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DEPRAG DCAM for the automatic Assembly of Cell Phones

Required Process:

- Assembly of PC-board, keypad and display to base housing of a cell phone
- Simultaneous assembly of four (4) cell phones with six (6) screws each in one operation
- Total Cycle Time: **14 seconds for four (4) cell phones**

Solution:

One DCAM – DEPRAG Compact Assembly Module, designed as a manual station, consisting of the following components:

- Machine Frame
- **XY-axis system** – freely programmable
- **Rotary Index Table** with 2 positions
- 2 x opposite located part fixtures (cavities for 4 cell phones each)
- **1 x 4-Spindle - SFM (Screwdriver Function Module)**
- **4 DEPRAG Air-Operated – Screwdriver Spindles** Model No. **345-700-31**
- 1 Down Holder [part compression device] at screwdriving location
- 1 stationary **DEPRAG – Screwfeeder** Model **SZG 0522-22-P/0,75V-1** [feeds 4 screws each]
- **1 DEPRAG MC282** – Screwdriving Controller
- **1 Indicator Light Column** to display the machine status

Cycle Description:

The Operator loads all loose parts into the part fixture. A vertical laser sensor verifies that all parts are in place.

The unit starts automatically, as soon as all parts are correctly loaded at the front position and the machine gives a correct assembly signal for the four (4) cell phones assembled at the rear position.

- The rotary index table 180° degree to the rear position of the DCAM and a down holder positions the components. Thereafter, the screwdriving operation starts automatically.
- Each screw assembly is tested – already during the actual screw-tightening process – in regards to torque and depth.
- A visual LED indicates whether the assembly was O.K. or NOT O.K.
- The down holder retracts.

While the DCAM assembles the four (4) cell phones at the rear position, an Operator again loads all components into the part fixtures at the front location. Once all assemblies in the rear are considered to be O.K., the Rotary Index Table turns again 180° degree. Now, the Operator can remove the completed cell phone and load new parts while the rear position assembled the next set of 4 cell-phones.

The Light Column displays the machine status:

RED – Error
YELLOW – Parts Missing
GREEN – Controller ON

