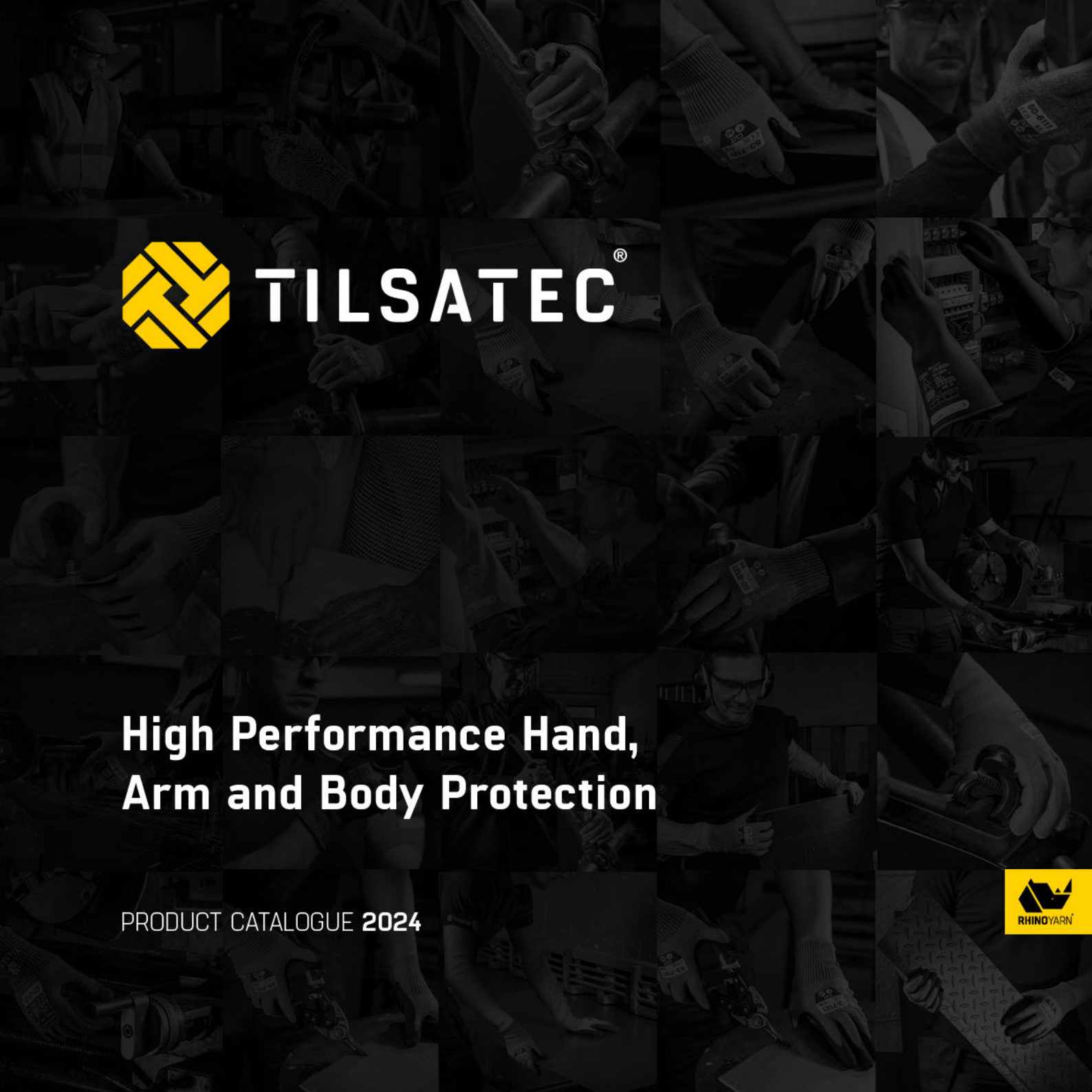

TILSATEC®

High Performance Hand, Arm and Body Protection

PRODUCT CATALOGUE **2024**

RHINOYARN®

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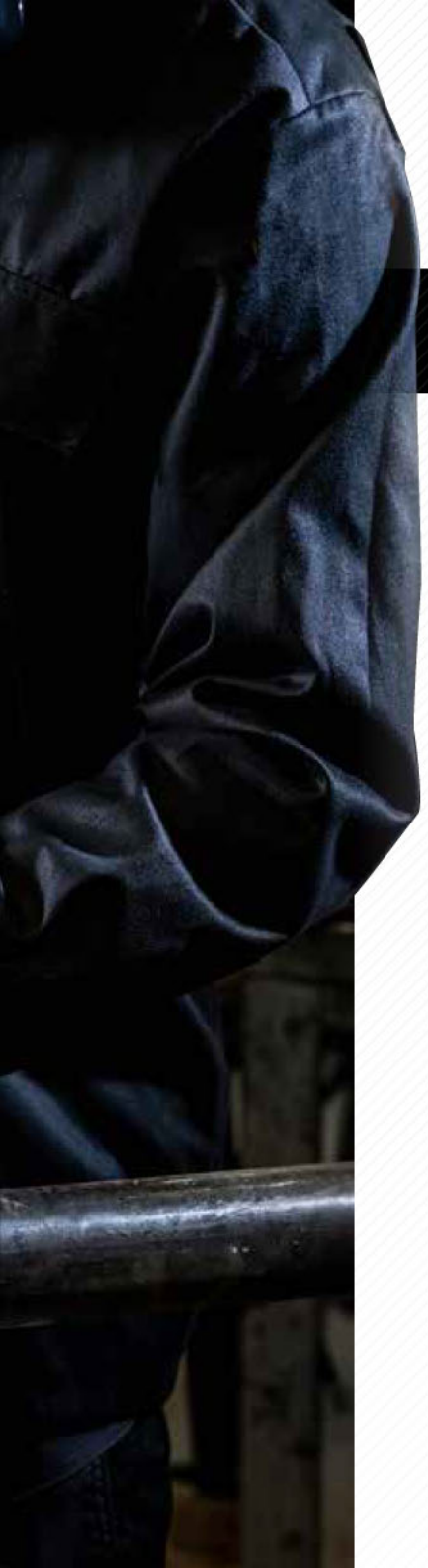


Cut resistance is at the heart of what we do, so we can protect everything you do.

Tilsatec is a UK manufacturer with a long history in developing technical yarns and materials for PPE. Specialising in cut resistant hand, arm and body protection we are able to engineer high levels of performance and mechanical protection into all our products. Working closely in partnership with customers, we design and develop solutions from the ground up to ensure they are receiving maximum performance/cost efficiencies.
For businesses who want expertise they can rely on to keep their people safe, Tilsatec delivers high performance hand, arm and body protection solutions. We manufacture our own proprietary cut resistant yarn - the primary source of mechanical protection, on-site in the UK.
This means we can deliver maximum performance in every fibre of what we do. Because when our gloves perform at their best, your people can perform at their best.

Selecting the right protective solution for your needs is vital, but can sometimes seem a complex exercise. Our representatives are able to guide you through the entire process, this typically includes conducting a comprehensive hand protection site survey to understand the hazards and requirements involved. They can then make clear and simple recommendations as to the type and style of PPE you need. Following successful trials, they can also assist with on-site training and inductions to ensure workers are wearing and using their PPE correctly from the outset, ensuring they go home safely at the end of the day.

RHINOYARN®

We've built a reputation as innovative cut resistance specialists, with a comprehensive range of cut resistant hand, arm and body protective products for use in a variety of industrial sectors.

Wherever people work in high hazard environments, wherever there are cut and puncture hazards, sharps or needles, our products are at the front line, helping them do their jobs safely and efficiently.

Whenever you see the RhinoYarn® mark it means a product has been made using our own proprietary yarn technology - the primary source of mechanical protection, on-site in the UK. With this comes the assurance of full quality control, processing traceability and performance efficiencies built in at every level.

We're incredibly proud to be a UK manufacturer, maintaining generations of expertise in yarn production and design. Determined to stay in complete control we've also created our own purpose-built independent mechanical testing laboratory. Having a facility like this on-site equips us to be ready for the future.

Find out more:

MADE IN BRITAIN®

RhinoYarn® is our proprietary yarn technology which blends combinations of engineered, synthetic and natural fibres into high-performance yarns that provide high cut mechanical protection without compromising on comfort or dexterity.

Each component is carefully selected to engineer a product that delivers the desired performance in the most efficient, durable and comfortable structure possible.

TILSATEC®

RHINOYARN®

TILSATEC MECHANICAL TESTING LABORATORY

Independent Accreditation

Tilsatec's laboratory is independently accredited by UKAS. The United Kingdom Accreditation Service (UKAS) is the sole accreditation body in the UK, against international standards, for organisations that provide testing services. This accreditation uses the standard ISO 17025 to assess a laboratory's ability to produce high quality, accurate tests and data. The laboratory also supports the following functions:

UKAS TESTING
10386

- **Compliance monitoring and compilation of CE and UKCA certificate applications**
- **Supporting of new product development**
- **Bespoke in house testing to suit customer's specific hazards/requirements**
- **Performance and quality control testing of raw materials, yarns and finished products**
- **Ongoing due diligence product testing**
- **Benchmark testing to ensure test results are in line with industry standards**

For a list of accredited testing carried out by the lab vist: **https://www.ukas.com/download-schedule/10386/Testing/**

If we believe a current EN standard doesn't go far enough in providing customers with the performance data they need, we will develop unique in house test methods which go beyond the standard to give more realistic data, representative of real life working conditions and hazards.

Technical support and product guidance

Alongside our experienced sales representatives, the technical team can provide additional advice and support on the suitability of a product and make recommendations on factors such as cut resistance, grip performance, abrasion, liquid repellency, thermal properties and breathability.
Where a customer may have concerns as to the suitability of a product for their particular application, the laboratory team can assist in evaluating the nature of the tasks being performed and provide a detailed evaluation.

Tilsatec has a Quality Management System in place which is certified to ISO 9001. The standard is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement. This demonstrates the existence of an effective quality management system that satisfies the rigours of an independent, external audit.

ISO 9001 ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS 0026
Certificate Number 14054

EN388:2016+A1:2018 Blade Cut Resistance

The laboratory uses a TDM-100 machine to conduct cut resistance testing to the EN ISO 13997 and ASTM F2992 standards. This allows the testing of high performance material with cutting forces in excess of 100 newtons, which is necessary to achieve the highest accuracy in results. The level of the force achieved gives end users an idea of the resistance the glove will offer against cutting hazards.
The test method uses a straight edge blade drawn across the sample in one direction where the blade is replaced after each cut has been performed. A range of loads are used throughout the test and the cutting distance against the force used (in Newtons) is plotted to determine the force required to cut through the material in a 20mm blade stroke.

EN388:2016+A1:2018 Abrasion Resistance Testing

A Martindale Abrasion tester is the internationally accepted equipment for testing abrasion and wearing of fabrics. Tilsatec uses the M235 machine, ensuring accurate and consistent results are achieved. High performance materials can be tested to in excess of 8000 cycles where required, to determined when degradation of the material has occurred.
Abrasion is determined by analysis of the specimen after a number of rubs defined by the performance level. Failure is observed once complete breakthrough of the sample is reached.

EN388:2016+A1:2018 Tear and Puncture Resistance

At Tilsatec, a tensometer fitted with a high capacity load cell is used to determine the force required to tear a rectangular specimen apart. A rounded stylus fitted into the tensometer is penetrated through a sample to determine the material's puncture force.

ASTM F2878-19 Hypodermic Needle Puncture Resistance

High-Performance hypodermic needle puncture resistant materials are tested on the tensometer with single use validated 28, 25 and 21 gauge needles. This test ensures that the materials offer adequate protection against hypodermic needle hazards where required.

EN ISO 21420:2020 General Requirements

The laboratory carries out the general requirements laid out in the recently updated EN ISO 21420:2020 standard. These include sizing and dexterity to guarantee the highest standard of fit and comfort and pH testing to ensure the end user will be safeguarded against any irritation that may be caused by the materials.

Other Tests

Tilsatec has the expertise to develop test methods that can give indicative data and information on protection against contact heat, friction testing to determine gripping properties and food migration to ensure gloves that carry the food safe pictogram comply with the current EU regulations.

