of this specification without notice and without incurring obligation to make such changes to Conbraco products previously or subsequently sold.

Engineering Specification

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

Series 1156F

Feed Water Pressure Regulators

Size: 1/2"

Series 1156F feed water pressure regulators are 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. Series 1156F features a high capacity performance as well as unique simplified servicing accessibility for complete unitized maintenance.

Features

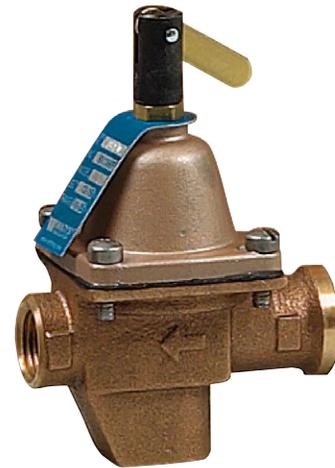
- Choice of inlet connections (threaded, union solder or union threaded)
- Tight seating check valve
- Purge lever for manual purging
- High capacity
- Stainless steel strainer to protect the valve disc from fouling

Specifications

A feed water pressure regulator shall be installed on the boiler or where indicated on the plans to fill boiler piping with water and to provide make up water in the event of system leaks. The regulator shall have high capacity performance and a simplified servicing design. The feed water pressure regulator shall be a Watts Series 1156F.

Models

1156F	Threaded inlet connection
S1156F	Union solder inlet connection
T1156F	Union threaded inlet connection
B1156F	Bronze valve body with threaded inlet connection
TB1156F	Bronze valve body with union threaded inlet connection
SB1156F	Bronze valve body with union solder inlet connection



B1156F

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Inquire with governing authorities for local installation requirements

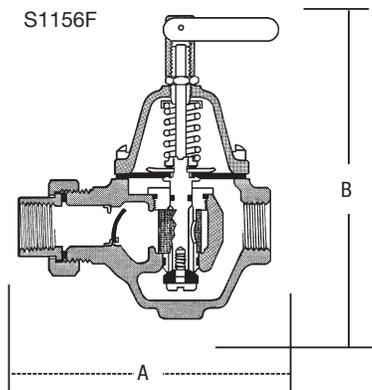
Pressure – Temperature

Maximum Temperature: 212°F (100°C)

Maximum Working Pressure: 100psi (6.9 bar)

Adjustment Range: 10 – 25psi (68.7 – 172.4 kPa) set at 15psi (103.4 kPa)

Dimensions – Weights



MODEL	SIZE		DIMENSIONS						WEIGHT	
	<i>in.</i>	<i>in.</i>	<i>A</i>	<i>mm</i>	<i>B</i>	<i>mm</i>	<i>C</i>	<i>mm</i>	<i>lbs.</i>	<i>kgs.</i>
1156F	½	¾	89	5⅜	137	–	–	–	2.1	.95
T1156F	½	4¼	108	5⅜	137	–	–	–	2.2	1
S1156F	½	4⅝	105	5⅜	137	–	–	–	2.3	1
*B1156F	½	¾	89	5⅜	137	–	–	–	2.1	1
*SB1156F	½	4⅝	111	5⅜	137	–	–	–	2.2	1
*TB1156F	½	4⅝	105	5⅜	137	–	–	–	2.3	1

* Bronze body



USA: T: (978) 689-6066 • Watts.com

Canada: T: (888) 208-8927 • Watts.ca

Latin America: T: (52) 55-4122-0138 • Watts.com

Engineering Specification

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

Series 3L, 53L

Poppet Type Pressure Relief Valves for Protection Against Excessive Pressure

Sizes: 3L: 3/4" 53L: 1/2"

Series 3L and 53L are used for protection against excessive pressure on domestic storage tanks or tankless water heaters. Model 53L has the basic design as Model 3L except it is furnished in 1/2" size and does not comply with A.S.M.E. requirements. These Pressure Relief Valves are popularly used in conjunction with the Model 210 gas shutoff valve on gas water heaters to shut off gas to heater if water heater temperature exceeds 210°F (99°C).

Features

- Furnished with test levers
- Relieves excessive pressure on storage tanks
- Relieves excessive pressure on tankless water heaters
- Compatible with Model 210 gas shutoff valves

Models

Model 3L Listed and certified by the National Board of Boiler and Pressure Vessel Inspectors to ASME section IV & by CSA to ANSI Z21-22/CSA 4.4

Model 53L (Does not comply with ASME requirements)
 Listed and certified by CSA to ANSI Z21-22/CSA 4.4

NOTICE

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3L



53L

Approvals

ASME*, CSA, NB* (*3L only)



Materials

- Body:** 3L – Brass
 53L – Bronze
- Spring:** Stainless steel
- Disc:** Silicone

Pressure

Pressure range: 75-150psi (5.2-10.3 bar)

Standard settings: 75, 100, 125 and 150psi
 (5.2, 6.9, 8.6 and 10.3 bar)

NOTICE

Maximum system operating pressure must not exceed 75% of valve set pressure.

Dimensions-Weights

MODEL	SIZE		HEIGHT		WIDTH		WEIGHT	
	in	mm	in	mm	in	mm	lbs.	gms.
3L	3/4	19	3 11/64	80	1 5/32	40	13 1/32	181
53L	1/2	13	3 1/2	89	1 7/8	48	1 1/2	227

Capacity

	ASME CAPACITY (BTU/HR)				CSA CAPACITY (BTU/HR)
	75PSI	100PAI	125PSI	150PSI	
3L	200,000	257,000	314,000	370,000	200,000
53L	N/A	N/A	N/A	N/A	15,000

NOTICE

Inquire with governing authorities for local installation requirements.

