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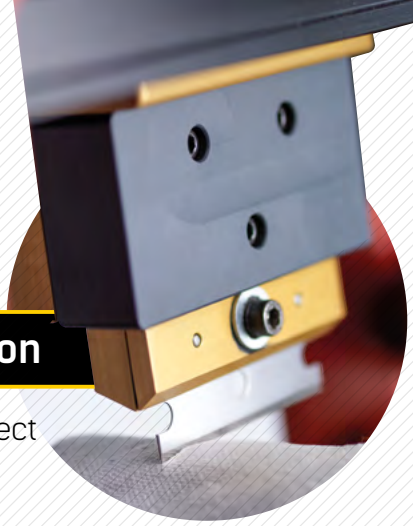


Understanding Cut Resistance for Hand Protection

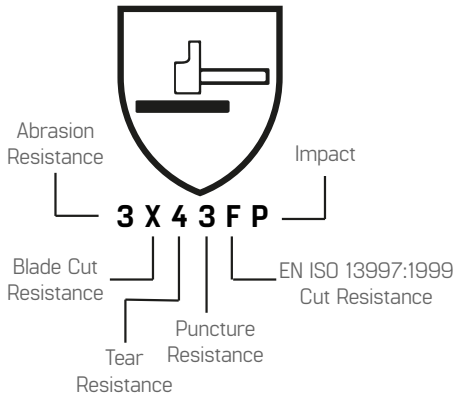
Navigate the **performance standards**, learn how to read them and select the appropriate level of mechanical **protection for your workforce**

In 2016 significant updates were made to the EN388 standard for mechanical protection to provide a more accurate and reliable assignment of cut levels for hand protection. The standard now looks like this:

The new EN 388 shield pictogram can report up to 6 separate mechanical performance measures

- These ratings can include two scores for cut performance: the original Blade Cut test score and the new EN ISO Cut Resistance score
- Where gloves have not been tested with the Blade Cut test method or where this test is not applicable the letter X can be used instead of a rating

EN388:2016+A1: 2018



EN388: 2016+A1:2018 - Mechanical Protection

Abrasion Resistance (level 1-4)

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.

Coupe Blade Cut Test (level 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.

Tear Resistance (level 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.

Puncture Resistance (level 1-4)

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.

Impact Protection (PASS OR FAIL)

Test is conducted by dropping a weight of 2.5kg at a height of 20cm at a force of 20kN.
The EN388 test is given a simple Pass (P) or Fail (F) rating.
The marking for this test is displayed in the 6th position under the EN 388 pictogram.
A pass = the transmitted mean force is calculated from the 4 tested gloves. This needs to be less than or equal to 7 kN with no single results greater than 9 kN or put simpler 65% absorption of the 20KJ force.

For businesses who want expertise they can rely on to keep their people safe, Tilsatec offer high performance hand and arm protection. 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.

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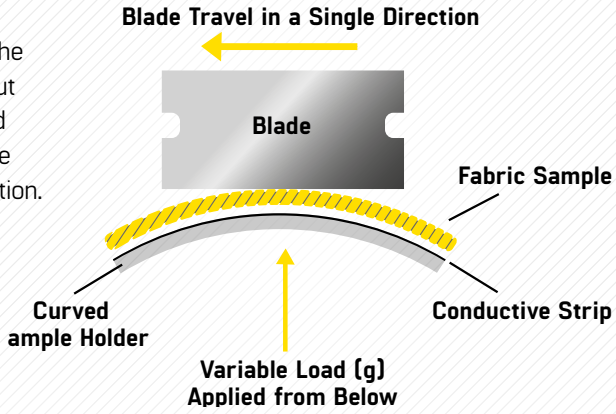
EN ISO 13997 Cut Resistance (level A-F)

The EN ISO 13997 cut resistance method is one of the recent additions to the EN 388:2016 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.



Level of protection (TDM ISO 13997)	A	B	C	D	E	F
Force in newtons	>2	>5	>10	>15	>22	>30

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

GLOVE MARKINGS

It is important to familiarise yourself with how product information, relevant standards and product codes are typically laid out. Some information may be marked on the back of the hand as 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.

OLD GLOVE MARKINGS

NEW GLOVE MARKINGS

*See inside label for complete EN performance and wash guidance.

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