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

MARPOSS

LEAK TESTING SOLUTIONS FOR BATTERY SYSTEMS

Nov. 18th, 2020

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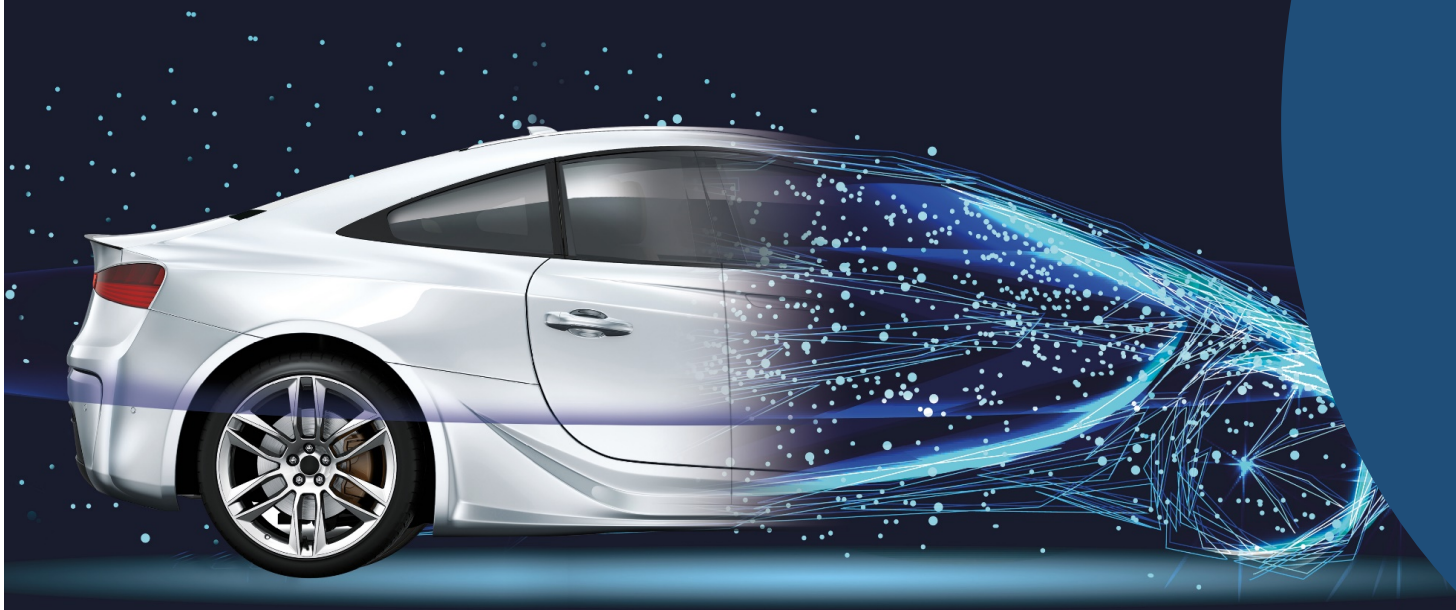
REVOLUTION



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Nov 18th, 2020

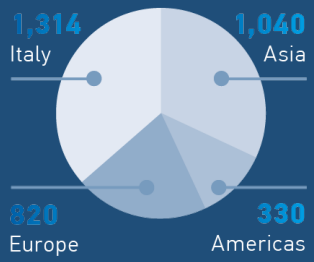
One Partner
Many solutions

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

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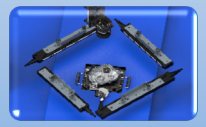
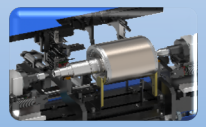
Wide range of technologies

 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 sofware
 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

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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

