Skyddskläder för brandmän – Metoder för laboratorieprovning och funktionskrav för skyddskläder vid brandbekämpning

Protective clothing for firefighters – Performance requirements for protective clothing for firefighting

Denna standard ersätter SS-EN 469, utgåva 1.


This standard supersedes the Swedish Standard SS-EN 469, edition 1.
Protective clothing for firefighters - Performance requirements for protective clothing for firefighting

Vêtements de protection pour sapeurs-pompiers - Exigences de performance pour les vêtements de protection pour la lutte contre l'incendie

Schutzkleidung für die Feuerwehr - Leistungsanforderungen für Schutzkleidung für die Brandbekämpfung

This European Standard was approved by CEN on 22 July 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This European Standard (EN 469:2005) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

This European Standard supersedes EN 469:1995.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this European Standard.

It is one of several standards for clothing that have been developed to protect persons against heat and/or flames. Some examples of other European Standards include:

— prEN ISO 11611:2003, Protective clothing for use in welding and allied processes (ISO/DIS 11611:2003);
— prEN ISO 11612:2003, Clothing to protect against heat and flame (ISO/DIS 11612:2003);
— ISO 11613:1999, Protective clothing for firefighters — Laboratory test methods and performance requirements;
— EN 1486:1996, Protective clothing for firefighters — Test methods and requirements for reflective clothing for specialized fire fighting;
— ISO 15384:2003, Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland firefighting clothing;
— ISO 15538:2001, Protective clothing for firefighters — Laboratory test methods and performance requirements for protective clothing with a reflective outer surface;
— EN 13911:2004, Protective clothing for firefighters — Requirements and test methods for fire hoods for firefighters.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.
Introduction

The purpose of this European Standard is to provide minimum performance requirements for protective clothing for firefighters, whilst fighting fires. Within this European Standard, two performance levels are given for performance requirements 6.2, 6.3, 6.11 and 6.12 - level 1 is the lower level, level 2, the higher level. The level of personal protection chosen should be based on the outcome of a risk assessment. Annex G lists many of the hazards that may be encountered by firefighters and sets out guidelines for carrying out a risk assessment analysis.

During an incident, hazards other than those against which clothing to this European Standard is intended to protect may be encountered e.g. chemical, biological, radiological, and electrical. If the risk assessment identifies that exposure to such hazards is likely, protection by more appropriate personal protective equipment may be required either instead of or in addition to the protective clothing covered by this European Standard.

In this European Standard, some requirements have an influence on ergonomics and additional informative annexes on ergonomic features and physiological / heat stress hazards are included in the form of guidelines because suitable tests for these requirements have not yet been validated internationally. It is important that further requirements for ergonomic aspects of protective clothing become integrated normative parts of European standards such as this and currently work on this is taking place.

The requirement regarding water vapour resistance in 6.12, level 1, is proposed for an amendment (procedure).

For adequate overall protection against the risks to which firefighters are likely to be exposed, additional personal protective equipment to protect the head, face, hands and feet should also be worn, along with appropriate respiratory protection where necessary.

The specified controlled laboratory tests used to determine compliance with the performance requirements of this European Standard do not replicate the situations to which firefighting personnel may be exposed.

This European Standard sets minimum levels of performance requirements. Nothing in this European Standard is intended to restrict any jurisdiction, purchaser or manufacturer from exceeding these minimum requirements.

NOTE It is essential that firefighters are trained in the selection, use, care and maintenance of all personal protective equipment. Attention is drawn to CEN/TR 14560:2003, which sets out guidelines for selection, use, care and maintenance of protective clothing against heat and flame.
1 Scope

This European Standard specifies minimum levels of performance requirements for protective clothing to be worn during firefighting operations and associated activities such as e.g. rescue work, assistance during disasters. The described clothing is not meant to protect against deliberate chemical and/or gas cleaning operations.

This European Standard covers the general clothing design, the minimum performance levels of the materials used, and the methods of test to be used to determine these performance levels. The required performance levels may be achieved by the use of one or more garments.

