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DEPRAG "PUMP" ASSEMBLY STATION



This machine was manufactured for Bühler in Nuremberg and is similar to the machine illustrated in the May E-News. It is used for the precise assembly of a pump housing and impeller. The assembly procedure includes steps for alignment, assembly, and verification.

Parts are introduced into the machine on a three-position slide table with a part fixture. The operator places the pump housing and impeller into nests in the part fixture and a sensor checks for correct positioning. The operator starts the cycle and the table moves to the second position where two washers, fed by a Single Feeder SZG-0511-P/0,75-1S, are placed onto the pump shaft by a pick-and-place unit with integrated vacuum. The table then moves to the third position where highly sophisticated sensors confirm the precise positioning of all components. If the sensors send an "O.K." signal, a gripper picks up the impeller and presses it onto the pump shaft. The sensors then verify the assembly and the table moves back to the second position where two more washers are placed on the shaft, above the impeller. The table now moves back to the home position, the panel displays an O.K. or NOT O.K. message, the safety door opens, and the operator removes the completed part.

The machine is built on an aluminum profile machine base. Since the part locations had to be accurate within $\pm 0.005\text{mm}$ ($\pm .0002''$), we chose special sensors made by Haidenhain. The pick-and-place unit and the gripper for the impeller are attached to two axis Cartesian robots. A Siemens S7 PLC controls all machine functions and an OP7 Touch Panel displays the status of each operation.

The order for this machine was received late in November of 2001, and customer gave final acceptance of it at the end of February 2002.

Lori Logan

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