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Stat-X® aerosol fire suppression system

Technical brochure

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Contents

The vision

Aerosol fire suppression systems were developed primarily in response to the Montreal Protocol, which came into force on January 1, 1989, and the associated ban on halon extinguishing agents.
The aim was to replace halon with an extinguishing agent that fights fire on a chemical level, is environmentally friendly, has little or no ozone depletion potential, is non-toxic to humans and does not damage equipment.

The Stat-X® aerosol fire suppression system produces a highly effective and technologically advanced extinguishing agent with unique operational and functional characteristics. It combines an environmentally friendly and non-hazardous extinguishing agent with highly effective extinguishing properties.

The result is firefighting in the early stages, less damage to systems, equipment and buildings, significantly shorter production downtimes and cost efficiency in preventive fire protection.

The Stat-X extinguishing agent spreads like gas, only without toxic properties, without oxygen displacement and is suitable for use in normally occupied rooms. The extinguishing generators are made of stainless steel, operate without pressure and have a service life of up to 20 years.

Stat-X® requires the lowest concentration of extinguishing agent compared to all other systems and is the most efficient aerosol fire suppression system on the market.

Definition

Condensed aerosol is defined as an extinguishing medium consisting of finely dispersed solid particles and gaseous substances produced in the combustion process of a solid. The National Fire Protection Association (NFPA) of the USA defines condensed aerosols as suspended particles with a diameter of less than 10 micrometers. Due to the small particle size, large reaction surfaces are created, which are decisive for the effectiveness of the extinguishing agent.

Total flooding

Aerosol fire suppression systems are designed for complete flooding of the protected area and must achieve a certain concentration and suspension time of the extinguishing agent in the room as defined by the manufacturer. The required extinguishing agent concentrations that must be achieved vary depending on the fire load and the manufacturer's formulation.

At a glance

- Environmentally friendly (GWP=0, ODP=0)
- Non-hazardous (non-toxic, no oxygen displacement)
- No pressure relief necessary
- Non-corrosive
- Not electrically conductive
- Ultra-low extinguishing agent residue
- Low weight, small space requirement
- No piping, valves, pressure testing etc.
- Simple installation
- Low maintenance requirements
- Stand-alone or compatible with any fire alarm system

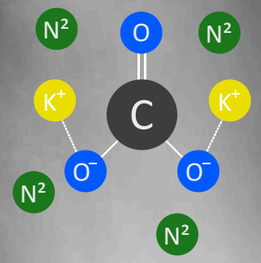
Operating principle of the Stat-X agent

The Stat-X extinguishing agent

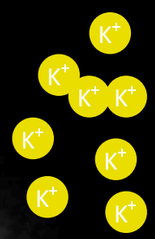
Fire requires the right proportions of oxygen, combustible material and heat to start. Most extinguishing methods aim to either deprive the fire of oxygen or reduce the temperature below a range where the combustion reaction cannot be maintained.

The primary extinguishing effect of the Stat-X aerosol system is based on the interruption of the combustion chain reaction and not on oxygen displacement. The extinguishing agent spreads like gas, only without toxic properties, without oxygen displacement and is neither stored under pressure nor expelled under pressure.

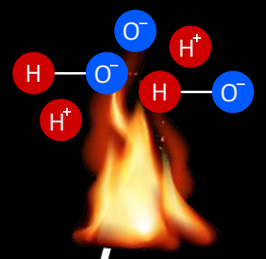
Stat-X aerosol
The extinguishing agent is a homogeneous mixture of potassium radicals and inert gases



Free potassium radicals
The heat of the fire causes the potassium carbonate particles to thermally dissociate and form extremely reactive free potassium radicals



Free combustion radicals
O, H and OH



Harmless to humans and the environment

When a Stat-X® aerosol fire suppression system is triggered ...

... no oxygen is displaced.

... no significant pressure is built up.

... there is no toxic hazard.

... there is no danger to equipment, facilities and buildings.

... there is no global warming potential (GWP=0).

... there is no ozone depletion potential (ODP=0).

Fast, uncomplicated installation

Stat-X® aerosol fire suppression systems are quick and easy to install and require little maintenance. As the aerosol extinguishing units are not pressurized and the extinguishing agent is stored locally in the generator, there is no need for any costs and effort for piping, nozzles, pressure measurement systems etc. and the associated intensive maintenance. Thanks to the minimally invasive installation, Stat-X® aerosol fire suppression systems can be easily retrofitted into existing infrastructure.

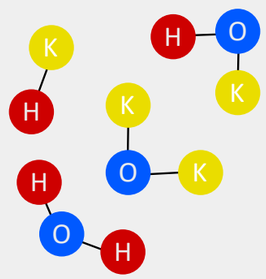
Chemical extinguishing effect in detail

Removal of flame-propelling radicals - "chain carriers" OH, H and O in the flame zone
The chemical effect of potassium radicals in pyrogens can be represented schematically as follows:

$K + OH = KOH$
$KOH + H = K+H^2O$

Recombination of flame-inducing radicals
The large number of micrometer-sized particles of potassium carbonate creates a very large surface on which the recombination of "chain carriers" takes place:

$O + H = OH$
$H + OH = H^2O$



Good to know

The smaller the suspended particles in the aerosol cloud, the larger the reaction surface and the less extinguishing agent is required. Stat-X is the most effective extinguishing agent on the market in terms of mass and is more than 10 times as effective as the most effective extinguishing gases.

