

Command Station™

Lead-Free Thermostatic Mixing Valve
And Re-Circulating Station



DESCRIPTION:

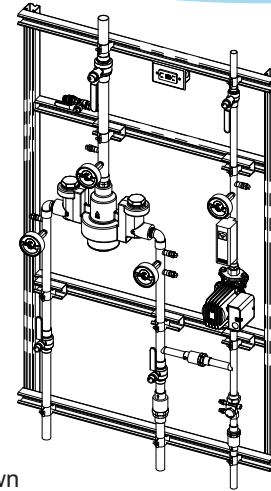
The Acorn Controls Command Station™ is a self-contained tempering and Re-Circulating system. Every system is factory assembled to a welded heavy duty mounting frame for simplified installation. The Acorn Command Stations are 100% factory tested and utilize the MV17 valve (or valves) which are IAPMO certified, at the published minimum flow, to exceed the performance requirements set forth in the ASSE 1017 standard. Acorn Controls Command Stations are designed to reduce the potential for improper piping, missed connections and/or failing to include key system control components that are common with contractor "design-as-you-build" types of installation. Acorn Controls Command Stations have a much smaller footprint and minimize material waste on site. For any future troubleshooting that may become necessary, a Command Station ensures you have quick and easy access to all key components needed for the process.

FEATURES:

- ◆ Lead-Free solid brass body with corrosion resistant and lead-free internal components.
- Integral checks with screens to prevent backflow and to filter debris from entering the valve.
- Temperature adjustment is made using an Allen wrench. A locknut on the bonnet prevents unauthorized or accidental temperature adjustment.
- Commercial quality thermal actuator provides repeatable, reliable performance.
- Includes lockable brass ball valves.
- Combination Temperature/Pressure gauges .
- Valves are IAPMO certified per ASSE 1017 and CSA B125.3.
- Factory assembled to a heavy duty, welded unistrut® for quick and easy installation. Assembly is pneumatically tested as a complete unit to 80 PSI (556 kPa).
- AGFCI receptacle for electrical components.
- The MV17 is capable of exceeding the temperature control accuracy requirements of ASSE 1017 at Zero GPM actual user demand. The system must include a continuously operating Re-Circulation pump capable of meeting the minimum flow rate shown on the included chart (.5 to 4 GPM based on the model) with a correctly adjusted balancing valve.
- Upgradable to Acorn BASyC™ (CSMV-1 is not Upgradable).

GUIDE SPECIFICATION:

Tempering valve and recirculation pump shall be provided within an Acorn Command Station™. Included will be combination temperature/pressure gauges on the inlets and outlet, full port lockable ball valves for service stops, cartridge-style inlet checks w/strainers, a hose connection for creating demand locally, a circuit setter (or thermostatic balancing valve), an Aquastat (optional), a 120V GFCI convenience outlet and a by-pass loop for ease of set-up. The entire assembly will be attached to a welded unistrut® frame for support and to assist in mounting the finished assembly. The complete assembly shall be air tested for the integrity of all connections. Checkstops are not acceptable as the inlet service stops. The assembly shall be lead-free. Acorn model Number CSMV-XXXXXX. Re-Circulation pump model _____.



CSMV-3 Shown



SPECIFICATIONS:

Patent Pending

Valve Specifications:

Maximum Operating Pressure: 125 PSI (861 kPa)
 Maximum Hot Water Supply Temp: 180°F (82°C)
 Outlet Temp. Range: 100°F-160°F (38°C-71°C)
 Minimum Hot Water Supply* 5°F (3°C)
 Above Set Point

Flow Rate at 45 PSI (310 kPa) differential:

MV17-1: 15 GPM (56.8 LPM)
 MV17-2: 45 GPM (170 LPM)
 MV17-3: 90 GPM (341 LPM)
 MV17-4: 150 GPM (568 LPM)
 MV17-5: 225 GPM (852 LPM)

Minimum Flow:

MV17-1: 0.5 GPM (1.9 LPM)
 MV17-2: 1 GPM (3.8 LPM)
 MV17-3: 2 GPM (7.6 LPM)
 MV17-4: 3 GPM (11.4 LPM)
 MV17-5: 4 GPM (15.1 LPM)

NOTE:

ASSE 1017 performance based on actual demand or recirculation pump flow rate or a combination of both. See FEATURES regarding control performance at ZERO GPM user demand.

