

LAWLER



SERIES 66 THERMOSTATIC WATER CONTROLLER

**CONTROLLED OUTLET TEMPERATURE FOR MEDIUM TO
LARGE CAPACITY APPLICATIONS**



ASSE 1017 Approved



Certified to CSA B125.3

LAWLER MANUFACTURING CO. INC., www.lawlervalue.com

LAWLER SERIES 66 THERMOSTATIC MASTER CONTROLLER

Controlled outlet temperature for medium to large capacity applications.

FUNCTION

Lawler's Series 66 controller thermostatically mixes large quantities of hot and cold water or other liquids to deliver a constant outlet temperature.

THREE-WAY PROTECTION

1. Hot Supply Protection.
Responds automatically if the hot water supply is interrupted, or if the temperature changes.
2. Cold Supply Protection.
Guards against scalding if the cold water supply is interrupted.
3. Thermostat Protection.
Lawler's exclusive design cuts water flow if the thermostat's liquid motor fails.

APPLICATIONS

- Group Showers
- Progressive or Zone Showers
- Wash Bowl Systems
- Hydro-Therapy Equipment
- Industrial Processes
- Large Recirculating Lines
- Not to be used in Emergency Shower Applications

HIGH PERFORMANCE FEATURES

- Built with a powerful liquid thermal motor.
- Compensates for supply line temperature and pressure changes.
- Outlet flow is greatly reduced upon supply line or liquid motor failure.
- Inlets are supplied with union end angle stop and checks with built-in strainers.
- Inlets are fully rotatable through 360° and outlet is rotatable through 360° in 90° increments—full flexibility is provided for roughing in the valve.
- Tamper-resistant control adjustment.
- Rugged design equipped with stainless steel piston and liner.
- Easy-maintenance valve can be completely repaired without being removed from the system.

When safety is important, specify Lawler.

TECHNICAL DATA

Maximum Inlet Conditions

Pressure: 125 psig
Temperature: 200°F

Recommended Conditions

Minimum Flow

15% of nominal rating at 45 psi

Minimum Temperature Differential

Hot and cold water inlets must have a minimum 20°F differential from the outlet set temperature.

Performance

The Series 66 controllers will maintain outlet temperature under any of the following conditions, providing the recommended minimum flow and minimum supply temperature differentials are not exceeded:

- reduction of 85% of rated flow
- 30°F change in hot water temperature
- 30°F change in cold water temperature
- 30% drop in inlet supply pressure

Temperature Adjustment

Temperature adjustment is from full cold to the maximum temperature set point.

Standard Thermostat Range	Standard Max. Outlet Temperature Set Point
50-100°F	80°F
85-135°F	110°F
100-150°F	130°F

The maximum set point is adjustable within the thermostat range. Alternate set points and thermostat ranges are available by special order.

FINISH

- Rough Brass
- Polished Chrome
- White Chrome
- Special
- PTFE Coating
- Nickel Coating

For the best in high/low performance specify the Lawler 800 Series.

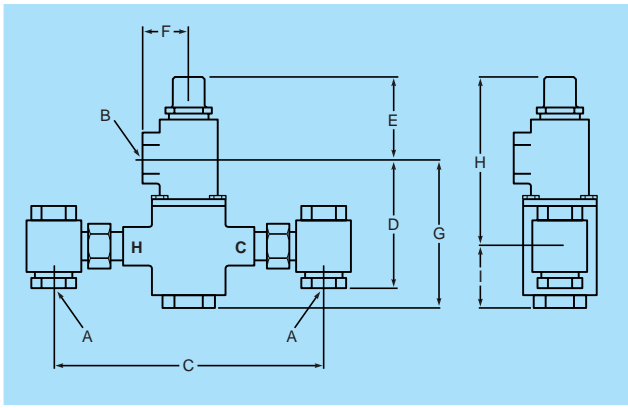


Table 1-Dimensions

No.	A NPT.	B NOT.	C	D	E	F	G	H	I	WT (lbs)
66-25	3/4"	3/4"	10"	5 1/8"	3 3/4"	1 3/4"	6 3/8"	7 5/8"	2 1/2"	17
66-50	3/4"	1"	10"	5 1/8"	3 3/4"	1 3/4"	6 3/8"	7 5/8"	2 1/2"	17
66-80	1"	1 1/4"	11"	5 1/4"	3 3/4"	1 7/8"	6 3/8"	7 5/8"	2 1/2"	19
66-125	1 1/4"	1 1/2"	12 3/4"	5 5/8"	4 1/8"	2 1/4"	7"	8 1/8"	3"	25
66-150	1 1/2"	2"	13 1/4"	5 7/8"	4 1/8"	2 1/4"	7"	8 1/8"	3"	28
66-200	2"	2"	15"	6 1/2"	4 1/8"	2 1/4"	7"	8 1/8"	3"	35