Physical extinguishing effect in detail

The fire temperature is lowered to a temperature below which the fire reaction cannot continue. Several physical mechanisms are responsible for this:

Heat absorption via endothermic phase changes:

$K^2CO^3(s) -> K^2CO^3(I) -> K2CO^3(g)$

Heat absorption via endothermic decomposition reaction:

$2KHCO^3(s) -> K^2CO^3(s) + CO^2(g) + H^2O(g)$

Dilution of the combustion zone of the fire by the aerosol cloud
The extremely large surface area of the tiny aerosol particles increases the probability of radical recombination and heat-absorbing reactions, thus ensuring rapid extinguishing with a small amount of extinguishing agent. The patented Stat-X aerosol agent is the most effective fire suppression agent on the market in terms of mass.

Operating principle of Stat-X generators

Quality-leading aerosol extinguishing generators

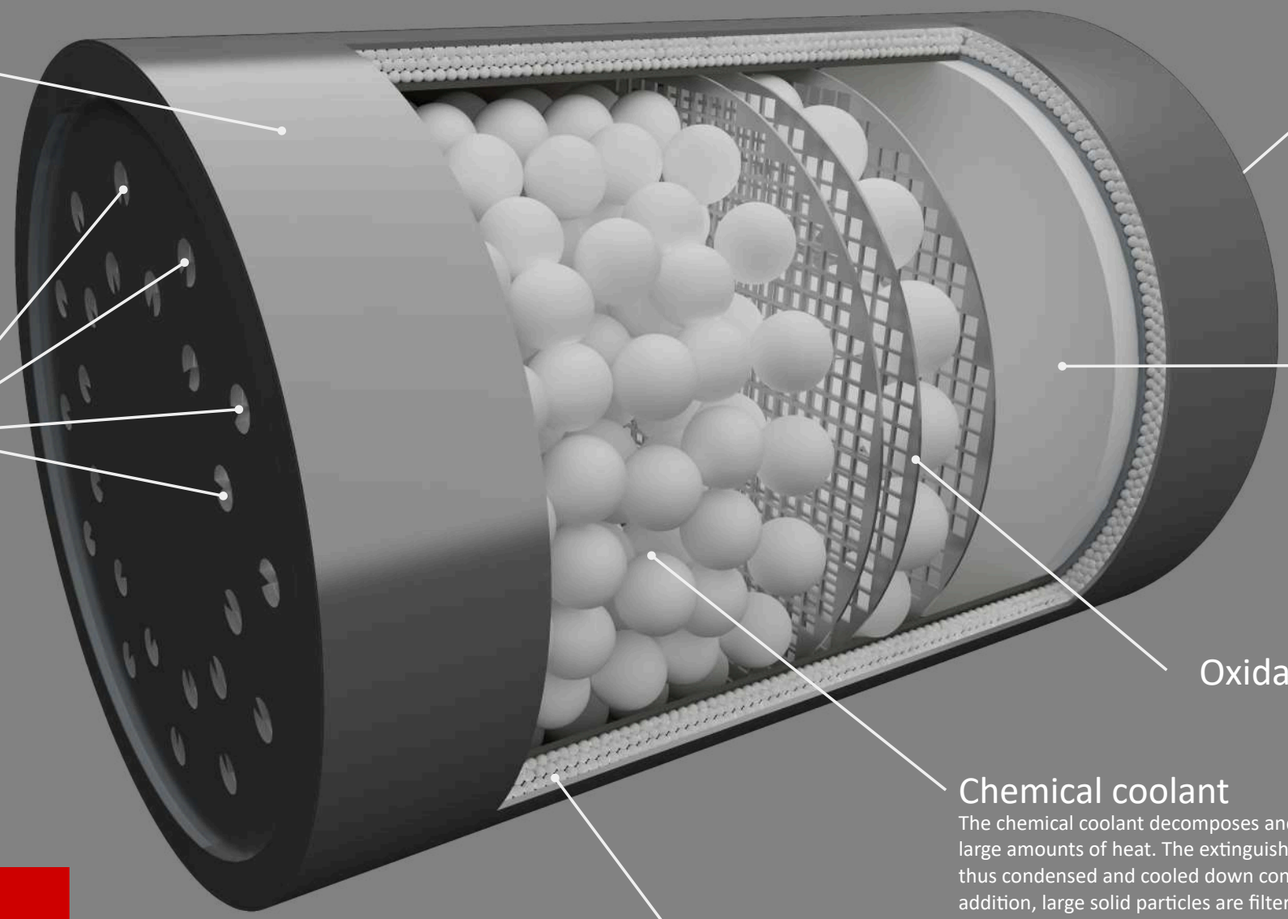
The aerosol-forming chemical is a thermoplastic mixture consisting of an oxidizing agent and a flammable binder which, when activated, produces combustion products - micrometer-sized dry suspended particles and a gaseous mixture. These are mixed to form a uniform fire extinguishing aerosol before being discharged from the generator.
The hot aerosol propels itself through a solid chemical coolant, which decomposes and absorbs large amounts of heat. The extinguishing agent emerges from the generator having cooled down considerably.

Unique extinguishing aerosol

The micrometer-sized suspended particles have gas-like three-dimensional properties, which allow them to spread homogeneously even in the most remote areas. Homogeneous distribution is achieved within a few seconds, and the long holding time of the aerosol helps to prevent the fire from flaring up again.
The reaction temperatures inside the generator are high, so that the potassium carbonates are formed in the gas phase, but change to the solid state as they cool down. As the solid potassium carbonates are produced by condensation, they are also referred to as condensed aerosol.

Stainless steel housing

All Stat-X® Extinguishing generators consist of a high-quality stainless steel housing. The world's largest militaries have chosen Stat-X for its robustness and manufacturing quality.



Sealed outlet openings

The outlet openings are sealed with a ceramic foil to protect the inside of the generator even at high temperatures and high humidity.

