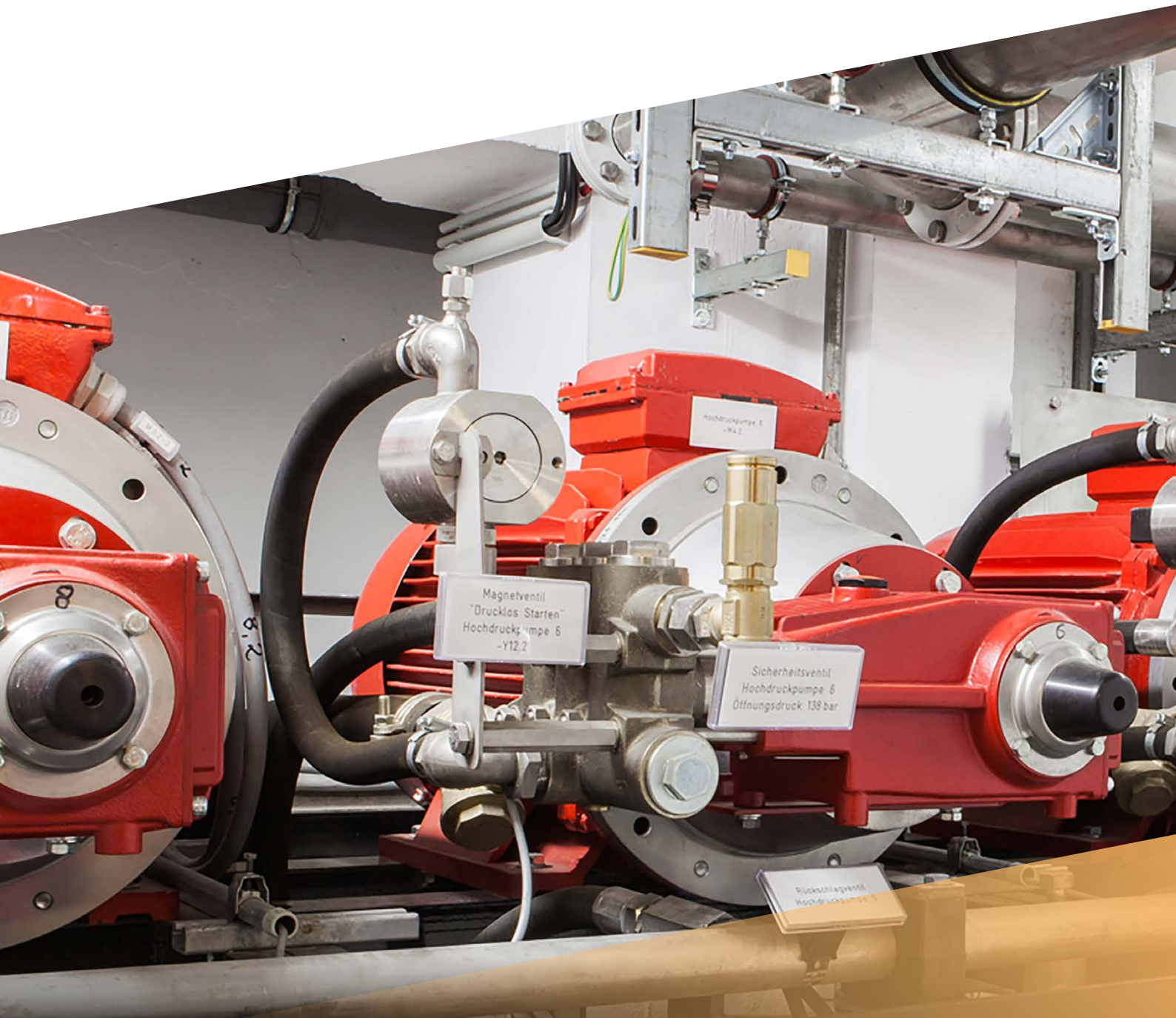
FOGTEC®
FIRE PROTECTION

The Smarter Way of Fire Fighting



EN

– Technical water mist system description –

FOGTEC Systems for Ordinary Hazard (OH) protection

FOGTEC system types

Wet systems

In wet pipe systems, the pipework is permanently filled with water and kept at a standby pressure with a pressure-maintaining device (jockey pump). Wet systems have automatic glass bulb activated nozzles as fire detection devices and the pipework is permanently closed by a closing mechanism in the nozzle. In the case of fire, the glass bulb breaks when a defined temperature is reached which activates the water flow through the nozzle. These systems operate independently from an external activation means by a related drop of the standby pressure once a glass bulb is thermally activated. This causes the high-pressure pump unit to be activated. Water discharges only from the nozzle being activated. This system is dimensioned for an operational area which is defined by the fire hazard and the evacuation conditions.

