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

The Advantage:

- Fully automated setting process
- Handling of different plug types possible
- Very precise height control unit +/- 0.1 mm tolerance
- Precise plug insertion by servomotor controlled units
- High productivity
- Torque control unit (option)
- Short change over time
- 100% acid resistance
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 servomotors and through spindles. Also electrical and pneumatically cabinet is installed.

Setting unit and plug tools
The sealing station is positioned in a way that batteries can be positioned exactly under this. Screw-type plugs are screwed into the batteries by means of a pneumatic screwdriver or an alternate special tool with adjustable torque (option). All adjustment is done by servo motors. All functions are electronically controlled.

Plug storage unit
Plug storage is realized by means of a storage funnel. The funnel is equipped with an output unit releasing a specified quantity of plugs into the vibration sorter.

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 also the height control of too high and to low screwed plugs.

Reject unit
The Plug height control unit device consists the detection for exact screwing of the plugs. If there is a failure, the battery will be rejected at the end of the machine on a table.

Battery positioning unit
The batteries are positioned exactly underneath the setting unit, by a fixed stopper system.

Lateral guide unit
The lateral guide including the battery separation and the exit monitoring device is designed for laterally adjusting the battery below the working station. A clamping mechanism 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 battery plug setting 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 and checked if plugs missing, before approaching the washing machine.

Technical specifications
<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery type</td>
<td>automotive car and truck batteries</td>
</tr>
<tr>
<td>Capacity</td>
<td>up to 7 batteries/min (depending on battery size)</td>
</tr>
<tr>
<td>Weight of batteries</td>
<td>20 – 70 kg</td>
</tr>
<tr>
<td>Dimension of machine</td>
<td>L = 3000 mm W = 1700 mm H = 2300 mm</td>
</tr>
<tr>
<td>Construction</td>
<td>Full acid proof Material, Stainless steel 316Ti Plastic PP and PVC Pieces not acid resistant with special protection</td>
</tr>
<tr>
<td>Electric</td>
<td>230/400V, 3-Phase, 50/60 Hz, 4 Wire</td>
</tr>
<tr>
<td>Control voltage</td>
<td>24 DC</td>
</tr>
<tr>
<td>Power consumption</td>
<td>5,0 kW</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>6 bar (90 psi)</td>
</tr>
</tbody>
</table>