Initiator

The initiator triggers the combustion reaction within the generator. Electrical, thermal, thermal/manual, manual only and hazardous area versions are available

Aerosol-forming compound

The patented solid compound produces the unique Stat-X extinguishing agent in a combustion reaction. The production processes and chemicals used have a direct influence on the purity of the solid compound and the quality of the extinguishing agent.

Oxidation layer

Chemical coolant

The chemical coolant decomposes and absorbs large amounts of heat. The extinguishing agent is thus condensed and cooled down considerably. In addition, large solid particles are filtered out.

Insulation layer

The reaction temperatures inside the generator are high, which is why an insulation layer is used to insulate the outer stainless steel layer of the generator as well as possible.

Good to know

The extinguishing generators are not pressurized and are factory-sealed units. This reduces the maintenance effort to a minimum. The ongoing financial outlay for a Stat-X aerosol fire suppression system is many times lower than for gas extinguishing systems.

System design of Stat-X® aerosol fire suppression systems

The great flexibility is one of the main arguments in favor of the Stat-X system. Object and room protection are often combined, as shown in the example below. In the first escalation stage, the devices are protected with integrated extinguishing systems. This reduces costs and damage to a minimum. Only in the second escalation stage is a room fire suppression system used, which floods and protects the entire area.

1 Stat-X® Extinguishing generators
We select the right combination of extinguishing generators depending on the room size and conditions. The aim is to achieve a homogeneous spread of the extinguishing agent in the room as quickly as possible. As a rule, it makes sense to install several smaller generators, even if theoretically one large unit would release sufficient extinguishing agent.

2 Fire detection and extinguishing control panel
Stat-X® aerosol fire suppression systems can be designed either with a combined fire detection and extinguishing control panel or as a pure fire suppression system that is connected to a higher-level fire alarm system.

3 Smoke detector
Depending on the potential fire hazard, any form of fire detection can be used.

4 Optical/audible signaling device
An (imminent) activation is signaled visually and acoustically both in the room and at the room entrances.

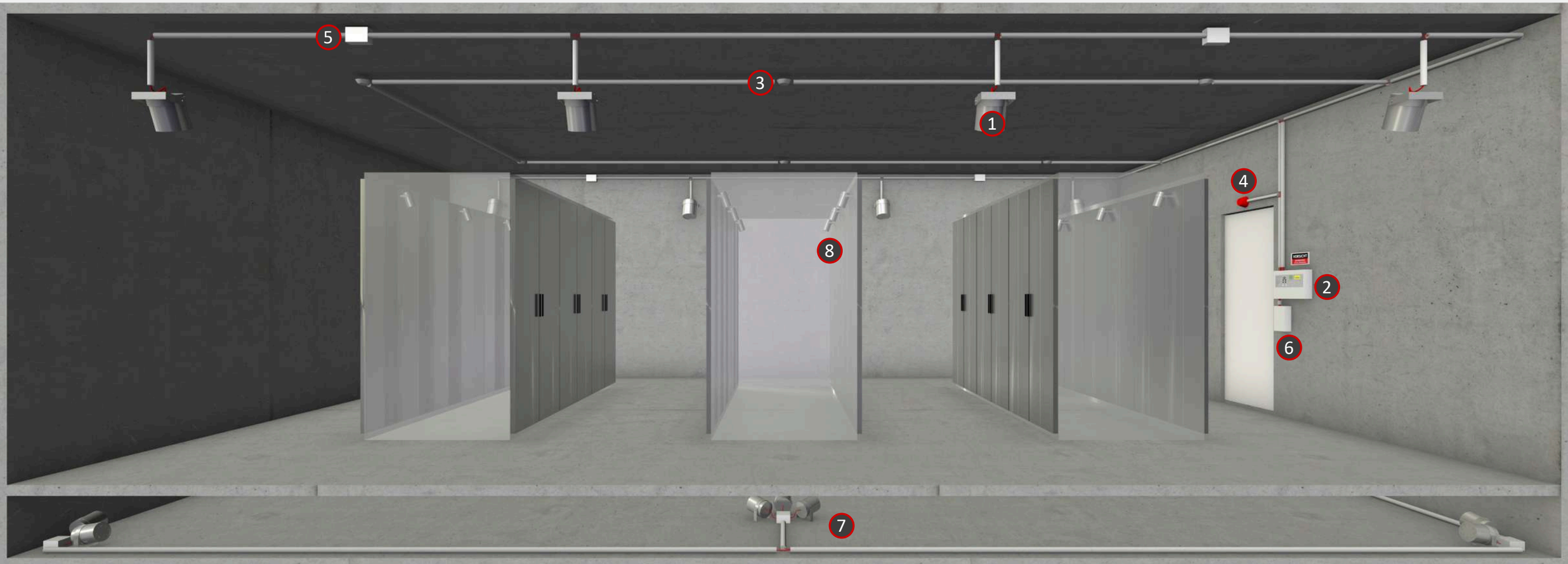
5 Sequential actuators / system couplers
To ensure the necessary triggering current for the extinguishing generators, they are triggered in quick succession. Our sequential releases are used for this, which always trigger two extinguishing generators and then switch through to the next system coupler.

6 Relay box / transfer distributor
The connection of e.g. higher-level fire alarm systems, climate control, etc. This can be done either directly in the central control unit or, to simplify cooperation with external service providers, via a remote relay box.

7 Raised floor
Depending on the design and characteristics, double floors and ceilings can be considered as separate extinguishing areas or together with the main room. The easy integration of Stat-X allows installation directly in the danger zone.

8 Integrated fire protection / property protection
The Stat-X aerosol generators can be integrated directly into the control cabinet or device to detect and extinguish fires as soon as they start. These can then be considered as a separate extinguishing area and extinguished individually as the first escalation stage.

