



## User guide

# BFE UV-Coverall



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## 1. General notes

Please read the following notes very thoroughly before using the UV-Coverall, the head protection and gloves under operating sun simulation for the first time.

The notes contain important security, operation and maintenance hints for the textiles. Please keep this document always on an accessible place for your operating staff.

In case of damages or defects of the textiles caused by improper use BF Engineering GmbH shall bear no liability.

To guarantee proper operation of the UV-protective- textiles, regular maintenance and care of the textiles is required which has to be carried out by especially qualified and equipped service personnel only.

The care / maintenance intervals depend on the frequency of use, but usually six months are advisable.

## 2. Important safety instructions

The terms used in this manual and safety hazards illustrate a safe and proper operation of the system.

|                                                                                                       |                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <br><b>DANGER</b>    | <b>DANGER:</b><br>Danger to persons.<br>Non-observance results in death or serious injuries.                              |
| <br><b>WARNING</b>  | <b>WARNING:</b><br>Danger to persons.<br>Non-observance can result in death or serious injuries.                          |
| <br><b>CAUTION</b> | <b>CAUTION:</b><br>Danger to persons.<br>Non-observance can result in minor injuries.                                     |
| <br><b>Note</b>    | <b>Note:</b><br>Information about avoiding material damage.<br>Information for understanding or optimizing the workflows. |



## 2.1 General safety regulations

The textiles may be used only according to the conditions described in this manual. The manufacturer is not liable for any damage that may be caused by unintended or incorrect use. All repairs at the textiles are not permitted and destroy the protective effect.

People who are under the influence of drugs, alcohol or medication, are not allowed to use the UV-protecting clothes under a lighting solar simulation system. Please note especially:

Following the valid, appropriate regulations and guidelines according:

- Accident prevention regulations
- Regulations
- Safety regulations
- Generally applicable statutory and other binding regulations for accident prevention and environmental protection as well as basic health and safety requirements.

The operator has to inform and to train the operating staff accordingly. The manual have to be kept constantly at hand. The staff responsible for activities at the facility staff must have read the operating instructions and safety precautions. The safety instructions should be supplemented if necessary by loading drivers for instructions regarding work organization, work processes, personnel employed, etc.. The personal protective equipment (PPE) of the operating personnel is the need to adapt the visible-irradiation facility. The operator must ensure that the product is only operated in perfect condition and all relevant safety requirements and regulations are taken into account. The facility is immediately put out of service when defects or irregularities are discovered in the function.

Prescribed or deadlines specified in this manual for periodic testing or inspections are to be observed. Audits, inspections and maintenance have to be documented.

## 2.2 Stay under the operating sun simulation system with UV-protecting clothes

|                                                                                     |                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | To avoid health damage (such as burns, eye damage) stay under operating-irradiation system without UV protective equipment consisting of UV-Coverall head protection mask and gloves is not permitted. |
| <b>WARNING</b>                                                                      |                                                                                                                                                                                                        |

Standing under operating-irradiation system leads very quickly to combustion phenomena of the eyes and skin.

|                                                                                     |                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Housing or frame parts in the immediate vicinity of the switched bulbs are to hot during operation of the system - there is the DANGER of burning and destruction of the affected pieces of the textiles - when touching these parts! |
| <b>CAUTION</b>                                                                      |                                                                                                                                                                                                                                       |



### 2.2.1 Eye protection during operating sun simulation system

Due to the high illumination density it is necessary to wear always an eye protection.

|                                                                                                     |                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>WARNING</b> | Direct visual contact into the lights must always be avoided. Prolonged direct eye contact into the lit lamp can cause eye damage! Use UV-protection glasses! |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|

The danger of “flashing” is given when looking directly into the lamps. This inflicts damages on the cornea (so-called photokeratitis).

As eye protection welder spectacles with the protection degree 3 or 4 are recommended, e.g. UVEX, astrospec 9168 welder spectacles, protection degree 3; order no: 9168.082.

If direct visual contact cannot be prevented, it is absolutely necessary to wear safety glasses with 100 % UV-protection due to the UV shares of the radiation.



