

+

SAFETY



ENGEL



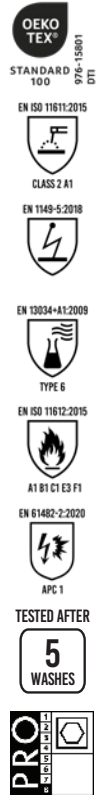
SAFETY



DESIGNED TO PROTECT IN EXTREME ENVIRONMENTS

When it comes to safety, there are simply no shortcuts. The Safety+ range is a highly protective range of clothing which has been designed and manufactured to meet specific hazardous workplace environments, so that garments protect against heat, flames, chemical substances, static and other industrial hazards such as welding sparks and arcs. This range not only meets the specific safety certifications required for working in extreme or dangerous environments, but also offers ultimate comfort for all-day wear, all year round.



1320-188 **NEW****SAFETY+ WORK JACKET****Sizes:** XS-6XL**Shell fabric:** 32% Modacrylic / 30% Polyester / 20% Aramid / 17% Viscose / 1% Antistatic fibre, 320 g/m²**Wash:**

- High collar for neck protection
- Straps for attaching gas alarm at the front
- Concealed zipper and Velcro closure at the front
- External pockets with zipper
- D-ring for ID card in right pocket
- Adjustable cuffs with Velcro closure
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic properties
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering

20

165

1320-188 // 2320-188



20 165

2320-188 **NEW****SAFETY+ WORK TROUSERS**

Sizes: EN 42-74 / 22-36 / 90-114
UK 28,5-53,5 / S31,5-S53,5 / L31,5-L41

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid /
17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- Elasticated waist for a good fit
- Back pockets with flap and Velcro closure
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- Ergonomically shaped knee section gives for a better fit
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering



20 165

3320-188 **NEW****SAFETY+ BIB OVERALL**

Sizes: EN 42-74 / 22-36 / 90-114
UK 28,5-53,5 / S31,5-S53,5 / L31,5-L41

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid /
17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- Bib pocket with flap and Velcro closure
- Wide elastic at the back and adjustable straps for optimal fit
- Elasticated waist at back for a good fit
- Back pockets with flap and Velcro closure
- In-seam pockets at the sides
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- Ergonomically shaped knees for better mobility
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering





20

165

4320-188 **NEW****SAFETY+ BOILER SUIT****Sizes:** XS-6XL**Shell fabric:** 32% Modacrylic / 30% Polyester / 20% Aramid / 17% Viscose / 1% Antistatic fibre, 320 g/m²**Wash:**

- High collar for neck protection
- Straps to attach gas alarm at the front
- Concealed zipper and Velcro closure at the front
- Velcro adjustment at the cuffs
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- Ergonomically shaped knees for better mobility
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering

1938-180 **NEW****SAFETY+ WINTER JACKET**

**In stock
autumn 2024**



20

165

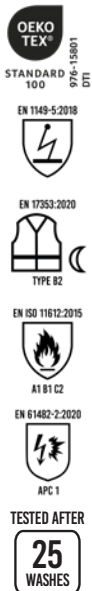


20

165

1323-185 **NEW****SAFETY+ SOFTSHELL JACKET****Sizes:** XS-6XL**Shell fabric:** 36% Modacrylic / 34% Polyester / 24% Cotton / 5% Aramid / 1% Antistatic fibre, 375 g/m²**Membrane:** PU membraneWP ≥ 20000 Pa / 25 < R_{et} ≤ 40 m² Pa/W**Treatment:** Water Repellent**Wash:**

- High collar for neck protection
- Straps attach gas alarm at the front
- External pockets with zipper
- D-ring for ID card in right pocket
- Adjustable cuffs with Velcro closure
- Adjustable drawstring at the bottom keeps the wind out
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic properties
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing



20

165

1325-179 **NEW****SAFETY+ FLEECE JACKET****Sizes:** XS-6XL**Shell fabric:** 60% Modacrylic / 39% Cotton / 1% Antistatic fibre, 300 g/m²**Treatment:** Anti-pilling**Wash:**

