

Sprinkler Statistics 2010



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INTRODUCTION

This is the Sprinkler Statistics for 2010 (published January 2013). This year the Sprinkler Statistics show once again the benefits of a certified sprinkler system. Certification is a guarantee that the sprinkler system operates as expected. 24 hours a day, 7 days a week a certified sprinkler system is ready to keep a fire under control or to extinguish a fire in its early stage.

Fire Safety

Fire in large, sometimes very risky, properties can, apart from a threat to life, entail enormous damage: direct fire and water damage to goods, machinery and building, but also consequential loss that puts continuity of business at risk. Think of trading losses by not being able to deliver goods on time, business delays (revenue loss), forced dismissal by downsizing of the workforce, etc.. Prevention of fire or minimizing the effects of fire is of utmost importance for each business. A certified sprinkler system is one of the best solutions for fire protection and fire safety.

Minimising loss

The Verbond van Verzekeraars ('*Association of Insurers*') provided till January 2011 an inventory of big fires with a loss of € 1 million or more in their quarterly publication '*Brandbrief*'. Unfortunately the overview of the major fires in 2010 is not completed, the damages of at least 10 major fires missing. The direct loss from the 88 fires in 2010 still amounts to € 285 million. That is an average loss of more than € 3.2 million. The average loss from fires in sprinklered properties in 2010 is less than € 8,000.

This statistics comprise a comparison with these large fires to show the loss minimizing effect of certified automatic sprinkler systems. After all, installation of a certified automatic sprinkler system would have been appropriate in these properties. This comparison shows that the average (known) loss from 13 fires in sprinklered properties in 2010 is below 1 percent of the average loss in non-sprinklered buildings.

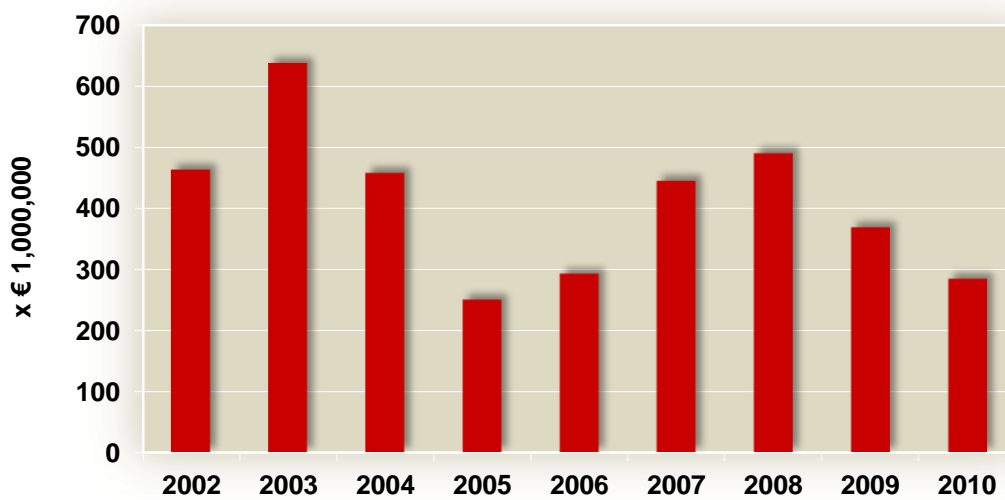
A summary of fires that occurred in 2010 in properties with a certified sprinkler system is also presented in this report.

Fire loss in properties, whether or not sprinklered

An overview of losses from € 1,000,000 in the period 2002 to 2010 follows below.
(Source: 'Brandbrief', Verbond van Verzekeraars)

Year	Total fire loss x € 1,000,000	Number of fires	Average loss x € 1,000,000
2002	462.600	96	4.82
2003	636.785	129	4.94
2004	458.200	84	5.45
2005	251.182	73	3.44
2006	293.234	79	3.71
2007	445.923	108	4.13
2008	490.659	96	5.11
2009	369.115	105	3.51
2010	284.559	88	3.23

Table 1: Fire loss (losses greater than € 1,000,000.--) in properties, whether or not sprinklered.



Graph 1: Total fire loss (losses greater than € 1,000,000.--) in properties, whether or not sprinklered.

