



Portland, OR
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HDR-100

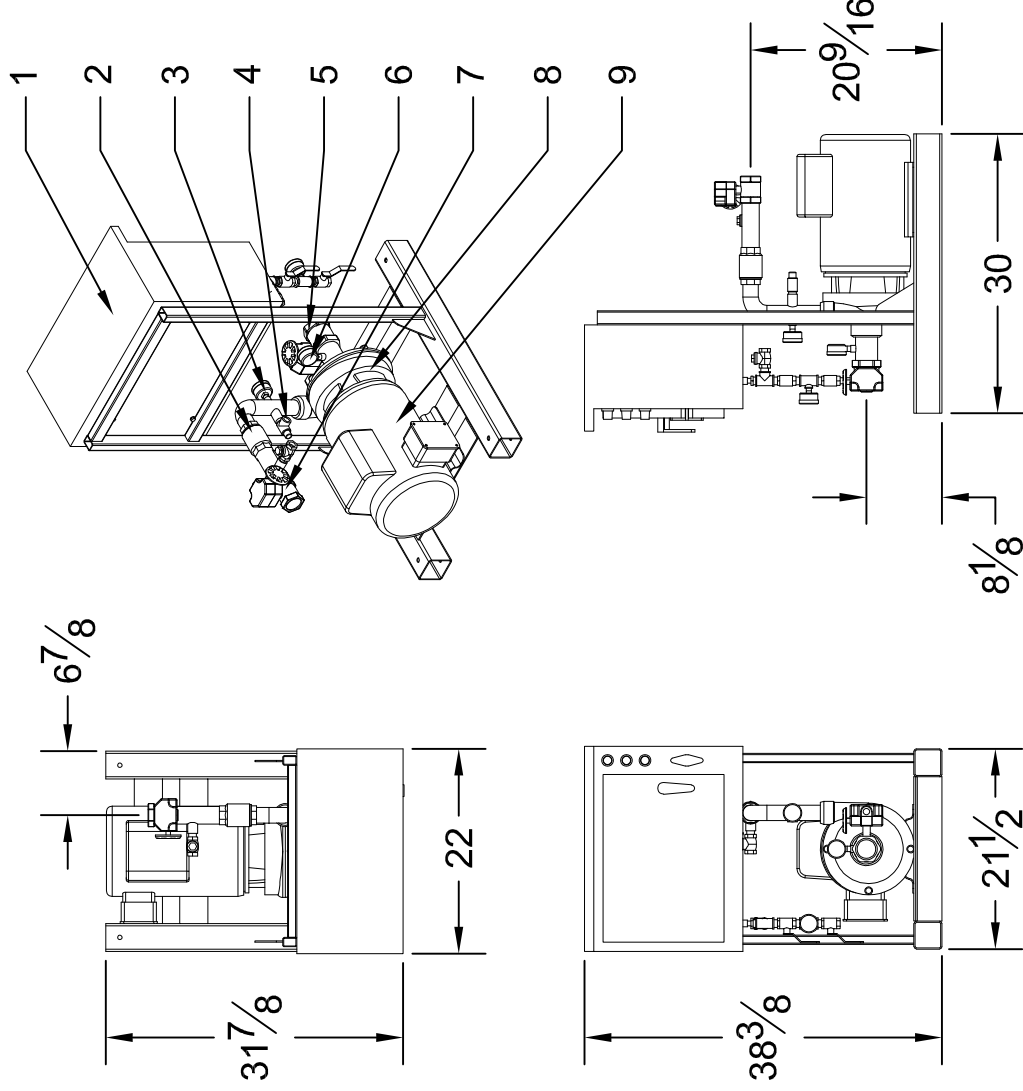
100GPM Fire Pump Package

Submittal Packet

Residential Packaged Fire Pump System

HDR-100

Heavy Duty Residential Package
Design Condition: 100GPM @ 90PSI



System Specifications:

Motor

- 10 Horsepower Electric
- 230 Volt
- 46 Amp
- Single Phase
- 3450 RPM

Pump

- End Suction Centrifugal Pump
- 2" Suction (NPT)
- 1 1/2" Discharge (NPT)
- 175 PSI max working pressure

System Components

- 1- Residential Fire Pump Controller
- 2- Check Valve
- 3- Discharge Pressure Gauge
- 4- Case Relief Valve
- 5- Suction Monitored Butterfly Valve
- 6- Suction Pressure Gauge
- 7- Discharge Monitored Butterfly Valve
- 8- End Suction Pump
- 9- Electric Motor
- Not Shown- Copper Sensing Line (per NFPA20)

Please Note: This fire pump system uses an unlisted pump & a residential controller. Please submit to your AHJ for approval prior to ordering.

Performance

Performance values based on multiple pump tests. Not for certification purposes.