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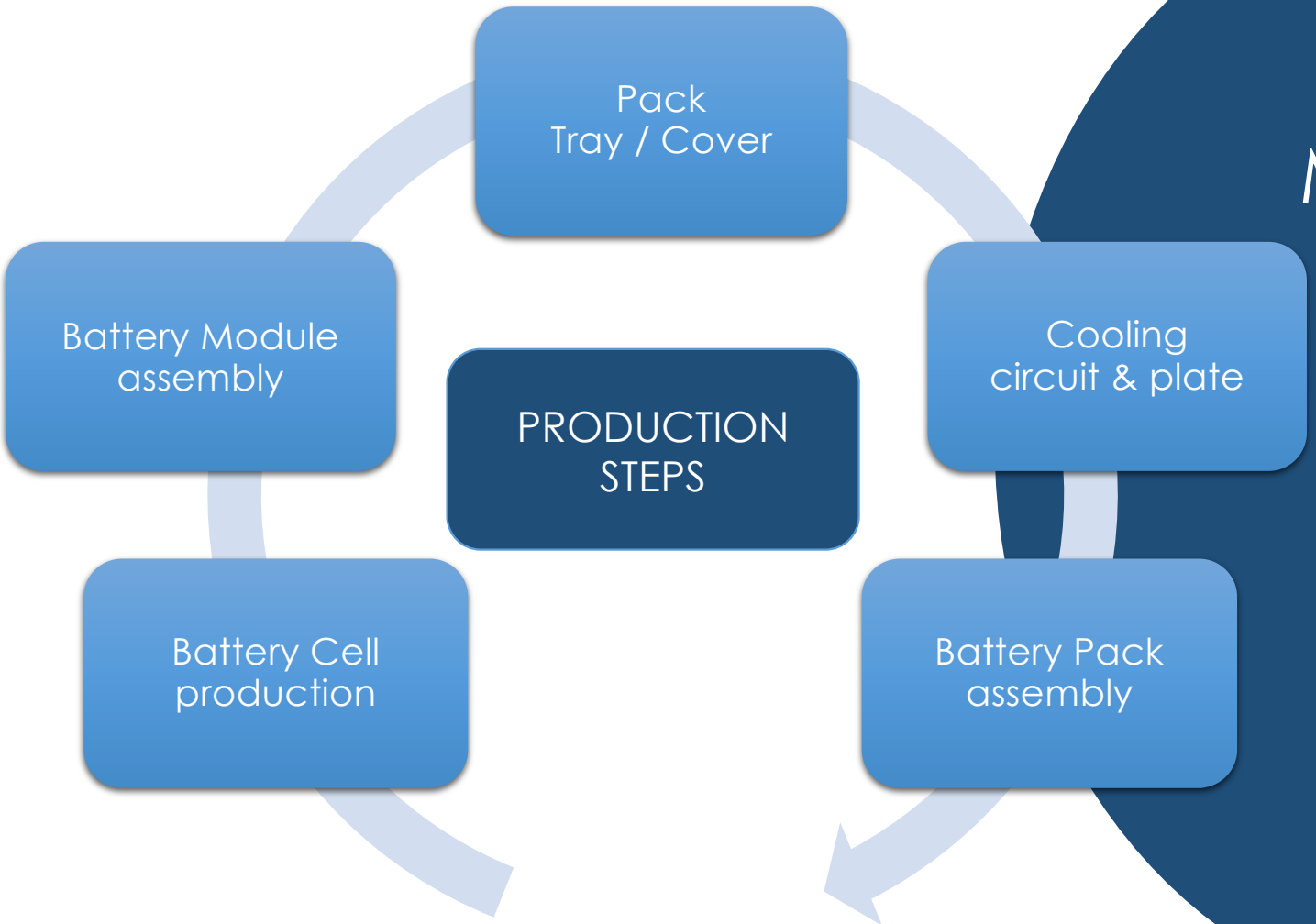

