EN 397 – Industrial Safety Helmets

Arguably the most important area to protect is your head. Without conforming head protection, an object falling onto a person's head can do serious damage and potentially even kill.

EN 397 is the standard that Industrial Safety helmets are tested to. This standard covers:

Impact Protection:

For impact protection a series of impact tests are carried out using a fixed head form, with a falling mass striker. A 5kg weight is dropped onto the helmet from 1 metre, the force transmitted through the helmet is measured using the load cell beneath the head form, and recorded onto a graph. For a helmet to meet the requirements of EN 397, the maximum transmitted force, after suitable signal conditioning, cannot exceed 5kN. This test is performed on multiple helmet samples, following pre-conditioning to high temperature, low temperature, water immersion and UV ageing.

Penetration:

For penetration the helmets go through a similar test as the impact procedure. A 3kg weight with a pointed cone is dropped from a height of 1 metre, however instead of measuring the transmitted force, the assessment is based on whether the weight makes contact with the head form underneath the helmet. As with the impact testing, the test is carried out on multiple helmets after the pre-conditioning to high temperature, low temperature, water immersion and UV ageing.

Design Requirements:

Helmets have requirements for the design of the helmet in addition to specific performance requirements. These normally encompass the area of coverage provided by the helmet, as well as the field of vision afforded to the user when worn. Sometimes there are requirements for issues such as clearance between the head and the shell of the helmet.

Chin Strap anchorage:

EN 397 requires that either the helmet shell or the helmet harness is fitted with a chin strap or gives the ability to attach one with anchorage points. Any chinstrap supplied must have a minimum width of 10mm when un-tensioned and be either attached to the shell or to the harness. The strength of the strap anchorage should be able to hold the helmet to the head but not cause a strangulation hazard.

Optional testing:

EN 397 includes optional testing to requirements such as protection against very high or very low temperatures, splashes of molten metal, electrical voltages up to 440V, and lateral deformation.