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Test Report

EN 397:2012 + A1:2012

Industrial safety helmets

Report no: 1.17.01.17

Client: INSPEC Certification Services
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(on behalf of): Zheijiang Nicety Technology Co., Ltd.

Client order(s): TA16/0128A

Order(s) received: 16 December 2016 and 3 January 2017

Model(s): NTA

Date(s) of tests: 22 December 2016 to 11 January 2017

Signed: 

Issued: 16 January 2017

A. Nelson, Laboratory Supervisor

Conditions

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Unless stated otherwise, the testing is accredited under the laboratory's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1933.

Tests marked ☒ are not included in our ISO/IEC 17025 accreditation.

Opinions, comments and interpretations expressed in this report are shown in italics.

Copies of INSPEC interpretations referenced in this report are available upon request.

Specimens will be disposed of four weeks from the date of this report, unless otherwise instructed.

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Summary of assessment*

Clause	Requirement		Assessment (see Key)
4	**Physical requirements**		
4.1	Materials and construction		Ltd
4.2	External vertical distance		
4.3	Internal vertical distance		
4.4	Internal vertical clearance		
4.5	Horizontal distance		
4.6	Wearing height		
4.7	Harness		
4.7.1	Headband/nape strap		
4.7.2	Cradle		
4.7.3	Comfort band or sweatband		
4.8	Chin strap		Pass
4.9	Ventilation	§	
4.10	Accessories		
5	**Performance requirements**		
5.1	**Mandatory requirements**		
5.1.1	Shock absorption	§	
5.1.2	Resistance to penetration	§	
5.1.3	Flame resistance		
5.1.4	Chin strap anchorages	†	Pass
5.1.5	Label		
5.2	**Optional requirements**		
5.2.1	Very low temperature (-20°C or -30°C) – optional	§	
5.2.2	Very high temperature (+150°C) – optional	☒	
5.2.3	Electrical properties – optional		
5.2.4	Lateral deformation – optional		
5.2.5	Molten metal splash – optional	☒	
7	Marking	§	

Key

	Shading shows the clauses requested. Any other clauses were not requested.
Pass	Requirement satisfied.
Ltd	Testing requested was insufficient completely to verify compliance with the clause. Refer to the "Result details" section for more information.
Fail	Requirement not satisfied. Refer to the "Result details" section for more information.
NAs	Assessment not carried out.
NAp	Requirement not applicable.
NT	Requested but not tested due to early termination following failure.
§	Co-ordination of Notified Bodies Vertical Group 1 Recommendation for use sheet refers.
†	INSPEC Interpretation applies

* Assessment relates only to those specimens which were tested and are the subject of this report.

Submission details

Product	Quantity	Date received	INSPEC specimen no. (1D0693+)
NTA industrial safety helmet	3	20 Dec. 16	01 to 03
Additional chin straps	5		-

Helmets were supplied with chin straps fitted.

Procedures

The specimens detailed within the submission above were used for the tests covered by this report.

Testing was performed in accordance with BS EN 397:2012 + A1:2012 unless otherwise specified below. Reference should be made to the standard when reading this report.

Unless stated otherwise, specimens were tested in the condition as received by INSPEC.

5.1.4 The Standard requires that assessment be performed on a single specimen previously tested for resistance to penetration at +50°C. The required conditioning was performed, however, the resistance to penetration test had not been carried out.

At the request of the client, the three supplied specimens were tested.

Result details

4.1 Materials and construction

Specimens 01 and 02 were assessed.

The helmet did include at least a shell and a harness. **Pass**

The effects of any materials which would come into contact with the wearer when worn were not assessed. Manufacturer to certify. **NAs**

No parts of the specimens assessed had sharp edges, roughness or projections likely to cause injury to the wearer when the specimens were worn. **Pass**

The wearing height, nape strap and chin strap could be adjusted without the use of tools. **Pass**

The harness, chin strap and sweatband of the specimens could be removed and attached without the use of tools. Manufacturer to certify which parts are intended to be replaced. **NAs**

The adjustable parts of the specimens were designed so that, when in normal use, inadvertent adjustment was not possible. **Pass**

4.8 Chin strap

Specimen 01 was assessed.

