INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

ANSI/ISEA Z89.1-2014 (R2019)

American National Standard for Industrial Head Protection

ANSI/ISEA Z89.1-2014 (R2019)

Revision of
ANSI/ISEA Z89.1-2009

American National Standard for Industrial Head Protection

Secretariat

International Safety Equipment Association

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American National Standards Institute, Inc.

American National Standard

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Foreword (This Foreword is not part of ANSI/ISEA Z89.1-2014)

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 seventh revision of the *American National Standard for Industrial Head Protection,* ANSI/ISEA Z89.1-2014 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 edition was prepared by the ISEA Head Protection Group whose current members include: 3M Company, Bullard, ERB Industries, Gateway Safety, Honeywell Safety Products, Kimberly-Clark Professional, MSA Safety, OccuNomix International, Protective Industrial Products Inc., and Sellstrom Manufacturing Co.

The core performance requirements remain unchanged. However, this updated version incorporates optional preconditioning at higher temperatures than the standard test temperatures. Head protection devices that meet the applicable product performance criteria after having been exposed to these higher temperatures will bear a unique mark indicating such, to provide easy identification to the user.

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.

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American National Standard for Industrial Head Protection

1 Scope, Purpose and Limitations

1.1 Scope

This standard establishes minimum performance and labeling requirements for protective helmets used in industrial and occupational settings under normal temperature conditions and optionally at high and low temperatures and when worn in the reversed position. It also includes requirements for high-visibility helmets and specifies test methods for evaluating all requirements.

Helmets conforming to the requirements of this standard are designated both by Type (based on location of impact force) and Class (based on electrical insulation) as well as any optional feature.

This standard does not cover bump caps, firefighting helmets or head protection devices used in recreational activities.

User cautions and recommendations on use and care of helmets are given in Appendix A of this standard.

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 (not arc flash).

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 be effective against small tools, small pieces of wood, bolts, nuts, rivets, sparks and similar hazards. The use of protective helmets 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.

1.4 Units and Tolerances

In this standard, SI units of measurement are followed by an approximate imperial equivalent in parenthesis. Only the SI value shall be regarded as the requirement.

2 Compliance

Any statement(s) of compliance with this standard shall mean that the product meets all applicable performance and labeling 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 the helmet is 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).

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

component. A functional part of a complete device addressed by the performance requirements of this standard.

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.