AQUASYS

firefighting is responsibility

- BUILDING
- TUNNEL
- INDUSTRY
- RAIL

BUILDING & INDUSTRY

FIREFIGHTING

WITH HIGH PRESSURE WATER MIST

FIREFIGHTING IS RESPONSIBILITY

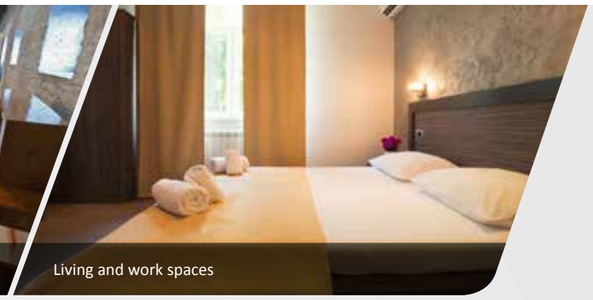
We are a leading international supplier of high-pressure water mist firefighting systems, based in Linz, Austria. As part of a privately owned group of companies, we benefit from extensive experience and additional resources in the fields of fluid engineering systems for industry and building services equipment.

We offer high quality firefighting systems and turnkey solutions for designers, installers and operators of buildings, machinery and plant. Our wide ranging expertise in systems engineering, simulation and product optimisation, as well as quality, project and process management, is complemented by first class production, assembly and service facilities. Our personal approach to each customer's individual application at an early stage enables us to provide expert advice and highly cost effective solutions.

We also maintain close contact with our partners in research as well as with fire services and notified bodies, and are always ready to meet new technological challenges.

High quality nozzle head design

Sophisticated exhibition spaces


Living and work spaces

BUILDING SOLUTIONS

SOPHISTICATED & EFFICIENT

The high quality and thus durable stainless steel components of our firefighting systems can be made a prominent feature of the interior architecture, or equally can also be integrated into the building so that they are virtually invisible. The components and small-diameter stainless steel pipework used enable easy fitting or retrofitting in historical or listed buildings with minimal structural intervention. Whatever you decide, our high-pressure water mist (HPWM) firefighting systems cover a diverse range of safety objectives, taking into account the individual technical requirements and structural conditions of your buildings.

OUR SOLUTION

Reduced water quantities and the finest degree of misting minimise the risk of water damage, cool the area surrounding the fire and limit the fire's oxygen supply. This offers crucial benefits for the protection of areas with sensitive materials, as well as in the case of complex fire scenarios. High-pressure water mist is typically used to protect, for example, modern and historical buildings, areas with sensitive and high grade equipment such as hospitals, laboratories, cleanrooms and test benches, and libraries, archives and museums.

MAIN COMPONENTS

- Pump unit as a compact unit with a tank and safety and test equipment
- Control panel
- Valve stations and flow switch for zone detection and assignment
- Main and connecting lines made from stainless steel in DN25-DN50
- Piping in DN10-DN25
- Nozzle heads


Production area


Diverse range of nozzles


Container solution


Wall hydrant solution with water mist gun

INDUSTRY SOLUTIONS

RELIABLE & DURABLE

Hydraulic fluids, lubricants and fuels can be ignited by overheating, material wear or technical processes and therefore require fully dependable firefighting systems. High-pressure water mist has been proven suitable for fire classifications A, B, C and F in numerous fire-safety tests and customer-specific demonstrations. This means that complex production sites and industrial plants can be protected with one single system technology.