A chin strap was provided fitted to the shell at the rear and to the harness anchorage at the sides. The harness anchorage attached to both the shell and headband. **Pass**

Specimen 01 – chin strap attachment at rear

Specimen 01 – chin strap attachment at sides

Specimen	Chin strap width (mm)
01	15
Limit	**≥ 10**

Pass

5.1.4 † Chin strap anchorages

See 'Procedures'.

Specimen	Headform	Force to release jaw (N)	
01	585	225	**Pass**
02		157	**Pass**
03		207	**Pass**
Limit		**≥ 150 : ≤ 250**	

Specimen 01:

The right side and rear anchorages released from the shell / harness. The left side anchorage fractured and released from the harness.

Specimen 02 and 03:

The right side, left side and rear anchorages released from the shell / harness.

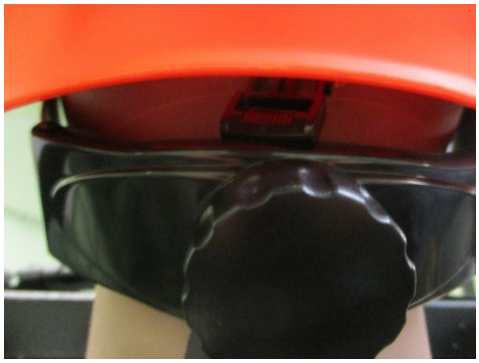
For all specimens, release of the jaw was due to failure of the anchorages only. **Pass**

Observations:

For specimens 02 and 03, the left side, right side and rear anchorages released from the shell / harness. The chin strap had not fully released from the headform due to the buckle component of the rear anchorage being retained between the headform and the top of the nape.

The strap released for specimen 02 with minimal contact following the test. The strap remained under tension for specimen 03 requiring the loosening of the nape to release the strap.

In the opinion of INSPEC Testing Services, the jaw had released due to failure of the anchorages and the specimens tested were considered to comply with the requirements of this clause.



Specimen 03 – rear buckle position after release of chin strap.

Estimates of the uncertainty of measurement

Clause	Test	Uncertainty
4.1	Materials and construction	Not applicable
4.2	External vertical distance	±1.5%
4.3	Internal vertical distance	±1.5%
4.4	Internal vertical clearance	±1.5%
4.5	Horizontal distance	±0.8%
4.6	Wearing height	±1.5%
4.7	Harness	Not applicable
4.7.1	Headband/nape strap	Dimensions ±0.59mm
4.7.2	Cradle	Dimensions ±0.59mm
4.7.3	Comfort band or sweatband	Dimensions ±0.59mm
4.8	Chin strap	Dimensions ±0.59mm
4.9	Ventilation	Dimensions ±0.83mm2
4.10	Accessories	Not applicable
5.1.1	Shock absorption	±3.3%
5.1.2	Resistance to penetration	See note 1
5.1.3	Flame resistance	See note 1
5.1.4	Chin strap anchorages	±2.4%
5.1.5	Label	Not applicable
5.2.1	Very low temperature (-20ºC or -30ºC) – optional Shock absorption	±3.1%
	Penetration	See note 1
5.2.2	Very high temperature (+150ºC) – optional	See report
5.2.3	Electrical properties – optional	±3.6%
5.2.4	Lateral deformation – optional	±2.6%
5.2.5	Molten metal splash – optional	See report
7	Marking	Not applicable

Note 1 The acceptance criterion for this test is a straightforward “Pass/Fail”, rather than a numerical value. Consequently, as there is no value to be reported, uncertainty has not been reported either.

Note 2 The uncertainty value is based on a standard uncertainty multiplied by a coverage factor k = 2, which provides for a confidence level of approximately 95%. Values expressed as a percentage (%) are relative.

Note 3 It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria.

ANNEX

This Annex comprises one section.

1. Photographs of the product tested. (1 page)

Zhejiang Nicety Technology Co., Ltd's model NTA industrial safety helmet

INSPEC Testing Services' specimen number 1D0693 01 **13 January 2017**