Sealing Issues in Battery Manufacturing Process

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

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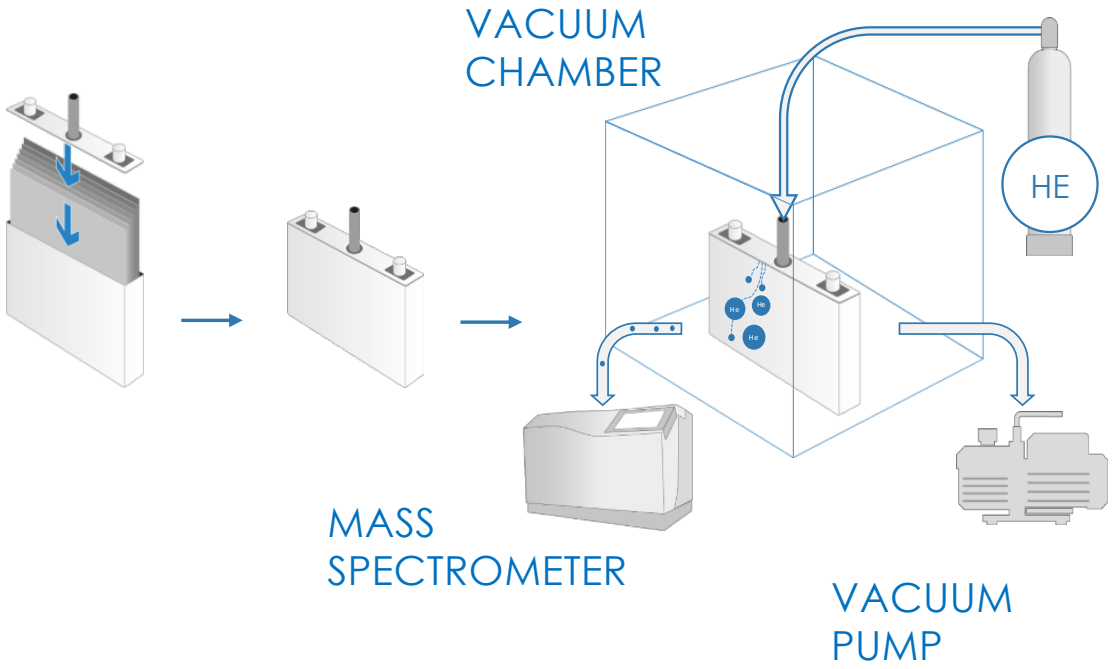
Testing with Helium as tracer gas in vacuum chamber



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)

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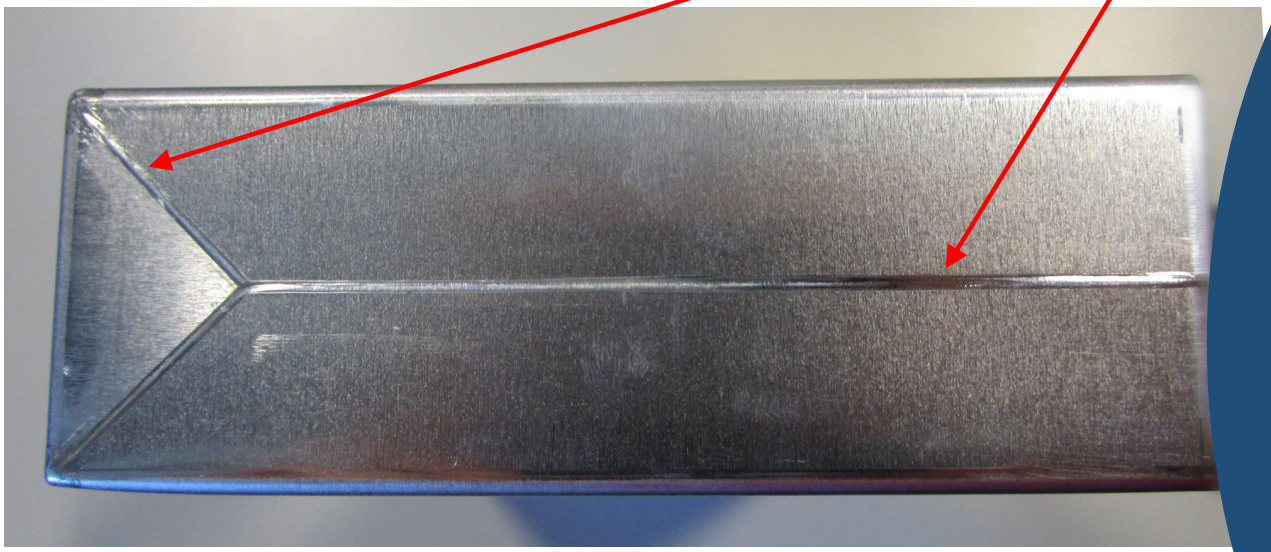