OUR SOLUTION

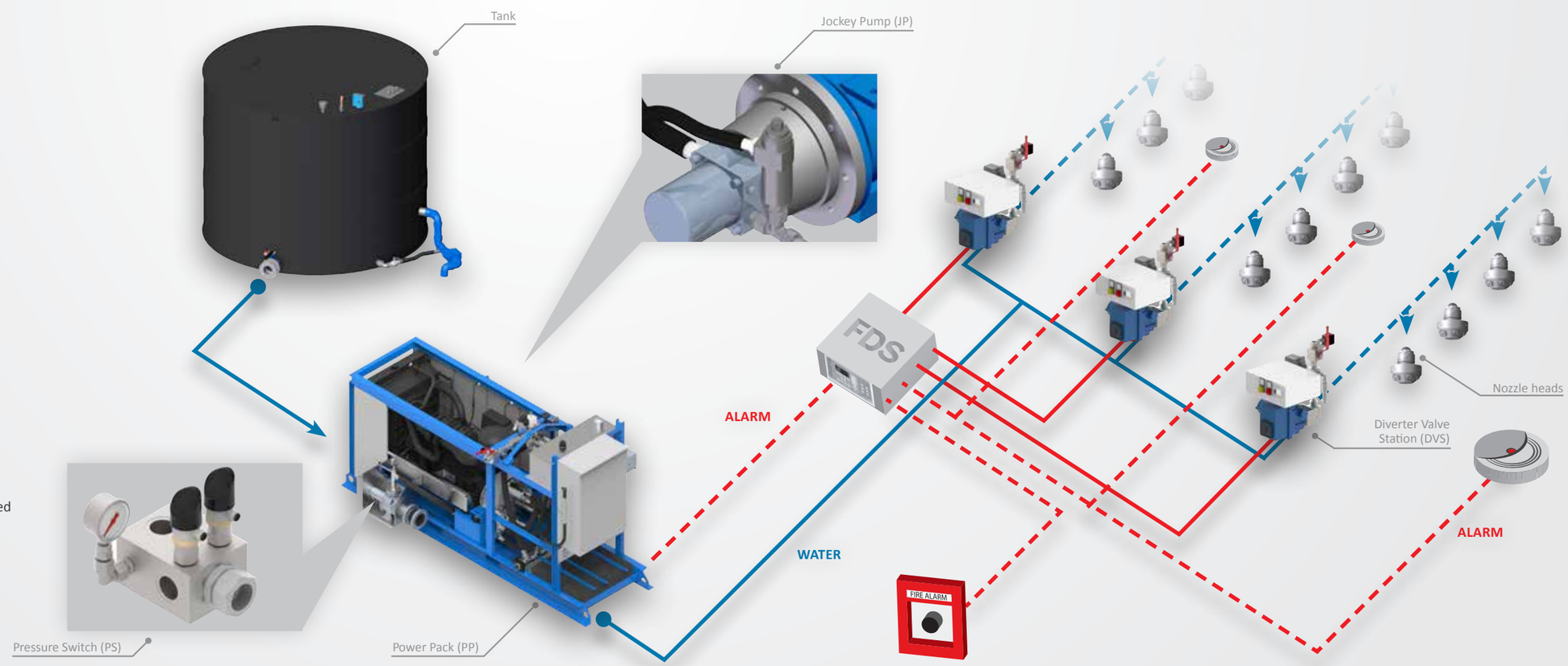
Three-dimensional dispersion of extremely fine water mist provides highly effective and rapid fire suppression. At the same time, the intensive cooling effect prevents the fire from spreading to other areas. Following a firefighting response, automatic refilling from the water supply ensures the system is quickly ready for use again.
Our high quality components are made from stainless steel to ensure a long service life for the firefighting system, even in difficult industrial environmental conditions.

COMPACT AND MODULAR

Our systems rely on stationary or semi-stationary systems with open nozzles and section valves. In addition to these hydraulic components, another key design feature is the choice of optimum detection systems. The detection system needs to reliably differentiate between process-specific environmental conditions (such as temperature, smoke, etc.) and an actual incident.
Pump rooms as a container solution save valuable space in buildings and also represent a practical, compact alternative to structural measures, particularly when retrofitting a firefighting system.

