

VdS

150^{Years} Sprinkler

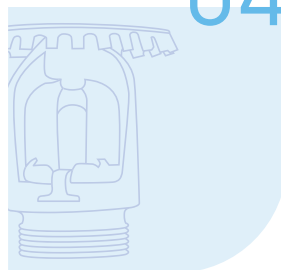




150^{Years}
Sprinkler

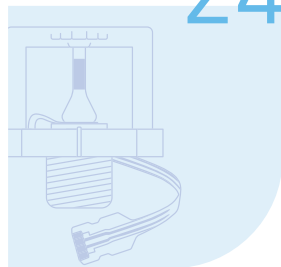
The 150th anniversary of sprinkler technology in 2024 marks a landmark moment for fire prevention and protection.

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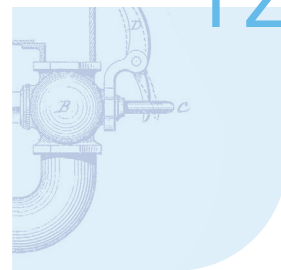
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VdS and the
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Fire protection
for tomorrow

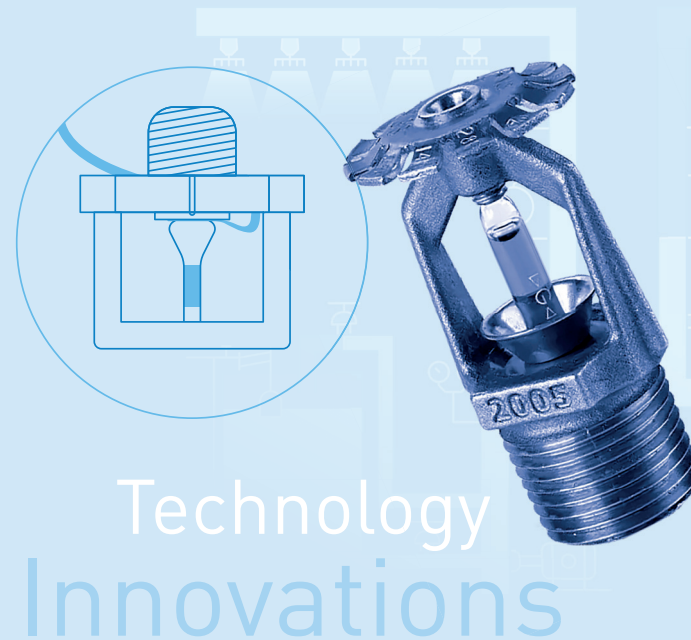


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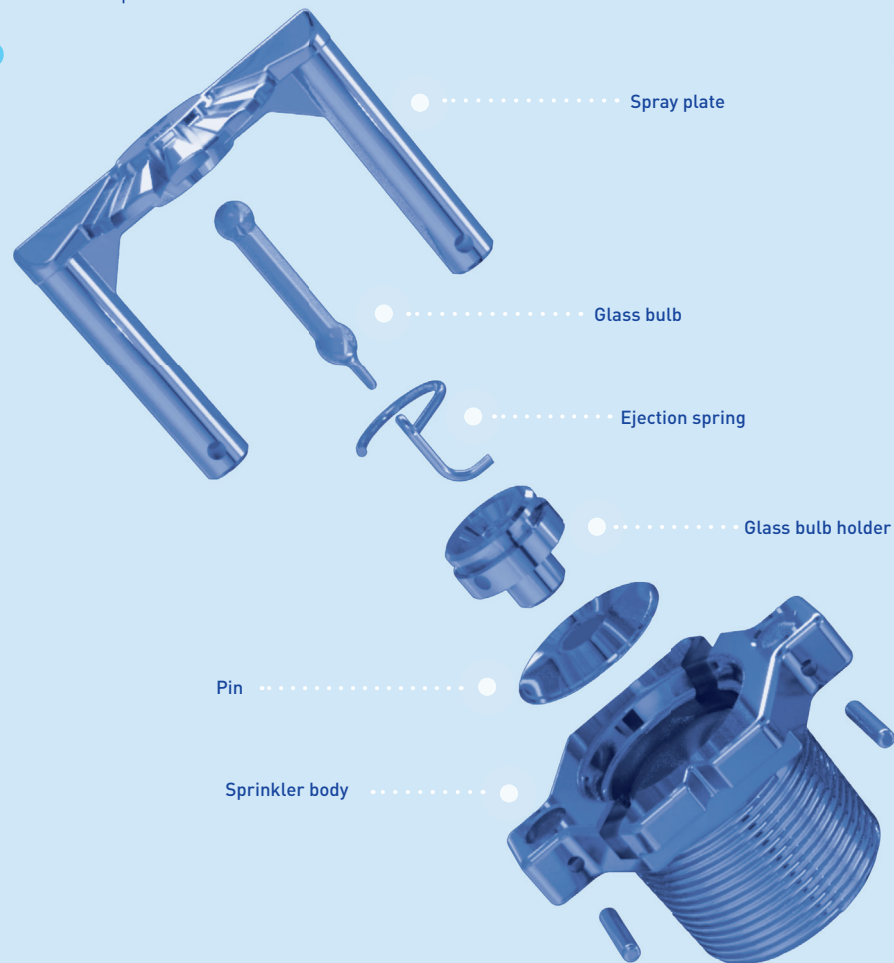
History

