

weisstechnik Salt spray test chamber (GRP) for lithium-ion batteries without test piece temperature control

WHY

Corrosion resistance tests of lithium-ion batteries for electric vehicles at near-ambient temperature in the world's largest test centre for high-voltage batteries

HOW

Turnkey solution
According to GS 95024-3-1, sections K06 and K07 and DIN EN 60068-2-11
Including safety device (HL4)

WHAT

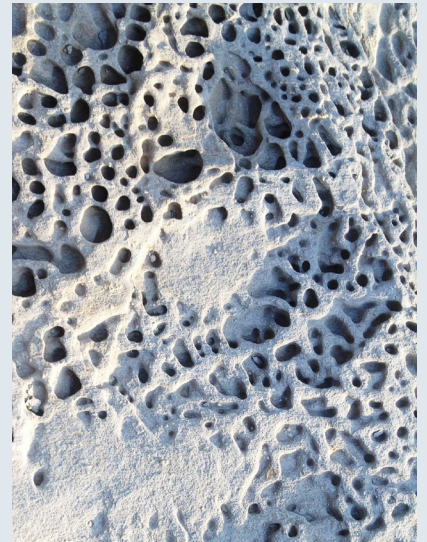
Walk-in special construction test chamber
GRP version
Without temperature control

WHY - The challenge.

FEV Group GmbH has built the world's largest development and test centre for high-voltage batteries for electric vehicles in Saxony-Anhalt. A wide variety of tests are carried out on 15,500 sqm and in around 70 facilities.

These include salt spray tests according to GS 95024-3-1 sections K06 and K07 and DIN EN 60068-2-11 for testing corrosion resistance. In the tests, lithium-ion batteries are exposed to a spray mist for a specified time at +35 °C to a spray of 5% NaCl water solution.

The turnkey salt spray test chamber shall be provided with safety equipment according to the determined hazard level.



HOW - The idea.

Since the tests are carried out at a constant temperature without temperature changes, the test chamber can be made of corrosion-resistant GRP components and plastic.

The salt solution in the test chamber is nebulised via 2-substance nozzles arranged in special spray channels on the side walls. The salt solution is nebulised in the test chamber with humidified, heated compressed air according to the injector principle. This ensures a uniform salt mist distribution over the entire test chamber area of 1.5 +/-0.5 ml /80 cm² h.

The chamber is heated by Gfk-covered electric heaters arranged on the inner walls.

What - The solution.

The salt spray test chamber has a 16 m³ test chamber for testing lithium-ion batteries (packs) in a saline atmosphere.

The interior of the chamber and the installations are made of corrosion-resistant GRP and plastic. For installation in the pit provided by the customer, the chamber is compactly built on a base frame and allows floor-level access. To ventilate the test chamber after a test, a fan is integrated to blow out air from the installation room. The salty exhaust air must be led outside on site.



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Selected Product: WT S 16'

The required safety devices for tests on lithium-ion batteries have been taken into account to a certain extent. The test chamber was set up in a separate area, additional safety equipment was provided by the customer.

Design Features:

- Brine storage tank 500 l
- Safety devices according to Hazard Level 4:
 - Electric door locking with emergency unlocking
 - Status display with signal lamp and horn
 - Reversible pressure relief flap in the sloping roof to compensation of pressure fluctuations in the test chamber
 - 2 draught- and pressure-resistant feed-throughs (200 mm with sealing plugs and plug protection on the outside)
- 2-leaf test room door with viewing window and rising hinges for installation in on-site pit with floor-level access
- Siphon for condensate drain
- Emergency stop button in the test room
- Ventilation fan and shut-off flap with status monitoring
- Feed-throughs for on-site pipelines for cooling the test specimen via glycol/water mixture
- Fault signal on potential-free switch contact