Fig.1 UV-protection glasses UVEX 9169



### 2.2.2 Skin protection during operating sun simulation system

|                                                                                                     |                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>WARNING</b> | Due to non-predictable influences on the skin of the respective person it is warned in principle not to move in the radiation field of the sun simulation without skin protection! |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The UV shares of the radiation can cause damages to the skin. The severity and manner of the damage depends on many factors, particularly on the skin type, the daily radiation dosage, the intensity of the radiation dosage or the frequency of the radiation dosage.

Long term damages of the skin are possible!

For activities under operating sun simulation UV protection is recommended in any case. The protection from UV Protective clothes is recommended.

### 2.2.3 Use of skin protecting products (cosmetics)

Additional skin protection:

Generally, before wearing the textiles no sun cream, sun blocker or other skin care and skin protection products (cosmetics) should be applied to the skin. This damages the textile structures and thus the UV protection, in case of contact with the materials.

Remark: creams clog the mesh which leads to a loss of breathability.

UV-protective textiles which comes in contact with the above listed skin protection products, may not be used for use under sun simulation

UV-protective textiles contaminated with skin protection products should be discarded.



## 2.3 Handling with bulbs

The used bulbs in solar simulation systems consist of large parts of thin glass. This poses many dangers. The bulbs can burst during use (hot), as well as in cold state. Thus, handling of the bulbs is excluded along with the UV-protective textiles.

|                                                                                   |                                                                            |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|  | For handling (e.g. changing) the bulbs never use the UV-protective gloves! |
| <b>Note</b>                                                                       |                                                                            |

|                                                                                   |                                                   |
|-----------------------------------------------------------------------------------|---------------------------------------------------|
|  | Pay attention by broken bulbs for glass splinters |
| <b>CAUTION</b>                                                                    |                                                   |

|                                                                                   |                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------|
|  | Do <b>not</b> pick up glass fragments of broken bulbs |
| <b>Note</b>                                                                       |                                                       |

|                                                                                     |                                                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  | The textile of the UV-protective clothes may be destroyed by up glass fragments of broken bulbs. |
| <b>DANGER</b>                                                                       |                                                                                                  |

## 2.4 Vapors and gases

|                                                                                     |                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Vapors e.g. solvents in the immediate vicinity of the textiles will cause changes the clothes no longer receive therefore its original properties. The protective function of textiles will greatly reduce or even be destroyed. Avoid any solvent vapors. |
| <b>Note</b>                                                                         |                                                                                                                                                                                                                                                            |

|                                                                                     |                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | There is danger of explosion during operation of the lamps in an environment with air-flammable gases and vapors like solvents.<br>Load of flammable gases and vapors in the ambient air at the lamps should be generally avoided. |
| <b>WARNING</b>                                                                      |                                                                                                                                                                                                                                    |