VdS and the sprinkler

VdS has accompanied the development and spread of sprinklers from the very beginning: From the sprinkler monitoring centre to the present day, VdS, with its immense wealth of experience and proven technical expertise, has been able to decisively advance the use of sprinkler systems both in Germany and internationally.



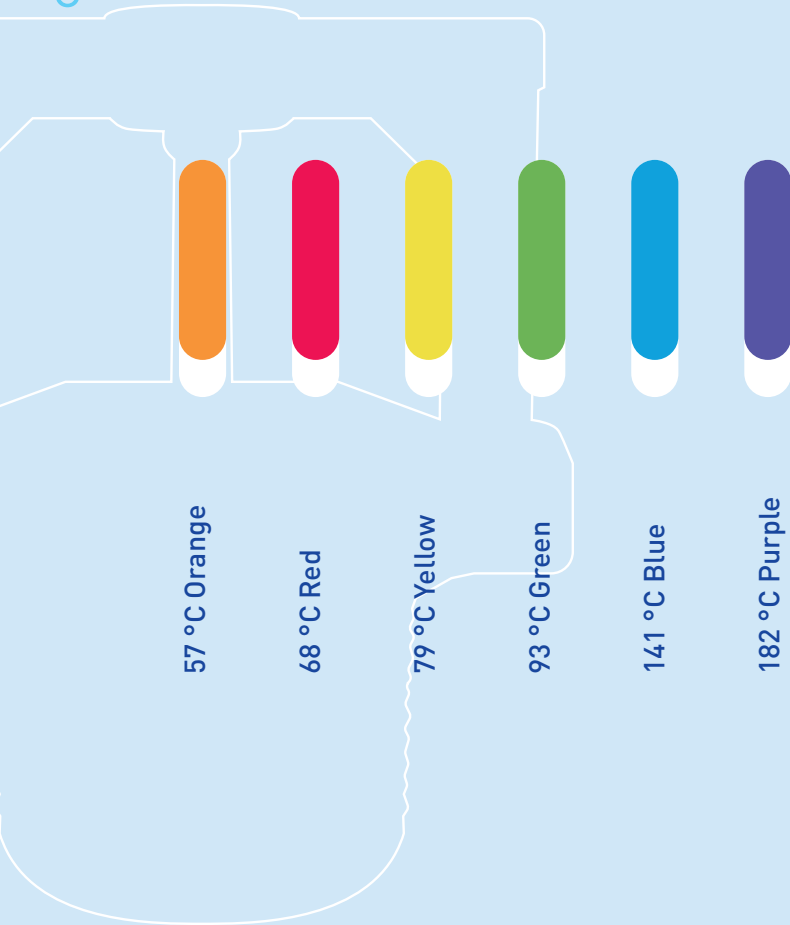
Technology
Innovations



Structure of a sprinkler

The sprinkler head contains a sealing element held in position by a temperature-sensitive glass ampoule or, in some applications, by a fusible link. When the ambient temperature rises above the sprinkler's specified trigger

temperature, the glass bulb or fusible link bursts. As a result, the water released flows through the pipes into the sprinkler and is distributed over the entire area by the spray disc.