- High collar keeps you extra warm and protected
- Zipper in front
- Straps to attach gas alarm at the front
- External pockets with zipper
- D-ring for ID card in right pocket
- Sleeves with elastic at the wrists so they fit correctly
- Cord at the bottom to keep the wind out
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Inherent flame-retardant fabric, even after washing
- Flame-retardant reflectors



8255-286

SAFETY+ SWEATSHIRT**Sizes:** XS-6XL**Shell fabric:** 60% Modacrylic / 38% Cotton /
2% Antistatic fibre, 280 g/m²**Wash:**

- Ideal for under the work jacket
- Ribbed neck and sleeves
- Can be worn with trousers instead of the work jacket

8255-286 / 3320-188



EN 1149-5:2018



EN ISO 11612:2015



A1 B1 C1 F1

EN 61482-2:2020



APC 1

TESTED AFTER



9255-287

SAFETY+ POLOSHIRT**Sizes:** XS-6XL**Shell fabric:** 55% Modacrylic / 43% Cotton / 2% Antistatic fibre, 220 g/m²**Wash:**

- Ribbed collar and concealed button fastening
- Ribbed sleeves
- Ideal for under the work jacket
- Can be worn with trousers instead of the work jacket

20



EN 1149-5:2018



FprEN 61482-2:2018



APC 1

EN ISO 11612:2015



A1 A2 B1 C1 E1 F1

TESTED AFTER



7005-150

SAFETY+ MULTINORM SHIRT**Sizes:** 37/38-49/50**Shell fabric:** 60% Modacrylic / 37% Cotton / 3% Antistatic fibre, 180 g/m²**Wash:**

- Mandarin collar and concealed press stud closure at the front
- Chest pocket with concealed press stud closure
- Back pleats for improved comfort
- Antistatic and flame retardant
- Suitable for industrial laundering

6





20

7255-284

SAFETY+ UNDERSHIRT**Sizes:** XS-6XL**Shell fabric:** 60% Modacrylic / 39% Viscose / 1% Antistatic fibre, 170 g/m²**Wash:**

- Long sleeves
- Soft and breathable
- Ribbed neck and sleeves
- Takes up minimal space under daily clothing

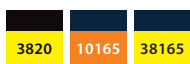


20

7256-284

SAFETY+ LONG JOHNS**Sizes:** XS-6XL**Shell fabric:** 60% Modacrylic / 39% Viscose / 1% Antistatic fibre, 170 g/m²**Wash:**

- Long sleeves
- Soft and breathable
- Ribbed neck and sleeves
- Takes up minimal space under daily clothing

1321-188 **NEW****SAFETY+ WORK JACKET****Sizes:** XS-6XL**Shell fabric:** 32% Modacrylic / 30% Polyester / 20% Aramid / 17% Viscose / 1% Antistatic fibre, 320 g/m²**Wash:**

- High collar for neck protection
- Concealed zipper and Velcro closure at the front
- Straps for attaching gas alarm at the front
- External pockets with zipper
- D-ring for ID card in right pocket
- Adjustable cuffs with Velcro closure
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic properties
- Flame-retardant fibres
- Inherent flame-retardant fabric, even after washing
- Flame-retardant reflectors
- Suitable for industrial laundering
- Class 3 clothing in combination with 2321-188, 2322-188 or 3321-188



1321-188 // 2651-188

2321-188 **NEW****SAFETY+ TROUSERS**

Sizes: EN 42-74 / 22-36 / 90-114
UK 28,5-53,5 / S31,5-S53,5 / L31,5-L41

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid / 17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- Elasticated waist for a good fit
- Back pockets with flap and Velcro closure
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- Ergonomically shaped knee for a better fit
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Knee pockets, where the knee pads can be adjusted to two different heights
- Antistatic
- Flame-retardant fabric
- Flame-retardant reflectors
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering
- Class 3 clothing in combination with 1321-188

