Marposs SpA (Italy)
Bentivoglio (Bologna)
Plant 39,600 sqm
(428,800 sq ft)
Employees in HQ 763

LEAK TESTING SOLUTIONS FOR BATTERY SYSTEMS
Nov. 18th, 2020
One Partner
Many solutions

worldwide present in
34 countries

offices worldwide
80

exports
94%

more than
3,500 employees

26 key acquisitions since 2000

8% resources invested in R&D
Wide range of technologies

Contact gauging

- Electronic, Air-to-electronic, Hard gauging

Non-contact gauging

- Shadow casting, Reflectometer, Interferometer, Choromatic confocal

Vision systems

- Infrared and High resolution cameras

Process monitoring sensors and sw

- Position, Force, Vibration an MES software

Leak testing

- Pressure decay, Mass flow, Mass spectometer (vacum chamber, sniffer)

Functional testing

- Laboratory and end-of-line testing of e-motors and fuel cells
MNA (Nanjing – CINA)
Plants & offices
36,000 sqm
Employees
753

MG Spa (Travagliato – BS ITALY)
Plants & offices
13,800 sqm
Employees
192

Helium Technology S.r.l. (Calvignasco – MI ITALY)
Plants & offices
1,450 sqm
Employees
64

Leak Testing manufacturing centers
Sealing Issues in Battery Manufacturing Process

Different testing solutions and technologies are proposed to respond to quality control needs in the various stages of the process.

PRODUCTION STEPS:
- Battery Cell production
- Battery Module assembly
- Pack Tray / Cover
- Cooling circuit & plate
- Battery Pack assembly
Leak Test of Battery Cells

Leak Testing of battery cells after electrodes assembly (before electrolyte filling and sealing)

Testing with Helium as tracer gas in vacuum chamber

Typical leak rates in the range of $10^{-5} - 10^{-7}$ scc/s
Leak Test of Battery Cells

Leak Testing of battery cells after electrodes assembly (before electrolyte filling and sealing)
Leak Test of Battery Cells

Testing of complete prismatic battery cells in mass production

8 cells tested simultaneously in a double chamber machine
Leak Test of Battery Tray

Global test methods are recommended to minimize the cycle time in automatic production lines.

Air methods can be used, or Helium in accumulation chamber for higher testing sensitivity.

Test with Helium in accumulation chamber.
Leak Test of Battery Tray

Leak point localization with automatic robot sniffing machine

Sniffing all the potential leaking points from inside: a reliable method to verify the IP compliance of the part.
Leak Test of Battery Tray

The prefect design and realization of the sealing lid: one of the most critical points in the testing process
Testing of the housing sealing by Helium sniffing

Leak Test of Battery Pack Assembly

Leak point localization

Automatic machine for robot sniffing of a complete battery pack assembly

Testing of the cooling circuit by air method (pressure decay)
Leak Test of Battery Tray

Helium sniffing solutions

Leak point localization for off-line checking of scrap parts in Manual Repair Stations

Portable trolley for multiple testing methods

- He sniffing
- Air testing

Portable trolley for multiple testing methods

- He sniffing
- Air testing