



Fire Protection on Land

High-pressure water mist system

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Delivering fire protection solutions for industry, buildings, occupants and property



Topics

- ◆ ULTRA FOG Land Experience
- ◆ Solutions for Buildings and Industry: approvals and case studies
- ◆ Performance, perceptions and advantages



Ultra Fog experience in Land



Land



ULTRA FOG
BULB
NOZZLE



ULTRA FOG
OPEN
NOZZLE



PUMP STATION
P35



MICRO PUMP
STATION



MASTER PUMP
STATION

OH 1

office spaces,
hotel rooms, hospitals,
libraries, restaurants
ceiling height up to 5m

OH 3

shopping centers,
storage facilities
ceiling height up to 5m

OH 4

cinemas, halls,
theatres
ceiling height up to 12m

OH 2

car parkings,
industrial process
ceiling height up to 5m

FM 5560

machinery space
ceiling height up to 5m

Ultra Fog's Land Applications

High ceiling up to 12m OH4 (Cinemas, Theatres, TV Studios)

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.

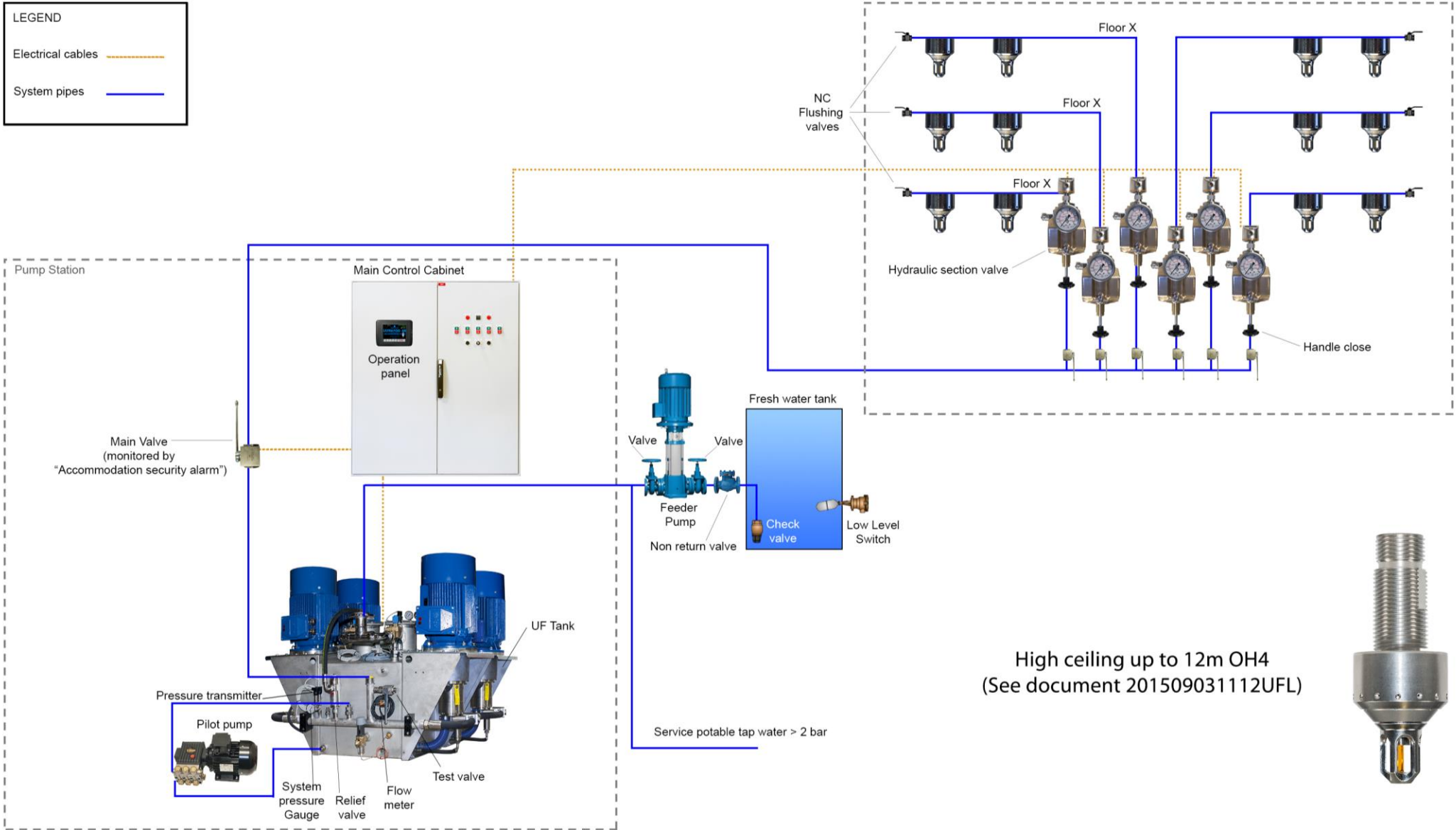
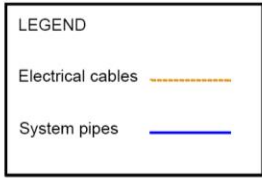


- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 100 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ Standard EN-CNT/TS 14972-B, EN 12845, CEA 4001 OH4

Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-260-160-B	4,5m *	Up to 12m	20m ²	Ceiling	4,2

* The distance from the wall is about ½ of the spacing.





High ceiling up to 12m OH4
(See document 201509031112UFL)



FM Occupancies, Hazard Category 1 (HC-1)

(Museums, Libraries, Institutions, Hotels, Hospital, Commercial Offices, Churches, Restaurants, Schools and Universities Classrooms)

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.





- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure ≥ 65 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ Standard FM 5560 LH Nozzle.

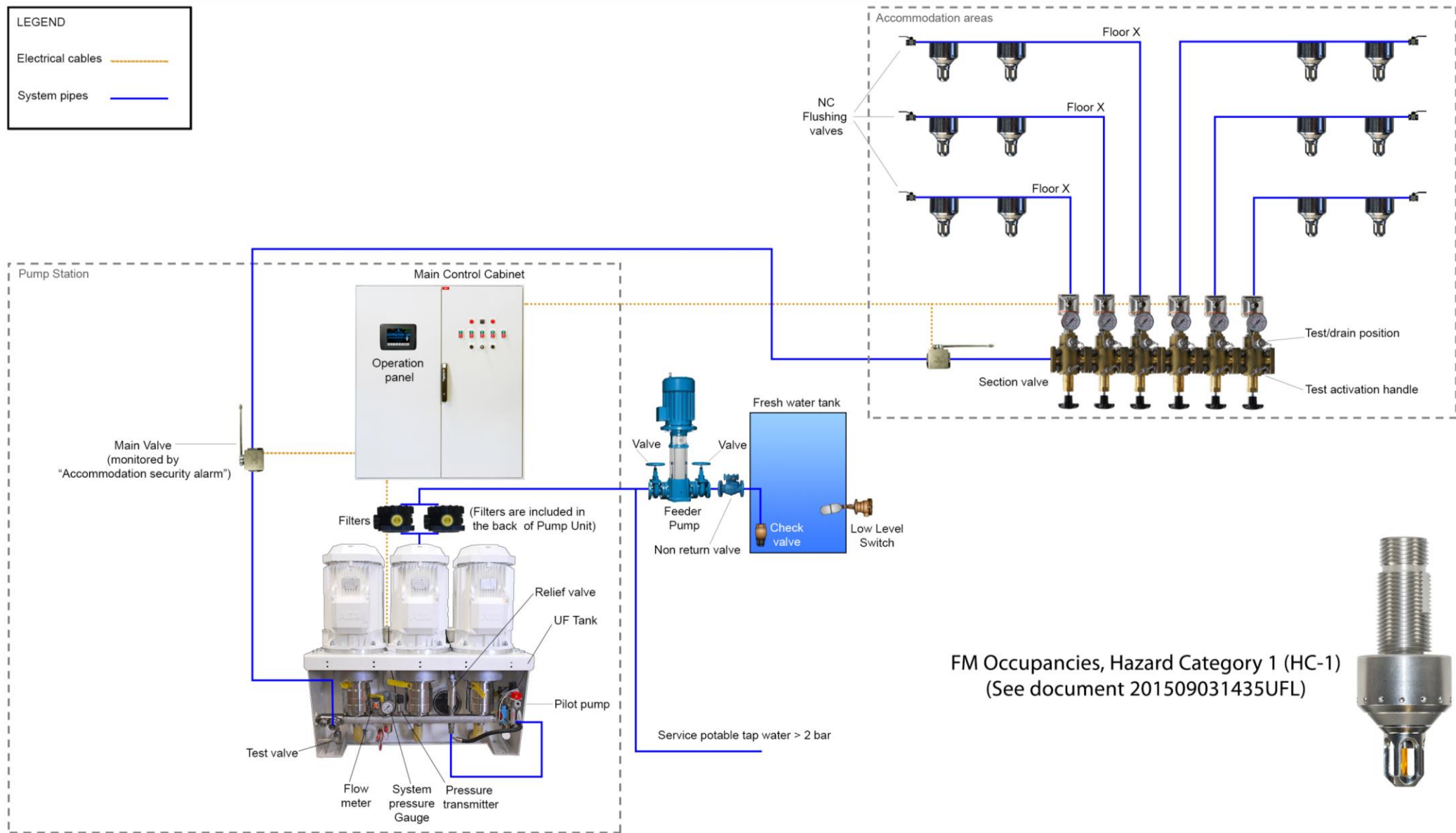
Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-300-061-B	4,5m *	Up to 5m	20.25m ²	Ceiling	3,61