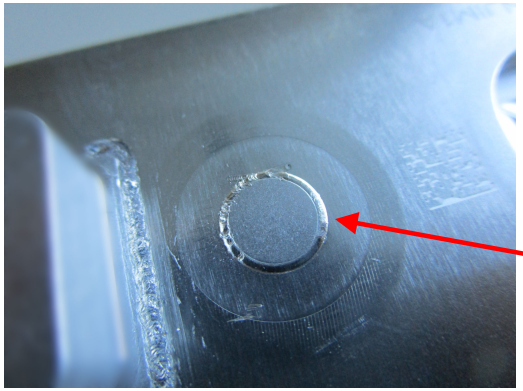

Leak Test of Battery Cells

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

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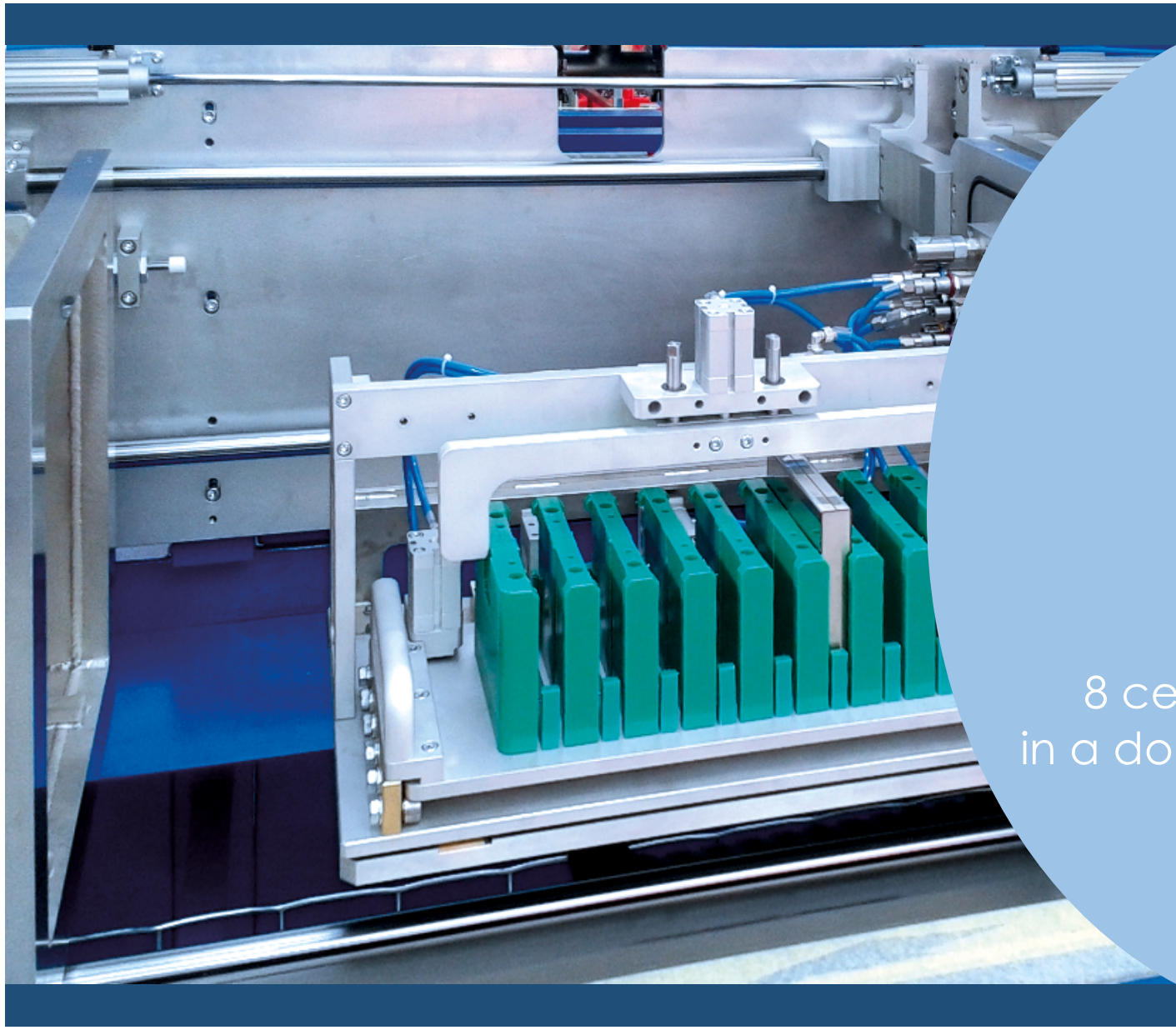

