

## Test Report

### Personal Fall Arrest Equipment ANSI/ASSE Z359.11-2014 Full Body Harness

**Report no:** 2.15.09.18

**Client:** Jinhua Jech Tools Co., Ltd  
No.10 Jinlong Road,  
Bailongqiao Town,  
Jinhua City, Zhejiang,  
China

**Manufacturer:** Jinhua Jech Tools Co., Ltd

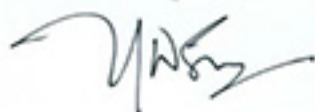
**Client order:** Email

**Order received:** 24 July 2015

**Model:** JE115021

**Dates of test:** 14 August 2015 to 24 September 2015

**Signed:**



Steven Sum, Laboratory Manager

**Issued:** 24 September 2015

Page 1 of 12

**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 ACLASS Scope of Accreditation.

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**Summary of assessment \***

Clause	Requirement	Assessment (See Key)
3.1	Design requirements	Ltd
<b>3.2</b>	<b>Attachment Element Requirement</b>	
3.2.1	Dorsal	Pass
3.2.1.3.1	Dynamic Feet First	Pass
3.2.1.3.2	Dynamic Head First	Pass
3.2.1.3.3	Static Feet First	Pass
3.2.1.3.4	Fall Arrest Indicator	Pass
3.2.2	Sternal	
3.2.2.3.1	Dynamic Feet First	
3.2.2.3.2	Static Feet First	
3.2.2.3.3	Fall Arrest Indicator	
3.2.3	Frontal	
3.2.3.1.1	Dynamic Feet First	
3.2.3.1.2	Static Feet First	
3.2.4	Shoulder	
3.2.4.1.1	Static Feet First	
3.2.5	Waist, Rear	
3.2.5.2.1	Static Feet First	
3.2.6	Hip	
3.2.6.1.1	Static Feet First	
3.2.7	Suspension Seat	
3.2.7.1.1	Static Feet First	
<b>3.3</b>	<b>Component Requirements</b>	
3.3.1	Load bearing straps	Ltd
3.3.1.2	Strap tensile test	Pass
3.3.1.5	Strap tensile test (after abrasion)	Pass
3.3.2	Thread and Stitching	Ltd
3.3.3	Connecting components	
3.3.1.2	Strap tensile test (soft loops)	
3.3.1.5	Strap tensile test (soft loops - after abrasion)	
5.1	Marking requirements	
5.2	Instructions requirements	

**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	Dates received	INSPEC specimen no. (job 2C095 +)
Full body harness, model JE115021	05	10 July 2015	01 to 05
	01	19 September 2015	06
Webbing, part no. JEW-1B2Y	01	27 July 2015	A to J
Webbing, part no. JEW-2BLACK			K to T

**Procedures**

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

Testing was performed in accordance with ANSI Z359.11-2014 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, China.

**Result details****3 Requirements****3.1 Design Requirements**

Specimen 2C09501 was assessed.

- |         |  |                              |
|---------|--|------------------------------|
| 3.1.1   | The specimen permanently incorporated a dorsal attachment element.<br>The specimen did not incorporate other attachment element.   | Pass                         |
| 3.1.2   | The specimen did incorporate a load bearing sub-pelvic strap.  | Pass                         |
| 3.1.3   | All shoulder straps on the specimen came together at the dorsal location and were crossed by webbing.<br><br>A D-ring was attached to the dorsal location.<br><br>Testing of the D-ring was not requested.   | Pass<br><br><br>NAs          |
| 3.1.4   | The specimen permanently incorporated a back strap as means of controlling the separation of the shoulder straps on the back of the full body harness.<br><br>When the specimen was mounted on to the torso as per manufacturer's instructions, some portion of the back strap was located between datum levels G and K. | Pass<br><br>Pass             |
| 3.1.5   | The specimen was not equipped with modular components or assemblies.   |                              |
| 3.1.5.1 | This clause was not applicable.  | NAp                          |
| 3.1.5.2 | This clause was not applicable.  | NAp                          |
| 3.1.6   | The specimen was not integrated into a vest or garment.  | NAp                          |
| 3.1.7   | The specimen was equipped with a fall arrest indicator.<br><br>The fall arrest indicator deployed during dynamic testing defined in section 3.2.<br><br>It was possible visually to inspect the fall arrester indicator.   | Pass<br><br>Pass<br><br>Pass |
| 3.1.7.1 | The specimen was not equipped with fall arrest indicator on other attachment element.  | NAp                          |
| 3.1.8   | The specimen was not equipped with connecting subsystem combinations.  | NAp                          |
| 3.1.9   | The specimen did include strap retainers (keepers) which serve to control the loose ends of straps.  | Pass                         |

**3.1.10 Static Feet First Test - Lanyard Parking Attachment Element**

Specimen 2C09506 was assessed.

