

European Standards for Helmet and Bump Caps

- EN 397** - Helmets for general use in industry to provide protection to the wearer against falling objects and consequential brain injury and/or skull fracture.
- EN 812** - Bump Caps provide protection to the wearer against the effects of striking head/scalp against hard or sharp stationary objects. Not intended to provide protection against effects of falling, thrown objects, moving or suspended loads.

Mandatory tests:

Shock Absorption/Impact Resistance	EN 397 - Safety Helmets	EN 812 - Bump Caps
Drop height	1 metre	0.25 metre
Maximum force allowed	5 kiloNewtons	15 kiloNewtons
Energy Transmitted during test	49 joules	12 joules
Striker face and weight	50mm radius hemispherical, 5kg	100mm diameter flat, 5kg
Penetration Resistance	EN 397 - Safety Helmets	EN 812 - Bump Caps
Drop height	1 metre	0.5 metre
Energy Transmitted during test	29 joules	2.5 joules
Striker mass	3kg	0.5kg

Optional Tests:

Lateral Deformation (LD)

Provides a level of protection against lateral compression, indicating improved side strength of helmet.

Test Method:

A pressure of 43kg is applied on both sides of the shell for a given period of time and then the amount of helmet deformation is measured.

Low Temperature Performance (-20°C/-30°C)

Helmet will still provide EN 397/812 protection when worn at or above this temperature.

Test Method:

The mandatory shock absorption and penetration resistance tests are repeated at stated low temperatures.

Electrical Insulation* (440V a.c.)

Test indicates protection from electrical shock.

Test Method:

The shell is immersed for 24 hours in 3 grams per litre of salt water. A current is passed through electrodes which are positioned both inside and outside the helmet. The maximum electrical leakage allowed is 1.2mA for 15 seconds at 1200kV a.c.

Molten Metal* (MM)

The test ensures that there is no penetration of molten metal splash, indicating a quality, heat resistant shell.

Test Method: Test procedure is 150g of molten iron dropped onto a 50mm radius area on helmet crown.

Extra Features outside the scope of EN 397 (-40°C & 1000V a.c.)

Purpose and test method is as per the relevant EN 397 options detailed above, but performance indicates a higher level of protection.

*440V a.c. - helmets and plastic bump caps only (not baseball caps). MM - helmets only



Shock Absorption



Penetration Resistance



Lateral Deformation