Leak Test of Battery Cells

Testing of complete prismatic battery cells in mass production

8 cells tested simultaneously in a double chamber machine

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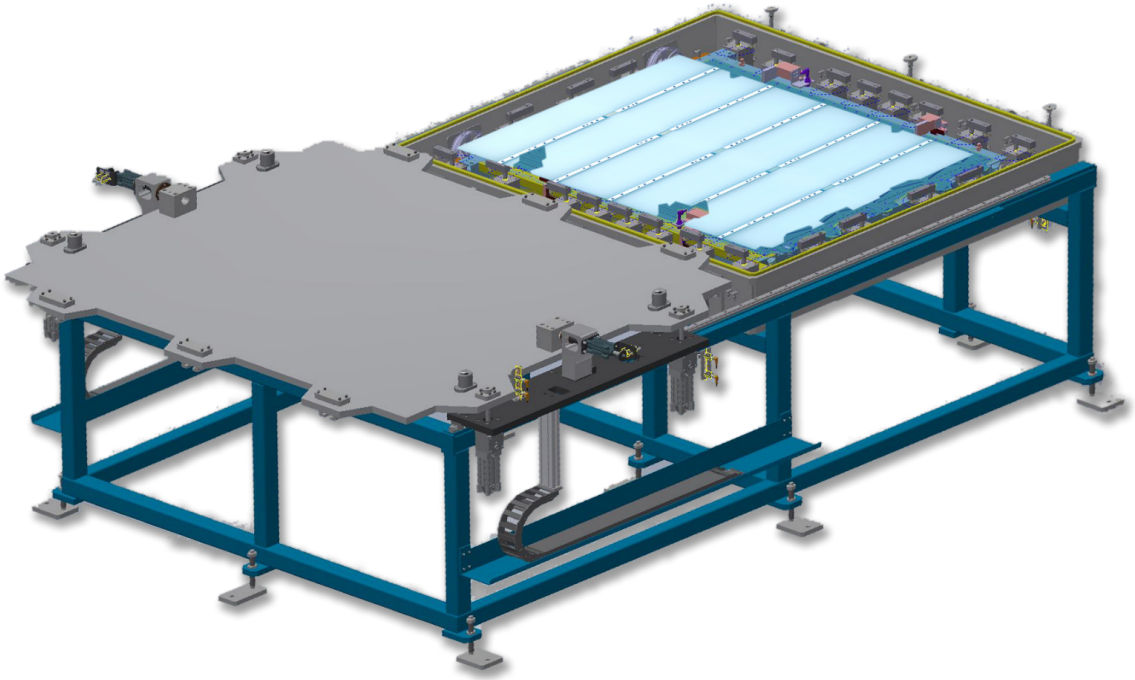
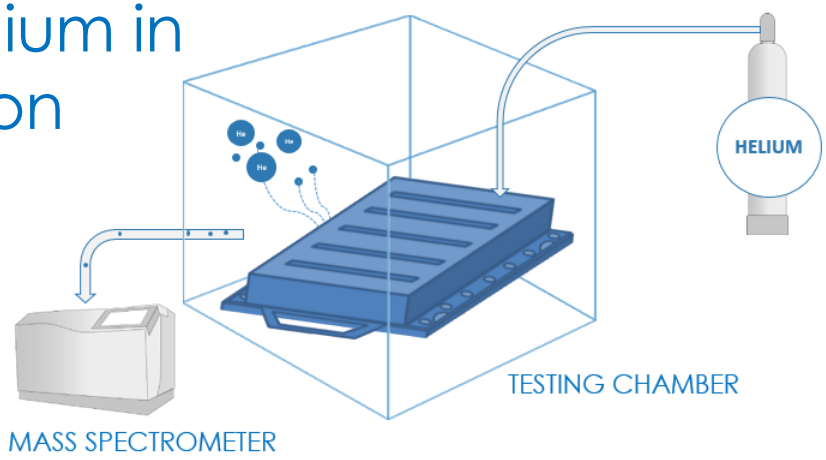


