VID FIREKILL
LOW PRESSURE WATERMIST

Data Center
Low Pressure Watermist
Fire Protection

DATA CENTERS

VID FIREKILL is a world leading innovative developer and manufacturer of water based firefighting products, specializing in fixed water based systems utilizing environmentally friendly firefighting methods.

A data center houses IT equipment used to collect, process and store data for digital activities. Thousands of servers and cables are stored inside these facilities and due to the massive power density in the electrical equipment in server rooms, data centers need fast acting fire suppression systems to protect equipment, ensure personnel safety and safeguard business continuity.

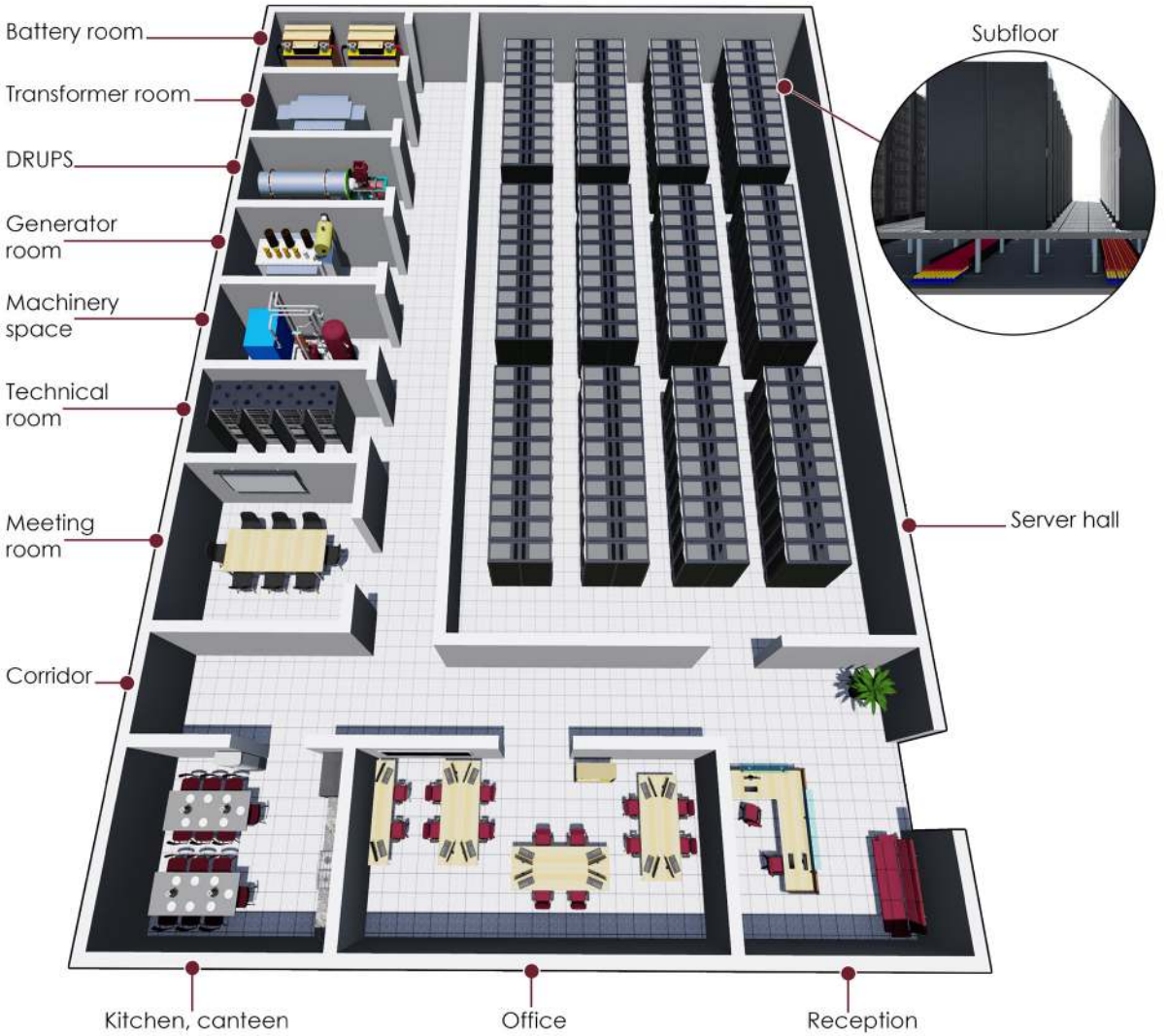
The **FIREKILL™** FM approved low pressure watermist system is an ideal solution for protecting data centers and data processing equipment against fire.
The robust system ensures a fast, reliable and cost effective fire suppression solution with low water pressure and water flow rates.

