# UPDATED EN 388 STANDARD

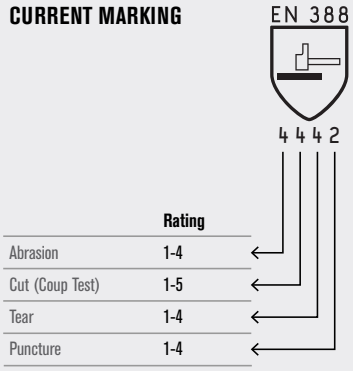
FOR PROTECTIVE GLOVES AGAINST MECHANICAL RISKS (2016 EDITION)

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.

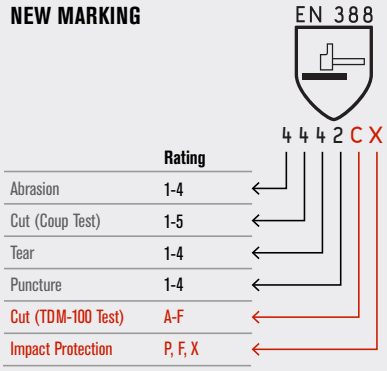
## EN 388 2016 Standard

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**

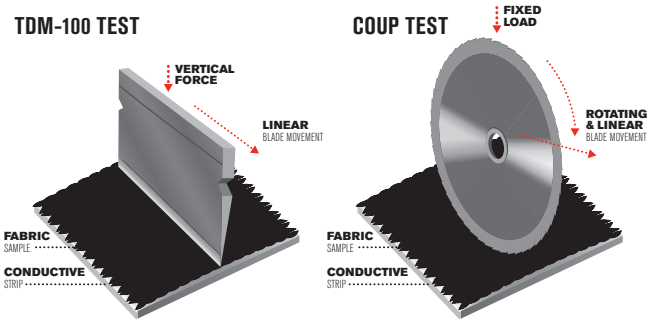


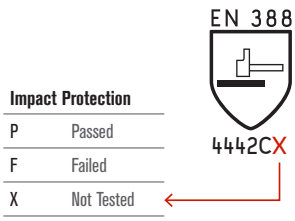

**NEW MARKING**




## Two Testing Methods for Cut Protection

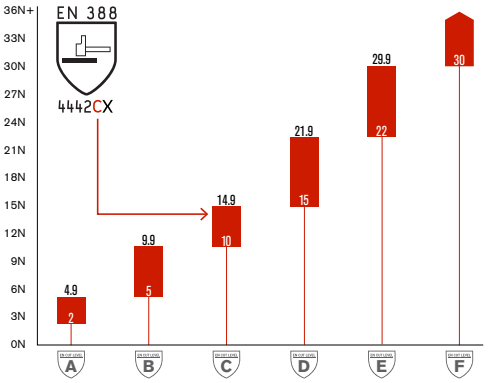
As discussed above, the most significant change to the EN 388 2016 standard is the formal inclusion of the ISO 13997 cut test method. ISO 13997, also known as the "TDM-100 Test", is similar to the ASTM F2992-15 test method used in the ANSI 105 standard. Both standards will now make use of the TDM machine 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.




## 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.




# 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.

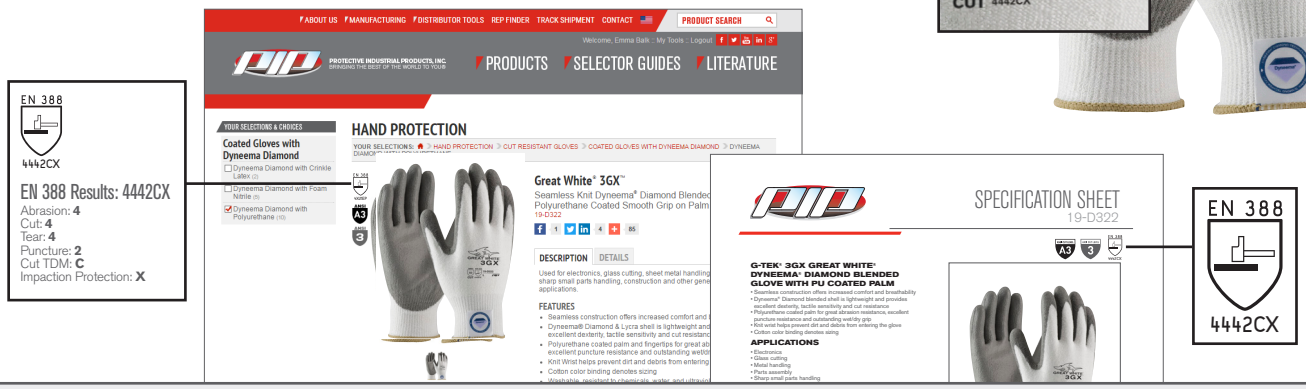
| EN 388 RATING | RANGE (NEWTONS) | CONVERTED RANGE (GRAMS) | ANSI/ISEA 105 LEVEL | RANGE (GRAMS) |
|---|---|---|---|---|
| A | 2 - 4.9 | 204 - 508 | A1 | 200 - 499 |
| B | 5 - 9.9 | 509 - 1,019 | A2 | 500 - 999 |
| C | 10 - 14.9 | 1,020 - 1,529 | A3 | 1,000 - 1,499 |
| D | 15 - 21.9 | 1,530 - 2,242 | 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+ |

## 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.

**More questions?** Please contact your PIP representative, or call (800)262-5755.

**PROTECTIVE INDUSTRIAL PRODUCTS, INC.** | BRINGING THE BEST OF THE WORLD TO YOU®
968 Albany Shaker Road | Latham, NY 12110 | 800-262-5755 | sales@pipusa.com | www.pipusa.com

All infographics and icons © 2016 Protective Industrial Products, Inc. All rights reserved.