Leak Test of Battery Tray

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



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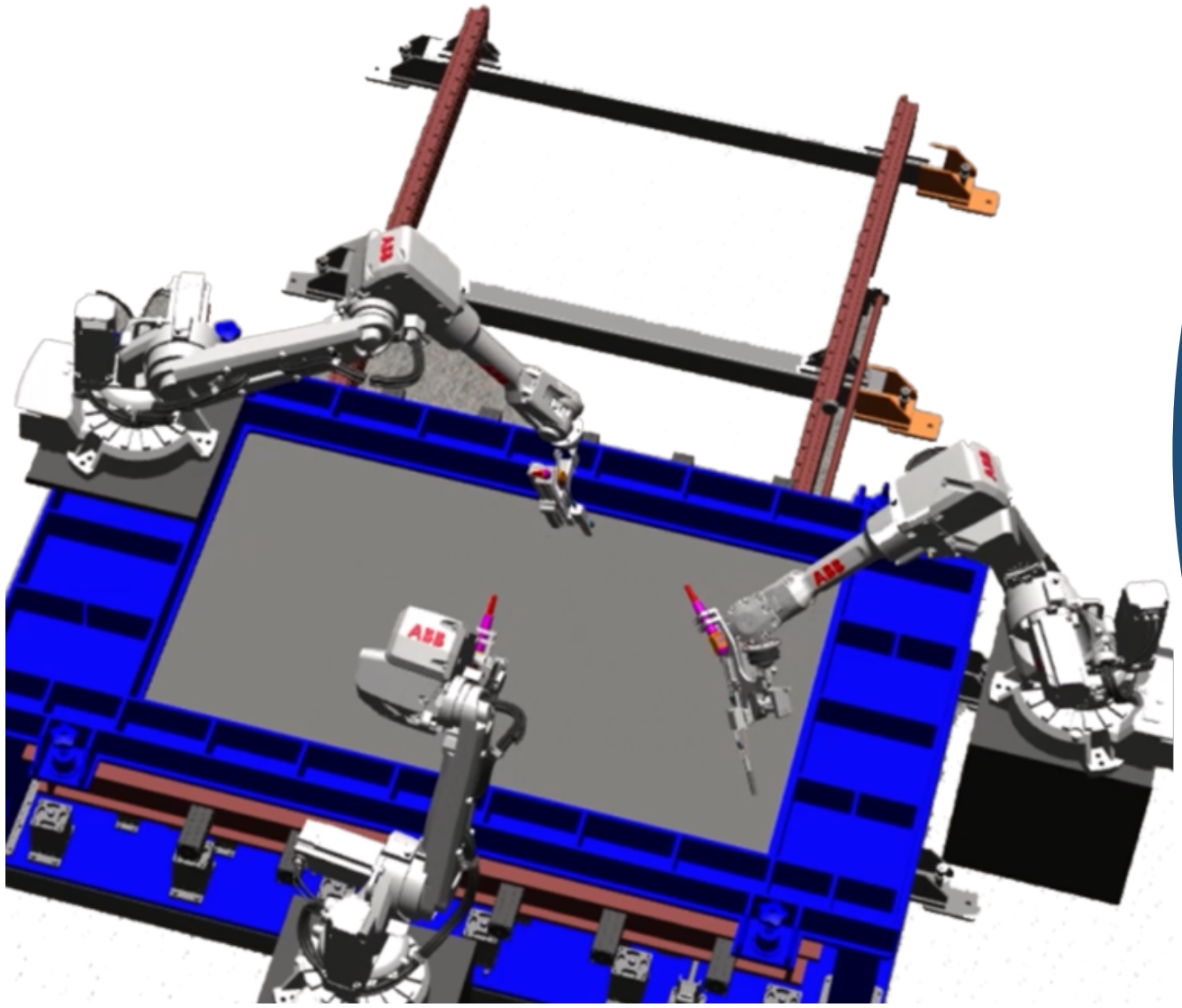