FM APPROVED TO PROTECT ALL AREAS OF DATA CENTERS

The **FIREKILL™** low pressure watermist system is FM approved to protect all areas of modern data centers from server halls to special hazards.

- Data Processing Equipment Rooms / Halls Above and Below Raised Floor
- Approved for protection of data halls using Li-ion batteries in distributed power systems
- Offices / Circulation Spaces / Electrical rooms
- Transformers / Generators

In comparison to high pressure watermist systems, low pressure watermist can be combined with conventional sprinkler technology. The **FIREKILL™** low pressure watermist pumps and water tanks can be combined with traditional fire sprinklers protecting HC2 and HC3 areas to offer an FM approved hybrid solution where watermist approvals do not exist.



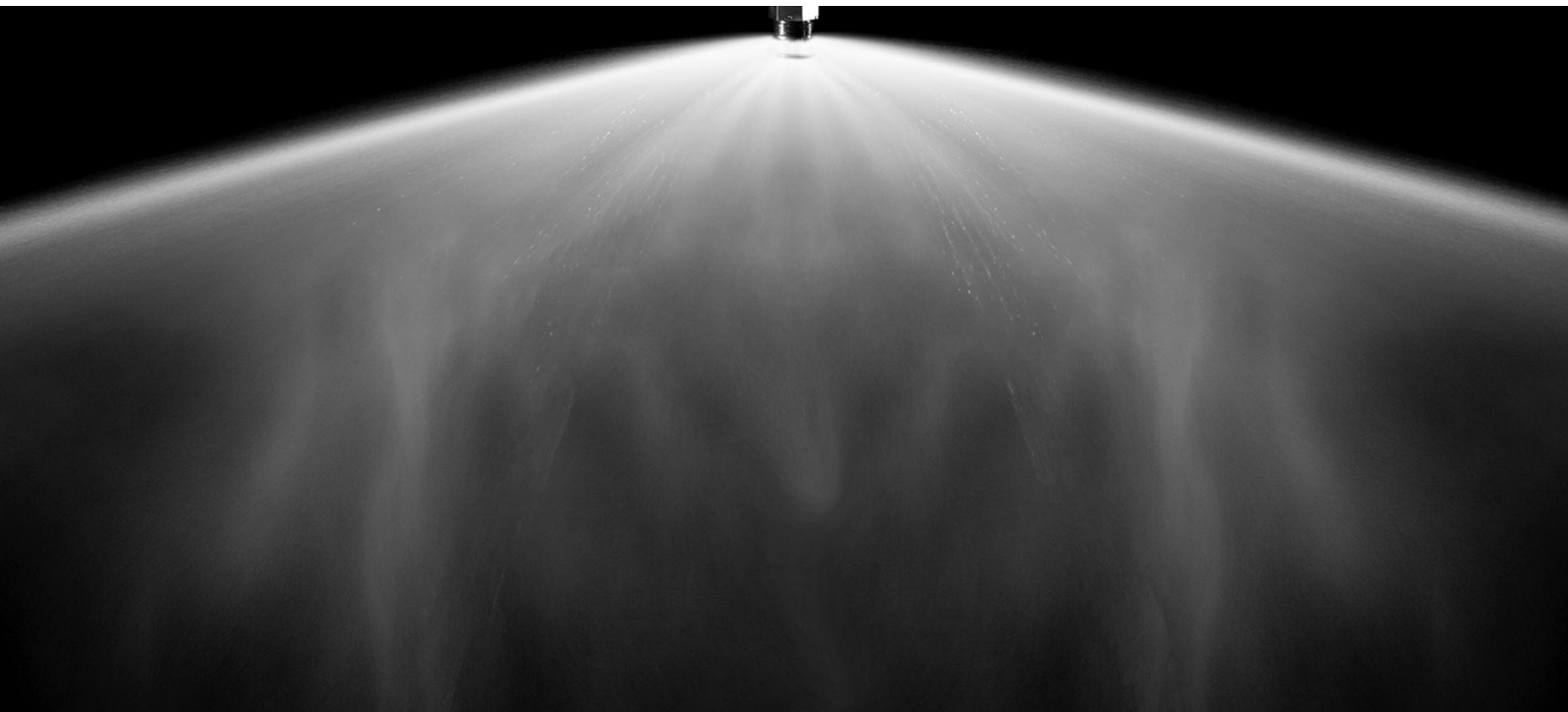
FULL FIRE PROTECTION WITH 8 BAR

The **FIREKILL™** low pressure watermist system for data centers offers complete fire protection with a water pressure down to 8 bar / 116 PSI while using as little water as high pressure watermist systems typically operating at plus 60 bar / 870 PSI.

