Sprinkler systems

Safe for certain.

MINIMAX

PRODUCT

SIMPLY SAFE

Fighting a fire in the beginning stages is the best way to protect human life, property and the environment. Minimax sprinkler systems do this automatically – they detect, report and extinguish fires independently and therefore provide reliable protection around the clock.

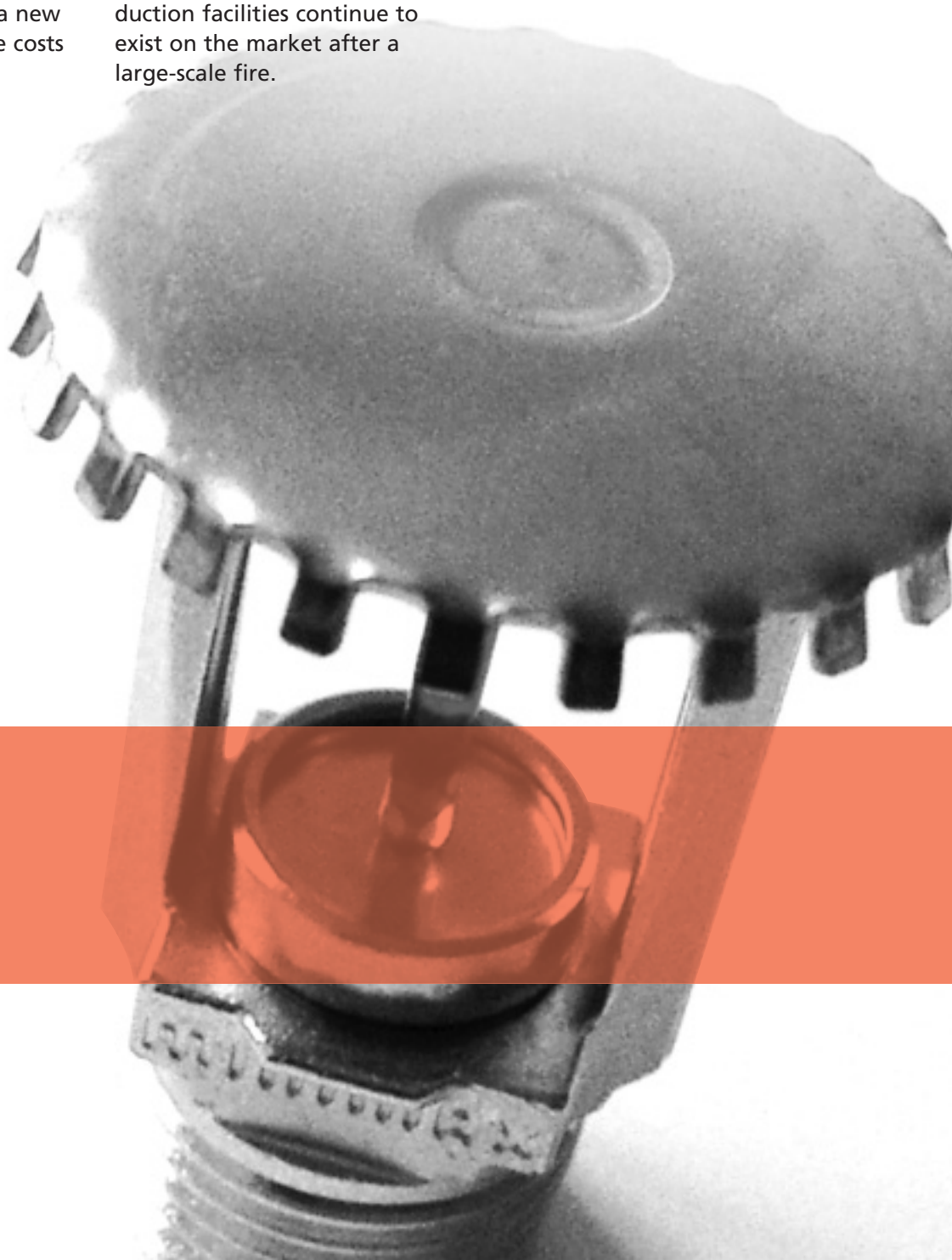
If the installation of a sprinkler system is considered during the planning phase for a new building, this can reduce costs significantly.

