

# **TDM-100**

## **TOMODYNAMOMETER**



**The TDM-100 is not only compliant with EN and ANSI requirements.  
This is THE REFERENCE MACHINE**



**105-2016**  
STANDARD

**ASTM F2992-15** – Standard Test Method for Measuring Cut Resistance

**EN 388**  
2016 STANDARD

**ISO/CD 13997** - Determination of resistance to cutting by sharp objects

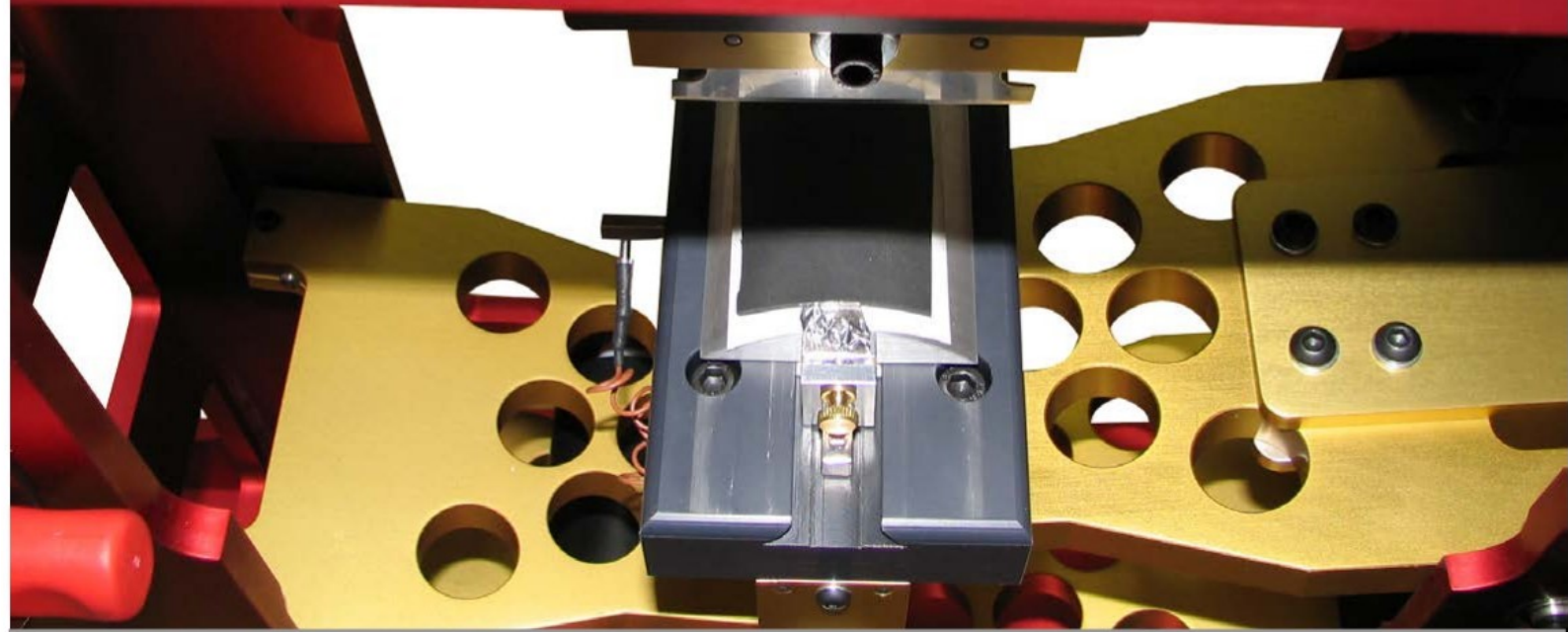
Because measuring results have been found to be more consistent than others, the TDM-100 is the original machine recommended for EN 388 & ANSI/ISEA testing for the cut resistance of safety protection material.



# **“THE TDM TEST”**

**When a machine gives its name to a test**

# **TDM-100**



**LINEAR CUTTING MOVEMENT  
DOUBLE PARALLEL LINKAGE MECHANISM  
STANDARDIZED BLADE**

**MOST CONSISTENT RESULTS  
HIGHER ACCURACY**

Since 1995, the TDM-100 which is made by RGI Industrial Products is the most recommended machine to use when required to achieve cut resistance testing. The machine has originally been designed by IRSST to be used with a wide range of cut resistant materials such as Kevlar, Zylon, Spectra, or any similar material. Results obtained are not affected by the sample thickness because of a constant perpendicular for throughout movement applied on the specimen to cut.

The RGI TDM-100 as always proven to be the most reliable linear cut measuring instrument and the reason for this unrivalled quality and accuracy is easy to understand. It is because since about 25 years we constantly improved the manufacturing process of a simple parallel linkage mechanism inspired by James Watt in year 1784. Since 25 years we concentrated our effort to improve the manufacturing accuracy of the same mechanism having in mind the highest quality instead of the lowest cost.