PPE REGULATION (EU) 2016/425

Regulation (EU) 2016/425 on personal protective equipment (PPE) has now replaced the previous Directive (89/686/EEC). The regulation details the requirements for all PPE placed on the market in the European Economic Area (EEA) to comply with the legislation. All Tilsatec PPE products have undergone examination to conform with the EU regulations and are CE marked.

Category I: Simple PPE

Gloves and sleeves designed to protect against minimal risks such as superficial mechanical injury and cleaning. Manufacturers are permitted to test and self certify products.

Category II: Intermediate PPE

Hand and arm protection designed to protect against cuts, abrasion, puncture and tearing. This category of products must undergo independent testing and attain certification by an accredited notified body. A CE mark will then be issued by the notified body. No item of PPE can be sold or used in the EU without being issued a CE mark. The name and address of the notified body that issued the CE mark must be present on the Instructions for Use supplied with the product. Ongoing surveillance of performance must be carried out through testing.

Category III: Complex PPE

PPE in this category includes risks that may cause very serious consequences such as death or irreversible damage to health e.g. chemicals, harmful biological agents, extreme temperatures and cuts by hand-held chainsaws. PPE must undergo independent testing and certification the same as Category II products. The quality assurance system used by the manufacturer must also be independently checked and the identification number of the notified body should appear alongside the CE mark on the Instructions for Use. Ongoing surveillance of performance and manufacturing processes must be carried out through product testing and conducting factory audits.

UKCA marking

UKCA marking is an optional mark that can be used for products being placed on the market in Great Britain (England, Scotland and Wales). UKCA certification is similar to the CE process as explained above, with UKCA requiring an "approved body" to carry out assessments for Category II and III PPE products rather than a "notified body". There is no legal requirement to use the UKCA mark on PPE as the government has brought forward legislation that continues to allow recognition of the CE mark on certified products within Great Britain indefinitely. UKCA marking will not be recognised for products placed on the market in Europe and Northern Ireland.

EN 388:2016+A1:2018 - Mechanical Protection

Abrasion Resistance (1-4) Updated in 2016

The Martindale Abrasion tester is used to determine the durability, wearing and abrasion of materials. The test is performed by rubbing circular specimens taken from the palm of the glove against a specified abradant. The sample holder moves in a Lissajous pattern under a 9KPa load and the test is checked at 100, 500, 2000 and 8000 cycle intervals for any signs of abrasion. Failure is confirmed once complete breakthrough of the sample is observed. Four samples are tested and the final performance level is based on the cycles at which any of the four specimens show signs of breakthrough.
The update to the EN388 standard included a change to the abradant used for this test. Only the specified type of abradant shall be used to determine the abrasion resistance.

X = Not tested

Coupe Blade Cut Test (1-5)

Previously, the BS EN 388:2003 classification for cut resistance relied on results obtained from carrying out the coupe test. This test uses a circular blade under a 5N load, which moves in a backward and forward motion over the specimen until the blade cuts through. A "cutting index" is calculated and the level 1-5 is assigned.

EN ISO 21420:2020 - General requirements for protective gloves

Defines the general requirements for most types of protective gloves which includes:

- **Glove design and construction**
- **Sizing and measurement of gloves**
- **Cleaning**
- **Dexterity**
- **Innocuousness**
- **Product marking, packaging and information supplied by the manufacturer**
- **Breathability and comfort**
- **Electrostatic properties**

Sizing of gloves according to hand length and circumference:

Glove Size	Hand Circumference (mm)	Hand Length (mm)
4	101	<160
5	127	<160
6	152	160
7	178	171
8	203	182
9	229	192
10	254	204
11	279	215
12	304	>215
13	329	>215

EN388:2016+A1:2018

4 X 3 2 F P

Tear Resistance (1-4)

A tensometer is used to determine the strength required to tear a sample apart. Four rectangular samples are tested from the palm of 4 separate gloves where two specimens with a 50mm slit in the longitudinal direction are taken across the palm, and two specimens are taken along the length of the glove. The samples are clamped in the tensometer which pulls the samples until they are fully torn apart at a speed of 100mm/min. The force at peak is recorded for each specimen tested. The minimum value achieved from all four test results is used to determine the final tear resistance level that ranges from 1 to 4.

Puncture Resistance (1-4) Updated in 2016

A large 4mm wide probe with rounded stylus is pushed using a tensometer fitted with a compression load cell 50mm through the material taken from the palm of the glove at a speed of 100mm/min. Four specimens are tested and the force at peak is recorded. The minimum value achieved from all four test results is used to determine the final puncture level that ranges from 1 to 4.

Impact P (passed) F (failed)

This test is new to the EN388: 2016 standard and is optional. It should only be included for gloves that claim specific impact resistant properties. The new impact test is based on the EN13594:2015 standard for protective gloves for motorcycle riders. Only the knuckle area is tested and will achieve a Pass or Fail.

EN ISO 13997 Cut Resistance (A-F) New to the standard in 2016

The EN ISO 13997 cut resistance method is one of the recent additions to the EN 388 standard. This test was introduced to accommodate higher cut resistance materials in the market that have a blunting effect on blades and other sharp objects. This method uses a TDM test device, fitted with a single use straight edge blade that is drawn once across the material in one direction. Once the blade cuts through the sample, the distance that the blade has travelled is recorded.
A range of force in newtons are used throughout the test and a graphical representation of force against cutting distance is used to determine the force required to cut through the material at 20mm of blade travel. By using the blade only once and testing a variety of load forces (as opposed to the 5N standard load used in the coupe test), the impact of blade blunting is eliminated and a more accurate representation of cut protection is assigned.

Finding the glove for your industry requirements

A 2 - 5 NEWTONS
- Light material handling
- Small parts assembly
- Light duty general purpose

B 5 - 10 NEWTONS
- Packaging
- White goods manufacturing
- Warehousing/Logistics

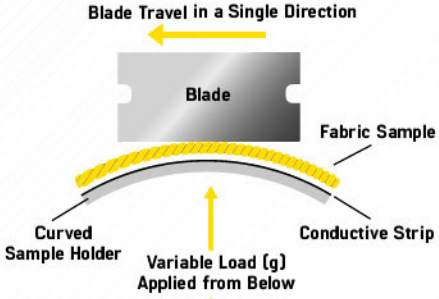
C 10 - 15 NEWTONS
- Metal handling
- Light assembly
- Maintenance works

D 15 - 22 NEWTONS
- Electrical installation - Automotive assembly
- Engineering - Utilities - Aerospace
- CNC Machining/Metal Fabrication

E 22 - 30 NEWTONS
- Metal stamping - Glass manufacturing
- Automotive assembly
- Food processing - Aerospace
- CNC Machining/Metal Fabrication

F 30 NEWTONS +
- Heavy metal stamping
- Waste management
- Recycling
- Glass handling

TDM test process used for the ISO 13997 standard



This pictogram indicates that the user should always consult the instructions for use:

EN407: 2020 - Protection from Thermal Hazards

X1XXXX

Products certified to the new EN407:2020 standard shall be affixed with this pictogram. The pictogram accompanying EN407:2020 includes 6 numbers which represent performance levels against the specific thermal tests as per the table below.

Only if a product has been tested to "Limited Flame Spread" achieving a minimum performance level of 1 then the pictogram depicting the flame shall be used.

a b c d e f

Performance Level		1	2	3	4
a. Limited Flame Spread	After flame time	≤ 15 s	≤ 10 s	≤ 3 s	≤ 2 s
	After glow time	no requir.	≤ 120 s	≤ 25 s	≤ 5 s
b. Contact Heat	Contact temperature	100°c	250°c	350°c	500°c
	Threshold time	≥ 15 s	≥ 15 s	≥ 15 s	≥ 15 s
c. Convective heat (heat transfer delay)		≥ 4 s	≥ 7 s	≥ 10 s	≥ 18 s
d. Radiant heat (heat transfer delay)		≥ 7 s	≥ 20 s	≥ 50 s	≥ 95 s
e. Small drops molten metal (# drops)		≥ 10	≥ 15	≥ 25	≥ 35
f. Large quantity molten metal (mass)		30g	60g	120g	200g

a. Limited Flame Spread

The glove is placed vertically over a burner and is tested for ignition times 3 and 15 seconds. Classification is based on the length of time the material continues to burn and glow after the source of ignition is removed.

b. Contact Heat

The test sample is placed on a calorimeter and a heated cylinder is brought into contact with the specimen. Temperatures of 100, 250, 350 and 500°c are tested to determine the classification. The threshold time shall be calculated, where an increase in calorimeter temperature of 10°c is observed once the heated cylinder is in contact with the sample. A threshold time of greater than 15 seconds demonstrates a pass for the test temperature. If a level 3 contact heat is achieved, then limited flame spread must also be tested and pass level 1.

c. Convective Heat Resistance

The glove is placed in a controlled chamber and exposed to a flame. The resistance is based on the length of time it takes to transfer the heat from the flame. This rating can only be used if a level 3 or 4 is achieved in the limited flame spread test.

d. Radiant Heat Resistance

The glove is exposed to radiant heat and the classification is determined by how long it takes for the transfer of heat from the radiant heat source. The back of the hand is tested. This rating can only be used if a level 3 or 4 is achieved in the limited flame spread test.

e. Resistance to Small Splashes of Molten Metal

The glove is splashed with molten metal and the number of molten metal drops that are required to heat the glove to the required temperature are measured. The classification is based on the average of the number of droplets counted on four samples. Specimen are taken from the palm and the back of the glove. This rating can only be used if a level 3 or 4 is achieved in the limited flame spread test.

f. Resistance to Large Splashes of Molten Metal

The glove is lined with a skin simulated material and molten metal is poured over the glove. Once the test is complete, the liner material is assessed for any changes such as pin holing or degradation and the classification is based on the weight of molten metal required to cause the changes to the skin simulated material. If a drop of the molten metal is stuck to the glove or if the sample ignites, the material fails the test.

ASTM F2878-19 - Needlestick Resistance

Resistance to punctures from needlestick is measured in Newtons according to ASTM F2878:19. This standard allows the use of verified 25, 23 or 21g hypodermic medical grade needles, however the ANSI/ISEA 105-2016 standard defines the classification to be based on testing against a 25g needle. A tensometer is used to drive the needle through the material to simulate real-life puncture hazards as closely as possible. A minimum of 12 samples are tested and the average is determined to give an accurate force required to puncture the material.

BS EN 1149 - Electrostatic Properties

EN 1149-5 is a European Standard which specifies the performance and design requirements for electrostatic dissipative clothing, used as part of an earthed clothing system to avoid the build up of static charges.

There are a number of important applications where the use of antistatic hand protection is of critical importance, such as:

- To prevent charge build up and release in flammable atmospheric environments where there is a risk of incendiary discharge
- To avoid damage to sensitive electronic componentry during assembly processes
- To control the attraction of dust and other contaminants to critical pre-painted surfaces

EC Food Regulations

Tilsatec food range products are approved for contact with all foodstuffs in compliance with the parent directive 1935/2004/EC. They also comply with the specific requirements laid down in the Commission Regulation (EU) No 10/2011 plastic materials and articles intended to come into contact with food.
The regulation governs the substances that may be used in the manufacture of food contact materials (including gloves for food handling) and specify that under normal foreseeable conditions of use, they do not transfer their constituents to food in quantities which could:

- endanger human health; or
- bring about an unacceptable change in the composition of the food; or
- bring about a deterioration in the organoleptic characteristics (i.e texture, taste, aroma)

To ensure food contact materials comply with these regulations a series of test standards are applied (EN 1186) to determine migration levels from contact materials into the food using a variety of food simulants.

Compliance with the allowable limits enables food gloves to be marked with the following 'food safe' pictogram:

Tilsatec food approved products have been tested according to these standards and meet the total extractive and overall migration limits required for repeat use application.

ANSI/ISEA 105-2016 - Cut Resistance

ANSI/ISEA 105-2016 specifies the use of standard ASTM F2992-23 as the exclusive method for determining the load (in grams) required to assign a cut resistance rating.

A new 9 level rating scale has been established (A1-A9) compared with the 5 levels defined in ANSI/ISEA 105-2011. This new standard now addresses higher cut resistant materials and additionally gives a more accurate, better aligned and consistent test method between the ANSI/ISEA and EU standards for cut resistance. Classification levels have also been increased with lower ranges between classes to allow for more accurate identification of the PPE required for high hazard use.