In view of fire damage developments in recent years, retrofitting of existing buildings with sprinkler systems is also recommended.

The successful extinguishing of a fire by a sprinkler system will save you from losing customers and market shares due to the forced interruption often caused by fire damage: Only about one fourth of production facilities continue to exist on the market after a large-scale fire.

A well-thought-out fire protection concept also communicates a sense of reliability to your customers.

Minimax has more than 100 years of experience in the development, production, installation and maintenance of fire protection systems.



Our sprinkler systems are customized for each project. In this way, they provide an economical solution for small and mid-sized businesses in conformance with all safety requirements: this is guaranteed by strict compliance with applicable directives, inspected components, and planning and installation by qualified personnel.

Simply effective

- Sprinkler systems offer fire detection and extinguishing functions in one system.
- Extinguishing is limited to the areas where there is really a fire.
- Extinguishing water reduces smoke and contaminants, therefore protecting the environment.
- As a natural extinguisher, water is inexpensive and unlimited in terms of availability.
- After a fire has been extinguished, Minimax sprinkler systems are quickly ready for use again.
- Sprinkler systems create structural freedom – as an inexpensive alternative to additional fire walls.

APPLICATION

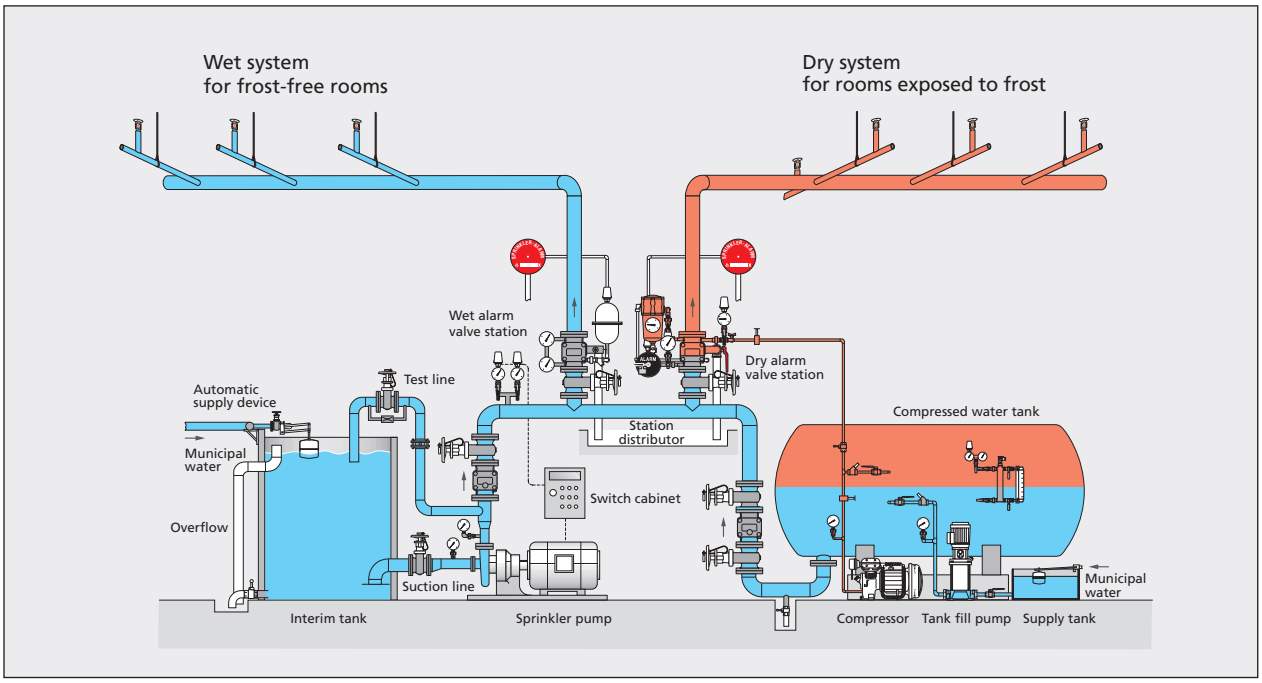
VERSATILE

Minimax sprinkler systems are the certain solution for the protection of human life and property, for example in