*The result of this continuous improvement is that some have tried to copy it !  
Some other have tried to modify it for selling at a lower cost !*

**NONE OF THEM HAS REACHED THE SAME LEVEL OF QUALITY AND REPEATABILITY**



# How to measure the cut resistance using the TDM-100



- Install samples on the mandrel using double face tape & conductive strip
- Load sample holder onto the TDM-100.
- Load a straight blade on to the machine.
- Added weight on the plate to create a known cutting force
- Move the blade across the fabric to measure the cuts length
- Replaced the blade with a new one to ensure accuracy of each test
- The same way sample will be cut five times with three different loads
- For each test, the cut through distance is recorded
- Load recorded value in a calculator to qualify the resistance to cut level

When it comes the time to produce cut-resistant protection material, the first choice you need to make is which standard you'll want to comply. The decision will come down to the geographical location of your customer. For North America, ANSI/ISEA 105 is the reference, whereas in Europe and parts of Asia, EN 388 is the preferred test standard. If you want to test your material according to both standard, it is important to choose the correct test apparatus. ONLY TDM-100 made by RGI Industrial Products is actually considered by both standard.

The new **EN 388 2016** standard is now aligned with its American counterpart, which is the standard **ANSI/ISEA 105** standard for cut resistance after having converted Newtons to Grams. The next table shows Newton to gram scoring according to both standards.

| ANSI |  | EN 388 |  | EN 388 RATING | RANGE (Newtons) | COVERED RANGE (Grams) | ANSI/ISEA 105 LEVEL | RANGE (Grams) |
|------|--|--------|--|---------------|-----------------|-----------------------|---------------------|---------------|
|      |  |        |  |               | 2 - 4.9         | 204 - 508             |                     | 200 - 499     |
|      |  |        |  |               | 5 - 9.9         | 509 - 1019            |                     | 500 - 999     |
|      |  |        |  |               | 10 - 14.9       | 1020 - 1529           |                     | 1000 - 1499   |
|      |  |        |  |               | 15 - 21.9       | 1530 - 2242           |                     | 1500 - 2199   |
|      |  |        |  |               | 22 - 29.9       | 2243 - 3058           |                     | 2200 - 2999   |
|      |  |        |  |               | 30 +            | 3059 +                |                     | 3000 - 3999   |
| ---  |  |        |  | ---           | ---             | ---                   |                     | 4000 - 4999   |
| ---  |  |        |  | ---           | ---             | ---                   |                     | 5000 - 5999   |
| ---  |  |        |  | ---           | ---             | ---                   |                     | 6000 +        |

|                    | Rating  |   |
|--------------------|---------|---|
| Abrasion           | 1-4     | ← |
| Cut (Coup Test)    | 1-5     | ← |
| Tear               | 1-4     | ← |
| Puncture           | 1-4     | ← |
| Cut (TDM-100 Test) | A-F     | ← |
| Impact Protection  | P, F, X | ← |



## COVER CLAMP

When required to firmly hold some reinforced mesh material or thick material, our RIGID COVER CLAMP is the ideal accessory. All our new TDM-100 are ready to be used with RIGID COVER CLAMP.

Two COVER CLAMPS are available to match a wider range of material thickness.

**R-4976** – COVER CLAMP 0.5 mm

**R-4977** – COVER CLAMP 3 mm

If your machine is older & not prepared to be used with cover clamp, you can purchase a conversion kit

**R-4968** - Sample holder assembly c/w two cover clamps (*Thickness 0.5mm and 3.0mm*)



## TECHNICAL SPECIFICATIONS FOR THE TDM-100

|  |            |
|--|------------|
| Nominal force                                  | 100 Newton |
| Horizontal nominal cutting force               | 25 Newton  |
| Effective vertical travel of the sample holder | 10 mm      |
| Full vertical travel of the sample holder      | 35 mm      |
| Blade speed                                    | 150 mm/min |
| Full travel of the blade                       | 200 mm     |
| Blade positioning reading                      | 0.01 mm    |

## OTHER ACCESSORIES AVAILABLE FOR TDM-100

PART NUMBER DESCRIPTION

R-2056-ISO Prequalified blades for ISO13997:1999

R-2056-ASTM Prequalified blades for ASTM2992-15,ASTM F1790-14,ISO/CD13997  
(box of 100 blades)



R-2147 Auto-adhesive copper strip roll



R-4328 Neoprene sheet 8"x11-13/16, 1.57mm +/- 0.05, SHORE A 50 +/-5

R-2568 Spare sample holder for TDM-100



R-3734 Effective position indicator for TDM-100



RGI社・TDM-100日本総代理店  
高山リード株式会社

TEL: 076-252-2266

FAX: 076-252-3134

E-mail: [info@takayamareed.co.jp](mailto:info@takayamareed.co.jp)

URL: [www.takayamareed.co.jp](http://www.takayamareed.co.jp)