The low water pressure increases reliability and robustness as found in conventional sprinkler systems and it also helps reduce installation, operational and maintenance cost.

Facts about Low Pressure Watermist:

- Low pressure watermist systems can be designed, installed and maintained with the same skillset as if it was a conventional sprinkler system
- Low pressure watermist can be combined with conventional sprinklers for a hybrid system
- Low pressure watermist systems use the same pressure class components as conventional sprinklers systems (EN: <16bar / 230PSI, NFPA: <12bar / 175PSI)
- Low pressure watermist systems are more robust and reliable than high pressure watermist systems as the system waterways and nozzle orifices are larger
- Low pressure watermist systems require less electricity than conventional sprinkler systems and high pressure watermist systems
- Low pressure watermist systems are approved to the same approval standards as high pressure watermist systems



BENEFITS OF THE FIREKILL™ LOW PRESSURE WATERMIST SYSTEM

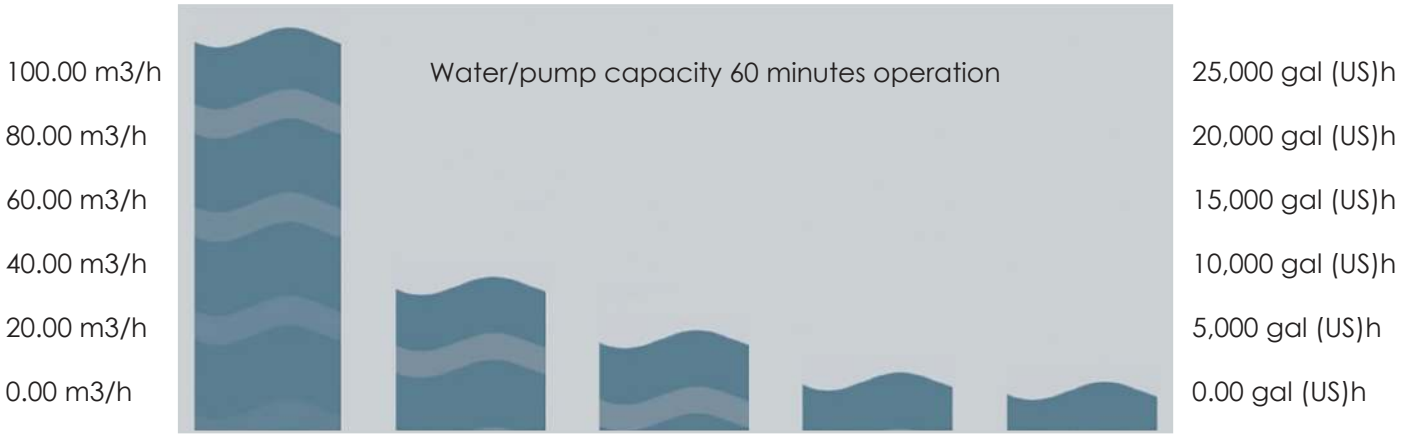
Successfully tested and FM approved
The **FIREKILL™** low pressure watermist system is FM approved to protect all areas of modern data centers from data halls to special hazards.

Environmentally friendly
The **FIREKILL™** low pressure watermist system requires very low water flow rates resulting in a water saving of 60-90% compared to conventional sprinkler systems. Similar water savings are found when using high pressure watermist systems, though with the **FIREKILL™** low pressure watermist system the water saving can be obtained with a much more energy efficient solution. With lower water consumptions than conventional sprinkler systems and lower water pressure than high pressure watermist systems the **FIREKILL™** low pressure watermist system is the most environmentally friendly solution found on the market.

Cost effective
With the use of low water pressure and low water consumption the **FIREKILL™** low pressure watermist system can be designed with small system components (e.g. reservoir, pump, pipes and fittings) resulting in cost savings. Further, as the system installation procedures are similar to the installation of conventional sprinkler systems, but with less nozzles and smaller pipes, installation work can be done fast and easy saving time and money.