* The distance from the wall is about ½ of the spacing.



LEGEND

- Electrical cables 
- System pipes 



FM Occupancies, Hazard Category 1 (HC-1)
(See document 201509031435UFL)



Office Building OH1

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.



- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 82 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ Standard EN-CEN/TS 14972:2011

Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-260-160-B	5,3m *	4m	28m ²	Ceiling	4,2

* The distance from the wall is about ½ of the spacing.



Store OH1 (Shopping Centres)

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.



- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 100 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ VdS Schadenverhütung Fire test Store OH3, Standard EN 12845, CAE 4001
- ◆ Fire test report reference number: SWRI 01.16351.07.010

Settings	Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting
Compact storage	603-260-160-B	3,5m *	5m	13m ²	Ceiling
Rack store	603-260-230-B	3,5m *	5m	13m ²	Ceiling

* The distance from the wall is about ½ of the spacing.



Parking Garage OH2

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.

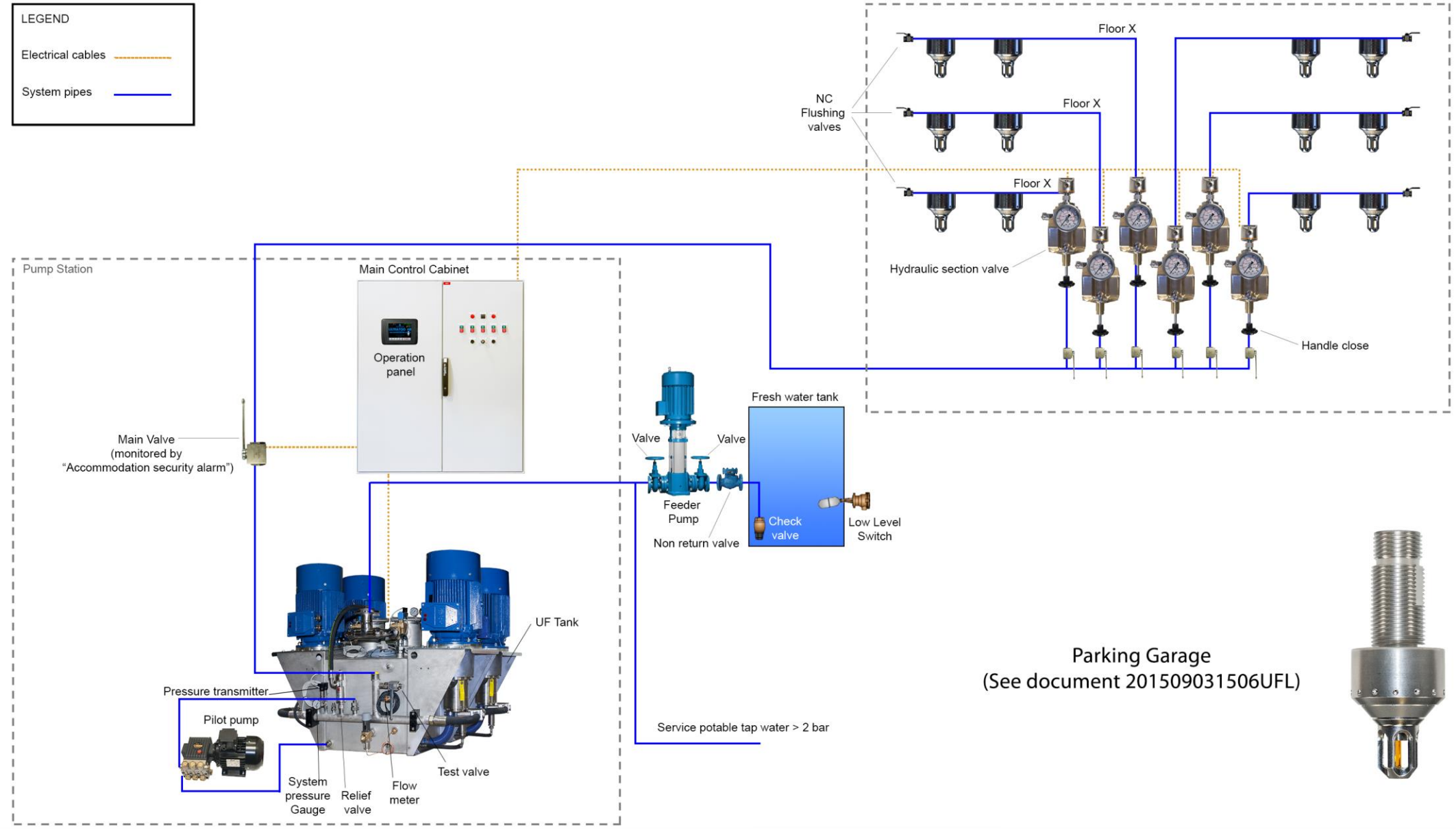
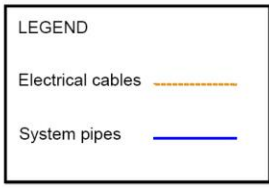


- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 100 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ Standard IMO MSC1 Circ. 1272, CEN/TS 14972 Annex B.

Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-300-035-B	5m *	Up to 2,5m	25m ²	Ceiling	3,35
603-260-160-B	4m *	Up to 5m	20m ²	Ceiling	4,2

* The distance from the wall is about ½ of the spacing.





Parking Garage
(See document 201509031506UFL)



Nursing Home

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.



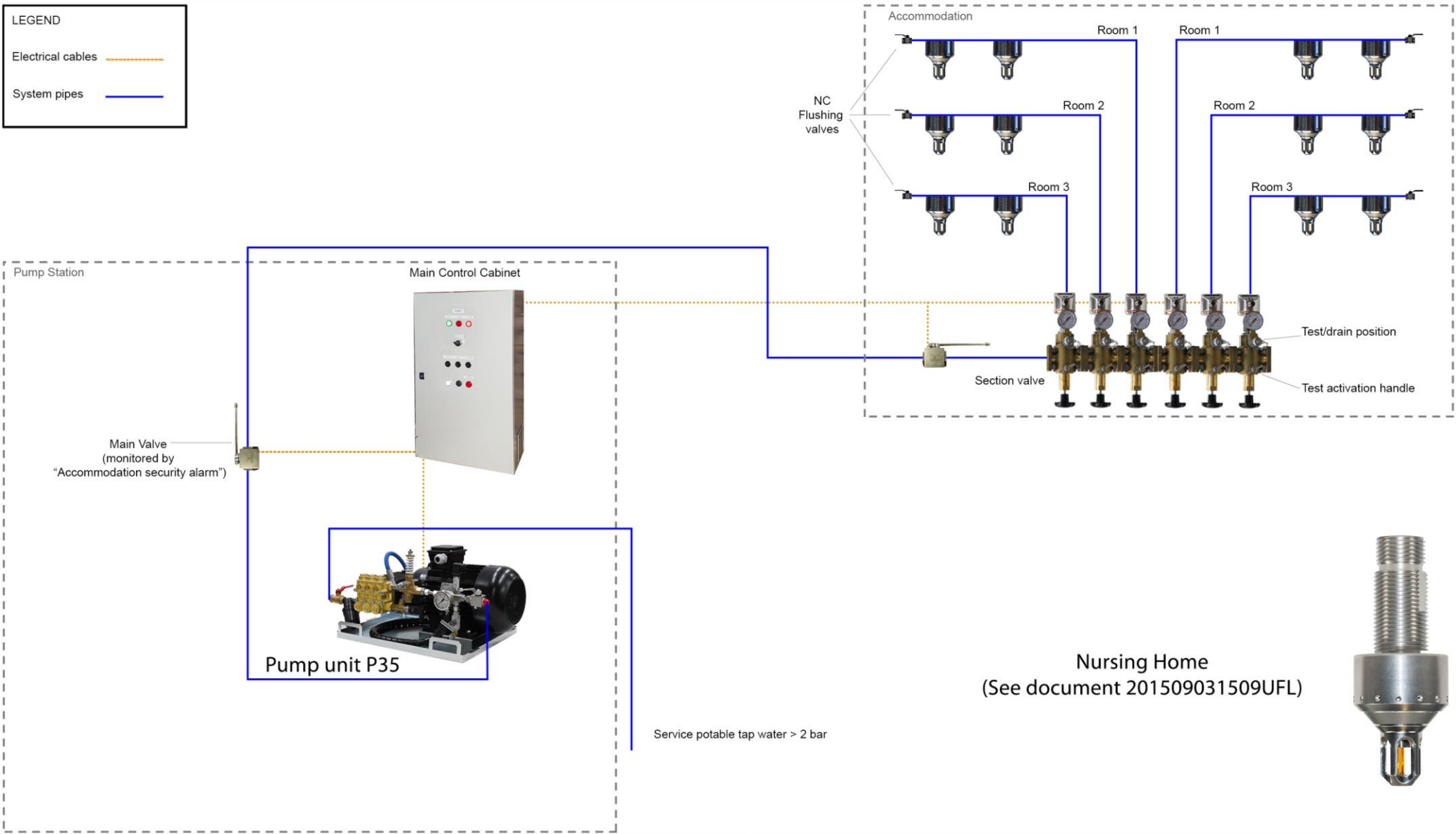
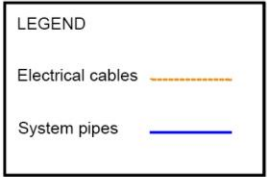
- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 100 bar.
- ◆ Ultra Fog is the only company that can test the nozzle without breaking the frangible glass bulb.
- ◆ Standard INSTA 900-3: 2012

Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-08-B	3,5m *	2,5m **	13m ²	Ceiling	0,8

* The distance from the wall is about ½ of the spacing.

** Can be higher.





Archives OH3

(Archive storage)

- ◆ Unique patented design with high performance for cooling effect and low consumption of water.
- ◆ Easy to install and test for both commissioning and maintenance.
- ◆ 603 nozzles are supplied with a star lock for easy mounting.



- ◆ 603 nozzle body can be supplied as threaded M20 with optional nut.
- ◆ Nozzle tools and spares are available for maintenance.
- ◆ Working pressure – 100 bar.
- ◆ Test Method BFL TP 02 Fire test of Archive, in according with EN-CEN/TS 14972 Annex B Standard INSTA 900-3: 2012
- ◆ Fire test report reference number: BFL 2020/TP02/001

Nozzle Type	Spacing (C-C)	Ceiling Height	Covering Area	Mounting	K Value (K=)
603-064-073-B	3,6m	4m	13m ²	Ceiling	1,37



Data Centres

Ultra Fog's technology uses pure water in minimal quantities to provide effective, rapid fire control and suppression with reduced risk of damage. Compared to gaseous extinguishers, high pressure water mist is very economical solution which does not need annual cylinders replacement and takes up less space. Ultra Fog's high pressure water mist system meets all demands and achieves very reliable effectiveness in this sensitive environment.



Land Applications

- ◆ Buildings, new & historic
- ◆ Electrical Transformers
- ◆ Military
- ◆ Pump Rooms
- ◆ Prisons
- ◆ Turbine & Machinery Enclosures
- ◆ Archives
- ◆ Vehicles
- ◆ Tunnels
- ◆ Restaurant kitchens (Deep Fat Fryers)



Protecting Electrical Transformers



Pictures of typical installations in buildings



Water mist as fire fighting system in laboratories and public spaces



Protection of pump room Bensen as hazardous liquid



Protection of helicopter hangar Air Force



Ultra Fog Popup Nozzles

Älgårås Church (Sweden)

Water mist as protection for interior and outside walls



Edvard Munch's House in Åsgårdstrand, Norway

Water mist as protection for interior and outside walls



Historical landmark in Linstowgate (Oslo, Norway)

