

The VdS approval process for a water mist system based on a practical example – VdS philosophy, standards and guidelines, practical example

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BIO: Kamil Świetnicki has got 7 years' experience working with fire suppression systems. His work has primarily focused on water mist and sprinkler systems. He has had made a Master's degree on the Warsaw University of Technology with the topic of smoke ventilation in the parking garage in 2011. Works in VdS since 2012. Kamil has done several water mist system inspections in Europe and Middle East and several design discussions on very big water mist system projects. In VdS Kamil is also responsible for the FM guidelines and working in the group who is preparing the way of inspections of FM guidelines by VdS. Except the water mist system Kamil has done hundreds of sprinkler system inspections in most of the Europe. During the work in VdS, Kamil participated in lot's of trainings with fire suppression systems topics. Kamil has been conducting trainings for external companies cooperating with VdS for two years.

Abstract

VdS is an independent institution and approval body which has been ensuring safety and trust in the fields of fire protection and security for many decades. Our customers include industrial and commercial enterprises, leading manufacturers and systems houses, service providers, specialist firms and insurance companies. VdS Schadenverhütung GmbH (short: VdS) has international presences (10 offices) and over 500 employees. VdS is the preferred partner in matters of fire protection and security – especially regarding the VdS approved systems and components.

The general approval process is based on the guidelines VdS 2562 and VdS 2344 and structured in several steps. Running fire tests for proofing the effectiveness of the system to be approved as well as mechanical testing to ensure safety and reliability of components are major steps in the approval process. After completion of these steps the manufacturer finally has to develop a planning and installation manual which has to be approved by VdS, too.

For standard applications acc. to VdS 3188 (VdS Guidelines for Water Mist Systems – Planning and Installation) Annex K there are standardized VdS fire test protocols available. However, customers are always welcomed to introduce also new fields of applications for water mist systems. Existing fire test protocols are continuously revised and updated. One of the recently updated fire test protocols is the one for "Protection of Office Spaces and Accommodation Areas with Water Mist Sidewall Sprinklers" (VdS 3188 Annex K.1.3). The revision was necessary in order to meet the requirements of VdS 3188 and to respond to needs defined by the market. In addition it was the pronounced goal to give the customers more flexibility in terms of system design and scope of application.

As indicated by the name of the fire test protocol it covers two different types of applications: office spaces and accommodation areas. The customer has the option to apply for only one type of application or both. In course of the test series, the system to be approved has to run through at least 5 fire tests for each application. Within one test series different scenarios shall be tested:

- small rooms covered with only one sidewall sprinkler
- larger rooms covered by two sidewall sprinklers on the opposite sidewalls
- larger rooms covered by two sidewall sprinklers on the longitudinal sidewall.

The fire load is located in a position, which is in relation to the room geometry considered to be the worst-case. The fire load applied for the revised test protocol is well known and established by the VdS fire test protocols for office areas and accommodation areas with only slight modifications.

Regarding definition of pass/fail criteria for the revised test protocol a complete new approach for VdS was chosen. The test protocol requires fixed pass/fail criterias (damage + temperature) instead of running reference tests with conventional sprinklers acc. to VdS CEA 4001. For definition of acceptable damage + temperature criteria an extensive research and evaluation of fire testing data was done.

The revised test protocol was published in 2016 and has been well proven in practice meanwhile. Considering that different manufactures already run the tests acc. to the revised protocol with positive results it can be considered that the approach for revision was right.

The new structure and layout of the revised test protocol will be applied in future to all test protocols under revision.

KEYWORD: VdS Schadenverhuetung, water mist, approval body, approvals, sidewall sprinkler