Space saving and scalable
The water tanks used for low pressure watermist systems are much smaller than those used for conventional sprinkler systems leaving more space for server cabinets. In case of facility expansion, additional pipes, valves and nozzles can easily be installed to new areas, supported by the original water supply and pump set.

- **FM** approved to protect complete data centers
- Low water consumption
- Low water pressure
- Minimal water damage
- Energy efficient pumps
- Small water tanks
- Scalable
- Easy installation and low maintenance
- No need for ventilation system shutdown
- Non-toxic



Typical power consumption	30 kW	15 kW	15 kW	11 kW	45 - 60 kW

Source: FM Data Sheet 5 - 32, FM Approvals and Water/Pump Capacity

COMPONENTS USED IN THE FIREKILL™ LOW PRESSURE WATERMIST SYSTEM FOR DATA CENTER PROTECTION

FIREKILL™ OH-DC1 is an automatic pendent low pressure watermist nozzle tested and approved for data processing equipment rooms/halls **above** raised floor in accordance with FM 5560:2016, Appendix M Watermist Systems.

FIREKILL™ OH-DC2 is an automatic upright low pressure watermist nozzle tested and approved for data processing equipment rooms/halls **below** raised floor in accordance with FM 5560:2016, Appendix N Watermist Systems.

FIREKILL™ OH-VSO is an automatic pendent low pressure watermist nozzle tested and approved in accordance with FM 5560 HC1 for offices, reception areas, corridors, canteens and other HC1 areas.

FIREKILL™ OH-PX2 is an automatic low pressure watermist nozzle designed for the protection of HC2 and HC3 areas and data processing equipment rooms/halls where Li-ion batteries are used.

FIREKILL™ K6 is an FM approved total flooding low pressure open watermist nozzle for protection of mechanical and electrical equipment found in machinery spaces.

FIREKILL™ LAK-7 is an FM approved open low pressure watermist nozzle designed for local protection of high-risk machinery in large industrial spaces.

FIREKILL™ Model C-EL Valve is an FM Approved electrically operated cotrol valve designed for operation in open deluge systems as a zone valve or a full flooding valve. Together with the **FIREKILL™** K6 nozzles the model C-EL has been tested and certified in accordance with FM 5560 Appendix G for watermist systems.

FIREKILL™ Model C-EL-PA Pre Action Valve is a series of robust and reliable stainless-steel deluge pilot-control valves. The automatic pre-action valve is typically installed below and above data halls. The inclusion of the Model C-EL-PA Pre-Action trim allows the system to monitor dry-pipe pressure drops creating additional false alarm prevention. The Model C-EL-PA valves are FM Approved as a part of the **FIREKILL™** low-pressure watermist system for protection of data processing equipment rooms/halls above and below raised floors.

FIREKILL™ Model WAC Alarm Valve is a wafer style alarm check valve designed to detect the low water flows created when the watermist nozzle activates. The Model WAC utilizes a clapper function to detect the flow which ensures a safe and robust detection function. The WAC alarm check valve is FM Approved together with the OH-DC1, OH-DC2 and OH-VSO nozzles.

FIREKILL™ Compact low pressure watermist pump consisting of non self-priming frequency controlled vertical stainless steel centrifugal pumps including controller.

APPROVALS

All our products are successfully tested by ISO17025 accredited fire test laboratories and FM Approved to comply with the latest updates of international approval standards for watermist systems and components for fire protection.

Local protection

Certificate of Compliance

This certificate is issued for the following:

Water Mist System

System Designation:	FIREKILL™ Low Pressure Water Mist System for the Protection of Local Applications
Design, Installation, Operation and Maintenance Manual:	FIREKILL™ Low Pressure Water Mist System for Protection of Local Applications Design, Installation, Operation, and Maintenance (DIOM) Manual, Document ID: 201208-01-D, Revision: D, Date of Issue: 02-03-2021

Prepared for:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

Manufactured at:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

FM Approvals Standard Class: 5560 Dated: April 2016

Approval Identification: PR452981 Approval Granted: March 29, 2021

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

David B. Fuller
VP, Manager – Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062

Data processing equipment rooms/halls above and below raised floor

Certificate of Compliance

This certificate is issued for the following:

Water Mist System

System Designation:	FIREKILL™ Low Pressure Water Mist System for the Protection of Data Processing Equipment Rooms/Halls Above and Below Raised Floors
Design, Installation, Operation and Maintenance Manual:	FIREKILL™ Low Pressure Water Mist System for Protection of Data Processing Equipment Rooms/Halls Above and Below Raised Floors Design, Installation, Operation, and Maintenance (DIOM) Manual, Document ID: 180209-01-16, Revision: 06, Date of Issue: 23-04-2019

Prepared for:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

Manufactured at:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

FM Approvals Standard Class: 5560 - April 2016

Approval Identification: PR448914 Approval Granted: May 30, 2019

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

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1151 Boston-Providence Turnpike
Norwood, MA 02062 USA

FM Hazard Category "HC1" equal to most NFPA light hazards and EN Ordinary Hazard 1

Certificate of Compliance

This certificate is issued for the following:

System Designation:	FIREKILL™ Occupancy Protection System using Model OH-VSO & OH-OS automatic nozzles
Design, Installation, Operation and Maintenance Manual:	FIREKILL™ Occupancy Protection System using Model OH-VSO & OH-OS automatic nozzles, Design, Installation, Operation and Maintenance Manual (DIOM) for protection of Non-Storage Occupancies, Hazard Category 1 (HC-1), Doc. No.: 40605-02-03, Issue/Date: September 28, 2015

Prepared for:
VID FIRE-KILL APS
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Manufactured at:
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DENMARK

FM Approvals Class: 5560

Approval Identification: 3053358 Approval Granted: October 14, 2015

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

David B. Fuller
AVP, Manager – Fire Protection
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Norwood, MA 02062 USA

Machinery and turbine enclosures

Certificate of Compliance

This certificate is issued for the following:

System Designation:	FIREKILL™ Total Flooding System Using Model K6 Open Nozzles for the protection of machinery in enclosures with volumes up to, and including, 162,800 ft3 (4610 m3) at a maximum height of 39.4 ft (12.0 m)
Design, Installation, Operation and Maintenance Manual:	FIREKILL™ Total Flooding System Using Model K6 Open Nozzles Design, Installation and Maintenance (DIOM) Manual for protection of machinery and combustion turbines in enclosures, Doc No 110629-02-03, dated 21st May 2015

Prepared for:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

Manufactured at:
VID FIRE-KILL APS
SVALBARDVEJ 13
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FM Approvals Class: 5560

Approval Identification: 3055221 Approval Granted: August 4, 2015

To verify the availability of the Approved product, please refer to www.approvalguide.com or www.roohav.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

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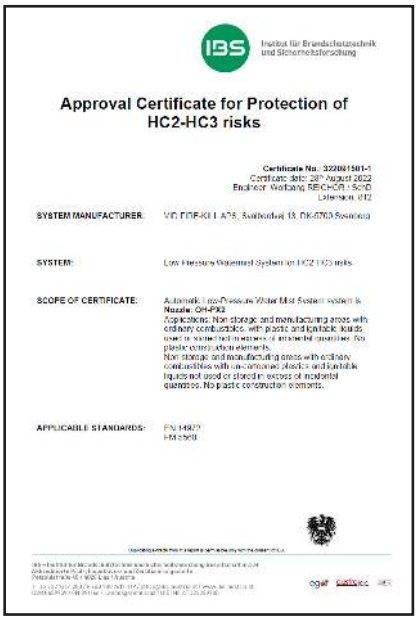
HC2 and HC3 risks



IBS Institut für Brandschutztechnik und Sicherheitsforschung

Approval Certificate for Protection of HC2-HC3 risks

Certificate No.: 322001501-1
Certificate date: 28th August 2022
Engineer: Wolfgang REICHER - SchD
Liechtenstein, 012

SYSTEM MANUFACTURER: VID FIRE-KILL APS, Svalbardvej 13, DK-5700 Svendborg

SYSTEM: Low Pressure Watermist System for HC2 HC3 risks

SCOPE OF CERTIFICATE: Automatic Low-Pressure Water Mist System system is
Nozzle: OH-PK2
Applications: Non storage and manufacturing areas with ordinary combustibles with plastic and ignitable liquids used in watermist nozzles of protected machines. No plastic construction elements.
Non storage and manufacturing areas with ordinary combustibles with non-armoured plastics and ignitable liquids not used or stored in excess of incidental quantities. No plastic construction elements.

APPLICABLE STANDARDS: EN 14972
HM 2560

Tested according to EN 14972, Appendix A

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