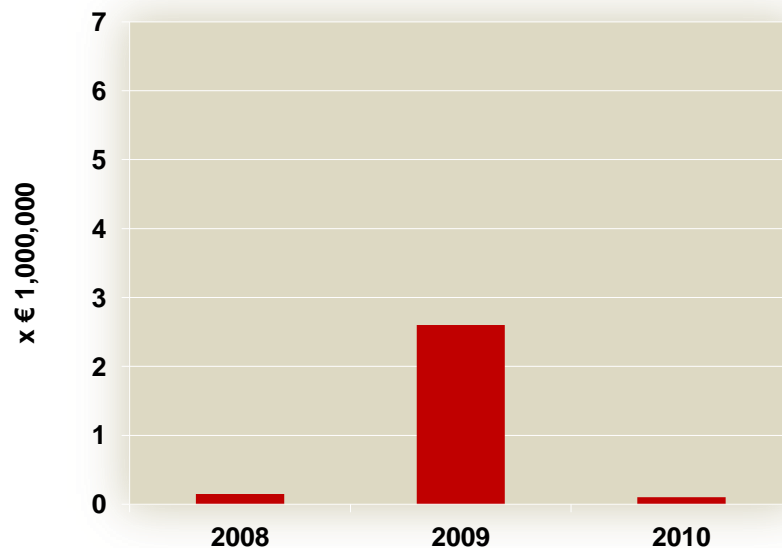
Fire loss in sprinklered properties

13 Fires in sprinklered properties were reported to CIBV in 2010. No losses have been reported for some of those fires, hence it is assumed that loss has been negligible. See the description of the fires on the next page.

Table and graph below provide an overview of all fire losses in 2008, 2009 and 2010 in **sprinklered** properties, where the sprinkler system extinguished the fire. Only since 2008 data has been recorded again, hence no data can be presented from previous years.

Year	Total fire loss x € 1,000,000	Number of fires (where fire loss is known)	Average loss x € 1,000,000
2010	0.1	13	0.008
2009	2.6	7	0.37
2008	0.15	12	0.01

Table 2: Fire loss in sprinklered properties.



Graph 2: Total fire loss in sprinklered properties (the scale is 100 times the scale of Graph 1).

Overview of 2010 fires in sprinklered properties

Date/ Time	Property type	System type	Activated sprinklers	Estimation of loss (€)	Cause/ Comment
13-01 Time unknown	Bus garage	Dry pipe	13	Unknown	fire in a bus garage by parked vehicles, 13 activated sprinklers
28-01 Apr. 16:00 hour	Detention centre	Wet pipe	2	€ 100.000,--	Arson by a resident of a cell. The automatic detector / fire sprinklers have detected and extinguished. Mentioned loss is indicative, the correct amounts could not be determined.
6-02 Tijd onbekend	Shopping centre	Wet pipe	6	Unknown	On three locations in a unit, arson is attempted, the sprinkler system worked well.
8-02 20.00 hour	High rise residential building	Wet pipe	1	Unknown	Concerns a fire in a dumpster which at an early stage is detected by the smoke detector in the room. After some minutes the sprinkler was activated and controlled the fire. The local manager extinguished the fire using a fire hose. No business interruption.
16-03 19:45 hour	Shopping centre	Dry pipe	1	€ 200,--	Concerns a fire in a plastic planter in the passage (west to a shop called Promiss). Cause unknown. Fire is extinguished by dry powder extinguisher and not by sprinkler. Dry sprinkler failed. Glass of sprinkler jumped but only after about 30 minutes water came out of the sprinkler.
16-04 Time unknown	Shopping centre	Wet pipe	0	Unknown	not sprinklered electrical switch room, lit by electric supply; smoke through the wall, smoke detectors were activated, no sprinkler activated.
20-04 Time unknown	Production (cocoa factory)	Wet pipe	3	Unknown	Fire started during the emptying of the containers.
26-05 Time unknown	Production	Wet pipe, foam-water	1	Unknown	fire in a steel container with dirty clothes, in a container with dirty overalls a fire started after working hours. The container was in a laundry room. The fire is extinguished by a sprinkler.
7-06 Time unknown	Bus garage	Dry pipe	3	Unknown	fire in a bus garage by parked vehicles, 3 activated sprinklers
11-07 17:25 hour	Detention Centre	Wet pipe	1	Unknown	--
16-07 20:00 hour	Animal feed factory	Dry pipe	1	Unknown	Flooded Press. Fire in cooler press line four. Sprinkler in channel activated. Installation automatically disconnected. Smoldering extinguished by the fire brigade.
29-07 15:38 hour	Detention Centre	Wet pipe	1	Unknown	--
19-10 03:45 hour	Waste management company	Dry pipe	20	Unknown	Fire started in a pile of mattresses in Hall 1. Sprinkler system has controlled the fire, no damage to property. No business interruption

Table 3: Overview of fires in sprinklered properties in 2010.