Configuration sprinkler bulbs

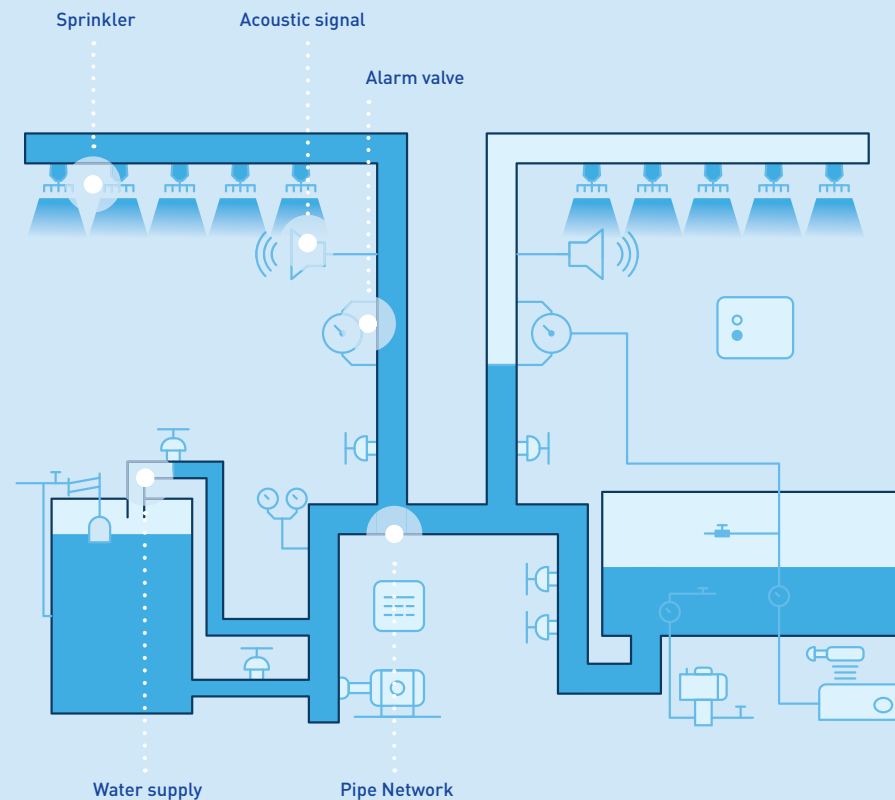
The trigger temperature of the sprinkler is defined by the air bubble contained in the glass ampoule. As the temperature rises, the air bubble is compressed until the required pressure is reached to burst the ampoule. The smaller the air bubble, the sooner this situation is reached. In this way, the triggering temperatures of the sprinklers

can be adapted to the respective application scenario. Typically, a release temperature is selected that is approximately 30°C above the normal operating conditions at the site of use. It is also possible to optimise the glass ampoules for the specific application by selecting them for strength and reaction time.

Sprinkler system

Sprinkler systems are automatic stationary water extinguishing systems designed to prevent the spread of a fire in the initial phase so that the fire can be extinguished by further measures, usually by the fire brigade. Their most important components include an independent water supply, a pipework network in the parts of the building to be

protected and sprinklers for triggering and distributing water in the immediate vicinity of the source of the fire. As soon as a sprinkler in the system is triggered, an alarm valve activates a pressure switch, which forwards the message to a centre providing assistance – usually the fire brigade – and an acoustic signal sounds.