Pre-action systems

Pre-action systems are dry systems which are used in combination with an external fire detection system. These systems are used in water sensitive areas where the risk of an unexpected discharge must be further reduced. In the case of fire detection in a section, the corresponding pre-action section valve is opened by the fire alarm system and the high-pressure pump is started. This causes the pipework in the respective section to be filled with water even before any automatic nozzles are activated. Only by the additional activation of automatic nozzles by the heat of the fire, water is discharged in the respective area. Pre-action systems are also dimensioned using an effective area of operation which is defined by the fire hazard and the evacuation conditions.

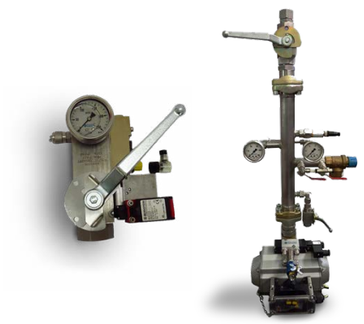
Wall hydrant systems

In wall hydrant systems, the water mist is generated with special water mist lances (FOGGUN). Such systems offer the benefits of low water consumption, ease of use and the resulting reduction of damage. The water mist lances can be integrated into hose reel cabinets, which can be added to the afore described water mist systems. A small-diameter hose as well as the easily manageable water mist lances ensure great flexibility, with almost no reaction force on discharge.

Main FOGTEC components

FOGTEC section valves

Section valves are used to zone the water mist system for maintenance and fire alarm purposes. For ordinary hazard risks, section valves are available as alarm valves and as pre-action valves.



Automatic FOGTEC nozzles

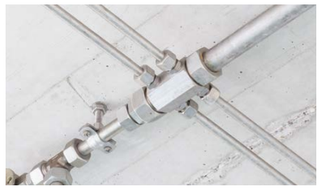
The heart of every FOGTEC system are special water mist nozzles. FOGTEC nozzles can be provided covering room protection being ceiling or sidewall mounted as well as for protection of raised floors and suspended ceilings. Water is atomized at high pressure above 60 bar into a droplet distribution ideally fighting ordinary hazard fire risks utilizing the smallest water amounts. Automatic nozzles use a heat-sensitive glass bulbs as built-in detection/activation device. By exposure to heat, the glass bulb bursts and activates the nozzle.

FOGTEC wall hydrants

With FOGTEC high pressure wall hydrants, the fire can be manually fought immediately upon detection without delays for water build-up. The water mist is generated by the connected FOGGUN water mist lance which creates a considerably greater cooling effect compared to conventional low pressure wall hydrants. Wall hydrants with hose lengths of up to 60 m are available.

Pipework

The entire pipework is made of stainless steel, being in line with international requirements for water mist systems and avoiding piping corrosion. The pipe cross-sections range between 10 and 50 mm, thus being considerably smaller than conventional sprinkler piping.



FOGTEC pump units

FOGTEC pump units work at a pressure between 120 and 140 bar. The pump units are composed of individual pump modules. Since FOGTEC pump modules are available with flow rates of 50 to 150 l/min, the overall flow and power of a system can be optimally designed to suit the requirements. The pump units are electrically powered or by diesel engines.

FOGTEC systems for ordinary hazard (OH) protection

FOGTEC water mist systems are an alternative to conventional sprinkler systems for protection of ordinary hazard fire risks in buildings. Easy integration into existing building structures and new builds by using small pipes and water storage tanks provide more flexibility to users. Substantially lower flow rates of FOGTEC systems compared to conventional sprinklers minimize water damages in case of activation and assure business continuity. The following illustration shows typical applications and the required FOGTEC water mist system components besides their arrangement.