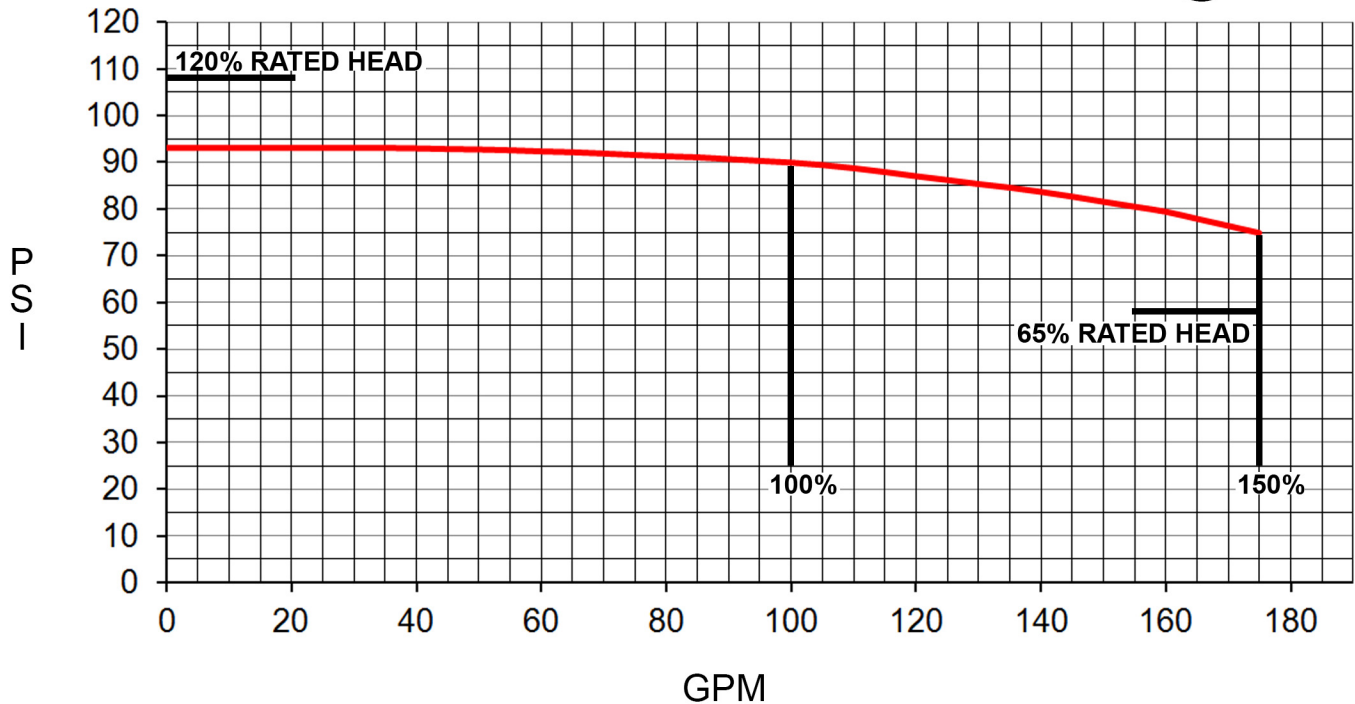
GPM	0	25	50	75	100	125	150	175
PSI	93	93	93	91	90	86	82	75



HDR-100

PUMP DATA

100GPM @ 90PSI



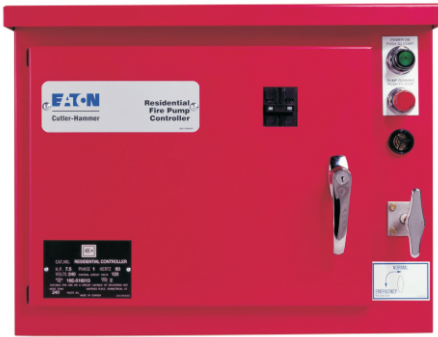
SYSTEM SPECIFICATIONS

MOTOR

- 10 HP ELECTRIC MOTOR
- 230 VOLT, 46 AMP
- SINGLE PHASE
- 3450 RPM
- JM FRAME
- SHAFT SLEEVE/O-RING FOR PROTECTION AGAINST SHAFT DAMAGE
- SEALED MOTOR BEARINGS TO CARRY AXIAL & THRUST LOADS
- OPEN DRIP PROOF (ODP)

PUMP

- HIGH PRESSURE CAST IRON VOLUTE
- MACHINED BRONZE IMPELLER
- 2" SUCTION
- 1 1/2" DISCHARGE
- 150 PSI MAX WORKING PRESSURE



Product Description

Eaton Cutler Hammer Residential Fire Pump Controllers work in conjunction with single phase, electric, residential fire pumps and packages. Available as a Simplex or Duplex unit, all controllers are UL listed and meet or exceed NEMA requirements.

Product Features

Sequential Start Timer

A sequential start timer may be installed which is used to program a start delay after the pressure switch initiates an automatic start. In duplex controllers, a SST is standard and is wired to delay starting the second (lag) pump. The timer does not operate if starting is initiated via the start pushbutton or emergency start handle.



Run Period Timer

The run period timer turns on whenever the controller starts due to a drop in pressure. This ensures that the pump motor is not subjected to frequent starts if the pressure switch contact repeatedly closes and opens at short time intervals because of pressure fluctuations.

NEMA 2 Enclosures

All FDR controllers are supplied with NEMA 2 enclosures. Contact factory for availability of other styles.

Alarm & Status Indication

Both Simplex and Duplex controllers are equipped with illuminated pushbuttons which have dual use. The green "POWER ON" pushbutton functions as the "Start" pushbutton and indicates when the circuit breaker is closed. The red "PUMP RUNNING" pushbutton functions as the "Stop" pushbutton and indicates when the pump is running.



When the controller starts the fire pump, the red Pump Running light turns on as well as the buzzer mounted on the front panel.

Mounting Bars

FDR residential controllers can be supplied with optional upper and lower mounting bars.

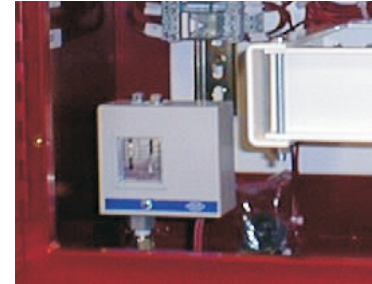


Optional Floor Mount Legs

Optional 12 inch high floor mounting legs are available upon request.