### 3. Product description

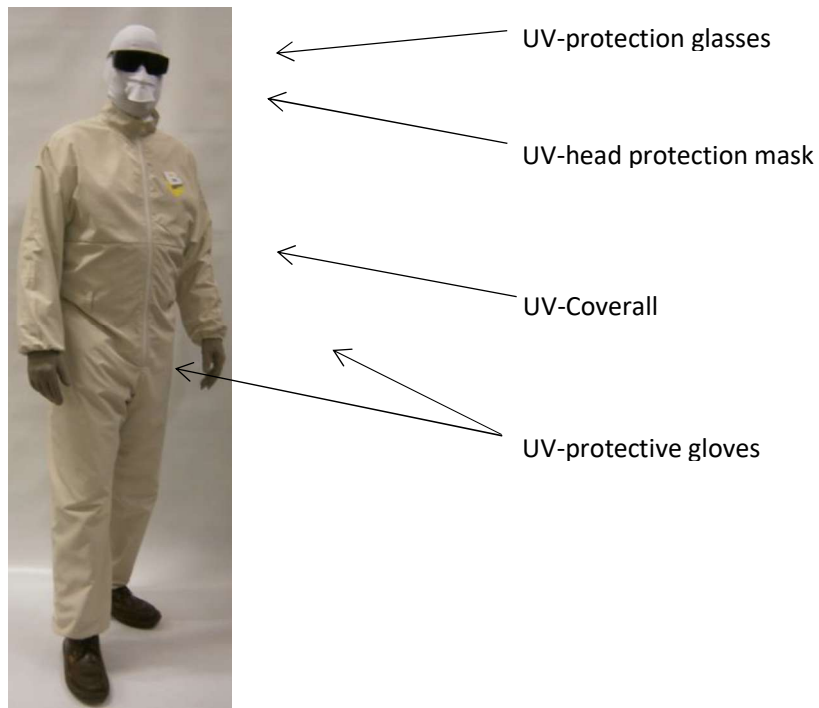


Fig.2 UV-protective clothes

In general, wearing the UV protective clothes is foreseen over the existing outerwear. Before wearing the UV protective clothes, all headwear must be removed. Also additional clothing such as vests, jackets and other overcoats must be removed. Wearing of the UV-protection clothes only over the underwear is also possible.

### 3.1 Head protection mask

Before wearing the UV-head protection mask, all headwear and eyewear must be removed.



Fig.3 UV-Head protection mask

The correct position of the head protection mask can be performed by pulling with fingertips at the textiles. After positioning the head protection mask the eyewear can be tightened again.

|                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  | Persons with head injuries should not pull the UV-head protection mask over the head. |
| <b>Note</b>                                                                         |                                                                                       |

|                                                                                     |                                                                                          |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  | The UV-head protection mask does not fulfill any requirements for mechanical protection. |
| <b>DANGER</b>                                                                       |                                                                                          |

Restrictions:

The UV Head protection mask does **not** fulfill the requirements of the following standards / regulations!

- EN 397 Industrieschutzhelme (Industrial safety helmets)
- EN 812 Industrie-Anstoßkappen (Industrial bump caps)
- BGR 193 Benutzung von Kopfschutz (Use of head protection)

|             |                                                                                                                            |
|-------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>!</b>    | It is important to ensure proper position of the UV-head protection mask. The collar must be pulled under the UV-Coverall. |
| <b>Note</b> |                                                                                                                            |

Collar under the UV-Coverall



Fig.4 Collar under the UV-Coverall

Pull zipper all the way up!



Fig.5 Closed zipper

You have to attract the UV-protection glasses over the UV-head protection mask (see also Fig.6)



Fig.6 UV-protection glasses at the UV-head protection mask front- and side- view

### 3.2 UV-Coverall

In general, wearing the UV protective clothes is foreseen over the existing outerwear.  
Before wearing the UV protective clothes, all headwear must be removed.  
Also additional clothing such as vests, jackets and other overcoats must be removed.  
Wearing of the UV-protection clothes only over the underwear is also possible.



Fig.7 UV-Coverall front side



Fig.8 UV-Coverall back side



Fig.9 UV-Coverall side view

|                                                                                     |                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|  | <p>You have to take care after attracting the UV-Coverall for pulling the zipper all the way up.</p> |
| <b>Note</b>                                                                         |                                                                                                      |

For a better comfort using a belt (included) is advised. It is easy to fit the belt in the belt loops and pull through continual fixation.

Tighten the belt to guarantee right fit at slim people.



Fig.10 UV-Coverall with and without belt

Individuals with shorter abdomen need to pull up the slipped over textiles at each foot. The slipped over textiles must be slipped inside with the elastic band inside, in order to prevent stumble danger (see Fig.11).



Fig.11 UV-Coverall slipped over textile parts at the feet



### 3.3 UV- protective gloves

The UV protective gloves are available in size 12 and 14. They are made of elastic fabric.

When selecting the size of the hand you should take into account. Hand circumference is the circumference of the hand above the thumb root. Another indicator is the middle finger, see table in Fig.12 below.



Fig.12 UV- protective gloves

The UV-protective gloves have to be drawn up close to the elbow joint, see Fig.12.

The UV-protective gloves must be tightened **under** the UV Coverall see Fig.7 to 9.

Vocabulary:

Größe=>size

Handumfang =>hand circumference

Länge Mittelfinger=>length middle finger



Restrictions:

The UV-protective gloves do **not** fulfill the requirements of the following standards / regulations!

