



Test Report T18765-01-1 Issue 1
ANSI/ISEA Z87.1-2020
Jinhua City Safety Tools Co., Ltd.
M-5002A Full Faceshields
27 February 2024



Approved by:

A handwritten signature in blue ink, reading "Keith E. Whitten".

Keith E. Whitten
Laboratory Manager

Prepared by:

A handwritten signature in blue ink, reading "Cathy Wołoszyn".

Cathy Wołoszyn
Lab Administrator

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Issued to: Jinhua City Safety Tools Co., Ltd.
No. 8, Chuang Ye Road Luo Dian Industrial District
Jinhua City, Zhejiang Province
China

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Objective:

Contract testing to ANSI/ISEA Z87.1-2020 “American National Standard for Occupational and Educational Personal Eye and Face Protection Devices”.

- Clause(s): 5. Fundamental Design Requirements for All Protectors
-excluding Markings
7. Optional Hazard-Specific Protector Requirements
7.1 Impact Protector Requirements

Samples:

M-5002A Full Faceshields

Part Number	Description	Quantity	Sample ID
M-5002A	Full Faceshield (M-7002B Visor & M-6001 Crown)	1	5A
M-7002B	Clear PC Visor	11	
M-6001	Crown + Headgear	12	

Date(s) submitted: 22 January 2024

Procedures:

All tests were conducted in a standard laboratory atmosphere unless otherwise specified.

Samples were randomly selected from the quantity provided and tested in the as-received condition unless otherwise stated.

Testing procedures as specified within Section 9 of ANSI/ISEA Z87.1-2020 were followed unless noted in results.

When applicable, samples were assessed on medium headform (64mm PD).

Assessment Summary:

Date(s) tested: 19 through 21 February 2024

Samples as assessed meet the requirements of ANSI/ISEA Z87.1-2020 for Impact Rated Faceshields.

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Assessment Summary (Continued):

ANSI/ISEA Z87.1-2020 Requirements	Compliant	Non-Compliant
5. Fundamental Design Requirements for All Protectors		
5.1 Optical Requirements		
5.1.1 Optical Quality	X	
5.1.2 Luminous Transmission	X	
5.1.3 Haze - Clear Lenses Only	X	
5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	X	
5.1.5 Refractive Power, Astigmatism, Prism and Prism Imbalance for Prescription Protectors and Magnifiers	Not applicable	
5.2 Physical Requirements	X	
5.2.1 Drop Ball Impact Resistance	Not applicable	
5.2.2 Ignition	X	
5.2.3 Corrosion Resistance of Metal Components	X	
5.2.4 Minimum Coverage Area	X	
5.3 Markings	Excluded	
5.4 Other Requirements	Not applicable	
5.5 Replaceable Lenses	Not applicable	
5.6 Aftermarket Components and Accessories	Not applicable	
7. Optional Hazard-Specific Protector Requirements		
7.1 Impact Protector Requirements		
7.1.1 Protectors Marked for Impact Protection		
7.1.2 Frames and Shells		
7.1.3 Lateral (Side) Coverage	X	
7.1.4 Impact Requirements		
7.1.4.1 Protector Acceptance Criteria		
7.1.4.2 High Mass Impact	X	
7.1.4.3 High Velocity Impact	X	
7.1.4.4 Penetration Test (Lens Only)	X	
7.1.4.5 Prescription Lens Material Qualification	Not applicable	
7.1.4.6 Prescription Lens Mounting Qualification	Not applicable	
7.1.4.7 Devices with Lift Fronts	Not applicable	

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Results:

5.1.1 Optical Quality; Result: Pass

Windows/Visors are free of striae, bubbles, waves and other visible defects which would impair the wearer's vision.

5.1.2 Luminous Transmittance (Tv) - ILA (Clear Lenses)

Sample ID	Left (%)	Right (%)	Left/Right	Pass	Fail
5A-2	90.5	90.4	1.001	X	
Requirement:	≥ 85		N/A		

5.1.3 Haze - Clear Lens Only

Sample ID	Left (%)	Right (%)	Pass	Fail
5A-2	0.23	0.42	X	
Requirement:	≤ 3			

Measured relative to Illuminate A.

5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors

Refractive Power & Astigmatism - Faceshields are exempt

Resolving Power

Sample ID	Pattern Resolved (Yes/No)		Pass	Fail
	Left	Right		
5A-1	Yes	Yes	X	
Requirement:	Resolve Pattern 20			

Tested unmounted with sample normal to telescope using a 19mm aperture.

Prism and Prism Imbalance

Sample ID	Prismatic Power (cm/m)		Vertical Imbalance(cm/m)	Horizontal Imbalance(cm/m)	Pass	Fail
	Left	Right				
5A-1	0.17	0.21	<0.05	0.39 Base Out	X	
Requirement:	≤ 0.37		≤ 0.37	Base Out ≤ 0.75 Base In ≤ 0.125		

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5.2 Physical Requirements; Results: Pass

Protectors are free from projections, sharp edges or other defects which are likely to cause discomfort or injury during use.