In 2016 significant updates were made to EN 388 and ANSI/ISEA 105 standards to provide a more accurate and reliable assignment of cut levels for hand protection. The changes were also designed to increase harmonisation between EN/ANSI test methods and classification levels to provide a clearer basis for comparison of product performance in a global market.

Grams to cut

A1	A2	A3	A4	A5	A6	A7	A8	A9
200 - 499	500 - 999	1000 - 1499	1500 - 2199	2200 - 2999	3000 - 3999	4000 - 4999	5000 - 5999	6000+

Differences between ANSI and EN Cut tests

Whilst the technique is very similar and both standards use the TDM cut testing machine, there are slight differences between the methods. These include, the specification for blade sharpness, cutting load is measured in grams for ANSI and newtons for the EN standard, levels range from A1 – A9 for ANSI and A - F for the EN standard and lastly, the ANSI test requires the test to be carried out in triplicate and the average load for the 3 tests is taken as the final value, whilst the EN test is carried out once.

GLOBAL GLOVE MARKINGS

It is important to familiarise yourself with how product information, relevant standards and product codes are laid out on our products.

Some may be marked on the back of the hand as shown below and some with a label sewn on the inside.

Always check labelling before using your item of PPE to ensure it meets the standards required for your task.

EN ISO 374 - Protective gloves against dangerous chemicals and micro-organisms

Gloves that are intended to protect the user against dangerous chemicals and micro-organisms shall be tested against the requirements set out in EN374-1, EN374-2 and EN374-4.

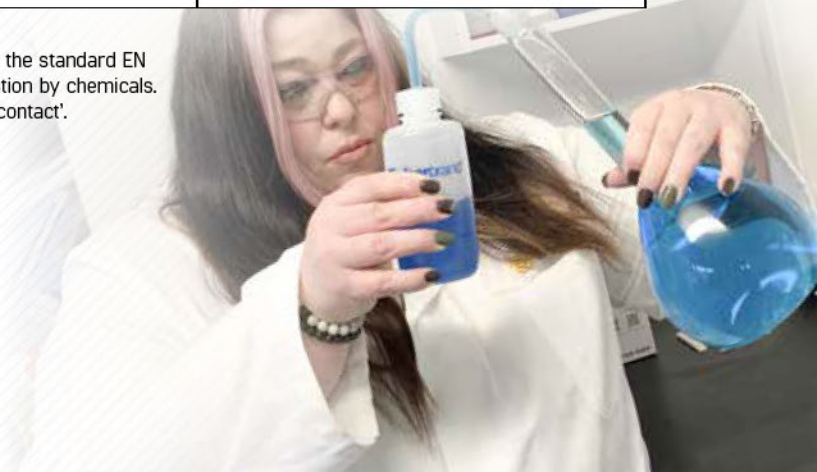
EN374-1:2016+A1:2018 defines the requirements for protection against dangerous chemicals. The standard specifies 18 chemicals to which the product may be tested against:

Code Letter	Chemical	CAS Number	Class
A	Methanol	67-56-1	Primary Alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile Compounds
D	Dichloromethane	75-09-2	Chlorinated hydrocarbon
E	Carbon Disulphide	75-15-0	Sulphur Containing Organic Compound
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic and ether Compound
I	Ethyl Acetate	141-78-6	Ester
J	n-Heptane	142-82-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulphuric Acid 96%	7664-93-9	Inorganic mineral acid, oxidising
M	Nitric Acid 65%	7697-37-2	Inorganic mineral acid, oxidising
N	Acetic Acid 99%	64-19-7	Organic acid
O	Ammonium Hydroxide 25%	1336-21-6	Organic base
P	Hydrogen Peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric Acid 40%	7664-39-3	Inorganic mineral acid
T	Formaldehyde 37%	50-00-0	Aldehyde

Testing is carried out on the palm of three gloves according to the standard EN 16523-1:2015 'Determination of material resistance to permeation by chemicals. Permeation by liquid chemical under conditions of continuous contact'.

Performance levels are assigned as follows:

Performance Level	Measured breakthrough time (mins)
1	>10
2	>30
3	>60
4	>120
5	>240
6	>480



Gloves are categorised as **Type A, Type B** or **Type C** based on the number of chemicals they protect against and the performance level they achieve. For classes A and B, the tested chemicals shall be identified by their code letter which shall be marked under the pictogram and for class C, the tested chemical code followed by the phrase "Low Chemical" is recommended:

EN ISO 374-1/Type A	EN ISO 374-1/Type B	EN ISO 374-1/Type C
JKLMNO	JKL	A-Low Chemical

Type	Minimum performance level	Minimum test chemicals
A	2	6
B	2	3
C	1	1

EN374-2:2014 - Resistance to Penetration

EN374-2:2014 is the standard for the determination of resistance to penetration.

This involves testing a minimum of 4 gloves for water and air leaks where all gloves must pass the testing to be able to claim chemical protection according to BS EN 374-1.

The air leak test consists of applying standardised air pressure, dependent on the material thickness, to the glove interior whilst immersed in water. A leak is detected by a stream of air bubbles from the surface of the glove.

For the water leak test, the glove is filled with 1000ml of water. A leak is detected by the appearance of water droplets on the outside of the glove.

EN374-4:2019 - Degradation

For all gloves claiming chemical protection, degradation according to EN374-4:2019 must be carried out. This is determined by measuring the change in puncture resistance of the glove after continuous contact of the external surface with the challenge test chemical. All chemicals that the gloves claim protection against shall be tested for degradation and the percent change in the puncture for the glove material (degradation resistance - DR) shall be reported on the user instructions.

EN374-5:2016 - Terminology and performance requirements for micro-organisms risks

The EN374-5:2016 standard defines the requirements for gloves that protect against viruses, bacteria and fungi. Gloves claiming this standard shall pass the penetration tests described in EN374-2.

Where gloves claim protection against viruses, they shall pass additional testing according to ISO 16604:2004 - Determination of resistance of protective clothing materials to penetration by blood-borne pathogens - Procedure B.

Marking shall be as follows for gloves tested to EN374-5:2016

Bacteria and fungi protection	Virus protection
EN374-5:2016	EN374-5:2016 VIRUS

Electrical Resistance

EN60903:2003 is the standard to which electrically resistant gloves are tested. Gloves are subject to a number of checks as required by the standard. These include; composition checks, shape, dimensions, thickness, and workmanship and finish. The gloves must also pass mechanical requirements for tensile strength, elongation at break, tension set and puncture. There are ageing requirements where the gloves shall withstand mechanical testing after being exposed to high temperatures to simulate the effects of ageing. All gloves shall pass electrical requirements which involve carrying out proof and withstand voltage tests, along with the AC proof test current requirements according to their specific class.

Lastly, the gloves shall pass thermal requirements involving passing dielectric testing after exposure to low temperatures and also specific requirements for when in contact with flames.

The EN 60903 standard divides insulating gloves into 6 classes: 00, 0, 1, 2, 3 and 4 where the maximum use voltage recommended for each class of gloves is designated as:

Class	Proof test voltage AC/DC	Maximum use voltage AC/DC
00	2.500/10.000	500/750
0	5.000/20.000	1.000/1.500
1	10.000/40.000	7.500/11.250
2	20.000/50.000	17.000/25.500
3	30.000/60.000	26.500/39.750
4	40.000/70.000	36.000/54.000

Electrical resistant gloves are categorised for special properties that provides additional protection during electrical work:

Category	Resistant to
A	Acid
H	Oil
Z	Ozone
R	Acid, oil, ozone
C	Extremely low temperature

Retesting of electrical gloves

For gloves of classes 00 and 0, national requirements under the EN60903 standard do not advise on any storage periods. It is considered adequate to check for air leaks and a visual inspection prior to use for gloves of this class. Voluntary dielectric testing can be conducted but is not a requirement.

Gloves of classes 1, 2, 3 and 4 can be stored up to 12 months from date of manufacturing as fully compliant. They may be issued anytime during this period but will only be valid for 6 months from date of issue into service. Any gloves of these classes that have not been issued into service and are older than 12 months from the manufacturing date, must be retested according to the relevant standard.

If gloves are found to be leaking, torn or damaged, they should be replaced immediately. National standards do not highlight an expiry date for products, and it is considered the end user's responsibility to ensure that gloves are thoroughly examined prior to use and stored accordingly to the supplied user instructions.

ASTM D120-21 Electrical Resistance

ASTM D120-21 is the standard specification for rubber insulating gloves. This specification covers the minimum electrical, chemical, and physical property requirements and the detailed procedures by which such properties are to be determined. The classes assigned are like those set out by the EN60903 standard; 00, 0, 1, 2, 3, and 4. The dielectric test method is also similar; however, the glove thickness requirements are different for gloves conforming to this ASTM standard. Physical properties to be tested include tensile strength, tensile stress, ultimate elongation, tension set, tear and puncture resistance and Shore A hardness.

Gloves covered under this specification are designated as Type I; non-resistant to ozone and made from high grade natural or synthetic rubber or Type II; ozone-resistant made of any elastomer or combination of elastomeric compounds.

BS EN 61482 Arc Flash

Electric arc hazards are potential harm from an energy release from an electric arc usually caused by a short circuit or equipment failure in electrotechnical work. Arc flash is the heat transfer response through a material.

BS EN 61482-2 is the standard for protective clothing against the thermal hazards of an electric arc.

There are two test methods that may be used to determine an arc rating:

Open Arc Test Method EN61842-1-1

This method is used to determine the arc rating of a material or material assembly, expressed by the value of either ATPV (arc thermal protection value), ELIM (incident energy limit) or EBT (energy breakopen threshold). The test tells us at what calorie level the gloves offer protection against a 50% risk of a second-degree burn.

This procedure is carried out on specimens of material mounted on test panels and involves measuring the amount of energy transmitted through the material during and after exposure to an electric arc of 8kA from a distance of 300mm. This is reported in cal/cm3.

Box Arc Test Method EN61842-1-2

EN 61842-1-2 details the requirements and test methods applicable to materials and garments for protective clothing for electrical workers against the thermal hazards of a constrained and directed electric arc (Box Test).

This constrained and directed arc in a low voltage test circuit is used to classify material and clothing in two defined arc protection classes:

Arc Protection class	Incident Energy Level
APC1	4kA
APC2	7kA

Gloves tested to this standard shall demonstrate a minimum arc thermal protection of APC 1. An APC 2 indicates a higher arc thermal protection.

Hazard/Risk Categories

The NFPA 70E Standard for electrical safety in the workplace outlines the minimum amount of protective clothing and other protective equipment such as gloves required when used in an arc flash environment. ASTM F2675/F2675M is the standard for Determining Arc Ratings of Hand Protective Products Developed and Used for Electrical Arc Flash Protection. The amount of thermal energy transmitted through the gloves during and after exposure to an electric arc are measured. This test method is to be used for gloves that are flame resistant or that have an adequate flame resistance for the required hazard. These fall into 4 specific hazard/risk categories from 1-4, where 4 is the highest risk. The ATPV value measured in the open arc test is used to determine if the PPE is suitable for the specific hazard/risk category:

Hazard/Risk category NFPA 70E	Minimum Arc rating Cal/cm²
1	>4
2	>8
3	>25
4	>40

Impact Testing

The EN388: 2016+A1:2018 impact test is optional and should only be included for gloves that claim specific impact resistant properties. This test is based on the EN13594:2015 standard for protective gloves for motorcycle riders.

The knuckle area is tested by dropping a striker with impact energy of 5J onto the test subject. To be considered a pass (P), the transmitted force needs to be less than or equal to 7 kN with no single results greater than 9 kN. Only the knuckle area is tested.

The ANSI/ISEA138 standard is a similar test method that however, requires the testing to be carried out at 18 impact points across 2 gloves, over both the knuckles and fingers. The overall performance level is determined by the lowest level recorded between the knuckles and fingers.

Gloves tested to this standard can be classified to 3 levels as per the following table:

Classification for ANSI 138 Impact resistance		
Performance Level	Mean transmitted result	All impacts
1	≤ 9 kN	<11.3
2	≤ 6.5kN	≤ 8.1kN
3	≤ 4kN	≤ 5kN

ANSI / ISEA 138 1 Performance level 1

ANSI / ISEA 138 2 Performance level 2

ANSI / ISEA 138 3 Performance level 3

INDUSTRIES

Across many industrial sectors there are jobs that involve cut and puncture hazards, sharps and needles. Through working with end users and learning about these hazards, we can design optimised solutions for protection, value and user acceptance. At Tilsatec we understand that each industrial sector will have a wide variety of performance attributes required from their hand and arm protection.