FEATURES

- Triggered in defined affected areas via the detection system
- Not subject to frost damage due to dry pipework
- Small pipe diameters, easy to install and retrofit
- Low maintenance installation
- Can also be used in areas with liquids, electronic assemblies and test equipment (test benches)
- Each pump has its own electric motor, therefore no gear box required
- Interlocking connection technology

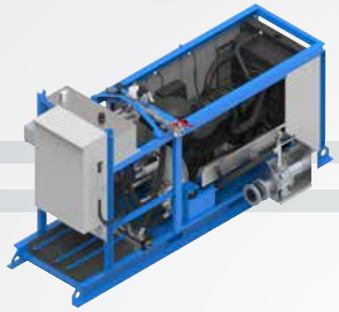


Product overview

HIGH-PRESSURE PUMP UNITS

Power pack with electric motor, type EPP

- Standard three-phase motor 22/30 kW; 3 x 400 V; 50 Hz; 1500 rpm
- Electric motor start-up cascade to conserve the power supply
- Multiple units can be combined into a modular system
- Tank: as standard 1200 l / 2400 l or project-specific to > 100 m³ possible
- Maintenance-free high-pressure pump without gears:
  Flow rate approx. 112 l/min at 1500 rpm and 100 bar per pump
  Maximum operating pressure: 140 bar
- Protection rating to EN IP54
- Medium: water according to EU Directive 98/83/EC



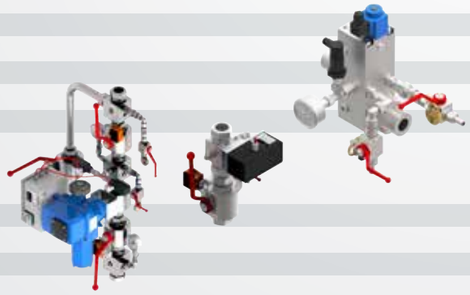
Diesel power pack, type DPP

- Use as non-electric drive solution or backup unit
- Drive power 30 – 250 kW
- Noise optimised solutions and water or air cooled motors available

Gas power pack, type GPP

- Use as non-electric drive solution or backup unit
- Number of cylinders dependent on operating time and effective area; can be easily increased
- Highly flexible handling and construction thanks to modular design

VALVES



Alarm valve station (AVS) and diverter valve station (DVS)

- Nominal diameters: from DN16 to DN40
- Nominal pressure: PN 160 (special PN 250 version on request)
- Handwheel: for manual operation
- Fittings to EN ISO 8434
- Optional test device can be integrated
- Optional compressed air connector for complete pipe system drainage

Flow switch (FLS)

- Nominal diameters: from DN16 to DN40
- Nominal pressure: PN 160
- Protection class IP65
- Fittings to EN ISO 8434
- Optional test device can be integrated
- Reliable zone detection due to integrated control system

NOZZLE HEADS

- Nominal pressure: PN 160 (special PN 250 version on request)
- Droplet size of less than 20–300 µm
- Horizontal or vertical installation possible
- Wide range of versions with various spray angles and flow rates
- High quality design in stainless steel, application height from 0.3 to 18 metres
- Robust, free-flow design without angular inserts or other fixtures
- Fine filter installed in every screw-in nozzle head

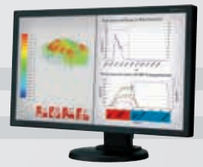
PIPING

- Nominal pressure: PN 160
- Nominal diameter DN10 to DN50
- Welded stainless steel pipes: AISI 316L
- Material 1.4404 according to EN 10217-7
- Form locked connections according to EN ISO 8434

WALL HYDRANT + WATER MIST GUN

- Maximum pressure: 140 bar
- Hose reel with up to 50 m high-pressure hose
- Multifunctional water mist gun 20 l/min
- Optional: piercing tool for water mist gun
- Activation via pressure drop or electrical signal (e.g. limit switch)
- Equivalence with wall hydrants that comply with EN 671-1

SIMULATION & FIRE TESTS



- CFD-supported calculation models
- Pool fires of up to 100 m² and solids fires
- Application-specific fire scenarios

SERVICE/MAINTENANCE

- Extensive spare parts store
- Quick and straightforward support
- Optional 24/7 on-call service

Office building

Atrium protection

Power pack

ENERCON

OFFICE BUILDING IN MAGDEBURG (DE)

Objective: A communicative, well-lit and open interior with no structural fire partitions. HPWM technology enabled this objective to be achieved in this architecturally challenging office building of an internationally leading manufacturer of wind power plants. This was accomplished by closely involving AQUASYS early on in the planning stage.

