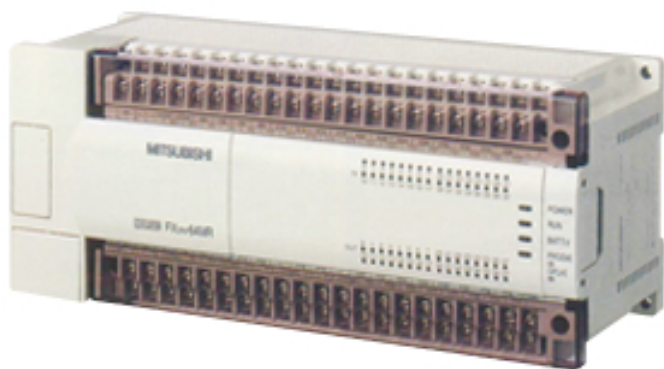


Industry: Plastics

Products Used: FX PLCs /// HMIs /// IEC61131-3 Software

Plastics welding gets hot control

Forward Technology Industries is using Mitsubishi PLCs, Human Machine Interfaces (HMIs) and Melsec Medoc plus (MM+) IEC1131-3 programming software in their range of welding systems for plastics assembly.



In production, the two parts to be joined are positioned above and below the hot plate where they are held into moulds by vacuum and clamped mechanically side to side. When the components are in position the hotplate is moved forward between the two moulds. Once the components reach the required temperature the hot plate is withdrawn and the two surfaces are held together to complete the weld.

One hot plate welding cabinet recently developed by Forward Technology is for Hoover for use in the manufacture of vacuum cleaner parts. This complex plastic welding machine uses an FX2N micro PLC with an additional extension module. The 80 I/O PLC with a 4 channel input block (FX2N 4AD-TC) is used to control all operations of the process and its six heaters, including two K type thermocouples used to read temperature values on the hot plate.

The flexibility of the FX2N is shown by its integral real-time clock functions. A programme in the FX2N uses the on-board Calendar/Timer function to turn on the six hot plate heaters 45 minutes before the scheduled start of production, and bring them up to operating temperature. If for any reason production is delayed, the PLC allows for the hot plate to be turned off automatically saving energy.

A Mitsubishi E710 touch screen HMI provides the operator interface to the welding machine. On the IP65 rated HMI Recipes can be stored without the need for a PLC programme. The clear touch screen shows the current recipe parameters with the option to adjust individual machine settings. A diagnostics screen on the E710 shows self-diagnostics for each of the 6 heaters. "The ability to run self diagnostics during operation keeps machine down time to a minimum", says John New.

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John New
Forward Technology

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Forward Technology uses Melsec Medoc plus (MM+) and according to John New the programming tool is fast and easy to use and reduces commissioning time.

Application story first released January 1999 by Mitsubishi Electric UK