- EN 420 Allgemeine Anforderungen für Handschuhe
- EN 374 Schutzhandschuhe gegen Chemikalien und Mikroorganismen
- EN 381.4 Schutzhandschuhe für die Benutzer handgeführter Kettensägen
- EN 388 Schutzhandschuhe gegen mechanische Risiken
- EN 407 Schutzhandschuhe gegen thermische Risiken
- EN 421 Schutzhandschuhe gegen ionisierende Strahlen einschließlich Kontamination und Bestrahlung.
- EN 455 Medizinische Einmalschutzschuhe.
- EN 511 Schutzhandschuhe gegen Kälte.
- EN 659 Feuerweherschutzhandschuhe
- EN 1082 Schutzhandschuhe für den Umgang mit Handmessern
- EN 10819 Schutzhandschuhe gegen Vibrationen
- EN 16350 Schutzhandschuhe gegen elektrostatische Risiken
- EN 60903 Isolierende Schutzhandschuhe für Arbeiten unter elektrischer Spannung.

The UV-protective gloves are only suitable for light work!

|                                                                                     |                                                         |
|-------------------------------------------------------------------------------------|---------------------------------------------------------|
|  | Do not clean up broken glass with UV-protective gloves. |
| Note                                                                                |                                                         |

|                                                                                     |                                                                                  |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|  | It creates risk of cuts and destruction of the textiles by pick up broken glass. |
| DANGER                                                                              |                                                                                  |



### 3.4 Temperature range:

The temperature range of the UV-protective clothes is +15°C up to +30°C. The underwear should be adapted to the ambient temperature.

Do not use the protective clothes near to open flames or intense heat.

### 3.5 Sizes

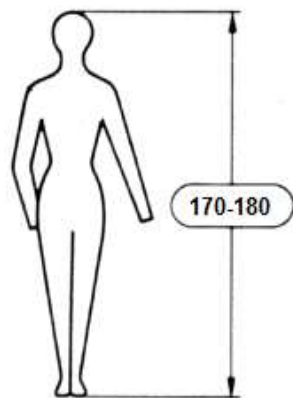


Fig.13 S-XL (Gr.48-54)

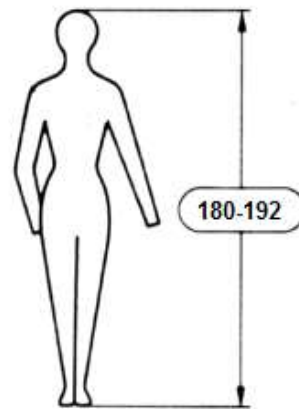


Fig.14 XL-4XL(Gr.54-60)

The size of the UV-protective clothes is indicated by the letters S-4XL. The sizes are based on body size see Fig.13 and Fig.14.

The letters indicate the international size and the numbers in parentheses next to the German size of the user.

Available sizes:

S-XL (Gr.48-54) see Fig.13 Part. no. BF.00UVS001

XL-4XL(Gr.54-60) see Fig.14 Part. no. BF.00UVS002



## 4. Service / maintenance

Rough surfaces, sharp objects and Velcro straps or belts with rough edges can roughen the textiles or pull strings.

A regular review of all textiles before and after each use is essential.

The review of all textiles should also cover at least all kinds of damages and especially the UV Coverall by checking the functionality of the zipper and seams.

|                                                                                                      |                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>DANGER</b>   | At each service, the UV Coverall have to be undressed <u>in any case</u> .                                                                                                                                             |
| <br><b>CAUTION</b>  | After each use of the UV coverall with the head protection mask and the gloves a check if dirt or damages at the textiles exists have to be performed.                                                                 |
| <br><b>WARNING</b> | Using the UV coverall, head protection mask and gloves under active solar simulation system is prohibited in case of holes or cuts, abrasions or similar damage at the textiles. This may cause burns and skin damage. |
| <br><b>Note</b>   | Slightly dirty textiles can be cleaned according to the washing instructions of the manufacturer. Thus will still guarantee a further function of all textiles.                                                        |



## 4.1 Washing instructions

In general:

The UV protection function of the textiles cannot be washed out, for this there's nothing special to note. Washing all listed textiles in the household washing machine at 30 degrees is sufficient for cleaning. All textiles are not subjected to industrial laundering.

Do not wash the textiles in bleaching detergents or textile softeners.