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



USA: T: (978) 689-6066 • Watts.com
Canada: T: (888) 208-8927 • Watts.ca
Latin America: T: (52) 55-4122-0138 • Watts.com



Model YCT

CAST IRON WYE-STRAINER

CLASS 250

Job Name:	Contractor:
Job Location:	P.O. Number:
Engineer:	Representative:
Tag:	Wholesale Distributor:

DESCRIPTION

The Apollo® International YCT Strainers are designed to protect piping systems and process equipment from unwanted foreign particles with minimum pressure loss.

FEATURES

- 100% Factory Pressure Tested
- Self-Aligning Screen Design
- Conforms to ASME B16.4 Class 250
- Tapped Blow Off Connection with plug



MATERIAL SPECIFICATIONS

Body	Cast Iron, ASTM A126-B
Cap/Cover	Cast Iron, ASTM A126-B
Plug	Cast Iron, ASTM A126-B
Screen	304 Stainless Steel
Gasket	Graphite

PHYSICAL SPECIFICATIONS

Model Number	Size (IN)	Dimensions (in.)			Wt (LBS)
		A	B	C	
YCT01M20	1/4"	3.19	2.00	1/4	1.5
YCT02M20	3/8"	3.19	2.00	1/4	1.5
YCT03M20	1/2"	3.19	2.00	1/4	1.5
YCT04M20	3/4"	3.75	2.69	3/8	2.5
YCT05M20	1"	4.00	3.00	3/8	3
YCT06M20	1-1/4"	5.00	3.44	3/4	6
YCT07M20	1-1/2"	5.75	3.78	3/4	8
YCT08M20	2"	7.00	4.34	1	14
YCT09P045	2-1/2"	9.25	6.09	1-1/2	29
YCT00P045	3"	10.00	7.41	1-1/2	38

Model number and item number shown are for female NPT connections.

PERFORMANCE RATING:

Working pressure (non-shock):

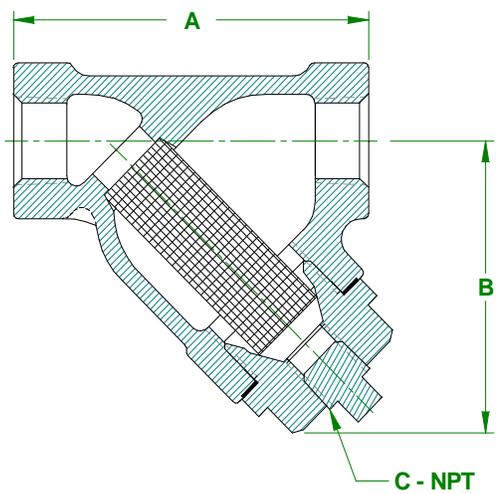
- 250 PSIG @ 406°F STEAM
- 400 PSIG @ 150°F WATER, OIL, GAS

OPTIONS (SUFFIX)

- (M20) – 20 MESH (Standard 1/4"-2")
- (P045) – .045 PERF (Standard 2-1/2"-3")
- (M40) – 40 MESH
- (M60) – 60 MESH
- (M80) – 80 MESH
- (M100) – 100 MESH
- (P062) – 1/16" PERF
- (P094) – 3/32" PERF
- (P062) – 1/16" PERF
- (P125) – 1/8" PERF
- (P156) – 5/32" PERF
- (P187) – 3/16" PERF
- (P250) – 1/4" PERF

NOTES:

- All screens not available for all sizes
- For mesh sizes smaller than M20, a P045 perf. liner is added to support the mesh screen.



APPROVALS:

CSA B-51
CRN OE10274.5

Part Numbering Matrix

YCT - 09 - P045

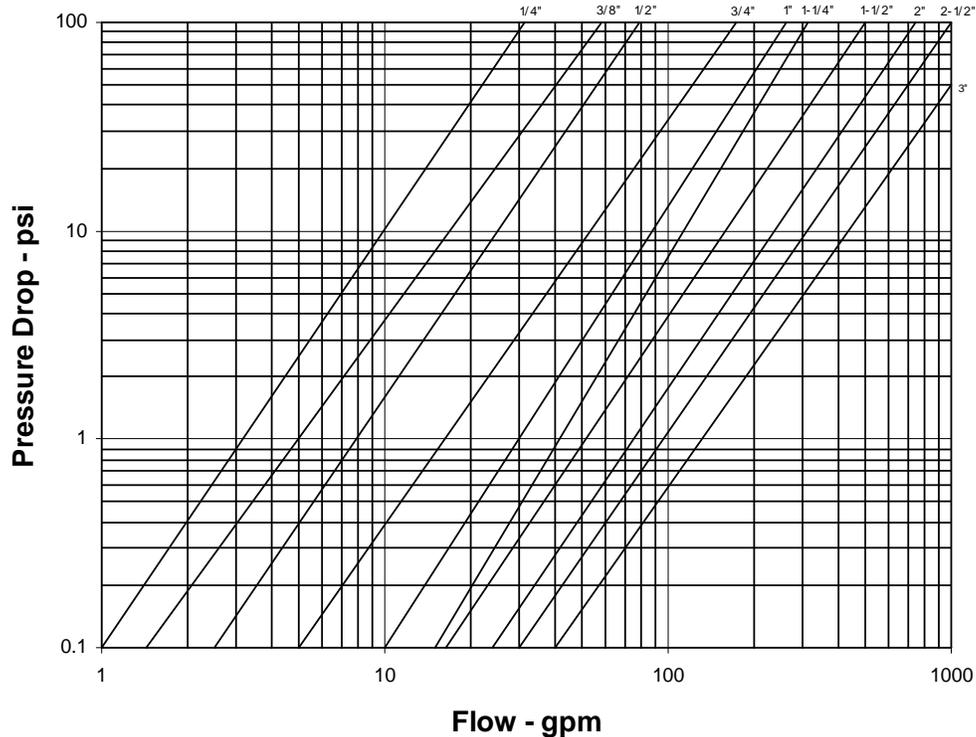
SERIES NUMBER
YCT - CAST IRON, THREADED
WYE STRAINER

SIZE
01 - 1/4"
02 - 3/8"
03 - 1/2"
04 - 3/4"
05 - 1"
06 - 1-1/4"
07 - 1-1/2"
08 - 2"
09 - 2-1/2"
00 - 3"

SCREEN OPTIONS
M20 - 20 MESH (STANDARD 1/4"-2")
P045 - .045 PERF (STANDARD 2-1/2"-3")
M40 - 40 MESH
M60 - 60 MESH
M80 - 80 MESH
M100 - 100 MESH
P062 - 1/16" PERF
P094 - 3/32" PERF
P125 - 1/8" PERF
P156 - 5/32" PERF
P187 - 3/16" PERF
P250 - 1/4" PERF
*ALL SCREENS NOT AVAILABLE FOR ALL SIZES

Performance Data

1/4" - 2": 20 mesh screen
2-1/2" - 3": 3/64" perforated screen



Conbraco Industries, Inc. 701 Matthews Mint Hill Rd. Matthews NC 28106 USA; www.conbraco.com; 704-841-6000

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JOB:

REPRESENTATIVE:

UNIT TAG:

ORDER NO.

DATE:

ENGINEER:

SUBMITTED BY:

DATE:

CONTRACTOR:

APPROVED BY:

DATE:

Nos. 87, 67, and 7
Automatic Air VentsNo. 26 Vacuum
BreakerNos. 17 Sr.
Automatic Air ValvesNo. 4V
Coin-Operated
Air VentNo. 107A High
Capacity Air Vent97 Automatic
Air Vent98 High Capacity
Air VentRV-125A
Readout ValveRP-250B
Readout ProbeDT-2
Drain-O-Tank
Air Charger

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

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		
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		
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

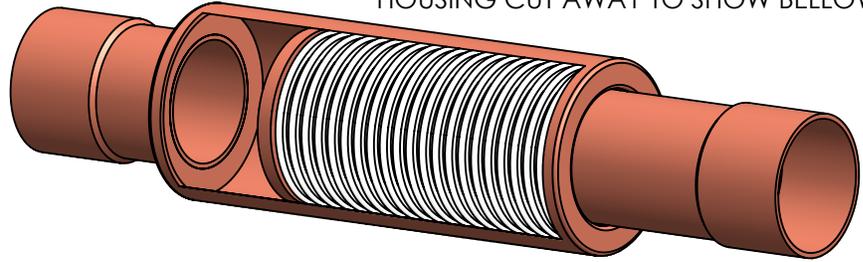
Body & Bonnet (Model 107A High Capacity Air Vent): Cast Iron