Dual Setting Pressure Switch

A dual setting 15 290 PSI pressure switch is used to sense a drop in pressure which actuates the residential controller. The setting adjustment screws are used for setting the pressure range and differential. There is one set of form C output contacts rated at 10 amps.

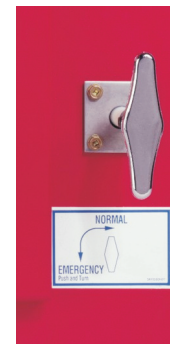


NEMA Rated Contactors

Cutler Hammer NEMA rated Freedom Contactors are used in all FDR Residential fire pump controllers. A wide variety of coil voltages are available for domestic and international use.

Emergency Start Operator

A mechanically operated emergency start handle activates the motor contactor independent of any electrical control circuits or pressure switch input.



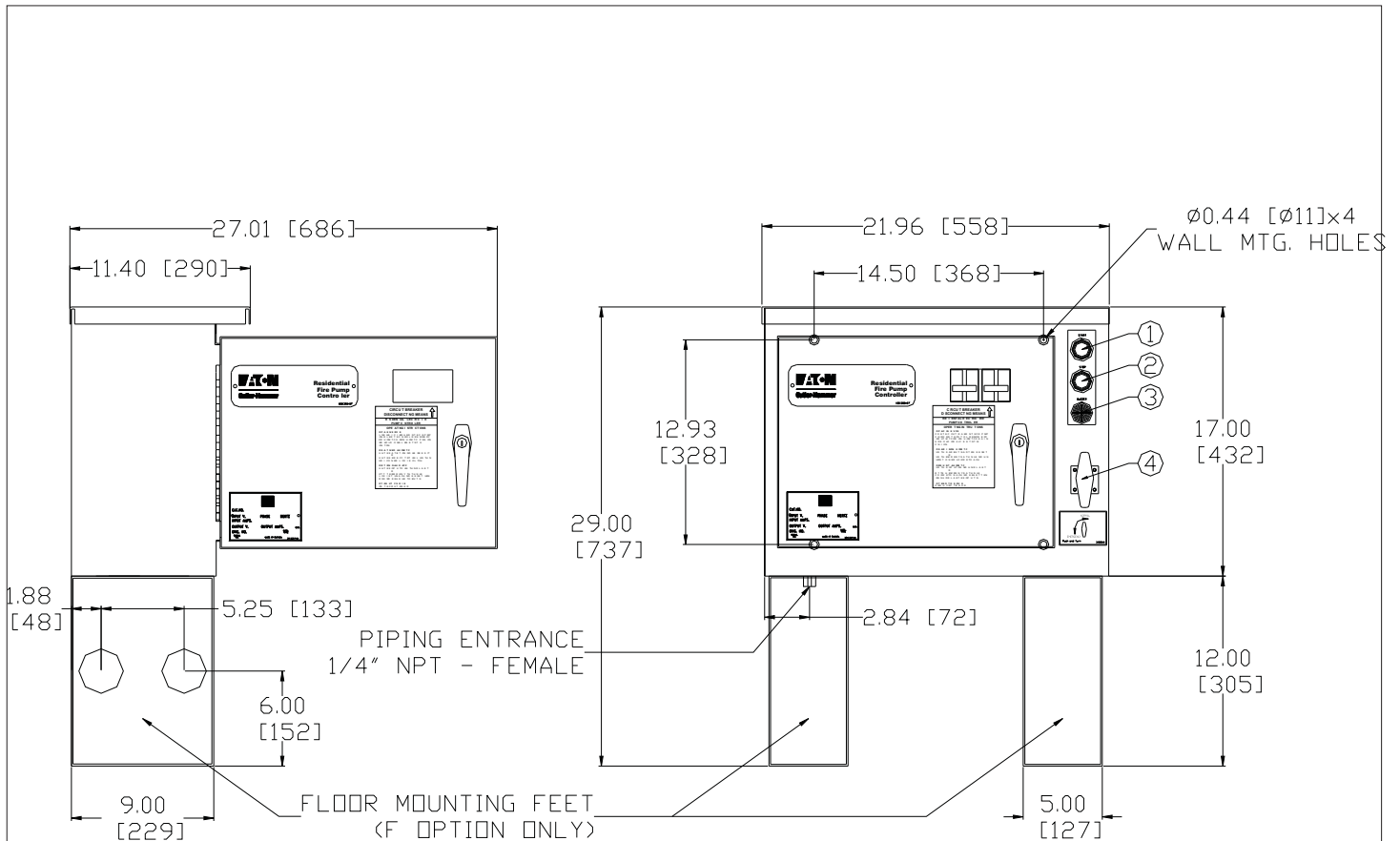
Standards & Certification

The FDR Residential Fire Pump Controllers meet or exceed the requirements of Underwriters Laboratories, Underwriters Laboratories Canada, the Canadian Standards Association, and the New York City building code.