Leaks in sprinkler systems

84 leaks in sprinkler systems were reported to CIBV in 2010. The leaks can be categorized as follows.

Cause of leak	Leaks		
	Number 2010	Percentage 2010	Percentage 2008-2010
Corrosion	36	43%	47%
Frost	13	16%	10 %
Mechanical damage	26	31%	28%
High system pressure	0	0%	1%
Installation and/or material defects	1	1%	3%
Overheating	1	1%	1%
Vandalism	0	0%	0%
Unknown causes	7	8%	10%
Total	84	100%	100%

Table 4: Leaks in sprinkler systems.

Based on 10 million sprinklers installed in the Netherlands, the chance of a leak is less than 1 in 100 000 (10^{-5}) per installed sprinkler per annum.

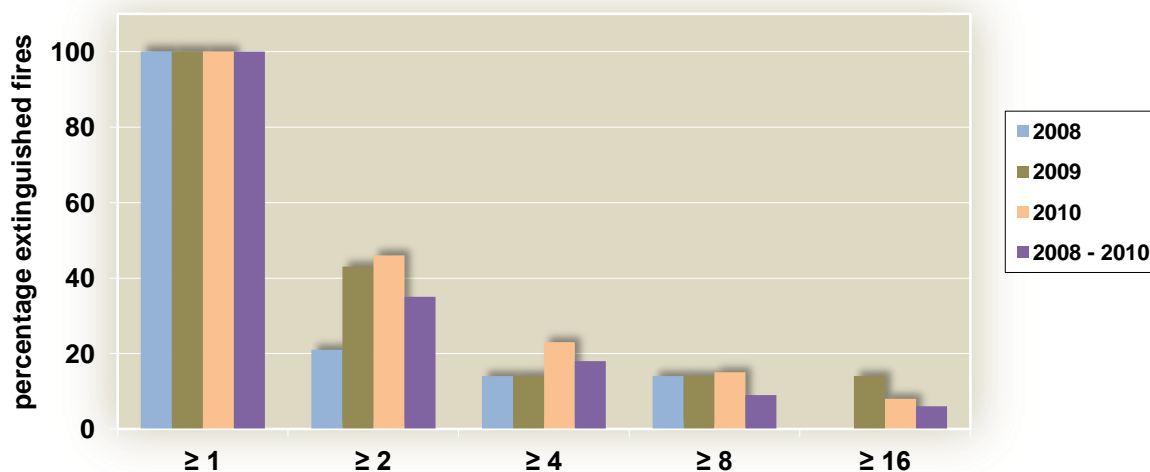
Effectiveness of sprinklers in 2010

All reported fires in registered sprinklered properties in 2010 have been extinguished.

Graph 3 and Table 5 below show the effectiveness of sprinkler systems in 2008, 2009 and 2010.

Number of sprinklers	Percentage 2008	Percentage 2009	Percentage 2010	Percentage 2008 - 2010
≥ 1	100 %	100 %	100 %	100 %
≥ 2	21 %	43 %	46 %	35 %
≥ 4	14 %	14 %	23 %	18 %
≥ 8	14 %	14 %	15 %	9 %
≥ 16	0 %	14 %	8 %	6 %

Table 5: Number of activated sprinklers as a percentage of the total number of fires by CIBV/VIVB registered sprinkler systems in 2008, 2009 and 2010.



Graph 3: Number of activated sprinklers as a percentage of the total number of fires by CIBV / VIVB registered sprinkler systems in 2008, 2009 and 2010.

Overview of installed sprinklers by certified sprinkler contractors in the Netherlands in the period 2004 to 2010

463,852 sprinklers have been installed in the Netherlands in 2010 (both new builds and renovations) by certified sprinkler contractors.