Internals: Nonferrous

2.06 - PREFAB ERXPANSION JOINT

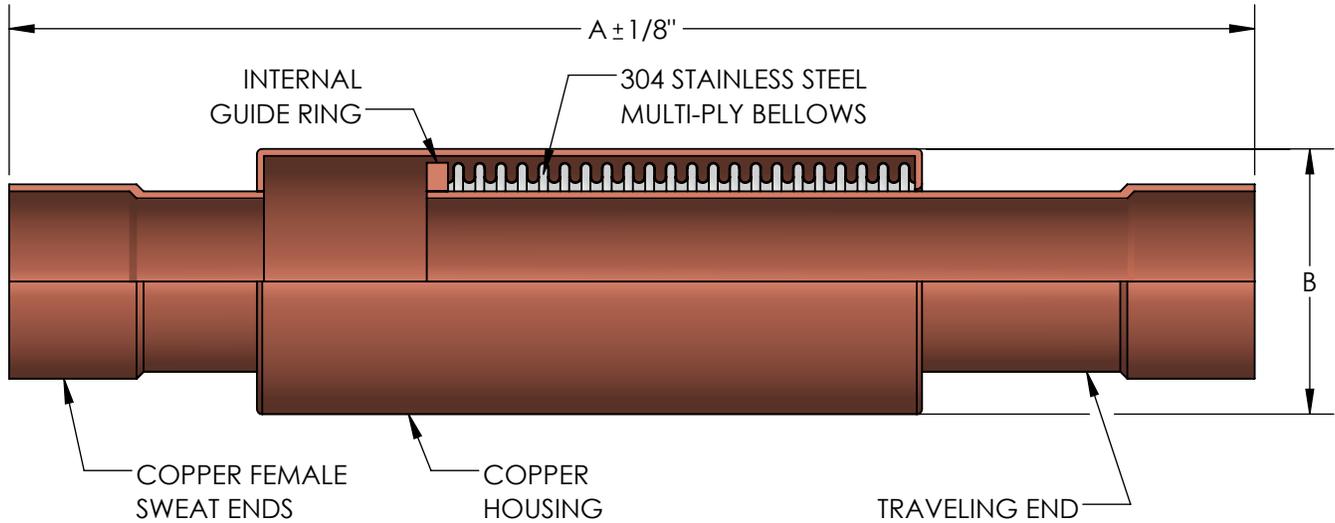
MODEL HPFF2 HIGH PRESSURE EXTERNALLY PRESSURIZED EXPANSION COMPENSATOR

HOUSING CUT AWAY TO SHOW BELLOWS



DESIGN DATA

TEMPERATURE: 400° (204°C)
 PRESSURE: 150 PSI (1034 kPa)
 TEST PRESSURE: 225 PSI (1551 kPa)
 AXIAL COMPRESSION: 2" (50mm)
 AXIAL EXTENSION: 1/2" (13mm)



THIS EXPANSION JOINT IS DESIGNED FOR AXIAL MOVEMENT ONLY. PIPE MUST BE PROPERLY GUIDED AND ANCHORED PER THE RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURERS ASSOCIATION.

QTY	PART NUMBER	TUBE SIZE		A	B	EFFECTIVE AREA (in ²)	SPRING RATE (lb/in)	WEIGHT	PROJECT INFORMATION
		INCH	MM						
	HPFF20075	3/4"	20	11"	1-5/8"	1.1	82	3/4	
	HPFF20100	1"	25	11-1/4"	2"	1.7	89	1	
	HPFF20125	1-1/4"	32	12-1/2"	2-1/4"	2.4	75	1-1/2	
	HPFF20150	1-1/2"	38	12-7/8"	2-1/2"	3.2	74	2	
	HPFF20200	2"	50	13"	3"	5.1	168	3	
	HPFF20250	2-1/2"	65	13-1/4"	4"	7.6	188	4	
	HPFF20300	3"	80	14"	4-1/2"	10.6	251	4-1/2	
	HPFF20400	4"	100	15-1/16"	5-7/8"	17.9	341	9	

CAUTION: SILVER BRAZING USED IN CONSTRUCTION. DO NOT EXCEED 1000°F DURING INSTALLATION.

NSF 372 - LEAD FREE

The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight. Material complies with state codes and standards, where applicable, requiring reduced lead content.

CUSTOMER: _____

PROJECT: _____

ENGINEER: _____

REV.	DATE
2323 W. HUBBARD ST. CHICAGO, IL 60612 TEL: 312-738-3800 FAX: 312-738-0415 WWW.METRAFLEX.COM	
MODEL HPFF2 HIGH PRESSURE EXPANSION COMPENSATOR	
DRAWN BY: DKISH	DATE: 9/3/2015
APPROVED: JC	DATE: 9/3/2015
SCALE: N/A	DRAWING NUMBER: HPFF2

Steel Hinged

Wall Plates w/Springs



Description

Fire Protection Products' plated steel hinged wall plate has been designed to offer aesthetically pleasing concealment of pipe penetrations through walls. Utilizing two piece hinged construction allows for easy installation and closure around pipe diameters from 1/2" IPS to 10" IPS. Centering springs are used for "automatic" alignment and a secure installation on the pipe. A simple clasp allows for the wall plate to stay in place. Available in chrome finish.

Caution: May not provide proper sealing to provide fire wall or smoke penetration ratings. An approved fire stop material should be used for this purpose.

Installation

Installation of the wall plate occurs after installation of piping materials and appropriate fire stop materials (if required) has occurred. Simply open the wall plate, install around

piping and close, making sure to secure the two halves with the clasp. The wall plate will "automatically" center itself on the pipe. No tools are required for proper installation.

Specifications

Type:
Steel hinged w/springs

Material:
.046" colded rolled steel

Finish:
Chrome

Available sizes:
1/2" thru 10" IPS



For Light Commercial and Residential Applications

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

LEAD FREE*

Series LF7 Dual Check Valves

LF7 Sizes: 1 1/4"
 LF7C Sizes: 3/8"

Series LF7 Dual Check Valves are designed for non-health hazard residential water system containment and continuous pressure applications, such as the drinking water supply service entrance or individual outlets. Series LF7 uses two compact replaceable check modules and is installed immediately downstream of the residential water meter. The LF7 features Lead Free* construction to comply with Lead Free* installation requirements.

Features

- Can be installed vertically or horizontally
- Available with combination of inlet/outlet sizes, types or thread and end connection including retrofit compression fittings and hose connections
- Can be installed in many piping configurations and with a wide range of meter horns, copper setters and meter boxes

Specifications

The dual check backflow preventer shall meet the domestic requirements of ANSI/ASSE Standard 1024, and bear the seal of approval. It shall have a cast body and include not less than one union, with the union nut drilled to accept a tamper-proofing lock wire. A brass identification tag indicating direction of flow shall be securely attached to the valve body by corrosion-resistant mechanical fasteners. The Lead Free* Dual Check Valve shall comply with state codes and standards, where applicable, requiring reduced lead content. The dual check shall be Watts Series LF7. (Please select the model best suited to your application.)

Pressure – Temperature

Temperature Range: 33°F – 180°F (0.5°C – 82°C) continuous
 Maximum Working Pressure: 150psi (10.3 bar)

Approvals



LF7

Please refer to watts.com for BAA information on specific models.