Automatic FOGTEC nozzle

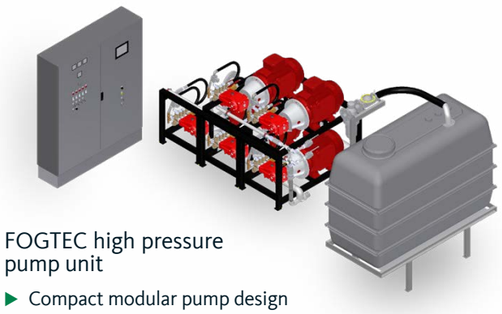
- Automatic fire fighting
- Effektive cooling
- Minimal water usage, thus potential damage
- Large area coverage up to 25m²

Pipework

- Small diameters
- Longlasting stainless steel components
- No Corrosion

FOGTEC wall hydrant

- Manual fire extinguishing
- Minimal water usage, thus potential damage
- Effective cooling
- Easy handling



FOGTEC high pressure pump unit

- Compact modular pump design
- Minimal water storage
- Advanced system monitoring

Hospital (OH1)

Hotel (OH1)

IT area (OH1)

Office (OH1)

Public space / Restaurant (OH1)

Library / Archive (OH1 / OH3)

Car park (OH2)

Atrium (OH1)

Museum (OH1)

Technical equipment area (OH1 / OH3)

Public water main

Section valve / Zone valve

- Alarm signal upon nozzle activation
- Test port for system operation inspection
- Shut-off device for section repair or extension

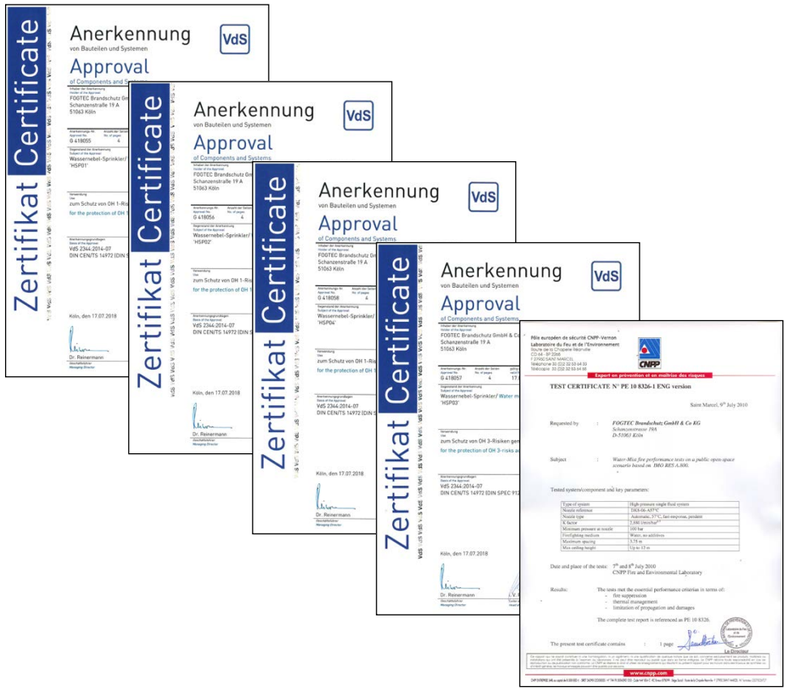
FOGTEC system approvals and certificates

When configuring water mist systems, full scale fire tests under realistic for conditions are essential for all application areas in order to being able to ensure reliable protection. International water mist standards and certification bodies require verification of the performance capabilities of water mist systems based on application related full scale fire tests. Ever since FOGTEC has given great importance to fire tests.

Ordinary Hazard (OH) protection

For Ordinary Hazard (OH) type of fire risks, FOGTEC system are full scale fire tested an certified by certification bodies as VdS and CNPP up to ceiling heights of 12 m. The approvals and certificates cover applications as the following.

