



UPDATED EN 388 STANDARD

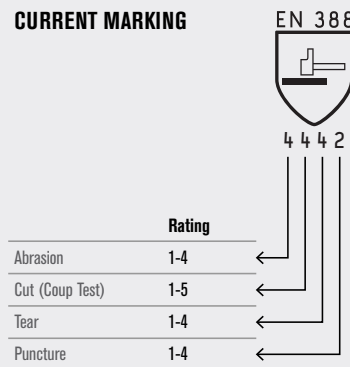
FOR PROTECTIVE GLOVES AGAINST MECHANICAL RISKS (2016 EDITION)

The European Standard for [Protective Gloves](#), EN 388, was updated on November 4, 2016 and is now in the process of being ratified by each member country. Glove manufacturers selling in Europe have two years to comply with the new EN 388 2016 standard. Regardless of this allotted adjustment period, many leading manufacturers will immediately start using revised EN 388 markings on gloves.

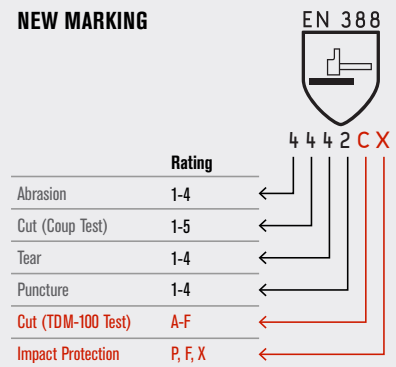
EN 388 2016 Standard

Currently, on many cut resistant gloves sold in North America, you will find the EN 388 marking. The EN 388, similar to ANSI/ISEA 105, is the European standard used to evaluate mechanical risks for hand protection. Gloves with a EN 388 rating are third party tested, and rated for abrasion, cut, tear, and puncture resistance. Cut resistance is rated 1-5, while all other physical performance factors are rated 1-4. Up until now, the EN 388 standard used only the "Coup Test" to test for cut resistance. The new EN 388 2016 standard uses both the "Coup Test" and the "TDM-100 Test" to measure cut resistance for a more accurate score. Also included in the updated standard is a new Impact Protection test.

CURRENT MARKING



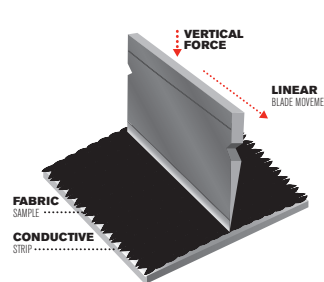
NEW MARKING



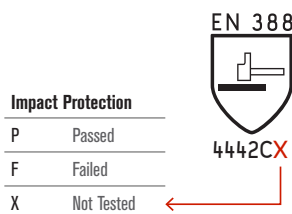
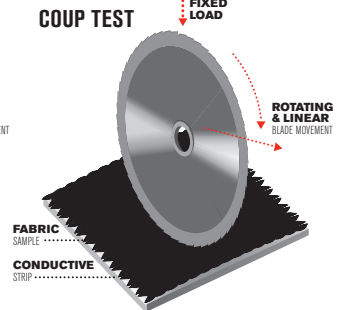
Two Testing Methods for Cut Protection

As discussed above, the most significant change to the EN 388 2016 standard is the formal inclusion of the ISO 13997 cut test method. ISO 13997, also known as the "TDM-100 Test", is similar to the ASTM F2992-15 test method used in the ANSI 105 standard. Both standards will now make use of the TDM machine with the sliding blade and weights. After many years with differing testing methods it was found that the blade used in the "Coup Test" would dull quickly when testing yarns with high levels of glass and steel fibers. This resulted in unreliable cut scores, so the need for including the "TDM-100 Test" to the new EN 388 2016 standard was strongly supported.