Table 2-Capacities

Pressure Drop P.S.I.	5	10	20	30	45	Minimum Flow
Valve Number	Capacity-GPM					
66-25	9	12	17	21	25	3.75
66-50	18	25	34	41	50	7.5
66-80	28	39	54	66	80	12.0
66-125	43	60	85	103	125	18.75
66-150	52	72	100	124	150	22.5
66-200	64	96	133	165	200	30.0

TYPICAL SPECIFICATION

Master water mixing control valve shall be of the thermostatic type with liquid filled motor. It shall have bronze body construction with corrosion resistant components. Valve construction shall employ sliding piston control mechanism. Piston and liner shall be of stainless steel material. Valve shall come equipped with removable union end stop and check inlets with stainless steel strainers. Temperature adjustment shall be tamper resistant. Valve shall provide protection against hot or cold supply line failure and thermostat failure.

To size a thermostatic master controller for domestic hot water service, Lawler recommends the following.

The method used for sizing thermostatic master controllers for peak demand is based on the Hunter Curve Method for sizing instantaneous and semi-instantaneous heaters.

Example: To determine the hot water flow rate for sizing a master controller for a 600 student elementary school with the following fixture count: 60 Lavatories, 6 Service Sinks, 4 Kitchen Sinks, 6 Showers.

TABLE 2-Fixture Unit Count

60 Lavatories	X 1.0	FU = 60 FU
6 Service Sinks	X 2.5	FU = 15 FU
4 Kitchen Sinks	X 0.75	FU = 3 FU
6 Showers	X 1.5	FU = 9 FU
Subtotal		87 FU

At 87 fixture units, curve D of Table 3 shows that a total flow rate of approximately 18 g.p.m. is required.

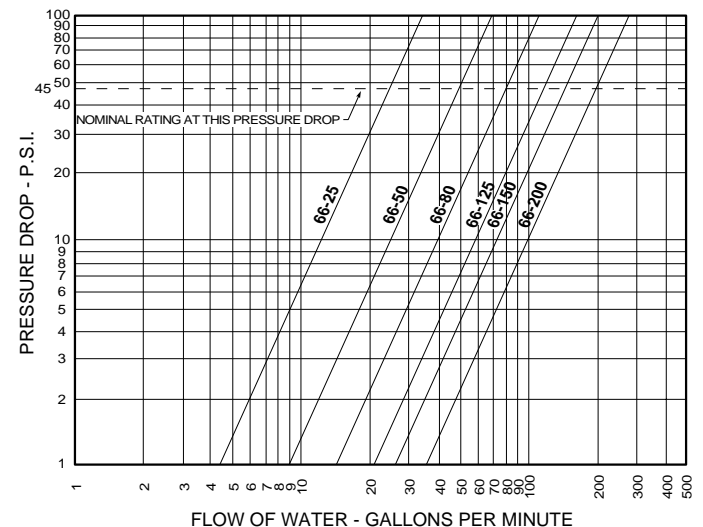
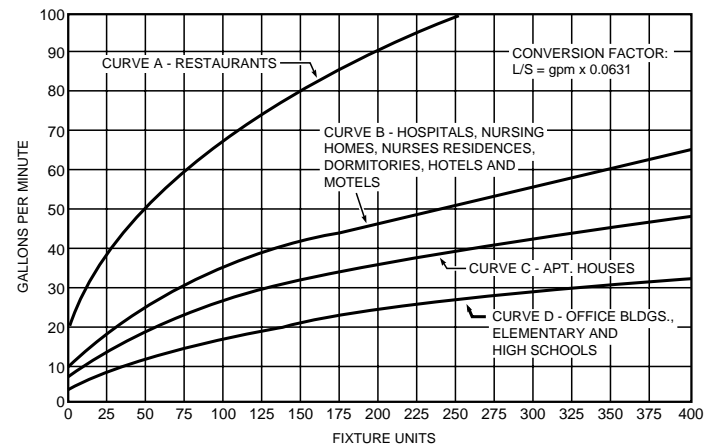
Next, the allowable pressure drop at the point of installation will need to be determined. Because all systems are different, this will have to be determined by the engineer designing the system.

Once the flow rate, minimum flow rate and allowable pressure drop have been determined, consult the flow curves for proper valve selection.