Water mist as protection for interior



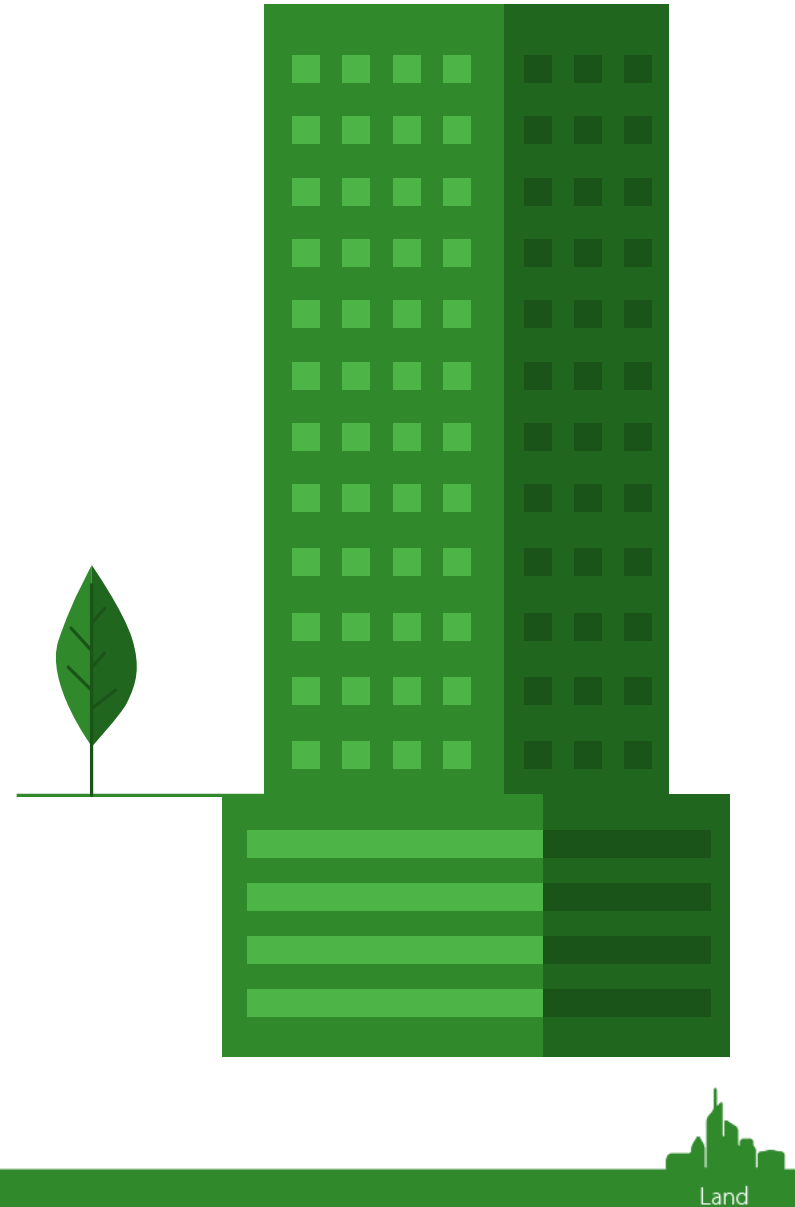
Arena Belgrad



More Space to make money

There are many advantages in choosing the Ultra Fog® water mist system for high-rise buildings. Besides efficient fire fighting, giving the best possible protection, it gives you the freedom to design your building just as you want.