2322-188 **NEW****SAFETY+ TROUSERS**

Sizes: EN 42-74 / 22-36 / 90-114
UK 28,5-53,5 / S31,5-S53,5 / L31,5-L41

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid / 17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- Elasticated waist for a good fit
- Back pockets with flap and Velcro closure
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- Ergonomically shaped knee for increased mobility
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Knee pockets, where the knee pads can be adjusted to two different heights
- Antistatic
- Flame-retardant fabric
- Flame-retardant reflectors
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering
- Class 3 clothing in combination with 1321-188



3321-188 **NEW****SAFETY+ BIB OVERALLS**

Sizes: EN 42-74 / 22-36 / 90-114
UK 28,5-53,5 / S31,5-S53,5 / L31,5-L41

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid /
17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- Wide elastic at the back and adjustable straps for an optimal fit
- Bib pocket with flap and Velcro closure
- Ribbed panels on the sides for increased mobility
- Elasticated waist for a good fit
- Thigh pocket with separate mobile phone pocket
- Ruler pocket with flap
- In-seam pockets at the sides
- Ergonomically shaped knees for better mobility
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Knee pockets, where the knee pads can be adjusted to two different heights
- Antistatic
- Flame-retardant fabric
- Flame-retardant reflectors
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering
- Class 3 clothing in combination with 1321-188

4231-188 **NEW****SAFETY+ BOILER SUIT**

Sizes: XS-6XL

Shell fabric: 32% Modacrylic / 30% Polyester / 20% Aramid /
17% Viscose / 1% Antistatic fibre, 320 g/m²

Wash:

- High collar for neck protection
- Concealed zipper and Velcro closure at the front
- Velcro adjustment at the cuffs
- Ruler pocket with flap
- Ergonomically shaped knees for better mobility
- Two adjustment options for knee pads
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Flame-retardant reflectors
- Inherent flame-retardant fabric, even after washing
- Suitable for industrial laundering
- Class 3 clothing



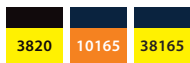
SAFETY +



4231-188

1930-180 **NEW****SAFETY+ WINTER JACKET**

**In stock
autumn 2024**



OEKO
TEX®
STANDARD
100
976-15801
DTI

1324-185 **NEW****SAFETY+ SOFTSHELL JACKET****Sizes:** XS-6XL**Shell fabric:** 36% Modacrylic / 34% Polyester / 24% Cotton / 5% Aramid / 1% Antistatic fibre, 375 g/m²**Membrane:** PU membraneWP ≥ 20000 Pa / 25 < R_{et} ≤ 40 m² Pa/W**Treatment:** Water Repellent**Wash:**

- High collar
- Straps to attach gas alarm at the front
- Concealed zipper with press studs at front
- External pockets with zipper
- D-ring for ID card
- Adjustable cuffs with Velcro closure
- Cord at the bottom to keep the wind out
- Well-thought-out and functional details at pockets and seams prevent embers from getting lodged
- Antistatic
- Flame-retardant fabric
- Flame-retardant reflectors
- Inherent flame-retardant fabric, even after washing



EN ISO 11611:2015
CLASS 2 A1+A2



FprEN 61482-2:2018
FprAA:2018



APC 1



AT A2 B1 C1 E3 F1

TESTED AFTER



1288-192

SAFETY+ WELDER'S JACKET

Sizes: XS-6XL

Shell fabric: 99% Cotton / 1% Antistatic fibre, 350 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Double button placket and hidden press studs on front
- Extended back
- Outside pockets with button closure
- Sleeves with button closure
- Flame retardant
- Suitable for industrial laundering



EN ISO 11611:2015
CLASS 2 A1+A2



EN 1149-5:2018



FprEN 61482-2:2018
FprAA:2018



APC 1



AT A2 B1 C1 E3 F1

TESTED AFTER



2288-192

SAFETY+ WELDER'S TROUSERS

Sizes: EN 44-72 / 21-35
UK 30-52 / S30-S52

Shell fabric: 99% Cotton / 1% Antistatic fibre, 350 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Back pocket with reinforcement and flap
- Thigh pocket with box effect
- Ruler pocket
- Knee reinforcement/knee pockets with Velcro bottom closure
- Flame retardant
- Extra wide shortening means the trouser length can easily be extended by 6 cm (4 cm for short inseam length)
- Suitable for industrial laundering





