

ANSI/ISEA Z89.1-2014 Revision

American National Standard for Industrial Protection ANSI/ISEA Z89.1-2014

This is the seventh revision of the standard that provides performance and testing requirements for industrial helmets, commonly known as hard hats. The American National Standards Institute (ANSI) and the Industrial Safety Equipment Association (ISEA) worked together on this 2014 standard. It is a revision of ANSI/ISEA Z89.1, which continues to include specifications for helmets designed to offer protection from lateral impact, or top-only impact, giving employers and users the flexibility to specify the helmet that best meets the needs of their specific workplace.

Industrial head protective helmets meeting the requirements of the 2014 standard are classified as Type I for top protection or Type II for lateral impact protection. Both types are tested for impact attenuation and penetration resistance. Type II helmet performance requirements include criteria for impact energy attenuation from impacts from the front, back and sides, as well as the top, off-center penetration resistance and chin strap retention.

The three classes indicate the helmet's electrical insulation rating, unchanged from 2009:

Class E (electrical) are tested to withstand 20,000 volts;
Class G (general) helmets are tested at 2,200 volts; and
Class C (conductive) provide no electrical protection.

Changes 2009 to 2014

NOTE: There were three main changes from 2009 to the ANSI/ISEA Z89.1-2014 standard:


- Under the section of Accessories and Replacement Components there is further clarification that accessory or component manufacturers are required to prove that their components do not cause the helmets to fail. Helmet accessory or component suppliers must provide justification upon request that their product would not cause the helmet to fail the requirements of the Head Protection Standard.
- Some additional language added under the Instructions and Markings section to help clarify that "useful service life" for helmets is not required by the Standard. It is up to helmet manufacturers if they want to include specific service life in terms of years. Manufacturers could elect to specify the number of years for their helmet's service life or elect to identify certain conditions that may affect a helmet's protection capability over time.
- The last section revised was the Higher Temperature section for users who work in hot environments. This section was updated to incorporate an optional preconditioning at a higher temperature of 140° F +- 3.6° F (60° C +- 2° C). Previously hot temperature preconditioning was conducted at 120° F +- 3.6° F (48.8° C +- 2° C) under the 2009 Standard. Helmets that meet the performance criteria after being preconditioned to these higher temperatures (140° F) will be designated with a HT marking.

Markings

According to the ANSI/ISEA standard, hard hats must also contain user information such as instructions pertaining to sizing, care and service life guidelines. Every hard hat conforming to the requirements of ANSI Z89.1-2014 must be appropriately marked to verify its compliance. The following information must be marked inside the hard hat:

- The manufacturer's name or identifying mark
- Date of Manufacture
- The legend, "ANSI Z89.1-2014"
- The Type and Class Designation
- The approximate head size range


If optional performance features are applicable, the appropriate marking(s) below must be applied in the sequence as shown:

-  - Reverse Donning
- LT - Lower Temperature
- HV - High Visibility
- HT - Higher Temperature



Changes 2003 to 2009

NOTE: Changes in this revision of the standard include 3 new optional criteria:

Reverse Wearing: Helmets marked with  can be worn facing frontwards or backwards in accordance with the manufacturer's wearing instructions. They pass all testing requirements, whether worn frontwards or backwards. All Bullard Type I industrial hard hats can be worn backwards, per instructions included with the hard hat. Bullard Type II hard hats (Advent, Vector) can not.

Extreme Cold: A helmet with the optional mark "LT" indicates that the hard hat meets all testing requirements of the standard when preconditioned at a temperature of -30°C (-22°F), instead of the normal cold preconditioning done at -18°C (0°F). All Bullard industrial hard hats have been tested and are certified at this new lower temperature, and are marked "LT" on the label.

High Visibility: A helmet with the optional mark "HV" meets new requirements in the standard for high visibility colors. (Currently, Bullard's "hi-viz" yellow meets the chromaticity and luminance requirements and can be labeled "HV".)

The following Bullard hard hats/helmets meet the revised ANSI/ISEA Z89.1-2014 standard:

Model	Standard Type and Class
C30	ANSI/ISEA Z89.1-2014, Type I, Class E & G
C33	ANSI/ISEA Z89.1-2014, Type I, Class E & G
C34	ANSI/ISEA Z89.1-2014, Type I, Class E & G
S51	ANSI/ISEA Z89.1-2014, Type I, Class E & G
S61	ANSI/ISEA Z89.1-2014, Type I, Class E & G
S62	ANSI/ISEA Z89.1-2014, Type I, Class C
S71	ANSI/ISEA Z89.1-2014, Type I, Class E & G
911C	ANSI/ISEA Z89.1-2014, Type I, Class E & G
911H	ANSI/ISEA Z89.1-2014, Type I, Class E & G
Advent	ANSI/ISEA Z89.1-2014, Type II, Class E & G
Vector	ANSI/ISEA Z89.1-2014, Type II, Class E & G

Americas:
Bullard
1898 Safety Way
Cynthiana, KY 41031-9303 • USA
Toll-free within USA: 877-BULLARD (285-5273)
Tel: +1-859-234-6616
Fax: +1-859-234-8987

Europe:
Bullard GmbH
Lilienthalstrasse 12
53424 Remagen • Germany
Tel: +49-2642 999980
Fax: +49-2642 9999829

Asia-Pacific:
Bullard Asia Pacific Pte. Ltd.
LHK Building
701, Sims Drive, #04-03
Singapore 387383
Tel: +65-6745-0556
Fax: +65-6745-5176



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