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Lean Manufacturing Solutions

This manual workstation is a perfect example of DEPRAG's capability to offer components for a lean manufacturing approach. In this case, we highlight a 2-Spindle manual workstation for the assembly of different components to an automotive exhaust-filter housing. This system was manufactured for WOCO, a German manufacturer of innovative automotive products, focusing on acoustics, vibration technology and vehicle comfort.



Screw No. 1 is assembled into the pressure sensor at a torque of 2 Nm [17.8 in.lbs.]



Screw No. 2 is assembled into the suction connector at a torque of 4.8 Nm [42.5 in.lbs.]

System Components:

The system consists of a size-2 and size-3 **MINIMAT-F** Screwdriver, with integrated feedback function in regards to screw counting, assembly time supervision, driver start, driver stop, and clutch shut-off.

Also included are two Linear Screwdriver Stands, Screw-Presenters, Balancers, magnetic Bits and a DEPRAG LC-Controller.



loaded part in Fixture



complete Workstation

Cycle Description:

The Operator loads the filter housing and necessary components into a part fixture. The part fixture is equipped with a sensor, which verifies the correct positioning of all parts. A pneumatic locking device positions the components.

The Operator uses the magnetic bit on the Screwdriver to pick the requires screws from a Screw-Presenter; he then drives two screws to secure the pressure sensor at 2 Nm torque and two different screws to fasten the suction connector at a torque of 4.8 Nm.

The pneumatic locking device will only allow the unloading of the part, if all four screws are assembled correctly.

A part, which has assembly errors needs to be manually released from the part fixture, using a release button.



Size-2 MINIMAT-F



Screwdriver tip showing the magnetic bit with screw

The LC-Controller supervises and controls the accuracy of all assembly parameter, such as loading and clamping of part and components, driver start, fastener rundown time and clutch-shut-off.