ANSI/ISEA Z89.1-2009

Revision of
ANSI Z89.1-2003

American National Standard
for Industrial Head Protection

Secretariat
International Safety Equipment Association

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Foreword  (This Foreword is not part of ANSI/ISEA Z89.1-2009)

Voluntary industry consensus standards recognized by the American National Standards Institute are required to be reviewed every five years to account for improvements in technology, test methods and materials, user needs and trends in use and application of products covered under the respective standard. This sixth revision of the American National Standard for Industrial Head Protection, ANSI/ISEA Z89.1-2009 represents an effort to accommodate characteristics of industrial head protection that end-users identified as being important as work environments change and emerging hazards are identified. This 2009 edition was prepared by the ISEA Head Protection Group whose current members include: 3M Company, Bullard, ERB Industries, Gateway Safety, Jackson Safety, MSA, North by Honeywell, OccuNomix International, Sellstrom Manufacturing Co., and Sperian Protection.

This version of ANSI/ISEA Z89.1-2009 incorporates optional testing and marking features for head protection devices. Notable among these are specific testing protocols and marking for products that have high-visibility properties. Criteria for these products are based on well-established test methods found in other industry standards. Additionally, criteria have been incorporated for products that can be worn in the reverse position and those that are exposed to lower temperatures than the standard test temperatures.

This standard was processed and approved using consensus procedures prescribed by the American National Standards Institute. The following organizations were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

APM Terminals  Intertek Testing Services
Atlas Industrial Contractors  National Personal Protective Technologies Laboratory
City of San Diego  Parsons Brinckerhoff
Entergy Services Incorporated  Safety Equipment Institute
ICS Laboratories, Inc.  Underwriters Laboratories, Inc.
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American National Standard for Industrial Head Protection

1. Scope, Purpose and Limitations

1.1 Scope

This standard describes Types and Classes, testing and performance requirements for protective helmets. These include recommended safety requirements for authorities considering the establishment of regulations or codes concerning the use of protective helmets.

1.2 Purpose

This standard establishes minimum performance requirements for protective helmets that reduce the forces of impact and penetration and that may provide protection from electric shock.

1.3 Limitations

Protective helmets reduce the amount of force from an impact blow but cannot provide complete head protection from severe impact and penetration. Helmets that meet this standard provide limited protection but should never be viewed as a substitute for good safety practices and engineering controls. Alterations, attachments, or additions of accessories may affect the performance of the helmet. Helmets are designed to provide protection above the test lines, which are clearly defined in the standard. Helmets may extend below the test lines for styling or practical purposes but no protection is to be implied below the test lines.

2. Compliance

Any statement(s) of compliance with this standard shall mean that the product meets all applicable requirements for the Type and Class. It is specifically intended that partial utilization of this standard is prohibited.

3. Definitions

accessory: A device intended to be mounted on or used with protective helmets. (See Section 5)

apex: The point on the outer surface of the shell coincident with the vertical axis of the headform when mounted in the as-worn position according to the manufacturer's instructions.

basic plane: A plane at the level of the external auditory meatus (external ear opening) and the inferior margin of the orbit (lower edge of the eye socket).

brim: An integral part of a helmet shell extending outward around the entire circumference of the lower shell.

chin strap: A strap which fits under the chin and is attached to the helmet.

crown straps: The part of the suspension that passes over the head.

dynamic test line (DTL): A test line used as a boundary for conducting impact energy attenuation and off-center penetration tests.

flammability: The ability of a helmet shell to support combustion upon removal of the test flame.

harness: The complete assembly used to maintain a helmet in correct wearing position on the wearer's head, exclusive of a chin strap or other retention device.

headband: The part of the harness that encircles the head.

helmet: A device worn on the head designed to provide limited protection against impact, flying particles or electric shock.

manufacturer: The business entity that marks or directs the permanent marking of the components or complete device as compliant with this standard and sells them as compliant.