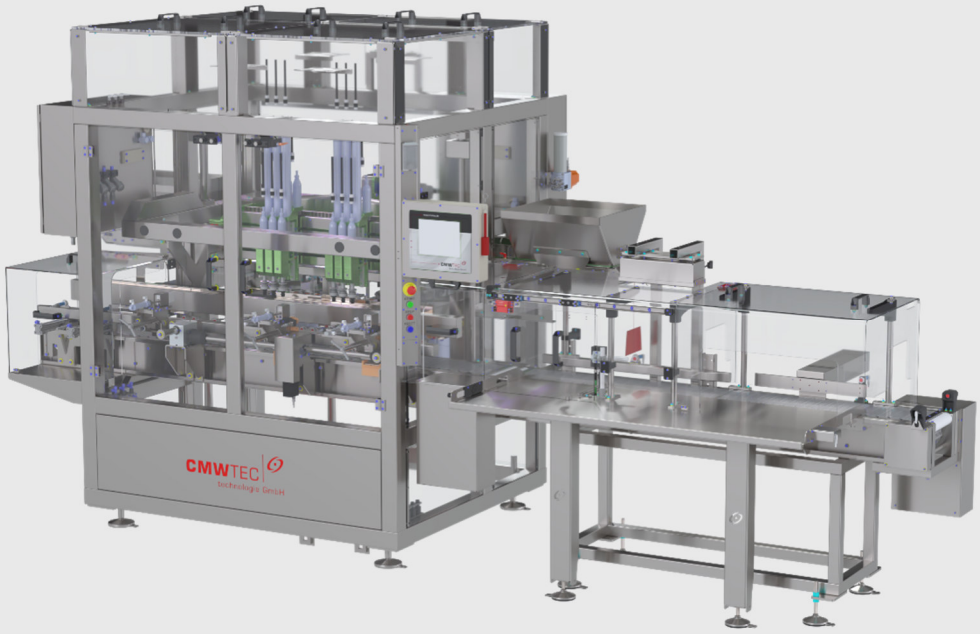
CMWTEC technologie GmbH

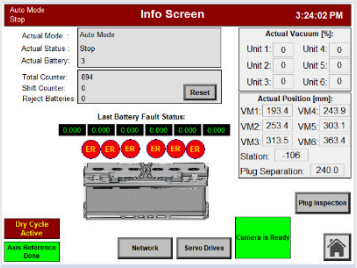
AUTOMATIC PLUG INSERTION MACHINE

Technology
[made in Germany]

Automatic plug insertion with high capacity of automotive car batteries with best and highest technology







The Advantage:

- Fully automated setting process
- Handling of different plug types possible (option)
- Very precise height control unit +/- 0,1 mm tolerance
- Precise plug insertion by 6 servomotor controlled units
- High productivity 10+ Batt/min, on a small footprint [3 m]
- Torque control unit
- Short change-over time
- 100% acid resistance

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Basic machine
The basic machine consists of a welded base frame carrying the individual assemblies. It consists of the vibration sorter to bring plugs to the correct position. Adjustments can be made through motors.
The electric and pneumatic cabinet is installed in the basic machine as well.

Setting unit and plug tools
The setting station is positioned in a way that batteries can be positioned exactly underneath.
Screw-type plugs are screwed into the batteries by means of servomotors with adjustable torque.
All functions are plc monitored.

Plug storage unit
Plug storage is realized by means of two storage funnels. The funnels are equipped with an output unit releasing a specified quantity of plugs into the vibration sorters.

Plug height control unit
The plug height control unit is checking each single screwed plug to achieve a 100% setting.
Detection of non-screwed plugs and the height control of too high and too low screwed plugs.

Rework and Reject table
Integrated with the plug height control unit, if there is a failure the battery will be rejected at the end of the machine on a table. The table collects up to 3 pieces of failed batteries to assure a continuous production even if a battery setting has failed.

Battery positioning unit
The batteries are positioned exactly underneath the setting unit, by a fixed stopper system.
RFID chip supported spacer are used to identify the correct spacer is placed.

Automatic lateral guide unit
The lateral guide including the battery separation, is designed for laterally adjusting the battery below the working station. A servo motor ensures the adjustment to be executed exactly and fast.

Battery conveyor unit
A PP chain transports the batteries through the machine and, at the same time, ensures them to be adjusted smoothly and exactly at the setting position.

Description of function
The machine has been designed for a finishing line following the battery container formation. The batteries filled with sulphuric acid are sealed simultaneously by means of single plugs with an electronic servo motor. Plugs will be screwed in with torque control by a servo driven screw-in device. In a separate plug height control test station before approaching the washing machine the plugs are finally checked if they are applied incorrectly or even missing.

Technical specifications		(All statements without guarantee)
Battery type	:	automotive car batteries
Capacity	:	10+ batteries/min (depending on battery size)
Weight of batteries	:	20 – 40 kg
Dimension of machine	:	L = 3000 mm W = 1700 mm H = 2300 mm (machine) L = 2000 mm W = 1500 mm H = 1600 mm (test station)
Construction	:	Full acid proof Material, Stainless steel 316L Plastic PP and PVC Pieces not acid resistant with special protection
Electric	:	230/480V, 3-Phase, 50/60 Hz, 4 Wire
Control voltage	:	24 DC
Power consumption	:	12,5 kW
Operating pressure	:	6 bar (90 psi)