- Public facilities and buildings
- Stores
- Offices
- Parking garages
- Logistics areas
- High bay warehouses
- Industrial businesses

FUNCTION

SPRINKLER SYSTEM



A sprinkler system consists of a piping network with sprinklers extending through all building areas to be protected. A glass bulb filled with liquid encloses the sprinkler in readiness. If the air temperature exceeds a specified limit due to heat from a fire, the expanding liquid bursts the bulb, activating the sprinkler. The extinguishing water impacts the spray disk and is distributed evenly across the source of the fire. In this way, the fire is extinguished with only a few sprinklers, reducing the damage to a minimum. Simultaneously, internal and external rescue teams are alerted.

Wet system

In this type of system, the piping network is completely filled with pressurized water. If the sprinkler bulbs burst, water pours out immediately.

Dry system

In areas exposed to frost or high temperatures, the sprinkler pipes are filled with compressed air. The extinguishing water is supplied as far as the dry alarm valve station. The pressure drop when the sprinklers open causes the dry alarm valve to open automatically, flooding the pipe network.

Pilot operated dry system

This combined fire detection and sprinkler system prevents water damage in the event of accidental damage to a sprinkler. Before the extinguishing water emerges, the fire detection system must also be actuated.

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Please see Minimax product sheets for detailed information.

DirectAlarm and DirectAlarm Foam – simplified alarm tests

Cool down.
Fire Protection by

MINIMAX

►Product ►Use ✚Advantages

► With the **DirectAlarm** accessories kit, the piping of Minimax wet alarm valve stations DN 80 to DN 200 is changed, whereby the alarm signalling equipment can be function tested without removing water from the sprinkler piping.

► With **DirectAlarm Foam,** the entry of the foam/water mix into the sewage system and the use of foaming agent concentrate are reduced to the smallest possible amount.

Weekly testing is not carried out using the foam/water mix from below the alarm valve but using the water from the pump manifold before the proportioner. A small amount of foam/water mix needs only to be removed from the piping at half-yearly function tests when the station is opened. When using a maintenance valve, this amount is further reduced.

► The **DirectAlarm** accessories kit and the **DirectAlarm Foam** version can be easily retrofitted with the existing Minimax wet alarm valve stations DN 80 to DN 200.

► A factory-made installation to new wet alarm valve stations can be carried out on request.

► In connection with a second shut-off fitting, considerable savings are made with foam sprinkler systems.

► When used/retrofitted in existing sprinkler systems, VdS and FM approval is retained.

✚ Considerable reduction of maintenance time for sprinkler technician.

✚ Split-second testing and thus only a similarly short interruption of sprinkler system operability indicator.

✚ Small amount of water required, representing cost savings for the operator.

✚ Reduction of corrosion risk through the use of oxygenated fresh water.

✚ Active contribution to environmental protection.

✚ Option to retrofit with Minimax wet alarm valve stations.

✚ Reduction of false alarms through constant pressure in sprinkler piping.

✚ Perpetuation of premix compound.

FM APPROVED

VdS

Saving

Water use in alarm tests (wet alarm valve station) per year

Standard | With DirectAlarm

Foaming agent use in alarm tests (wet alarm valve stations) per year

Standard | With DirectAlarm Foam

The guidelines for VdS CEA 4001 sprinkler systems recommend weekly testing of alarm signalling equipment.

For this purpose, the sprinkler attendant opens a test valve and removes water from the sprinkler piping until the alarm signalling equipment reacts.

