

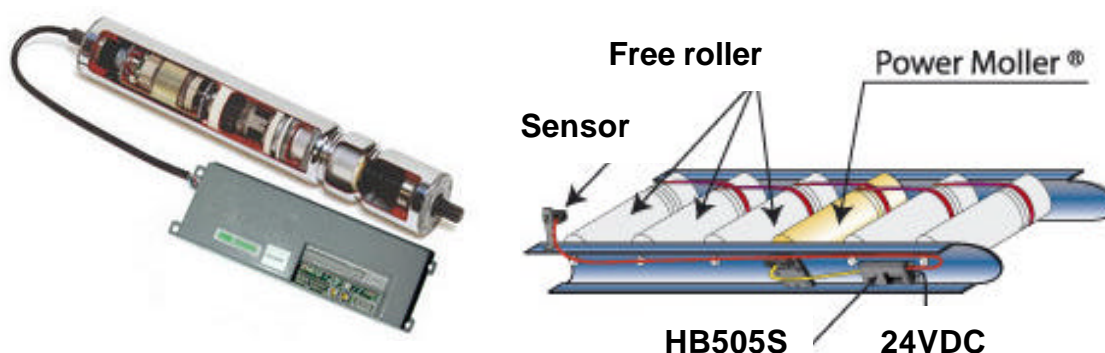
NO PLC REQUIRED – Zero line pressure without PLC

Marston, UK

DENSO MARSTON identified an opportunity for automating an area of product handling at its plant in Shipley, West Yorkshire, where it manufactures heat exchangers following the installation of a new fluxing station and additional build machinery.

The heat exchangers of varying sizes are made up of header plates, fin, inserts and tubes. After assembly the product requires an application of flux applied electrostatically prior to a “Nocolok” brazing process to fuse the components together.

Hirata Corporation of Europe was selected to install its zero line pressure conveyor solution using 24VDC brushless Power Moller motorized rollers from ITOH DENKI. The assembly line has several build stations at intervals along its length feeding a mix of product held together in a jig prior to fluxing. The jigs are then conveyed to the end of the line with zero line pressure accumulation using ITOH DENKI’s logic control boards that drives the 24VDC brushless motorized rollers and provide zero line pressure accumulation without the expense of a Programmable Logic Controller (PLC).



Each conveyor zone requires one DC motorized roller and a sensor, both of which links directly to ITOH DENKI’s circuit board via quick connectors. Each board then plugs into the circuit board in the next zone in order to communicate zone status, either stopping the load in the preceding zone, receiving the load from the preceding zone or simply passing the load forward to the next available zone.

Motor torque is high enough for one motor per zone to be sufficient for the majority of conveying requirements. No input/output wiring, no PLC to program, no fieldbus control, ITOH DENKI’s HB 505S circuit board takes care of it. The only additional item required is a 24VDC power supply and thanks to the efficiency of the 24VDC motors current consumption is kept to a minimum.

The heat exchangers within their holding jigs queue up on this conveyor. A robot arm and gripper at the end of the line then detects the size and position of the products, lifts and transfers them automatically into the electrostatic fluxing station. After fluxing the product is then transferred by the same robot arm directly into the “Nocolok” brazing tunnel to fuse the components of the heat exchangers together.

Pat Harper of Denso Marston says: “Although we are not yet at full automation, we are confident with the performance of the conveyor and fully expect it to meet the demand of increased production”.