



## EN388 & AS/NZS 2161.3: AUSTRALIAN GLOVE STANDARDS

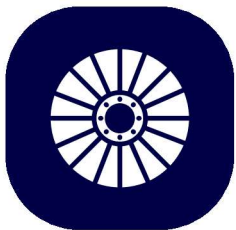


We've all seen the EN388 and AS/NZS logos marked on safety gloves and PPE, but what exactly do these icons mean, and what are the standards for resistance?

It's important to understand safety standards in Australia and how they affect the performance of your safety gloves and PPE. Making educated decisions about what to use for yourself or supply to your staff can help reduce both immediate and long-term injuries.

**Read through our guide to Australian glove standards EN388 and AS/NZS 2161.3 as we discuss how the tests are done and what the ratings numbers mean for each type of resistance.**

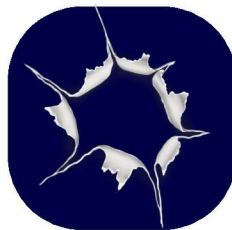
## What is Measured?



**ABRASION**



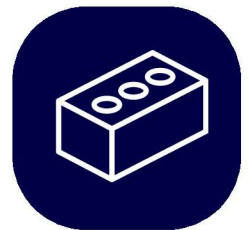
**CUT**



**TEAR**



**PUNCTURE**



**IMPACT**



## ABRASION

RATING	RESISTANCE
1	100 Cycles
2	500 Cycles
3	2,000 Cycles
4	8,000 Cycles

The first number in the EN388 icon represents abrasion resistance.

This is measured on a scale of 1 to 4, with 1 being the least resistance and 4 being the most resistance.

Abrasion resistance is tested by subjecting a flat, cut-out portion of the glove to abrasion with sandpaper in an elliptical pattern by a head of fixed size and weight.

This action is repeated until a hole is formed in the material.

The number of cycles required to form this hole determines the rating given.

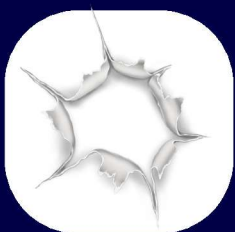
RATING	RESISTANCE
1	1.2 Cycles
2	2.5 Cycles
3	5 Cycles
4	10 Cycles
5	20 Cycles



## CUT

The second number in the EN388 icon represents cut resistance. This is measured on a scale of 1 to 5, with 1 being the least resistance and 5 being the most resistance.

Cut resistance is tested by subjecting a flat, cut-out portion of the glove to a rotating circular blade moving horizontally with a fixed force of 5 Newtons. This action is repeated until the material has been cut through. The number of cycles required to cut through the material, as well as the wear on the blade, determines the rating given. This test has been largely replaced by the more accurate TDM Cut test in the EN388:2016 standard. An 'X' in the second number position should be followed by a letter from A to F in the fifth position, which means the TDM Cut test has been performed for that glove.



## TEAR

RATING	RESISTANCE
1	10 Newtons
2	25 Newtons
3	50 Newtons
4	70 Newtons

The third number in the EN388 icon represents tear resistance.

This is measured on a scale of 1 to 4, with 1 being the least resistance and 4 being the most resistance.

Tear resistance is tested by placing four palm samples separately in a machine that pulls the material at a speed of 100mm per minute. This continues until the samples have been torn.

The force taken to tear the samples determines the rating given, with the lowest result among the samples used for the rating.



RATING	RESISTANCE
1	20 Newtons
2	60 Newtons
3	100 Newtons
4	150 Newtons

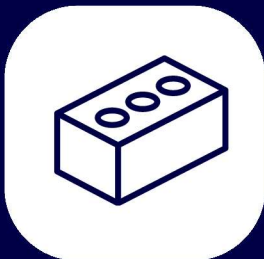


## PUNCTURE

The final number in the EN388 icon represents puncture resistance.

This is measured on a scale of 1 to 4, with 1 being the least resistance and 4 being the most resistance. Puncture resistance is tested by subjecting four flat, cut-out palm samples to compression tests in which a 50mm stylus is pushed into the sample at a speed of 100mm per minute. This continues until a puncture has formed.

The force taken to puncture the sample determines the rating given, with the lowest result among four separate tests used for the rating.



## IMPACT

RATING	RESISTANCE
<b>F</b> (if <i>either</i> condition is met)	> 7 KiloNewton (avg)
	> 9 KiloNewton (per hit)
<b>P</b> (if <i>both</i> conditions are met)	≤ 7 KiloNewton (avg)
	≤ 9 KiloNewton (per hit)

The final letter in the EN388 icon represents impact resistance. This is measured with an F for Fail or a P for Passed.

Impact resistance is tested by subjecting the glove to impact from a 2.5kg striker at an energy of 5 joules. The transmitted force from this hit is then measured. If the force is less than or equal to 9kN (kilonewton) for single hits and less than or equal to 7kN as an average then the glove has Passed. A Failed or no test result is most often not shown on the EN388 icon.



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