Through the **DirectAlarm** modification kit, the piping is changed, whereby the alarm signalling equipment is tested for proper functioning without having to remove water from the sprinkler piping.

In addition, a conventional function test is required every six months, whereby the wet alarm valve station is opened.

- In foam sprinkler systems, a large amount of foam/water mix can be saved by using the **DirectAlarm Foam** version for operating tests. In contrast to **DirectAlarm,** the water required for the alarm bell test is not taken from the manifold below the station, but from the piping to the proportioner.
- For the system operator, this means considerable potential for savings, as almost no foaming agent is used and disposed of.
- Eliminating the need for sewage works also means an active contribution to environmental protection.
- With the useful inspection valve accessory, the removal of foam/water mix is also avoided during maintenance.
- The foam/water mix composition remains in the sprinkler piping.

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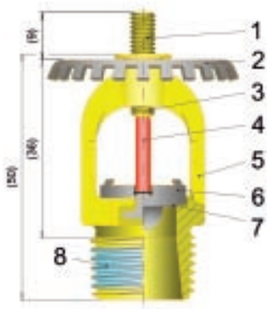
SMALL

75 years experience at the development of sprinklers, numerous patents, trade mark rights and ap-provals are documenting the leading role of Minimax in this segment. Sprinklers of the new production series sprinkler 21 are smaller, bear the CE marking and are easy and could be assembled fast and comfortable. The testing of the operational function and the and the effectiveness of the sprinkler are regular carried out for example by trials with full scale fires.

Function



The functional principle of Minimax sprinklers is very straightforward and safe. They are mounted corresponding to the applicable regulations into a network of pipes which covers the areas to be protected in height of the ceiling. Normally each sprinkler head is sealed and will only open when it reaches a certain temperature. An important component of the sealing is a glass bulb which is filled with a liquid which will expand when heat from a fire occurs. This robust glass bulb will only burst when the surrounding temperature increases approximately 30 °C above the normal maximum room temperature due to the effects of a developing fire. In this way the pressurized extinguishing water which is free to flow out of the piping network onto the sprinkler's spray deflector to be distributed evenly on the fire. It also must be emphasized that only the sprinklers mounted directly above the fire will open.

1. Pintel 2. Spray deflector 3. Threaded pin
4. Glass bulb 5. Sprinkler body 6. Cone 7. Seal
8. Preapplied thread seal

Sprinkler assembly

The Minimax sprinkler 21 is a compact component with the total height of only 50 mm which can be inserted harmonically in every roof construction due to the wide range of available surface finishes and various escutcheon plate designs.

The constant high quality of Minimax sprinklers is guaranteed by a computer controlled production line.

Release temperatures

Minimax offers sprinkler bulbs with five different release temperatures with which temperature ranges from 57 °C to 141 °C can be protected. The opening temperature for each sprinkler bulb is determined by the air volume which is encapsulated within the glass bulb and is indicated by differently coloured liquids. Of course all Minimax sprinklers of the new production series sprinkler 21 already have the VdS approval.

Orange: 57 °C (135 °F)
Red: 68 °C (155 °F)
Yellow: 79 °C (175 °F)
Green: 93 °C (200 °F)
Blue: 141 °C (286 °F)

Response sensitivity

The time span up to the release of the sprinkler is expressed in RTI values (Response Time Index). Lower values represent quicker releases. Sprinklers with quicker response behavior (Fast Response) are recommended for risks where a quickly spreading fire is to be expected and generally for areas where danger to life for a large number of people is existing.

Sprinkler design

Minimax sprinklers are offered in numerous designs and with special spray characteristics in order to fight effectively the various types of fires which could occur. Many models have also been developed to fulfil the requirements presented by special structural conditions, e.g. stainless steel.

