

Type I vs. Type II Helmets

Industrial protective helmets are classified by impact type and electrical class per ANSI Z89.1-2014*. All protective helmets are either Type I or Type II. A helmet can only have one designation for impact properties. There is no in-between per the ANSI standard. If hazard potential is for top impact, a Type I helmet should be considered. If hazards are present that can impact the front, back and sides, as well as the top of a helmet, use of a Type II helmet should be considered. If application hazards are present that may cause a helmet to dislodge from a user's head, use of a chinstrap should be considered for additional safety and helmet retention.

Type I Helmets

Type I helmets are designed to reduce force as a result of an impact to only the top of the head. There are four specific performance requirements for Type I helmets:

1. Flammability

- a. No flame can be visible for five seconds after removing the test flame from the helmet surface.

Applicable Scenario: Accidental exposure to a flame.

2. Force transmission

- a. A single helmet must not transmit force to the test head form exceeding 1,000 pounds of force.
- b. Conditioned helmets (hot, cold, and ambient) shall be averaged, and the average cannot exceed 850 pounds of force to the test head form.

Applicable Scenario: Object falling on the user's head from above.

3. Apex penetration

- a. The penetrator cannot make contact with the top of the head form.

Applicable Scenario: Sharp object falling on the user's head from above.

4. Electrical classification (Class G, Class E or Class C)

- a. Class G and Class E helmets must meet appropriate performance requirements.
 - i. Class G to withstand 2,200 volts for one minute. Maximum leakage shall not exceed three milliamperes.
 - ii. Class E to withstand 20,000 volts for three minutes after impact. Maximum leakage shall not exceed nine milliamperes.
 - iii. Class C helmets are not tested for electrical insulation.

Applicable Scenario: Exposure to live electricity.

MSA Type I Helmets

V-Gard® Caps and Hats V-Gard 500 Caps and Hats
SmoothDome® Caps Topgard® Caps and Hats
Thermalgard® Caps Skullgard® Caps and Hats
Comfo-Cap® Hard Hats Nexus Climbing Helmets

* For additional information, visit <https://safetyequipment.org/standard/ansi-sea-z89-1-2014/>.

Type II Helmets

Type II helmets are designed to reduce force as a result of an impact to the top or sides of the head. In addition to the four performance requirements of a Type I helmet, Type II performance contains three additional requirements:

1. Impact energy attenuation

- a. Helmet is dropped onto a spherical object at various angles around the helmet, above a designated test line.

Applicable Scenario: This is representative of a user hitting their head their off of an object versus force transmission which represents something falling on the user.

2. Off-center penetration

- a. A penetrator is dropped vertically, and the helmet is rotated at different angles above a designated test line. The penetrator cannot contact the head form.

Applicable Scenario: A sharp object falling on the head from any direction.

3. Chinstrap retention (optional)

- a. If a Type II helmet is provided with a chin strap, chin strap must be tested for retention, must remain attached to the helmet and must not stretch beyond one inch in length.

Applicable Scenario: The helmet is at risk of being dislodged from the user's head.

MSA Type II Helmets

Super V® Helmets

Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

