

# Command Station

## Lead-Free Thermostatic Mixing Valve And Re-Circulating Station



### DESCRIPTION:

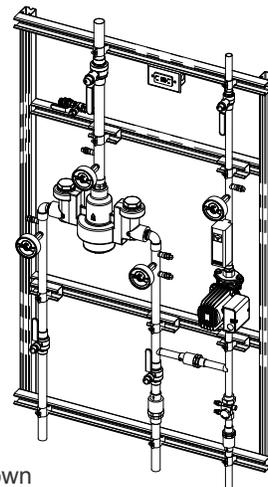
The **ACORN CONTROLS**® Command Station is a self-contained tempering and Re-Circulating system. Every system is factory assembled to a welded heavy duty mounting frame for simplified installation. The **ACORN CONTROLS**® Command Stations are 100% factory tested and utilize the MV17 valve (or valves) 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 CONTROLS**® BASyC™ (CSMV-1 is not Upgradable).

### GUIDE SPECIFICATION:

Tempering valve and recirculation pump shall be provided within an **ACORN CONTROLS**® 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 CONTROLS**® model Number CSMV-XXXXXX. Re-Circulation pump model \_\_\_\_\_.



CSMV-3 Shown



⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

### 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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#### Certifications:

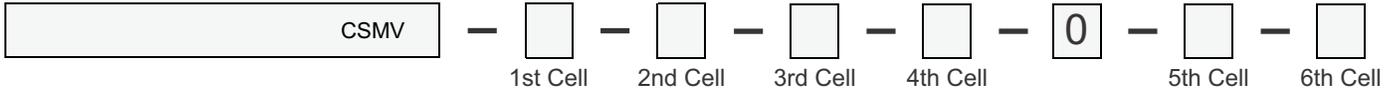


ASSE 1017  
 CSA B125.3



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**ORDERING CODE FOR COMMAND STATIONS**



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

1st CELL	
<b>Valve Sizes</b>	
MV17-1	1
MV17-2	2
MV17-3	3
MV17-4	4
MV17-5	5

MV17-1 - 15 GPM (56.8 LPM) (**NOTE:** This valve is not BASyC™ Ungradable)

MV17-2 - 45 GPM (170 LPM)

MV17-3 - 90 GPM (341 LPM)      **Example for Cell 1**

MV17-4 - 150 GPM (568 LPM)      MV17-5.....5

MV17-5 - 225 GPM (852 LPM)

2nd CELL	
<b>Return Pipe Size</b>	
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 Piping .....E

3rd CELL	
<b>Recirculation Pump</b>	
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	
<b>Auto Balancing Valve</b>	
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 (2ndCell) and replaces Circuit Setter. Pump details determine if the TBV or TLV can be supplied.

5th CELL	
<b>Cold Water By-Pass</b> (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	
<b>Hot Water By-Pass</b> (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"

