

Protective glove standards change. The legendary protection of Kevlar® continues.

The revised EN 388 standard* has improved transparency around cut performance so you can make a more informed decision about the right glove for your application.

EN 388, the European standard for protective gloves, is recognized globally. The most significant change is the formal inclusion of the ISO 13997 cut test method, with the intent in the future to replace the Coupe test.

ISO 13997 provides more consistent, more accurate results

ISO 13997, also known as the TDM test method, is designed to better simulate real-world situations such as an accidental cut or slash. Until this revision, EN 388 only required use of the Coupe test to assess the cut resistance on all protective glove materials.

Although the Coupe test has been maintained, the issues of dulling have been reduced: (1) greater calibration specification; (2) maximum number of cycles without a cut. If dulling occurs, it is a requirement to test the material using ISO 13997. Otherwise, both methods are deemed equivalent; the intent with the revision was to remove the Coupe test in a future revision.

Under the revised standard, cut performance results using the TDM test method will report the levels with letters A through F to avoid confusion with Coupe test method levels 1 through 5. It is important to note that there is no correlation between the Coupe test method and the TDM test method.

Other changes include a new impact protection threshold and a change to the abrasion test.

What this means for you

Glove performance has improved significantly in recent years as new yarns and new technologies have been developed. As a result, there are more high-cut-protection gloves to choose from than ever before. The revised EN 388 standard will help you choose the right protection with greater precision and accuracy than before. The chart shown here provides a comparison of the old and new pictograms, with details about the new levels A through F.

EN 388:2003



| Old standard | Example | 2 | 5 | 4 | X |
|-------------------|------------|---|---|---|---|
| Abrasion (cycles) | Level 2 | ← | ← | ← | ← |
| Cut (Coupe test) | Level 5 | ← | ← | ← | ← |
| Tear (N) | Level 4 | ← | ← | ← | ← |
| Puncture (N) | Not tested | ← | ← | ← | ← |

EN 388:2016



| New standard | Example | 2 | X | 4 | X | E | P |
|-------------------|-----------------------|---|---|---|---|---|---|
| Abrasion (cycles) | Level 2 | ← | ← | ← | ← | ← | ← |
| Cut (Coupe test) | Not tested or dulling | ← | ← | ← | ← | ← | ← |
| Tear (N) | Level 4 | ← | ← | ← | ← | ← | ← |
| Puncture (N) | Not tested | ← | ← | ← | ← | ← | ← |
| Cut (ISO 13397) | Level E | ← | ← | ← | ← | ← | ← |
| Impact protection | Achieved | ← | ← | ← | ← | ← | ← |

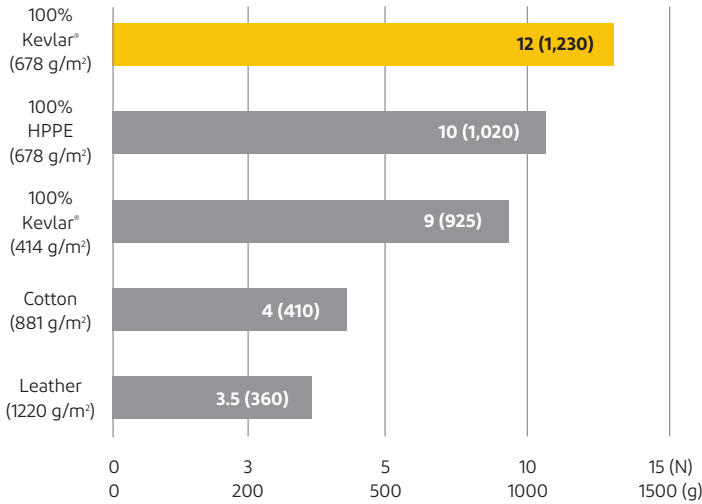
| | Level A | Level B | Level C | Level D | Level E | Level F |
|------------------------|---------|---------|---------|---------|---------|---------|
| TDM cut resistance (N) | 2 | 5 | 10 | 15 | 22 | 30 |

Portfolio of proven solutions

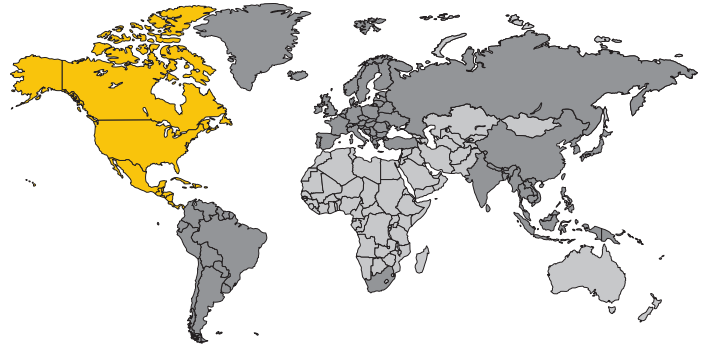
DuPont™ Kevlar® patented technology makes the lightest-weight, highest-performing gloves possible. And our new Kevlar® engineered yarns provide greater levels of cut, heat and durability protection than ever before.

Cut resistance of typical gloves using TDM

Kevlar® fiber has the highest cut resistance (ISO 13397 provides results in Newtons, while ASTM F2992 in grams).



Global recognition of cut standards



ANSI/ISEA 105 EN 388 No standard

Note: Outside Europe, some countries still use the old EN 388.

Rest of the world

Although EN 388 is a European standard, it is recognized and accepted in countries far beyond—from Latin America to Asia—and even in countries without standards for gloves. The United States has a standard called ANSI/ISEA 105 that is based on similar requirements to EN 388. ANSI/ISEA 105 uses the same TDM test method as EN 388 and has similar cut levels, plus a number of higher levels.

Global standards comparison

| Previous: ISEA 105-2011 | | New: ANSI/ISEA-2016 | | Europe: EN 388:2016 | |
|-------------------------|--------|---------------------|--------|---------------------|------------|
| ASTM F1790-2014 (CPPT)* | | ASTM F2992-15 (TDM) | | ISO 13997 (TDM) | |
| CPPT or TDM | | TDM only | | | |
| Level | Grams | Level | Grams | Level | Newtonson† |
| 1 | ≥ 200 | A1 | ≥ 200 | A | 2 |
| 2 | ≥ 500 | A2 | ≥ 500 | B | 5 |
| 3 | ≥ 1000 | A3 | ≥ 1000 | C | 10 |
| 4 | ≥ 1500 | A4 | ≥ 1500 | D | 15 |
| | | A5 | ≥ 2200 | E | 22 |
| | | A6 | ≥ 3000 | F | 30 |
| 5 | ≥ 3500 | A7 | ≥ 4000 | | |
| | | A8 | ≥ 5000 | | |
| | | A9 | ≥ 6000 | | |

† 1 Newton is equal to 102 grams of force. This means the new ANSI cut level in North America will correlate to the EN 388 cut level in Canada and Europe.

Genuine Kevlar® for legendary protection

To learn more about EN 388, as well as recent ANSI standard changes, go to kevlar.com.



kevlar.com

*EN 388:2016+A1:2018 is equivalent to ISO 23388:2018.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, ™ or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2019 DuPont. K-29359 (08/19)