Flat spray sprinkler, pendent, FP
especially designed for areas with grid or mesh ceilings so that, in the case of fire, a sufficient water coverage can be guaranteed.
k-factor: 57 thread: R 3/8"
k-factor: 80 thread: R 1/2"

Spray sprinkler, upright, SU
Standard sprinkler for areas where the sprinkler network is visible, e.g.: manufacturing areas or storing areas.
k-factor: 57, 80 thread: R 3/8"
k-factor: 115 thread: R 1/2"

Horizontal side wall sprinkler, extended coverage, WWH
for areas where sprinkler piping network cannot be mounted on the ceiling due to structural reasons, e.g. hotel rooms.
k-Wert: 80 Anschlussgewinde: R 1/2"

Spray sprinkler, pendent, SP
for areas in which the sprinkler piping network is installed in the space directly above the false ceiling, e.g. in department stores or office floors.
k-factor: 80, 115 thread: R 1/2"

Safety twin sprinkler, pendent, DS-1
for areas with high safety requirements with regard to faulty releases e.g. EDP centers.
k-factor: 57 thread: R 1"

Flat spray sprinkler, upright, FU
for areas with visible sprinkler piping networks and structural conditions which could obstruct spraying, e.g. wall projections, beam or girder constructions.
k-factor: 80 thread: R 1/2"

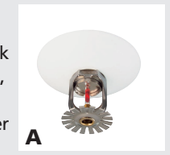
Dry sprinkler, pendent, DP
for frost endangered areas which are protected by a dry system and where upright sprinklers cannot be mounted in the sprinkler piping system.
k-factor: 80 thread: R 1".

All threads R 3/8", R 1/2" and R 1" are out led as Whitworth raw threads in accordance with DIN 2999.

Sprinkler accessories/fittings

Minimax offers not only the sprinkler alone but also accessories aligned and suitable for the sprinkler 21.

Escutcheon plates
for the decorative capping of openings associated with the installation of pipework and sprinklers. Available in the designs: A, D, E and F. Designs: • plastic, white • aluminum, mat silver anodized • Steel, powder coated, white or different colors



Sprinkler guard
to protect against accidental damage.

Deflector shield
to shield against cooling created by the water discharge from sprinklers mounted on a higher level, e.g. in racks.

& STRONG

Sprinkler wrench
Tool to assemble and dismantle sprinklers in the correct and proper manner: available as a complete tool and as attachment for a ratchet.

Reserve supply cabinet
to store the stipulated reserve sprinklers, the sprinkler tools and the sprinkler log-book.

ADVANTAGES

Compliance with the valid norms

- In accordance with DIN EN 12259-1 sprinklers with the K-factor 115 can be also produced with 1/2" connection threads. A standardized external marking then must be attached. This is the so-called pintel, which protrudes out of the spray deflector with a length of 8-12 mm.

Reduced design variety

- Sprinklers with 1/2" threads are produced with K-factors 80 and 115, and sprinklers with the smaller 3/8" thread are produced with K-factor 57.
- As all necessary K-factors can be achieved, the amount of different thread sizes is reduced to 3/8" and 1/2".
- The process of riveting the spray deflector with the sprinkler body has been improved, resulting in an constant total height and an exact centering and alignment of the spray deflector.

Simplification of the assembly

- One of many advantages is the pre-applied thread seal. Sealing with Teflon strip or a liquid sealant on the construction site is no longer necessary. The sprinkler can be screwed directly into the pipe system, reducing the installation time considerably.

- Simplified assembly by a standardized sprinkler wrench.

Quality improvements

- We have further improved the production and the quality of our 3 mm and 5 mm sprinkler bulbs.
- Soak-test: this is a 100% check of the sprinkler bulbs after the completion of each sprinkler. During this test the sprinkler bulb is heated. If the enclosed air changes into liquid, the sprinkler bulb is all right. However, if the air bubble increases in size and does not change into liquid, the sprinkler bulb is damaged, e.g. tip rupture and therefore rejected.
- Higher resistance against aggressive environmental influences by improvement of the design.
- The improved sprinkler bulbs are an essential part of the new sprinkler 21 with VdS approval in the designs varieties SP, SU, FU and FP.

