

WHY

Temperature tests of lithium-ion batteries for electric vehicles at the world's largest test centre for high-voltage batteries

HOW

Turnkey solution
According to LV 124
Safety device included

WHAT

7 modified standard temperature test chambers

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 square metres and in around 70 facilities.

This includes a wide range of temperature tests in accordance with the automotive test standard LV 124. Seven temperature test cabinets are to be delivered and put into operation. With open interfaces, the cabinets will be able to control customer equipment and receive data from it. The refrigeration will be supplied via the central refrigeration plant.

The turnkey temperature test chambers were to be equipped with safety features in accordance with the determined Hazard Level 4 (gas leakage).

HOW - The idea.

In order to work quickly and economically, tried and tested **weisstechnik** TempEvent test chambers are modified according to the customer's specifications.

For connection to the central refrigeration system, the standard refrigeration system is replaced by a pump circuit with an additional pump, a special heat exchanger and a suitable valve.



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WHAT - The solution.

Temperature tests at temperatures from -40 °C to +90 °C can be carried out in the modified TempEvent temperature test chambers. The average rate of temperature change with 90 kg test material (energy storage and holder) in the test chamber is 2.5 K/min. Thanks to their optimised airflow, the TempEvent cabinets provide excellent temperature constants with deviations of only ± 0.1 to ± 0.5 K (temporal) and ± 0.5 to ± 1.0 K (spatial).

The seven test cabinets are cooled externally via the test centre's central refrigeration system. Control is via the SIMPAC digital measurement and control system, operation and monitoring via a web panel with touch screen, status and warning display and the WebSeason operating software.



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Selected Product: **TempEvent T800/40/S**

According to the risk assessment for tests with lithium-ion batteries, safety devices according to Hazard Level 4 were integrated.

Design features:

- Safety devices according to Hazard Level 4:
 - Electric door locking with emergency unlocking
 - Status display with signal lamp and horn
 - Reversible pressure relief flap to compensate pressure fluctuations in the test chamber
 - Particle barrier on door seal
 - Tension- and pressure-resistant feed-throughs with sealing plugs and stopper protection on the outside
- Connection to central cooling system