6

3288-192

SAFETY+ WELDER'S BIB OVERALL

Sizes: EN 44-72 / 21-35
UK 30-52 / S30-S52

Shell fabric: 99% Cotton / 1% Antistatic fibre, 350 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Cross pocket in the side
- Elastic back and adjustable elastic braces
- Chest pocket with flap
- Thigh pocket with box effect
- Ruler pocket
- Knee reinforcement/knee pockets with Velcro bottom closure
- Flame retardant
- Extra wide shortening means the trouser length can easily be extended by 6 cm (4 cm for short inseam length)
- Suitable for industrial laundering



6

4288-192

SAFETY+ WELDER'S BOILER SUIT

Sizes: XS-6XL / (S)XS-(S)6XL

Shell fabric: 99% Cotton / 1% Antistatic fibre, 350 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Double button placket and hidden press studs on front
- Outside pockets with button closure
- Cross pockets - both with mesh pockets that give access to own trousers
- Thigh pocket with box effect
- Sleeves with button closure
- Flame retardant
- Extra wide shortening means the trouser length can easily be extended by 6 cm (4 cm for short inseam length)
- Suitable for industrial laundering



MULTINORM

ALL MODELS ARE ANTISTATIC AND FLAME RESISTANT,
AND PROTECT AGAINST LIQUID AEROSOLS,
SPRAY AND SPLASHES FROM CHEMICALS

For special orders (Additional charge),
these colours can be mixed by choice:



076-15001
DIT

EN ISO 11811:2015



CLASS 1 A1

EN 1149-5:2018



FprEN 61482-2:2018
FprAA:2018



APC 1

EN 13034-A1:2009



TYPE 6

EN ISO 11612:2008



A1 B1 C1 D0 E2 F1

TESTED AFTER



1234-820

SAFETY+ MULTINORM JACKET

Sizes: XS-6XL

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Membrane: TPU membrane

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Double button placket and hidden press studs on front
- Functional pockets, e.g. breast pocket with flap and Velcro
- Sleeves with Velcro closure
- Back pleats for good freedom of movement
- Antistatic and flame retardant
- Suitable for industrial laundering

2025





2234-825

SAFETY+ MULTINORM TROUSERS

Sizes: EN 44-68
UK 30-50,5

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Cross pockets concealed with flaps
- Back pockets with reinforcement and flaps
- Ruler pocket
- Knee reinforcement/knee pockets with Velcro bottom closure
- Antistatic and flame retardant
- Suitable for industrial laundering

2025



3234-825

SAFETY+ MULTINORM BIB OVERALL

Sizes: EN 44-68
UK 30-50,5

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Breast pockets with zipper
- Back pockets with reinforcement and flaps
- Ruler pocket
- Hammer strap
- Knee reinforcement/knee pockets with Velcro bottom closure
- Elastic in back
- Antistatic and flame retardant
- Suitable for industrial laundering

2025





EN ISO 11611:2015
CLASS 1 A1



EN 1149-5:2018



FprEN 61482-2:2018
FprAA:2018



EN 13034-4:2009



EN ISO 11612:2008



TESTED AFTER



4234-825

SAFETY+ MULTINORM BOILER SUIT

Sizes: XS-4XL

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash: 60

- Ingenious and functional details prevent embers from settling
- Sleeves with Velcro closure
- Double button placket with concealed press studs
- Back pleats for good freedom of movement
- Outside and inside pockets
- Cross pockets - both with mesh pockets that give access to own trousers
- Hammer strap and ruler pocket
- Knee reinforcement/knee pockets with Velcro bottom closure
- Antistatic and flame retardant
- Suitable for industrial laundering