CE marking

- For the MX sprinklers of the production series sprinkler 21 the EC conformity assessment procedure was carried out in accordance with the Building Products Guideline. The sprinklers correspond to DIN EN 12259-1 and therefore bear the CE marking.

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Sprinkler 21 – the new generation

Safe for certain.

MINIMAX

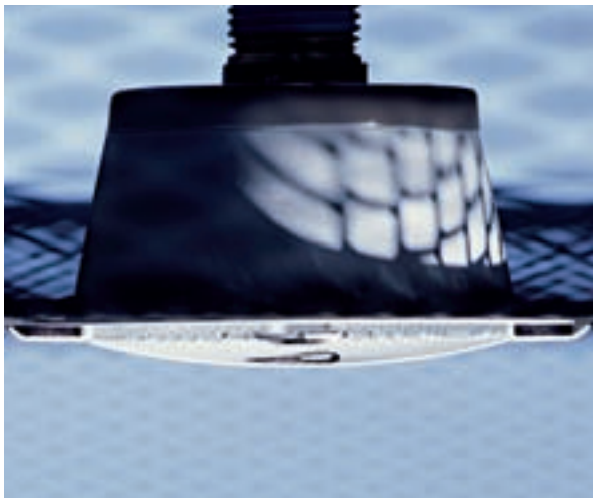
Undercover-Sprinklers – recessed and concealed sprinklers

Cool down.
Fire Protection by

MINIMAX

NOTICEABLY well designed

Sprinklers from the Minimax Undercover product range are the perfect solution when it comes to integrating a fire extinguishing system into a ceiling unobtrusively and harmoniously. They are exactly what is required when high aesthetic standards need to be met in prestigious settings such as luxury hotel rooms, museums, showrooms of department stores or offices.
Architects and clients with a keen eye for design invariably consider conventional sprinkler heads and traditional escutcheons that protrude from the ceiling to be unattractive and highly conspicuous. Virtually flush with the ceiling and available in a surface finish to match your interior design, the innovative Undercover-Sprinklers open up a whole host of new interior design opportunities. In addition, they continue to meet the official prerequisites for planning permission to be granted and for premium rebates on fire insurance to be guaranteed.



Installation

Undercover-Sprinklers can be installed wherever there are suspended ceilings (e.g. gypsum board or AMF ceiling systems) and solid concrete ceilings (e.g. exposed concrete) with enough available space for the sprinkler housings. These are not installed until the ceiling has been completed and are then seated flush with the ceiling. The height can then be adjusted by up to 15 mm.
Undercover-Sprinklers fit onto all standard arm pipes with drops or flexible stainless steel hoses. Once the sprinkler has been installed, the hydraulic pressure test of the pipe network can be conducted before the suspended ceiling is put in place.

Examples of areas of application for Undercover-Sprinklers

UNNOTICEABLE
and flush with the ceiling

Highly reliable

There are a number of reasons why Undercover-Sprinklers are so reliable. For a start, there are no moving pieces or parts prone to corrosion. The ornamental ring or the fine-mesh cover are not positively soldered to the housings, but are attached magnetically. There are no vent holes in the Undercover-Sprinklers' housings, and they can therefore not be inadvertently cooled down by the water from cavity sprinklers arranged above them.
If you need a concentrated sprinkler arrangement, the stipulated minimum spacing between two Undercover-Sprinklers installed flush with the ceiling can be easily reduced without having to install baffles, for example. These sprinklers can even be installed in solid ceilings – with no adverse effect on their response sensitivity.

Attractive design

We can meet practically any customer requirement when it comes to the colour of your sprinklers, even above and beyond the RAL colours, so that they will harmoniously blend in to their surroundings.
The sprinkler housings and the suspended sprinkler come in a highly polished chrome finish as standard. The fine-mesh cover and the ornamental ring are available in a choice of white and highly polished chrome.

Protected against soiling and damage

The fact that they are recessed offers the sprinklers greater protection from being damaged by external influences, thus significantly reducing the likelihood of water damage caused by a damaged sprinkler. In addition, Undercover-Sprinklers are consequently less prone to soiling.