Another special feature of this system is the water supply tank in the form of an aquarium in the middle of the building. The water is supplied to the pump unit via a transfer pump and appropriate filtration.

HIGH RISE COMPLEX IN TALLINN

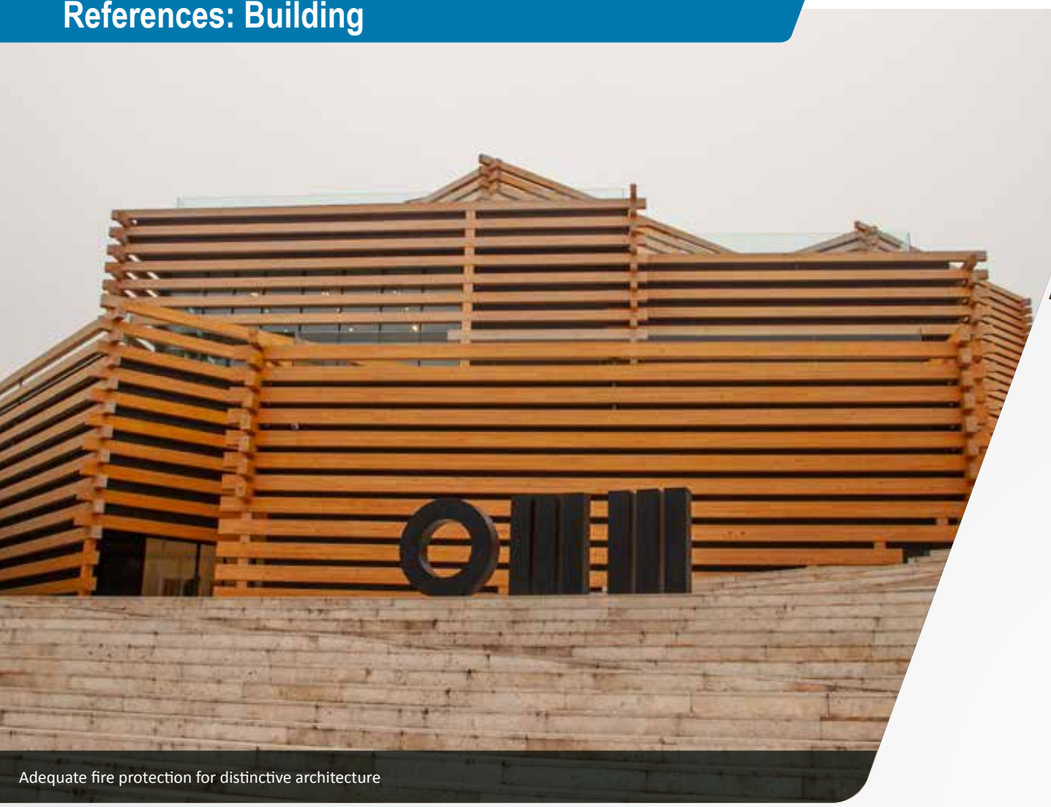
30-STOREY MAAKRI 19/21 TOWER (EE)

This extensive high rise complex consisting of three connected buildings, with a parking garage and historical neighbouring structures, was equipped with an AQUASYS HPWM system. The functional fire protection solution also includes, for the first time, wall hydrants with HPWM technology instead of the otherwise customary low pressure water hydrant system. Due to the much thinner and easier to handle high-pressure hoses, these AQUASYS wall hydrants equipped with AQUASYS water mist guns allow easier, safer and faster progress through the building, and enable highly efficient firefighting. This also represents very space saving use of HPWM technology, including with regard to the wall hydrants.

