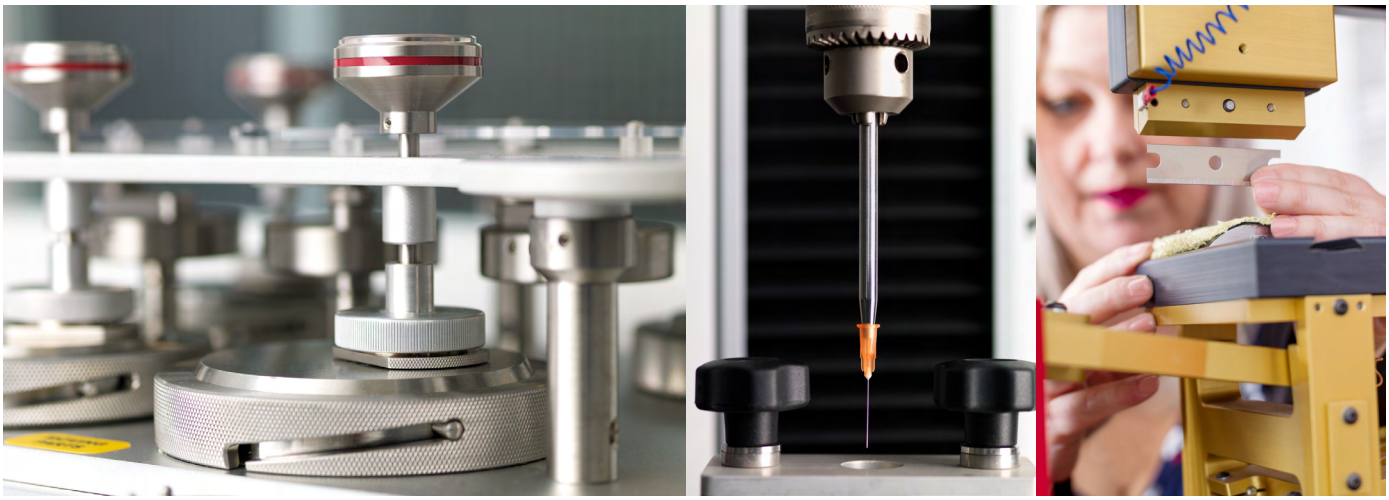
TILSATEC®

Mechanical Testing Laboratory



Our commitment to product performance and quality

As manufacturers of safety wear, we have a responsibility to ensure every product we make uses the highest quality materials, is tested rigorously and performs to the standards required. We understand our customers operate in some of the most hazardous working environments and need PPE they can feel safe and secure in using. Protective gloves are the last line of defence in keeping hands safe and we are committed to a continuous program of product development and innovation to evolve our products and ensure we deliver the best possible solution for you and your workforce. A key part of our program of product development is the introduction of Tilsatec's own in house testing laboratory. To explain more about the lab, we have put together this leaflet which we hope you will find helpful and informative, but you can find out more on our website: **tilsatec.com/ukas-testing-laboratory.**

We are also inviting customers to come and have a tour of the laboratory and recently expanded manufacturing facility.
If you are interested in arranging a site visit, please contact your Tilsatec representative or tel: 01924 375742.

ISO 9001 ISOQAR REGISTERED UKAS MANAGEMENT SYSTEMS 0026
Certificate Number 14054

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 cutomer focus, the motivation and impliation of top management, the process approach and continual improvement. This demonstrates the existence of an effective quality management system that satifies the rigours of an independant, external audit.

BSiF BRITISH SAFETY INDUSTRY FEDERATION Member

The **British Safety Industry Federation (BSIF)** is the lead association for the Personal Protective Equipment (PPE) Directive and is recognised as a Competent Authority by the Health & Safety Executive (HSE). The BSIF has active links with many government departments and over 130 representative Trade Bodies.
The BSIF is firmly established as the major independent voice of the British safety industry, helping to both influence legislation and provide industry in general with a source of authoritative information on a range of workplace safety issues, while representing the needs of its members.

