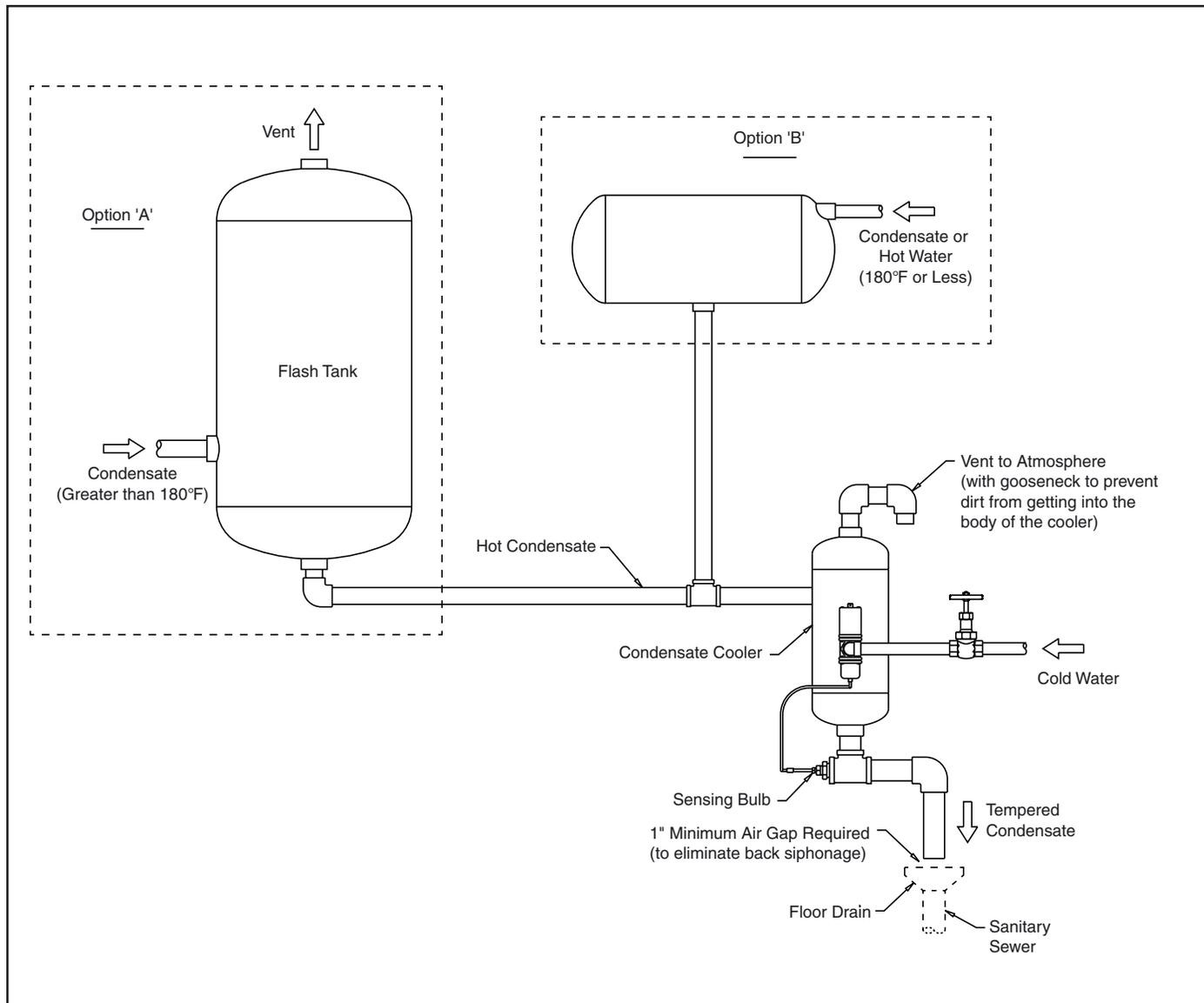




## Model CC-5, CC-12, CC-25 and CC-40 Condensate Cooler and Liquid Tempering Device Installation and Maintenance Instructions

*This bulletin should be used by experienced personnel as a guide to the installation of the Model CC-5, CC-12, CC-25 and CC-40 Condensate Cooler. Selection or installation of equipment should always be accompanied by competent technical assistance. You are encouraged to contact Armstrong International, Inc. or its local representative for additional information.*

### Typical Installation



**Note:** Cooler can also be used with heat exchangers or any application that requires the hot water or condensate temperature to be tempered. When using this device to cool hot condensate, it is required to vent all flash steam prior to piping into the body of the cooler. The body and vent of the cooler are not sized to be a flash tank.

## Application

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The Armstrong Condensate Cooler is a device that mixes hot condensate or hot water with a cold water supply to reduce the temperature to acceptable discharge drain temperatures as required by city and state codes. It is a pre-assembled package that is suitable for any plumbing system. When hot condensate or hot water is drained into the body of the cooler, the tempering valve opens on a rising temperature and allows cold water to enter the chamber and mix with the hotter liquid, cooling it to a preset temperature level of 135°F (57°C). The tempering valve has a field adjustable range of 115 to 180°F (46 to 82°C).

