MORGAN-PRESS

TEMPERATURE CONTROL SYSTEM #20 (EZ)-120V

The Temperature Control System #20 (EZ) provides the Morgan-Press user precise control over melt temperatures of thermoplastic resins. Among the benefits of this electronic, solid state, temperature control system:

- ¶ Facilitates the processing of high performance engineering plastics due to more accurate and stabler melt temperatures. Included among these resins (but not limited to them) are the following: polyetherimide, polyphenylene sulfide, polycarbonate, polysulfone, polyether sulfone (PES), polyetheretherketone (PEEK), polyesters and phenylene oxides.

- ¶ Improves control accuracy over melt temperatures of resins by eliminating wide temperature drifts.

- ¶ Plasticizing (melt) rates of thermoplastics are increased when the melt temperature is accurately maintained.

- ¶ The proportioning control prevents temperature setting "overshoot" during initial warm up. Some temperature sensitive materials (vinyls, nylon) will degrade at even nominal overshoots.

- ¶ The temperature control range of 0 to 800°F (-18 to 425°C) enables the processing of a wide variety of both low and high temperature resins.

- ¶ The plug-in controllers enable fast and easy modular service, if required.

This system features two standard 1/8 DIN electronic temperature controllers made by Watlow. The temperature control range is 0-800°F (-18 to 425°C) with very high accuracy level. They are three-mode, time proportioning programmable units with digital set point and readout.

The system is contained in a custom cabinet designed for mounting on a Morgan-Press. It has all necessary hardware, electrical components, thermocouple sensing probes, schematics, and set-up instructions. This system is partially installed on your Morgan-Press and the cabinet is fully assembled. However, due to shipping and packaging requirements it is necessary to mount the controller cabinet to the upper casting of the machine and to connect the wires from the heater bands and thermocouple probes to their proper terminals in the controller cabinet.

CONTROLLER CABINET INSTALLATION INSTRUCTIONS

NOTE: Install Temperature Control System prior to installation of Injection Speed Control. Read these instructions completely before attempting installation.

1. Attach 2½" long plastic conduit pipe to right side of control cabinet using a conduit nut on each side of control cabinet wall to secure.

   NOTE: Plastic conduit needs to be located so that the end of the tube extends 2 l/8" from the outside of control cabinet.

2. Use the 3/8"-16 x 3/4" sockethead screws provided to mount cabinet bracket to side of upper casting with the drilled and tapped holes.

3. Bolt cabinet to mounting bracket with the ¼"-20 x 3/4" hex head screws provided.

4. Lift up Top Shroud of machine and locate heater band wires and thermocouple leads. Note that all wire leads are marked with blue and red markings.

5. Insert all wire leads through conduit (3/4 Plastic Tube) and into control cabinet.

6. Replace Top Shroud.

7. Connect wires in control cabinet as follows:

   NOTE: Refer to electrical schematic for location of TI0, T9, T8 and T7.

   a. Connect the fiber cloth covered wire marked in **blue** to the inner most terminal of the barrier strip marked with **blue** dye on screw head(TI0).

   b. Connect the fiber cloth covered wire marked in **red** to the next inner terminal of barrier strip marked with **red** dye on screw head (T9).

   c. Connect the fiber cloth covered wire marked in **blue** to the next inner terminal of the barrier strip marked with **blue** dye on screw head (T8).

   d. Connect the fiber cloth covered wire marked in **red** to the next inner terminal of the barrier strip marked with **red** dye on screw head(T7).

NOTE: The following instructions: Steps #8 and #9 involve connecting the thermocouples to the green terminal blocks mounted to the back of each controller (see schematic). The pins on the end of the thermocouple leads stick into the slots and the screws on the sides of the Green Terminal blocks are then tightened

8. Connect barrel thermocouple wires ("shrink tubing covered" leads with **blue** shrink tubing near the end) to **top** barrel controller:

   a. **White** lead to terminal R1 (Has **white** dye area)

   b. **Red** lead to terminal S1 (Has **red** dye area)

9. Connect nozzle thermocouple wires ("shrink tubing covered" leads with **red** shrink tubing near the end) to the **lower** nozzle controller:

   a. **White** lead to terminal R1 (Has **white** dye area)

   b. **Red** lead to terminal S1 (Has **red** dye area)

10. Function test the controllers:

   a. Connect electrical power to machine.

      NOTE: This unit should be plugged into or connected to its own 120VAC/20 amp grounded electrical outlet or supply.

   b. Turn on controllers with rocker switch located on left side of cabinet. Unit is on when rocker switch light is on.

   c. When unit is ON two displays appear on the face of each temperature controller. The upper display on each controller is the temperature of the melt cylinder (barrel and nozzle zones), and the lower display is the setpoint temperature. To change setpoint temperature simply press the arrow pointing up to raise or the arrow pointing down to lower. For an initial test warm up set temperature of both zones to 200°F (90°C).

   d. Check to see if heater bands are radiating heat. This is done by observing the increase of the process temperature settings on the controllers. After one minute the temperatures will have increased by approximately 5 degrees. If the bands are not heating, unplug machine and recheck connections.

PRE-SET PROGRAM VALUES

The temperature controllers have been programmed at the factory for your machine and have been put in a lock-out mode to prevent accidental changes. The factory programmed values are appropriate for thermoplastic molding applications in the materials melt processing ranges. Do not attempt to alter any factory set values.