SLOVENSKI STANDARD
SIST EN 16689:2017

01-junij-2017

Zaščitna obleka za gasilce - Zahtevane lastnosti za varovalno oblačilo za tehnično reševanje

Protective clothing for firefighters - Performance requirements for protective clothing for technical rescue

Schutzkleidung für Feuerwehrleute - Leistungsanforderungen für Schutzkleidung bei Rettungseinsätzen

Vêtements de protection pour les sapeurs-pompiers - Exigences de performances pour les vêtements de protection des interventions de secours techniques

Ta slovenski standard je istoveten z: **EN 16689:2017**

ICS:

13.220.10	Gašenje požara	Fire-fighting
13.340.10	Varovalna obleka	Protective clothing

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EUROPEAN STANDARD

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English Version

Protective clothing for firefighters - Performance requirements for protective clothing for technical rescue

Vêtements de protection pour les sapeurs-pompiers - Exigences de performances pour les vêtements de protection des interventions de secours techniques

Schutzkleidung für Feuerwehrleute - Leistungsanforderungen für Schutzkleidung für die technische Rettung

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 16689:2017) 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of an identical text or by endorsement, at the latest by October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

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Introduction

The purpose of this European Standard is to provide minimum performance requirements for protective clothing for technical rescues.

During an incident, hazards other than those against which the 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 in this European Standard.

For adequate overall protection against the risks to which wearers 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 wearers may be exposed.

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

1 Scope

This European Standard specifies the minimum requirements for technical rescue clothing.

Technical rescues involves work associated with the environments, and conditions associated with operational scenarios such as but not limited to those found during road traffic collisions and when working in and around collapsed structures often for extended periods of time after natural disasters (earthquake, landslides, etc.) where protection against mechanical risks, limited heat and flame and conspicuity is needed.

NOTE This could involve heavy workloads, working in confined spaces and require conspicuity in public places.

This European Standard covers the general clothing design, the minimum performance levels of the material used, the methods of test to be used to determine these performance levels, and marking and information supplied by the manufacturer.

Unless combined with other specialized PPE and tested accordingly this standard is not applicable to clothing used to protect against risks encountered in fighting fires, wildland fires or rescue from fire, dealing with hazardous chemicals, working with chainsaws and water and rope rescue.

This European Standard does not cover protection for the head, hands and feet or protection against other hazards e.g. chemical, radiological and electrical hazards. These aspects are covered in other European Standards.

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 1149-5, *Protective clothing — Electrostatic properties — Part 5: Material performance and design requirements*

EN ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break (ISO 1421)*

EN ISO 4674-1, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods (ISO 4674-1)*

EN ISO 4920, *Textile fabrics — Determination of resistance to surface wetting (spray test) (ISO 4920)*

EN ISO 5077, *Textiles — Determination of dimensional change in washing and drying (ISO 5077)*

EN ISO 6942, *Protective clothing — Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat (ISO 6942)*

EN ISO 11092, *Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test) (ISO 11092)*

EN ISO 12127-1, *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials — Part 1: Contact heat produced by heating cylinder (ISO 12127-1)*

EN ISO 12947-2, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown (ISO 12947-2)*

EN ISO 13688, *Protective clothing — General requirements (ISO 13688)*

EN ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1)*

EN ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method (ISO 13935-2)*

EN ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method) (ISO 13937-2)*

EN ISO 13938-1, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension (ISO 13938-1)*

EN ISO 13938-2, *Textiles — Bursting properties of fabrics — Part 2: Pneumatic method for determination of bursting strength and bursting distension (ISO 13938-2)*

EN ISO 14116:2015, *Protective clothing — Protection against flame — Limited flame spread materials, material assemblies and clothing (ISO 14116:2015)*

EN ISO 15025, *Protective clothing — Protection against flame — Method of test for limited flame spread (ISO 15025)*

EN ISO 20471:2013, *High visibility clothing — Test methods and requirements (ISO 20471:2013, Corrected version 2013-06-01)*

ISO 16604, *Clothing for protection against contact with blood and body fluids — Determination of resistance of protective clothing materials to penetration by blood-borne pathogens — Test method using Phi-X 174 bacteriophage*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
ageing
changing of the product performance over time during use or storage, caused by a combination of several factors, such as:

— cleaning, maintenance or disinfecting processes:

  — exposure to visible and/or ultraviolet radiation;

  — exposure to high or low temperatures or to changing temperatures;

  — exposure to chemicals including humidity;

  — exposure to biological agents such as bacteria, fungi, insects or other pests;

  — exposure to mechanical action such as abrasion, flexing, pressure and strain;

  — exposure to contaminants such as dirt, oil, splashes of molten metal, etc.;

  — exposure to wear and tear

3.2
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)

3.3
clothing assembly
series of garments arranged in the order as worn, which may contain multilayer materials, material combinations or a series of separate garments in single or multiple layers

3.4
cleaning
process by which a PPE is made again serviceable and/or hygienically wearable by removing any dirt or contamination

Note 1 to entry: A cleaning cycle is typically a washing plus drying or a dry cleaning treatment followed, if required, by ironing or finishing.

3.5
closure system
method of fastening openings in the garment including combinations of more than one method of achieving a secure closure

Note 1 to entry: This term does not cover seams.

3.6
component assembly
combination of all materials of a multi-layer garment presented exactly as the finished garment construction

3.7
conditioning
keeping samples under standard conditions of temperature and relative humidity for a minimum period of time

3.8
emergency responder's protective clothing
specific garment providing protection against mechanical risks, limited heat and flame for the emergency responder's torso, neck, arms, and legs, but excluding the head, hands, and feet

3.9
garment
single item of clothing which may consist of single or multiple layers

3.10
hardware
non-fabric items used in protective clothing including those made of metal or plastic

EXAMPLE Fasteners, rank markings, buttons, zippers, embroideries, braces.

3.11
interface area
area where individual items meet or overlap

3.12
innermost lining
lining on the innermost face of a component assembly which is intended to be nearest to the wearer's skin

Note 1 to entry: Where the innermost lining forms part of a material combination, the material combination need to be regarded as the innermost lining.

3.13
material
substance excluding hardware and labels, of which an item of clothing is made

3.14
moisture barrier
fabric or membrane used in a component assembly to achieve the properties of hydrostatic pressure and water vapour permeability

Note 1 to entry: 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.

3.15
multilayer material
material consisting of different layers intimately combined prior to the garment manufacturing stage, e.g. by weaving, quilting, coating or gluing

3.16
outer garment
outermost garment of the clothing that will be exposed to the hazard(s)