Series 7: Inlet/Outlet Connections – Types available, ordering code, sizes available.

CONNECTION TYPE	CONNECTION CODE	SIZES AVAILABLE
		<i>in.</i>
National Pipe Thread Female	2	3/8, 1/4
National Pipe Thread Male	3	1/4
Meter Thread Female*	4	1/4
Female Meter Thread (Swivel)	10	1/4

*When ordering Series LF7 Valves with Meter Thread Connections, be sure to order connection size one size larger than meter thread. Example:

METER SIZE	ORDER
1"	1 1/4"

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Inquire with governing authorities for local installation requirements

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

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



Materials

Body: LF7 Lead Free* cast copper silicon alloy
 LF7C chrome-nickel plated Lead Free* cast copper silicon alloy

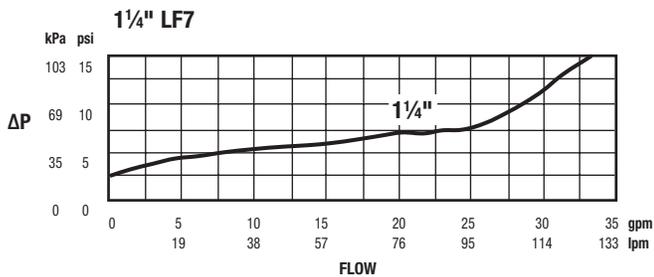
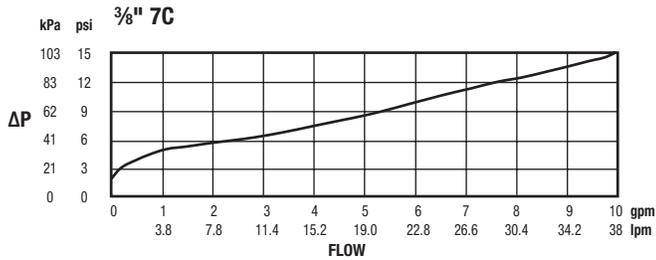
Check Modules: Durable plastic

Discs: Silicone

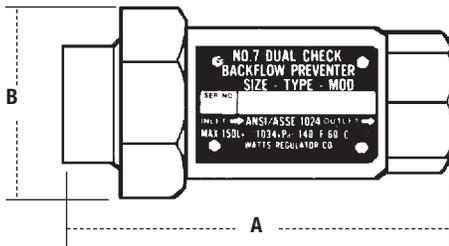
Seals: Buna-N

Springs: Stainless steel

Capacity



Dimensions – Weight



MODEL	SIZE	DIMENSIONS				WEIGHT	
		A		B		lbs.	kgs
	in.	in.	mm	in.	mm		
LF7	3/8	2 7/8	73	1 1/4	32	.69	0.31
LF7C	3/8	2 7/8	73	1 1/4	32	.69	0.31
LF7 10-U2	1 1/4	4 9/16	116	2 1/4	57	1.80	0.82
LF7 10-U3	1 1/4	5 1/4	136	2 1/4	57	1.80	0.82
LF7 4-U2	1 1/4	4 9/16	110	2 1/4	57	1.50	0.68



Watts

Series 3000

Dielectric Pipe Fittings, Unions, Bolt Insulators

Description

Series 3000 Dielectric Pipe Fittings and Unions are durable, corrosion resistant fittings and unions that consist of a union nut and two tailpieces. A gasket separates the two tailpieces preventing an electric current from passing. For flanged fittings (Models 3100, 3110, and 3200), a bolt insulator is required to insulate each bolt in the flange. Watts also offers bolt insulators in a range of sizes.

Dielectric fittings/unions are designed to install between pipes made from dissimilar metals. They prevent accelerated corrosion and deterioration in the piping system due to galvanic and stray current.

Features

- Designed and manufactured to the highest quality standards.
- Unions individually factory certified to withstand a minimum of 600 volts on a dry line with no flashover.
- Unions rated to 180°F (82°C) at 250psi (17.2 bar).
- Flanged fittings rated at 175psi (12.1 bar).
- Standard Gasket A (GA) suitable for water, air, oil, natural gas, propane, gasoline, kerosene, mineral oil, vegetable oil, and alkalines in 180°F (82°C) at 250psi.

Applications

Dielectric fittings/unions are for use in residential, commercial, and industrial applications. Specific applications include the connections of piping of dissimilar metals on hot water storage tanks, water and air con-



ditioners, processing tanks, steam, gas, and water piping. These fittings/unions prevent the flow of galvanic current (an electric current) and stray current (DC current) passing from one dissimilar metal to another. Galvanic current accelerates corrosion in the piping system leading to premature deterioration of the system. Stray current produces extraordinary anodes and cathodes that can inadvertently enter an alternate (but unintended) path and create corrosion in the piping system. Using dielectric fittings/unions prevents this

type of corrosion from occurring.

Note: For applications of gaskets other than specified above, contact your local authorized Watts representative.