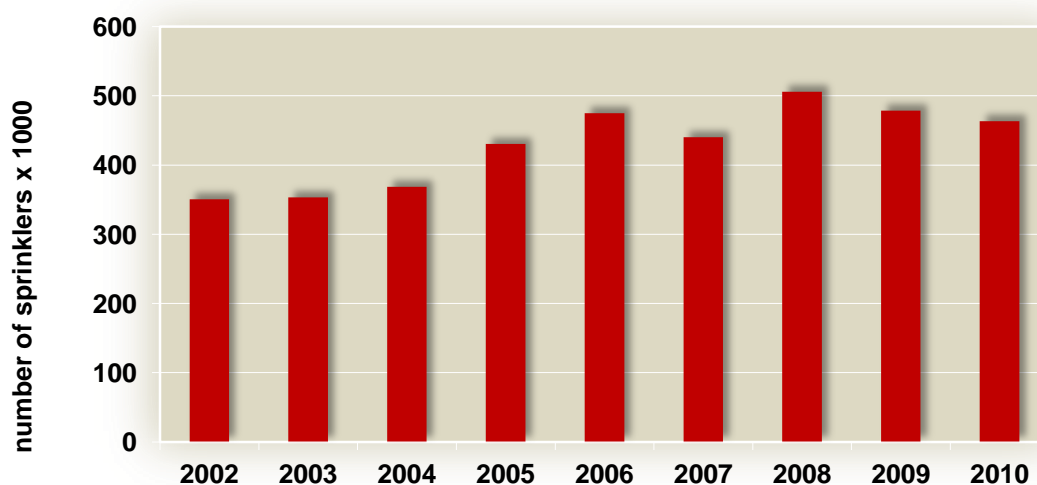
The decrease in the number of sprinklers installed in 2010 (463,852) compared to 2009 (506,426) is approximately 3%.

The total sprinklered area has increased by more than 4.6 million square meters in 2010 when assumed that a sprinkler has an area of protection of approximately 10 m².

Table and Graph 5 give an overview of the number of sprinklers installed in the period from 2002 to 2010.

Year	Number of sprinklers installed
2002	351,046
2003	353,778
2004	369,069
2005	430,673
2006	475,213
2007	440,418
2008	506,426
2009	478,716
2010	463,852

Table 6: Number of sprinklers installed in the Netherlands (2002 to 2010).



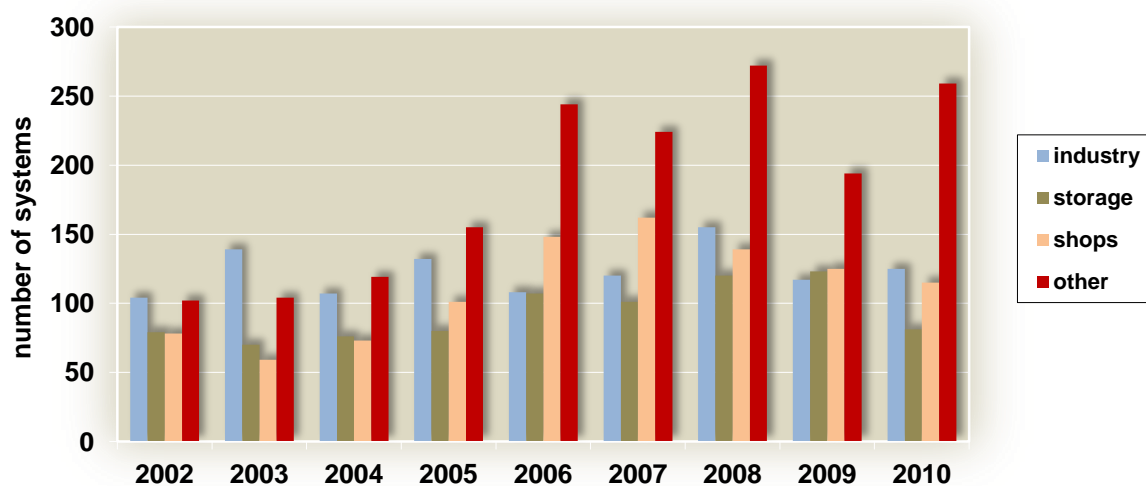
Graph 5: Number of sprinklers installed in the Netherlands (2002 to 2010).

Breakdown of sprinkler systems installed in 2010 in four categories

A breakdown of the number of installed sprinkler systems in 2010 in the Netherlands, in four categories follows below.

