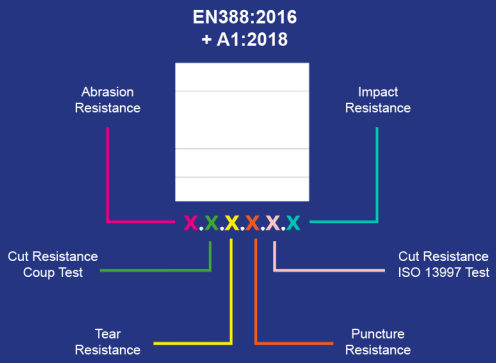
EN388:2016 + A1:2018

PROTECTIVE GLOVES AGAINST MECHANICAL RISKS

General-purpose protective gloves + A1:2018 account for the largest market share of all personal protective equipment (PPE) sold and protect wearers from a wide range of hazards. To assist wearers with the selection of appropriate gloves, several European safety standards – including EN 388:2016+A1:2018 – have been developed, enabling levels of protection against different risks to be defined. These defined levels of protection enable appropriate gloves to be selected, based on the hazards and risks identified for a specific work activity. EN 388:2016+A1:2018 specifies requirements, test methods, marking and information to be supplied for protective gloves against the mechanical risks of abrasion, blade cut, tear, puncture and, if applicable, impact.



Abrasion Resistance

A sample piece of material is cut from the palm area of the glove and is then rubbed against a 180 grit abrasive paper using a 'Martindale' type abrasion machine. The amount of cycles before a hole appears is measured and then scored. The below table showcases the number of cycles against score level:

Number of Cycles	100	500	2000	8000
Level	1	2	3	4

Cut Resistance – Coup Test

A sample p Number of Cycles iece of material is cut from the palm area of the glove, which is then tested with a circular rotating blade with 5 Newtons of pressure being applied, until cut through the full sample material. The sharpness of the blade may vary. The cut resistance of the material is based on relative index that compares the number of cycles to cut through the material when compared with the stand fabric, as per the below table:

Cut Index	1.2	2.5	5	10	20
Level	1	2	3	4	5

Tear Resistance

A sample piece of material is cut from the palm area of the glove and is then torn apart using a standard tensile test machine. The corresponding score is based off the Newton Force required to tear the sample apart, as demonstrated below:

Newtons Of Force	10	25	50	75
Level	1	2	3	4

Puncture Resistance

A sample piece of material is cut from the palm area of the glove, with a defined stylus applied with varying degrees of force until successfully penetrated. The amount of Newtons of force required to penetrate the material is then logged as below:

Newtons Of Force	20	60	100	150
Level	1	2	3	4

Cut Resistance (ISO 13997)

A sample piece of material is cut from the palm area of the glove, with a straight blade run against this with varying degrees of force. After each cut the blade is replaced and the amount of Newtons of Force is increased as per below:

Newtons Of Force	≥2	≥5	≥10	≥15	≥22	≥30
Level	A	B	C	D	E	F

Impact Resistance

Other than the fingers, each area where impact protection is claimed shall be tested for impact attenuation by measuring the peak transmitted force. The area of protection from the glove is secured over a domed anvil and is impacted at an energy of 5J. This is a pass or fail test and can be represented with either a P (Pass), X (Fail), No marking (Not tested).