AUTOMATIC MACHINE FOR

ELECTRICAL TESTING ON PRISMATIC BATTERY CELLS

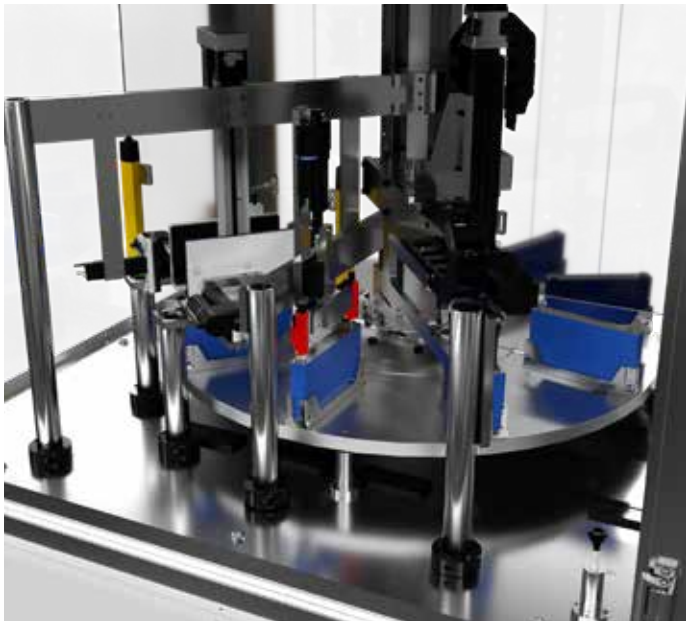
MARPOSS

TECHNICAL SPECIFICATION

A multi-station measuring machine with advanced functionalities, for dimensional gauging and electrical testing of prismatic battery cells, suitable for End-of-Line (EOL) testing in the production of cells, or Beginning-of-Line (BOL) testing and sorting of cells in module assembly lines. The machine, predisposed for manual or automatic robot loading, is the perfect testing solution for pilot lines or low-medium production rates.

Main features

- Identification of the cell through graphic codes, such as QRCode, Datamatrix, Barcode for full traceability
- Dimensional measurements by either contact or non-contact (such as confocal sensor) technologies
- Electric tests selectively activable:
  1. Open Circuit Voltage (OCV)
  2. Alternating Current Internal Resistance (ACIR 1-100kHz)
  3. Direct Current Internal Resistance (DCIR)
  4. Electrochemical Impedance Spectroscopy (EIS)
- Adjustable force applied to the cell terminals
- Insulation test (HV) on the whole surface of each side of the cell
- Easy replacement of the probes
- Up to eighteen cell storage on the turntable
- Data logging from tests, available for classification and selective assembly of cells into the module
- Scalable solution to add further optional operations, such as cell leak testing by direct electrolyte tracing, or cell marking



Cell type

The reference nests on the table are configurable according to the type and size of the specific cell.
The maximum number of cells that can be placed on the table depends on their size. The greater the number of cells hosted on the table, the greater the autonomy of the machine without any operator interaction.

Bench data

Theoretical cycle time	45”
Efficiency (OEE)	90%
Real production	600-700 cells per shift
Dimensions (hwd)	2.000 x 1.600 x 1.400 mm
Autonomy	more than 5’ (with 18 cells on the table)

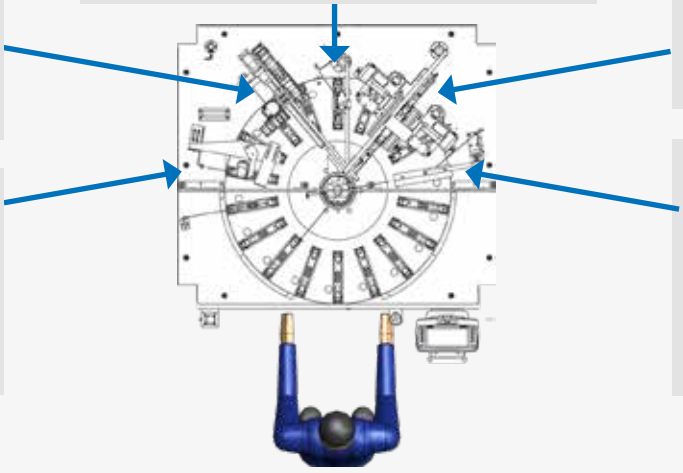
Bench structure

The bench is compact and based on a turntable. The operator side, protected by light curtains, is dedicated to part loading/unloading. On the opposite side are the measuring and test stations, which can operate independently and simultaneously on the cells.

DIMENSIONAL MEASURING
multi-point non-contact station to measure the outer volume of the cell through a confocal sensor.

ELECTRICAL TESTING
cell electrodes contacted to perform the tests: OCV, ACIR, DCIR, EIS.

INSULATION TESTING
whole external enclosure surface contacted to test HV.



DATA MATRIX READER
code reader to identify the cell and associate the results to that item.

ELECTROLYTE LEAKAGE
chamber surrounding the single cell to trace any electrolyte leakage.

OPERATOR SIDE loading/unloading of the cells