A GLOBAL BRAND MEANS GLOBAL STANDARDS

Around the world, SHOWA gives ordinary hands, extraordinary abilities.

6,000 EMPLOYEES WORLDWIDE

PRODUCTION FACILITIES ACROSS THE GLOBE

PATENTS 58 OWNED

100% integrated manufacturing

BRAND 1

UNRIVALLED PROTECTION & INNOVATION 70 YEARS

100+ RESEARCHERS

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SHOWA
Always Innovating. Never Imitating.

Cut protection guide SHOWA 2018 - GB - 108560000 RCS 397 564 860 000 29 - PONT-AUDEMER - +33 (0)3 44 23 48 48

CUT PROTECTION GUIDE

YOUR HANDS CAN DO ANYTHING WE PROTECT THEM FOR EVERYTHING

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CUT THROUGH THE CONFUSION

UNDERSTANDING YOUR PROTECTION AGAINST MECHANICAL RISKS

In November 2016, the international standards for testing against mechanical risks were updated. The market saw a drastic need for improvement due to several limitations offered within the outdated assessment of protective gear:

- Previous standards were over 12 years old (EN 388: 2003 and ANSI/ISEA 105-05)
- PPE manufacturers have developed materials and fibres with increased resistance against mechanical risks, which are more frequently used than ever.
- The Coup Test sometimes report an over-estimated cut level due to the dulling of the circular blade when testing the stronger new fibres.

Important changes were therefore introduced to the norms, enabling notified bodies to better assess and identify gloves that perform better in various degrees of mechanical risks. As more PPE manufacturers display the new norm pictograms on their products,

safety managers need to understand and recognize the differences in order to make well-informed decisions about protecting their workers from the risks involved.

This guide will help you navigate these changes to the new standards and enable you to make better choices about your cut protection needs. You will see the tests explained, how to read the results on your glove and which cut level you need for the task at hand.

MEET OUR NEWEST IN CUT PROTECTION GLOVES

PROTECT WHAT MATTERS

Hands provide 70% of our total motor abilities.

Endowed with exceptional mobility and agility, the hand is a highly developed tool comprising 27 bones, several meters of blood vessels and thousands of nerve endings. Our skin is the first layer of protection and, efficient though it may be, it offers limited resistance to the cold or other dangers such as cuts and blows.

27
BONES

29
JOINTS

34
MUSCLES

123
LIGAMENTS

1000s
OF NERVE ENDINGS

SHOWA

546

Polyurethane foam coating over engineered cut-resistant liner reinforced with HPPE

EN 388:2016 4X42C | ANSI/ISEA 105-16 A3 CUT

FEATURES & BENEFITS:

- **Increased cut resistance due to SHOWA's new wrapping technology – Level C/A3**
- **Polyurethane foamed coating to protect hands from oils and abrasions while enhancing grip**
- **Unique wrapping of multifilament fibers and HPPE offers a blend of strength, dexterity, and comfort.**
- **Cost-efficient glove that can be laundered and re-used**

IDEAL FOR:

Precision work & assembling metal parts in greasy & dry environments

- Automotive
- Engineering
- Manufacturing
- Railways

SHOWA

234

Foam nitrile palm coating over spandex/engineered cut resistant liner reinforced with HPPE

EN 388:2016 4X44D | ANSI/ISEA 105-16 A4 CUT | EN 407 X2XXXX

FEATURES & BENEFITS:

- **Excellent cut resistance performance due to cut resistant liner - Level D/A4**
- **Foam nitrile coating protects against oils, hydrocarbons, grease & abrasions, while offering excellent grip in wet & dry conditions**
- **Cooling HPPE properties & breathable back of hand reduces perspiration & keeps hands dry**
- **FDA & EU Food Contact approved**

IDEAL FOR:

Oily & dry applications where users have contact with food, grease & sharp objects

- Food processing
- Construction
- Mechanical
- Warehousing & Distribution

SHOWA

257

Foam nitrile palm coating over spandex liner reinforced with stainless steel and aramid

EN 388:2016 4X44F | ANSI/ISEA 105-15 A7 CUT | EN 407 X2XXXX

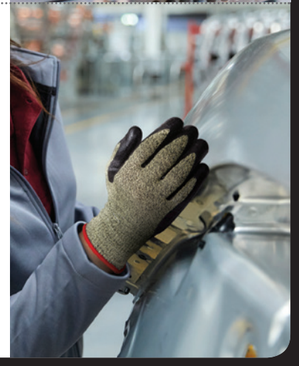
FEATURES & BENEFITS:

- **Exceptional cut protection due to superior blend of aramid & stainless steel - Level F/A7**
- **Foam nitrile coating protects against abrasions, snags & punctures, offering optimum grip in dry & oily applications**
- **Plated-knit liner avoids scratchy fibres touching the skin for long lasting comfort**
- **Contact Heat level 2**

IDEAL FOR:

Handling heavy equipment, dry or greasy metal components or glass and windows

- Automotive
- Construction
- Glass
- Metallurgy



WHAT YOU NEED TO KNOW ABOUT
THE NEW GLOBAL CUT STANDARDS

DIFFERENT TESTING METHODS

ANSI/ISEA 105-16 (ASTM F2992-15)

- Uses TDM-100 cut machine to test cut level
- Measures in GRAMS of force up to 6000g (previously 3500 g)
- Reporting is in 9 levels instead of previously 5 to accommodate stronger cut-protective fibres.
- Tests under the new standard have an "A" before the cut level

EN 388: 2016 (ISO 13997)

- Uses Coup Test as well as the TDM-100 cut machine (ISO 13997) to test cut level to accommodate limitations (dulling of the blade) in the Coup Test when testing strong cut-resistant fabrics
- Coup Test measures number of cycles required to cut through the glove
  > Reporting is 1 - 5
- TDM-100 measures NEWTONS of force up to 30+N
  > Reporting is A - F

THE NEW NORM STATES THAT IF BLADE DULLING OCCURS DURING THE COUP TEST, THE ISO 13997 TEST METHOD USING TDM-100 MUST BE PERFORMED.

TDM-100 CUT MACHINE

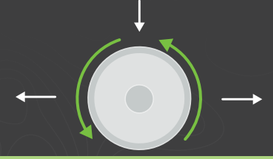
VARIABLE LOAD (g)

Ratings = Mass required

The Tomodynamometer (TDM-100) is used to determine the load required to cut through a glove sample using a straight-edge blade that moves along a straight path within a distance of 20mm. The sample is cut 5x each at three different loads.

COUP TEST CUT MACHINE

FIXED LOAD (500g/N)



Ratings = Ratio of number of cycles

Using a circular blade that moves back- and-forth and under a fixed load of 500 grams, the Coup test machine measures the ratio of the number of cycles required to cut through the test sample vs. the reference material.

UNDERSTANDING YOUR CUT GLOVE

IDENTIFYING YOUR PROTECTION: REPORTING & MARKINGS

ANSI/ISEA 105-16 (ASTM F2992-15)

Abrasion: 0 – 4

Puncture: 0 – 4

Cut Resistance F2992-15(TDM-100): A1 – A9

EN 388: 2016 (ISO 13997)

Abrasion: 0 – 4

Blade cut resistance (Coup Test): 0 – 5 /X

Tear: 0 – 4

Puncture: 0 – 4

NEW

Cut Resistance – also ISO 13997 (TDM-100): A – F/ X

Impact: P / blank

The updated standards allow for more precise and accurate measuring of cut protection levels, which are easy to read on your glove.

For example, ANSI cut level 4 used to range from 1500 up to 2199 grams. This categorized a glove with ANSI A4 cut level as being suitable for both manufacturing as well as metal stamping -two applications with very different cut resistance requirements.

EN 388's testing method using only the Coup Test would at times result in two different gloves both having a cut level 5. However, after being tested with the ISO 13997 method where the TDM machine is used, the same gloves could score a cut level 5/C while the other an 5/E-a difference of up to 2000 grams of force! The new levels make it much easier to identify the different cut protection levels.

CHOOSING THE RIGHT GLOVE FOR THE JOB AT HAND

See more product details on the reverse side of this page!

SHOWA
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Polyurethane foam coating over engineered cut-resistant liner reinforced with HPPE

EN 388:2016 4X42C
ANSI/ISEA 105-16 A3 CUT

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Foam nitrile palm coating over spandex liner reinforced with stainless steel and aramid