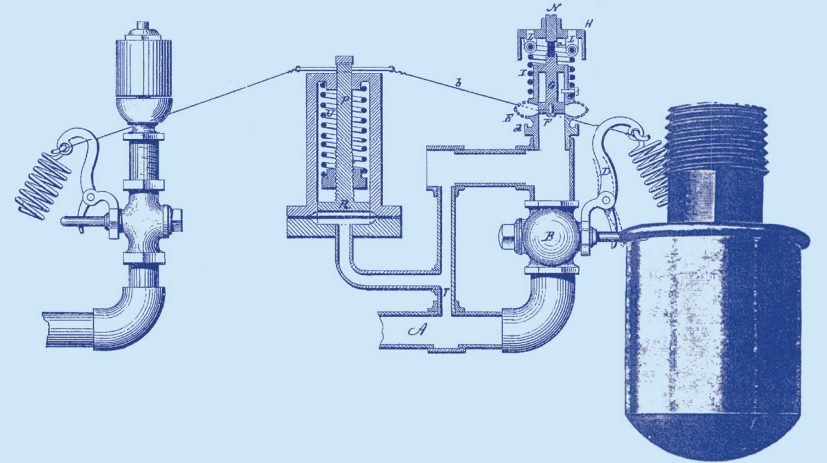


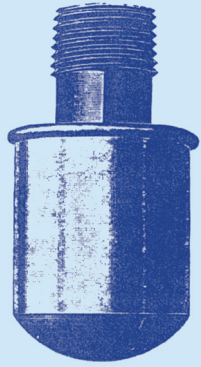
History



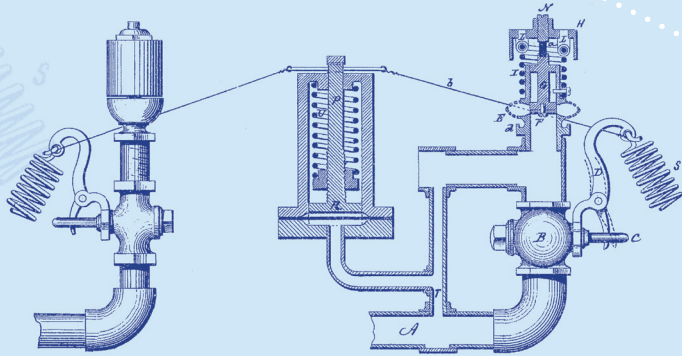
The development of the sprinkler sheds light on an important part of the safety and security industry, which is characterised by many years of technical expertise and enormous innovative power.

Henry S.
Parmelee





Parmelee sprinkler head



Drawing of the patent specification dated 8/11/1874

Patent application

On the 11th of August 1874, the American industrialist Henry S. Parmelee (1846 – 1902) was granted a patent for his development of a design in which the outlets of the pipes for extinguishing water were opened by melting a metal alloy. This gave birth to the principle of the modern sprinkler system,

which is still an important component of fire prevention and protection concepts today. He was the first to equip the building of his piano factory „Mathushek Piano Manufacturing Co.“ in New Heaven, Connecticut, with the new sprinklers – others followed.

Henry S. Parmelee



Insurance discounts

Insurance companies recognised the benefits of the innovation and encouraged its installation with premium discounts – first in the USA and later in the UK and across Europe.



Grinnell system replaces the fusible link.

1890

Technology advances

In detail, the basis of the sprinkler still offered room for improvement: Frederick Grinnell (1836 – 1905) replaced the fusible link device with a filled glass ampoule that breaks at a defined temperature and releases water.



Historical advertisement offering up to 60 per cent discount.

Development in Germany

VdS takes over sprinkler monitoring

The historical roots of VdS and sprinkler technology are closely linked: In 1908, the Sprinkler Monitoring Center of the Private Fire Insurers was founded – the direct predecessor of the Technical Inspection Services at VdS.



Regulations for the Sprinkler Monitoring Service.

1908

Checks become necessary

Sprinklers became popular in Germany under the name “Fire Extinguishing Shower”. Initially in large industrial plants, particularly in mills and textile processing. As the number of systems grew, so did the realisation that they needed to be maintained and independently tested.