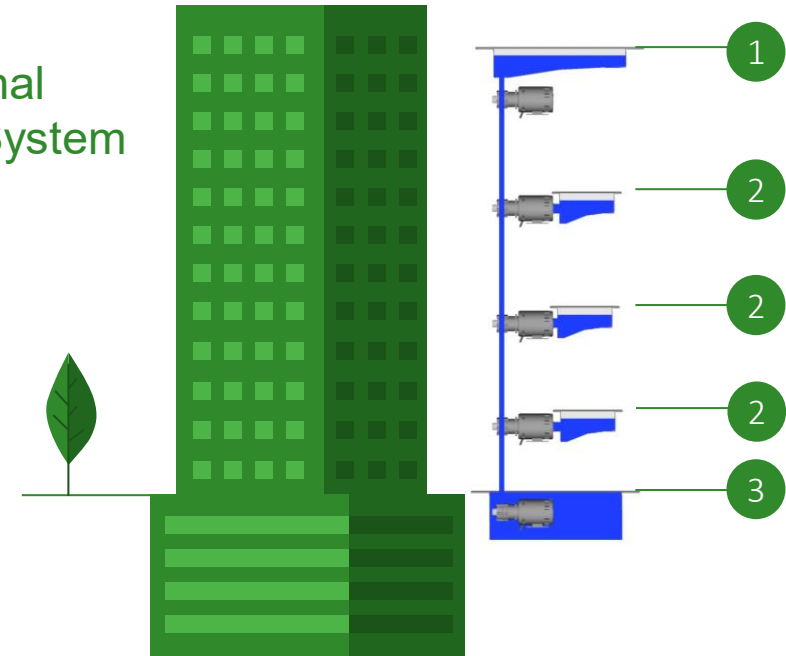
The Ultra Fog® water mist system takes up very little space, allowing you to use the space saved for money-generating activities.



More Space to make money



Traditional Sprinkler System



1. No need to place a large reservoir/swimming pool on top of the building; you can instead use the top floor for penthouse flats.
2. No need for sprinkler units on more floors of the building to prevent pressure loss; the space saved can be used for other money generating purposes.
3. No need for large water supply reservoir or for reservoirs to catch the water used by the system; the space saved can be used for an integral garage, for example.

Our worldwide service organization

Annual:

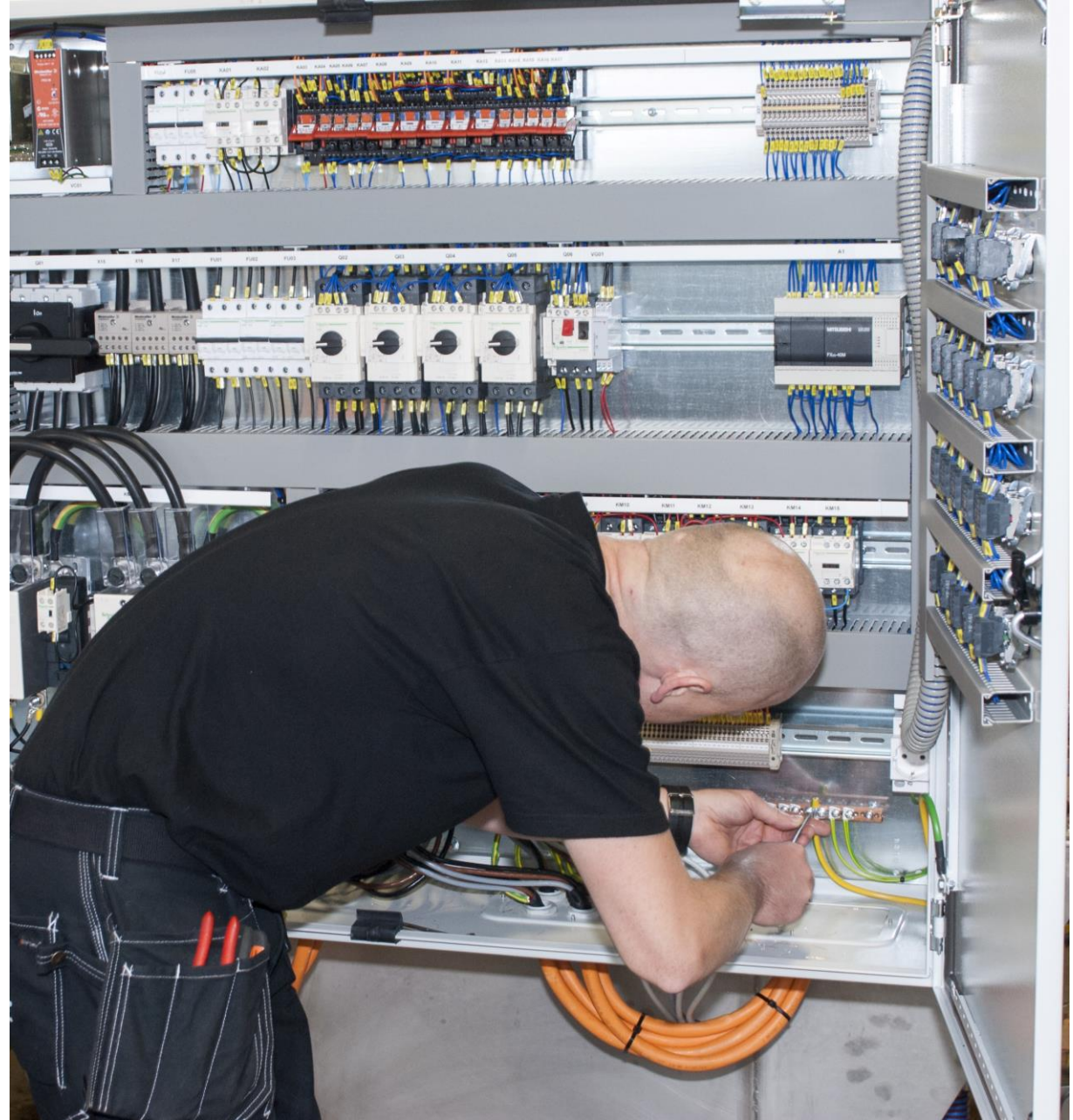
Annual service includes a 17 step function procedure inspection and filter exchange.