Aerospace

It is crucial for workers in the aerospace industry using cut resistant hand protection to have close fitting, dexterous gloves with high levels of tactility to be able to carry out fine, precision work. Any coatings applied to the gloves need to provide secure grip without loss of dexterity.

Automotive

Manufacturing and assembly in the automotive and transportation industries present a wide range of cut and puncture hazards. Be it body weld, metal stamping or general handling, Tilsatec have developed products designed specifically for each of these areas.

Construction

Construction encompasses many areas including masonry, dry walling, timber work, cementing and general handling of materials amongst others. Tilsatec offer gloves to suit a number of these tasks from general purpose gloves to highly cut resistant leather and coated gloves.

EV Manufacturing

One of the fastest growing, the EV industry needs to protect users and parts from electrical currents and/or discharges. We offer electrostatic discharge products for electronics protection and electrical insulating gloves for low to high voltage applications.

Food

Our cut resistant food gloves have been developed specifically for the food industry. Fully launderable without diminishing the antimicrobial properties, the range is available in a choice of weights and styles suitable for use with beef, pork, poultry and vegetable processing applications.

Glass

Workers in the glass industry need hand and arm protection that provides a high level of cut resistance which also provides good grip and safe handling to prevent product damage. We understand these requirements and have solutions for many areas of manufacture.

Maintenance

Maintenance and repairs of factories, machinery and equipment is required in various applications to prolong their life. Tilsatec offer a range of products with superior grip, oil resistance, dexterity, durability and cut resistance.

Manufacturing

A broad category, manufacturing includes the assembly and manufacture of house hold appliances/white goods and any assembling of parts/ components where there may be potential sharp/cut hazards.

TECHNOLOGIES \ FEATURES

ANTISTATIC | BREATHABLE | DMF FREE | DRY GRIP | ELECTRICAL INSULATION | ELECTROSTATIC DISCHARGE | HEAT PROTECTION

LIQUID REPELLENT | NEEDLESTICK PROTECTION | OIL RESISTANCE | PUNCTURE RESISTANCE | SILICONE FREE | SUSTAINABLE | WASHABLE

Metal Fabrication

Safety is key in the metal manufacturing and fabrication industry. Worker's hands are exposed to a number of hazards requiring cut resistance, puncture resistance, liquid protection and heat protection.

Mining

Both open-cast or underground mining present various applications and associated risks. The infrastructure of mining means a variety of tasks such as construction, crushing, exploring, transporting and extraction. Tilsatec can offer a solution for risks such as cut, abrasion, impact or chemical protection.

Oil & Gas

Oil & Gas is a huge industry with many varied sectors, each with their own specific hand and arm protection needs. We have developed a small, specially designed range of gloves to provide high cut resistance, heat and FR protection, impact and liquid protection.

Petrochemical

With similar hand protection requirements to the oil & gas industry, workers involved in the production of petrochemicals particularly down stream require category III hand protection for high hazard environments.

Power Transmission

The industry has a risk of death from electrocution if the incorrect PPE is worn. Tilsatec can provide a range of Electrical Insulated Gloves to help protect workers from these risks from Class 00 (500v AC) up to Class 4 (36 000v AC).

Telecoms

Technicians and engineers are often in hazardous situations working overhead, underground and in enclosed spaces. Tilsatec products provide grip when ascending/descending towers, assist with handling small parts and protect users from electrocution and cut injuries.

Utilities

The Utilities sector can provide unique environments where high levels of protection are required, but with the greatest amount of dexterity and sensitivity to carry out sometimes delicate handling operations, be it handling blades, cables or pulling lines.

Waste

Waste management and waste disposal is one of the fastest growing industrial sectors. It presents many cut and puncture hazards inclding needlestick hazards. Typical operations include waste collection and removal, recycling, sorting and landfill management.

GUIDE TO GLOVE COATINGS AND FINISHES

In finding the correct hand protection for your industry and application, it's likely you'll encounter various different glove coatings from flat and foam nitrile to PU and latex, so it's important to understand how they differ and which coating type is right for your application.

POLYURETHANE (PU)

- High Abrasion
- Robust/Durable
- High Tactility
- Dry Grip

CRINKLE LATEX

- Improved Wet Grip (exc. oil)
- Good dry grip
- Liquid repellent
- Increased Comfort

CLEAN PU

- High tactility
- Increased comfort
- Environmentally friendly
- Water-based
- Dry Grip

BI-POLYMER

- Robust/Durable
- Liquid repellent
- Improved wet & oil grip
- Additional back of hand abrasion resistant

FOAM NITRILE

- Increased comfort (less irritation than PU)
- Breathable
- Good wet and dry grip
- Good dexterity

SANDY NITRILE

- Improved wet and dry grip
- Robust / Durable
- Good dexterity

MICROFOAM NITRILE

- High abrasion resistantance
- Ultimate comfort
- Breathable
- High tactility
- High dexterity

SMOOTH LATEX

- Dry grip
- Easy donning and doffing
- Flat/smooth nitrile
- Latex foam

HAND PROTECTION EVALUATION PROCESS

When it comes to identifying and specifying the right hand protection for your work force, it can seem overwhelming looking at the number of protective gloves now in the market place. Our Hand Protection Evaluation Process is clear, tried and tested, designed to guide you every step of the way and support you beyond your initial selection stage.

With their specialist expertise in high level cut resistance our sales team can provide you with the following support and assistance:

- Conduct a site survey to assess all handling hazards and requirements
- Provide an end user report with product recommendations for every department
- Set up on-site trialling and sampling to ensure gloves are tested thoroughly
- Monitor and assess glove trials
- Deliver product training to staff and distributors
- Provide educational infographics and posters to encourage best practice in hand protection
- Carry out ongoing sales support and site visits

Phase 1

Introduction to Tilsatec and site survey to identify hazards

Phase 2

Product trials, modifications and re-trials

30%

of hand injuries are caused by wearing the wrong hand protection

Phase 3

Customer reports and product recommendations

Phase 4

Product implementation, ongoing monitoring and support

To find out how the **Hand Protection Evaluation Process** can benefit your business scan the QR code:

TILSATEC

EnVision®

People. Planet. Protection.

We're on a journey, one that's never finished, but we're working towards positive change across manufacturing, logistics, energy consumption, recycling and our raw materials to bring you high performance hand and arm protection which allows you to reduce your carbon footprint and take energy intensive products out of your supply chain.

Tilsatec EnVision is the umbrella under which our sustainability program sits and it's underpinned by our 3 key pillars; **People, Planet, Protection.**

People

As a member of Sedex we are committed to being a responsible business, sourcing responsibly, and improving ethical standards and working conditions within the supply chain. All our manufacturing sites globally adhere to the Sedex Members Ethical Trade Audit (SMETA) or equivalent, but we also have our own stringent standards and criteria we set for our operations.

Planet

Utilising our yarn engineering experience we aim to replace virgin synthetic materials with recycled and/or plant-based yarns.

- Reduce carbon footprint working towards Net Zero by 2050
- Removing single use plastics from our inner packaging
- FSC certified carton packing, inner packaging, catalogues and print materials
- Reduce the use of chemicals and solvents in all operations

Protection

Deliver hand protection solutions to meet all handling tasks from general purpose through to high cut, each with a sustainable yarn content of >50%.
The Tilsatec EnVision range sets a new standard in environmentally friendly cut gloves that don't compromise on comfort, dexterity or durability.

>50% sustainable yarn content in all EnVision® products

FSC

BIO-BASED DYNEEMA® FIBRE AT HEART
Because it matters

55-1725

CUT **A**

EN388:2016
4X42A

EnVision cut level **A** glove with microfoam palm coating

- 65% of the glove is made with sustainable materials (incl. coating)
- Manufactured using a unique combination of recycled polyester (rPET) and recycled nylon (rPA) resulting in a total CO_2 reduction of >320 grams per pair*
- Energy savings of 0.276 kwh and 6 litres less water consumption per pair
- Level A cut resistance to EN388:2016+A1:2018
- High level abrasion resistance (>20,000 cycles) gives durability and increases life span
- Touchscreen compatible reducing need to remove gloves
- Thumb crotch reinforced for additional resilience in high action area
- Microfoam palm coating delivers secure dry and oil grip
- Incredible fine tactility and dexterity, close fitting and soft comfort

*Versus same style using virgin materials

Applications / Industries

- Intricate assembly
- Automotive downstream
- Aftermarket / Component handling
- Construction
- White goods manufacturing
- Aerospace
- Logistics and warehousing

Gauge	15gg
Colour	Navy liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

CE FSC

55-3725

CUT **C**

EN388:2016
4X42C

EnVision cut level **C** glove with microfoam palm coating

- 64% of the glove is made with sustainable materials (inc. coating)
- Manufactured using a unique combination of Bio Based Dyneema and recycled polyester (rPET) resulting in a total CO_2 reduction of >820 grams per pair*
- Energy savings of 0.302 kwh and 4 litres less water consumption per pair
- Level C cut resistance to EN388:2016+A1:2018
- Touchscreen compatible reducing need to remove gloves
- Thumb crotch reinforced for additional resilience in high action area
- Microfoam palm coating delivers secure dry and oil grip
- Incredible fine tactility and dexterity, close fitting and soft comfort

*Versus same style using virgin materials

Applications / Industries

- Intricate assembly
- Automotive downstream
- Aftermarket / Component handling
- Construction
- White goods manufacturing
- Aerospace

Gauge	15gg
Colour	Navy liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

CE FSC BIO-BASED DYNEEMA® FIBRE AT HEART

55-6725

MADE WITH 68% RECYCLED & BIO BASED YARNS

CUT F

EN388:2016

4X42F

EnVision cut level F
glove with microfoam palm coating

- 54% of the glove is made with sustainable materials (inc. coating)
- Manufactured using a unique combination of Bio Based Dyneema and recycled polyester (rPET) resulting in a total CO_2 reduction of >780 grams per pair*
- Energy savings of 0.254 kwh and 3.3 litres less water consumption per pair
- Incredible level F cut resistance to EN388:2016+A1:2018
- Touchscreen compatible reducing need to remove gloves between tasks
- Thumb crotch reinforced for additional resilience in high action area
- Microfoam palm coating delivers secure dry and oil grip
- High dexterity and tactility, close fitting and soft comfort

*Versus same style using virgin materials

Dyneema®

Bio-based Dyneema® is the first ever bio-based ultra-high molecular weight polyethylene fibre, reducing reliance on fossil fuel based resources. All bio-based Dyneema® fibres have the exact same characteristics and performance as conventional Dyneema®. Made from trees (a bi-product of pulp and timber) this is known as the mass balance approach, certified by ISCC (International Sustainability & Carbon Certification).

Carbon emissions reduced by **>600g** for every pair of gloves made with **Bio-Based Dyneema®**, when compared to Generic HMPE yarn.