## Installation Instructions

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1. This model is shipped as two separate components to avoid damage. The main body should be installed first and the regulating valve second. After you have isolated the system you are ready to install the Condensate Cooler. Use teflon tape or pipe dope at all connections. The selected Condensate Cooler model body is screwed into the drain line of your particular application. It should be mounted in the vertical position with vent in the upwards position and hard piped to assure minimal movement in piping to prevent leaking or damage to the unit.
2. Flush liquid lines to remove filings, chips and other foreign matter before connecting the regulating valve and then again isolate system.
3. With the main body in the proper position, screw the regulating valve body on to the malleable iron fittings, attaching it to the cold water inlet of the main body.
4. Cold water should then be piped to the cold water inlet of the regulating valve body. The CC-5 has a 3/8" NPT connection, the CC-12 has a 3/4" NPT connection, the CC-25 and CC-40 have a 1" NPT connection.
5. Make sure that cold water line connections flow through the valve in the direction of the arrow on the brass regulating valve.
6. Insert the sensing bulb into the outlet of the main body. The unit comes complete with the fittings needed to make this connection.
7. The tempered liquid is then hard piped to a service drain. Allow a minimum of 1" distance between piping and drain for recommended air gap to eliminate back siphonage (see typical installation).
8. The service or floor drain should be at least the size of the Condensate Cooler discharge connection.
9. Verify and check for loose connections. Tighten where needed to eliminate leakage.
10. The self actuating temperature regulating valve is factory preset to temper to 135°F (57°C). If higher or lower discharge temperatures are desired, the tempering valve is field adjustable in the range of 115 - 180°F (46 - 82°C).

## Adjustment Procedures

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1. Verify that the model you have selected has sufficient capacity for your application.  
CC-5 5gpm (19 lpm) with 180°F (82°C) hot liquid  
CC-12 12 gpm (45 lpm) with 180°F (82°C) hot liquid  
CC-25 25 gpm (95 lpm) with 180°F (82°C) hot liquid  
CC-40 40 gpm (151 lpm) with 180°F (82°C) hot liquid
2. To raise valve set temperature, turn adjusting screw (counter-clockwise).
3. To lower valve set temperature, turn adjusting screw (clock-wise). Closing point is non-adjustable - approximately 3 to 5°F below opening point.
4. The valve regulates the flow of water to maintain your desired temperature. (The valve opens on a temperature increase at the sensing bulb and the valve closes on a temperature decrease at the sensing bulb.)

# Troubleshooting Guide

Problem	Cause	Solutions
<b>Cannot get down to desired set</b>	Capacity of hot liquid greater than model can handle	Check with Armstrong for other options or models. *Check your application with the given formula below to check capacity based on any changing variables
	Cold water temperature is too hot	Verify seasonal changes and adjust if possible.
	Cold water pressure is too low	Adjust pressure
	Cold water piping is too small	Increase pipe sizes
<b>Discharge Temperature Unstable</b>	Thermal element of the tempering valve is faulty	Install new tempering valve

\* **IMPORTANT:** In regards to the CC-5, CC-12, CC-25 and CC-40 the 5, 12, 25 and 40 represent the total tempered water capacity (in GPM) of the unit. The following formula should be used to determine how much hot water or condensate can be cooled:

$$\frac{B-C}{H-C} \times \text{Model} = \text{gallons of hot liquid or condensate}$$

$$\text{Example: } \frac{135 - 50}{180 - 50} \times 5 \text{ (CC-5)} = 3.25^*$$

$$*3.25 \text{ gal} \times 8.33 \text{ lbs per gallon} \times 60 = 1624 \text{ lbs per hour}$$

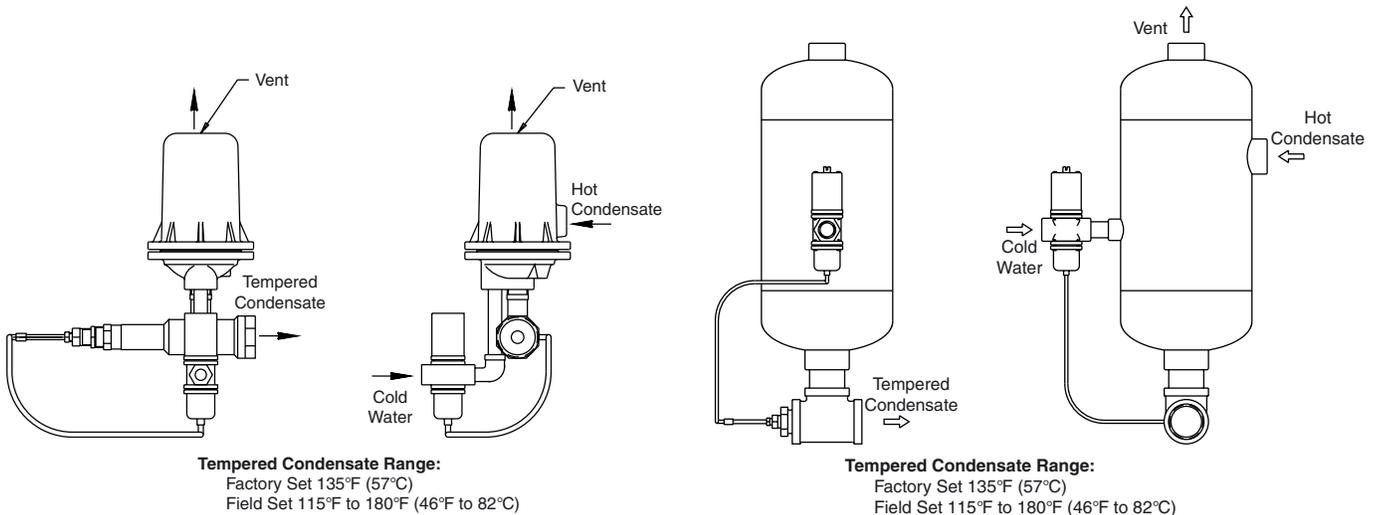
Where:

B = Set point of tempering valve (preset to 135°F)

C = Cold water temperature

H = Hot water temperature or condensate temperature

\* In the example, Model CC-5 (5 gpm) can handle 3.25 gpm of 180°F of hot liquid. If cold water temperature or discharge temperature changes - the capacity will change.



**Models CC-5 and CC-12**

**Models CC-25 and CC-40**



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