BSiF Registered Safety Supplier www.bsif.co.uk/rsss

Tilsatec are members of the BSIF and also a **Registered Safety Supplier**. The purpose of this scheme is to provide a signposting service for employers to help them purchase 'safe' products and eliminate counterfeit, unsafe and illegal safety products from the market.
So when you buy PPE from Tilsatec you can be assured it is compliant and approved to industry legislation and regulation. Find out more about BSIF and what they do: **www.bsif.co.uk**.

Assurance. Reliability. Accuracy. Consistency.

Independant Accreditation

UKAS TESTING

10386

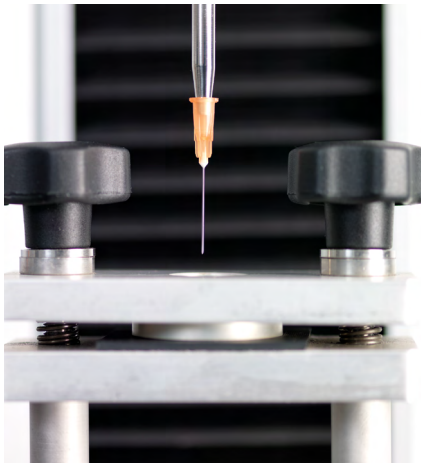
Tilsatec's laboratory is independently accredited by UKAS. The United Kingdom Accreditation Service (UKAS) is the sole accreditation body recognized by Government to assess, against internationally recognized standards, organisations that provide testing services. Laboratory accreditation uses the standard ISO 17025 to assess a laboratory's ability to produce precise, accurate tests and data including:

- Technical competence of staff
- Validity and appropriateness of test methods
- Suitability and maintenance of test equipment
- Testing Environment
- Sampling, handling and transportation of test items
- Quality assurance of test data

For a list of accredited testing carried out by the lab click here

Laboratory Expertise

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



These are the values which we strive to provide to customers in our products, people, manufacturing and 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.
The Tilsatec laboratory participates in global proficiency testing along with third party accredited laboratories to confirm that the results achieved are of the highest quality and standards.

Technical support and product guidance

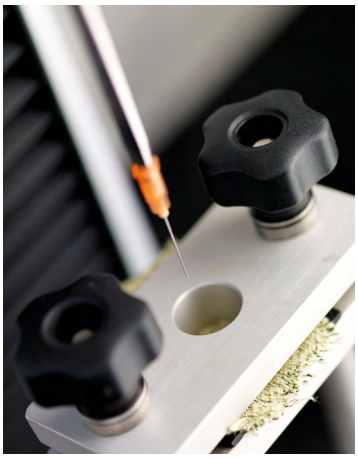
Alongside our experienced sales representatives, the technical team can provide additional advice and support on the suitability of a product and make recommendations on factors such as cut resistance, grip performance, abrasion, liquid repellency, thermal properties and breathability.
Where a customer 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.

Testing we currently perform

The laboratory is currently able to perform mechanical testing to EN388:2016, ANSI/ISEA 105-16, EN420: 2003 + A1: 2009 and more.

EN388: 2016 Blade Cut Resistance

- Tilsatec is one of only a small number of testing laboratories in the UK to use a TDM-100 machine to conduct cut resistance testing to EN ISO 13997:2009.
- International testing can be performed to the ANSI/ISEA:105-16 standard according to the test method ASTM F2992-15.
- The TDM-100 has been designed to allow laboratories to test in excess of 100 Newtons of force. This is necessary for the achievement of greater accuracy in results when testing highly cut resistant materials.
- The ISO 13997:1999 test method uses a straight edge blade drawn across the sample in one direction. 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.



ASTM F2878-10 Hypodermic Needle Puncture Testing

- Ability to test high performance hypodermic needle puncture resistant materials using calibrated 25, 23 or 21g needles.
- 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 mean is determined to give an accurate force required to puncture the material.