Category	Number of systems	Percentage
Industry	125	22 %
Storage buildings	81	14 %
Shops and shopping centres	115	20 %
Other (office buildings, hotels, and the like)	259	44 %

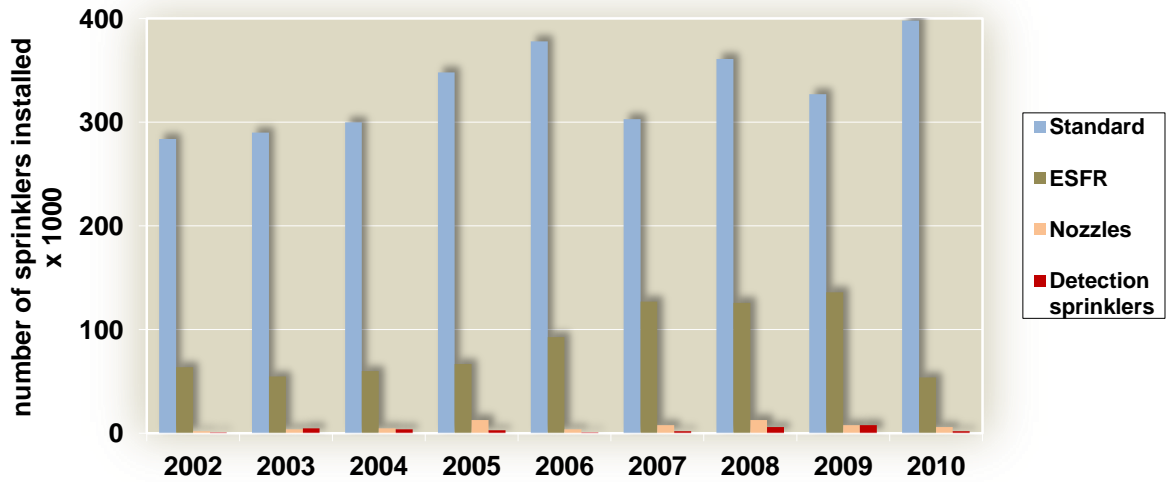
Table 7: Breakdown of the number of sprinklers installed per category (2010)



Graph 6: Breakdown of the number of sprinklers installed per category (2002 to 2010)

Sprinkler types

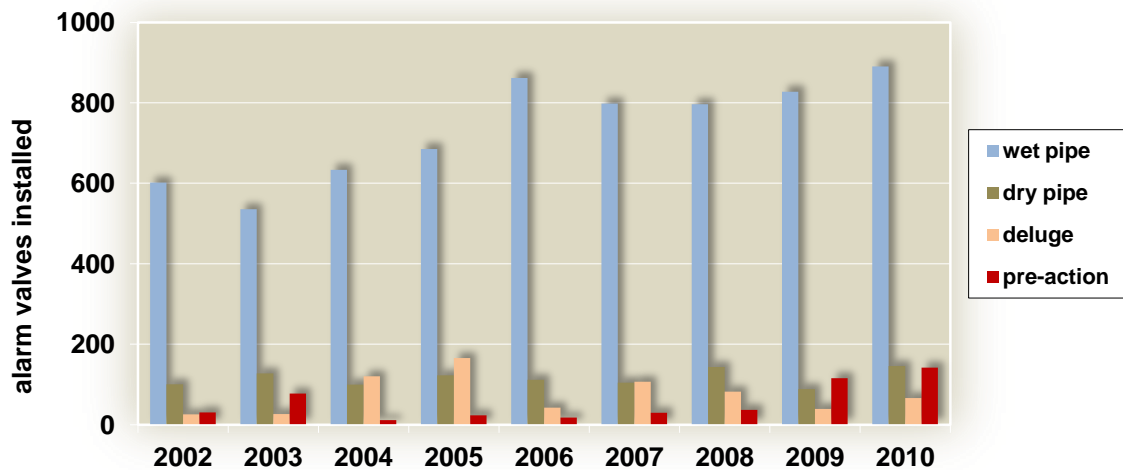
Sprinkler systems can comprise different sprinkler types. Sprinklers installed are categorized as standard (not ESFR) sprinklers, ESFR sprinklers, nozzles and detection sprinklers. Graph 7 shows the breakdown of the number of newly installed sprinklers per sprinkler type.