9 System isolator switch / remote control unit
Aerosol fire suppression systems should be operated in purely manual mode for service work or when people are present in the protected area. In this case, the system is not triggered automatically, but by manually pressing buttons.



UL - Underwriters Laboratories
Reference: EX 15004

ULC - Underwriters Laboratories of Canada
Reference: EX 15004

UL - Underwriters Laboratories
Reference: 20180301-E495772
für Klasse 1, Zone 2

UL - International
Demko A/S

IECEx Certificate of Conformity
Reference: IEC 60079

ATEX Certificate
Reference: EN 60079

United States Coast Guard
Certificate of Approval
Nr. 162.029/257/0

Bureau Veritas
Reference: 23277/BO BV
Recognition for BV Mode II
Scheme

US EPA
SNAP listed for total flooding
use in normally occupied &
unoccupied areas

CE
Declaration of Conformity

ActivFire Certificate of
Conformity
Reference: afp-2284

Swedish Fire Protection
Association
Approval to SBF 128:1

American Bureau of Shipping
Certificate of Approval
Nr. 18-LD1802967-PDA

Maritime & Coast Guard
Agency (UK)

European Control Board
of the Netherlands
Type: Certificate of Compliance

Dubai Civil Defense

Abu Dhabi Civil Defense

Saudi Civil Defense

Technical data

	Stat-X
Volumetric efficiency	Best in class
Required concentration	From 55g/m³
Toxic hazard	none
Electrical conductivity	none
Corrosiveness	none
Ozone Depletion Potential (ODP)	0
Global warming potential (GWP)	0
Shelf life in the atmosphere	1-10 days
Fire classes	A, B, C
Service Life	15 years
Effective duration after complete flooding	Up to 120 minutes
Hazardous areas	ATEX: Ex II 3 G IECEx: Ex nA IIC T6 Gc
Temperature range	-40°C to +54°C
Relative humidity	Max. 98%
Electrical activation	12-24V DC, 0.5A for 0.05 seconds

No damage to equipment

The Stat-X aerosol extinguishing agent is not pressurized and is not discharged under pressure. It is not electrically conductive, non-corrosive and does not attack surfaces. After triggering, the extinguishing agent is suspended in the room and only settles after a longer period of time. If the room is ventilated within normal reaction times of 10-15 minutes, less than 10% of the extinguishing agent remains in the room, which can be easily removed with a cloth or compressed air. Depending on the fire class, only between 55g and 97g of extinguishing agent per cubic meter is used. The extinguishing agent residues are limited to a few grams per cubic meter and are barely visible to the naked eye.

Proof of toxicity

Unlike gaseous substances, the extinguishing agent does not decompose in the fire and does not extract oxygen. The Stat-X aerosol itself consists of solid and gaseous substances that do not pose a health risk to humans at normal design concentrations. In the case of Stat-X, the quantity of gases produced is many times below the standards for airbag systems for passenger cars and the approved limits of the health authorities.

DIN EN 15276-2, which is responsible for aerosol fire suppression systems in Europe, assumes aerosol extinguishing agents with a gas/solids mixture of 60% gas to 40% solids. In the case of Stat-X, the ratio is only 30% gas to 70% solid particles. The result is toxic harmlessness and market-leading extinguishing efficiency of the extinguishing agent.

The values given in the table refer to an extinguishing agent concentration of 100g/m³ room volume.
Under real conditions, between 55g and 97g/m³ are used.

Gas content (ppm)	Stat-X	Automobile Airbag Emission Standard 20 min TWA	NIOSH IDLH
NO_2	1.08	9.90	20.00
NO	0.97	50.10	100.00
NO_x	2.05	60.00	120.00
CO	84.20	445.00	1200.00
CO_2	756.00	40000.00	40000.00
NH_3	58.30	151.00	300.00

TWA - Time Weighted Average | NIOSH - National Institute of Occupational Safety & Health | IDLH - Immidiatly Dangerous to Life or Health (for 30 minutes exposure)

Stat-X E-Series

Stat-X units in the E series are triggered electrically and can be combined with any fire detection or extinguishing control panel. Specially insulated units are available for potentially explosive areas.

Model	Weight (kg)	Extinguishing agent capacity (g)	Discharge time (s)	Reflection range (m)	Safety distance (mm)	Dimensions (mm)	Room volume class B Fire (m^3)
15E	0.20	15	4	0.5-1.00	5	L127 x D34	0.27
30E	0.4	30	7	0.5-1.22	7	L109 x D51	0.55
60E	0.5	60	10	0.5-2.00	7	L130 x D51	1.09
60ME	0.5	60	10	0.5-2.00	7	L154 x D51	1.09
100E	0.90	100	12	0.5-2.50	13	L121 x D76	1.81
250E	2.5	250	12	0.5-2.75	13	L150 x D127	4.54
250ME	1.3	250	18	0.5-2.50	13	L180 x D76	4.54
500E	3.4	500	23	0.5-3.50	13	L180 x D127	9.09
1000E	7.1	1000	16	0.5-4.88	30	L170 x D203	18.18
1000ME	5.4	1000	25	0.5-3.5	13	L310 x D127	18.18
1500E	8.6	1500	23	0.5-4.88	30	L203 x D203	27.27
2500E	11.3	2500	36	0.5-4.88	30	L267 x D203	45.45