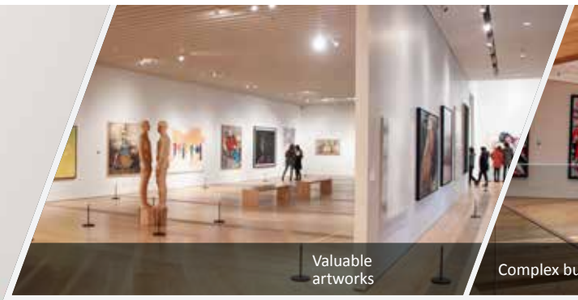
Parking garage on three levels

Integration in ceiling panel

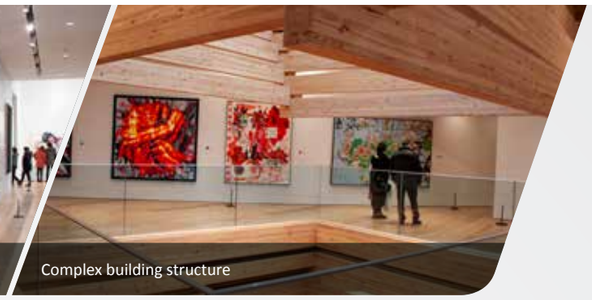
Maakri building complex



Adequate fire protection for distinctive architecture



Valuable artworks



Complex building structure

ODUNPAZARI MODERN MUSEUM

PROTECTION OF CONTEMPORARY AND MODERN ART (TR)

The customer required a suitable fire safety system for this architecturally complex and elaborately constructed museum in Eskişehir in north west Turkey. The solution had to offer maximum protection for the valuable exhibits and the structure of the building. At the same time, it had to blend seamlessly and aesthetically into the overall museum design. With very low water consumption and use of only high grade stainless steel components for the whole installation, the AQUASYS HPWM system meets these requirements perfectly. The high-pressure nozzles distributed over four levels protect not only the exhibition areas and the building structure, but also the restaurant areas, and therefore offer maximum safety and minimum risk of fire or water damage.

DERAG LIVINGHOTELS

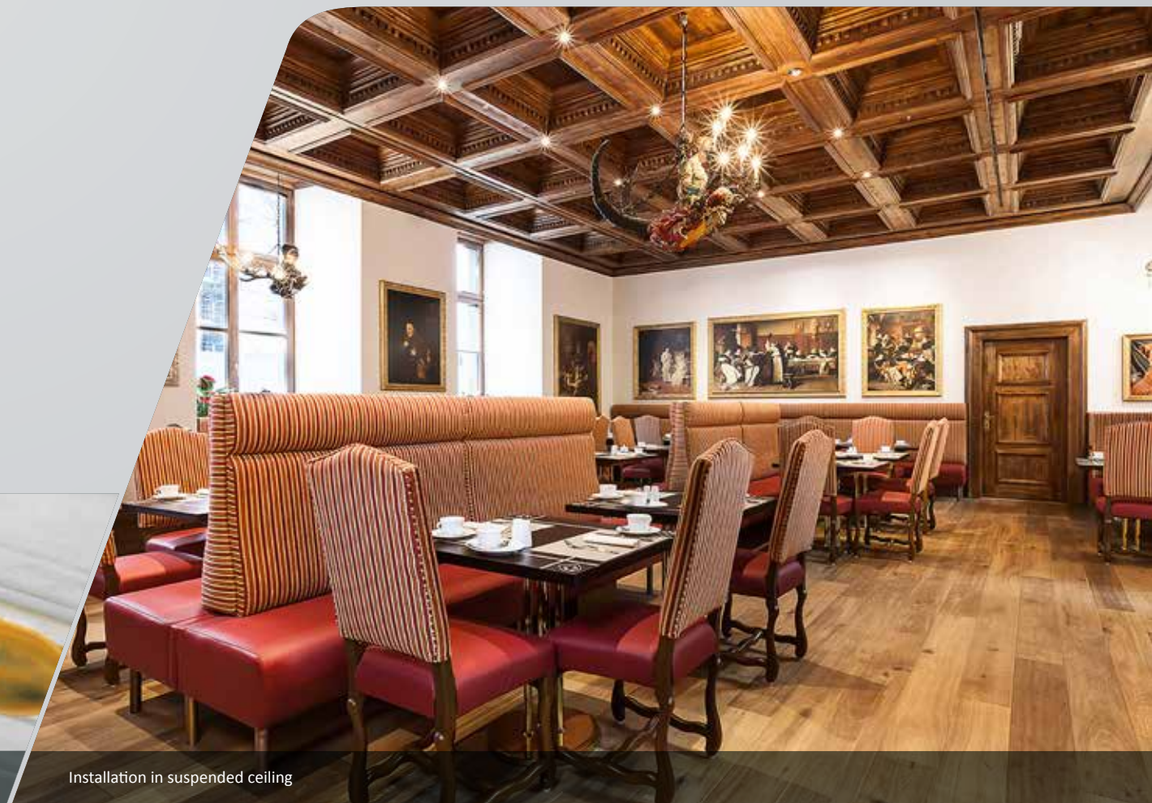
LUXURY HOTEL IN DÜSSELDORF (DE)

