

## Protective clothing - Requirements for fire fighter's protective clothing

Reference number: EN 469

Status: European Standard - Product specification (fire fighters)

Scope: This standard specifies the requirements for protective clothing for structural fire fighting, considering mainly protection against heat and flame. This standard does not cover protective clothing for special tasks or risks, e.g. clean-up of chemical spills, forest fires, fire fighting at close proximity of the fire, assistance in road emergencies, etc.

### CONTENT

#### General:

The protective clothing:

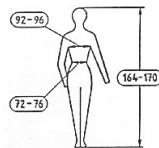
- protects the neck, arms, legs and trunk
- consists of:
  - a coverall
  - jacket and trousers (overlapping at least 30 cm)
  - a set of over- and undergarments to be worn together
- hinder freedom of movement as little as possible and be compatible with the other parts of the fire fighter's equipment
- shall be as light as possible
- shall be easy to clean and to maintain
- shall offer protection at the wrist against penetration of flaming or hot materials
- If a combination of layers or garments is needed to achieve the required level of protection, then these layers/garments should be permanently attached to each other, or clear indications should be given on the label that adequate protection can only be guaranteed when wearing the right combination of layers/garments.
- Seams, fasteners, zip, labels and other accessories must not impair the performance of the garment. Reflective strips shall be applied in accordance with the user's requirements.

#### Principales Exigences de Protection :

Characteristic	Standard	Requirement
Flame spread	EN 532	<ul style="list-style-type: none"><li>• no holes, melting or dripping</li><li>• afterflame time: <math>\leq 2</math> s</li><li>• afterglow time: <math>\leq 2</math> s</li></ul> Note: test outer and inner layer, and cuff material
Convective heat	EN 367	<ul style="list-style-type: none"><li>• <math>HTI_{24} \geq 13</math> s</li><li>• <math>HTI_{24} - HTI_{12} \geq 4</math> s</li></ul>
Radiant heat	EN 366 method B Flux : 40 kW/m <sup>2</sup>	$t_2 \geq 22$ s $t_2 - t_1 \geq 6$ s Heat transmission $\leq 60\%$
Heat resistance of outer layer	EN 366 method A Flux 10 kW/m <sup>2</sup>	Residual tensile strength $\geq 450$ N
Heat resistance of all materials and accessories	5 minutes in oven at 190 °C	material shall not burn, melt, drip, or shrink more than 5%

**Additional requirements:**

Characteristic	Requirement
Tensile strength	≥ 450 N in all directions
Tear strength	≥ 25 N in all directions
water repellence	≥ 4
dimensional stability	≤ 3 % in all directions
Resistance to chemicals : EN 368	Run-off ≥ 80 % NaOH, HCl, H <sub>2</sub> SO <sub>4</sub> , white-spirit
Impermeability	to be specified if claimed
Water vapour permeability (comfort parameter)	to be specified if claimed

**Size designation:**

based on EN 340 - a pictogram is used:

**Marking:**

based on EN 340 - on a clearly visible and legible label resisting to the foreseeable number of cleaning cycles

Contents:

- the CE marking (as appropriate for category III)
- cleaning and maintenance symbols
- name or logo of the manufacturer
- type of the garment (manufacturer's reference)
- size designation (pictogram)
- reference to EN 469
- pictogram "fire fighter"
- reference to the availability of product information ("booklet")
- if relevant, the indication that safety requirements can only be met by wearing a garments combination (to be indicated on each of these garments)

**Information for the user:**

based on EN 340 - Provided by the manufacturer in at least the official language(s) of the country of use; precise and understandable for the user

Contents :

- name and address of manufacturer or his authorized representative
- name and reference of the product
- reference to the relevant product standard
- explanation of pictograms and of the performance levels obtained
- instructions for use, e.g. safety checks before use, specific area of use and limitations of use,
- storage and maintenance instructions, instructions for cleaning and disinfection, spare parts, etc.
- packaging instructions for transport

**Pictogram:**