**SELECTION SUMMARY & APPROVAL FOR MANUFACTURING**

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



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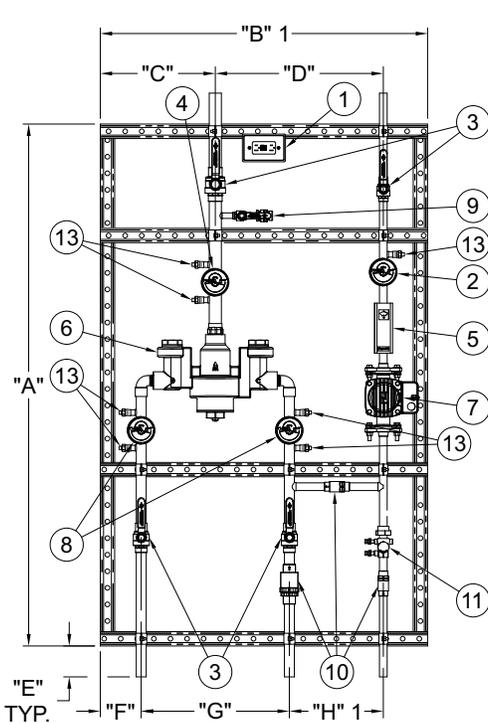
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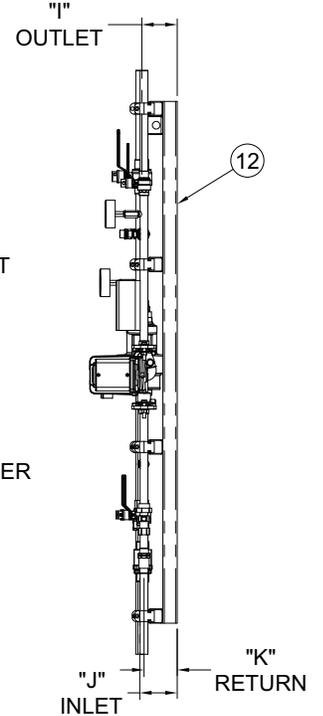


THERMOSTATIC MIXING VALVES

## 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 CONTROLS® 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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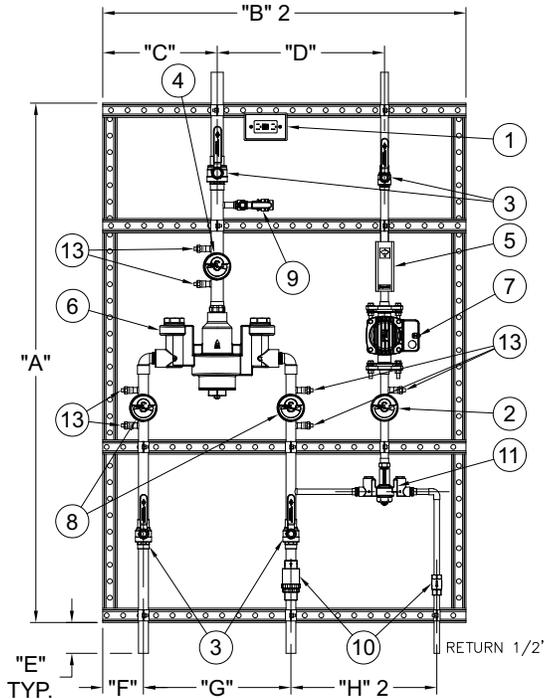
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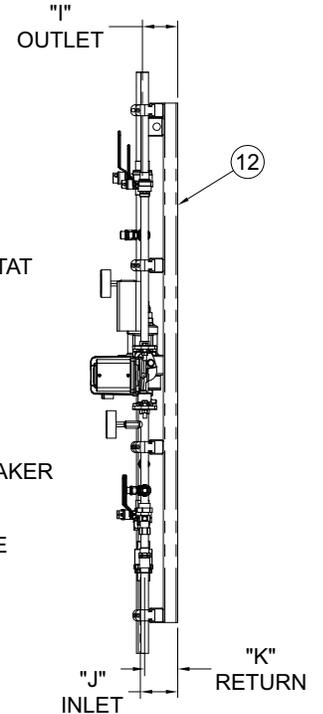


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- ⑩ CHECK VALVE
- ⑪ -TBV THERMOSTATIC BALANCING VALVE
- ⑫ MOUNTING FRAME
- ⑬ SENSOR PORT FOR UPGRADING TO CONTROLS® BASyC SYSTEM