The specimen was equipped with two lanyard parking attachment elements.

During the static feet first test, the lanyard parking attachment element disengagement load was 42.7 pounds.

The above value was less than the maximum 120 pounds permitted.

Pass

Specimen 2C09501 was assessed.

3.1.11 It was not possible to remove elements of the full body harness that support the shoulders / upper torso from those that support the legs / lower torso.

Pass

3.1.12 The dorsal attachment element was located laterally along the vertical centreline of the full body harness.

Pass

3.1.13 The specimen did not consist of a sternal attachment element.

NAP

3.1.14 As the specimen included a sub-pelvic strap, this clause is not applicable.

NAP

**3.2 Attachment Element Requirements****3.2.1 Dorsal**

Specimen 2C09501 was assessed.

The dorsal attachment element was used for fall arrest.

Pass

3.2.1.1 The dorsal attachment was used in travel restrain or rescue.

Pass

3.2.1.2 During the dynamic performance test, it was confirmed that the design of the full body harness directed the load through the shoulder straps supporting the user and around the thighs.

Pass

**3.2.1.3 Dorsal Attachment Element Requirements****3.2.1.3.1 Dynamic Feet First Test**

Specimen 2C09502 was assessed.

During the dynamic feet first test, the test torso was not released.

Pass

The harness did support the test torso for a period of five minutes post fall.

Pass

During this period, the angle of the test torso to vertical was 10 degrees. This value is less than the maximum 30 degrees permitted.

Pass

Two fall arrest indicators deployed visibly and permanently.

Pass

Full body harness stretch was 9.4 inches.

Full body harness stretch stated in the manufacturer's instructions was 18 inches.

Full body harness stretch shall not exceed 18 inches, or that which is stated in the manufacturer's instructions, whichever is less.

Pass

**3.2.1.3.2 Dynamic Head First Test**

Specimen 2C09503 was assessed.

During the dynamic head first test, the test torso was not released.

Pass

The harness did support the test torso for a period of five minutes post fall.

Pass

During this period, the angle of the test torso to vertical was 12 degrees. This value is less than the maximum 30 degrees permitted.

Pass

Two fall arrest indicators deployed visibly and permanently.

Pass

**3.2.1.3.3 Static Feet First Test**

Specimen 2C09504 was assessed.

During the static feet first tests, the test torso was not released from the harness.

Pass

During the static feet first tests, all adjusters did not slip.

Pass

Except for the straps of the buckle and eyelet adjusters, straps did not show signs of tearing.

Pass

**3.2.1.3.4 Fall Arrest Indicator Test**

Specimen 2C09505 was assessed.

When tested using the dorsal attachment element, the fall arrest indicator deployed visibly and permanently.

Pass



### 3.3 Components Requirements

#### 3.3.1 Load Bearing Straps (part number JEW-1B2Y)

Specimen 2C09501 was assessed.

- |         |  |      |
|---------|--|------|
| 3.3.1.1 | The minimum width of the load bearing straps was 45 mm. This is more than the minimum 41 mm specified.   | Pass |
| 3.3.1.2 | Specimens 2C095A to 2C095E and 2C095K to 2C095O withstood a tensile test of 5,000 pounds applied for 1 minute without breaking.                                  | Pass |
| 3.3.1.3 | The material and characteristics of load-bearing straps were not assessed. Manufacturer to certify.  | NAs  |
| 3.3.1.4 | The ends of load bearing straps were hot cut and fused so as to prevent fraying.   | Pass |
| 3.3.1.5 | Following abrasion conditioning, specimens 2C095F to 2C095J and 2C095P to 2C095T withstood a tensile test of 3,600 pounds applied for 1 minute without breaking. | Pass |
| 3.3.1.6 | Straps in contact with metal connectors at attachment elements were protected from wear.   | Pass |
| 3.3.1.7 | This clause was not applicable.  | NAP  |

#### 3.3.2 Thread and Stitching

Specimen 2C09501 was assessed.