TDM-100 TEST

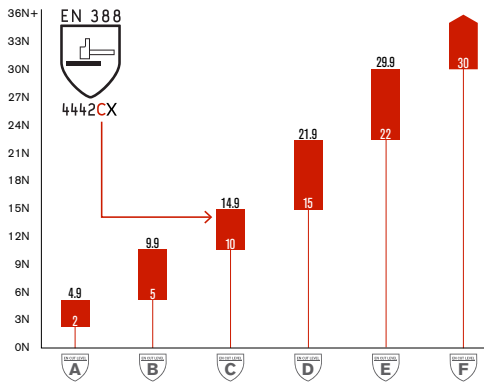


COUP TEST



New Impact Protection Test

The updated EN 388 2016 standard will also include an impact protection test. This test is intended for gloves designed for protection against impact. Gloves that do not offer impact protection will not be subjected to this test. For that reason, there are three potential ratings that will be given, based on this test.



| EN 388 RATING | RANGE (NEWTONS) | CONVERTED RANGE (GRAMS) | ANSI/ISEA 105 LEVEL | RANGE (GRAMS) |
|---------------|-----------------|-------------------------|---------------------|---------------|
| A | 2 - 4.9 | 204 - 508 | A1 | 200 - 499 |
| B | 5 - 9.9 | 509 - 1,019 | A2 | 500 - 999 |
| C | 10 - 14.9 | 1,020 - 1,529 | A3 | 1,000 - 1,499 |
| D | 15 - 21.9 | 1,530 - 2,242 | A4 | 1,500 - 2,199 |
| E | 22 - 29.9 | 2,243 - 3,058 | A5 | 2,200 - 2,999 |
| F | 30+ | 3,059+ | A6 | 3,000 - 3,999 |
| --- | --- | --- | A7 | 4,000 - 4,999 |
| --- | --- | --- | A8 | 5,000 - 5,999 |
| --- | --- | --- | A9 | 6,000+ |

Understanding the ISO 13997 Test Method (TDM-100 Test)

To differentiate between the two cut scores that will be generated under the new EN 388 2016 standard, the cut score achieved using the ISO 13997 test method will have a letter added to the end of the first four digits. The letter assigned will depend on the result of the test, which will be given in Newtons. The table to the left outlines the new alpha scale used to calculate the results from the ISO 13997 test method.

Newton to Gram Conversion

PIP has been testing all of its cut resistant gloves with the TDM-100 machine since 2005, which is (and has been) compliant with the new test method, enabling us to easily convert to the new the EN 388 2016 standard. The table to the left illustrates how the new EN 388 2016 standard is now in-line with the ANSI/ISEA 105 standard for cut resistance when converting Newtons to grams.

What Changes Can We Expect?

All PIP products with the EN 388 shield printed on them will be updated as the new norm becomes ratified by each country and new production orders are placed. We anticipate this will happen by late 2017. The new shield will be easy to identify as it will carry a 6-digit score rather than a 4-digit one.



How will the glove markings change?

PIP will show all the scores, but some manufacturers may skip the "Coup Test," if they know the material will dull the circular blade after a certain number of cycles, choosing only to show the ISO 13997 ("TDM-100 Test") score. Depending on the products, this process could take several months before these changes are seen in the field. For that reason, it's important to always refer to the manufacturer spec sheets for the latest information.

Can gloves that comply with the old EN 388 standard continue to be sold?

Yes, compliance is not mandatory for North America so it is possible that some manufacturers may choose not to change. PIP is a global company and we test all of our gloves that are available globally to all new standards.





GLOVE SIZING CHART

Place your hand
over the graphic to
estimate your size.

- Print the image at 100%.
- Do not scale.
- Do not select "Fit to page"
- Estimate size to the closest fit
- Hand proportions may vary



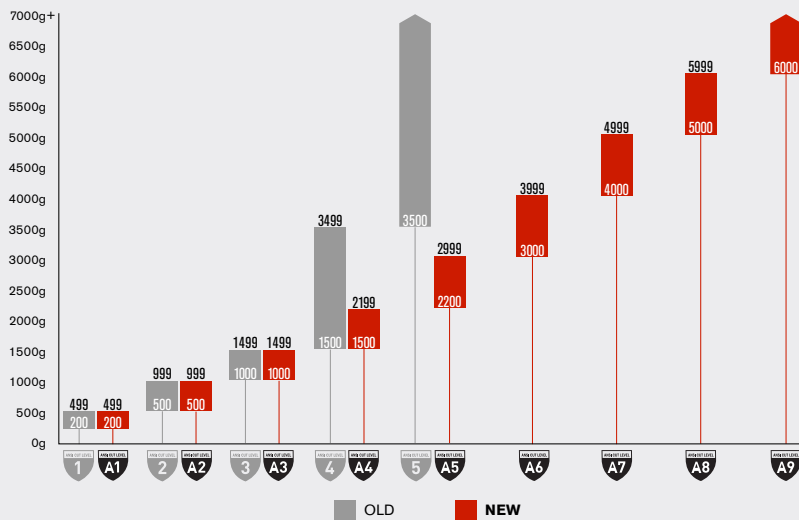


UPDATED ANSI STANDARD

FOR CUT RESISTANCE - ANSI/ISEA 105 (2016 EDITION)