Assuming an allowable pressure drop of 10 psi and a flow rate of 18 gpm is required, select a mixing valve.

Note: Minimum flow requirements must be met for each valve and each application.

Table 3-Modified Hunters Curve



Typical Installation

Install the mixing valve below the hot water tank or heater. If this is not possible, pipe in a heat trap as shown in Figure 1 with an approximate 2' drop.

Connect a tempered water return line as shown in Figure 1. This allows flow through both ports of the mixing valve during periods of no draw.

If a dual temperature system is used, a separate recirculating loop and pump are required to return high temperature hot water to the water heater. See Figure 2.

Install an aquastat at the tempered water return pump.

Install the water heater per manufacturer's instructions.

Setting The Mixing Valve To The System

1. After installations be sure to flush the system thoroughly.
2. Make sure the hot water supply is heated to normal design temperature.
3. Close and tag all fixtures to ensure they are not used during this procedure.
4. Turn off the recirculating pump.
5. Create a draw on the system greater than the minimum flow rating of the mixing valve. All open fixtures must be tagged to ensure they are not tampered with or used during this procedure.
6. Allow water to flow through the mixing valve until the water temperature is stable. If necessary, re-adjust the mixing valve in accordance with the TEMPERATURE ADJUSTMENT section of the installation manual.
7. Once the temperature is set, start the recirculating pump and allow the system to reach set temperature.
8. Measure the water temperature at the return pump and adjust the aquastat to shut off the pump should the return water exceed the set point by 2°F. Set the low limit switch to restart the return pump when return water drops 5°F below the set temperature.
9. Set the balancing valve in the full open position.
10. Shut off all fixtures and ensure there is no draw on the system. The cold inlet to the mixing valve should be warm.
11. Allow the system to run in this condition for at least 30 minutes.
12. In some cases, an increase in water temperature may occur during a no draw period. If this occurs, slowly close the balancing valve until the water temperature is back to the original set temperature.

Figure 1

Typical Installation

When used in a single temperature recirculating system

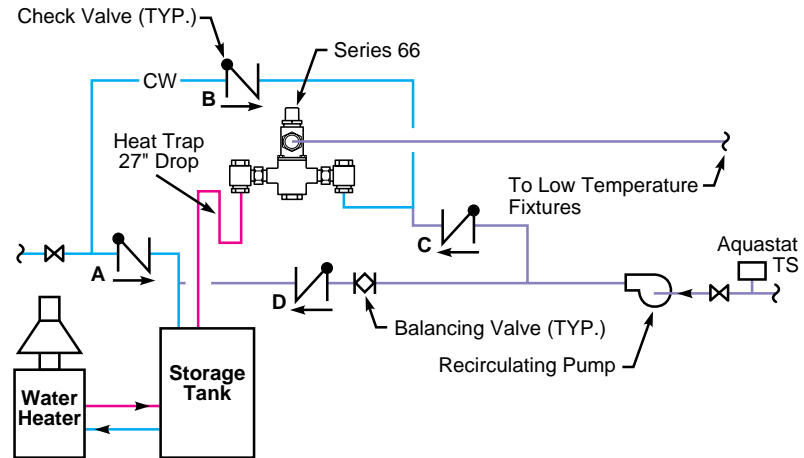
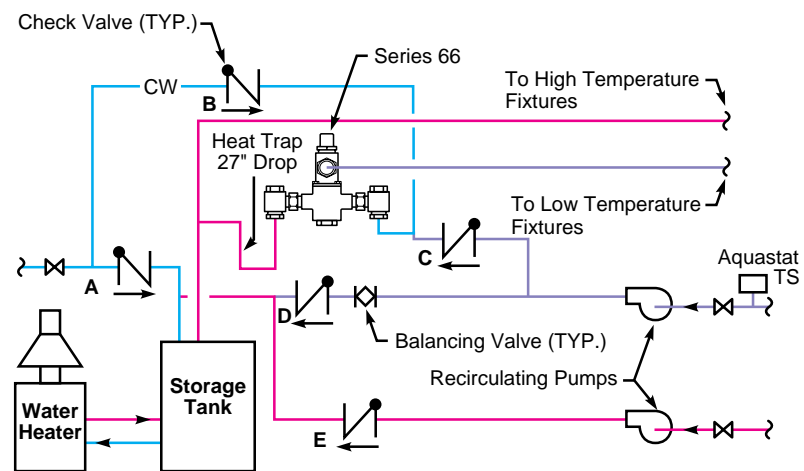


Figure 2

Typical Installation

When used in a dual temperature recirculating system



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