2025



4234-825



MULTINORM

ALL MODELS ARE ANTISTATIC AND FLAME RESISTANT,
AND PROTECT AGAINST LIQUID AEROSOLS,
SPRAY AND SPLASHES FROM CHEMICALS

For special orders (Additional charge), the contrast fabric
(col. 20) can be replaced with one of the following colours:



1235-820

SAFETY+ EN ISO 20471 MULTINORM JACKET

Sizes: XS-6XL

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Membrane: TPU membrane

Treatment: FR

Wash:



- Ingenious and functional details prevent embers from settling
- Double button placket and hidden press studs on front
- Functional pockets, e.g. breast pocket with flap and Velcro
- Sleeves with Velcro closure
- Back pleats for good freedom of movement
- Flame-resistant reflectors
- Antistatic and flame retardant
- Suitable for industrial laundering
- Class 2 clothing

3820





3820

2235-825

SAFETY+ EN ISO 20471 MULTINORM TROUSERS

Sizes: EN 44-68 / 23-28 / 90-114
UK 31,5-50,5 / S33-S41 / L31,5-L41

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Cross pockets concealed with flaps
- Back pockets with reinforcement and flaps
- Ruler pocket
- Knee reinforcement/knee pockets with Velcro bottom closure
- Flame-resistant reflectors
- Antistatic and flame retardant
- Suitable for industrial laundering
- Class 2 clothing



3820

3235-825

SAFETY+ EN ISO 20471 MULTINORM BIB OVERALL

Sizes: EN 44-68 / 22-28
UK 31,5-50,5 / S31,5-S41

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Chest pockets with zipper
- Back pockets with reinforcement and flaps
- Ruler pocket and hammer strap
- Knee reinforcement/knee pockets with Velcro bottom closure
- Elastic in back
- Flame-resistant reflectors
- Antistatic and flame retardant
- Suitable for industrial laundering
- Class 2 clothing





4235-825

SAFETY+ EN ISO 20471 MULTINORM BOILER SUIT

Sizes: XS-4XL

Shell fabric: 75% Cotton / 24% Polyester /
1% Antistatic fibre, 300 g/m²

Treatment: FR

Wash:

- Ingenious and functional details prevent embers from settling
- Sleeves with Velcro closure
- Double button placket with concealed press studs
- Back pleats for good freedom of movement
- Functional pockets, e.g. chest pocket with flap and Velcro
- Cross pockets - both with mesh pockets that give access to own trousers
- Hammer strap and ruler pocket
- Flame-resistant reflectors
- Antistatic and flame retardant
- Suitable for industrial laundering
- Class 3 clothing

3820



4235-825

EN ISO 13688:2013 + EN ISO 13688:2013/A1:2021
EN ISO 11611:2015
EN ISO 11612:2015
EN 1149-5:2018
EN 13034:2005 + A1:2009
EN 61482-2:2020
EN ISO 20471:2013+EN ISO 20471:2013/A1:2016

Refer to the model's washing instructions for certified standard(s) and classification.

GENERAL USER INFORMATION

- In workplaces, several different hazardous situations and accidents can occur at the same time, which is why we have chosen to use a multifunctional fabric that has fire-retardant, antistatic and arcing properties.
- Safety+ may only be used together in a jacket combined with trousers or overalls of the same or higher classification.
- The boiler suit is the only separate garment that can be used without a jacket.
- The protective clothing must be fastened when worn in order to provide optimum protection.
- The protective effect of the workwear only works when used correctly. We recommend trying the protecting protective clothing on before making a final choice.
- Normal wear and tear, washing and possible contamination can affect and reduce the flame retardant and electrostatic properties of the protective clothing.
- If the user experiences sunburn-like symptoms of UVB penetration, the protective clothing must be repaired if possible or replaced. The use of more resistant protective layers should be considered for future use.
- You should comply with the washing and maintenance instructions to ensure optimum product service life.
- Additional protective equipment may be required
- The protective clothing is designed for quick removal.
- Available sizes for tops size XS-6XL and bottoms size 42-74