Leak Test of Battery Tray

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

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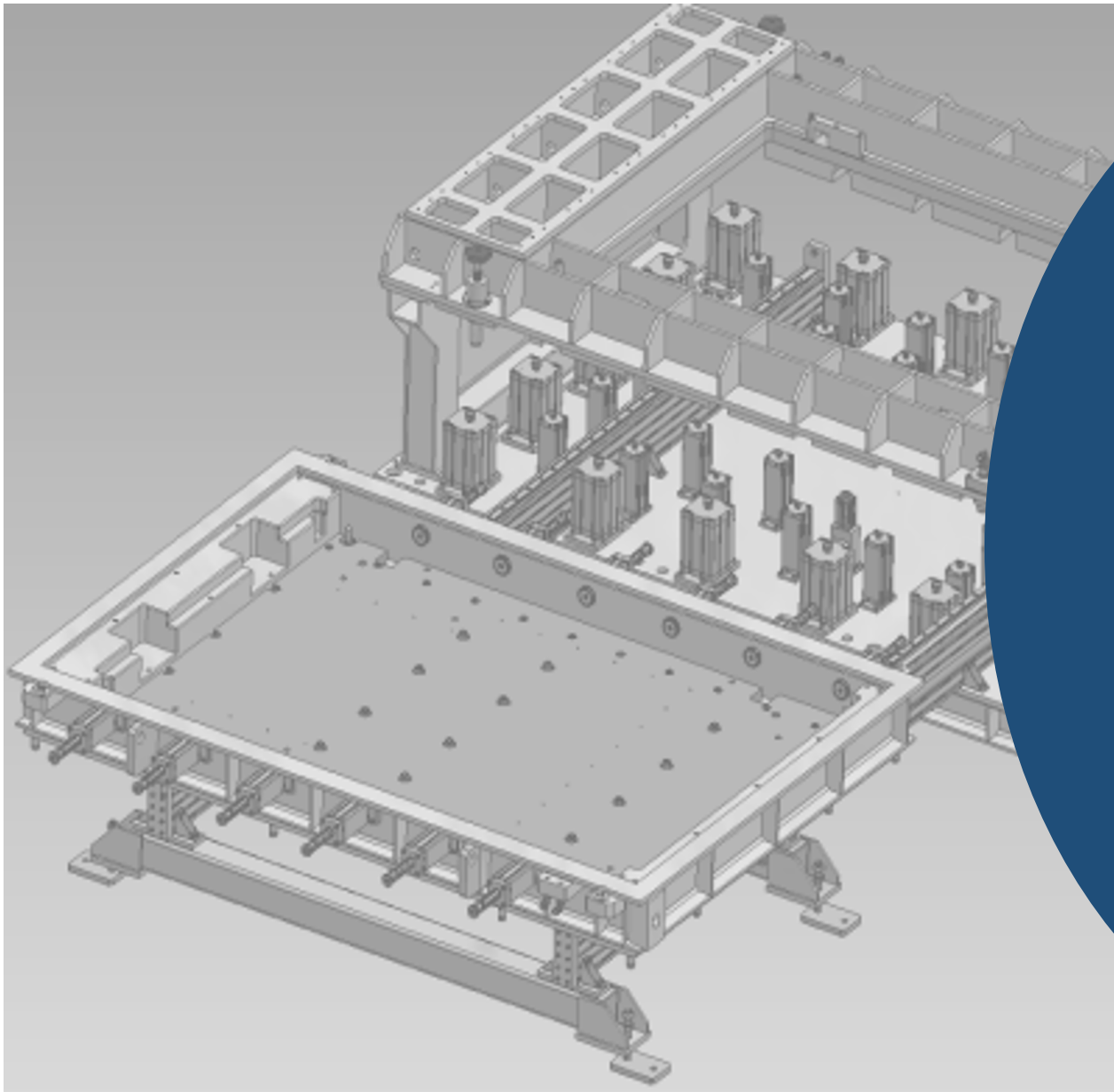

Leak Test of Battery Tray

The prefect design and realization of the sealing lid:

one of the most critical points in the testing process

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Leak Test of Battery Pack Assembly