* Under Normal Operating Conditions.

◆ The wetted surface of these valves contacted by consumable water contains less than 0.25% of lead by weight in conformance with national lead free law.

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Submission # **CSMV**
 Revised: 02/21/2020

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Certifications:

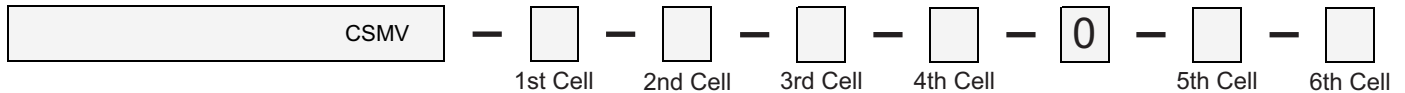


Est. 1954
ACORN ENGINEERING COMPANY
 Manufacturer of Engineered Products

Member of Morris Group International™

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ORDERING CODE FOR COMMAND STATIONS



INSTRUCTIONS: Create your custom CSMV ordering code using this guide from below.

1st CELL

Valve Sizes

MV17-1	1	MV17-1 - 15 GPM (56.8 LPM) (NOTE: This valve is not BASyC™ Ungradable)
MV17-2	2	MV17-2 - 45 GPM (170 LPM)
MV17-3	3	MV17-3 - 90 GPM (341 LPM)
MV17-4	4	MV17-4 - 150 GPM (568 LPM)
MV17-5	5	MV17-5 - 225 GPM (852 LPM)

Example for Cell 1

MV17-5.....5

2nd CELL

Return Pipe Size

1/2"	C
3/4"	D
1"	E
1-1/4"	F
1-1/2"	G
2"	H

If you include a recirculation pump then the return size must be provided.
Return piping includes check valves, ball valves and circuit setter.

Example for Cell 2

Include 1" Return PipingE

3rd CELL

Recirculation Pump

No Pump and No AquaStat	0
Pump with AquaStat Control	1
Pump Only	3

EXAMPLES FOR CELL 3

Incl. Pump and AquaStat..... 1
Pump Only..... 3

PUMP DETAILS:

MAKE/MODEL: _____
VOLTAGE: _____
OR
_____ GPM @ _____ FT. HEAD
VOLTAGE: _____

4th CELL

Auto Balancing Valve

No Automatic Balancing Valve	0
Thermostatic Balancing Valve (TBV)	5
Thermostatic Limiting Valve (TLV)	6

EXAMPLES FOR CELL 4

Include TBV 5
Include TLV 6

TBV or TLV requires return piping (2nd Cell) and replaces Circuit Setter. Pump details determine if the TBV or TLV can be supplied.

5th CELL

Cold Water By-Pass (One Pipe Size Smaller Than Inlet)

No Cold Water By-Pass	0
Cold Water By-Pass	1

EXAMPLES FOR CELL 5

Cold Water By-Pass..... 1 For a CSMV-5 The -CWB Will Be 1-1/4"

6th CELL

Hot Water By-Pass (One Pipe Size Smaller Than Inlet)

No Hot Water By-Pass	0
Hot Water By-Pass	1

EXAMPLES FOR CELL 6

Hot Water By-Pass..... 1 For a CSMV-5 The -HWB Will Be 1-1/4"

CSMV Revised: 02/21/2020

Acorn Controls warrants that its products are free from defects in material or workmanship under normal use and service for a period of one year from date of shipment. Acorn's liability under this warranty shall be discharged solely by replacement or repair of defective material, provided Acorn is notified in writing within one year from date of shipment, F.O.B. Industry, California.