Every 5 years:

Every 5 years we exchange foam, check the section valve inserts and batteries.

Every 10 years:

Every 10 years we exchange the bottles of the accumulation pack and high pressure hoses.



Ultra Fog Land Classification Testing and Approval

- FM 5560 (turbine and machinery spaces (260m^3 to $1320\text{m}^3</math>).$
- FM 5560 (Light hazard occupancies).
- IMO MSC/Circ. 265/84, for protection in public areas such as bedrooms, storage, corridors, restaurants and service areas.
- IMO MSC/Circ. 913, for local application in machinery spaces.
- Part 12 EN14972 Fat Fryer & Galley Hood.
- CEN/TS 14972 OH1, OH2, OH3, OH4.
- CEN/TS 14972 - Annex B, for warehouse up to 12,5m.
- CEN/TS 14972 - Annex B, for HHP (1 to 4) warehouse.
- SP method 4912 fire suppression system on vehicle (Buses, Coaches, Vans and Cars).
- Archive / Library CEN TS 14972 annex B, ref fire report BFL2020/TP02/001 and BFL2020/TP02/009
- INSTA 900-3 Nordic residential sprinkler.
- Tunnel: Uptun, Aplus guideline full scale fire test.
- UNI 11565:2016 – rollingstock protection.

Our manufacturing is quality assured according to EC Directive 96/98 EC MED and according to ISO 9001. Certified according to Lloyd's Register. Our test procedures began in 1991 and are constantly being renewed in order to include new fire protection applications, new standards and regulations, and improved nozzle performance.

Features & Benefits

- 01** Ultra Fog: custom designed, highly engineered, quality manufactured fire suppression systems!
- 02** The mist developed by the performance of Ultra Fog high pressure patented nozzles has a definitive cooling effect on a fire.
- 03** The fine mist actually “cleans” the smoke, helping to remove particles of combustion.
- 04** Extinguishing effect of mist relative to the amount of water used is extraordinary.
- 05** Fast extinguishing – fast automatic sprinklers with low RTI value or by detectors.
- 06** Rapid expansion of water droplets reduces the oxygen in the fire zone.
- 07** Risk of flash over is substantially reduced or reduced to ZERO.
- 08** Using less water than conventional sprinklers reduces drain sizes and reduces the amount of hazardous waste generated from discharge.
- 09** Using less water than conventional sprinklers reduces the amount of water required to be stored. Less room, less weight.
- 10** Small stainless steel pipe dimensions result in less weight, ease of installation, and pipe networks that are easy to conceal.
- 11** Aesthetically pleasing nozzles.
- 12** The only wet sprinkler able to be tested while in service using Ultra Fog’s Patented Test tool.
- 13** WATER, the ultimate green agent, environmentally friendly, people safe and readily available.
- 14** Fire systems that have fast response are highly effective, quick and easy to put back into service.

The ULTRA FOG advantage

- ◆ Nozzle – superior coverage
- ◆ Less number of nozzles = Lower installation and maintenance cost.
- ◆ All St Steel internals of the nozzle
- ◆ Low maintenance Pump station
- ◆ Low cost Stainless Steel pipes (Ø12, 22, 28 & 42-60mm)
- ◆ Very low weight of system (empty/full)
- ◆ FULLY engineered to order.
- ◆ Full integration with your systems.
- ◆ Only potable water!



Thank you!

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Land