

High-Low Temperature Control System

HL 150, 200, 250

INSTALLATION INSTRUCTIONS

APPLICATION

Honeywell High-Low Control System provides energy savings, increased comfort and safety for the user. The Control System provides mixing of hot and cold water to produce tempered water for industrial or commercial applications requiring accurate control of domestic hot water temperature during all capacity flow rates from low to high, such as the following applications:

- Apartment Buildings
- Nursing Homes
- Hospitals
- Hotels
- Industrial Plants
- Office Buildings
- Schools
- Gymnasiums

SPECIFICATIONS

Typical specifications for Honeywell's HL Series High-Low Temperature Control System consist of a high-capacity and a low-capacity Thermostatic Mixing Valves with a Pressure Regulating Valve manifolded to allow low demand to be controlled by the low-capacity Mixing Valve. As demand for hot water increases, the large capacity Mixing Valve is added to the system output by the Pressure Regulating Valve. The system shall have internal isolation ball valve / check valves to prevent crossflow thermal migration and to allow replacement of major components without shutting the entire system down. It shall have a recirculation port connection to provide a place for an optional recirculation system to be connected (please contact your local Honeywell representative for more information). A digital temperature indicator for the mixed output shall be provided. The temperature control system shall have a tamper-proof adjustable output from 110° F to 150° F (43° C to 66° C). It shall have a cold water inlet, a hot water inlet, and a controlled mixed water temperature outlet.

Model:

HL150, HL 200, HL 250 High-Low Temperature Control System

Materials:

Mixing valves: Bronze/stainless steel, with Teflon® coated wear surfaces to prevent mineral deposits.

Demand:

Constant water temperature under low through high capacity demand periods.

Mixing Valves:

Union tailpieces installed on both mixing valves for ease of maintenance.

Water Control:

Proportional valve for control of hot and cold water.

Differential:

7 Psi maximum differentials between hot and cold ports.

Inlet Pressure:

150 psig maximum.

Inlet Temperature:

Hot Water: 200° F (93°C) maximum.

Temperature Difference:

Minimum 10°F (6°C) between hot and mix.

Connections:

HL 150: 1 ¼" inlet, 1 ½" outlet, NPT connection.
HL 200: 2" inlet, 2" outlet, NPT connection.
HL 250: 2" inlet, 2 ½" outlet, NPT connection.

Recirculation (Optional):

Recirculation port in small mixing valve for fast response.

Approvals:

High Capacity and Low Capacity MX Series Mixing Valves: ASSE (Std.1017) certified.
DialSet® Pressure Regulating Valve: ASSE (Std.1003) certified.

Special Tools:

Allen wrenches included for temperature setting adjustments.

Flow Control:

Flow reduction in seconds if cold water supply is interrupted.

Dimensions:

See Fig. 1, Fig. 2, and Table 1.



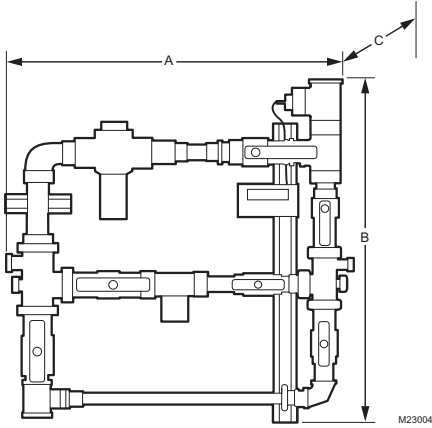


Fig. 1. HL 150, 200 & 250 Dimensions

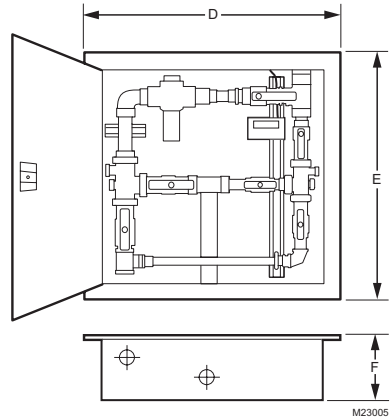


Fig. 2. HL 150, 200 & 250 cabinet option dimensions

Table 1. High-Low Temperature Control System Dimensions

DIMENSIONS						
Product Number	A	B	C	D	E	F
HL 150	30"	36"	8"	34"	40"	10"
HL 200	38"	44"	9"	44"	48"	10"
HL 250	40"	44"	9"	44"	48"	10"

Reference Guide

Table 2 shows the HL Systems' inlet/outlet port sizes, weight, flow, and flow vs. pressure drop for the different HL System models. The combination of small and large

mixing valves controlled by a Pressure Regulating Valve assures that the HL System will provide a constant output temperature.

Table 2. High-Low Temperature Control System

Product Number	Inlet Port Size	Outlet Port Size	Weight Lbs.	Minimum Flow	Flow vs. Pressure Drop					
					System Differential Pressure (Psi)					
					5	10	15	20	30	
HL 150	1 1/4"	1 1/2"	58	1.0 GPM	18	30	38	44	57	GPM
HL 200	2"	2"	80	1.0 GPM	24	40	54	68	84	GPM
HL 250	2"	2 1/2"	105	3.5 GPM	40	70	96	120	150	GPM

INSTALLATION

When Installing this Product...