Applications / Industries

- Intricate assembly
- Automotive downstream
- Aftermarket / Component handling
- Construction
- White goods manufacturing
- Aerospace

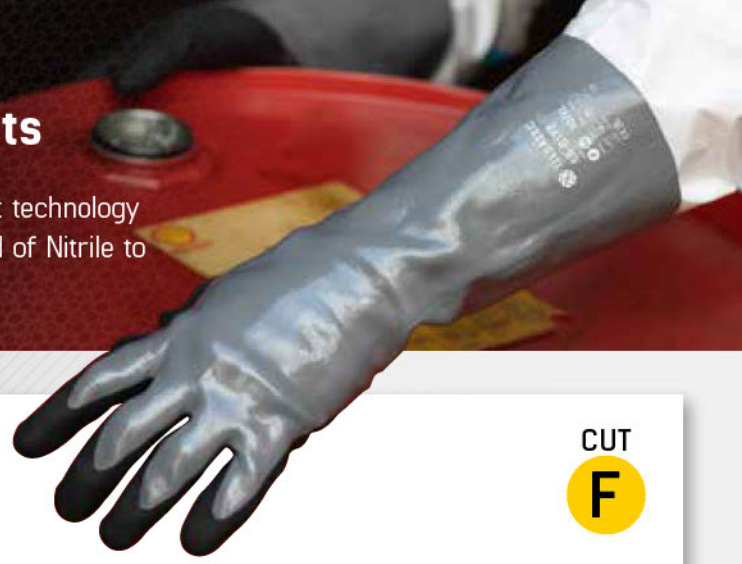
Gauge	15gg
Colour	Navy liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band Sizes 6, 7 and 11 72 pairs/carton Sizes 8, 9 and 10 120 pairs/carton

FSC

BIO-BASED DYNEEMA® FIBRE AT HEART

Cut Resistant Chemical Gauntlets

Combining chemical protection with our 15gg cut resistant technology to ensure high cut level D and F. Made with a special blend of Nitrile to ensure high levels of comfort, flexibility and dexterity



55-6177

CUT **F**

Nitrile cut level **F** chemical gauntlet with microfoam palm coating

- EN374-1:2016+A1:2018 Permeation Type A
- EN374-5:2019 bacteria and fungi
- EN388:2016+A1:2018 level F cut resistance
- EN407: 2020 contact heat level 1
- Incident Indicator - high contrast liner to identify damage to the chemical barrier
- Nitrile microfoam palm dip for improved wet and dry grip
- Under edge size indicator for fast product sizing identification

Gauge	15gg
Colour	Grey/black
Cuff Style	Gauntlet
Length	35cm
Sizes	7/S - 11/2XL
Packaging	6 pairs/paper band, 48 pairs per carton

CE

Applications / Industries

- Petrochemicals
- Oil & Gas
- Mining
- Heavy machinery
- Manufacturing
- Maintenance
- Waste
- Metal fabrication

EN388 4X42F

EN ISO374-5

EN407 X1XXXX

EN ISO374-1 Type A JKLMNO

Incident Indicator – high contrast liner to identify damage to the chemical barrier

Under edge size indicator for fast product sizing identification

55-4173

CUT **D**

Nitrile cut level **D** chemical gauntlet with microfoam palm coating

- EN374-1:2016+A1:2018 Permeation Type A
- EN374-5:2019 bacteria and fungi
- EN388:2016+A1:2018 level D cut resistance
- EN407: 2020 contact heat level 1
- Incident Indicator - high contrast liner to identify damage to the chemical barrier
- Nitrile microfoam palm dip for improved wet and dry grip
- Under edge size indicator for fast product sizing identification

Gauge	15gg
Colour	Blue/black
Cuff Style	Gauntlet
Length	35cm
Sizes	7/S - 11/2XL
Packaging	6 pairs/paper band, 48 pairs per carton

CE

Applications / Industries

- Petrochemicals
- Oil & Gas
- Mining
- Heavy machinery
- Manufacturing
- Maintenance
- Waste
- Metal fabrication

EN388 4X42D

EN ISO374-5

EN407 X1XXXX

EN ISO374-1 Type A JKLMNO

TILSATEC

Pulse®

Electrical Insulating Gloves

Providing protection for low voltage and high voltage applications the range includes the following options:

LOW Voltage

- **Pulse Class 00** Electrical Insulating Gloves maximum use voltage **500V** ac / **750V** dc, 28cm and 36cm in red or yellow
- **Pulse Class 0** Electrical Insulating Gloves maximum use voltage **1000V** ac / **1500V** dc, 28cm and 36cm in red or yellow

HIGH Voltage

- **Pulse Class 1** Electrical Insulating Gloves maximum use voltage **7,500V** ac / **11,250V** dc, 36cm in red/black
- **Pulse Class 2** Electrical Insulating Gloves maximum use voltage **17,000V** ac / **25,500V** dc, 36cm in red/black
- **Pulse Class 3** Electrical Insulating Gloves maximum use voltage **26,500V** ac / **39,750V** dc, 36cm in red/black
- **Pulse Class 4** Electrical Insulating Gloves maximum use voltage **36,000** ac / **54,000V** dc, 41cm in red/black

24-9010/20 / 24-9012/22

Class 00

11”/28cm, 14”/36cm Red
11”/28cm, 14”/36cm Yellow

	24-9010	24-9012	24-9020	24-9022
Class	00	00	00	00
Max Use	500V	500V	500V	500V
Category	A/Z/C	A/Z/C	A/Z/C	A/Z/C
ARC	APC1 / ATPV - 8.4 cal/cm²			
ASTM D120	Type 1	Type 1	Type 1	Type 1
Cuff	Straight with beaded edge			
Colour	Red (MTO*)	Yellow	Red (MTO*)	Yellow
Length	11” / 28cm	11” / 28cm	14” / 36cm	14” / 36cm
Sizes	8-11	8-11	8-11	8-11
Packaging	1 pair p/polybag and individual box. 10 pairs p/carton			

*Made to order.
Contact to confirm lead times.

SPECIAL CATEGORIES CLASSES

Meets the special properties:

A - Acid
C - Extreme low temperature
H - Oil resistant
Z - Ozone

R = A + Z + H

CLASS	LENGTH CM/INCH		CATEGORIES	PROOF TEST VOLTAGE AC/DC	MAXIMUM USE VOLTAGE AC/DC	SIZES	ARC
Class 00 Beige	28/11	36/14	A/Z/C	2.500/10.000	500/750	8, 9, 10, 11	APC1 ATPV - 8.4 cal/cm²
Class 0 Red	28/11	36/14	A/Z/C	5.000/20.000	1.000/1.500	8, 9, 10, 11	APC2 ATPV - 8.5 cal/cm²
Class 1 White	36/14		R/C	10.000/40.000	7.500/11.250	8, 9, 10, 11	APC2 ATPV - 10.6 cal/cm²
Class 2 Yellow	36/14		R/C	20.000/50.000	17.000/25.500	8, 9, 10, 11	APC2 ATPV - 21.0 cal/cm²
Class 3 Green	36/14		R/C	30.000/60.000	26.500/39.750	8, 9, 10, 11	APC2 ATPV - 40.5 cal/cm²
Class 4 Orange	41/16		R/C	40.000/70.000	36.000/54.000	9, 10, 11	APC2 ATPV - 36.2 cal/cm²

AC = Alternative Current (Flows both ways)
DC = Direct Current (Flows one way)

Manufactured and tested in accordance with IEC 60903, EN 60903 and ASTM D120.

CE

24-0010/12

Class 0 — 11"/28cm Red/Yellow

	24-0010	24-0012
Class	0	0
Max Use	1000V	1000V
Category	A/Z/C	A/Z/C
ARC	APC2 / ATPV - 8.5 cal/cm²	
ASTM D120	Type 1	Type 1
Cuff	Straight with beaded edge	
Colour	Red (MTO*)	Yellow
Length	11" / 28cm	11" / 28cm
Sizes	8-11	8-11
Packaging	1 pair p/polybag in box. 10 pairs p/carton	

*Made to order.
Contact to confirm lead times.

Manufactured and tested in accordance with IEC 60903, EN 60903 and ASTM D120.

CE

24-0020/22

Class 0 — 14"/36cm Red/Yellow

	24-0020	24-0022
Class	0	0
Max Use	1000V	1000V
Category	A/Z/C	A/Z/C
ARC	APC2 / ATPV - 8.5 cal/cm²	
ASTM D120	Type 1	Type 1
Cuff	Straight with beaded edge	
Colour	Red (MTO*)	Yellow
Length	14" / 36cm	14" / 36cm
Sizes	8-11	8-11
Packaging	1 pair p/polybag in box. 10 pairs p/carton	

*Made to order.
Contact to confirm lead times.

Manufactured and tested in accordance with IEC 60903, EN 60903 and ASTM D120.

CE

24-1024 / 24-2024

Class 1 2 14”/36cm Black/Red

	24-1024	24-2024
Class	1	2
Max Use	7500V	17000V
Category	R/C	R/C
ARC	APC2 / ATPV - 10.6 cal/cm²	APC2 / ATPV - 21.0 cal/cm²
ASTM D120	Type 1	Type 1
Cuff	Straight with beaded edge	
Colour	Black/Red (MTO*)	Black/Red (MTO*)
Length	14” / 36cm	14” / 36cm
Sizes	8-11	8-11
Packaging	1 pair p/polybag in box. 10 pairs p/carton	

*Made to order.
Contact to confirm lead times.

Manufactured and tested in accordance with IEC 60903, EN 60903 and ASTM D120.

CE

24-3024 / 24-4034

Class 3 4 14”/36cm Black/Red
16”/41cm Black/Red

	24-3024	24-4034
Class	3	4
Max Use	26500V	36000V
Category	R/C	R/C
ARC	APC2 / ATPV - 40.5 cal/cm²	APC2 / ATPV - 36.2 cal/cm²
ASTM D120	Type 1	Type 1
Cuff	Straight with beaded edge	
Colour	Black/Red (MTO*)	Black/Red (MTO*)
Length	14” / 36cm	16” / 41cm
Sizes	8-11	9-12
Packaging	1 pair p/polybag in box. 10 pairs p/carton	

*Made to order.
Contact to confirm lead times.

Manufactured and tested in accordance with IEC 60903, EN 60903 and ASTM D120.

CE

RHINOYARN®

Made in the UK and developed by Tilsatec's specialist team of yarn technologists, RhinoYarn® technology is our engineered yarn process that combines various technical fibres and materials.

When blended together to create a composite yarn significantly higher levels of cut and mechanical protection can be achieved without compromising on comfort or dexterity.

High Cut Range

Tilsatec offer one of the widest ranges of hand and arm protection solutions providing level F cut protection in Europe.

Every product in the high cut range is made using our own RhinoYarn® Technology manufactured on-site in the UK.

53-7111

Medium weight cut level **F** PU palm coated glove with thumb reinforcement

CUT F

- EN388: 2016+A1:2018 level F cut resistance
- New RhinoYarn® composition using lighter, finer steel
- Additional black nitrile reinforcement to thumb crotch for high action area increasing lifespan of glove
- Robust palm coating provides good dry and light oil grip
- EN388: 2016 level 3 puncture and high abrasion levels
- Tested after washing to industrial wash standards

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Glass Manufacturing
- White goods manufacturing

Gauge	13gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

EN388:2016
4X43F

RHINOYARN

CE

53-7112

Medium weight cut level **F** PU palm coated glove with extended cuff and thumb reinforcement

CUT F

- EN388: 2016+A1:2018 level F cut resistance
- New RhinoYarn® composition using lighter, finer steel
- Additional black nitrile reinforcement to thumb crotch for high action area increasing lifespan of glove
- Robust palm coating provides good dry and light oil grip
- Extended cuff area for added protection handling
- Tested after washing to domestic and industrial wash standards

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Glass manufacturing
- White goods manufacturing

Gauge	13gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/polybag Sizes 6, 7, 11 72 pairs/carton, 8, 9 & 10 120 pairs/carton

EN388:2016
4X43F

RHINOYARN

CE

53-7121

Medium weight cut level **F** sandy foam nitrile palm coated glove with reinforcement

CUT F

- EN388: 2016+A1:2018 level F cut resistance
- New RhinoYarn® composition using lighter, finer steel
- Black nitrile reinforcement to thumb crotch
- 360 breathability reduces perspiration
- Sandy foam nitrile palm coating provides good wet and dry grip
- Tested after washing to industrial standards

Gauge	13gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Glass Manufacturing
- White goods manufacturing

EN388:2016 4X42F

EN407:2020 X1XXXX

CE

RHINOYARN

53-7191

Medium weight cut level **F** leather reinforced sandy foam nitrile palm coated glove with reinforcement

CUT F

- EN388: 2016+A1:2018 level F cut resistance
- New RhinoYarn® composition using lighter, finer steel
- EN407:2020 contact heat level 1
- Leather palm combined with foam nitrile coating delivers incredible robustness and handling comfort
- Foam nitrile palm coating allows breathability and prevents oil ingress to hand
- Leather reinforcement to thumb crotch

Gauge	13gg
Colour	Grey liner / Grey leather
Cuff Style	Knit wrist
Length	220-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 72 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Glass Manufacturing
- White goods manufacturing

EN388:2016 4X43F

EN407:2020 X1XXXX

CE

RHINOYARN

58-6120

Ultra-lightweight 18 gauge cut level **F** bi-polymer foam palm coated glove

CUT F

- RhinoYarn® cut resistant technology
- Extreme level F cut resistance without compromising dexterity (ANSI 105-2016: A9)
- Tough and durable bi-polymer foam coating
- Reinforced nitrile thumb crotch for added durability
- Excellent dry and light oil grip
- Tested after washing to domestic and industrial wash standards