Leak point localization

Automatic machine for robot sniffing of a complete battery pack assembly

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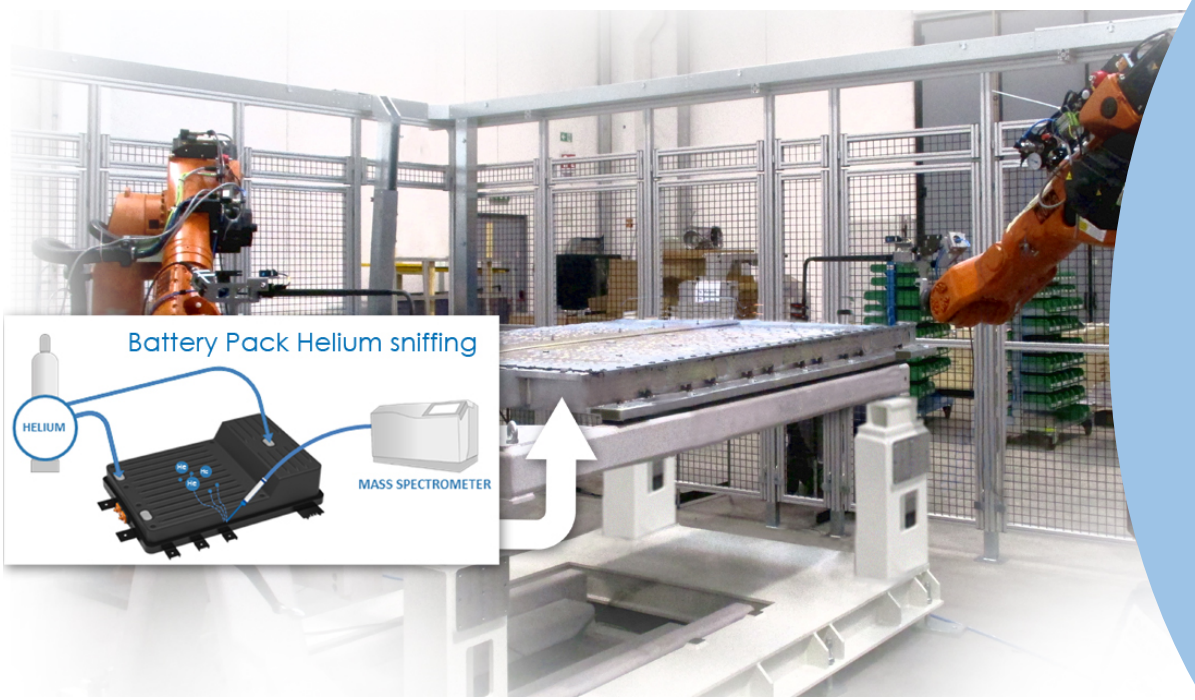
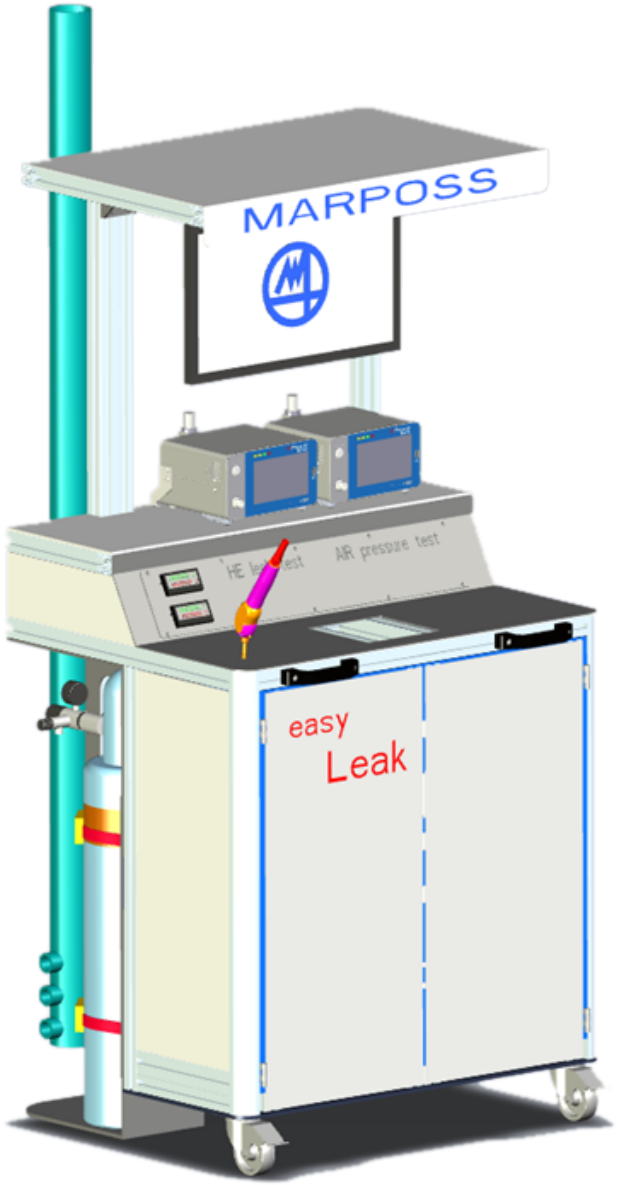
Testing of the housing sealing by Helium sniffing

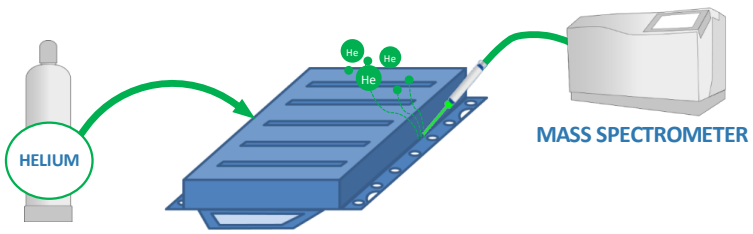


Testing of the cooling circuit by air method (pressure decay)



Portable trolley for multiple testing methods

- ✓ He sniffing
- ✓ Air testing



Leak Test of Battery Tray

Helium sniffing solutions

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

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