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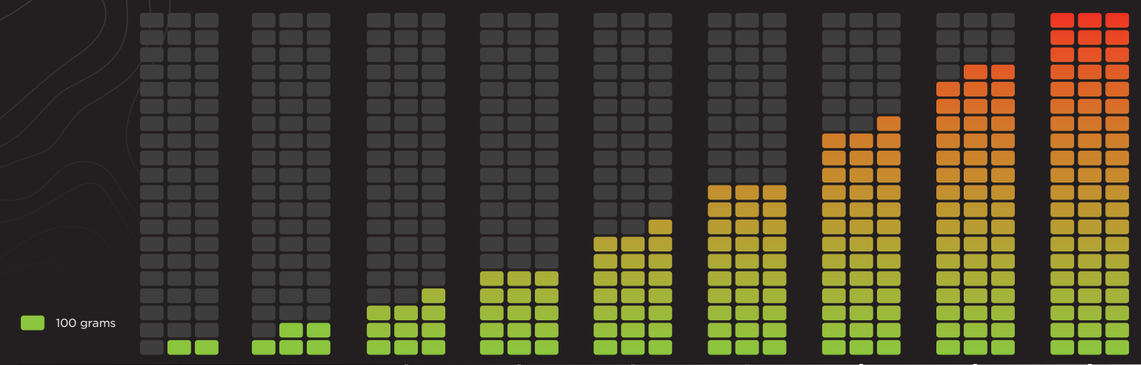
EN 407 X2XXXX

RATING SCALES



ANSI/ISEA 105-16 grams	A1 200–499	A2 500–999	A3 1000–1499	A4 1500–2199	A5 2200–2999	A6 3000–3999	A7 4000–4999	A8 5000–5999	A9 6000+
EN 388:2016 Tested to ISO 13997	A 2N–5N	B 5N–10N	C 10N–15N	D 15N–22N	E 22N–30N	F 30N+			

APPLICATIONS

- Light material handling
- Small parts assembly (without sharp edges)
- Cardboard packaging
- General purpose
- Shipping & receiving

- Aircraft engine building & assembly
- White goods manufacturing
- Carbon fiber handling
- Recycling component dismantling

- Metal panel
- Small parts assembly (with sharp edges)
- Light automotive body assembly
- Sheet glass handling in production
- Electrical wire & component assembly

- Steel fixing & erecting
- Medium pressing oily metal parts
- Canning & bottling
- Food preparation & processing
- Automotive maintenance & repair

- Cable trunking
- Food deboning
- Glass & window handling
- Heavy pressing oily metal parts
- Metal cut-off recycling

- Meat processing
- Heavy duty glass & bottling
- Pulp & paper
- Heavy metal sheet handling
- Canning

USE THIS SCALE TO FIND OUT WHICH CUT LEVEL YOU NEED FOR THE APPLICATION AT HAND!

INCREASE OF RISK SEVERITY

N=gx0.00981

force = mass x 0.00981

ANSI vs. EN

ANSI/ISEA 105: measures **MASS** using grams

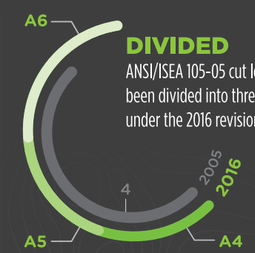
EN 388: measures **FORCE** using newtons

EN 388 tested to ISO 13997

	newtons	grams
A	2–5	204–508
B	5–10	509–1019
C	10–15	1020–1529
D	15–22	1530–2242
E	22–30	2243–3058
F	30+	3059+

ANSI/ISEA 105-16

	grams
A1	200–499
A2	500–999
A3	1000–1499
A4	1500–2199
A5	2200–2999
A6	3000–3999
A7	4000–4999
A8	5000–5999
A9	6000+



DIVIDED

ANSI/ISEA 105-05 cut level 4 has been divided into three levels under the 2016 revision

ACROSS THE SCALE, SHOWA HAS YOU COVERED

	LOW CUT LEVEL NEEDED	MEDIUM CUT LEVEL NEEDED	HIGH CUT LEVEL NEEDED						
ANSI/ISEA 105-16	A1	A2	A3	A4	A5	A6	A7	A8	A9
EN 388: 2016	A	B	C	D	E	F			
	-	KV660	GP-KV2R	S-TEX 300	8110	8127	NEW 257	S-TEX KV3	-
	-	541	GP-KV1	S-TEX 350	250	-	-	-	-
	-	540D	NEW 546	S-TEX 377	S-TEX 581	-	-	-	-
	-	545	-	S-TEX 541	3416	-	-	-	-
	-	-	-	NEW 234	-	-	-	-	-
	-	-	-	240	-	-	-	-	-
	-	-	-	4561	-	-	-	-	-
	-	-	-	8115	-	-	-	-	-

SEVERITY OF INJURY RISK

THESE PRODUCTS ARE AVAILABLE GLOBALLY!