- Museums
- Hotels
- Hospitals
- Care homes
- Offices
- Public spaces
- Restaurants
- Apartments
- IT areas
- Libraries and archives
- Car parks
- Technical equipment areas
- Sales areas
- Storage areas

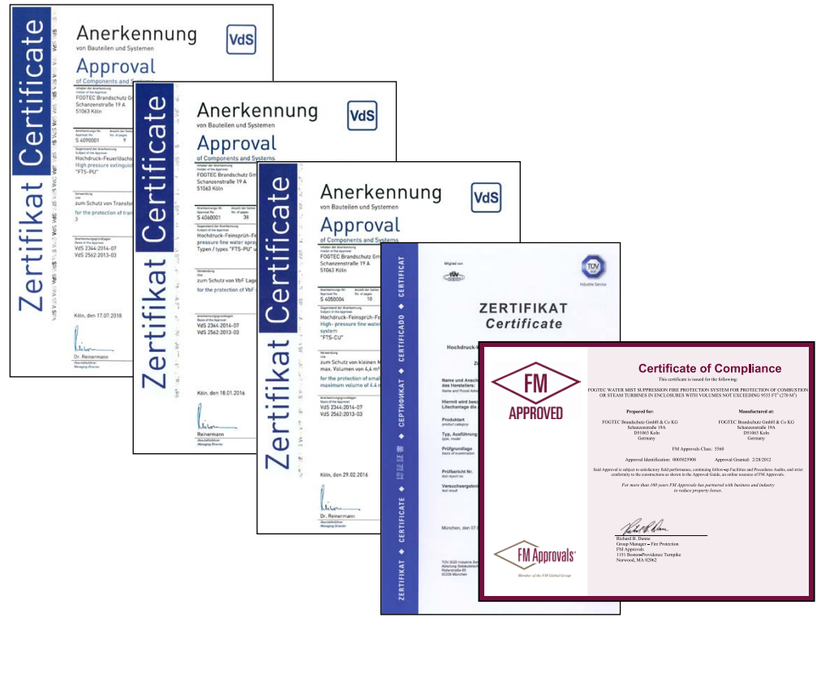


For more than 20 years the FOGTEC team has been operating own fire test facilities, which have been used for continuous development of FOGTEC systems. Fire tests are carried out following the requirements of international water mist standards as prEN 14972, VdS 3188 or NFPA 750 in conjunction with special requirements for individual projects. Fire tests are conducted under witnessing of independent third parties such as certification bodies.

Industrial risk protection

For industrial type of fire risks, FOGTEC system are full scale fire tested an certified by certification bodies as VdS, FM or TÜV. The approvals and certificates cover applications as the following.

- Cable tunnels and ducts
- Machinery areas
- Generators
- Turbines
- Engine test cells
- CNC machines
- Transformers
- Flammable liquids storage and processing areas
- Paint booths
- Deep fat fryers
- Machinery local protection



FOGTEC systems for industrial risk protection

FOGTEC system types

Deluge systems

Deluge systems use open nozzles. The pipework between the pump or the cylinder unit or the section valve up to the nozzles is kept dry. Deluge systems always need an external activation means to operate. When the system receives a start signal e.g. by an external fire detection system, the pump or cylinder system is activated, the pipework is filled with water which finally discharges through all nozzles in the respective section. Deluge systems are designed to operate all nozzles in a pre-defined area at once.

Wall hydrant systems

In wall hydrant systems, the water mist is ‚generated with special water mist lances (FOGGUN). Such systems offer the benefits of low water consumption, ease of use and the resulting reduction of damage. The water mist lances can be integrated into hose reel cabinets, which can be added to fixed water mist systems. A small-diameter hose as well as the easily manageable water mist lances ensure great flexibility, with almost no reaction force on discharge.

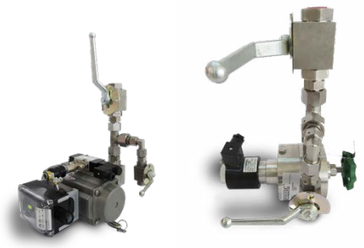
Main FOGTEC components

Open FOGTEC nozzles

The heart of every FOGTEC system are special water mist nozzles. FOGTEC nozzles can be provided covering room protection as well as for protection of raised floors or for local protection. Water is atomized at high pressure above 100 bar into a droplet distribution ideally fighting flammable liquids and cable fire risks utilizing the smallest water amounts. Open nozzles are used for systems where a separate fire detection system triggers the water mist system.