In this hotel, a generous reception area with open fire, wood panelling and coffered ceilings required inconspicuous fire protection. A further stipulation was minimal pipe dimensions for fully concealed installation under plaster in the extensive porticoes. These were just some of the requirements that the firefighting system needed to fulfil.

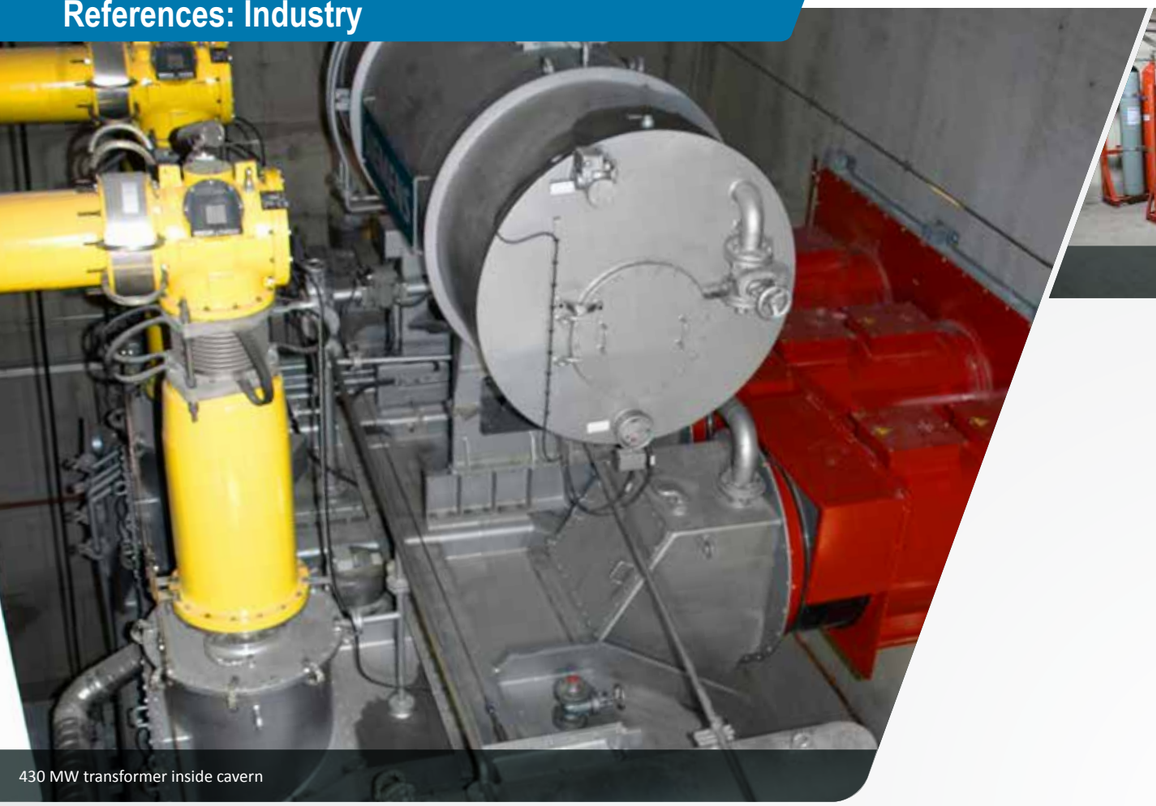
The decision to implement an AQUASYS HPWM system also ensures highly efficient protection for the frescos and other valuable features of the listed building. The pump unit with a base area of 2.0 m x 1.8 m was housed in an existing cellar space without requiring additional structural measures.