Materials

Dielectric fittings/unions consist of one or more of the following materials used in accordance with American Society for Testing and Materials (ASTM):

Gray iron	ASTM A48
Malleable iron parts	ASTM A-197
Steel parts	ASTM A108
Brass parts	ASTM B-16
Bronze parts	ASTM B-584
Zinc Coatings	ASTM B633
Bolt insulators (required)	Polysulfone
Standard Gasket A	Buna-N
Optional GB Gasket	EPDM

Standards

- All models meet federal specifications for tensile strength and thread end connections
- Thread end connections in accordance with ANSI B2.1
- Solder joints meet national plumbing standards
- Unions are rated at 250psi and conform to ANSI B16.39, including hydrostatic strength, air pressure testing
- Flange fittings are rated at 175psi and conform to ANSI B16.42 (iron) and ANSI B16.24 (bronze)

Models

Unions

- **3001A** – Sizes 1/2" - 2" (15-50mm) Female iron pipe thread to solder connection
- **3002** – Sizes 1/2" x 3/8", 3/4" x 1/2", 1" x 3/4" (15x10mm, 20x15mm, 25x20mm) Female iron pipe thread to reduced solder connection
- **3003** – Sizes 1/2" - 2" (15-50mm) Female iron pipe thread to female brass pipe
- **3004** – Sizes 1/2" - 2" (15-50mm) Female iron pipe thread to female iron pipe thread (galvanized)
- **3005A** – Sizes 1/2" - 3/4" (15-20mm) Male iron pipe thread to solder connection
- **3006** – Sizes 1/2" - 2" (15-50mm) Female iron pipe thread to female iron pipe thread (black)
- **3007** – Sizes 1/2" x 3/8" - 3/4" x 1/2" (15x10mm - 20x15mm) Male iron pipe thread to female solder connection
- **3008** – Sizes 1/2" x 1" (15-25mm) Female brass pipe thread to female solder connection

Flanged Fittings

- **3100** – Sizes 2" - 4" (15-100mm) Iron pipe thread

to copper solder joint

- **3110** – Sizes 2 1/2" - 4" (65-100mm) Solder copper fitting, bronze (125 class flange)
- **3110LF** – Sizes 2 1/2" - 4" (65-100mm) solder copper fitting only. Less fittings and gasket.
- **3200** – Sizes 2" - 4" (50-100mm) Iron pipe thread to iron pipe thread

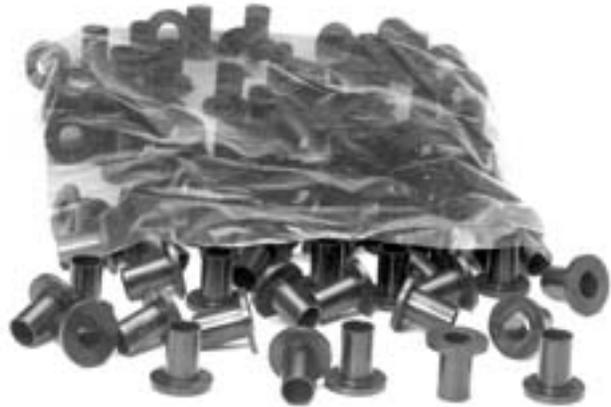
Bolt insulators

- **Watts Insulator Kit** – One insulator required for each bolt in a flange. One kit contains 100 insulators

Gasket Options

GA – Standard Buna gasket for use in hot water applications up to 180°F (82°C) at 250psi (17.2 bar)

GB – Optional EPDM gasket for use in steam or hot water applications up to 300°F (149°C) at 50psi (3.4 bar)

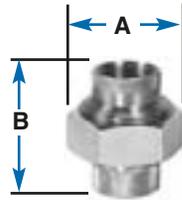


Dielectric Bolt Insulators

Bolt Insulators

Description	Nominal Pipe Size		No. of Bolt Holes Per Flange	Diameter of Bolts		Qty. per Kit
	(inches)	(mm)		(inches)	(mm)	
Insulator kit	1 1/2	40	4	1/2	15	100
Insulator kit	2	50	4	5/8	16	100
Insulator kit	2 1/2	65	4	5/8	16	100
Insulator kit	3	80	4	5/8	16	100
Insulator kit	3 1/2	90	8	5/8	16	100
Insulator kit	4	100	8	5/8	16	100
Insulator kit	5	125	8	3/4	20	100
Insulator kit	6	150	8	3/4	20	100
Insulator kit	8	200	8	3/4	20	100
Insulator kit	10	250	12	7/8	22	100
Insulator kit	12	300	12	7/8	22	100