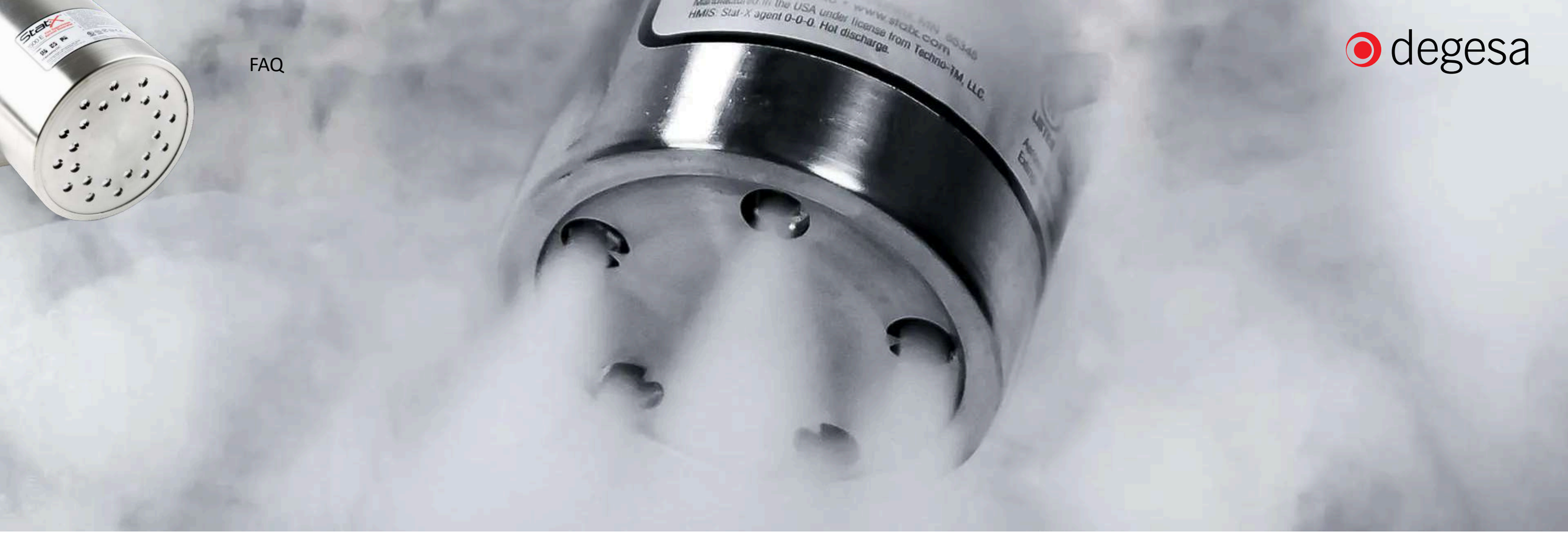
Stat-X T-Series

Stat-X T-series units are available as thermal, thermal/manual or manual only versions. The appropriate trigger is screwed on depending on the application.

Model	Weight (kg)	Extinguishing agent capacity (g)	Discharge time (s)	Reflection range (m)	Safety distance (mm)	Dimensions (mm)	Room volume class B Fire (m^3)
30T	0.4	30	7	0.5-1.22	7	L109 x D51	0.55
60T	0.5	60	10	0.5-2.00	7	L130 x D51	1.09
60MT	0.5	60	10	0.5-2.00	7	L154 x D51	1.09
100T	0.90	100	12	0.5-2.50	13	L121 x D76	1.81
250T	2.5	250	12	0.5-2.75	13	L150 x D127	4.54
250MT	1.3	250	18	0.5-2.50	13	L180 x D76	4.54
500T	3.4	500	23	0.5-3.50	13	L180 x D127	9.09
1000T	7.1	1000	16	0.5-4.88	30	L170 x D203	18.18
1000MT	5.4	1000	25	0.5-3.5	13	L310 x D127	18.18

Color code	°C (Celsius)	°F (Fahrenheit)
blue	70	158
green	95	203
red	123	254

Manual releases are available with vertical and horizontal pull direction.



"Are all aerosol fire suppression systems the same?"
Definitely not! Each manufacturer has its own formulation and approach. The extinguishing agent composition therefore differs, which has a direct impact on effectiveness and the quantity of gases released. Stat-X is the quality-leading system and requires the lowest concentration of extinguishing agent of all known aerosol fire suppression systems. Toxicity and extinguishing agent residues are therefore the lowest.

"What is the risk to people from an aerosol fire suppression system?"
A professionally planned and installed aerosol fire suppression system poses no danger to people. The Stat-X® Extinguishing generators are installed with the necessary minimum distance so that there is no thermal hazard.

It should be noted that the aerosol cloud can cause considerable visual impairment if it is triggered. Employees in the extinguishing area must be instructed accordingly.

"Are there any applications for which aerosol fire suppression systems are not suitable?"
Aerosol fire suppression systems demonstrate their advantages above all in industrial applications. Aerosol fire suppression systems should not be used in escape routes and public areas, as there is considerable visual impairment when they are triggered, which is unsuitable for an orderly evacuation without panic. If aerosol fire suppression systems are installed in occupied rooms, the release of the extinguishing agent must be delayed in accordance with the evacuation time and the system must be equipped with a system isolating switch.

"Can a Stat-X extinguishing system be retrofitted?"
Yes, our fire suppression systems can be easily retrofitted in most cases. Thanks to our many years of experience with aerosol fire suppression systems, we will work with you to find a suitable solution. Thanks to the large selection of different extinguishing generators, triggering options and compatibility with every fire alarm control panel, a concept can be developed for almost any application.

"How much residue remains after triggering the Stat-X fire suppression system?"
The residue after triggering depends on how quickly the room is ventilated. Assuming normal standing times of 15-20 minutes until the flooded room is vented, the residue is minimal and can be removed with very little effort.