Listed building

Integration of nozzle heads



Installation in suspended ceiling



430 MW transformer inside cavern

Standalone supply with gas driven power pack

Fire test for transformer stations

TRANSFORMER STATIONS

RELIABLE & ENVIRONMENTALLY FRIENDLY

AQUASYS develops bespoke transformer protection solutions for energy providers worldwide. Thanks to the highly effective HPWM technology, the risk of plant damage or breakdown of transformer stations is significantly reduced, especially in the event of liquid fires. Any fires that occur can be rapidly contained, while fumes are suppressed and the immediate area is cooled. HPWM technology is therefore also beneficial for the environment, particularly when used in urban areas!

HIGH SENSITIVE AREAS

REDUCED RISK OF CONTAMINATION AND WATER DAMAGE

AQUASYS solutions for targeted and efficient firefighting with HPWM have low water consumption, which makes them ideal for areas with very valuable equipment or sensitive ambient conditions, such as server rooms, laboratories, electronic control panels and archives. As only high grade stainless steel components are used in AQUASYS systems, ultra-pure water can be utilised, thereby ensuring not only effective firefighting but also an extremely low risk of contamination for people and systems, while reducing expenditure on fire water retention facilities. At the same time, using non-hazardous and environmentally friendly water mist makes it possible for people to leave rooms quickly and safely, and for the emergency services to gain access, even in the event of a fire. The efficient firefighting performance of AQUASYS HPWM systems has been tested and confirmed in various real fire tests, for example with server racks and ventilation systems.