5.2.1 Drop Ball Impact Resistance

Protectors meeting the requirements of 7.1.4 are exempt from drop ball impact testing

5.2.2 Ignition; Results: Pass

Visor, Brow Guard, Headgear (Retention Screw & Nut, Headband, Ratchet Knob & Housing) and Visor Tabs did not ignite or continue to glow once the rod is removed.

5.2.3 Corrosion resistance of Metal Components; Results: Pass

Brow Guard Visor Tab Rivets and Washers were tested and based on visual examination the function was not impaired and the protector can be worn as intended.

5.2.4 Minimum Coverage Area; Result: Pass

The frames, lens housings or carriers and lens(es) cover in plain view an area of not less than 40 mm (1.57 in.) in width and 33 mm (1.30 in.) in height (elliptical) in front of each eye, centered on the pupil centers of test headform.

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7.1.1 Protectors Marked for Impact Protection

Protectors and replaceable components marked for impact protection in accordance with Table 3 shall meet applicable requirements of Section 7.1.

7.1.2 Frames and Shells

Frames and shells shall meet the requirements for high mass impact and high velocity impact in order to be impact-rated. These components shall be tested as a complete device. For frames and shells to be used with prescription lenses, they shall be fitted with representative test lenses having a nominal plano power and the minimum lens thickness to be used by the manufacturer, in no case less than 2.0mm (0.079in). Frames and shells are exempt from the penetration requirement.

7.1.3 Lateral (Side) Coverage; Result: Pass

When mounted on the medium headform protectors provide continuous lateral coverage (i.e. no openings greater than 1.5mm (0.06 in.) in diameter) from the vertical plane of the lenses tangential to a point not less than 10 mm (0.39 in.) posterior to the corneal plane and not less than 10 mm (0.39 in.) in height above and not less than 10 mm (0.39in.) in height below the horizontal plane centered on the eyes of the headform. The probe does not contact the headform within the defined coverage area.

7.1.4.1 Protector Acceptance Criteria

When each type test is conducted as indicated in Sections 7.1.4.2, 7.1.4.3 and 7.1.4.4 and, as applicable Section 7.1.4.6, a complete device shall fail if any of the following occurs:

- any part, fragment or material visible to the unaided eye becomes detached from the inner surface of any complete device, as determined by inspection of the device or of the contact paste;
- fracture;
- penetration of the inner surface either by the projectile passing completely through the lens, frame or housing component, or by rupture of the inner lens surface;
- lens not retained;
- for the high-velocity test, the unaided eye observes any piece adhering to the contact paste, or observes contact paste on the projectile or complete device.

In the case of plano protectors with a prescription lens carrier, contact of the prescription lens carrier with the headform does not constitute a failure.

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7.1.4.2 High Mass Impact

Sample ID	Location	Pass	Fail
5A-3	Right	X	
5A-4	Left	X	
5A-5	Right	X	
5A-6	Left	X	

7.1.4.3 High Velocity Impact

Sample ID	Location	Velocity (ft/sec)	Pass	Fail
5A-7	Right 0°	302.8	X	
5A-8	Right 30°	302.4	X	
5A-9	Right 90° ↑ 10mm	302.4	X	
5A-10	Left 0°	302.8	X	
5A-11	Left 30°	302.5	X	
5A-12	Left 90° ↓ 10mm	302.7	X	

7.1.4.4 Penetration Test (Lenses Only)

Sample ID	Location	Pass	Fail
5A-3	Left	X	
5A-4	Right	X	
5A-5	Left	X	
5A-6	Right	X	

Sample Photograph(s):



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13. Certain work may be subcontracted to ICS-approved laboratories as required or applicable. Client will be notified of this in advance.
14. Client agrees to pay any and all additional costs associated with unexpected or above-standard communications and/or consultations with Client or third parties as designated by Client.
15. Client agrees to pay any and all additional costs for work additional to the original scope of work as agreed to by Client.
16. Client understands and agrees that ICS, in entering into this Contract and by performing services hereunder, does not assume, abridge, abrogate or undertake to discharge any duty or responsibility of Client to any other party or parties. No one other than Client shall have any right to rely on any Report or other representation or conduct of ICS and ICS disclaims any obligations of any nature whatsoever with respect to such third parties.
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21. ICS hereby objects to any conflicting terms contained in any order, acceptance or other subsequent correspondence submitted by Client.
22. In the event that payment is not received within 15 days of invoice date, Client agrees to pay a late payment charge on the unpaid balance equal to 1-1/2% per month or the maximum charge allowed by law, whichever is less, and all costs and expenses, including attorney's fees where recovery of the same is not prohibited by law, incurred by ICS in collecting such invoices.
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