Applications / Industries

- Component assembly
- Aerospace
- Automotive industry
- Metal handling
- Manufacturing

EN388:2016 4X43F

Gauge	18gg
Colour	Black liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

RHINOYARN

50-6121

Medium weight cut level **F** sandy foam nitrile palm coated glove with thumb reinforcement

CUT F

- RhinoYarn® cut resistant technology
- Level F cut resistance to EN388:2016+A1:2018
- Thumb crotch is reinforced for additional resilience
- High level of abrasion and durability
- 360 breathability
- Dark colour hides dirt extending life of the glove
- Tested after washing to domestic and industrial standards

Applications / Industries

- Metal fabrication/stamping
- Glass and DGU manufacturing
- Transportation
- Manufacturing
- Construction
- Waste handling / Recycling

EN388:2016 4X43F

EN407:2020 X1XXXX

Gauge	10gg
Colour	Black liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

RHINOYARN

50-6111

Medium weight cut level **F** PU palm coated glove with thumb reinforcement

CUT F

- RhinoYarn® cut resistant technology
- Level F cut resistance to EN388:2016+A1:2018
- EN407:2020 contact heat level 1
- Black thumb crotch reinforced for additional resilience in high action area
- PU palm coating provides secure dry and light oil grip
- Tested after washing to industrial wash standards

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication/stamping
- Transportation
- Manufacturing
- Construction

Gauge	10gg
Colour	Black liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

EN388:2016 4X42F

EN407:2020 X1XXXX

CE

RHINOYARN

50-6130

Medium weight cut level **F** latex palm coated glove

CUT F

- RhinoYarn® cut resistant technology
- Level F cut resistance to EN388:2016+A1:2018
- EN407:2020 contact heat level 1
- Crinkle latex palm coating delivers excellent dry and wet grip
- Durable and hard wearing for heavy duty applications
- Tested after washing to domestic and industrial wash standards

Applications / Industries

- Glass manufacturing
- Metal fabrication/stamping
- Waste handling/Recycling
- Manufacturing
- Construction

Gauge	10gg
Colour	Black liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

EN388:2016 4X42F

EN407:2020 X1XXXX

CE

RHINOYARN

55-5110

CUT **E**

Lightweight PU palm coated cut level **E** glove

- RhinoYarn® cut resistant technology
- EN388: 2016+A1:2018 level E cut resistance
- Fine 15 gauge lightweight liner
- High level of tactility and dexterity
- Durable PU palm coating provides secure dry grip and light oil grip
- Seamless liner and cuff gives a smooth, comfortable feel
- Tested after washing to domestic and industrial wash standards

Applications / Industries

- Final fix / light assembly
- Automotive assembly
- Light metal fabrication
- Transportation
- Aerospace
- White goods manufacturing

Gauge	15gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

EN388:2016
4X43E

CE

RHINOYARN®

55-5120

Lightweight cut level **E** foam nitrile palm coated glove

CUT E

- RhinoYarn® cut resistant technology
- EN388: 2016+A1:2018 level E cut resistance
- High level of tactility and dexterity
- Breathable liner and palm coating
- Foam nitrile palm delivers good dry and oil grip
- Tested after washing to industrial wash standard
- Approved for food contact to EU Regulation 10/2011

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

Applications / Industries

- Final fix / light assembly
- Automotive assembly
- Light metal fabrication
- Aerospace
- White goods manufacturing
- Transport
- Handling/packing foodstuffs

EN388:2016
4X43E

RHINOYARN

CE

55-5123

Lightweight cut level **E** fully coated nitrile glove with foam nitrile palm

CUT E

- RhinoYarn® cut resistant technology
- EN388: 2016+A1:2018 level E cut resistance
- EN407: 2020 contact heat level 1
- 15 gauge lightweight liner
- Foam nitrile palm delivers good dry and oil grip
- Flat nitrile full dip provides oil and liquid protection
- Tested after washing to industrial wash standard

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2016
4X43E

EN407:2020
X1XXXX

RHINOYARN

CE

Comfort+

Tilsatec's newest non-reinforced glove range, engineered to perform at all levels of cut resistance from B to F, without the use of alloy and mineral yarns.

53-6321

CUT **F**

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

Comfort+ medium weight cut level **F** glove with sandy nitrile palm coating

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 13 gauge seamless liner free from alloy and mineral yarns
- Sandy nitrile palm coating delivers secure dry and oil grip
- Reinforced thumb for increased durability in high wear zones
- Touchscreen capable
- Tested after washing to industrial standard

Gauge	13gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

EN388:2018 4X42F

EN407:2020 X1XXXX

CE

RHINOYARN®

NO ALLOY/NO MINERAL YARN results in increased comfort and dexterity while maintaining high levels of cut protection from level B to F

COMFORT WITHOUT COMPROMISE

55-5325

CUT **E**

Comfort+ lightweight cut level **E** glove with microfoam nitrile palm coating

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- Microfoam nitrile palm coating delivers ultimate comfort with high tactility and dexterity
- Reinforced thumb for increased durability in high wear zones
- Touchscreen capable
- Tested after washing to industrial standard

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

EN388:2018
4X43E

RHINOYARN®

55-4325

Comfort+ lightweight cut level **D** glove with microfoam nitrile palm coating

CUT D

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- Microfoam nitrile palm coating delivers ultimate comfort with high tactility and dexterity
- Reinforced thumb for increased durability in high wear
- Touchscreen capable
- Available in sizes 5-12
- Tested after washing to industrial standard

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	5/XXS - 12/3XL
Packaging	12 pairs/paper band. Sizes 5, 6, 7, 11 & 12 72 pairs/carton. Sizes 8, 9 & 10 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2018
4X43D

RHINOYARN

CE

55-4311

Comfort+ lightweight cut level **D** glove with PU palm coating

CUT D

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- PU Palm coating delivers high levels of dry grip, durability, tactility and dexterity
- Good dry grip for secure handling
- Touchscreen capable
- Available in sizes 5-12
- Tested after washing to industrial standard

Gauge	15gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	5/XXS - 12/3XL
Packaging	12 pairs/paper band. Sizes 5, 6, 7, 11 & 12 72 pairs/carton. Sizes 8, 9 & 10 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2018
4X42D

RHINOYARN

CE

58-4325

Comfort+ ultra-lightweight cut level **D** glove with microfoam nitrile palm coating

CUT D

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 18 gauge seamless liner free from alloy and mineral yarns
- Microfoam nitrile palm coating delivers ultimate comfort with high tactility and dexterity
- Reinforced thumb for increased durability in high wear
- Touchscreen capable
- Available in sizes 5-12
- Tested after washing to industrial standard

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

Gauge	18gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	5/XXS - 12/3XL
Packaging	12 pairs/paper band. Sizes 5, 6, 7, 11 & 12 72 pairs/carton. Sizes 8, 9 & 10 120 pairs/carton

EN388:2018
4X42D

RHINOYARN

CE

58-4311

Comfort+ ultra-lightweight cut level **D** glove with PU palm coating

CUT D

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 18 gauge seamless liner free from alloy and mineral yarns
- PU Palm coating delivers high levels of dry grip, durability, tactility and dexterity
- Good dry grip for secure handling
- Touchscreen capable
- Available in sizes 5-12
- Tested after washing to industrial standard

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

Gauge	18gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	5/XXS - 12/3XL
Packaging	12 pairs/paper band. Sizes 5, 6, 7, 11 & 12 72 pairs/carton. Sizes 8, 9 & 10 120 pairs/carton

EN388:2018
4X42D

RHINOYARN

CE

35-4329

Comfort+ lightweight cut level **D** liner glove

CUT **D**

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- Available in sizes 5-12

Gauge	15gg
Colour	Grey liner
Cuff Style	Knit wrist
Length	220-270mm
Sizes	5/XXS - 12/3XL
Packaging	12 pairs/paper band. Sizes 5, 6, 7, 11 & 12 72 pairs/carton. Sizes 8, 9 & 10 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2018
3 X 4 3 D

RHINOYARN

55-3325

Comfort+ lightweight cut level **C** glove with microfoam nitrile palm coating

CUT **C**

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- Microfoam nitrile palm coating delivers ultimate comfort with high tactility and dexterity
- Reinforced thumb for increased durability in high wear
- Touchscreen capable
- Tested after washing to industrial standard

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band. Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2018
4 X 4 3 C

RHINOYARN

53-3314

Comfort+ medium weight cut level **C** glove with PU palm coating

CUT **C**

- Incredibly soft and comfortable for all day wear
- New non-reinforced RhinoYarn® structure with UHWMPE and high power spandex for optimal cut and comfort
- 13 gauge seamless liner free from alloy and mineral yarns
- Clean PU coating (ultra-low levels of DMF*)
- Good dry grip for secure handling
- Touchscreen capable
- Tested after washing to industrial wash

* REACH regulation for DMF content is 1000ppm, glove is tested below 5ppm

Gauge	13gg
Colour	White liner / Grey coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2016
4X42C

RHINOYARN

CE

55-2325

Comfort+ lightweight cut level **B** glove with microfoam nitrile palm coating

CUT **B**

- New non-reinforced RhinoYarn® structure for increased comfort and flexibility for all day wear
- 15 gauge seamless liner free from alloy and mineral yarns
- Microfoam nitrile palm coating delivers ultimate comfort with high tactility and dexterity
- Reinforced thumb for increased durability in high wear
- Touchscreen capable
- Tested after washing to industrial standard

Gauge	15gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	220-270mm
Sizes	6/XS - 11/2XL
Packaging	12 pairs/paper band. Sizes 6, 7 & 11 72 pairs/carton Sizes 8, 9 & 10 120 pairs/carton

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Construction
- White goods manufacturing

EN388:2018
4X43B

RHINOYARN

CE

58-1924

CUT A

Ultra-lightweight **ESD** glove with microfoam palm coating

- Tested to EN 1149-2:1997 and EN 16350 ESD Antistatic
- Exceptional level of fingertip sensitivity and tactility
- Touchscreen compatible
- 360 degrees breathability keeps hands cool and dry
- 18 gauge seamless liner and cuff gives a smooth comfortable feel

Applications / Industries

- Final fix / light assembly
- Finishing and Inspection
- Electronics
- Aerospace
- Logistics and warehousing

Gauge	18gg
Colour	Navy liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag Sizes 7, 11 72 pairs/carton, 8, 9 & 10 120 pairs/carton

EN388:2016
3 X 2 1 A

EN16350 EN1149-2
Vertical Resistance
RV <1 x 10^8 Ω

CE

58-2221

Multi-purpose ultra-lightweight cut level **B** sandy foam nitrile palm coated glove

CUT **B**

- Made using advanced knitting technology it delivers an ergonomic fit and feel for incredible dexterity and tactility
- Level B cut resistance to EN388: 2016
- High level 4 abrasion resistance
- Sandy foam nitrile palm coating delivers secure dry and oil grip
- Thumb crotch reinforcement gives additional durability and longevity

Gauge	18gg
Colour	Grey liner / Black coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag Sizes 7, 11 72 pairs/carton, 8, 9 & 10 120 pairs/carton

Applications / Industries

- Intricate assembly
- Automotive downstream after market / component handling
- Construction
- White goods manufacturing
- Aerospace

EN388:2016
4X42B

CE

53-3210

Multi-purpose cut level **C** PU palm coated glove

CUT **C**

- Cost efficient solution delivering level C cut resistance to EN388:2016+A1:2018
- Hard wearing robust PU coating
- Good grip in dry and slight oil conditions
- Dirt masking colour for longer wear life

Gauge	13gg
Colour	Grey liner / Grey coating
Cuff Style	Knit wrist
Length	230-270mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 120 pairs/carton

Applications / Industries

- Automotive downstream
- Metal / component handling
- Construction
- White goods manufacturing

EN388:2016
4X43C

CE

72-6110

NEW Medium weight cut level **F** antimicrobial food safe glove

CUT F

- EN388: 2016 level F cut resistance
- New yarn structure delivers improved grip
- Permanent antimicrobial component
- Free from glass fibre to prevent product contamination
- Tested to EN ISO 15797 industrial wash test to withstand x50 washes at up to 85°C and drying up to 70°C with no effect on cut resistance
- Extended cuff for added protection
- Ambidextrous

Applications / Industries

- Meat carving and deboning
- Butchery
- Fish filleting and processing
- Suitable for beef, pork and poultry

