FINE TUNED ASSEMBLY LINE

» Available up to 6 btr/min. speed

The Sovema “fine tuned” battery Assembly Line is intended for the production of SLI batteries.
high voltage testing unit
The station performs the welding of the connections between the elements of polypropylene batteries through the holes previously made in the intercell partitions (hole diameter comprised between 8 and 16 mm). Working cycle between 18 to 30 sec. for car battery. Working cycle 35 sec. for truck battery. The station is equipped with one operating head, carrying a couple of tongs, which are hydraulically closed with a straight horizontal movement. The welding is carried out by means of a high current pulse, whose intensity is previously set and is automatically controlled by an electronic equipment. There is the possibility to pre-set independently all the main welding parameters: power, squeeze time, holding time, duration of the current. The compression force of the tongs can be adjusted continuously, acting on the hydraulic pressure. The 90° rotation of one head (for batteries with 3x2 cell layout) is pneumatically powered; being integrated in the work sequence, it is not necessary to stop the cycle to turn the head. The feeding of the welding tongs is done by a 25 kVA transformer, mounted directly on the operating head in order to reduce the energy losses and the length of the connection. Both the secondary of the transformer and the tongs are water cooled. The welding control unit includes a special electronic system for testing the connections; when the system recognizes a defective welding, the battery is automatically switched to the rejection bench.

heat sealing machine
The major features of the machine are: reliability of the heating system, ease and flexibility for rapid tooling changes and rugged machine design. The hot plates are mounted on a controlled, electrically-heated surface used for all batteries and the sealing equipment only consists of the jigs for different formats, which will be assembled in preset position. All machine movements are equipped with bearings to ensure durability and operating precision. Batteries up to 378 mm in length can be handled in pairs; larger batteries are processed individually. The standard processing cycle takes approximately 25 seconds and includes the following operations:

- a) Positioning of the casings and covers on the machine loading surface
- b) Cover pick-up
- c) Sliding-out of the melting hot plates
- d) Melting of the welding tracks; duration of 5 sec. In this way leakage both between the cells and towards the outside are detected.
- e) Withdrawal of the melting plate and closure of the battery; bonding time can be preset on the control panel
- f) Roller-drive system return to position and removal of the sealed batteries.

Automatic Air Leakage Unit
The Air Leakage station is included for automatic checking of any leakage on the external or intercell walls of the battery. The unit tests first the cells 1-3-5, and subsequently the cells 2-4-6, with compressed air at 0.2-0.3 Atm. for a duration of 5 sec. If any leakage is found the unit gives an alarm and the battery is automatically rejected. Kamina type batteries are tested providing the machine with the specific tool. N.B. All data are referred to the Assembly line with output 2-3 batt./min.
**TECHNICAL DATA**

**OVERALL DIMENSIONS**

1) high voltage testing unit
2) welmatic 1000 connector welder
3) heat sealing machine and lid placing unit
4) post finishing unit
5) air leakage unit

**PRODUCT RANGE**

- capacity between 36 and 200Ah (3x1, 6x1 and 3x2 layout)
- width between 135 and 300mm
- length between 160 and 520mm

**REQUIREMENTS**

**STATION 1**
- Power Consumption: 3 phase x 380V 7.5 KW, 2 phase x 380V 25 KW
- Compressed Air: 450 NI/min at 6 bar
- Gas Supply: -

**STATION 2**
- Power Consumption: 3 phase x 380V 16 KW
- Compressed Air: 600 NI/min at 6 bar
- Gas Supply: LPG, Natural Gas or acetylene + oxygen

**OPTIONS**

1) high voltage testing unit
2) welmatic 1000 connector welder
3) heat sealing machine and lid placing unit
4) post finishing unit
5) air leakage unit

» **PRE-HEATING TOOL STORAGE**
Additional storage unit for a second tool, complete with pre-heating system. The system enables the operator to place manually a second tool (hot plate) and to pre-heat the tool automatically without any down time of the machine.

» **AUTOMATIC LID PLACING UNIT**
The unit is installed in correspondence of the heat sealing station and feeds the lids directly into station itself. A lid storage is provided which is easy adjustable for different lid dimension.

**SOVEMA Spa**
Via Spagna 13
37069 Villafranca di Verona VR - ITALY
Tel. +39 045 6335711 - Fax +39 045 6303911
info@sovema.it