UNDERSTANDING
Cut Resistance Levels

Created and written by Superior Glove Works Ltd.

SUPERIOR GLOVE WORKS LTD.
Engineered hand protection for every industry®

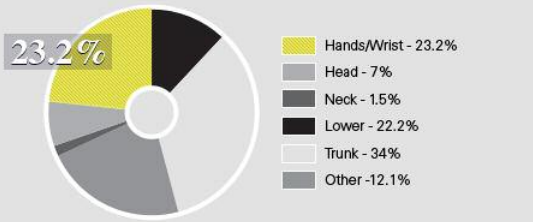
OSHA

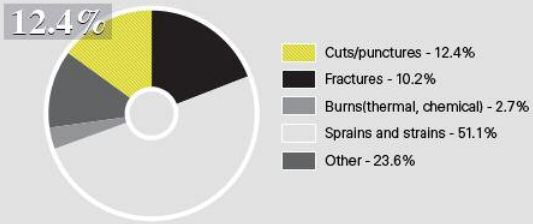
According to a recent Occupational Safety and Health Administration **(OSHA) study, 70.9% of arm and hand injuries** could have been prevented with personal protective equipment (PPE), specifically safety gloves.

Workplace Hand Injury: Figures

Cut-Resistance Statistics: Getting a Perspective.

The first chart illustrates, in percentage terms, the incidence of cut injury to workers in the U.S. for the year 2006 - relative to other types of non-fatal injury. The second chart illustrates (also for the U.S. in 2006) the percentage of injury that occurs to the hands and fingers in the workplace - relative to other body parts. Both charts utilize only lost-time injury statistics.



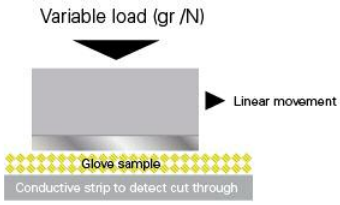


When looking at the percentages, it is important to consider that not all injuries are preventable through the use of PPE, such as back injuries. Hand and finger cut injuries, however, are the most preventable.

Cut-Resistant Test Methods

Schematic drawing of TDM method

Both the ASTM F1790 '05 and ISO 13997 standard describe the same test methods for cut resistance: the TDM and the updated CPP test, while the ASTM F1790'97 only describes the old CPP test for measuring cut performance. From a principle point of view, the functionality of both the CPP and TDM method are identical. Simply said, both methods measure the amount of pressure one can apply to a razor blade, while moving the blade over the fabric without cutting through the fabric for at least 0.8 inch (20 mm). **CPP/TDM indicates how much force/load is needed to slash/cut through a fabric.**

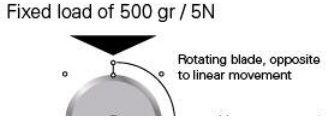


ASTM ANSI (North American)

Performance Level	Weight (in grams) needed to cut through with 1 inch (25mm) of blade travel
0	< 199
1	200 - 499
2	500 - 999
3	1000 -1499
4	1500 - 3499
5	> 3500

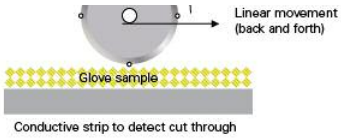
Schematic drawing of Couptest method

The EN388 standard describes the Couptest method for cut resistance, which is based on a totally different principle than the CPP/TDM method. In the Couptest, a circular blade is moving back and forth across the sample under a fixed load of 5N/500 gr, while rotating in the opposite direction of the linear movement. **Couptest indicates how many repetitive cuts on the same position are needed to cut through.**

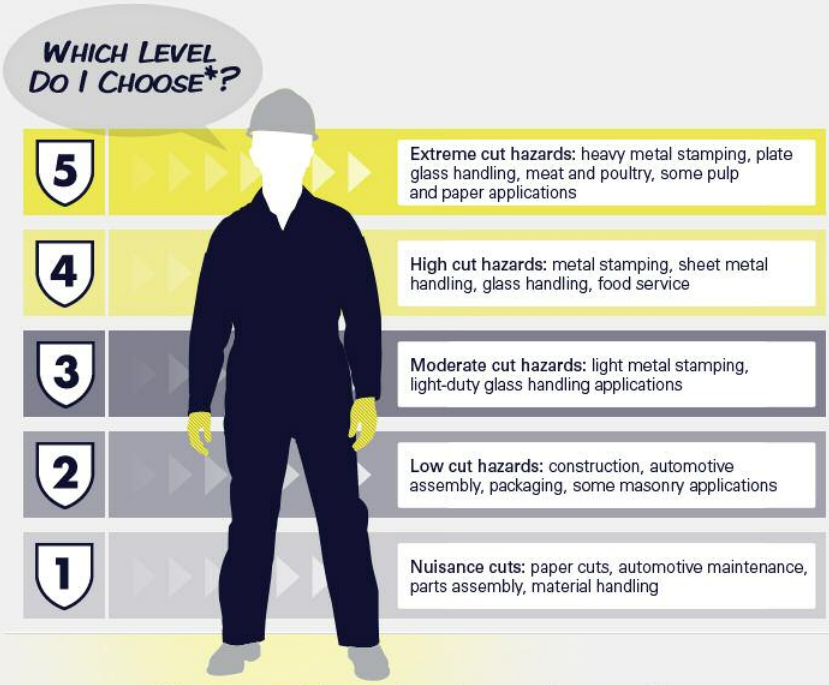


EN 388 (Europe)

Performance Level	Average Cut Index (10 measurements)
0	< 1.2
1	1.2 - 2.4



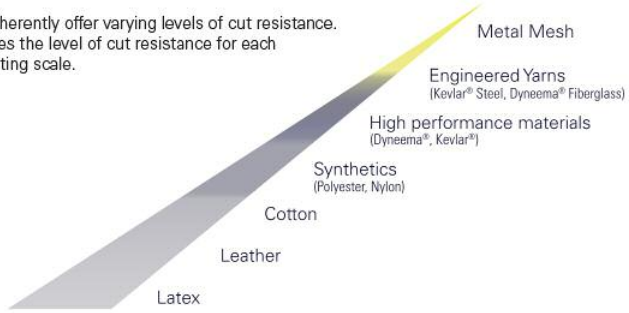
2	2.5 - 4.9
3	5.0 - 9.9
4	10.0 - 19.9
5	> 20



*These recommendations are of a general nature and are not specific to everyone's needs. Always ensure your selected glove complies with the mandated safety standard recommended for your application.

Cut Resistance

Different materials inherently offer varying levels of cut resistance. This diagram illustrates the level of cut resistance for each material on an escalating scale.



Test method comparison information supplied by Giovanni Henssen, DSM Dyneema

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