The American National Standards Institute (ANSI) has released a new edition of the ANSI/ISEA 105 standard (2016 ed.). The changes include **new classification levels**, which includes a new scale to determine cut score (commonly referred to as the ANSI cut score), and a **revised method for testing gloves to the standard**.

New Scale to Determine Cut Scores



The new ANSI standard now features nine cut levels significantly reducing the gaps between each level and better defining protection levels for the cut resistant gloves and sleeves with the highest gram scores.

The graph shows the differences between the old scale and the new scale. New ANSI cut scores will feature an "A" in front of the score.



Old PIP Shield



New PIP Shield

New Testing Standard

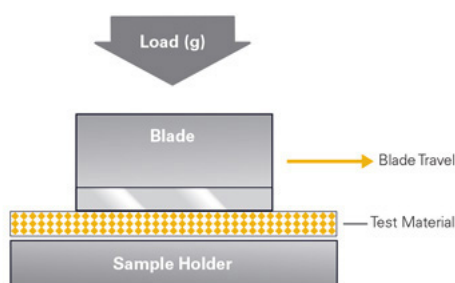
The new edition of the ANSI/ISEA 105 Standard (2016 ed.) also outlines a new test method for determining the new cut scores. The new ASTM F2992-15 test method allows for only one type of machine to be used, the TDM-100. Under the previous ANSI standard, the old test method ASTM F1790-05, the testing could be performed on either the TDM-100 machine or the CPPT machine. By ensuring **uniform testing with one machine**, it is easier to compare gram scores for a given material.



TDM-100 MACHINE



CPPT MACHINE



Understanding ASTM F2992-15 Test Methods

The sample is cut by a straight-edge blade, under load, that moves along a straight path. The sample is cut five times each at three different loads with a new blade for each cut and the data is used to determine the required load to cut through the sample at a specified reference distance. This is referred to as the cutting force, which is then equated to a cut level.

What Changes Can We Expect?

For all PIP products with cut scores printed on them, we will have a rolling change with new production orders, replacing the old ANSI cut score with the new ANSI cut score. The new ANSI cut score is easy to identify as it now includes the letter "A" in front of the score.

Depending on the products, this process could take several months before these changes are seen in the field. For that reason, it's important to refer to the manufacturer spec sheets in order to obtain this information.

Because all PIP cut resistant gloves and sleeves have been tested using the TDM-100 machine, which is compliant with the new test method, by March 1st, we will have all of our spec sheets and our website updated to reflect the new ANSI cut score. To help with the transition, we will also be displaying the old ANSI cut score on both our website and the spec sheets simultaneously.



Since 2005, PIP has been testing all of our cut resistant gloves and sleeves with the TDM-100 machine. As such, the gram score for our gloves comply with the new ANSI standard and will be applied accordingly under the new scale.

Can gloves and sleeves that comply with the old ANSI/ISEA 105 standard continue to be sold?

Although the use of the ANSI/ISEA selection criteria is not mandatory, most safety managers strive to provide the latest and most up to date products for protection for their employees. Manufacturers are expected to begin the process of transitioning from ANSI/ISEA 105-11 standard to the revised ANSI/ISEA 105-16 standard that was adopted in February 2016. The new cut test method in the ANSI/ISEA 105-16 is ASTM F2992. Because of long lead times and inventory in the pipeline, it is highly likely that there will be a mix of identifications of cut resistance in the marketplace for the next little while. It is, however, important to reiterate to your customers that all current PIP gloves have been tested using the TDM-100 machine, as described in the new ASTM F2992 test method, for the last 10 years. Our Spec Sheets and literature are being converted to reflect the new ASTM F2992 cut score scale as we speak.

