

## Protective clothing for fire-fighters - test methods and requirements for clothing for specialized fire fighting

**Reference number:** EN 1486

**Status:** European Standard - Product specification (fire fighters)

**Scope:** This standard specifies test performance requirements for reflective protective clothing used in specialized fire fighting. This standard covers only protective clothing that relies on the ability to reflect intense radiant heat. This type of clothing may also be used for industrial applications involving high levels of radiant heat.

### CONTENT

#### General:

The protective clothing consists of:

- a single garment
- two or more garments (jacket and trouser having minimum overlap of 30 cm)
- a series of outer and under garments to be worn together

Three types:

- Type 1:  
Protective hood with a sight grid, worn with hand and foot protection, to be worn above other protective clothing
- Type 2 :  
A coat including a protective hood with a sight screen, worn with appropriate head and foot protection
- Type 3 :  
Encloses the body completely. It includes a protective hood with a sight screen, heat protective boots, worn with appropriate head protection. Type 3 consists of a single garment or a division in several parts.
  
- Sizes: in accordance with EN 340
- Hand protection compatible with the clothing and in accordance with EN 659
- Head protection compatible with the clothing and in accordance EN 443.
- Foot protection compatible with clothing and in accordance with EN 344
- Respiratory protection compatible with the clothing
- Closure system: rapid removal of the clothing
- No exposure of the hardware to the innermost surface of the assembly
- if pockets, secured with flaps
  
- Type 1 :  
Protective hood with sight grid and shoulder protection with five finger glove: glove length 350 mm  $\pm$  20 mm and overall length 600 mm  $\pm$  20 mm .
- Type 2 :  
Coat incorporating hood, sight screen and five finger gloves: glove length 350 mm  $\pm$  20 mm, overall length 1700 mm  $\pm$  20 mm, back length 1300 mm  $\pm$  20 mm and shortening length 200 mm  $\pm$  20 mm.
- Type 3 :  
Glove length 350 mm  $\pm$  20 mm and overall length 2000 mm  $\pm$  20 mm

**Essential safety requirements:**

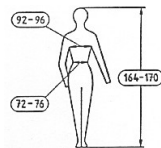
Characteristic	Standard	Requirement
Flame spread	EN 532	<ul style="list-style-type: none"> <li>no holes, melting or dripping</li> <li>after-flame time: <math>\leq 2</math> s</li> <li>afterglow time: <math>\leq 2</math> s</li> </ul> <p>Note: test outer and inner layer, and cuff material</p>
Radiant heat	EN 366 : method B: 40 kW/m <sup>2</sup> heat flux  Pretreatment: 500 cycles of flexing	<ul style="list-style-type: none"> <li>type 1 : <math>t_2 \geq 30</math> s</li> <li>type 2 : <math>t_2 \geq 60</math> s</li> <li>type 3 : <math>t_2 \geq 120</math> s</li> </ul>
Convective heat	EN 367	<ul style="list-style-type: none"> <li>type 1 : HTI <math>\geq 4</math></li> <li>type 2 : HTI <math>\geq 13</math></li> <li>type 3 : HTI <math>\geq 21</math></li> </ul>
Contact heat	EN 702	<p>threshold time in seconds at a contact temperature of 300°C</p> <ul style="list-style-type: none"> <li>type 1 : <math>\geq 6</math></li> <li>type 2 : <math>\geq 10</math></li> <li>type 3 : <math>\geq 15</math></li> </ul>

**Additional requirements:**

Characteristic	Requirement
Dimensional change	$\leq 3\%$ shrinkage in all directions
Tensile strength	$\geq 600$ N in all directions
Tear strength	$\geq 25$ N in all directions

**Size designation:**

According to EN 340



A pictogram is used:

**Marking:**

According to EN 340

On a clearly visible and readable label lasting the foreseeable number of cleaning cycles

It contents :

- CE marking (as appropriate for PPE 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 1486 and type number.
- Fire-fighter pictogram.
- Reference to the availability of product information (pictogram booklet)

**Information for the user:**

To be 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 on pictogram and performance levels obtained.
- Use condition: - the specific high risk situation for which the clothing is intended .
- Type of auxiliary equipment to be used with the clothing, e.g. head, hand, foot and respiratory protection .
- When PPI should be worn.
- Method of donning and doffing.
- Avoid heat stress.
- Method of storing and cleaning.
- the need for training.
- Packaging instructions for transport.

**Pictogram:**