1. Read these instruction carefully. Failure to follow instructions could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained experienced service technician.

4. After installation is complete, check out the product operation as provided in these instructions.

Installer Requirements

1. Fill in measured discharge temperature on caution label.
2. Attach CAUTION labels to both of the Mixing Valves.
3. Explain the CAUTION label to owner.
4. Leave this Installation Instruction document with the owner or on the job site.

Setup

1. The Honeywell High-Low Temperature Control System must be installed per Fig. 3.

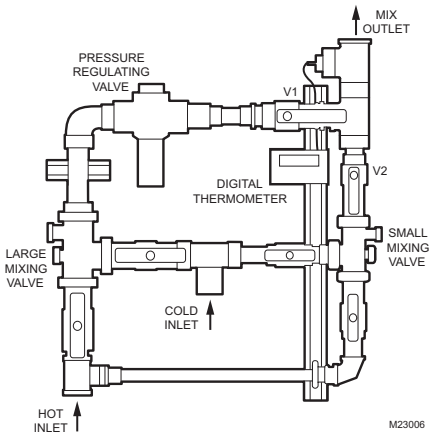


Fig. 3. High-Low Temperature Control System Setup

2. Verify that the hot water and cold water supplies are fully operational.
3. Close the Outlet Ball Valve (V1) of the Large Mixing Valve and fully open all other ball valves.
4. Open downstream fixtures to achieve approximately 2 GPM of flow through the Small Mixing Valve.
5. Using the allen wrench supplied, set the Small Mixing Valve 10°F less (i.e. at 110°F) than the final outlet mix temperature (120°F), as read on the digital thermometer.
6. Close the Outlet Ball Valve (V2) to the small mixing valve and fully open the Outlet Ball Valve (V1) to the large mixing valve.
7. Open additional down-stream fixtures to achieve approximately 4 GPM of flow through the large mixing valve.
8. Using the allen wrench supplied, set the large mixing valve to the final outlet mix temperature (120°F).
9. Increase the system flow rate to approximately 12 to 14 GPM by opening downstream fixtures.
10. Open the Outlet Ball Valve (V2) to the small mixing valve.
11. Observe the outlet temperature. Temperature should drop by approximately 6 to 7° F (114°F to 113°F).
 - If temperature drops more than 7°F, adjust the pressure-regulating valve clockwise until the temperature difference is 7°F.
 - If the temperature drops less than 6°F, adjust the pressure regulating valve counter-clockwise until the temperature difference is 6°F.
12. Shut the Outlet Ball Valve (V1) for the large mixing mixing valve.
13. Decrease the system flow rate to approximately 2 GPM by closing downstream fixtures.
14. Using the allen wrench supplied, set the small mixing valve to final outlet mix temperature (120°F).
15. Open the Outlet Ball Valve (V1) for the large mixing valve.
16. Set up procedure is complete and system is operational.

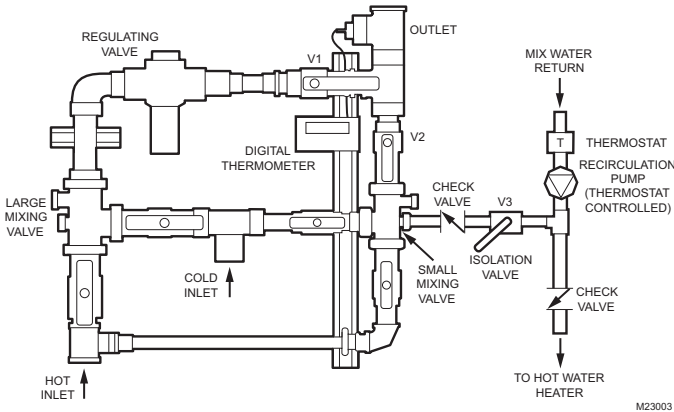


Fig. 4. HL Series High-Low Temperature Control System with Recirculation Pump installed.

Recirculation Instruction

- The return of the recirculation loop must be piped to the recirculation port on the Small Mixing Valve and to the Hot Water Heater.
- Thermostatic control of Recirculation Pump is recommended. If the system is subject to no draw,

- thermostatic control is required. Thermostat should stop the Recirculation Pump when the return temperature reaches 90° - 100°F.
- Use Recirculation Adapter, part number MX050-RP, supplied with High-Low System.

Operation

Automatic operation is provided by thermostatic element. The element will control the hot and cold water supply based on valve settings. If cold water is shut off, valves will reduce the mixed flow rate in seconds (speed / residual flow rate varies by size).

A combination of small and large mixing valves controlled by a Pressure Regulating Valve assures constant temperature from low through maximum recommended GPM for the High-Low Control System Selected (see Table 2).

Teflon® is a registered trademark of E.I. Du Pont De Nemours and Company.

DialSet® is a registered trademark of Honeywell, Inc.

Automation and Control Solutions

Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN 55422
customer.honeywell.com

Honeywell Limited-Honeywell Limitée
35 Dynamic Drive
Scarborough, Ontario M1V 4Z9

Honeywell