Waist width in cm for each size			
42			70-74 cm
44			74-78 cm
46	22	90	78-82 cm
48	23	94	82-86 cm
50	24	98	86-90 cm
52	25	102	90-94 cm
54	26	106	94-98 cm
56	27	110	98-102 cm
58	28	114	102-106 cm
60	29		106-110 cm
62	30		110-114 cm
64	31		114-118 cm
66	32		118-122 cm
68	33		122-126 cm
70	34		126-130 cm
72	35		130-134 cm
74	36		134-138 cm

Body height
170-190 cm

Chest width in cm for each size	
XS	85-91 cm
S	91-97 cm
M	97-103 cm
L	103-109 cm
XL	109-115 cm
2XL	115-121 cm
3XL	121-127 cm
4XL	127-133 cm
5XL	133-139 cm
6XL	139-145 cm

Body height
170-190 cm

EN ISO 11611: 2015 PROTECTION DURING WELDING AND CORRESPONDING PROCESSES



- The protective clothing provides the user with limited protection against flames, liquid metal splashes, radiant heat and short-term accidental electrical contact.
- The level of protection against flame will be reduced if the welder's protective clothing is contaminated with flammable materials.
- The protective clothing only protects against short-term unintentional contact with the arc welding circuit.
Additional insulating layers of clothing are recommended where there is an increased risk of electrical shock.
- The anti-sparking effect of the protective clothing is quickly eliminated by wearing easily flammable clothing together with the protective clothing. Therefore, you must ensure that shirts, T-shirts and outer garments also meet the requirements of being flame retardant. For underwear, pure cotton is recommended.
- Guidance for correct selection of EN ISO 11611 classification: class 1 = gas welding, TIG, MIG, micro-plasma, spot welding, brazing and MMA welding (with covered electrode). Environmental conditions:
Operation of e.g. oxygen and plasma cutting machines, resistance welding machines, machines for thermal welding and bench welding.
- Guidelines for correct selection of EN ISO 11611 classification:
class 2 = MMA welding (with ordinary or cellulose-coated electrode, MAG (with CO₂ or mixed gas), MIG (with high voltage), arc welding, plasma cutting, soldering, oxygen

cutting and thermal spraying. Environmental conditions: Limited space and welding/cutting above head height or similar restricted positions.

- An increased amount of oxygen will reduce the flame retardant properties of welding. Beware of welding in confined spaces if the amount of oxygen is likely to increase.
- Additional body protection is mandatory, e.g. for welding above head height.
- You should comply with the washing and maintenance instructions to ensure optimum product service life.
- The electrical insulating effect of protective clothing is reduced by perspiration, water, moisture and dirt.

EN ISO 11611	FLAME SPREADING
A1	Surface ignition
A2	Edge ignition

EN ISO 11611	CLASS 1	CLASS 2
Impact of spatter	15 drops	25 drops
Radiant heat RHTI transfer index	RHTI 24 ≥ 7 sec.	RHTI 24 ≥ 16 sec.

EN ISO 11611	CLASS 1	CLASS 2
Tensile strength		
Vævet Woven outer material	400 N	400 N
Leather	80 N	80 N
Tear strength		
Woven outer material	15 N	20 N
Leather	15 N	20 N
Burst strength		
Test area of 7,3 cm ²	200 kPa	200 kPa
Test area of 50 cm ²	100 kPa	100 kPa

EN ISO 11612: 2015 PROTECTION AGAINST HEAT AND FLAME



- Protective clothing for persons exposed to heat is manufactured according to the above-mentioned standards and prevents the spread of flames if the clothing accidentally comes into contact with flames.
- The flame retardant effect of the protective clothing can be quickly eliminated by wearing easily flammable clothing together with the protective clothing. Therefore, make sure that shirts, T-shirts and outer garments are also flame retardant. With regard to underwear, we recommend pure cotton or flame retardant materials and not synthetic materials such as polyester or polyamide.
- Warning: If protective clothing is worn directly on the skin, the risk of burns is not eliminated in the event of liquid metal splashes coming into contact with the protective clothing.
- When using protective clothing marked with code D and/or E, in the event of metal splashes, the user must leave the area and immediately remove the clothing.
- The clothing shall then be cleaned or removed from service.
- The protective clothing's flame retardant properties are reduced if the protective clothing comes into contact with flammable materials.
- You should comply with the washing and maintenance instructions to ensure optimum product service life.

