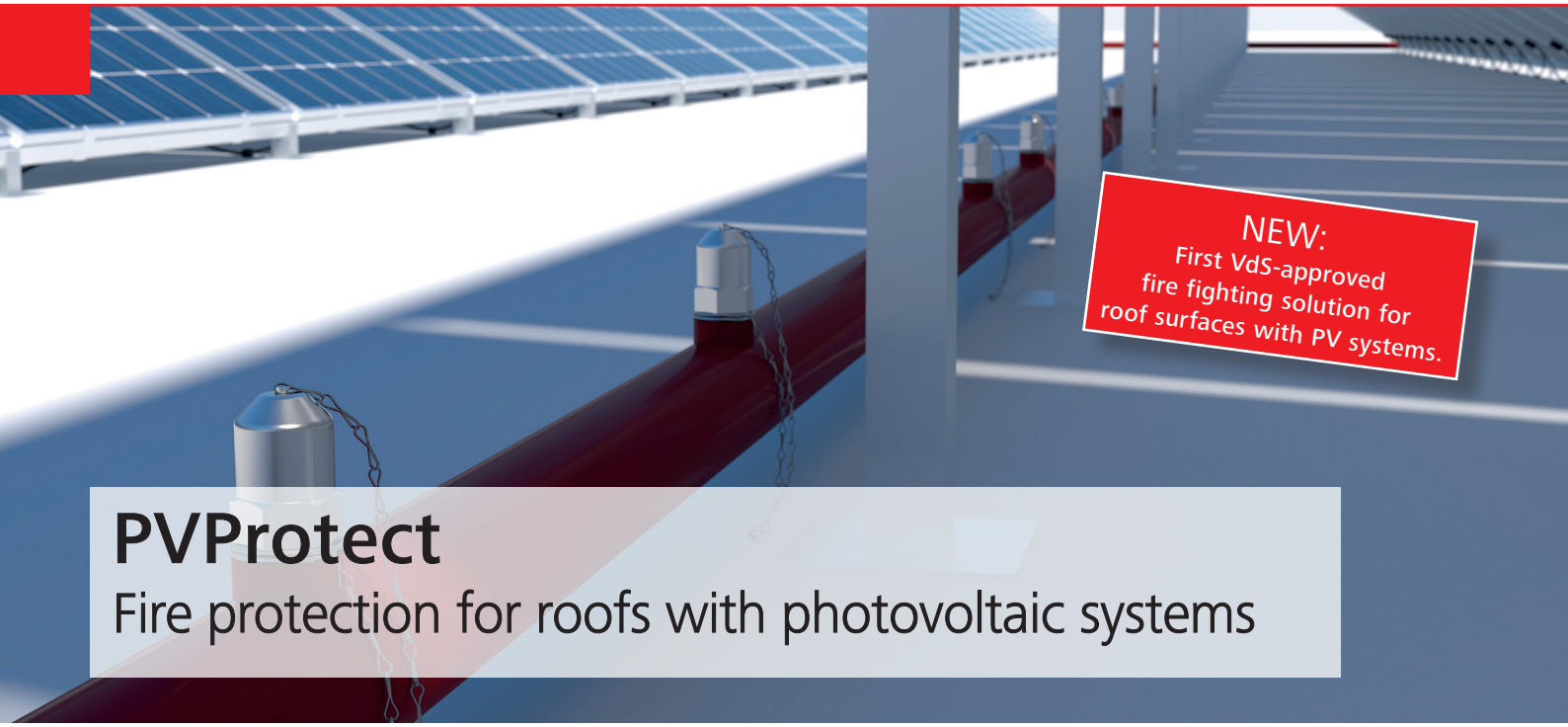


PVProtect

Fire protection for roofs with photovoltaic systems

The danger is hidden in the roof

The roofs of many industrial and commercial buildings are currently being equipped or retrofitted with photovoltaic systems to harness solar power. If a failure to these systems occurs and the roofing catches fire, it can spread quickly along the entire roof structure. Because the smoke is easily dispersed by wind and the flames are difficult to make out from below, such fires are often detected only at a late stage and thus have time to spread. The result can be serious damage to the facilities and high costs due to operational downtime, repairs and replacements, if not complete destruction of the building.