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CSMV-2	3/4" NCT	1" NCT	52-1/2" (1336)	34-3/4" (883)	9-1/2" (241)	15" (381)	3-1/2" (89)	4-1/4" (108)	10-1/2" (267)	15-3/4" (400)	2-1/4" (57)	2-1/4" (57)	2-1/4" (57)
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)
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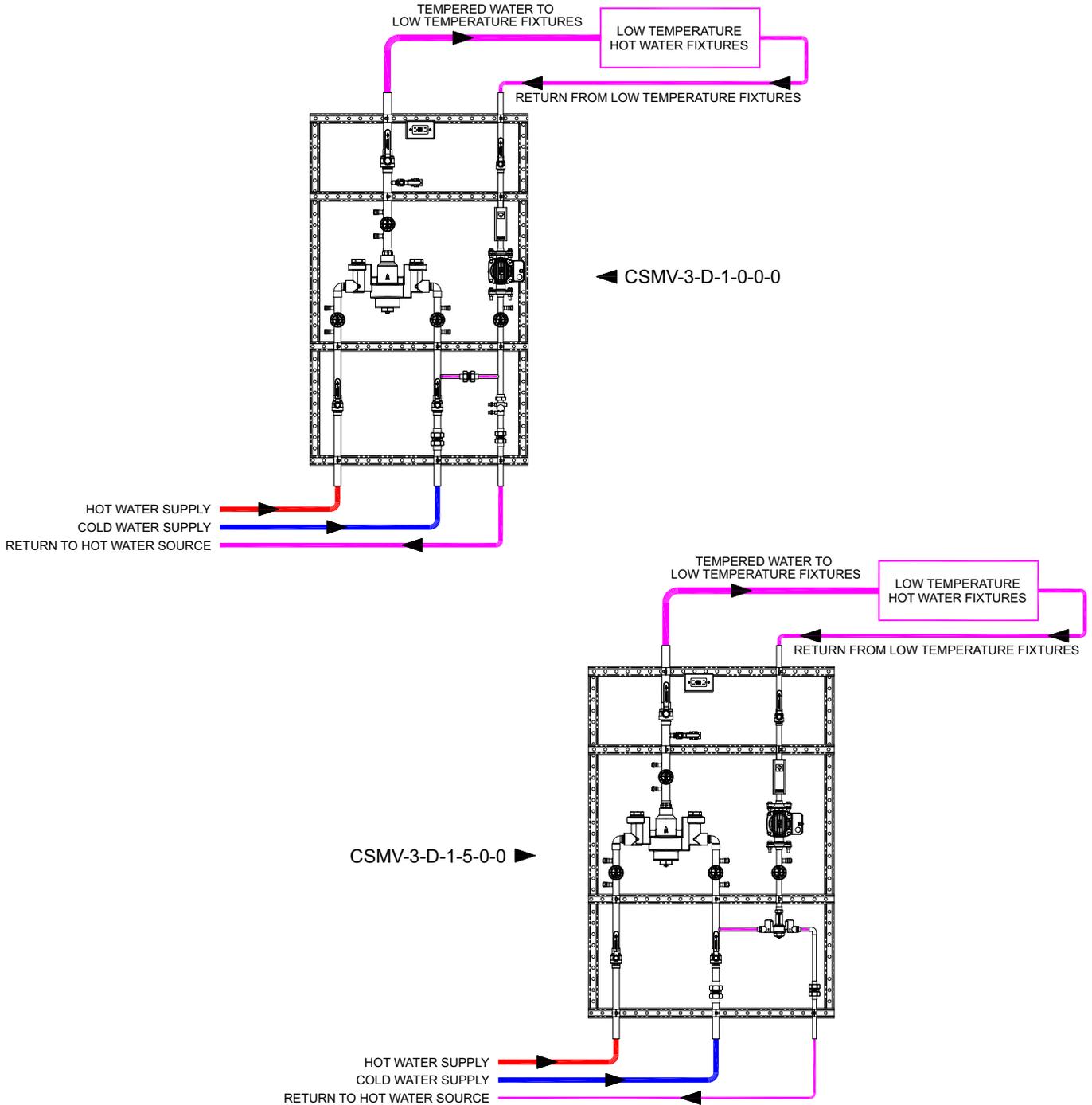
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## TYPICAL PIPING DIAGRAM:



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