

Test Report

ANSI Z359.12-2019

Connecting Components for Personal Fall Arrest Systems

Report no: 2.24.07.07

Customer: Jinhua Jech Tools Co., Ltd.
1448 Tongxi Road, Linjiang Industrial Park
Wucheng District,
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P.R. China

Manufacturer: Jinhua Jech Tools Co., Ltd.
as advised by the Customer

Customer order: T/1340 and T/1357

Order received: 10 May 2024 and 19 June 2024 respectively.

Model: 510047N

Dates of tests: 28 May 2024 to 24 June 2024 and 8 July 2024

Signed:



Steven Sum, Laboratory Manager

Issued: 9 July 2024

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Conditions

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

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

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

Tests marked ☒ are not included in our ANAB Scope of Accreditation.

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Summary of assessment *

Clause	Requirement	Assessment (See Key)
3.1.1	Surface finish of hardware	Pass
3.1.2	New and Unused	Pass
3.1.3	Snaphooks & Carabiners	Pass
3.1.4	D-rings, O-rings & Oval rings	
3.1.5	Buckles and adjusters	
3.1.6	Proof load testing	
3.1.7	Dynamic drop test	Pass
5.1 / 5.2	Marking	Ltd
5.3	Instructions	Pass

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.

* 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.
Carabiner (white zinc), model 510047Z	18	25 May 2024	2M10401 to 2M10418
Carabiner (yellow zinc), model 510047N	06		2M10501 to 2M10506

Procedures

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

Testing was performed in accordance with ANSI Z359.12-2019 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.

Testing was performed at INSPEC's laboratory in Kunshan City, China.

The manufacturer made the following declarations:

Carabiner, models 510047Z and 510047N are from the same family of products. They have the same design, are made of the same materials and have the same construction. The only difference is the surface treatment of the carabiner 510047Z is galvanized with white zinc and 510047N is galvanized with yellow zinc.

To avoid duplicate testing, some performance testing results of model 510047Z was shared across to model 510047N

Result details**3 Requirements****3.1 Component and Element Requirements****3.1.1 Surface Finish of Hardware**

Specimens 2M10501, 2M10502 and 2M10503 were assessed.

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|----|--|-------------|
| a) | The finishing of the specimens were clean and free of scale, rust and deposits of foreign matter. | Pass |
| b) | Following the salt spray test, there were evidence of either, red rust visible to the unaided eye, or corrosion of the base metal of the specimen. | Pass |
| c) | All surfaces of the specimens, which may come in contact with tearable materials, were free of burrs, pits, sharp edges and rough surfaces. | Pass |

3.1.2 Condition of Hardware

All specimens were new and unused when received.	Pass
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3.1.3 Snaphooks and Carabiners

Specimen 2M10404 was assessed.

The connector incorporated a self-closing gate.	Pass
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The gate locked automatically when the gate closed.	Pass
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The connector was capable of being opened only by at least two consecutive, deliberate actions.	Pass
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|---------|---|-------------|
| 3.1.3.1 | When tested along the major axis, specimens 2M10404, 2M10405 and 2M10406 withstood the 5,500 pounds tensile load applied for 1-minute without breaking. The gates did not separate from the nose of the carabiner body. | Pass |
|---------|---|-------------|

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|---------|---|-------------|
| 3.1.3.2 | When tested in accordance with 4.2.1.1.2, the gates of specimens 2M10407, 2M10408 and 2M10409 withstood a gate-face load of 3,600 pounds applied for 1-minute without the gates separating from the nose of the carabiner body. | Pass |
|---------|---|-------------|

- | | | |
|---------|---|-------------|
| 3.1.3.3 | When tested in accordance with 4.2.1.1.3, the gates of specimens 2M10410, 2M10411 and 2M10412 withstood a gate-side load of 3,600 pounds applied for 1-minute to a point midway between the nose and gates hinge. The gates did not separate from the nose of the carabiner body. | Pass |
|---------|---|-------------|

- | | | |
|---------|--|-------------|
| 3.1.3.4 | When tested along the minor axis, specimens 2M10413, 2M10414 and 2M10415 withstood the load of 3,600 pounds applied for 1-minute to a point midway between the nose and gates hinge. There were no distortions of the specimens. | Pass |
|---------|--|-------------|

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|---------|---|------------|
| 3.1.3.5 | The clause is not applicable to the type of connector tested. | NAp |
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- | | | |
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| 3.1.3.6 | The clause is not applicable to the type of connector tested. | NAp |
|---------|---|------------|

3.1.7 Dynamic drop test

Following abrasion and cold conditioning, specimens 2M10416, 2M10417 and 2M10418 withstood the dynamic drop tests. There were no permanent deformations. **Pass**

5.1 General Marking Requirements

Markings in English were provided electronically and used for assessment.

5.1.1 Markings shall be in English. **Pass**

5.1.2 The requirement that markings shall be expected to remain present and legible throughout the expected life of the component being marked was not assessed. **NAs**

5.1.3 Any restrictions on the use of such connectors (hardware) shall be marked on the connectors (hardware) or components, subsystems and systems of which they are an integral part. (Nil) **NAP**

5.2 Specific Marking Requirements

5.2.1 Connectors. Connectors (all components listed in 3.1.6, requiring proof loading as per this standard, i.e. Snaphooks, Carabiners, D-rings, O-rings and Oval rings) shall be marked to identify the following:

- Year of manufacture; **Pass**
- Manufacturer's identification; **Pass**
- Markings for connectors shall be sufficient to provide traceability; **Pass**
- Load rating for the major axis of the connector stamped or otherwise permanently marked on the device, minimum 5,000 lb. (22kN); [5500 LBS] **Pass**
- Load rating for gate stamped or otherwise permanently marked on the gate mechanism; [3600 LBS] **Pass**
- For connectors that are non-integral part (non-captive eye), then "ANSI Z359.12-XX" ("XX" denotes year of standard) is required. [ANSI Z359.12-2019] **Pass**

5.3 Specific Instruction Requirements

5.3.1 Connectors. Instructions for connector components supplied separately to the user which are not integral to the product (i.e., are removable from the product) shall include:

- The material used in the connector construction; **Pass**
- The size of the connector and dimensions affecting its compatibility with objects to which it may be connected; **Pass**
- The need to make only compatible connections and limitations of compatibility; **Pass**
- Proper method of coupling the connector and checking that it is closed and locked; **Pass**
- The minimum strength of the connector body when loaded in the direction set forth in the applicable sections of this standard; **Pass**
- The minimum strength of carabiner and snaphook gates when loaded in the directions set forth in 3.1.3. **Pass**

Estimates of the uncertainty of measurement

Clause	Test		Uncertainty
3.1.1	Surface finish of hardware		See Note 1
3.1.2	New and Unused		Not applicable
3.1.3	Snaphooks and carabiners	Tensile test	See Note 1
		Gate resistance	See Note 1
		Gap measurement	±1.4%
3.1.4	D-rings, O-rings and Oval rings		See Note 1
3.1.5	Buckles and Adjusters		See Note 1
3.1.6	Proof load testing		See Note 1
3.1.7	Dynamic Drop test		See Note 1
5	Marking and Instructions		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. Photograph of the product tested. (1 page)

END OF REPORT

Jinhua Jech Tools Co., Ltd. -
Carabiner (yellow zinc), model 510047N