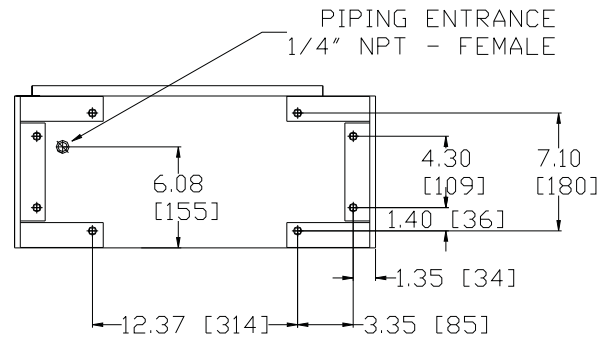


Dimensions

Standard Enclosure - Duplex - Type NEMA 2



- ① -START PUSHBUTTON / POWER ON LIGHT
- ② -STOP PUSHBUTTON / PUMP RUNNING LIGHT
- ③ -BUZZER
- ④ -MSH (EMERGENCY START HANDLE)

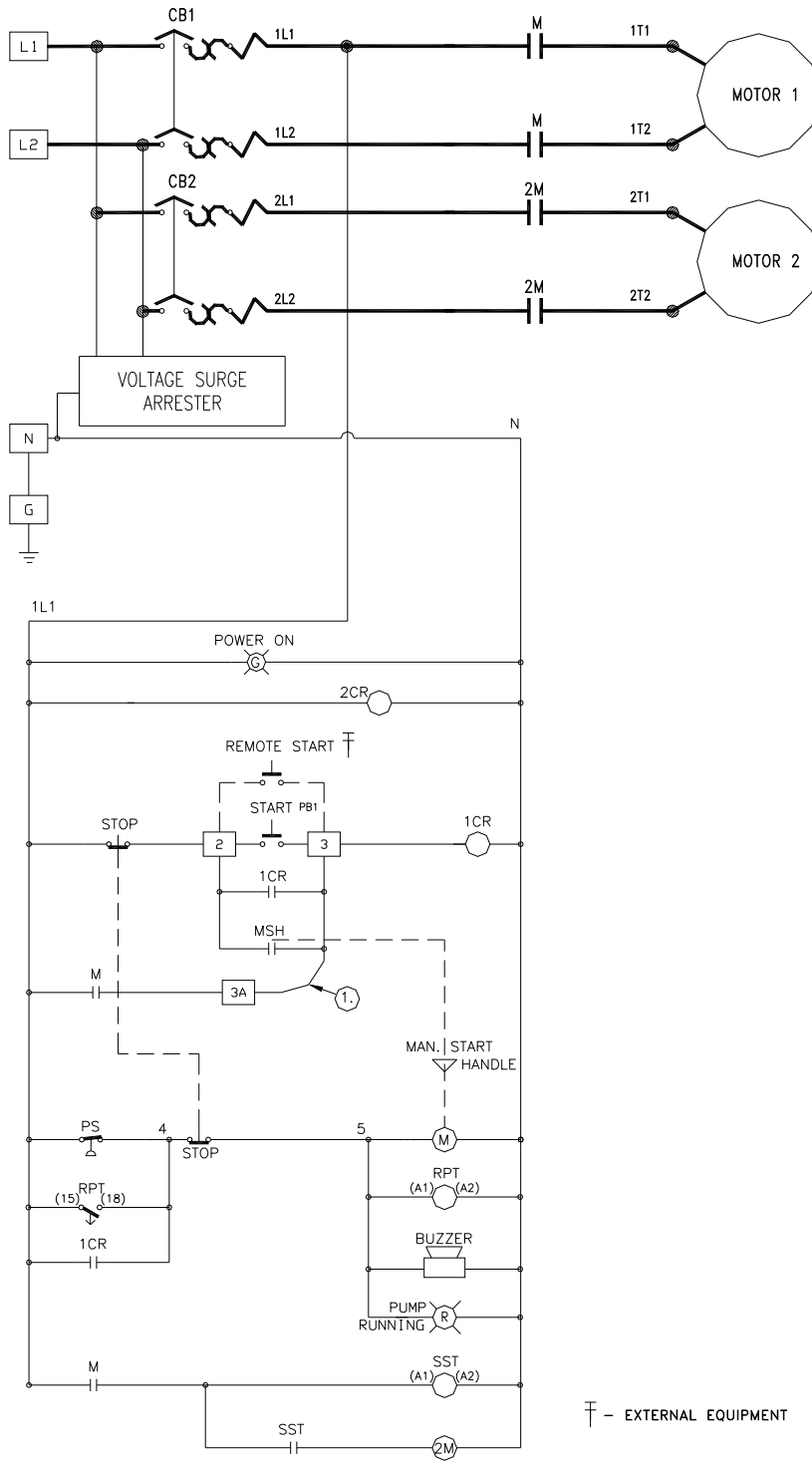


Motor Hp	Line Voltage	Withstand Rating		Approx. Weight Lbs. (Kg)
		Standard	Intermediate	
½ 10	230V Single Phase	10,000	22,000	60 (27)

NOTES:

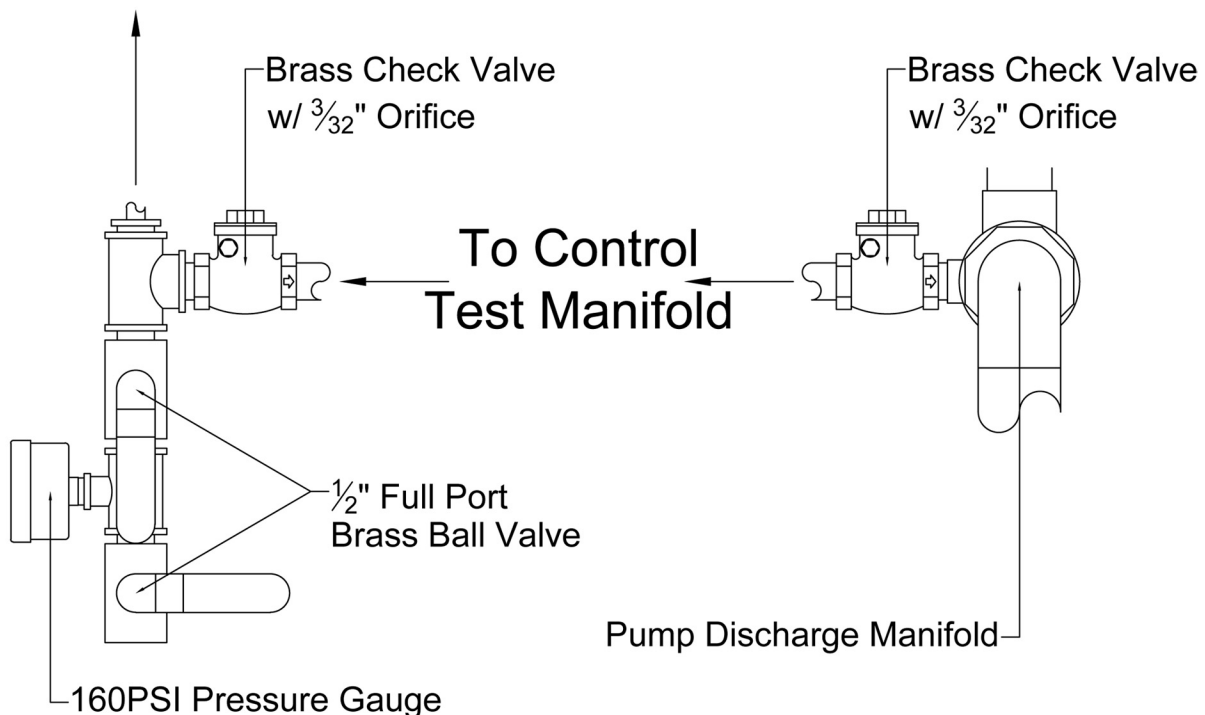
1. All enclosures finished in FirePump red.
2. Cable Entrance either top or bottom.
3. Standard Enclosure type NEMA 2.
4. Add 12 inches height for optional floor stands.

Electrical Wiring Schematic



NFPA20 Pressure Sensing Line Detail

To Control Panel
Pressure Switch



Sensing line constructed in accordance with
NFPA20: 5 feet minimum $\frac{1}{2}$ " hard copper tubing,
joints solder sealed, components brass NPT.

BB-SC 100 & S02

1" - 2-1/2"

Approved by: NYC Board of Stds. & Appeals,
Cal. #996-81-SM (175psi)
720-83-SA (350 & 500 psi)

BRONZE BUTTERFLY VALVE
ONE-PIECE, FULL-PORT
175 PSI
THREADED ENDS



DIMENSIONS

Valve Size					
DIM	1"	1-1/4"	1-1/2"	2"	2-1/2"
A	2.13	2.63	2.88	3.25	4.13
B ¹	3.16	3.31	3.41	3.63	3.82
C	1.56	1.94	2.19	2.75	3.19
D	1.72	2.11	2.38	3.07	3.50
J ²	4.16	4.16	4.51	4.76	4.66
K	.66	.73	.73	.79	1.18
L	.83	.90	.10	1.41	1.29
M-40 ³	1.10	1.38	1.61	2.07	2.47
M-80 ⁴	.96	1.28	1.50	1.94	2.32
N-40 ⁵	2.25	2.00	2.50	2.25	10.00
W ⁶	1.13	1.25	1.41	1.69	1.75

ALL DIMENSIONS-INCHES

¹ Pertains to BB-SC100 only.

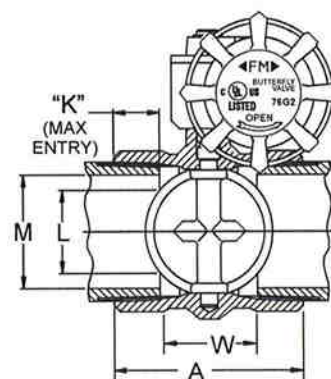
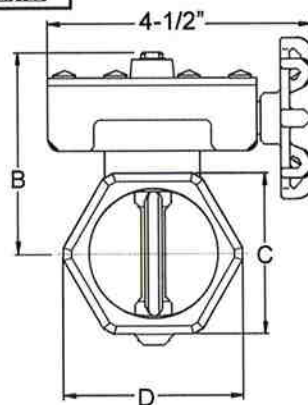
² Pertains to BB-SCS02 only.

³ M-40 ARE DIMENSIONS USING SCHEDULE 40 PIPE

⁴ M-80 ARE DIMENSIONS USING SCHEDULE 80 PIPE

⁵ N-40 IS FLOW RESISTANCE EXPRESSED IN EQUIVALENT LENGTH OF SCHEDULE 40 PIPE

⁶ W IS THE WRENCH MAKE-UP LENGTH



BB-SC100

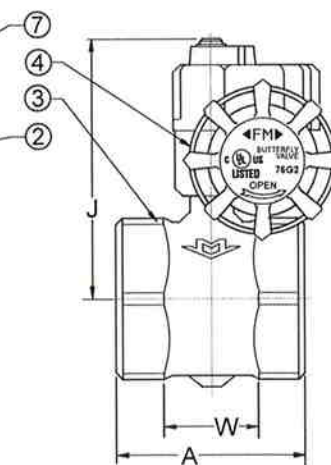
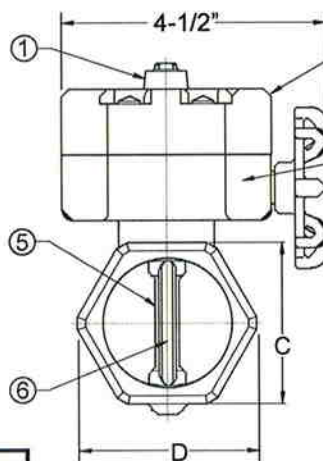
Sizes 1", 1-1/4", 1-1/2", 2", 2-1/2"