Dimensions/Weights



Model	Size (DN)		DIMENSIONS (approx.)				WEIGHT	
	in.	mm	A		B		lbs.	kgs.
3001A	1/2	15	1 1/2	32	1 7/8	48	0.4	0.2
3001A	3/4	20	1 5/8	41	2 1/8	54	0.4	0.2
3001A	1	25	1 7/8	48	2 1/2	64	0.6	0.3
3001A	1 1/4	32	2 1/4	57	3	76	0.8	0.4
3001A	1 1/2	40	2 3/4	70	3	76	0.8	0.4
3001A	2	50	3 1/2	89	3	76	2.2	1.0
3002	1/2 x 3/8	15x10	1 1/2	38	1 7/8	48	0.4	0.2
3002	3/4 x 1/2	20x15	1 5/8	41	1 7/8	48	0.4	0.2
3002	1 x 3/4	25x20	1 7/8	48	2 1/2	64	0.7	0.3
3003	1/2	15	1 5/8	41	2 1/4	57	0.4	0.2
3003	3/4	20	1 7/8	48	2 1/4	57	0.9	0.4
3003	1	25	2 1/4	57	2 1/2	64	1.3	0.6
3003	1 1/4	32	2 3/4	70	2 3/4	70	1.7	0.8
3003	1 1/2	40	3 1/2	89	2 3/4	70	3.0	1.4
3003	2	50	4 1/8	105	3 1/8	79	4.3	2.0
3004	1/2	15	1 5/8	41	2 1/4	57	0.4	0.2
3004	3/4	20	1 7/8	48	2 1/4	57	0.9	0.4
3004	1	25	2 1/4	57	2 1/2	64	1.3	0.6
3004	1 1/4	32	2 3/4	70	2 3/4	70	1.7	0.8
3004	1 1/2	40	3 1/2	89	2 3/4	70	2.8	1.3
3004	2	50	4 1/8	105	3 1/8	79	4.0	1.8
3005A	1/2	15	1 1/2	38	2 5/8	67	0.5	0.2
3005A	3/4	20	1 5/8	41	3	76	0.8	0.4
3006	1/2	15	1 5/8	41	2 1/4	57	0.4	0.2
3006	3/4	20	1 7/8	48	2 1/4	57	0.9	0.4
3006	1	25	2 1/4	58	2 1/2	64	1.3	0.6
3006	1 1/4	32	2 3/4	70	2 3/4	70	1.7	0.8
3006	1 1/2	40	3 1/2	89	2 3/4	70	2.8	1.3
3006	2	50	4 1/8	105	3 1/8	79	4.0	1.8
3007	1/2 x 3/8	15x10	1 1/2	38	2 5/8	67	0.4	0.2
3007	3/4 x 1/2	20x15	1 5/8	41	3	76	0.4	0.2
3008	1/2	15	1 1/2	38	1 7/8	48	0.4	0.2
3008	3/4	20	1 5/8	41	2 1/8	54	0.7	0.3
3008	1	25	1 7/8	48	2 1/2	64	0.9	0.4

Flanged fittings

3100/3200



3110



3100	2	50	5 1/8	130	3 1/4	83	8.0	3.6
3100	2 1/2	65	5 7/8	149	3 1/2	89	12.0	5.4
3100	3	80	6 3/4	171	3 3/4	95	14.0	6.4
3100	4	100	9 1/8	232	4 3/8	111	30.0	13.6
3110	2 1/2	65	5 7/8	149	3 1/2	89	12.0	5.4
3110	3	80	6 3/4	171	3 3/4	95	15.0	6.8
3110	4	100	9 1/8	232	4 3/8	111	18.0	8.2
3110LF	2 1/2	65	5 7/8	149	3 1/2	89	6.0	2.7
3110LF	3	80	6 3/4	171	3 1/2	89	7.5	3.4
3110LF	4	100	9 1/8	232	4 3/8	111	9.0	4.1
3200	2	50	5 1/8	130	2 1/8	54	8.0	3.6
3200	2 1/2	65	5 7/8	149	2 3/4	70	12.0	5.4
3200	3	80	6 3/4	171	2 3/4	70	15.0	6.8
3200	4	100	9 1/8	232	3	76	31.0	14.1

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For Technical Assistance Call Your Authorized Watts Agent.