Gauge	10gg
Colour	Blue liner
Cuff Style	Knit wrist
Length	255-305mm
Sizes	6/XS - 11/2XL
Packaging	6 pieces/polybag 144 pieces/carton

EN388:2018 2X41F

EN407:2020 X1XXXX

MADE IN BRITAIN

RHINOYARN

CE

71-7110

Lightweight cut level **F** antimicrobial food safe glove

CUT F

- EN388:2016 level F (ANSI 105-2016 A7) cut resistance
- Inherent antimicrobial component safe for food handling
- Yarn structure (free from glass fibre) delivers better grip and mechanical protection
- Tested to EN ISO 15797 industrial wash test to withstand x50 washes at up to 85°C and drying up to 70°C
- Extended cuff for added protection
- Ambidextrous

Applications / Industries

- Meat carving and deboning
- Butchery
- Fish filleting and processing
- Suitable for beef, pork and poultry

Gauge	13gg
Colour	Blue liner
Cuff Style	Knit wrist
Length	255-305mm
Sizes	6/XS - 11/2XL
Packaging	6 pieces/polybag 216 pieces/carton

EN388:2016 3X4XF

MADE IN BRITAIN

RHINOYARN

CE

72-8110

Medium weight cut level **F** antimicrobial food safe glove

CUT F

- EN388:2016 level F (ANSI 105-2016 A8) cut resistance
- Inherent antimicrobial component safe for food handling
- Yarn structure (free from glass fibre) delivers better grip and mechanical protection
- Tested to EN ISO 15797 industrial wash test to withstand x50 washes at up to 85°C and drying up to 70°C with no effect on cut resistance
- Extended cuff for added protection
- Ambidextrous

Applications / Industries

- Meat carving and deboning
- Butchery
- Fish filleting and processing
- Suitable for beef, pork and poultry

Gauge	10gg
Colour	Blue liner
Cuff Style	Knit wrist
Length	255-305mm
Sizes	6/XS - 11/2XL
Packaging	6 pieces/polybag 144 pieces/carton

EN388:2016 4X4XF

MADE IN BRITAIN

RHINOYARN

CE

73-9110

Heavyweight cut level **F** antimicrobial food safe glove

CUT F

- EN388:2016 level F (ANSI 105-2016 A9) cut resistance
- Inherent antimicrobial component safe for food handling
- Yarn structure (free from glass fibre) delivers better grip and mechanical protection
- Tested to EN ISO 15797 industrial wash test to withstand x50 washes at up to 85°C and drying up to 70°C with no effect on cut resistance
- Extended cuff for added protection
- Ambidextrous

Applications / Industries

- Meat carving and deboning
- Butchery
- Fish filleting and processing
- Suitable for beef, pork and poultry

Gauge	7gg
Colour	Blue liner
Cuff Style	Knit wrist
Length	255-305mm
Sizes	6/XS - 11/2XL
Packaging	6 pieces/polybag 144 pieces/carton

EN388:2016 4X4XF

EN407:2020 X1XXXX

MADE IN BRITAIN

RHINOYARN

CE

RHINOGUARD™

Extreme Cut & Puncture Protection

Cut Puncture and Needlestick Protection

RHINOGUARD™ is a highly engineered textile composite primarily designed to provide the highest levels of protection against a wide range of puncture hazards.

The material is constructed from an innovative combination of advanced fibres, modified fabric structure and a unique coating technology to high levels of protection against both large and small puncture threats including needles and syringes.

ASTM F2878-19 Hypodermic Needle Puncture Resistance

High performance hypodermic needle puncture resistant materials are tested on the tensometer with single use validated 28, 25 and 21 gauge needles. This test ensures that the materials offer adequate protection against hypodermic needle hazards where required.

49-6220

CUT **E**

Mechanics glove with **Rhinoguard™**

- EN388:2016+A1:2018 level E cut resistance
- RhinoYarn® cut resistant technology
- EN388: 2016 level 4 puncture resistance
- ASTM F2878-19 hypodermic needle test: 6.4 Newtons (Level 3)
- Leather reinforcement for high action areas
- Rubber pull tab for quick donning and doffing
- Neoprene expandable wrist for safety and comfort

Gauge	N/A
Colour	Black / Yellow
Cuff Style	Neoprene
Length	230-270mm
Sizes	8/M - 11/2XL
Packaging	Packed per pair 36 pairs/carton

Applications / Industries

- Emergency services:
- Police, Fire Fighters, Search and Rescue
- Security services
- Local authorities, house clearance teams
- Waste management
- Metal forming / handling

EN388:2016
4X44E

CE

RHINOYARN®

11-3328

Hot end gauntlet glove

CUT C

- EN388:2016+A1:2018 level C cut resistance
- EN407:2020 contact heat level 2
- Loop pile knitted glove section for improved thermal protection and cushioning from repeated handling
- Extended gauntlet style cuff provides forearm protection
- Black colour hides dirt, extending life of the glove
- Ambidextrous

Applications / Industries

- Glass manufacturing
- Hot end operations
- High heat areas requiring some mechanical protection

Gauge	7gg
Colour	Black glove / Black cuff
Cuff Style	Canvas gauntlet
Length	420-440mm
Sizes	8/M & 10/XL
Packaging	6 pairs p/polybag 36 pairs/carton

EN388:2016 2X22C

EN407:2020 X2XXXX

CE

37-4523

Heavy weight cut level **D** aramid knit glove

CUT D

- EN388:2016+A1:2018 level D cut resistance
- Durable and long lasting
- EN407:2020 limited flame spread level 4
- EN407:2020 contact heat level 1 protection
- Reinforced thumb crotch for high action areas

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping

Gauge	7gg
Colour	Yellow
Cuff Style	Knit wrist
Length	230-260mm
Sizes	7/S - 11/2XL
Packaging	12 pairs/polybag 96 pairs/carton

EN388:2016 1X4XD

EN407:2020 41XXXX

CE

37-4528

X-Heavy cut level **D** aramid knit glove

CUT D

- EN388:2016+A1:2018 level D cut resistance
- Durable and long lasting
- EN407:2020 limited flame spread level 4
- EN407:2020 contact heat level 1 protection
- Reinforced thumb crotch for high action areas

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping

Gauge	7gg
Colour	Yellow
Cuff Style	Knit wrist
Length	220-250mm
Sizes	6/XS - 9/L
Packaging	12 pairs/polybag 72 pairs/carton

EN388:2016 1X4XD

EN407:2020 41XXXX

CE

37-5620

Medium weight cut level **B** aramid knit glove

CUT B

- EN388:2016+A1:2018 level B cut resistance
- Durable and long lasting
- EN407:2020 contact heat level 1 protection
- Reinforced thumb crotch for high action areas

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping

Gauge	7gg
Colour	Yellow
Cuff Style	Knit wrist
Length	240-250mm
Sizes	8/M - 9/L
Packaging	12 pairs/polybag 96 pairs/carton

EN388:2016 1X4XB

EN407:2020 41XXXX

CE

37-6620

CUT F

Heavy weight cut level **F** glove

- RhinoYarn® cut resistant technology
- EN388:2016+A1:2018 level F cut resistance
- EN407:2020 contact heat level 1
- Soft, comfortable seamless liner with good dexterity
- Reinforced thumb crotch for high action area

Applications / Industries

- Assembly
- Metal fabrication
- Glass industry
- Logistics

Gauge	7gg
Colour	Yellow/grey liner
Cuff Style	Knit wrist
Length	230-260mm
Sizes	7/S - 10/XL
Packaging	12 pairs/bound 96 pairs/bound

EN388:2016 2X4XF

EN407:2020 X1XXXX

CE

RHINOYARN

33-6631

Medium weight FR backed cut level **F** leather palm glove

CUT F

- RhinoYarn® cut resistant technology
- EN388:2016+A1:2018 level F cut resistance
- EN407:2020 contact heat level 1
- EN388: 2016 level 4 puncture resistance
- Leather palm provides oil resistance and good grip
- Flame resistant fabric provides protection to the back of the hand

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Oil & Gas
- Utilities

Gauge	13gg
Colour	Black fabric / Grey palm
Cuff Style	Knit wrist
Length	240-260mm
Sizes	8/M - 10/XL
Packaging	12 pairs/polybag 72 pairs/carton

EN388:2016 4X44F

EN407:2020 X1XXXX

CE

RHINOYARN

204

Medium weight FR backed cut level **F** leather palm glove

CUT F

- RhinoYarn® cut resistant technology
- EN388:2016+A1:2018 level F cut resistance
- EN407:2020 contact heat level 1
- EN388: 2016 level 3 puncture resistance
- Leather palm provides oil resistance and good grip
- Flame resistant fabric provides protection to the back of the hand

Applications / Industries

- Assembly
- Automotive industry
- Metal fabrication / stamping
- Oil & Gas
- Utilities

Gauge	7gg
Colour	Yellow fabric / Grey palm
Cuff Style	Knit wrist
Length	240-260mm
Sizes	8/M - 10/XL
Packaging	12 pairs/polybag 72 pairs/carton

EN388:2016 4X43F

EN407:2020 X1XXXX

CE

RHINOYARN

Arm and Body Protection

The new 90 series of sweatshirts is the culmination of Tilsatec's deep expertise in delivering high level, comfortable cut protection in an innovative new high performance fabric technology.

Designed to protect workers in industries such as glass manufacturing, metal fabrication, automotive manufacturing, and waste recycling or any other environment with high cut hazards.

90-5113

CE

Crew Neck Sweatshirt with Breathable Back

CUT **E**

- New fabric technology made from RhinoYarn®
- EN388:2016+A1:2018 level E cut resistance*
- Made with Tilsatec's innovative new fabric technology
- Cut and slash resistant, high abrasion resistance and puncture protection to EN388:2016+A1:2018
- Delivers body protection covering major arteries and key vulnerable areas
- Cool touch, lightweight fabric provides maximum user comfort
- Double stitched comfort cuff with built in thumb loop
- Underarm vents for enhanced breathability
- Breathable mesh back reduces perspiration keeping you cooler for longer
- Stretch fabric trim to neck and base sits comfortably against the skin

*EN388:2016+A1:2018 classification is based on testing the sleeve area only

Applications / Industries

- Glass industry
- Handling raw glass
- Cutting stations
- Automoxative industry
- Metal fabrication / stamping
- Waste Recycling

EN388:2016
3 X 4 4 E

MADE IN BRITAIN

Gauge	N/A
Colour	Grey fabric/Black trim
Cuff Style	Comfort cuff w/thumb slot
Length	See size chart
Sizes	S - 2XL
Packaging	Packed p/piece

Size	To fit chest	Length
S	86CM/34"	73CM
M	92CM/36"	74CM
L	102CM/40"	75CM
XL	112CM/44"	75CM
2XL	122CM/48"	76CM

RHINOYARN®

The advanced garment design is developed using the latest in cutting edge technology and manufacturing techniques.

Soft and lightweight, the fabric has a 'cool to the touch feel' and the inclusion of under arm vents ensures maximum wearer comfort.