SELECTION SUMMARY & APPROVAL FOR MANUFACTURING

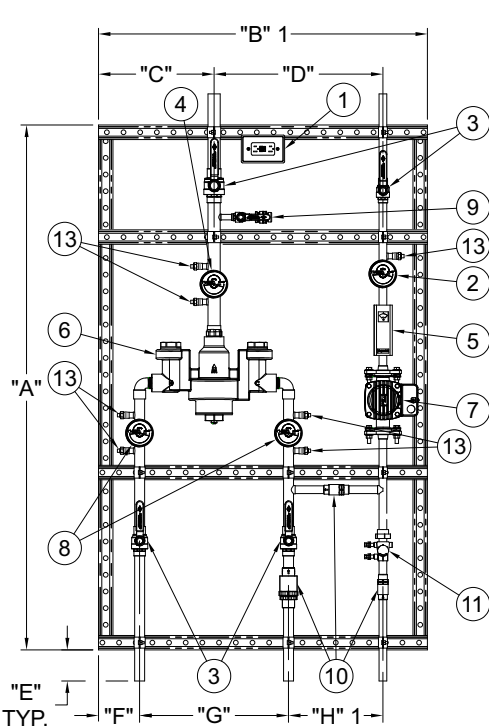
Model Number & Options _____ Quantity _____
Company _____
Contact _____ Title _____
Signature (Approval for Manufacturing) _____ Date _____

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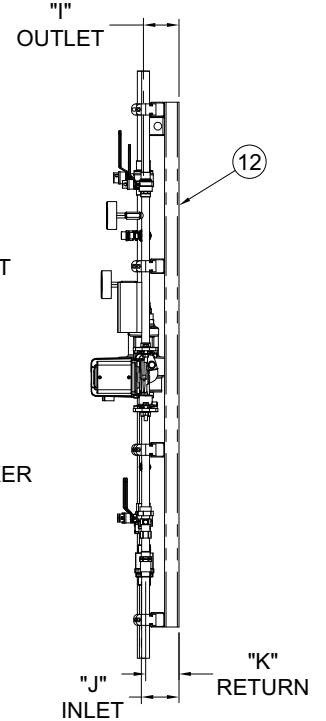
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TECHNICAL DIMENSIONS: LESS OPTIONAL -TBV



- ① 120V GFCI RECEPTACLE
- ② RETURN TEMP./PRESSURE GAUGE
- ③ LOCKABLE BALL VALVES
- ④ OUTLET TEMP./PRESSURE GAUGE
- ⑤ OPTIONAL SURFACE MOUNTED AQUASTAT
- ⑥ MIXING VALVE
- ⑦ RECIRCULATION PUMP, MUST SPECIFY WHERE INDICATED
- ⑧ INLET TEMP./PRESSURE GAUGES
- ⑨ 1/2" LOCKABLE BALL VALVE WITH 3/4" HOSE CONNECTION AND VACUUM BREAKER
- ⑩ CHECK VALVE
- ⑪ CIRCUIT SETTER
- ⑫ MOUNTING FRAME
- ⑬ SENSOR PORTS FOR UPGRADING TO ACORN BASyC™ SYSTEM