Washing:

Before washing the textiles please turn the clothes to the left hand side and close all zippers also.

Please separate the UV-textiles from other laundry.

Drying:

Dry the textiles only by hanging.

Do not store wet textiles for a long time.

The UV-Coverall is suitable for drying in a dryer. The UV-Coverall could shrink by drying in a dryer minimally without consequences for UV protection.

The Head protection mask and the gloves will age faster if they will be dried more often in the dryer, so we generally advise against the use of a dryer.

Ironing / mangling:

The prints at the UV-Coverall front and rear side should be omitted in case of ironing.

For the UV-Coverall applies as follows:

The textile is 100% polyester

- Washing in the washing machine at 30 degrees Celsius
- Do not use a hot iron (especially not the printing / logo).

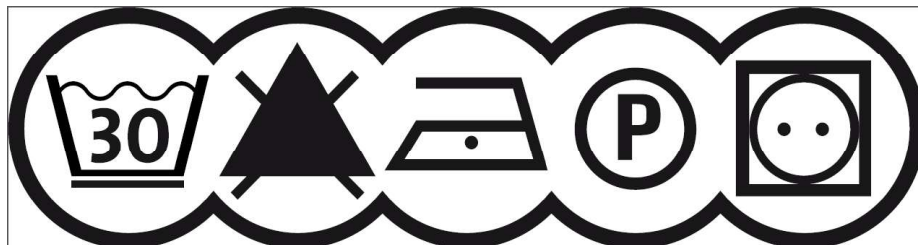


Fig.15 Laundry symbols UV-Coverall

For the Head protection mask and the gloves applies as follows:

The textile is 80%PA and 20% Elasthan

- Washing in the washing machine at 30 degrees Celsius
- No ironing!
- No contact with sun blocker with the textile
- After heavy sweating or contact with suns blocker clean only with soapy water (hand wash is also sufficient).

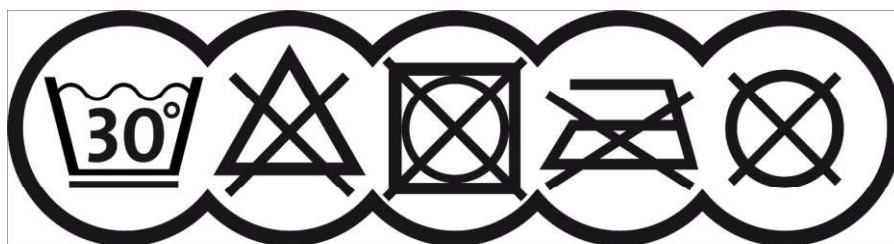


Fig.16 Laundry symbols UV-Head protection mask and gloves



## 5. Storage of UV protective equipment

After wearing the UV protective clothes all parts have to be hung on the supplied hangers. The zipper is intended to be drawn completely.

The clamps are provided for fixing the glove pair and head protection mask (see Fig.17).

If the clothes hanger is fully stocked, everything can be stored in the open clothes bag to prevent further contamination which can affect the UV protection clothes.

