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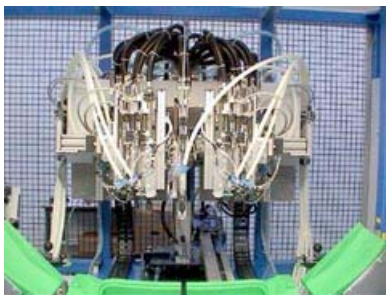
DEPRAG Assembly Station for Automotive Front Grill & Bumper Cover

This month's machine was manufactured for a major European automotive sub-supplier. This station assembles an automotive front grill with bumper cover.

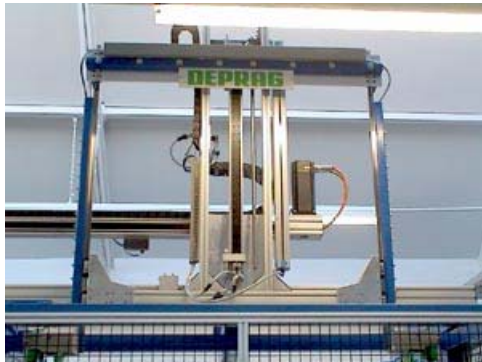
Major System Components:



Loading Area



Screwdriving Cell

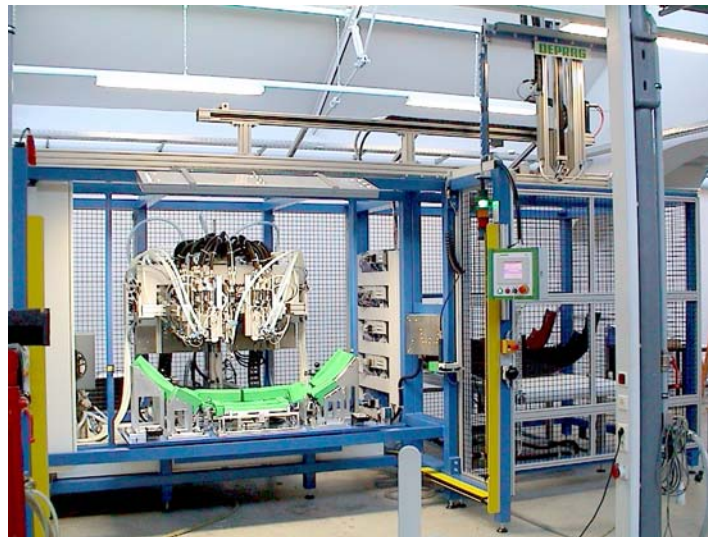


Unload Gripper Module

Cycle Description:

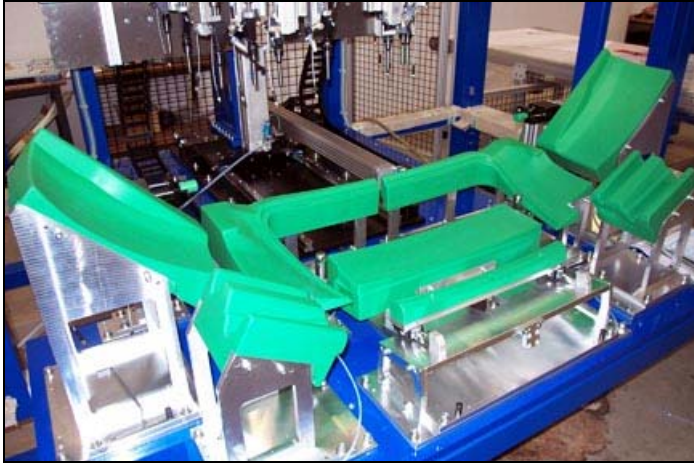
The Operator loads a 3-D part fixture with the front grill and then loads the bumper cover over the front grill. Once the operator clears the light curtain and activates the start button the cycle begins.

A hold-down device accurately positions the parts and the screwdriving cell moves forward and down. The parts are assembled with screws at a torque of 1.7 Nm [15 in.lbs.]. During the screw assembly, the unload 3-D-gripper-module moves over the part fixture. Once the screwdriving cell moves back out of the way, the gripper module removes the correctly assembled part from the part fixture and places it onto the conveyor [total Machine cycle time 24 seconds]. If an assembly error is indicated, the Operator can use a handheld Screwdriver to rework the indicated errors. Thereafter, he has two options for unloading. Either push the green button, which activates the gripper module to unload the now correct assembled part onto the conveyor, or use the red button, which unlocks the hold-down device and allows the operator to manually remove the part.



Total View of Assembly Station

3-D Part Fixture: [click on picture for more details]



The 3-D Part fixture and the gripper jaws are made from a synthetic material called UREOL. Ureol, developed by Ciba Geigy is not unlike wood. Compared to wood, however, it does not absorb water. Another advantage of Ureol is that it grains less and does not expand under temperature and so a very accurate part fixture could be made.

DEPRAG Engineers, using the software ProEngineer, did the design of the part fixture and the gripper jaws. Please click [HERE](#) to see more details of the 3-D design.