In the 1950s, VdS used the „Sprinkler Man“ to promote the use of sprinkler technology.

1890 – 1960

<500

**1961 – 1970**

ca. 1.500

**1971 – 1980**

ca. 6.500



Number of sprinkler systems from 1890 to 1980

1960

Distribution takes off

At the beginning of the 1960s, sprinklers really took off in Germany. The booming department stores were now included in their application. In 1964, the VdS Technical Inspection Services were already monitoring 503 sprinkler systems. By 1970, the number had risen to 1,500 systems and around 3.5 million sprinklers installed in Germany.

1971

VdS opens sprinkler laboratory

As the increased scope of testing could no longer be handled by an external laboratory, VdS opened its own sprinkler laboratory in Cologne to investigate technical issues in firefighting in greater depth.

View of the VdS sprinkler laboratory





ESFR sprinkler

1980

Fundamental research into new sprinkler types

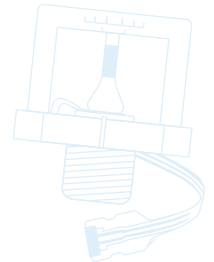
Advances in construction technology and the demands of industrial rationalisation lead to ever larger production and storage facilities. The result is a new type of sprinkler: ESFR sprinklers – Early Suppression Fast Response – which are designed to suppress fires in high ceilings with very early

activation and a significantly higher discharge rate. The umbrella organisation of European national insurances associations (CEA, now Insurance Europe) commissioned the VdS laboratory to carry out extensive fundamental research and test fire series under various storage conditions.

1994

Government accredited: Certification body and laboratories

The VdS laboratories and Technical Inspection Centre were among the first in Europe to be accredited by the German Accreditation Body for Technology in 1994. With its laboratories, VdS is now one of the few institutions in Germany and Europe that can certify conformity with the European safety requirements required for the CE mark.

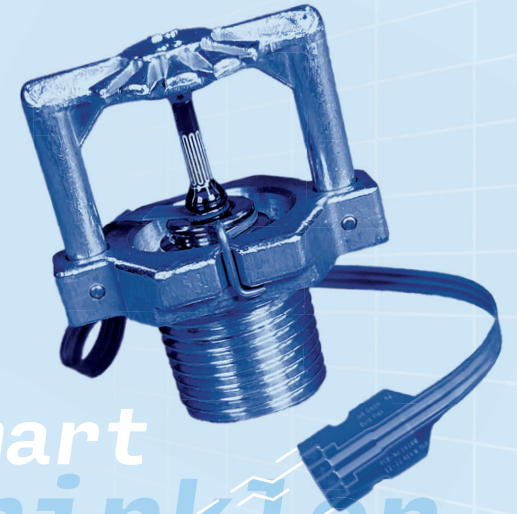


TODAY

In the certification process at VdS:
the first Smart Sprinkler

Fire protection for tomorrow

Since its foundation, VdS has accompanied technical innovations in fire prevention and protection with its specialist expertise and defined the conditions for their reliable use. As an independent institution, it constantly paves the way for innovation to ensure optimum safety.



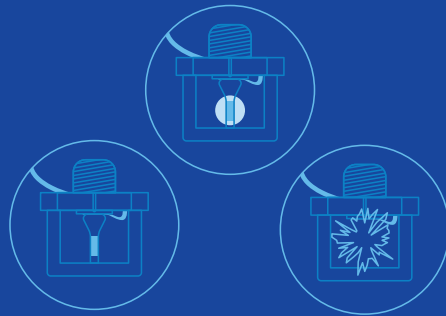
*Smart
Sprinkler*

The Smart Sprinkler sets new standards in fire protection



1. Electrical coupling

The electrical coupling of the sprinklers with the fire alarm control panel enables individual digital activation and monitoring of each sprinkler.



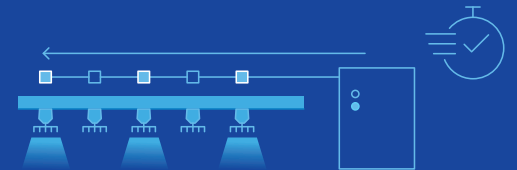
2. Targeted activation

If required, the sprinklers can be activated electrically in this way to contain the source of the fire even more effectively.