CE In accordance with DIN EN 12259-1, concealed and recessed Undercover-Sprinklers have been issued with a CE conformity certificate by VdS Schadenverhütung GmbH.

Recessed Undercover-Sprinklers

Usually, up to half of the release element of a standard recessed sprinkler protrudes from the ceiling.

- Recessed Minimax Undercover-Sprinklers are currently the only recessed sprinklers known of to have a sprinkler deflector which is virtually flush with the ceiling. Consequently, they are often also referred to as being “fully recessed”.
- They are optionally available with a visually attractive ornamental ring and can be easily converted to concealed sprinkler.
- Low response sensitivity of the release element:
  RTI value < 50.

Concealed Undercover-Sprinklers

With its fine-mesh cover and innovative CoverDrop eject mechanism, the Minimax Undercover-Sprinkler is unique amongst the known concealed sprinklers.

- Thanks to CoverDrop, the fact that the cover unsolders before the sprinkler is triggered does not have any bearing on the sprinkler’s reliability.
- Low response sensitivity of the release element:
  RTI value < 50.

Recessed Undercover-Sprinkler

Concealed Undercover-Sprinkler

Design and function

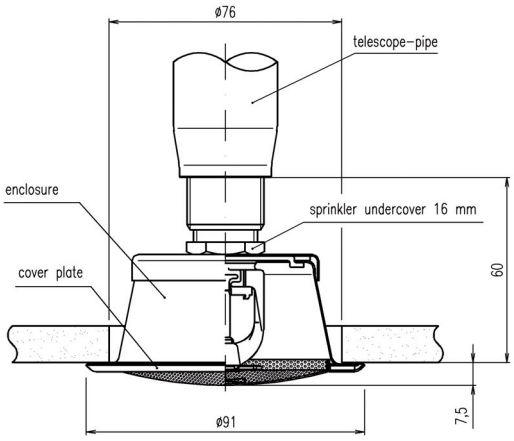
Minimax has come up with two different types of the Undercover-Sprinkler – a recessed and a concealed version. Unlike the concealed sprinkler with its fine-mesh cover and the innovative CoverDrop eject mechanism, the recessed Undercover-Sprinkler's head is visible through the optional ornamental ring. Both versions are equipped with the suspended quick-response spray sprinkler, which is a tried and tested Minimax component. The sprinkler unit consists of the sprinkler itself, a base plate with a bayonet socket for attaching the housing, and a thread sleeve.

Advantages

The construction is carefully designed down to the smallest detail and comprises the following benefits:

- maximum functional reliability
- unobtrusive and attractive design
- recessed installation offers protection from soiling and damage

Cross section of an Undercover-Sprinkler



Unique: CoverDrop eject mechanism

The patented CoverDrop eject mechanism is based on two redundant mechanisms.
A prestressed spring, held with soldered joint under tension, is fasten on the inside of the fine-mesh cover. When the soldering material's nominal release temperature is reached, this being below that of the sprinkler's release temperature, the pre-stressed spring is unleashed and the fine-mesh cover is ejected. If, under exceptional circumstances, the sprinkler should be triggered before the cover is ejected, the water released by the sprinkler is enough to dislodge the screen, thereby guaranteeing that the water is distributed evenly in all cases.

Tested and approved:
After successful completion of the VdS examinations, Minimax is now the first manufacturer of a VdS-approved concealed sprinkler.

VdS

IN USE everywhere

Areas of application

Undercover-Sprinklers are used in LH, OH1, OH2 and OH3 risk scenarios, as defined by VdS CEA 4001.

These include:

- Banks
- Churches
- Department stores and shopping centres
- Hospitals, old people's homes and other care institutions
- Hostels, apartment blocks
- Hotels
- Libraries
- Multi-storey/underground car parks
- Museums
- Offices and administrative departments
- Official and governmental buildings
- Penal institutions and young offenders' institutions
- Railway stations
- Restaurants
- Schools, universities and other educational institutions

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