EN388:2016 Puncture Resistance

- A larger 4mm probe with rounded stylus is pressed at force 50mm into the material at a speed of 100mm/min. The test is carried out on 4 specimens where the highest value of force is recorded. The final result is the lowest obtained value and determines the puncture score that is given between levels 1-4.

EN388:2016 Tear Resistance

- Four samples are tested for tearing force using a tensometer. Two rectangular specimens with a 50mm slit in the longitudinal direction are taken across the palm of 2 separate gloves, and two specimens are taken along the length of 2 separate gloves. The highest tearing force for each specimen is recorded and a classification level of 1-4 is determined by taking the lowest of the four results achieved.

EN388:2016 Abrasion Resistance Testing

- The Martindale Abrasion Tester is the Internationally accepted equipment for testing abrasion and wearing of fabrics.
- The M235 used in the Tilsatec laboratory is the very latest model ensuring accurate readings that provide consistent results.
- EN388:2016 Resistance to Abrasion is performed by rubbing circular glove specimens against the specified grit paper under a force of 9 kilopascals in a lissajous pattern.
- Abrasion is determined by observation of the specimen after a number of rubs defined by the performance level. Failure is observed once complete breakthrough of the sample is reached.
- High performance materials can be tested to in excess of 8000 cycles until degradation of the sample is visible.

Product Analysis, Evaluation and Compliance

- General requirements for EN420 are all analysed these include sizing, dexterity and pH testing.
- In-house development of innovative test methods to closer replicate real working conditions and hazards.
- An indicative contact heat test has been developed to determine additional thermal properties of materials that are not included within the current standard test methods.
- Friction testing to analyse the gripping properties of different materials in a number of conditions.

RHINO YARN™

Whenever you see the Rhino Yarn mark it means a product has been made using our own yarn technology. With this comes the assurance of full quality control, processing traceability and mechanical performance efficiencies built in at every level.

Rhino Yarn technology is an engineered yarn process which combines various technical fibres and materials. Such materials can be used on their own, but when blended together to create a composite yarn, can achieve significantly higher levels of cut protection without compromising comfort or dexterity. Each component is carefully selected to engineer a product which delivers the desired mechanical performance in the most efficient and value driven structure possible.

Manufactured on site by a dedicated team of yarn technologists, Tilsatec are able to design bespoke solutions to meet customers' exacting needs in a wide range of industries.

Backed up by 135 years of experience in yarn and textile manufacturing, an extensive R&D facility and now investment in a comprehensive glove testing laboratory, customers can be confident and assured in the provenance of the PPE they are using.

Fabrics and textiles for arm and body protection

In constructing and designing protective equipment for the arm, wrist, torso and body it is often appropriate to incorporate the use of technical fabrics which can be cut and sewn into wearable garments. Protective fabrics can provide high levels of cut, puncture, heat and needlestick resistance whilst being flexible and light. Often launderable as well, they can be a cost effective and efficient way of getting the protection coverage required without reducing mobility.

All fabrics used in Tilsatec products are designed and manufactured in the UK and subjected to the same comprehensive level of testing and compliance measures to ensure they meet the same high quality build and performance standards as our hand protection range.

In safe hands

The new laboratory is being headed up by our Technical Manager, Maria Kramer who is vastly experienced in mechanical testing of gloves.

Maria Kramer,
Technical Manager

Maria is an experienced Technical Manager having previously managed full mechanical and chemical testing facilities and successfully maintained UKAS accreditation.
With exceptional knowledge of testing for the glove industry to BS EN388, BS EN420 and other standards, Maria is developing unique test methods which go beyond the EN standards to gain greater insights and performance
indicators. She is also responsible for overseeing product certification and compliance including due diligence testing, quality control and
auditing.
As a member of the BSIF Protective Glove and Clothing Product Group, Maria is able to play a part in shaping and influencing industry changes and progression, helping to improve standards in PPE.

TILSATEC LIMITED
Flanshaw Lane, Wakefield
West Yorkshire, WF2 9ND
England

Tel: +44 1924 375742
Email: info@tilsatec.com
www.tilsatec.com