	INLET	OUTLET	"A"	"B" 1	"C"	"D"	"E"	"F"	"G"	"H" 1	"I"	"J"	"K"
CSMV-1	1/2" NCT	1/2" NCT	53-7/8" (1368)	29-1/2" (749)	8" (203)	14-7/8" (378)	3-1/2" (89)	4-1/4" (108)	7-1/2" (191)	11-1/8" (283)	2-1/8" (54)	2-1/8" (54)	2-1/8" (54)
CSMV-2	3/4" NCT	1" NCT	52-1/2" (1336)	30-1/2" (775)	9-1/2" (241)	15" (381)	3-1/2" (89)	4-1/4" (108)	10-1/2" (267)	9-3/4" (248)	2-1/4" (57)	2-1/4" (57)	2-1/4" (57)
CSMV-3	1" NCT	1-1/4" NCT	59" (1500)	37" (940)	13" (330)	19" (483)	3-1/2" (89)	4-5/8" (117)	16-3/4" (425)	10-5/8" (270)	4" (102)	4" (102)	3-3/4" (95)
CSMV-4	1-1/4" NCT	1-1/2" NCT	59" (1500)	37" (940)	13" (330)	19" (483)	3-1/2" (89)	4-3/8" (111)	17-1/4" (438)	10-3/8" (264)	3-3/4" (95)	3-3/4" (95)	3-3/4" (95)
CSMV-5	1-1/2" NCT	2" NCT	59" (1500)	37" (940)	13" (330)	18-3/4" (476)	3-1/2" (89)	4" (102)	17-7/8" (454)	9-7/8" (251)	4" (102)	4" (102)	3-3/4" (95)

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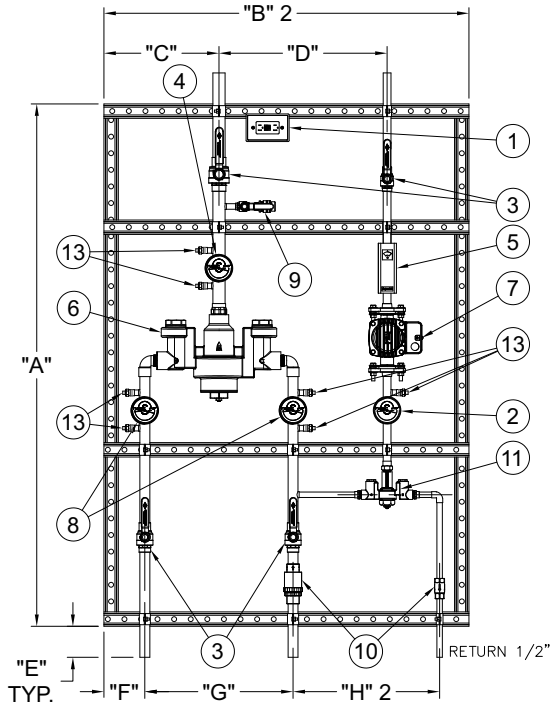
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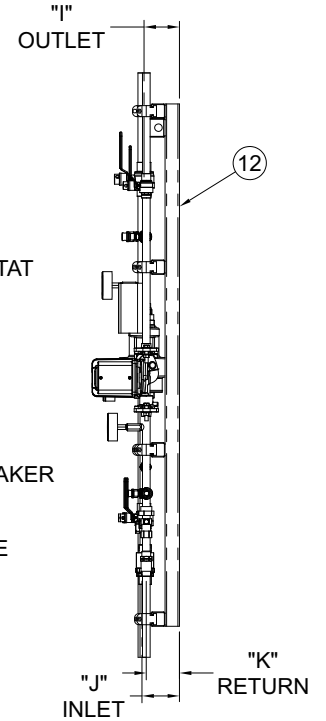
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- ⑪ -TBV THERMOSTATIC BALANCING VALVE
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CSMV-3	1" NCT	1-1/4" NCT	59" (1500)	41-1/4" (1048)	13" (330)	19" (483)	3-1/2" (89)	4-5/8" (117)	16-3/4" (425)	16-1/2" (419)	4" (102)	4" (102)	3-3/4" (95)
CSMV-4	1-1/4" NCT	1-1/2" NCT	59" (1500)	41-1/4" (1048)	13" (330)	19" (483)	3-1/2" (89)	4-3/8" (111)	17-1/4" (438)	16-1/2" (419)	3-3/4" (95)	3-3/4" (95)	3-3/4" (95)
CSMV-5	1-1/2" NCT	2" NCT	59" (1500)	41-1/4" (1048)	13" (330)	18-3/4" (476)	3-1/2" (89)	4" (102)	17-7/8" (454)	15-3/4" (400)	4" (102)	4" (102)	3-3/4" (95)

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