90-5233

Turtleneck Sweatshirt (with full coverage)

CUT **E**

- New fabric technology made from RhinoYarn®
- EN388:2016+A1:2018 level E cut resistance*
- Made with Tilsatec's innovative new fabric technology
- Cut and slash resistant, high abrasion resistance and puncture protection to EN388:2016+A1:2018
- Delivers full body protection front and back covering major arteries and key vulnerable areas
- High turtleneck design provides added protection when handling larger panels
- Cool touch, lightweight fabric provides maximum user comfort
- Double stitched comfort cuff with built in thumb loop
- Underarm vents for enhanced breathability
- Soft inner fabric on neck for improved comfort

*EN388:2016+A1:2018 classification is based on testing the sleeve area only

Applications / Industries

- Glass industry
- Handling raw glass
- Cutting stations
- Automotive industry
- Metal fabrication / stamping
- Waste Recycling

Gauge	N/A
Colour	Grey fabric/Black trim
Cuff Style	Comfort cuff w/thumb slot
Length	See size chart
Sizes	S - 2XL
Packaging	Packed p/piece

Size	To fit chest	Length
S	86CM/34"	73CM
M	92CM/36"	74CM
L	102CM/40"	75CM
XL	112CM/44"	75CM
2XL	122CM/48"	76CM

EN388:2016
3X44E

MADE IN BRITAIN

RHINOYARN®

CE

81-4121-CK/CV

Medium weight cool touch cut level **D** sleeve with comfort cuff

CUT **D**

- RhinoYarn® cut resistant technology
- EN388:2016+A1:2018 level D cut resistance
- Comfortable thumb slot keeps sleeve in place without discomfort
- 81-4121/CK - elasticated top to keep sleeve up
- 81-4121/CV - hook and loop adjustable strap

Applications / Industries

- Automotive industry
- Aerospace
- Metal fabrication / stamping
- Manufacturing
- Glass industry

Gauge	13gg
Colour	Light Grey
Cuff Style	Comfort cuff with thumb slot
Length	21" / 53cm
Sizes	One size
Packaging	Packed p/piece 100 pieces p/carton

EN388:2016
3 X 4 X D

MADE IN BRITAIN

RHINOYARN

81-6121-CK/CV

Medium weight cool touch cut level **F** sleeve with comfort cuff

CUT **F**

- EN388: 2016+A1:2018 level F cut resistance
- RhinoYarn® cut resistant technology
- Comfortable thumb slot keeps sleeve in place without discomfort
- 81-6121/CK - elasticated top to keep sleeve up
- 81-6121/CV - hook and loop adjustable strap

Applications / Industries

- Automotive industry
- Aerospace
- Metal fabrication / stamping
- Manufacturing
- Glass industry

Gauge	13gg
Colour	Light Grey
Cuff Style	Comfort cuff with thumb slot
Length	21" / 53cm
Sizes	One size
Packaging	Packed p/piece 100 pieces p/carton

EN388:2016
3 X 4 X F

MADE IN BRITAIN

RHINOYARN

85-5221

21" flame retardant cut level F sleeve with thumb slot

CUT F

- EN388:2016+A1:2018 level F cut resistance
- EN407:2020 limited flame spread level 2
- EN407:2020 contact heat level 1
- Hook and loop top fastening strap for adjustable fit
- Thumb slot to keep sleeve in place
- Various finishes and fixings available on request

Applications / Industries

- Automotive industry
- Metal fabrication / stamping
- Manufacturing

Gauge	N/A
Colour	Green
Cuff Style	Knit wrist with thumb slot
Length	21"/53cm
Sizes	One size
Packaging	Packed per piece 100 pieces/carton

EN388:2016 1X4XF

EN407:2020 21XXXX

MADE IN BRITAIN

RHINOYARN

CE

84-3520

20" flame retardant cut level E sleeve with thumb slot

CUT E

- EN388:2016+A1:2018 level E cut resistance
- RhinoYarn® cut resistant technology
- Lightweight and loose fitting
- Inherently flame resistant
- EN407:2020 limited flame spread level 3
- Hook and loop top fastening strap for adjustable fit
- Thumb slot to keep sleeve in place

Applications / Industries

- Automotive industry
- Metal fabrication / stamping
- Manufacturing
- Aerospace

Gauge	N/A
Colour	Yellow
Cuff Style	Knit wrist with thumb slot
Length	20"/50cm
Sizes	One size
Packaging	Packed per piece 50 pieces/carton

EN388:2016 3X41E

EN407:2020 31XX2X

MADE IN BRITAIN

RHINOYARN

CE

84-3118-BE
84-3118-TE

18" aramid sleeve with thumb slot

CUT C

- EN388: 2016+A1:2018 level C cut resistance
- RhinoYarn® technology
- EN407:2020 contact heat level 1
- Tubular elasticated style with thumb slot to keep sleeve in place
- Available as style 84-3118BE with option of bar tack fingers

Applications / Industries

- Glass manufacturing
- Metal fabrication / stamping
- Automotive industry
- Manufacturing
- Aerospace

Gauge	N/A
Colour	Yellow
Cuff Style	Knit wrist with thumb slot
Length	18" / 45cm
Sizes	One size
Packaging	Packed per piece 100 pieces/carton

EN388:2016 — 1X32C

EN407:2020 — X1XXXX

CE

RHINOYARN

85-5110/14/18/21

10/14/18/21" cut level E tubular sleeve with thumb slot

CUT E

- EN388:2016+A1:2018 level E cut resistance
- EN407:2020 contact heat level 1
- Seamless knit with a smooth finish
- Tubular close fitting shape for maximum dexterity
- Thumb slot to keep sleeve in place
- Available in lengths of 10", 14".18" and 21"
- Elasticated top to prevent sleeve falling down

Applications / Industries

- Automotive industry
- Metal fabrication / stamping
- Manufacturing
- Glass industry
- Waste handling

Gauge	N/A
Colour	Green
Cuff Style	Knit wrist with thumb slot
Length	10"/25cm 14"/35cm 18"/45cm 21"/53cm
Sizes	One size
Packaging	Packed per piece 100 pieces/carton

EN388:2016 — 2X3XE

EN407:2020 — X1XXXX

CE

RHINOYARN

89-5606

8" cut level **F** wrist guard with adjustable straps

CUT F

- EN388:2016+A1:2018 level F cut resistance
- EN388: 2016 level 4 puncture resistance
- Protects the wrist and lower arm
- Adjustable sizing for accurate fit and wearer comfort
- Dark colour hides dirt
- Will not mark glass panels

Applications / Industries

- Assembly
- Automotive industry
- Glass manufacturing
- Metal fabrication / stamping
- Transportation
- White goods manufacturing

Gauge	N/A
Colour	Black with black straps
Cuff Style	N/A
Length	8"/20cm
Sizes	One size
Packaging	Packed per pair 25 pairs/carton

EN388:2016
2 X 4 4 F

CE

MADE IN BRITAIN

74-8111

Medium weight cut level **F** antimicrobial food safe sleeve

CUT F

- EN388:2016 level F (ANSI 105-2016 A8) cut resistance
- Inherent antimicrobial component safe for food handling
- Tested to EN ISO 15797 industrial wash test to withstand x50 washes at up to 85°C and drying up to 70°C with no effect on cut resistance
- Designed for use with the Tilsatec food safe glove range
- Thumb slot for a secure fit

Applications / Industries

- Meat carving and deboning
- Butchery
- Fish filleting and processing
- Suitable for beef, pork and poultry

Gauge	10gg
Colour	Blue
Cuff Style	Knit wrist
Length	20"/50cm
Sizes	One Size
Packaging	Packed per piece 100 pieces/carton

EN388:2016
4 X 4 X F

CE

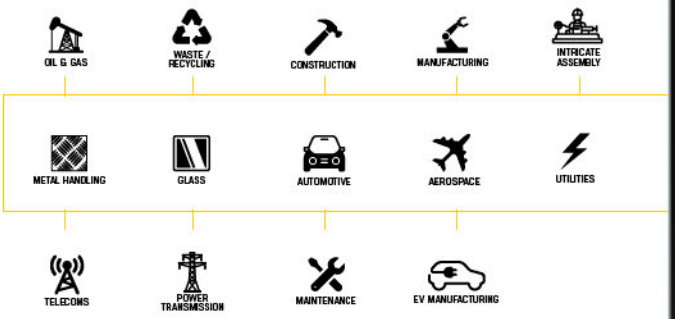
MADE IN BRITAIN

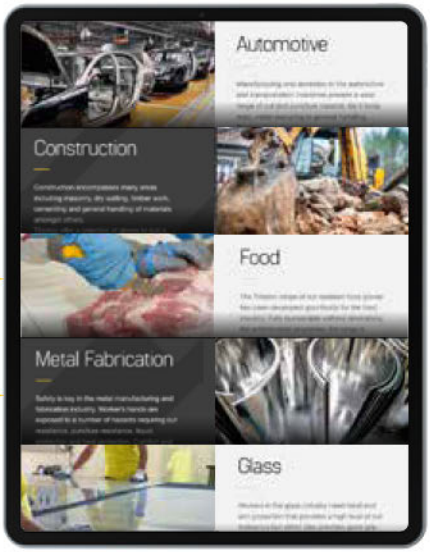
RHINOYARN

ONLINE RESOURCES

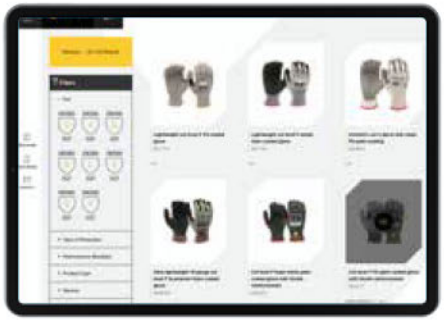
Visit our website **tilsatec.com** to search for your ideal hand, arm or body protection by **EN standard, product code, performance features** or **description.** Here you have access to a range of resources including product specification sheets, EU declarations of conformity, videos, infographics, blog articles and much more.

SEARCH BY INDUSTRIES

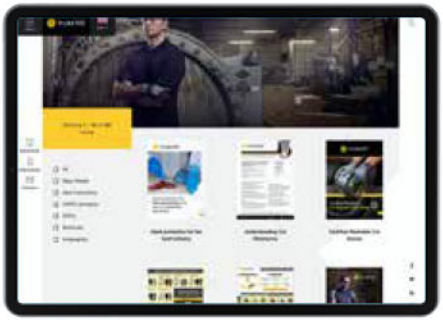




EN STANDARDS



RESOURCES

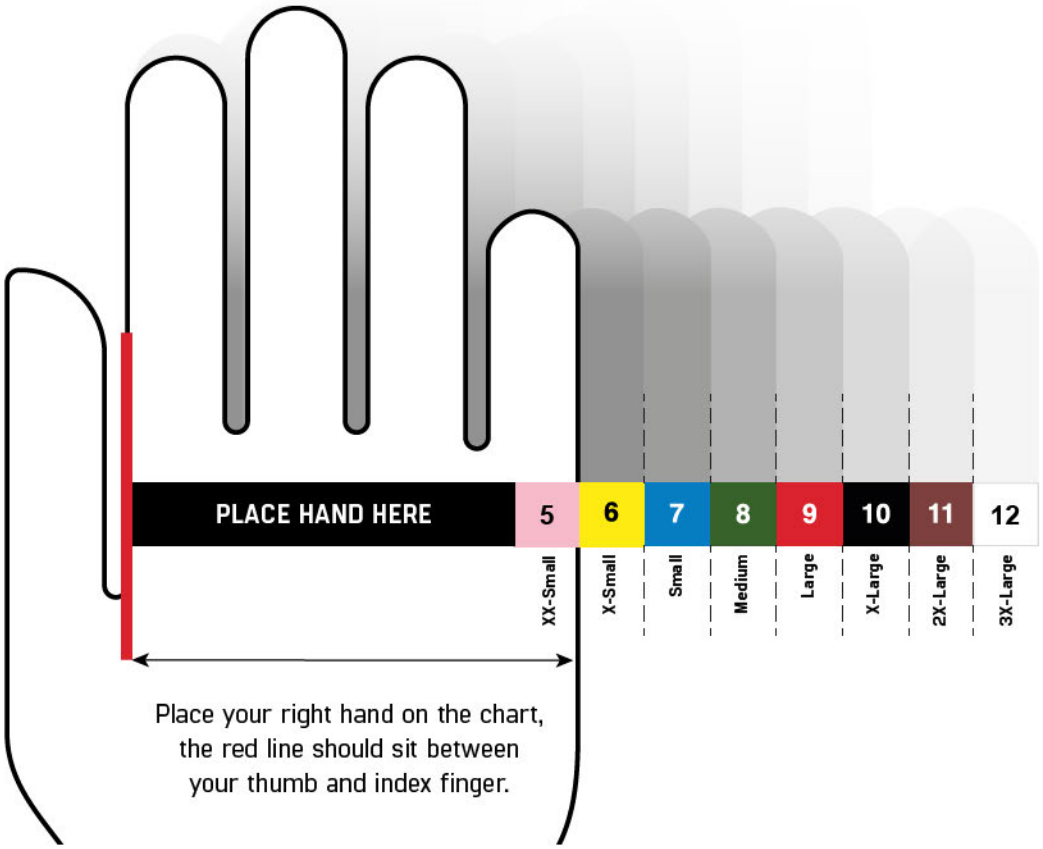


NOTES

NOTES

GLOVE SIZING CHART

Tilsatec gloves are available in a range of sizes. To ensure optimum fit and comfort, selecting the correct size glove is essential. Measure your hand against the chart below to see what size glove you need.



*Select sizes are not standard in all styles. Contact us to discuss your special sizing needs.

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