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INVERTED SCREWDRIVING MACHINE

This Assembly Station was designed for the feeding of screw and their subsequent fastening of contact blocks to pc-boards.

The machine is fully controlled by an Allen-Bradley Controller.

Denso Corporation's principal activity is the manufacture of automotive components. Global Operations include the manufacturing of Automobile Related Components, such as car heaters, air conditioners, SRS air bags, starters, alternators, spark plugs, electronic fuel injection systems, meters, radiators and engine cooling systems. DENSO Manufacturing Tennessee, Inc. features blended cultures, merged philosophies and combined energies. Part of a global company - one of the world's largest manufacturers of advanced technology, components and systems for all major automakers - DENSO in Tennessee fulfills a vision of success through excellence.

Machine Components:

DEPRAG Compact-Assembly-Module [DCAM] with X- and Y-Axis and servo motors; safety enclosure with light curtains, 2-position rotary index table with quick-exchange product fixtures; SFM [Screwdriver Function Module] for underfloor [inverted] integration, equipped with a Micro EC-Screwdriver Spindle Model 310E30-002 [allowing a minimum torque of just 2 inch pounds] with the corresponding Controller AST30; Screwfeeding Machine with Hopper and for the fast, reliable and unobtrusive torque verification we supplied a measuring instrument and measuring transducer built according to the same footprint of the part fixtures, so that a fast torque verification is possible.

Machine Cycle Description:

1. The operator loads the suitable part fixtures, which are determined by the product to be assembled. Then, the pc-board and the contact blocks are loaded. The loading position is fully secured by light curtains, so that an involuntary movement of the rotary index table is not possible.
2. Once the operator clears the light curtain and activates the single start-button, the rotary index table moves the part fixture by 180-degrees into the assembly area. A RFID sensor recognizes the RFID-tag on the part fixture and activates the appropriate screwdriving program.
3. A single Screwfeeder blow-feeds the screws to the mouthpiece and the parts are assembled from underneath. Each seated fastener is verified in regards to depth, torque and allowable time.
4. While the screwdriving is in process, the operator can already unload a completed product and load the next product.
5. The machine incorporates a maintenance door at its rear, where a revolving control box is attached.



Underfloor [Inverted] Screwdriving Machine