FEATURES

- Slow opening and closing
- Quarter turn operation
- Water Hammer elimination
- Optional internal tamper switch (Indoor/Outdoor use).
 - Signals disc movement
 - Factory or Field installation
 - 10 Amp / 115 VAC-60 Hz
 - 0.5 Amp / 28 VDC
- Grooved Ends Available in Sizes 2" and 2-1/2"

MATERIALS LIST

ITEM	PART	MATERIALS	ASTM SPEC.
1	Indicator	Iron	F0008P
2	Housing	Bronze	ASTM 584 UNS
3	Body	Bronze	C8440
4	Handle	Brass	ASTM B176 UNS
5	Disk	Stainless Steel	C85800
6	Disk Seal	EPDM	ASTM A276, Type 304
7	Switch Housing (BB-SCS02)	Aluminum	



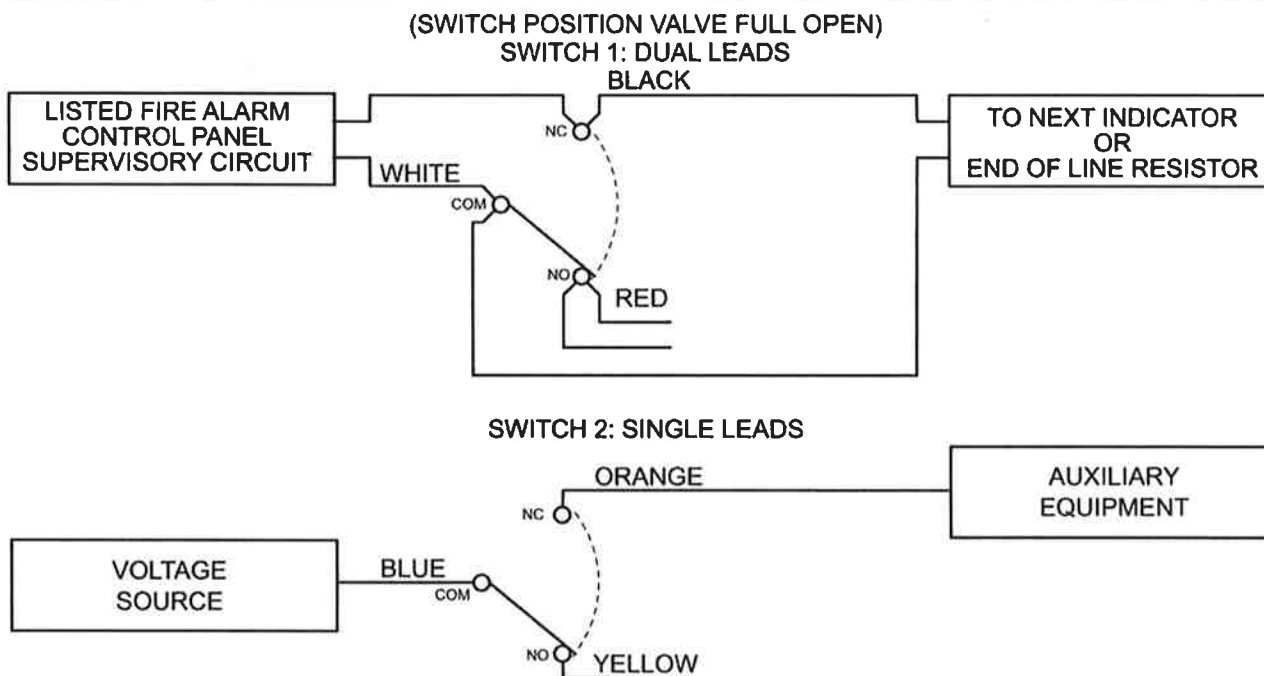
BB-SCS02 (Includes Switch)

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the most current information access www.milwaukeevalve.com

MILWAUKEE VALVE



WIRING DIAGRAM



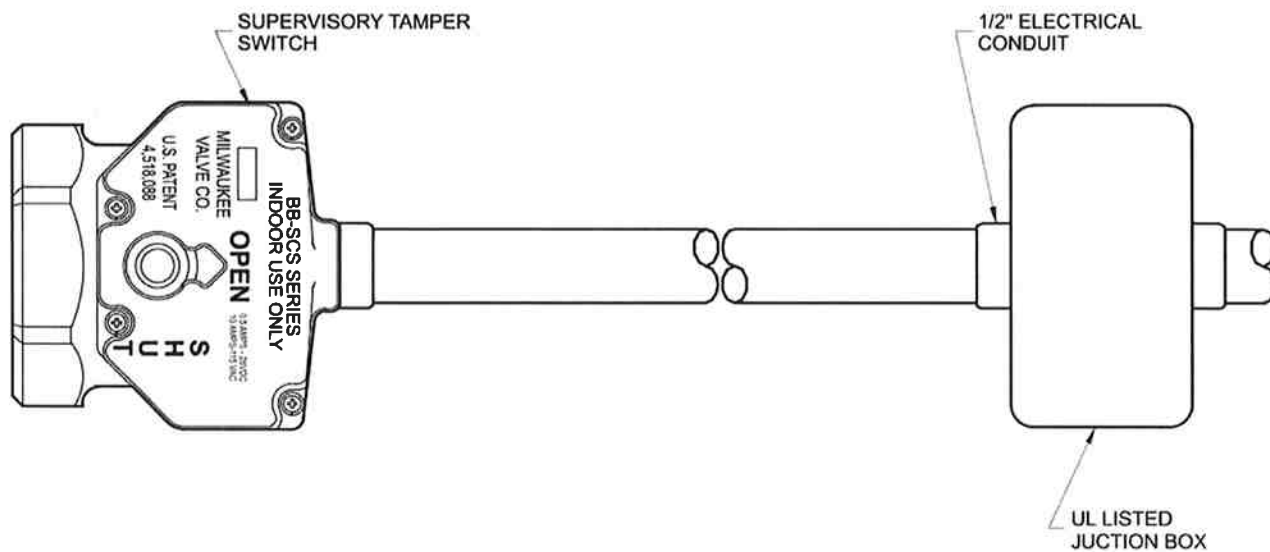
Green Lead provided is ground for switch housing