			Telephone #	Fax #
	HEADQUARTERS: Watts Regulator Company	815 Chestnut St., North Andover, MA 01845-6098 U.S.A.	978 688-1811	978 794-1848
North East	Edwards, Platt & Deely, Inc.	271 Royal Ave., Hawthorne, NJ 07506	973 427-2898	973 427-4246
	Edwards, Platt & Deely, Inc.	368 Wyandanch Ave., North Babylon, NY 11703	631 253-0600	631 253-0303
	W. P. Haney Co., Inc.	51 Norfolk Ave., South Easton, MA 02375	508 238-2030	508 238-8353
	WMS Sales, Inc. (Main office)	9580 County Rd., Clarence Center, NY 14032	716 741-9575	716 741-4810
Mid Atlantic	J. B. O'Connor Company, Inc.	P.O. Box 12927, Pittsburgh, PA 15241	724 745-5300	724 745-7420
	RMI	Glenfield Bus. Ctr., 2535 Mechanicsville Tpk., Richmond, VA 23223	804 643-7355	804 643-7380
	The Joyce Agency, Inc.	8442 Alban Rd., Springfield, VA 22150	703 866-3111	703 866-2332
	Vernon Bitzer Associates, Inc.	980 Thomas Drive, Warminster, PA 18974	215 443-7500	215 443-7573
South East	Billingsley & Associates, Inc.	2728 Crestview Ave., Kenner, LA 70062-4829	504 602-8100	504 602-8106
	Billingsley & Associates, Inc.	478 Cheyenne Lane, Madison, MS 39110	601 856-7565	601 856-8390
	Francisco J. Ortiz & Co., Inc.	Charlyn Industrial Pk., Road 190 KM1.9 - Lot #8, Carolina, Puerto Rico 00983	787 769-0085	787 750-5120
	Mid-America Marketing, Inc.	203 Industrial Drive, Birmingham, AL 35211	205 879-3469	205 870-5027
	Mid-America Marketing, Inc.	1364 Foster Avenue, Nashville, TN 37210	615 259-9944	615 259-5111
	Mid-America Marketing, Inc.	5466 Old Hwy. 78, Memphis, TN 38118	901 795-0045	901 795-0394
	Smith & Stevenson Co., Inc.	4935 Chastain Ave., Charlotte, NC 28217	704 525-3388	704 525-6749
	Harry Warren, Inc.	1400 North Orange Blossom Trail, Orlando, FL 32804	407 841-9237	407 841-9246
	Watts Georgia	2861-B Bankers Industrial Drive, Atlanta, GA 30360	770 209-3310	770 447-4583
	North Central	Dave Watson Associates	1325 West Beecher, Adrian, MI 49221	517 263-8988
Disney McLane & Associates		428 McGregor Ave., Cincinnati, OH 45206	800 542-1682	877 476-1682
BWA Company		17610 S. Waterloo Rd., Cleveland, OH 44119	216 486-1010	216 486-2860
Mid-Continent Marketing Services Ltd.		1724 Armitage Ct., Addison, IL 60101	630 953-1211	630 953-1067
Soderholm & Associates, Inc.		7150 143rd Ave. N.W., Anoka, MN 55303	763 427-9635	763 427-5665
Stickler & Associates	333 North 121 St., Milwaukee, WI 53226	414 771-0400	414 771-3607	
South Central	Hugh M. Cunningham, Inc.	13755 Benchmark, Dallas, TX 75234	972 888-3808	972 888-3838
	HMC Sandia Group	13755 Benchmark, Dallas, TX 75234	505 222-3134	800 339-0191
	Mack McClain & Associates	4407 Meramec Bottom, Suite G, St. Louis, MO 63129	314 894-8188	314 894-8388
	Mack McClain & Associates, Inc.	1450 NE 69th Place, Ste. 56 Ankeny, IA 50021	515 288-0184	515 288-5049
	Mack McClain & Associates, Inc.	15090 West 116th St., Olathe, KS 66062	913 339-6677	913 339-9518
OK! Sales, Inc.	214-A NE 12th., Moore, OK 73160	405 794-5200	405 794-5250	
Western	Delco Sales, Inc.	1930 Raymer Ave., Fullerton, CA 92833	714 888-2444	714 888-2448
	Delco Sales, Inc.	111 Sand Island Access Rd., Unit 1-10, Honolulu, HI 96819	808 842-7900	808 842-9625
	Fanning & Associates, Inc.	6765 Franklin St., Denver, CO 80229-7111	303 289-4191	303 286-9069
	Hollabaugh Brothers & Associates	6915 South 194th St., Kent, WA 98032	253 867-5040	253 867-5055
	Hollabaugh Brothers & Associates	3028 S.E. 17th Ave., Portland, OR 97202	503 238-0313	503 235-2824
	P I R Sales, Inc.	3050 North San Marcos Place, Chandler, AZ 85225	480 892-6000	480 892-6096
	Preferred Sales	31177 Wiegman Road, Hayward, CA 94544	510 887-9755	510 476-1595
	R. E. Fitzpatrick Sales, Inc.	4109 West Nike Dr. (8250 South), West Jordan, UT 84088	801 282-0700	801 282-0600
Canada	Watts Industries (Canada) Inc. (Watts Regulator Co. Division)	5435 North Service Road, Burlington, Ontario L7L 5H7	905 332-4090	905 332-7068
	Con-Cur West Marketing, Inc.	71B Clipper Street, Coquitlam, British Columbia V3K 6X2	604 540-5088	604 540-5084
	D.C. Sales Ltd.	#10-6130 4th St. S.E., Calgary, Alberta T2H 2B6	403 253-6808	403 259-8331
	D.C. Sales Ltd.	16726 111 Ave, Edmonton, Alberta T5M 2S6	780 496-9495	780 496-9621
	GTA Sales Team.	Greater Toronto Area	888 208-8927	888 479-2887
	Hydro-Mechanical Sales, Ltd.	3700 Joseph Howe Drive, Suite 1, Halifax, Nova Scotia B3L 4H7	902 443-2274	902 443-2275
	Hydro-Mechanical Sales, Ltd.	P.O. Box 1445 (Mailing), 297 Collishaw St., Suite 7 (shipping) Moncton, New Brunswick E1C 9R2	506 859-1107	506 859-2424
	J.D.S. Sales Ltd.	4 Lancaster Street, St. John's, Newfoundland A1A 5P7	709 579-5771	709 579-1558
	Les Ent. Roland Lajoie	6221 Marivaux, St-Leonard, QC H1P 3H6	514 328-6645	514 328-6131
	Les Ent. Roland Lajoie	23 du Buisson, Pont Rouge, QC G3H 1X9	418 873-2500	418 873-2505
	Mar-Win Agencies, Ltd.	1333 Clifton St., Winnipeg, Manitoba R3E 2V1	204 775-8194	204 786-8016
	Northern Mechanical Sales	P.O. Box 280 (mailing) 163 Pine St. (shipping), Garson, Ontario P3L 1S6	705 693-2715	705 693-4394
	Palser Enterprises, Ltd.	P.O. Box 28136 (mailing), 1885 Blue Heron Dr., #4, London, Ontario N6H 5L9	519 471-9382	519 471-1049
RAM Mechanical Marketing Inc.	1401 St. John Street, Regina, Saskatchewan S4R 1S5	306 525-1986	306 525-0809	
RAM Mechanical Marketing Inc.	510 Ave M South, Saskatoon, Saskatchewan S7M 2K9	306 244-6622	306 244-0807	
Walmart Mechanical Sales	24 Gurdwara Rd., Nepean, Ontario K2E 8B5	613 225-9774	613 225-0673	
0804	EXPORT Hdqtrs.: Watts Regulator Co.	815 Chestnut St., North Andover, MA 01845-6098 U.S.A.	978 688-1811	978 794-1848



Water Safety & Flow Control Products

USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.watts.com

Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscanada.ca