

## INSTALLATION AND OPERATING INSTRUCTIONS

# Astro Express LF Valve

### TYPICAL APPLICATIONS

The Armstrong Astro Express LF (Lead Free\*) valve is an integral part of the Astro Express hot water delivery system.

The Armstrong Astro Express hot water delivery system ensures that you have hot water at the tap when you need it, while helping you to conserve water. It's easy to install, and does not require special return piping to the water heater.

Equipped with a high performance circulator and adjustable flowrate injection valve, the Astro Express 2 system is a "one-size-fits-all" solution for virtually any residential installation. The Astro Express is the ideal solution for existing home retrofit where recirculation system return line installation is impractical, or new home construction where dedicated hot water return line installation is cost prohibitive.

### HOW IT WORKS

The Armstrong Astro Express hot water delivery system utilizes a circulator for water heater mounting, and a valve for under-sink mounting.

In operation, the circulator creates differential pressure across the Astro Express valve. When the water at the hot water faucet cools below the Astro Express valve low temperature setpoint, the valve opens, allowing the cooled water to be injected into the cold water line. When the water reaches the valve high temperature setpoint, the valve closes.

The valve is equipped with a flowrate adjustment to enable setting the desired temperature balance. Additionally, the valve is equipped with a check valve to prevent cold water backflow when the hot water faucet is opened.



### INSTALLATION

**WARNING:**

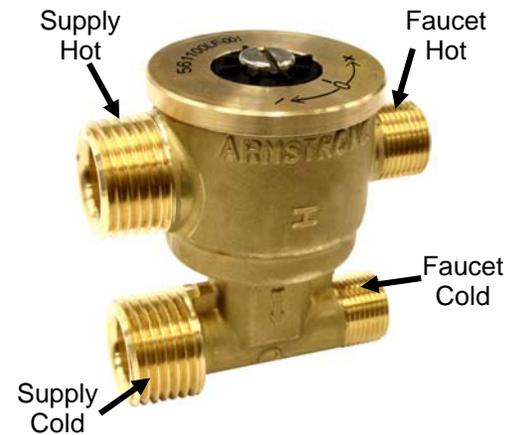
- Installation should only be completed by qualified personnel, in accordance with all applicable codes, and following generally accepted installation practices.
- Ensure the hot and cold water supply and circulator power supply is turned off before installation, to avoid personal injury or damage to property.
- Read and understand these instructions thoroughly before beginning the installation.

**CAUTION:**

Prior to installation, flush all piping of any foreign material to prevent pump blockage or damage.

## PROCEDURE

1. Ensure the circulator is installed according to the manufacturer's instructions to pump hot water away from the heater.
2. Connect the hot and cold water supply to the Astro Express valve 1/2" threaded inlets. (Stainless steel flex hose recommended.)
3. Connect the hot and cold Astro Express LF valve 3/8" threaded outlets to the faucet. (Stainless steel flex hose recommended.)
4. Secure the valve to the wall under the sink, using the plastic wall anchor and screw provided, as appropriate.
5. Check the installation for leaks:
  - I. Ensure the faucet is closed.
  - II. Open the hot and cold water supply valves.
  - III. Open the faucet hot and cold taps to purge all air from the system. Close the faucet.
  - IV. Inspect all piping connections for leakage. If a leak exists, close hot and cold supply valves until leaks are corrected.
6. Connect power to the circulator, and verify operation.



## SETTING THE VALVE

The Astro Express LF valve is factory set to suit most applications. The valve may be easily adjusted to suit application conditions and personal preferences.

1. To increase the water temperature at the hot-water tap, turn the flowrate adjustment counter clock-wise one or two increments.
2. To decrease the water temperature at the cold-water tap, turn the flowrate adjustment clock-wise one or two increments.
3. To completely stop flow through the valve, turn the valve completely closed by turning the flowrate adjustment fully clockwise.

If necessary to achieve the desired water temperature control, set the circulator timer to cycle the circulator on/off during the anticipated hot water demand period, in combination with valve adjustment.

Allow ample time (at least several hours) after valve or timer adjustment, for the system temperature to stabilize, prior to evaluating the result of the adjustment.



## TECHNICAL DATA

ASTRO EXPRESS LF VALVE	
Housing	Forged Eco brass* with Noryl cap
Internal Components	Stainless steel and plastic with EPDM o-rings, drinking water-friendly parts
Connections	Threaded, 1/2" hot & cold inlets, 3/8" hot & cold outlets
Environment	Indoor use only
Flowrate Adjustment	0 – 100%, multi-turn slotted screw
Max. Working Pressure	100 psi (689 kPa)
Max. Water Temperature	140°F (60°C)
Maintenance	Self-cleaning filter, requires no maintenance
Mounting	Plastic wall anchor with screw

\*Complies with section 116875 of the California Health and Safety Code and Vermont Act 193 (Lead content of all wetted surface is 0.25% or less)

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