EN ISO 11612	FLAME SPREADING
A1	Surface ignition
A2	Edge ignition

EN ISO 11612	RHTI 24 VALUE (Defined in ISO 9151)	
Convective heat in sec.	Min.	Max.
B1	4	< 10
B2	10	< 20
B3	20	

EN ISO 11612	RHTI 24 VALUE (Defined in ISO 6942)	
Radiant heat in sec.	Min.	Max.
C1	7	20
C2	20	50
C3	50	< 95
C4	95	

EN ISO 11612	MOLTEN ALUMINIUM SPRAY (G)	
	Min.	Max.
D1	100	< 200
D2	200	< 350
D3	350	

EN ISO 11612	MELTED IRON SPRAY (G)	
	Min.	Max.
E1	60	< 120
E2	120	< 200
E3	200	

EN ISO 11612	CONTACT HEAT IN SEC. THRESHOLD VALUE	
	Min.	Max.
F1	5	< 10
F2	10	< 15
F3	15	

EN 1149-5:2018 ELECTROSTATIC PROPERTIES – PART 5: REQUIREMENTS FOR THE MATERIAL'S PERFORMANCE AND DESIGN



- The person wearing the electrostatic dissipative protective clothing must be properly grounded. The resistance between the person's skin and the ground must be less than $10^6 \Omega$, e.g. by wearing suitable footwear on dissipative or conductive floor coverings.
- Electrostatic dissipative protective clothing must not be worn openly or removed in flammable or explosive atmospheres or when handling flammable or explosive substances.
- Electrostatic dissipative protective clothing is intended for use in zones 1, 2, 20, 21 and 22 (see EN 60079-10-1 [7] and EN 60079-10-2 [8]) where the minimum ignition energy for any explosive atmosphere is not less than 0,016 mJ.
- Electrostatic dissipative protective clothing must not be used in oxygen-enriched atmospheres or in zone 0 (see EN 60079-10-1 [7]) without the prior approval of the person responsible for safety.
- The electrostatic dissipative performance of the electrostatic dissipative protective clothing can be affected by wear, washing and possible contamination.
- Electrostatic dissipative protective clothing must be worn in such a way that it permanently covers materials that do not meet the requirements during normal use (including bending movements).
- Conductive parts in the form of metal buttons, zippers and the like are permitted in protective clothing if they are fully covered.
- The protective clothing has antistatic properties according to EN 1149-5 and is suitable for use in potentially explosive areas "ATEX" (except oxygen-saturated atmospheres).

EN 13034:2005+A1:2019 LIMITED PROTECTION AGAINST LIQUID CHEMICALS



- The protective clothing protects the user against various chemicals. Under EN13034:2005+A1:2019 the following has been tested: H₂SO₄ 30%, NaOH 10%, O-Xylene, 1-Butanol undiluted.
- May not be used in rooms with an oxygen content of more than 21% without the approval of a safety representative.
- In the event of an accident with chemical or flammable liquids, the protective clothing on the affected part must be removed immediately and disposed of without coming into close contact with the skin.
- Pay special attention to problems which may be caused by deterioration of special repellency treatment, and the correct way of reapplying and/or regenerating these treatments
- In order to reactivate the property of the substance against rejection of chemical splashes (EN13034:2005+A1:2019), the protective clothing must be re-treated either by tunnel drying or tumble drying at 90°C (see ISO 15797 8A).
- Reprocessing after every wash with HYDROB FC to comply with EN13034:2005+A1:2019 coverage.
- We recommend testing the protective properties of the fabric before re-using the garments to make sure that all the properties are maintained after washing.
- The chemical protection of suits type 6 have been tested under complete suit test (5.2), and the partial body protections type PB6 have not been tested under complete suit test (5.2).