FOGTEC section valves

Section valves are used to zone the water mist system for directed water mist dischange and for maintenance purposes. For industrial risks section valves are available as solenoid activated or pneumatically activated vales.



FOGTEC wall hydrants

With FOGTEC high pressure wall hydrants, the fire can be manually fought immediately upon detection without delays for water build-up. The water mist is generated by the connected FOGGUN water mist lance which creates a considerably greater cooling effect compared to conventional low pressure wall hydrants. Wall hydrants with hose lengths of up to 60 m are available.

Pipework

The entire pipework is made of stainless steel, being in line with international requirements for water mist systems and avoiding piping corrosion. The pipe cross-sections range between 10 and 50 mm, thus being considerably smaller than conventional deluge system piping.

FOGTEC pump units

FOGTEC pump units work at a pressure between 120 and 140 bar. The pump units are composed of individual pump modules. Since FOGTEC pump modules are available with flow rates of 25 to 120 1/min, the overall flow and power of a system can be optimally designed to suit the requirements. The pump units are electrically powered or by diesel engines.

FOGTEC cylinder units

FOGTEC cylinder units have a similar structure to gas extinguishing systems and are activated in a similar way. Cylinder units comprise separate cylinders for water and nitrogen, which are interconnected via a manifold. When triggered, all water cylinders are pressurized to 200 bar with nitrogen, continuously dropping in pressure.

FOGTEC systems for industrial risk protection

FOGTEC water mist systems are widely used for the protection of industrial fire risks. Their safety for personnel and efficiency in fighting fires with smallest damages has convinced many users to utilize water mist for protection of their valuable assets instead of conventional gas extinguishing, foam or deluge systems. Business interruptions are reduced to a minimum. The following illustration shows typical applications and the required FOGTEC water mist system components besides their arrangement.

Pipework

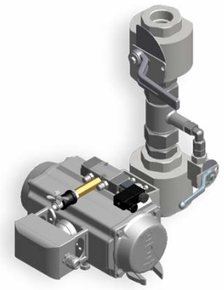
- Small diameters
- Longlasting stainless steel components
- No Corrosion

Conveyor belt

Flammable liquids processing and storage

Open FOGTEC nozzle

- Activation by fire alarm system
- Effective cooling
- Minimal water usage, thus potential damage
- Optional external nozzle protection by caps



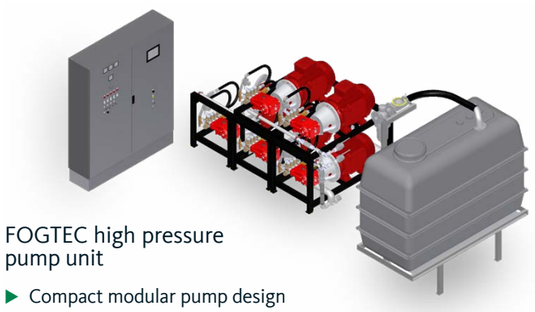
Section valve

- Activation by fire alarm system
- Manual override function
- Test port for system operation inspection
- Shut-off device for section repair or extension

FOGTEC wall hydrant

- Manual fire extinguishing
- Minimal water usage, thus potential damage
- Effective cooling
- Easy handling

Cable tunnel



FOGTEC high pressure pump unit

- Compact modular pump design
- Minimal water storage
- Advanced system monitoring

Transformer

Machinery space / Generator / Turbine

Deep fat fryer

Public water main

FOGTEC cylinder unit

- Compact stand-alone unit
- Low refilling cost
- Ideal for object and small enclosure protection

Benefits of FOGTEC Systems

- *Environmentally friendly*
- *Safe for people*
- *High cooling effect*
- *Reduction of radiated heat*
- *Low water consumption*
- *Minimal water damage*
- *No pre-warning time required*
- *Straightforward space-saving installation*
- *Minimal space requirements for system components*
- *Activation via glass bulbs or a fire detection system*
- *Alternative to gas extinguishing systems and sprinklers*

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FIRE PROTECTION

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