Graph 7: Breakdown of sprinklers installed per sprinkler type (2002 to 2010) x 1000

Sprinkler system types

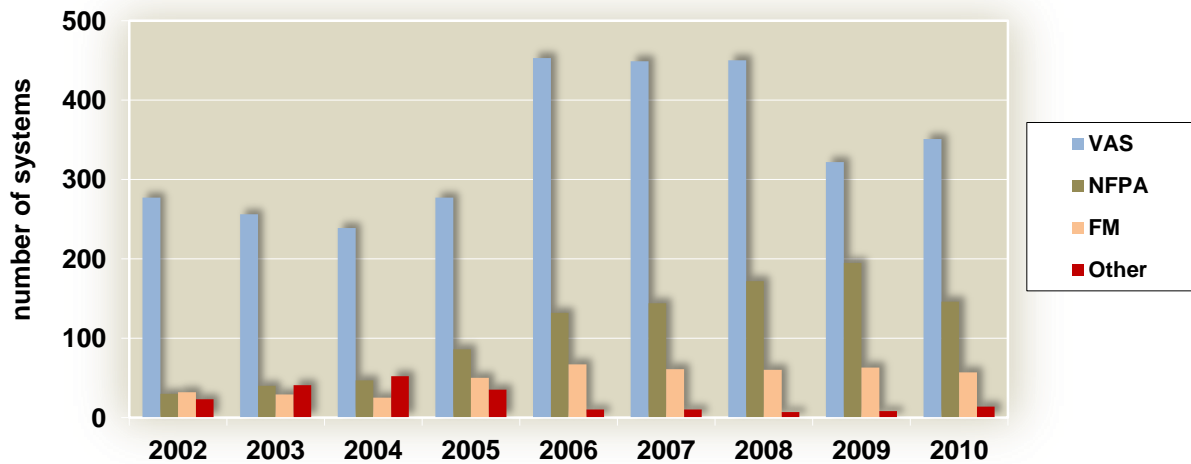
Most sprinklers are installed in wet pipe sprinkler systems. Graph 8 shows the breakdown per sprinkler system type in the period from 2002 to 2010.



Graph 8: Breakdown per sprinkler system type

Applied sprinkler standards

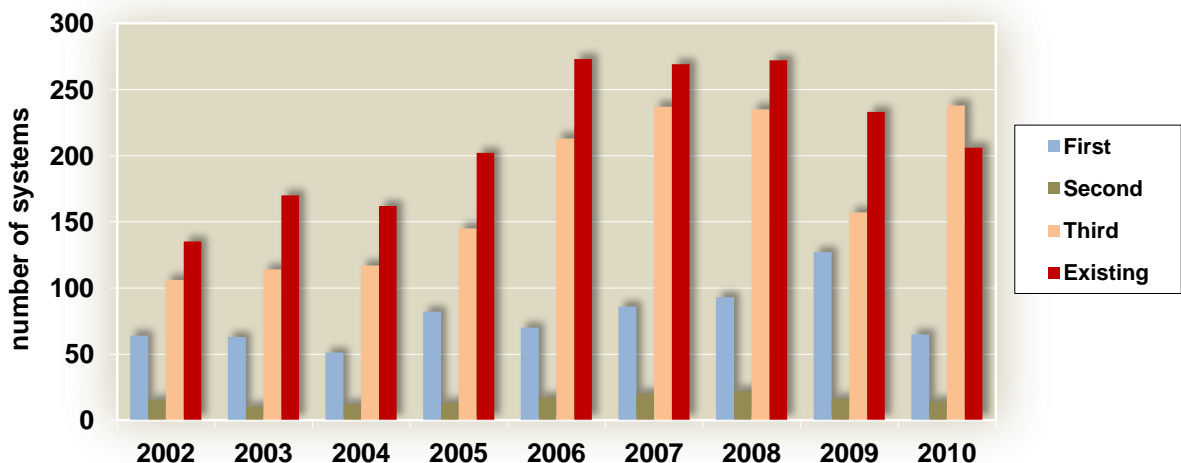
Dutch sprinkler standards (VAS) or international sprinkler standards (NFPA / FM, etc.) are applied as a starting point for design, installation, management and maintenance. Graph 9 shows the breakdown of the number of sprinkler systems in the Netherlands per standard.



Graph 9: Applied sprinkler standards in the Netherlands.

Sprinkler system grade

Sprinkler systems can be designed as a first, second or third grade sprinkler system in accordance with the VAS standards. A third grade sprinkler system has a single water supply. A first grade sprinkler system has a dual water supply and therefore has the highest reliability. Graph 10 shows the breakdown of the number of newly installed sprinkler system water supplies in the Netherlands per grade. The breakdown also includes sprinkler systems installed in accordance to NFPA or FM standards where the grade has been determined in accordance with the VAS standards for the purpose of this Statistic.



Graph 10: Sprinkler system grade for newly installed water supplies in the Netherlands.