Switch Rating: 10AMP/ 115 VAC

.5 AMP/28 VDC

Cap unused leads with wire nuts and tuck inside junction box (not provided)

NOTE: Valves incorporating supervisory tamper switches are for **indoor use only**.



Milwaukee Valve Company
2375 South Burrell Street
Milwaukee, Wisconsin 53207-1592
Telephone 414/744-5240
FAX 414/744-5840



For Commercial, Institutional and Industrial Applications

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

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

Series 530C Calibrated Pressure Relief Valves

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

Series 530C Calibrated Pressure Relief Valves are spring operated brass valves designed for use only as protection from the build up of excessive pressure in systems containing water, oil or air. Series 530C valves incorporate a calibrated adjustment feature for setting the valve to the relief pressure required. These valves are ideally suited for bypass thermal expansion relief.

Features

- Calibrated adjustment feature for setting valve to relief pressure required
- Adjustable range 50 – 175psi (3.4 – 12.1 bar)
- All brass construction
- All stainless steel spring
- Buna-N disc on machined body seat
- Inlet (bottom), male NPT threaded
- Outlet (side), female NPT threaded

Pressure – Temperature

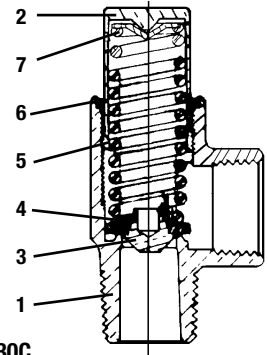
Maximum Temperature: 180°F (82°C)

Spring Ranges

1/2" or 3/4" (15 or 20mm): 50 – 175psi (3.4 – 12.1 bar)
 3/4" (20mm): 100 – 300psi (6.9 – 20.7 bar)

Application Note: The Watts Series 530C are not ASME approved safety relief valves and should not be used in system application with this requirement.

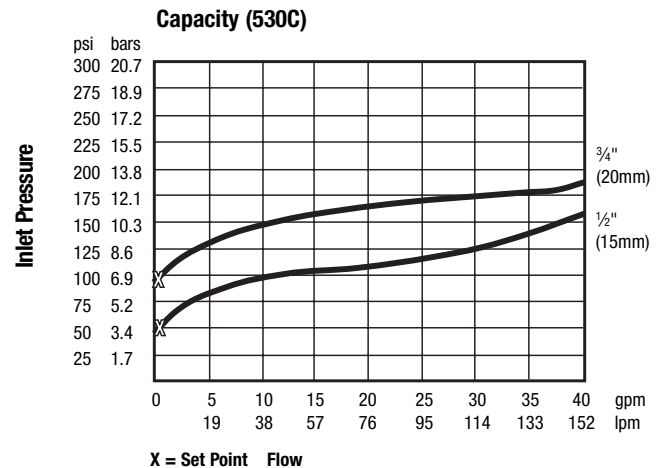
MODEL	SIZE (DN)		DIMENSIONS				WEIGHT	
	in.	mm	Height		Width		lbs.	kg.
530C	1/2 or 3/4	15 or 20	3	76	1 1/2	41	.37	0.17



Model 530C

Materials

- | | |
|----------------------|------------------|
| 1. Body | Brass |
| 2. Bonnet | Brass |
| 3. Disc Holder | Brass |
| 4. Disc | Buna-N (Nitrile) |
| 5. Adjustable Spring | Stainless Steel |
| 6. O-ring | Buna-N (Nitrile) |
| 7. Spring Washer | Brass |



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.



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

For Residential, Commercial, Industrial and Solar Applications

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

Series 600

Bronze Silent Check Valves

Sizes: 1/4" – 2" (8-50mm)

Series 600 Bronze Silent Check Valves efficiently perform all of the functions of a swing check or vertical lift check valve and at the same time operate silently to prevent the effects of water hammer.

Features:

- Conical brass disc for full fluid flow
- PTFE seat
- Install in horizontal or vertical position (consult factory for proper use in vertical installations)
- Low pressure drop equivalent to a swing check
- Stainless steel guide rod and spring (1 1/4" to 2")
- Silent operation
- Threaded ends

Specifications

A bronze silent check valve shall be installed as indicated on the plans. The valve shall have a conical brass disc, PTFE seat and silent operation. Pressure rating no less than 400psi (27.6 bars) WOG non-shock and 15psi (1 bar) WSP. Valve shall be a Watts Regulator Company Series 600.

