



BSI Standards Publication

Fixed firefighting systems — Automatic sprinkler systems — Design, installation and maintenance

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National foreword

This British Standard is the UK implementation of EN 12845:2015+A2:2026, incorporating corrigendum January 2016. It supersedes BS EN 12845:2015+A1:2019, which is withdrawn.

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The UK participation in its preparation was entrusted to Technical Committee FSH/18/2, Sprinkler Systems.

A list of organizations represented on this committee can be obtained on request to its committee manager.

The revision of EN 12845 took some time in development and, as a result, the UK committee feels it may not reflect current sprinkler technology and practice. National Annex NA identifies some areas of concern and also provides guidance and material related to UK practice.

A sprinkler system designed, installed and maintained in accordance with this standard is capable of providing protection of property and for the safety of people, including firefighters, should a fire occur in sprinklerprotected premises.

It should be noted that this standard no longer uses the term 'life safety'. For the avoidance of doubt and to clarify issues that have frequently arisen, when sprinkler systems are called for to satisfy national regulations, including any references to 'life safety', such requirements are now found in Annex F: Additional measures to improve system reliability and availability.

It is anticipated that this annex will make it clear that additional equipment and facilities are usually only necessary to enhance system response or prevent the periodic closure of protected occupancies when a sprinkler system is impaired.

Attention is drawn to the *LPC Rules for Automatic Sprinkler Installations*, which incorporate the provisions of BS EN 12845.

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English Version

Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance

Installations fixes de lutte contre l'incendie - Systèmes
d'extinction automatique du type sprinkleur -
Conception, installation et maintenance

Ortsfeste Brandbekämpfungsanlagen - Automatische
Sprinkleranlagen - Planung, Installation und
Instandhaltung

This European Standard was approved by CEN on 2 October 2019 and includes Amendment 2 approved by CEN on 19 January 2026.

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European foreword

This document (EN 12845:2015+A2:2026) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2026, and conflicting national standards shall be withdrawn at the latest by October 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Corrigendum 1 issued by CEN on 20 January 2016, Amendment 1 approved by CEN on 2 October 2016 and Amendment 2 approved by CEN on 19 January 2026.

The start and finish of text introduced or altered by the amendments is indicated in the text by **A1** and **A2**.

The start and finish of text introduced or altered by the corrigendum is indicated in the text by tags **AC**.

This document supersedes **A2** EN 12845:2015+A1:2019 and EN 12845:2015/AC:2016 **A2**.

A2 In comparison with EN 12845:2015+A1:2019, technical modifications have been made to integrate references and usage of EN 17451, EN 12845-2 and EN 12845-3 into this document. **A2**

It is included in a series of European Standards planned to cover:

- automatic sprinkler systems (EN 12259);
- gas extinguishing systems (EN 12094);
- powder systems (EN 12416);
- explosion protection systems (ISO 6184);
- foam systems (EN 13565);
- gas systems (EN 12094);
- hydrant and hose reel systems (EN 671);
- smoke and heat control systems (EN 12101).

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of

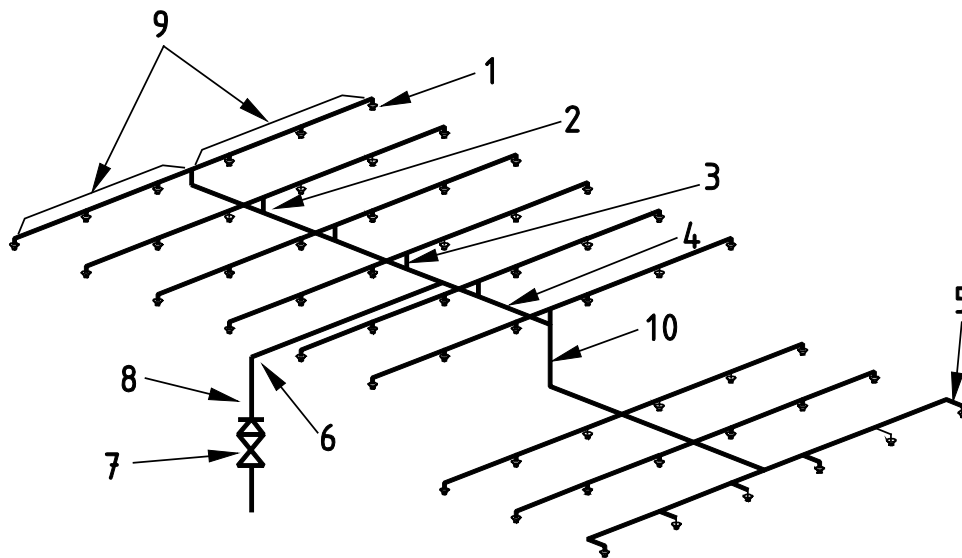
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North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkiye and the United Kingdom.

