

Moving responsibly and safely into the future

ISO Certification 9001:2008



Whether development, production, planning or sales, all TESVOLT processes are continuously and systematically monitored and checked. TESVOLT has received "ISO Certification 9001:2008" from the TÜV Rheinland for the successful implementation of a quality management system across the entire company.

IEC 62040

Declaration of Conformity [TÜV Rheinland](#) Registration Number AK 60103558 0001

The battery management system developed by TESVOLT has been successfully certified by the TÜV Rheinland. All relevant safety tests between the battery management system and the SMA Sunny Island were executed. The test was performed according to IEC 62040-1:2008.

51,2 volt storage system

TESVOLT storage systems use a nominal voltage of 51.2 V and are classified as medium performance batteries. This ensures a high level of installation and maintenance friendliness. Batteries in this class are used in the automotive sector, for bicycles and stationary storage systems. Voltages below 60 V DC (low voltage) are regarded as non-hazardous, even for animals and children.

ZSW nail penetration test

The ZSW (Centre for Solar Energy and Hydrogen Research in Baden-Württemberg) has performed a nail penetration test on the cells used by TESVOLT. The test was passed. The tested unit did not catch fire or explode. Gas from evaporating electrolyte escapes from the cells if they are mechanically damaged. The gases occurring in the case of a short-circuit contain low concentrations of organic solvents and hydrogen fluoride acids. This case is practically impossible if the battery is not mechanically damaged.

In addition, the TESVOLT storage systems are delivered worldwide in solid and sturdy steel housings.



Source: ZSW

Quality "Made in Germany"

TESVOLT have their own production facilities in Germany and nearly all the components used in the production process are from German manufacturers. The battery cells used are manufactured in Asia according to stringent TESVOLT quality criteria. TESVOLT performs quality control monitoring at several stages, from the individual cells to the turnkey storage system. Each individual cell is subjected to quality control monitoring in Asia and also by external testing bodies in Germany. The tested cells are then further processed by TESVOLT and the finished storage systems are then thoroughly tested at the factory in conjunction with Sunny Island inverters.

Battery management system (BMS)

TESVOLT uses a highly efficient, safety-oriented and certified battery management system for monitoring the individual battery cells.

The bidirectional balancing system has been developed by TESVOLT. The BMS monitors the temperature, voltage and charge state of each individual cell and controls these as a group of cells (stack). The BMS uses the individually measured parameters to determine the State of Health (SoH) and State of Charge (SoC) of each individual cell for early detection of faults and prevent damage to the cells. In addition, it allows both the defined charging of a cell in the other cells of a module and also the targeted charging of the affected cell from other cells in the stack. The BMS is constructed in a modular and flexible manner. A Master/Slave principle allows the implementation of capacities ranging from small lithium-based storage systems (10 kWh) to storage power stations at a MWh level.

Cell chemistry – Lithium-Iron-Manganese-Phosphate (LiFeMnPO₄)

High-quality, high-performance prismatic cells are used for the battery. The special composition prevents thermal runaway. The BMS also prevents overheating or overcharging of the cells (double redundancy). These cells are also used in the automotive sector.

“Emergency-off button” for the fire brigade

An On/Off switch is located at the upper right edge of the battery cabinet door. Actuating this switch immediately disconnects the battery and thus also switches off the charging and consumer circuits.

Return of defective or used batteries

As a manufacturer, TESVOLT is committed to accepting the return of defective or used batteries free of charge. The materials in the batteries are recycled in a technically correct and environmentally friendly manner according to the German Batteries Act (BATTG2006/66/EEG).

Glossary:

SoC – State of Charge

The BMS can use the measured parameters to determine the state of charge of a single cell, or cell stack, and stop the charging process if necessary. This prevents overcharging. The software also has the same functions for monitoring the discharge process in order to prevent unnecessary discharging of the cells. The system stops discharging of the battery when a defined minimum state of charge is reached.

SoH – State of Health

Precise monitoring allows the system to detect performance differences between individual cells and thus detect damaged/defective cells. The system switches off if necessary and notifies the installer of the situation. The defective cell is identified and can be easily changed.