

USERGUIDE

Positive / Negative Operation Addendum - Thermolator

CONAIR THERMOLATOR VTR POSITIVE/NEGATIVE OPERATION

1.0 PROCESS WATER CONNECTIONS

PROCESS CONNECTIONS

Connect the *FROM PROCESS* and *TO PROCESS* connections on the back of the Thermolator using 1-1/4" NPT piping. Viewed from the rear, the *FROM PROCESS* connection is located on the left hand side of the unit, and is clearly marked "*FROM PROCESS*". The *TO PROCESS* connection is located on the right hand side of the unit, and is marked "*TO PROCESS*" in close proximity on the back panel.

OVERFLOW/VENT CONNECTION

Connect the *OVERFLOW/VENT* piping on the reservoir tank, located at the top rear of the unit, to an open drain or vented, covered container. This connection must be piped with a clean break in order to prevent back flow and pressure in the *PROCESS* piping. This is where a VTR vents air out of the *PROCESS* piping since the unit is operating at times in a vacuum mode, and can be introducing small amounts of air into the *PROCESS* piping.

Note: Always use a back-up wrench to support the piping when making connections to the unit.

1.1 COOLING/MAKE-UP WATER CONNECTIONS

COOLING CONNECTIONS

Connect the *COOLING WATER IN/MAKE-UP* and *COOLING WATER OUT* piping to the Thermolator using 3/4" NPT pipe. Viewed from the rear, the *COOLING IN/MAKE-UP* hookup is in the lower left hand side through the back panel and is marked "*COOLING WATER IN*". The *COOLING WATER OUT* hookup is in the lower right hand side through the back panel and is marked "*COOLING WATER OUT*".

Note: The cooling water out connection is piped with a swing check that must not be turned on to its side when the connection is made.

1.2 COOLING/MAKE-UP WATER PRESSURES

COOLING /MAKE-UP SUPPLY & RETURN WATER PRESSURES

Cooling /make-up *SUPPLY* and *RETURN* water pressure must have net pressures of between 25 PSI and 75 PSI. A net pressure less than 25 PSI may not provide sufficient cooling for the process. The net pressure is the difference between the cooling *SUPPLY* and *RETURN* pressures.

1.3 SEQUENCE OF OPERATION

SEQUENCE OF OPERATION

VTR1 units control process water temperature. When the controller signals the unit to heat, the electric immersion heater is energized raising the *PROCESS* water temperature. When the controller signals the unit to cool, the *COOLING WATER OUT* (1/4") solenoid valve is energized. This allows the hot *PROCESS* water out of the process piping. When sufficient water has been pumped out of the unit, the *MAKE-UP*

water level float switch will make, opening the *COOLING/MAKE-UP* (3/8") solenoid valve, replacing the hot discharged water with cooler water.

This unit's operation is similar to a TW-DI unit except that a VTR unit has a reservoir tank that is open to the atmosphere, which allows a maximum 180° F *PROCESS* water temperature.

- Notes:**
- 1. The DIN units do not have pressure switches. They use float switches instead*
 - 2. The make up water level float switch is the higher one in the reservoir tank. The low water level cut-out float switch is the lower one in the reservoir tank.*
 - 3. Anytime the three phase power is turned on to the unit the cooling/make-up water is (3/8") solenoid valve may energize.*

The VTR unit operates in either a positive or negative pressure mode. Upon energizing the unit, if the make-up level float switch is in the made position, the *COOLING/MAKE-UP* water in (3/8") solenoid valve will open and begin to fill the unit's *PROCESS* piping and reservoir tank. As the water level rises in the reservoir tank, or if it is sufficiently full to begin with, the low water level float switch will make, turning off the (*LOW WATER PRESSURE*) light on the operator panel.

STARTING UP THE UNIT

The start button may now be pressed to energize the unit. The negative pressure mode of operation is initiated by turning the 3-way valve (See Figure 1.) at the back of the unit counter clock-wise. Negative pressure in the process piping is caused by diverting some of the flow from the pump through the eductor. The water bypassed to the eductor creates a high velocity flow at the eductor nozzle which then causes a suction on the from process line.

Never turn the valve all the way to "negative" (counter clockwise), because all the flow will bypass the process, and there will be no temperature control of the mold. When the unit is running in a negative pressure mode, any leak that was in the system will now be drawing air in to the process piping.

The air and water mixture is separated in the separation tank located on the suction side of the pump. The air is vented from the unit through the overflow connection on the back of the reservoir tank. If this vent becomes plugged, the unit will not work properly.

1.4 TROUBLESHOOTING A VTR UNIT

A few things may cause the VTR unit to act erratically. If glycol is present in a heavy concentration within the process water, it may foam and back up into the reservoir tank. This can cause the reservoir tank to overflow, or the float switches to stick. This problem may be eliminated by using an anti-foaming agent in the water, and periodically opening the (1") pipe plugs on top of the tank to clean the switches with a soft haired paint brush.

An inability to get desired cooling can be a problem with a VTR unit. If the cooling water out line pressure is greater than the unit's pump discharge pressure, there is no way for the unit to cool. A change in the installation will be required in order to provide a reduced cooling water out line pressure.

If the reservoir tank continuously overflows there is a chance that either a float switch has stuck or the cooling/make-up valve has stuck open from a piece of dirt.

LEAK STOPPER VALVE ADJUSTMENT

1. RUN UNIT ON FULL POSITIVE PRESSURE UNLESS PROCESS REQUIRES LEAK STOPPING
2. MOVE VALVE HANDLE FROM FULL POSITIVE PRESSURE COUNTER--CLOCKWISE UNTIL LEAK JUST STOPS
3. TOO MUCH NEGATIVE PRESSURE WILL CAUSE EXCESS AIR INTAKE AND REDUCED COOLANT FLOW TO THE PROCESS