"Are aerosol fire suppression systems dangerous for servers, hard drives or sensitive devices?"
No. As the Stat-X extinguishing agent is not electrically conductive, does not adhere and does not attack surfaces, it does not cause any damage to appliances. The extinguishing agent can be easily removed with compressed air, for example.

"What advantage do Stat-X® aerosol fire suppression systems have over conventional extinguishing systems?"
Aerosol fire suppression systems differ from conventional extinguishing systems in many ways. Depending on the application, different points are therefore advantageous.

- Stat-X® aerosol fire suppression systems are significantly more effective than conventional extinguishing systems. Only 20% of the extinguishing agent quantity is required compared to halon gas and less than 10% of the extinguishing agent quantity of all other known extinguishing gases.
- Stat-X extinguishing systems operate without pressure. The extinguishing generators are neither pressurized during storage, nor is pressure generated when triggered, which would entail further measures (e.g. pressure relief flaps).
- The extinguishing agent is environmentally friendly.
  - GWP (Global Warming Potential) = 0
  - ODP (Ozone Depletion Potential) = 0
- Aerosol fire suppression systems do not require any piping, nozzles or pressure measurement systems and are extremely low-maintenance.
- The Stat-X aerosol extinguishing agent has a long service life of up to two hours and therefore offers outstanding post-fire safety.
- Aerosol fire suppression systems are infinitely scalable and can be easily adapted to spatial changes.

Lithium-ion battery storage systems

Lithium energy storage systems are considered one of the greatest challenges in modern fire protection. Whether during production, charging, damage or external thermal conditions, lithium energy storage systems require special attention and special measures to ensure safe processes.

"Fire suppression systems for battery storage systems - a science in itself"

Self-reinforcing, exothermic chemical reactions (thermal runaway) pose particular dangers in this regard. runaway), in which extreme temperatures can develop very quickly, causing the surrounding cells to ignite. Once a thermal runaway is in full swing, it is difficult to stop. In addition, the course of the fire depends on the structure and arrangement of the battery cells, as well as the cell chemistry and state of charge, and therefore cannot be reliably predicted.

Benefits of Stat-X® aerosol fire suppression systems for battery storage systems:

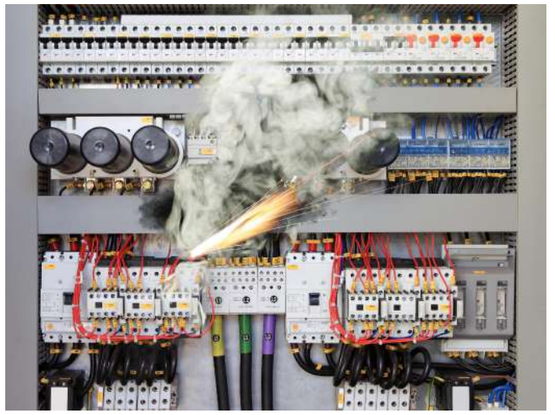
- No hazardous or uncontrollable by-products
- High post-fire safety due to the service life of the extinguishing agent
- Simple installation, minimal maintenance
- No pressure relief necessary
- Non-toxic, non-corrosive, non-electrically conductive (tested up to 40,000V)

Stat-X® aerosol fire suppression systems, in combination with early detection measures and management systems, are ideally suited to protect lithium energy storage systems. DNV-GL tests have shown that Stat-X can effectively extinguish a fire in a lithium-ion battery and prevent it from flaring up again as long as the aerosol remains in the danger zone.

Electrical systems

Electricity is the most common cause of fire in Germany, accounting for one third of all fires. In most cases, the technical triggers for fires caused by electricity can be traced back to loose cable connections, cable breaks or overloads. Supposedly minor causes quickly turn into major hazards.

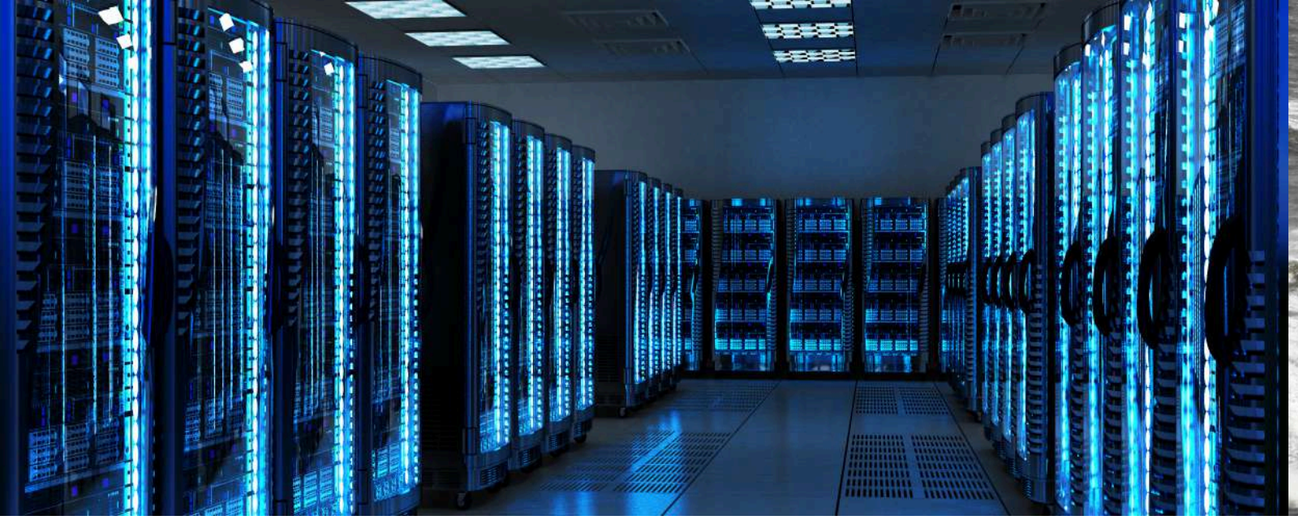
The challenge in extinguishing such fires is the danger posed by electrically conductive extinguishing agents, damage caused by conventional extinguishing agents and the hermetic sealing of operating rooms or cabinets that would be necessary to use gases.



