

Case story | SEM-SAFE® high-pressure water mist system

Heinrich-Hertz-Institute in Germany

High-rise building protected with high-pressure water mist for fire fighting
Danfoss Fire Safety A/S



Situated in the capital of Germany, the Heinrich Hertz Institute has a worldwide reputation for leading-edge research and development in information technologies. Consistently orienting its field of expertise towards developing the demands of the present and future market, the institute provides solutions for medical technology, network providers, security systems, education, the entertainment industry, the automotive industry, virtual worlds and eGovernment.

Centre of innovation

The foundation of the Heinrich Hertz Institute dates back to 1928. The building was finished at the actual place Einsteinufer 37 in 1968. With a height of close to 100 metres, the building houses laboratories, laser rooms, a special 3D cinema, computer work spaces, meeting and conference facilities, offices, a big exhibition lobby, server rooms, cafeterias, various rooms for heating, emergency diesel backups and batteries, workshop areas, etc.



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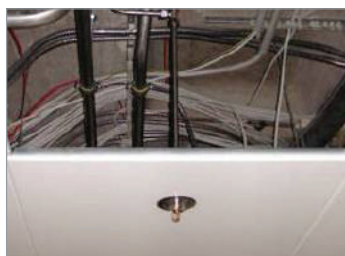
During the renovation of the building, the Berlin fire brigade examined whether the 50-year old steel-concrete construction was properly protected against fire. The conclusion was that a fire-fighting system had to be installed in order to increase the fire resistance of the walls and floors, e.g. suspended ceilings, concrete floors, etc.

Considering especially the high value of the ongoing research projects in the laboratories, the owner clearly expressed a preference for a system that would keep fire damage at an absolute minimum, while limiting water damage in case a fire should break out. With this in mind, SEM-SAFE® high-pressure water mist from Danfoss for fire protection was chosen. The system was installed and commissioned in collaboration with our the Danfoss business partner, Callies Brandbekämpfungssysteme GmbH.



The SEM-SAFE® nozzles blend in with the architectonic design scheme.

600 suspended ceilings and subfloors nozzles and 650 public space nozzles have been installed in the building.



The benefits of SEM-SAFE® high-pressure water mist

- Low consumption of water.
- Minimum water damage in case of a fire situation as well as low fire damage, thus resulting in less downtime.
- Small pipe dimensions that accommodate a clean architectural design: easy to bend, handle, fit and install.
- Reliability offered by the high-tech system and components: nozzle features and powerful pump performance that can provide the required pressure without pressure losses or other problems even at the top level floors.

Standing at an impressive 17 stories, with 10,000 m² floor space, the building is classified OH2 hazard (144 m²). It is separated into 21 sections (17 floors and 4 installation chutes). The pump employed is a 4xPAH 80 system with a capacity of 448 litres/minute at 120 bar. The pump unit tank holds 1,200 litres and is connected with two booster pumps to a second water tank at the lowest building level with an additional capacity of 9,500 litres. The system is additionally connected to the public water supply in Berlin and to an extra water supply station operated by the Berlin fire department. The building has been fitted with 1,250 nozzle heads as well as some 6,000 metres of piping.



The unique and compact Danfoss pumps offer up to 95% energy efficiency and very low pulsation, thus reducing noise.



Danfoss' high-pressure VDHT valves are made from stainless steel and are highly corrosion proof and dirt resistant.