EN 13034	Repellency Index	Penetration Index
Class 1	> 95%	< 1%
Class 2	> 90%	< 5%
Class 3	> 80%	< 10%

EN 13034	Abrasion resistance (Cycles)	Trapezoidal tear resistance (N)	Tensile strength (N)	Puncture resistance (N)
Class 1	> 10	> 10	> 30	> 5
Class 2	> 100	> 20	> 60	> 10
Class 3	> 500	> 40	> 100	> 50
Class 4	> 1000	> 60	> 250	> 100
Class 5	> 1500	> 100	> 500	> 150
Class 6	> 2000	> 150	> 1000	> 200

EN 61482-2:2020 PROTECTS AGAINST THERMAL HAZARDS OF AN ELECTRIC ARC

EN 61482-2:2020



Warning! Not all voltage-carrying parts in arc installations can be insulated against direct contact.

- The protective clothing is manufactured in accordance with the mentioned norms and is designed to protect the user against immediate and unintentional contact with conductive components up to max. 100 V DC.
- Environmental conditions and risks in the workplace must be taken into account.
- Deviations from the parameters in this document may result in more severe conditions.
- Wear protective clothing closed.
- Protective clothing according to this standard is not intended to be used as electrical insulating protective clothing and does not protect against electric shock.
- Protective clothing that becomes contaminated with grease, oil or flammable liquids or flammable materials must not be used.
- Protective clothing that is damaged to such an extent that the protective properties are impaired (e.g. holes in the fabric, non-functioning fasteners) must not be used.
- For full body protection, use appropriate additional protective equipment (helmet with face shield, protective gloves and footwear (boots)).
- Do not wear clothing such as shirts, undergarments or underwear made of materials such as polyamide, polyester or acrylic fibres, which melt in the event of an arc flash.
- The protective clothing must be stored in a dry, dark and well-ventilated room.
- In the event of holes or other damage, the protective clothing must not be repaired by the user.
- Our clothes are tested according to the method 2 = Box test, which uses a controlled and direct electric arc to determine the clothing's/fabric's protection class.
- APC 1 Protection against 4kA – APC 2 Protection against 7kA

EN ISO 20471 HIGH VISIBILITY WORKWEAR



- Several items of Safety+ EN ISO 20471 clothing can be worn together for greater visibility.
- A class 3 garment must meet the following: Safety Class 2 top must be worn with an Safety Class 2 pants or bib-pants with two reflectors.
- Safety+ EN ISO 20471 clothing is CE-approved and type approved in accordance with EN ISO 20471. The figure (X) beside the pictogram states the safety category.
- The safety category shows the minimum requirement for both fluorescent and reflective material in the clothing.
- Protection may be reduced when the clothing is dirty.
- When worn, the clothing should be fully fastened for full protection.
- Ordinary wear and washing can dull the fluorescent and reflective effect of the clothing.
- The stated maximum number of washes is not the only factor that affects the lifespan of the clothing. It also depends on use, storage etc.
- The clothing must be stored in a dry, dark and well-ventilated room.
- See washing instructions for fabric qualities and classification.

EN ISO 20471	FLUORESCENT MATERIAL	REFLECTIVE MATERIAL
Class 3	0.8 m ²	0.2 m ²
Class 2	0.5 m ²	0.13 m ²
Class 1	0.14 m ²	0.10 m ²

"This product conforms to the Council Regulation (EU) 2016/425"
ENGEL Protective clothing is approved by:

EU-notified body no. 0161:
Aitex Textile Research Institute
Plaza Emilio Sala, 1 - ES-03801 Alcoi (Alicante) - Spain

EU-notified body no. 0200:
Force Certification A/S
Park Alle 345 - DK-2605 Brøndby - Denmark

ENGEL

F. Engel K/S · Norgesvej 12 · DK-6100 Haderslev
Tel. (+45) 7422 3535 · engel@f-engel.com
engel.eu