The fire fighting system PVProtect uses a holistic protection concept to shield lives and property from such disastrous fire damages: linear heat detectors monitor the area below the photovoltaic modules for unusual temperature increases. If a fire is detected that way, PVProtect locates it and automatically initiates the suppression in the affected area of the roof. Water then flows into the pipework and is distributed evenly via the special PV nozzles. Simultaneously, the system alerts the emergency services and distributes a warning signal to enable a safe evacuation of the people on site.

Your benefits at a glance

- Can effectively protect against extensive fire damage to the roof structure
- Helps to minimize serious follow-up costs caused by operational downtime and lost turnover
- Is particularly suitable for combustible insulation materials
- Can be integrated into existing sprinkler systems
- Improves the overall insurability of buildings with photovoltaic systems

VdS-approved protection for roofs

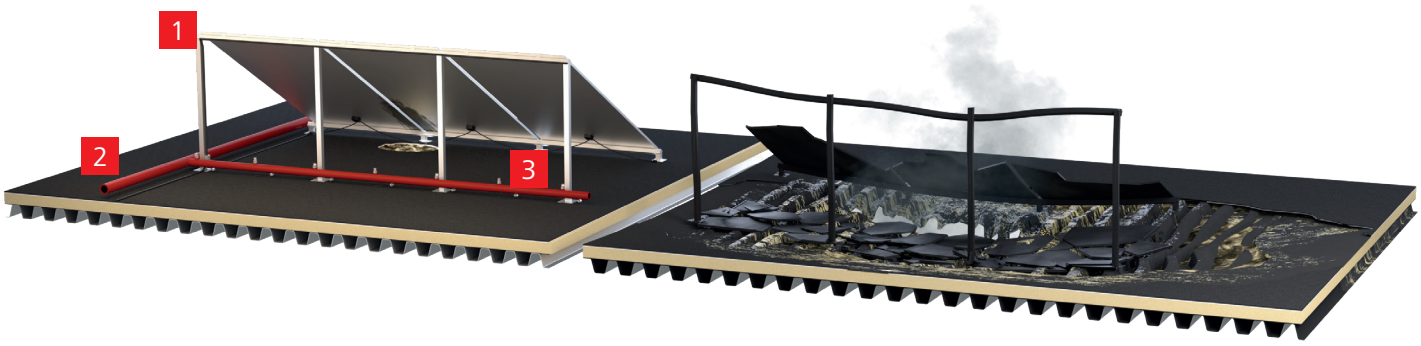
PVProtect was specifically developed to protect roofs with photovoltaic systems, especially those equipped with combustible insulation materials. This makes it the first system approved by VdS Schadenverhütung with automatic fire suppression.

Additionally, PVProtect is also recommended by leading insurance companies, because it is an effective countermeasure against the increased fire risk brought on by the installation of a phtovoltaic system: cables, connectors and electrical components of a photovoltaic system are potential ignition sources because they are constantly exposed to weather conditions and thus may age, wear out or damage more quickly. The high currents that flow through these components can create electrical arcs which can easily ignite a fire. If not suppressed in time, it can spread throughout the entire roof and cause serious damage.

PVProtect is designed to detect such fires early on, suppress them effectively and automatically using specially developed PV nozzles, and at the same time alert the emergency services and people on site. The system therefore helps to prevent the flames from spreading further and thus assists to reduce the damage which the fire may cause.

PVProtect was tested for effectiveness in full-scale fire tests, and both the system as a whole as well as individual components have been approved by VdS Schadenverhütung.

Typical fire damages of a roof with and without PVProtect



1 Heat detection cable

2 Pipework

3 PV nozzle

Fire spread with PVProtect

- Sensors in the heat detector cable identify the incipient fire
- Automatic fire fighting is initiated immediately
- PV nozzles distribute water evenly across roof surface
- Fire damages and subsequent downtime are reduced significantly

Fire spread without PVProtect

- The incipient fire remains undetected
- It can spread across the roof and within the insulation, resurfacing in unexpected locations
- This may result in large-scale damages, long downtimes and high costs for repairs and business interruptions

Minimax makes the difference

- First VdS-approved fire fighting solution for roofs with photovoltaic system
- Detects and suppresses incipient fires automatically
- Allows for cost-effective integration into existing fire fighting systems

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