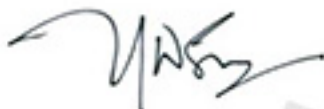


## Test Report

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

Report no:	2.18.12.26
Client:	Jinhua Jech Tools Co., Ltd No. 1448 Tongxi Road, Linjiang Industrial Park Wucheng District Jinhua City, Zhejiang China
Manufacturer:	Jinhua Jech Tools Co., Ltd
Client order:	T/0551
Order received:	23 November 2018
Model:	JE144026S
Dates of tests:	17 December 2018 to 25 December 2018

Signed:



Steven Sum, Laboratory Manager

Issued: 31 December 2018

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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	Design requirements	Ltd
3.1.10	Static Feet First – Lanyard parking attachment element	Pass
3.2	<b>Attachment Element Requirement</b>	
3.2.1	Dorsal	Ltd
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	Ltd
3.2.6.1.1	Static Feet First	Pass
3.2.7	Suspension Seat	
3.2.7.1.1	Static Feet First	
3.3	<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 conditioning)	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 conditioning)	

Clause	Requirement	Assessment (See Key)
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.
Load bearing strap (yellow), part no. JEW-1B2Y	15 m	23 Jan 2018	2F02201A to 2F02201J (Cut into 10 pieces)
Load bearing strap (black), part no. JEW-2BLACK	15 m		2F02202A to 2F02202J (Cut into 10 pieces)
Full body harness, model JE144026S	24	6 Nov 2018	2F18601 to 2F18624

**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.

The Client declared the following:

Both types of webbing used to manufacture the full body harness, model JE144026S were the same as those previously tested by INSPEC and reported in INSPEC Test Report 2.18.04.01

To avoid duplicate testing, the results were incorporated into this test report.

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

Specimen 2F18601 was assessed.

- |         |   |                              |
|---------|---|------------------------------|
| 3.1.1   | The specimen permanently incorporated a dorsal attachment element.<br><i>The other attachment elements were located at the sternal and hip.</i>   | 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 a 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, 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.  | NAP                          |
| 3.1.5.1 | This clause was not applicable.   | NAP                          |
| 3.1.5.2 | The specimen was not equipped with an attachment element extender, therefore this clause is 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 two fall arrest indicators.<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 other fall arrest indicators.  | 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**

Specimens 2F18601 to 2F18603 were assessed.

Each specimen was equipped with one lanyard parking attachment element.

Pass

During the static feet-first tests, the lanyard parking attachment element disengagement loads were:

Specimen 2F18601 - 74.2 pounds

Specimen 2F18602 - 74.2 pounds

Specimen 2F18603 - 71.9 pounds

The above values were less than the maximum 120 pounds permitted.

Pass

Specimen 2F18601 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 within "zero" inch of the vertical centreline of the full body harness.

Pass

3.1.13 The specimen consist of a single point sternal attachment element

NAP

3.1.14 The specimen did include a sub-pelvic strap.

NAP

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

Specimen 2F05301 was assessed.

The dorsal attachment element was located in the dorsal area shown in figure 4 of the standard.

Pass

3.2.1.1 User Instructions were not provided.

NAs

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 2F18604 to 2F18606 was assessed.

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

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

During this period, the angles of the test torso to the vertical were 6, 6 and 7 degrees respectively. These values are less than the maximum 30 degrees permitted. Pass

Two fall arrest indicators deployed visibly and permanently. Pass

Full body harness stretch was 12.4, 11.9 and 12.2 inches respectively.

*Manufacturer's instruction was not provided.*

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

#### 3.2.1.3.2 Dynamic Head First Test

Specimens 2F18607 to 2F18609 were assessed.

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

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

During this period, the angles of the test torso to the vertical was 11, 13, 15 degrees respectively. These values are 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

Specimens 2F18610 to 2F18612 were 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

There were no buckle and eyelet adjusters. NAs

All straps did not show signs of tearing. Pass



### 3.2.1.3.4 Fall Arrest Indicator Test

Specimens 2F18613 to 2F18615 were assessed.

When tested using the dorsal attachment element, two fall arrest indicators deployed visibly and permanently. Pass

## 3.2.6 Hip

### 3.2.6.1 Hip Attachment Element Requirements

#### 3.2.6.1.1 Static Feet First Test

Specimens 2F18622 to 2F18624 were 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

There were no buckle and eyelet adjusters. NAp

All straps did not show signs of tearing. Pass

## 3.3 Components Requirements

### 3.3.1 Load Bearing Straps

Specimen 2F18601 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 The straps 2F02201A to 2F02201E and 2F02202A to 2F02202E 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 stitched so as to prevent fraying. Pass

3.3.1.5 Following abrasion conditioning, the straps 2F02201F to 2F02201J and 2F02202F to 2F02202J 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 There were no buckle and eyelet adjusters. NAs

**3.3.2 Thread and Stitching**

Specimen 2F18601 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 colours. These contrasted with the yellow and black colours of the load bearing straps respectively. | 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	±0.04 inches
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	±3.4%	
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	±3.4%
3.2.1.3.2		Dynamic Head First	±3.4%
3.2.1.3.3	Dorsal attachment element	Static strength	See Note 1
		Slippage	±1.3%
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	±3.4%
3.2.2.3.2	Sternal attachment element	Static strength	See Note 1
		Slippage	±1.3%
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	±3.4%
3.2.3.1.2	Frontal attachment element	Static strength	See Note 1
		Slippage	±1.3%
3.2.4	Shoulder attachment element	See Note 1	

3.2.4.1.1	Shoulder attachment element	Static strength	See Note 1
		Slippage	±1.3%
3.2.5	Waist, Rear attachment element		See Note 1
3.2.5.2.1	Waist, Rear attachment element	Static strength	See Note 1
		Slippage	±1.3%
3.2.6	Hip attachment element		See Note 1
3.2.6.1.1	Hip attachment element	Static strength	See Note 1
		Slippage	±1.3%
3.2.7	Suspension Seat attachment element		See Note 1
3.2.7.1.1	Suspension Seat attachment element	Static strength	See Note 1
		Slippage	±1.3%
3.3.1.1	Straps	Width	±1.3%
3.3.1.2	Straps	Static strength	See Note 1
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	See Note 1
3.3.1.6	Straps – contact with metal connectors		See Note 1
3.3.1.7	Buckle & eyelet type adjusters	Spacing	±0.02 inches
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	See Note 1
	Soft loop (after abrasion)	Static strength	See Note 1
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)

END OF REPORT

**Jinhua Jech Tools Co., Ltd –  
Full body harness, model JE144026S**



**INSPEC Testing Services' specimen 2F18601**

**19 December 2018**