- |         |   |      |
|---------|---|------|
| 3.3.2.1 | The material and characteristics of thread used was not assessed. Manufacturer to certify.  | NAs  |
| 3.3.2.2 | All types of stitching were not assessed. Manufacturer to certify.  | NAs  |
| 3.3.2.3 | Threads used for sewing the harness were white colour. This contrasted with the yellow and black colour of the load bearing straps. | Pass |

**Estimates of the uncertainty of measurement**

Clause	Test	Uncertainty	
3.1.1	Dorsal attachment	See Note 1	
3.1.2	Sub-pelvic strap	See Note 1	
3.1.3	Shoulder straps	See Note 1	
	Connector	See report	
3.1.4	Waist belt or back strap – control of separation of shoulder straps	See Note 1	
3.1.5	Modular components or assemblies, as appropriate	See Note 1	
3.1.5.1	Modular components.	See report	
3.1.5.2	Attachment element extender	Length	±0.14%
3.1.6	Full body harness integrated into a vest	See Note 1	
3.1.7	Fall Arrest Indicator	See Note 1	
3.1.8	Harness with attached connecting subsystem combinations	See report	
3.1.9	Strap retainers (keepers)	See Note 1	
3.1.10	Lanyard parking attachment element - Disengagement load	±2.90%	
3.1.11	Support – shoulders/upper torso	See Note 1	
3.1.12	Location of single point attachment	See Note 1	
3.1.13	Sternal attachment – bilateral elements	See Note 1	
3.1.14	Sub-pelvic straps	See Note 1	
3.2.1	Dorsal attachment element	See Note 1	
3.2.1.3.1	Dorsal attachment element	Dynamic Feet First	±2.92%
3.2.1.3.2		Dynamic Head First	±2.92%
3.2.1.3.3	Dorsal attachment element	Static strength	See Note 1
		Slippage	±1.31%
3.2.1.3.4	Fall Arrest Indicator test – dorsal attachment	See Note 1	
3.2.2	Sternal attachment element	See Note 1	
3.2.2.3.1	Sternal attachment element	Dynamic Feet First	±2.92%
3.2.2.3.2	Sternal attachment element	Static strength	See Note 1
		Slippage	±1.31%
3.2.2.3.3	Fall Arrest Indicator test – sternal attachment	See Note 1	
3.2.3	Frontal attachment element	See Note 1	
3.2.3.1.1	Frontal attachment element	Dynamic Feet First	±2.92%
3.2.3.1.2	Frontal attachment element	Static strength	See Note 1
		Slippage	±1.31%
3.2.4	Shoulder attachment element	See Note 1	
3.2.4.1.1	Shoulder attachment element	Static strength	See Note 1

Clause	Test	Uncertainty
	Slippage	±1.31%
3.2.5	Waist, Rear attachment element	See Note 1
3.2.5.2.1	Waist, Rear attachment element	Static strength
		Slippage
3.2.6	Hip attachment element	See Note 1
3.2.6.1.1	Hip attachment element	Static strength
		Slippage
3.2.7	Suspension Seat attachment element	See Note 1
3.2.7.1.1	Suspension Seat attachment element	Static strength
		Slippage
3.3.1.1	Straps	Width
3.3.1.2	Straps	Static strength
3.3.1.3	Straps – material and characteristics	Not applicable
3.3.1.4	Straps - terminations	See Note 1
3.3.1.5	Straps (after abrasion)	Static strength
3.3.1.6	Straps – contact with metal connectors	See Note 1
3.3.1.7	Buckle & eyelet type adjusters	Spacing
3.3.2.1	Threads and stitching – material	See Note 1
3.3.2.2	Lock stitching	Not applicable
3.3.2.3	Stitching – contrasting colour	See Note 1
3.3.3.1	Connecting components (except soft loops)	See report
3.3.3.2	Soft loop attachments	See Note 1
3.3.3.3	Soft loop	Static strength
	Soft loop (after abrasion)	Static strength
3.3.3.4	Soft loop attachments – protection from wear	See Note 1
5.1	Marking requirements	See Note 1
5.2	Instructions requirements	See Note 1

**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)

Jinhua Jech Tools Co.,Ltd -  
Full body harness, model JE115021