Benefits of the Stat-X extinguishing system for electrical areas

- Non-toxic, non-corrosive, non-electrically conductive
- Ultra-low extinguishing agent residue, easy to clean
- Simple installation, minimal maintenance
- No pressure relief systems necessary
- High post-fire safety due to the service life of the extinguishing agent

Extinguishing with Stat-X® aerosol fire suppression systems is a better solution. They combine the most effective way of extinguishing a fire in the initial phase with cost efficiency thanks to minimal installation and maintenance costs. Thanks to their extremely space-saving design, Stat-X® aerosol fire suppression systems can also be installed directly in control cabinets, false floors or ceilings. This allows fires to be extinguished directly at the source before the fire can spread to surrounding equipment or buildings and cause major damage.



Server rooms

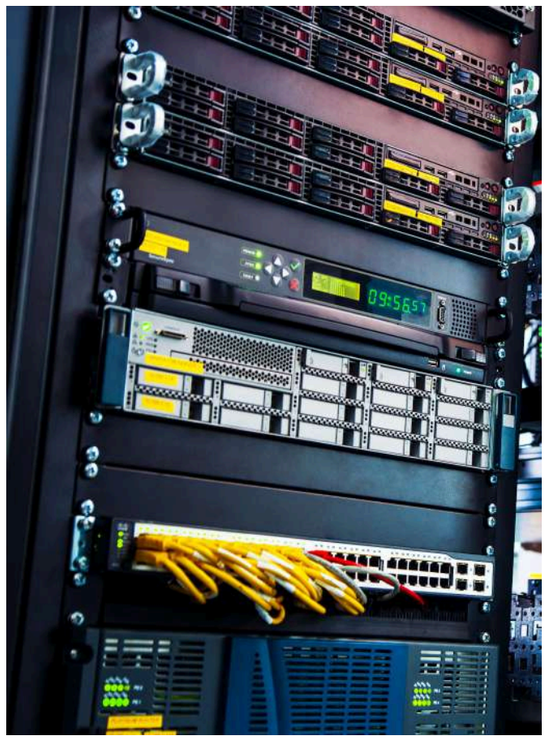
In a newly built data center or server room, fire protection solutions can be planned from the outset to make a fire impossible. For example, oxygen reduction systems are increasingly being used nowadays, where the oxygen content in the server room is kept below a level that prevents a fire from starting in the first place.

However, it is not uncommon for server rooms to be defined retrospectively or to have to be relocated to other premises due to conversion measures. This presents operators with challenges, as complex oxygen suppression systems cannot usually be retrofitted.

Aerosol fire suppression systems offer an excellent alternative for protecting IT and server rooms. They do not require pressure relief and, thanks to the wide range of generator sizes, the optimum fire suppression system can be designed for everything from the enclosure and cabinet to the entire room. Stat-X® is the world's leading aerosol fire suppression system and requires the lowest concentration of extinguishing agent of all internationally known aerosols. This results in ultra-low extinguishing agent residues that are easy to clean and approval for permanently occupied rooms.

Benefits of Stat-X® aerosol fire suppression systems for server rooms:

- No pressure relief necessary
- Ultra-low extinguishing agent residue, easy to clean
- Non-toxic, non-corrosive, non-electrically conductive, does not attack surfaces
- Easy to integrate in existing infrastructure
- Low installation and maintenance costs



Maritime firefighting

Due to the countless types of ships and designs, there are great differences in fire protection solutions for shipping, but they all have one thing in common: their determination and commitment to prevent fires on ships at all costs.

"Over the last two decades, degesa has equipped more than 100 ships of various types with Stat-X and is familiar with the processes and requirements of marine applications."

Stat-X® aerosol fire suppression systems are installed directly in the engine room or other risk zones, eliminating the need for piping or cylinder rooms. They can be triggered manually and/or automatically and flood the room with a potassium aerosol that interrupts the chain reaction of a fire. This extinguishes the fire within seconds and prevents the fire from spreading and the hull from heating up. The aerosol remains in the room for up to two hours and prevents re-ignition.

Advantages of Stat-X® aerosol fire suppression systems for marine vessels:

- Low weight and small space requirement
- Manual and/or automatic triggering
- Minimal maintenance effort
- Service life of up to 15 years
- Non-toxic, environmentally friendly, safe

Wind turbines

Wind turbines are often erected in and near forests, close to residential areas and in nature conservation areas, which entails additional fire protection requirements. While wind turbine fires are generally comparable to other electrical fires, the fire protection solutions in wind turbines have to meet more stringent requirements due to their difficult accessibility.

Stat-X® aerosol fire suppression systems extinguish fires by flooding the nacelle, individual cabinets or the tower of the wind turbine with a potassium aerosol that interrupts the chain reaction of the fire. The fire is extinguished within a few seconds before it can spread and cause major damage and danger. Pressure relief necessary.

Benefits of Stat-X® aerosol fire suppression systems for server rooms:

- No pressure relief necessary
- Low weight, low space requirement
- Non-toxic, non-corrosive, non-electrically conductive, does not attack surfaces
- Compatible with every fire alarm system
- Environmentally friendly (GWP=0, ODP=0)

The aerosol remains in the nacelle for up to two hours, ensuring a high level of post-fire safety. No pipelines, cylinder rooms or pressure relief systems are required.