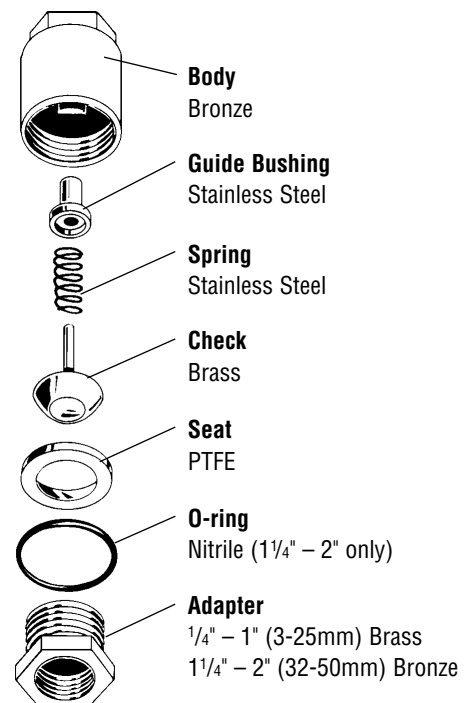
Application Notes

These valves are not suggested for installation in sewage ejector piping.

WARNING: Do not use for reciprocating air compressor service.

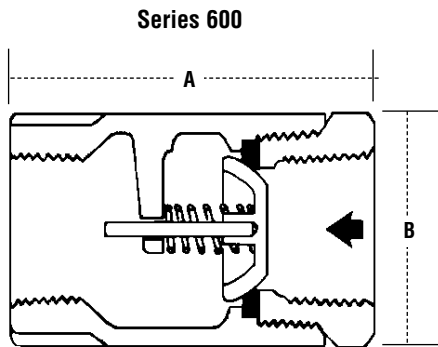


Materials



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Dimensions - Weights



SIZE (DN)		DIMENSIONS				WEIGHT	
		A		B			
<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lbs.</i>	<i>kg.</i>
¼	8	2½	54	1¼	32	.22	.1
⅜	10	2½	54	1¼	32	.5	.2
½	15	2½	54	1¼	32	.5	.2
¾	20	2½	64	1½	38	.75	.3
1	25	3½	79	2	50	1.38	.6
1¼	32	3¾	95	2½	64	2.13	1.0
1½	40	4	102	2¾	70	3.0	1.4
2	50	4½	114	3½	89	4.38	2.0

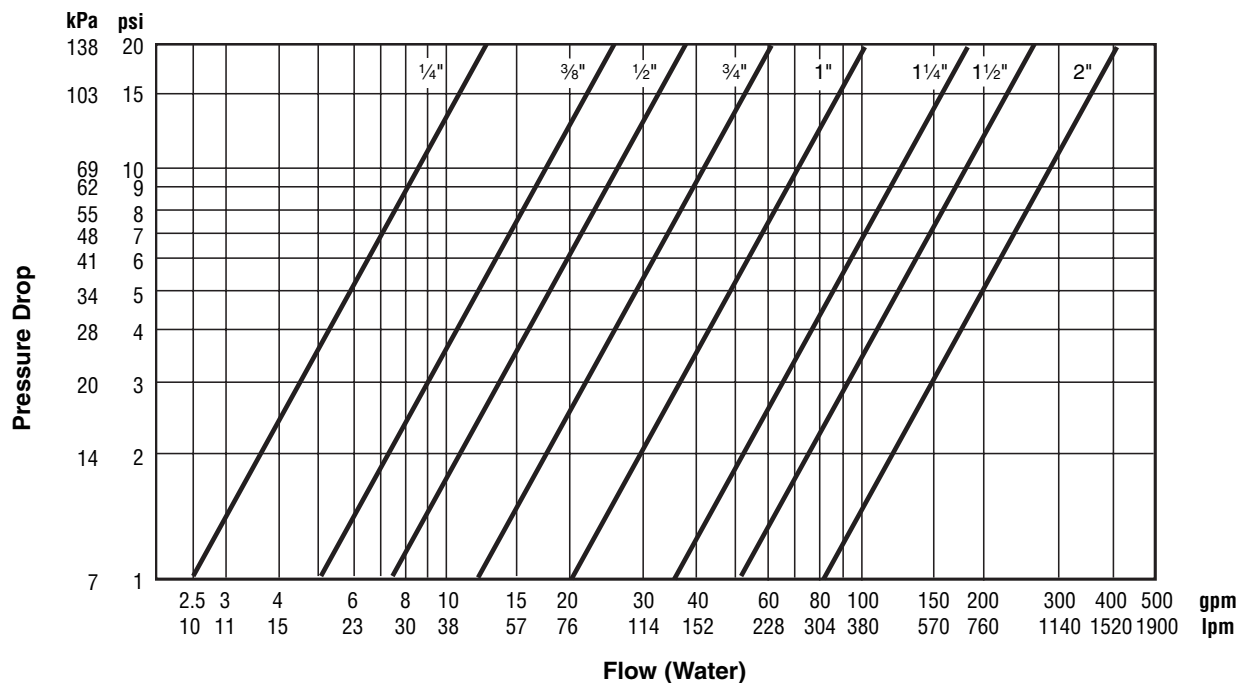
Pressure – Temperature

Maximum Working Pressure:

400psi (27.6 bars) WOG non-shock @ -20°F to 100°F
(-29°C to 38°C); 15psi (1 bar) WSP @ 250°F (121°C)

TEMPERATURE		PRESSURE	
<i>Fahrenheit</i>	<i>Celsius</i>	<i>psi</i>	<i>bars</i>
-20° to 100°	-29° to 38°	400	27.6
200°	93°	200	13.8
250°	121°	160	11.0

Pressure Drop vs. Flow



USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.wattsreg.com
Canada: 5435 North Service Rd., Burlington, ONT L7L 5H7; www.wattscanada.ca