



GUIDE BATTERY STORAGE · 8 MIN.

VdS 3103 and Property Insurers' Expectations: The Evidence That Secures Insurance Cover

What the VdS 3103 guidance sheet means for battery energy storage systems, which additional codes property insurers rely on, and which evidence designers and operators should provide so that insurance cover holds in the event of a loss.

What VdS 3103 Covers — and Why It Is More Than a Recommendation

The guidance sheet VdS 3103 "Lithium Batteries" published by VdS Schadenverhütung is the German insurance industry's central publication on handling lithium batteries in production and storage areas. First published in 2012 and last revised in the 2019-06 edition, it consolidates findings from fire tests on the storage and staging of lithium batteries. Legally, VdS 3103 is neither a statute nor a technical rule introduced under building regulations — its effect operates under civil law through the insurance contract.

Many property insurers expressly incorporate the guidance sheet into their contract conditions or make compliance with it a policyholder obligation. If agreed safety provisions are breached, the insurer can reduce the payout under the rules of the German Insurance Contract Act or, in extreme cases, refuse it. For designers, installers and operators of stationary battery storage systems this means: the property insurer's expectations belong in the project's requirements profile from the very beginning — on an equal footing with building law and occupational safety.

Note: Three Power Classes as an Organising Principle — VdS 3103 distinguishes lithium batteries of low, medium and high power — following the classification used in dangerous goods law. Medium-power batteries (above 100 Wh) must be stored separated or with sufficient distance (guide value: at least 5 m) from combustible materials. For high-power batteries, the guidance sheet requires fire compartmentation, monitoring of the storage area and individual coordination of the protection concept with the property insurer.

From Storage Guidance to Storage Project: Which Additional Codes Insurers Rely On

VdS 3103 was written for the storage and staging of batteries — a stationary battery energy storage system (BESS) in continuous operation goes beyond that. Underwriters therefore base their risk assessment on a bundle of further codes and evidence. In the German-speaking region, the Safety Guideline for Large-Scale Lithium-Ion Storage Systems published by the German Energy Storage Systems Association (BVES, 3rd

edition, November 2025) has become the shared reference; contributors to its development included the GDV, VdS Schadenverhütung, the DGUV and the association of professional fire brigade chiefs (AGBF Bund).

- European Battery Regulation (EU) 2023/1542: Annex V lists eleven safety parameters for stationary battery energy storage systems, four of them concerning fire and explosion protection (including protection against thermal propagation, internal short circuit, fire testing, gas emission).
- EN IEC 62619 (clause 7.3.3): propagation test as evidence that a thermal runaway of one cell does not spread uncontrolled through the system.
- UL 9540A: standardised test method for evaluating thermal runaway propagation at cell, module, unit and installation level — frequently requested by insurers internationally.
- NFPA 855 plus UL 9540/UL 1973 as American reference standards whose test results are also used in European protection concepts.
- VdS publications on active fire protection, such as those on fire detection and suppression systems, plus VdS 2010 on risk-oriented lightning and surge protection.

Thermal Barriers and Separation Distances: The Insurers' Central Assessment Criterion

At the core of every underwriting assessment is the question of whether a fire event remains confined to the affected unit. Since fire-fighting operations generally cannot prevent the total loss of a burning storage unit, structural separation determines the magnitude of the loss. The BVES guideline cites 5 to 10 m distance to other buildings and structures as orientation — always case-specific, and with the express advice to involve the property insurer as early as the design phase, because the insurer may impose further-reaching requirements.

Where distances cannot be achieved, thermal barriers take their place: non-combustible, solid partition walls — made of concrete elements or approved wall systems, for instance — extended at least 0.5 m above the top edge of the storage units and 0.5 m beyond each of their end faces. Alternatively or additionally, insurers and fire protection authorities accept large-scale fire tests where these demonstrate that fire spread from unit to unit is excluded or prevented for a sufficiently long time. For indoor installations, insurers expect fire-resistant partition walls of solid construction with tight- and self-closing closures, plus dedicated explosion relief openings to the open air.

Note: Fire Simulation Is No Substitute for Testing — For large-scale lithium-ion storage, verification based solely on fire simulations is considered unsuitable, because the course of the fire depends heavily on cell type, cell chemistry, state of charge and system design. What carries weight are propagation tests and large-scale fire tests in combination with structural measures.

This Evidence Belongs in the Underwriting File

The more complete the evidence package, the faster and on better terms a storage project can be insured. It has proven effective to present the insurer with structured documentation that links technical test evidence, structural execution and organisational precautions.

- Building permit with an approved fire protection verification or site-specific fire protection concept, including all conditions.
- Test reports on propagation and fire behaviour (e.g. EN IEC 62619, UL 9540A) plus CE conformity evidence under the Battery Regulation and the Low Voltage Directive.
- Execution evidence for the thermal barriers: fire resistance classes of the partition walls, fitness-for-use evidence for the penetration seals, documentation of the explosion relief devices.
- Description of fire detection, suppression systems and grid disconnection, including the alarm routes to the operator.
- Operating documents: risk assessment, maintenance and inspection schedule, emergency and fire brigade

plan, staff training records.

- Lightning and surge protection concept (DIN EN 62305 series, VdS 2010).

Maintaining Cover: Policyholder Obligations During Operation

Insurance cover is not a one-off commitment but is tied to ongoing compliance with the agreed safety provisions. These include the maintenance of the fire protection installations, keeping separation distances and explosion relief openings clear, continuous monitoring of cell parameters via the battery management system, and immediate notification of substantial changes — such as a capacity expansion, a cell change or structural interventions in partition walls and penetration seals.

It is advisable to document every recurring inspection and every repair in an audit-proof manner and to be able to present this to the insurer on request. Anyone who coordinates changes to the protection concept with the property insurer in advance avoids gaps in cover — and not infrequently benefits from better terms, because the risk is demonstrably under control.

Frequently asked questions

Is VdS 3103 legally binding for operators of battery storage systems?

Not as a statute, but frequently as part of the contract: many property insurers agree compliance with VdS 3103 as a policyholder obligation. A grossly negligent breach can lead to a reduction or refusal of the insurance payout in the event of a loss. The specific insurance contract is always decisive.

Is VdS 3103 sufficient as the sole basis for a large-scale storage project?

No. The guidance sheet deals with the storage and staging of lithium batteries. For stationary large-scale storage, insurers additionally draw on the BVES safety guideline, the safety requirements of the EU Battery Regulation (Annex V), propagation tests to EN IEC 62619 or UL 9540A, and the approved fire protection concept.

When should the property insurer be brought into a storage project?

As early as possible, ideally in the concept phase before the building application. Distances, thermal barriers and building services can be adjusted cheaply during design — retrospective insurer demands on a completed plant, by contrast, are expensive and time-critical.

Let us talk about your project

Reply within 24 hours on working days.

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