3. Glass ampoule with heating wire

For this purpose, the fire detection control panel sends an electrical impulse to the heating wire that is attached to the glass bulb or vessel of the sprinkler, causing it to burst.



4. Faster, more precise fire extinguishing

As a result, the reaction time to a fire is significantly reduced. While at the same time producing a more precise extinguishing process.

Which extinguishing systems are tested by VdS?

Sprinkler and water spray extinguishing systems, Water mist systems, Spark extinguishing systems, Gas extinguishing systems, Hydrants, Aerosol extinguishing systems, Oxygen reduction systems, Foam extinguishing systems, Kitchen protection systems





Guidelines for Fire extinguishing systems

With the publication of its guidelines, VdS is committed to ensuring the highest quality requirements in fire prevention and protection.

Guidelines for sprinkler systems

VdS CEA 4001

Since 2003, VdS has been publishing the VdS CEA 4001 standard regulations for the planning and installation of sprinkler systems. The guidelines are published in a revised version approximately every three years and form the authoritative basis for uniform standards for sprinkler systems at European level and beyond.

Guidelines for sprinkler

EN 12259-1

The European standard EN 12259-1 specifies requirements for the design and performance characteristics of sprinklers for automatic sprinkler systems. It is regarded as the basic standard for the technical testing of individual sprinklers and was largely derived from the VdS 2100 series of guidelines in 1999. VdS was therefore also significantly involved in the development of this standard.

Training programmes

VdS is passing on its in-depth, state-of-the-art industry knowledge through its in-house Training Centre in numerous courses, expert conferences and seminars.

Training course

Sprinkler maintenance

In addition to other courses for all relevant target groups in the field of sprinkler systems, VdS also trains sprinkler maintenance technicians as qualified persons for the inspection of sprinkler systems in accordance with VdS CEA 4001.



vds.de/lg-spw



Expert conference

Fire extinguishing systems

The Expert Conference that forms part of the VdS FireSafety Cologne offers national and international fire prevention and protection experts a platform for dialogue on applications, experiences and solutions in the planning, installation and operation of fire extinguishing systems.



vds.de/ft-fla



Training course

Water extinguishing system technology

A training programme for the planning and installation of sprinkler and water spray extinguishing systems based on the VdS guidelines particularly interesting for all those who require extensive detailed knowledge in this area.



vds.de/lg-wla



Security tomorrow

for



Globally active. Internationally approved.

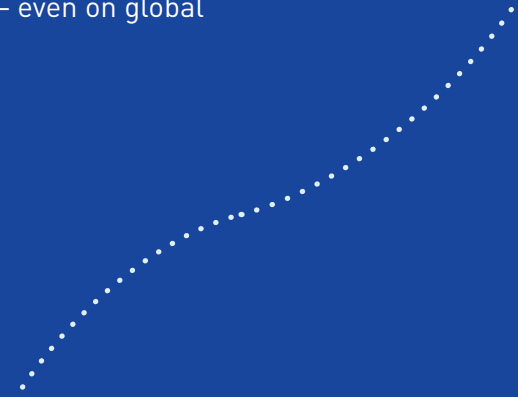
With the internationalisation of the markets, planners, installers and users of fire prevention and protection technology are more dependent than ever on reliable orientation for technical solutions and qualitative requirements.





Focus on Innovation

Thanks to VdS's focus on innovation and membership of all national and international standard-setting bodies, our experts help shape the latest technical and legal developments. In this way, we meet the challenges of the future and offer highperformance services that already stand for objectivity, effectiveness and reliability today – even on global markets.



Minimise risks. Create security.

Benefit and profit from our comprehensive expertise and experience in fire prevention and protection: VdS combines interdisciplinary expertise with a unique infrastructure for the testing of components, products and systems for fire prevention and protection in accordance with national, European and international standards.



vds.de/tp





150-Jahre-Sprinkler.de/en



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