Engines and machine rooms

Generators and gensets are particularly frequently affected by fire incidents due to the combination of hot components and highly flammable substances. Leaks and damage to the fuel supply can quickly lead to serious fires and major damage. Particularly with mobile units, such damage can occur more frequently due to mechanical stress during transportation. Early detection and extinguishing of a fire is necessary to protect machines, buildings and people. Many extinguishing agents cause major damage and contamination and endanger people's health. For this reason, many companies are opting for non-hazardous and environmentally friendly alternatives.

Stat-X® aerosol fire suppression systems extinguish fires by flooding the entire engine or engine room with a potassium aerosol, which interrupts the chain reaction of the fire on a chemical level. Fires are extinguished within seconds and cannot re-ignite as long as the aerosol remains in the room. The extinguishing agent is installed in high-quality and extremely robust stainless steel housings directly in the engine compartment, so that no pipes, bottle compartments or extinguishing water retention systems are required. This means that maintenance costs are extremely low compared to water mist or gas extinguishing systems.

Advantages of Stat-X for engines and machine rooms:

- Low weight and small space requirement
- Manual, electrical or automatic release
- Extreme robustness
- Service life of up to 15 years
- Non-toxic, non-corrosive, non-electrically conductive

Stat-X First Responder®

The Stat-X First Responder is a hand-held fire-fighting device with pull-actuation. It is designed to be thrown by hand into an enclosed space where a fire is burning. Three and a half seconds after the bolt is pulled, the Stat-X First Responder is activated and fills the room with the highly effective extinguishing aerosol, immediately suppressing the fire.

The Stat-X aerosol is the most effective extinguishing agent on the market in terms of weight and spreads like gas, only without toxic properties and without displacing oxygen. Just 500g of extinguishing agent from the Stat-X First Responder is enough to knock back flames and completely extinguish smaller fires.

The Stat-X First Responder is designed exclusively for use by emergency services and trained personnel.

Benefits of the Stat-X First Responder

- 500G of highly effective aerosol extinguishing agent are released within a few seconds and suddenly interrupt the chain reaction of the fire.
- Non-toxic & environmentally friendly
- provides emergency services and first responders with valuable time for rescuing people

Warehouses and archives

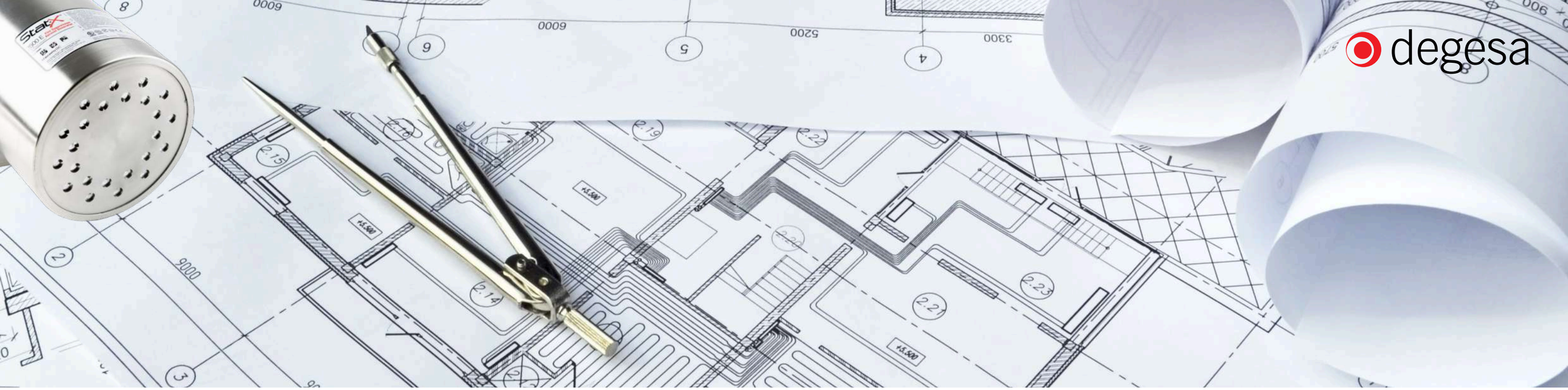
For economic reasons, the focus in warehouses is on optimizing space, which is why automatic storage systems and storage lifts are often used. However, these present particular challenges in terms of fire protection, as they are not accessible to people and often reach enormous room heights, which makes fire detection considerably more difficult.

In archives, the value of stored items is often not measured by their material value, but by their uniqueness. Once destroyed, files or props are irretrievably destroyed. Fire protection measures are therefore often limited to organizational fire protection, as many solutions cause as much damage as a fire itself.

The problem for operators of warehouses and archives is often that classic sprinkler systems would cause too much damage if triggered and gas extinguishing systems entail enormous maintenance costs. A better option is the use of aerosol fire suppression systems, which cause no damage to the warehouse or the stored goods and are extremely low-maintenance compared to other technologies.

Benefits of Stat-X for warehouses and archives:

- No pressure relief necessary
- No damage to stored goods due to extinguishing agents
- Non-toxic, non-corrosive, non-electrically conductive, does not attack surfaces
- Low installation and maintenance costs
- Environmentally friendly (GWP=0, ODP=0)



Market leader through quality

"Stat-X has been tested and recognized by the most demanding institutions in the world. Nasa, the world's largest militaries and thousands of companies rely on Stat-X"

Stat-X protects over 12,500 armored military vehicles in use worldwide.

Stat-X protects Li-ion battery storage and production facilities and has proven its effectiveness many times over.

Stat-X protects the largest moving machines in the world: the crawlers of the launch platform for the space shuttle.

Stat-X protects hundreds of ships worldwide, including the fleet of sea rescuers.

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