This European Standard covers the event of an accidental splash of chemical or flammable liquids but does not cover special clothing for use in other high-risk situations e.g. reflective protective clothing. It does not cover protection for the head, hands and feet or protection against other hazards e.g. chemical, biological, radiological and electrical hazards. These aspects may be covered in other European Standards.
2 Normative References

The following referenced documents are indispensable for the application of this European Standards. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 340, Protective Clothing — General requirements

EN 367, Protective clothing — Protection against heat and fire — Method of determining heat transmission on exposure to flame

EN 471:2003, High-visibility warning clothing for professional use — Test methods and requirements

EN 533:1997, Protective clothing — Protection against heat and flame — Limited flame spread materials and material assemblies

EN 20811, Textiles — Determination of resistance to water penetration — Hydrostatic pressure test

EN 24920:1992, Textiles — Determination of resistance to surface wetting (spray test) of fabrics


ISO 5077, Textiles — Determination of dimensional change in washing and drying

ISO 7941, Commercial propane and butane — Analysis by gas chromatography

ISO 17493:2000, Clothing and equipment for protection against heat — Test method for convective heat resistance using a hot air circulating oven

CIE 54.2:2001, Retroreflection — Definition and measurement

3 Terms and definitions

For the purposes of this European Standard, the following definitions apply.
3.1 **anti-wicking barrier**
material used to prevent the transfer of liquid from outside the garment to inside the garment, usually in addition to or replacing part of the moisture barrier at the edge(s)

3.2 **closure system**
method of fastening openings in the garment including combinations of more than one method of achieving a secure closure

**NOTE** This term does not cover seams.

3.3 **complete garment assembly**
all materials that form the complete garment

3.4 **component assembly**
combination of all materials of a multi-layer garment presented exactly as the finished garment construction

3.5 **firefighters' protective clothing**
specific garments providing protection for the firefighter's torso, neck, arms, and legs, but excluding the head, hands, and feet

3.6 **garment**
single item of clothing which may consist of single or multiple layers

3.7 **hardware**
non-fabric items used in protective clothing including those made of metal or plastic, e.g. fasteners, rank markings, buttons, zippers

3.8 **innermost layer**
innermost material of the complete garment assembly which is intended to be nearest to the wearer's skin

3.9 **innermost lining**
lining on the innermost face of a component assembly which is intended to be nearest to the wearer's skin. Where the innermost lining forms part of a material combination, the material combination shall be regarded as the innermost lining

3.10 **interlining**
layer between the outermost layer and the innermost lining in a multilayer garment

3.11 **material**
substances excluding hardware, of which an item of clothing is made

3.12 **material combination**
material produced from a series of separate layers, intimately combined prior to the garment manufacturing stage, e.g. a quilted fabric

3.13 **moisture barrier**
fabric or membrane used in a complete garment assembly to achieve the properties of hydrostatic pressure and water vapour permeability
NOTE Moisture barriers might not prevent the passage of some chemical, biological or radiological agents and appropriate personal protective equipment (PPE) should be provided to protect the wearer in such incidents.

3.14 multilayer clothing assembly
series of garments arranged in the order as worn. It may contain multilayer materials, material combinations or a series of separate garments in single layers

3.15 outer garment
outermost part of the clothing that will be exposed to the hazard(s)

3.16 outer material
outermost material of which the item of protective clothing is made

3.17 seam
permanent fastening between two or more pieces of material

3.18 structural seam
seam which holds the outer garment together and which if broken would expose the under garments and reduce protection

3.19 torso
trunk of the human body, i.e. without arms, legs and head

3.20 wristlet
elastic part of the sleeves that covers the wrist tightly

4 General clothing design

4.1 General
The levels of performance specified in this European Standard may be achieved by the use of a garment or a multilayer clothing assembly, which may contain material combinations, or component assemblies.

4.2 Size designation
Size designation shall be in accordance with the requirements of EN 340.

4.3 Type of clothing
Protective clothing for firefighters shall provide protection for the firefighters torso, neck, arms to the wrists, and legs to the ankles during firefighting activities. It does not cover protection for the head, hands and feet or protection against other hazards e.g. chemical, biological, radiological and electrical hazards.

4.4 Combination of garments
Where protection to the requirements of this European Standard is provided by more than one garment, each garment in the clothing assembly shall be marked in accordance with the requirements of this European Standard(see 7.3).