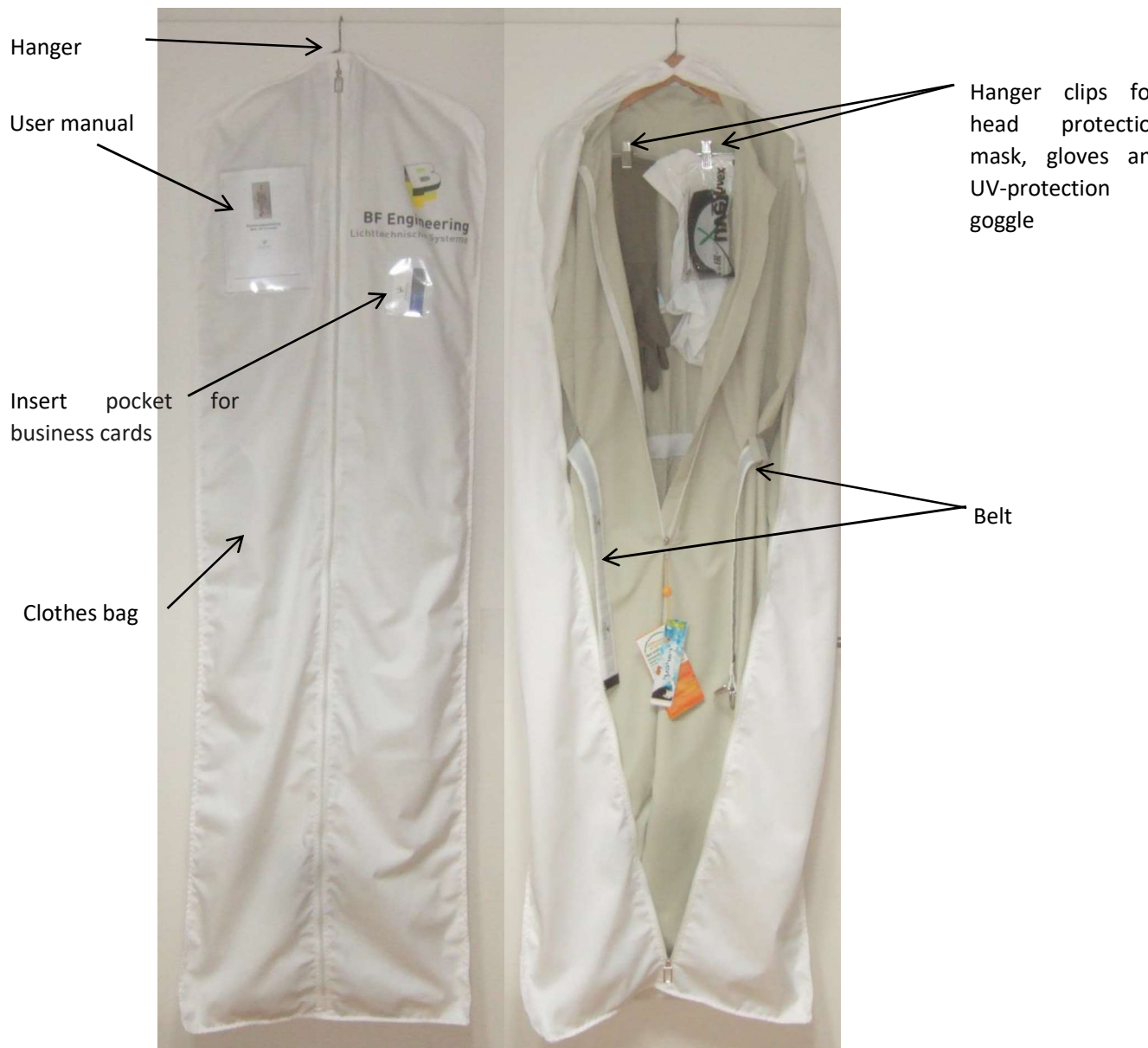


Fig.17 Equipped clothes bag



## 6. Handling the textiles

### Additional skin protection:

Generally, before wearing the UV-protection clothes no sun cream, sun blocker or other skin care and skin protection products should be applied to the skin. These may affect the UV protection may even destroy the textiles.

In addition, creams clog the mesh which leads to a loss of breathability.

### Duration of wearing period:

A limitation of the duration wearing the UV protection clothes does not exist.

### Heavy-duty work:

The UV protective clothes are not designed to ensure serious or very heavy-duty work under the influence of UV.

### Operating temperature:

The operating temperature for the UV protection clothes is provided for the temperatures from -40°C up to +60°C.

### Defects textiles:

Breaches or damages at the textiles may not be used for wearing under UV exposure and should be discarded.

### Others / Personalization:

The marking of the UV-protective clothes can be made with a permanent marker. Special plates / labels are available upon request for additional costs.



## 7. Certificates

The items described above comply with the applicable requirements of the PPE Regulation (EU) 2016/425 as well as AS/NZS 4399:2017 and UV Protection Standard 801, insofar as UV protection is advertised. The clothing provides excellent UV protection (UPF 50+) in accordance with AS/NZS 4399:2017 and is certified under UV Standard 801 with a UPF rating of 80.

The periodic certifications of the manufacturer for the textiles are listed as follows.



Fig.18 Certification UV Standard 801 and Öko-Tex Standard 100



## 8. Contact

Sources for additional and related documents and Support

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