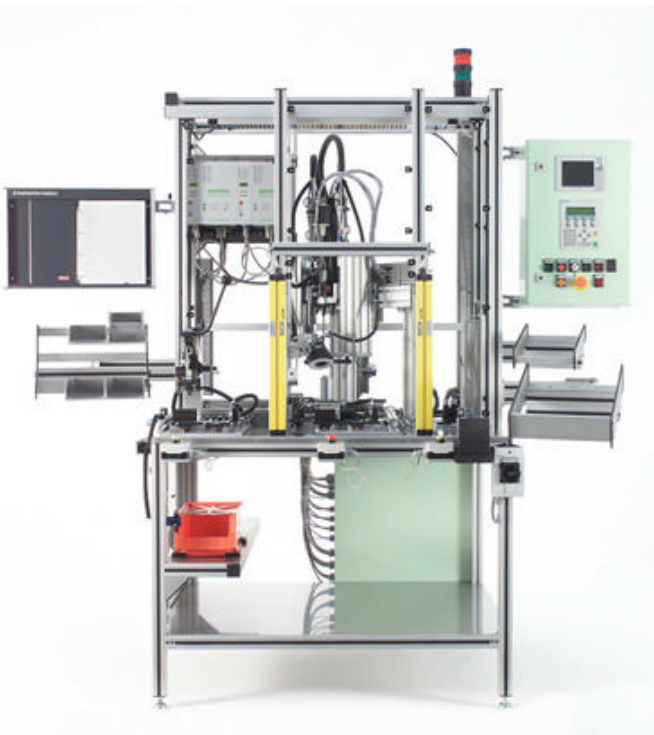


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DEPRAG MULTI-TASK ASSEMBLY STATION

The equipment featured in this E-News is for the manufacturing of automotive brake components. The complete process requires two individual assembly stations.

Assembly Machine 1 is actually two workstations built into one framework. Components are stored in part bins attached to the machine. One Siemens S7 controller controls all of the required actions.



Machine No. 1

The first workstation is used to press two filters into the motor pump housing. The motor pump housing and filters are loaded into a part fixture located in a slide table. A single touch-button moves the slide table underneath a manually operated press that is used to insert the filters. Once the filters are pressed in place, the slide table returns to the operator who transfers the pump housing to the part fixture located in the center slide table.

The second workstation in Machine 1 performs two inspections and one screwdriving operation, serving for both quality assurance and assembly. The operator loads O-rings onto the pump housing and starts the cycle. A sensor confirms that the filters were pressed in correctly and then the slide table moves under an image recognition system that checks for the correct placement of the O-rings.

Once the 'good part' signal is given, the slide table moves back to the load position where the operator inserts a pre-lubricated hydraulic pump motor and hand starts the two screws that retain it. The operator again activates the single touch-button and the slide table moves back into the machine. Once the hydraulic motor position is verified by the image recognition system, two DC-Spindles tighten the two screws in incremental stages. The slide table indexes back to the loading/unloading position for removal of the completed part.

Assembly Machine 2 is equipped with part bins, a lever-operated press, a handheld Minimat-F Screwdriver with C8-Controller and a part fixture with a hold-down clamp. It is used to attach the oil reservoir to the hydraulic unit. The reservoir is pressed into place, and retained by two screws driven with the Minimat-F. The C8 Controller monitors for correct screw insertion.

These machines are especially interesting because they provide automatic inspection during the assembly process. This allows a relatively low level of automation while guaranteeing a high level of quality.



Machine No. 2