Introduction

An automatic sprinkler system is designed to detect a fire and extinguish it with water in its early stages or hold the fire in check so that extinguishment can be completed by other means.

A sprinkler system consists of a water supply (or supplies) and one or more sprinkler installations; each installation consists of a set of installation main control valves and a pipe array fitted with sprinkler heads. The sprinkler heads are fitted at specified locations at the roof or ceiling, and where necessary between racks, below shelves, and in ovens or stoves. The main elements of a typical installation are shown in Figure 1.



Key

1	sprinkler head	6	main distribution pipe
2	riser	7	control valve set
3	design point	8	riser
4	distribution pipe spur	9	range pipes
5	arm pipe	10	drop

Figure 1 — Main elements of a sprinkler installation

The sprinklers operate at predetermined temperatures to discharge water over the affected part of the area below. The flow of water through the alarm valve initiates a fire alarm. The operating temperature is generally selected to suit ambient temperature conditions.

Only sprinklers in the vicinity of the fire, i.e. those which become sufficiently heated, operate.

The sprinkler system is intended to extend throughout the premises with only limited exceptions.

It should not be assumed that the provision of a sprinkler system entirely obviates the need for other means of fighting fires and it is important to consider the fire precautions in the premises as a whole.

Structural fire resistance, escape routes, fire alarm systems, particular hazards needing other fire protection methods, provision of hose reels and fire hydrants and portable fire extinguishers, etc., safe working and goods handling methods, management supervision and good housekeeping all need consideration.

It is essential that sprinkler systems should be properly maintained to ensure operation when required. This routine is liable to be overlooked or given insufficient attention by supervisors. It is, however,

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neglected at peril to the lives of occupants of the premises and at the risk of crippling financial loss. The importance of proper maintenance cannot be too highly emphasized.

When sprinkler systems are out of service extra attention should be paid to fire precautions and the appropriate authorities informed.

It is a basic assumption that this standard is for the use of companies employing personnel competent in the field of application with which it deals. Only trained and experienced personnel should undertake the design, installation and maintenance of sprinkler systems. Similarly, competent technicians should be used in the installation and testing of the equipment (see Annex M).

1 Scope

This European Standard specifies requirements and gives recommendations for the design, installation and maintenance of fixed fire sprinkler systems in buildings and industrial plants, and particular requirements for sprinkler systems that are integral to measures for the protection of life.

This European Standard covers only the types of sprinkler specified in EN 12259-1 (see Annex L).

The requirements and recommendations of this European Standard are also applicable to any addition, extension, repair or other modification to a sprinkler system. They are not applicable to water spray or deluge systems.

It covers the classification of hazards, provision of water supplies, components to be used, installation and testing of the system, maintenance, and the extension of existing systems, and identifies construction details of buildings which are the minimum necessary for satisfactory performance of sprinkler systems complying with this European Standard.

This European Standard does not cover water supplies to systems other than sprinklers. Its requirements can be used as guidance for other fixed firefighting extinguishing systems, provided that any specific requirements for other firefighting extinguishing supplies are taken into account.

This European Standard is intended for use by those concerned with purchasing, designing, installing, testing, inspecting, approving, operating and maintaining automatic sprinkler systems, in order that such equipment will function as intended throughout its life.

This European Standard is intended only for fixed fire sprinkler systems in buildings and other premises on land. Although the general principles might well apply to other uses (e.g. maritime use). For these other uses additional considerations should be taken into account.

The requirements are not valid for automatic sprinkler systems on ships, in aircraft, on vehicles and mobile fire appliances or for below ground systems in the mining industry.

Sprinkler system design deviations might be allowed when such deviations have been shown to provide a level of protection at least equivalent to this European Standard, for example by means of full-scale fire testing where appropriate, and where the design criteria have been fully documented.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 54 (all parts), *Fire detection and fire alarm systems*

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254 (all parts), *Copper and copper alloys — Plumbing fittings*

EN 12259-1, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*

EN 12259-2, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 2: Wet alarm valve assemblies*

EN 12259-3, *Fixed firefighting systems — Components for automatic sprinkler and water spray systems — Part 3: Dry alarm valve assemblies*