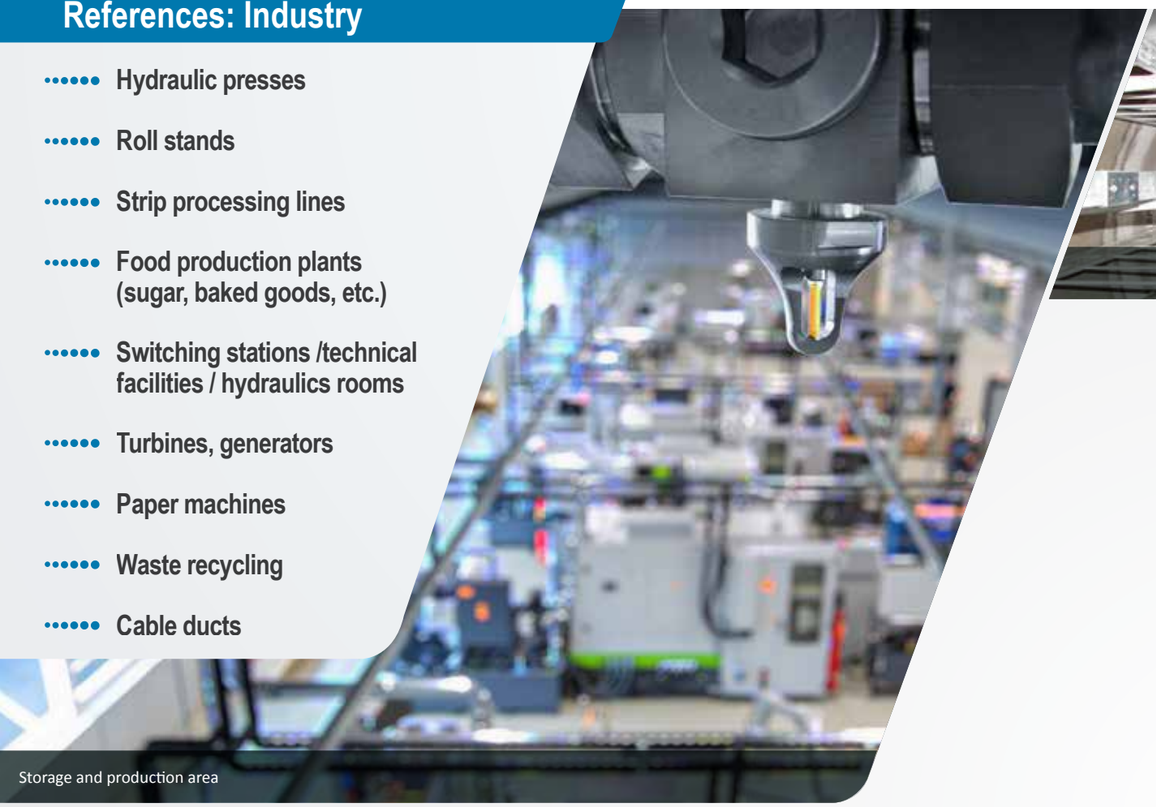
Observation of hygiene standards

Safety in laboratories and cleanrooms

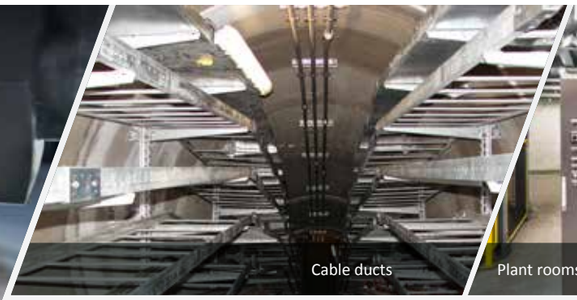
Targeted and efficient firefighting

References: Industry

- Hydraulic presses
- Roll stands
- Strip processing lines
- Food production plants (sugar, baked goods, etc.)
- Switching stations /technical facilities / hydraulics rooms
- Turbines, generators
- Paper machines
- Waste recycling
- Cable ducts



Storage and production area



Cable ducts

Plant rooms and hydraulics rooms

INDUSTRIAL PLANTS

SAFE & PRODUCTIVE

A reliable and robust firefighting system is essential for ensuring maximum plant availability, particularly for high quality industrial plants with a production related increased fire risk. The use of HPWM for firefighting, which is non-hazardous to people and technology, means the contamination of manufacturing processes and subsequent damage can be prevented or minimised. The three-dimensional dispersion of HPWM makes it possible to reach and effectively protect even areas which are not directly accessible. The differentiation of production related temperature fluctuations, smoke or vapour emissions from actual fire incidents places high requirements on the detection system. In addition to the expertise we have gained from implementing challenging projects, we also use simulation tools for creating project-specific feasibility analyses.

TEST BENCHES

ACCURATE & HIGHLY EFFICIENT

Testing components, systems and vehicles to their technological limit means a considerably increased risk of fire, particularly in relation to mechanical moving parts. This can lead to the breakdown or loss of test benches and valuable measurement equipment that are relevant to production. By installing an AQUASYS HPWM system, with the benefits of very low water consumption and finely atomised droplets as well as very rapid, direct firefighting, a possible fire can be effectively prevented from spreading to other areas. The HPWM represents no risk to any testing personnel present and consequently protects both people and technology. This also enables the facilities to be restarted swiftly after a firefighting response.

Product development

Rapid activation after detection

Safe and efficient fire protection for special test benches

03/2021

Firefighting is responsibility! We are committed to the safety of people, property and productivity. This is a responsibility that we assume every day. To this end, we rely on the innovative ideas and know-how of our experienced and motivated team.

Close cooperation between R&D, sales, project management and production all on one site guarantees the flexibility and customer focus necessary in all sectors.

We invite you to set us a challenge! We would be happy to identify how high-pressure water mist technology can best help you with your requirements and goals. My team and I are aware of our responsibility and are available to answer any questions you may have.

Josef Hainzl
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