11.05.2024

COPILOT® SYSTEM RELEASE NOTES

Build No. v9.5.0

Overview

The CoPilot® system now features Heat and Cool, enabling the control of mold close, open, heating, and cooling in order to produce desired part finishes and reduce cycle times.

New Features

Heat and Cool

Users are now able to control and maintain specific mold temperatures, and control part heating and cooling to achieve the desired part finish and reducing overall cycle time.

Mold heating and cooling are controlled using the machine sequence timing plus a specified time; mold open and closing are controlled using a temperature sensor setpoint, or a machine sequence timing after a temperature sensor setpoint is reached. The controls are configured while the machine is not cycling to prevent material waste and/or damage to the mold. The machine can then be cycled without Heat and Cool being active in order to debug and test the process.

Process engineer users can set alarm limits on composite temperature alarms to ensure that the parts are good, and can view output triggers compared with cycle curves on the Cycle Graph Machine Sequence States graph to verify correct timing.

Three (3) Dual Output Relay Modules (OR2-M) are required to send control output signals from the CoPilot system to the IMM.

Heat and Cool cannot be utilized while Optional Inputs is active.

A license is required to utilize the Heat and Cool feature.

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Heat and Cool (continued)

Requirements

Machine Sequence Inputs

- 1st stage and 2nd stage
  OR
  injection forward and screw run
- mold clamped

Machine Outputs Assigned to OR2-M(1)

- V→P Transfer
- Inject Enable (optional)

Control Outputs Assigned to OR2-M(2)

- “allow mold open” and
- “allow mold close” and
- “mold heating and cooling on”

Functions

Velocity to Pressure (V→P) Control

V→P control is required to allow mold heating on and mold cooling on to be activated after a V→P setpoint is reached plus a set time.

Mold Heating On

Activates the heating phase of the Mold Temperature Controller after the V→P setpoint is reached plus a set time (x seconds).

OR

Activates the heating phase of the Mold Temperature Controller a set time after the start of injection.

Mold Cooling On

Activates the cooling phase of the Mold Temperature Controller after the V→P setpoint is reached plus a set time (x seconds).

OR

Activates the cooling phase of the Mold Temperature Controller a set time after the start of injection.

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Heat and Cool (continued)

Allow Mold Open

The output “allow mold open” is set to activate after a cavity temperature sensor reaches the defined temperature.

OR

The output “allow mold open” is set to activate on the start of injection after reaching a specified temperature.

Allow Mold Closed

The output “allow mold closed” is set to activate after a cavity temperature sensor reaches the defined temperature.

Inject Enable

Inject enable is not required, but is encouraged to disable injection in the event that one of the control sensors for Mold Open, Mold Closed, Heating On or Cooling On sensors fails or is in error state.

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Bug Fixes

Part Sample Sorting

When a user navigated away from the Part Sample widget during a sample, then navigated back to the Part Sample widget, the active and previous sample timestamp changed.

Intermittent Output Relay Connection and Excessive Rejects Messaging

When a user was running a job with Excessive Rejects assigned and triggered, and the physical connection to the associated dual-output relay OR2-M was intermittent, the “clear excessive rejects” notification was repeatedly displayed—even after it was dismissed by the user.

Unable to Upload CoPilot Update File (UPD) to The Hub®

When a user attempted to upload a CoPilot system UPD file to The Hub®, the file would not upload.

No Effective Viscosity or Fill Time for Decoupled III® Fill-Trigger-Only Process

When a user running a Decoupled III® process with no assigned injection forward signal set fill volume at cursor on the Cycle Graph, the effective viscosity is not calculated, and fill time is not displayed on the Summary Graph.