



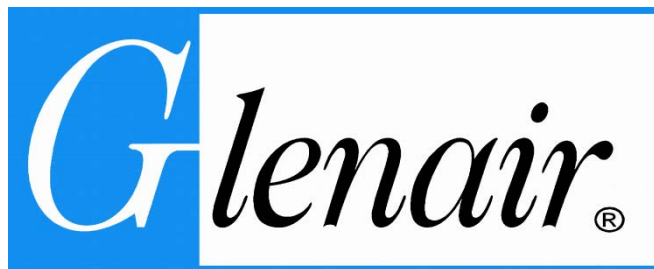
# Glenair Test Report

Pull Test;  
ArmorLite Braid (103-051)

GT-11-28 (ARM-105)

Revision 1

2/16/22



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## TEST REPORT

Cage Code: 06324	Pull Test; ArmorLite Braid (103-051)	Document #: GT-11-28 (ARM-105) Revision: 1 Page 2 of 12
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Revision Status	Description of Change	Date	Approval
1	Reformatting; cover page	02/16/22	JNN



## TEST REPORT

Cage Code: 06324	Pull Test; ArmorLite Braid (103-051)	Document #: GT-11-28 (ARM-105) Revision: 1 Page 3 of 12
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### Summary of Results:

ArmorLite braid (103-051) was pull tested at a rate of .25 inches per minute.

**103-051-008 (.250" ID) PASSED 90 lbs.**

**103-051-012 (.375" ID) PASSED 150 lbs.**

**103-051-024 (.750" ID) PASSED 220 lbs.**

ARM 105



**Acceptance Test Plan to  
Glenair Tensile / Pull Strength Test  
for ArmorLite LtWt Nickel Plated  
Braid 103-051**

Acceptance Test Plan  
Doc. No. ATP186



**DOCUMENT CHANGE RECORD**

Issue	Change order	Date	Paragraph effected	Reason for change
1	<i>Draft 1</i>	3/10/2011		

**DOCUMENT VALIDATION**

	Name	Function	Date/signature
Prepared	Ali Saberi	Electrical Engineer	3/10/2011
Approved	Bert Bergsrud	Executive Vice President	3/10/2011

Prepared by: Ali Saberi  
Date issued: 3/10/2011

**Acceptance Test Plan  
Doc. No. ATP186**



**1. Purpose**

Test and evaluate ArmorLite LtWt Nickel Plated 316L SST Braid Material for Tensile / Pull Strength.

**2. Applicable documents**

N/A

**3. Procedure / Equipment**

**Test Equipment and Material**

Instron 3300 with 2716-010 Mechanical Wedge-Action Grips  
Calibration due date: 04/14/2011

**Sampling:**

Four (4) samples of 5 inches length of 103-051-008 (0.25 in.ID), (3 inches measurable).

Six (6) samples of 5 inches length of 103-051-012 (0.375 in.ID), (3 inches measurable).

Eight (8) samples of 5 inches length of 103-051-024 (0.75 in.ID), (3 inches measurable).

**Test Procedure:**

The test shall be performed at ambient temperature range of  $25 \pm 3^{\circ}\text{C}$  with the following conditions:

- a) Speed: 0.25 inches per minute
- b) Force Start: 0 lbs
- c) Force stop at 90 lbs
- d) Force stop at 150 lbs
- e) Force stop at 220 lbs
- f) 2 samples of each sizes 008, 012, and 024 (6 samples total)
- g) 2 samples of each sizes 012, and 024 (4 samples total)
- h) 2 samples of size 024 (2 samples total)
- i) 2 samples of each sizes 008, 012, and 024 (6 samples total)

**Guidance**

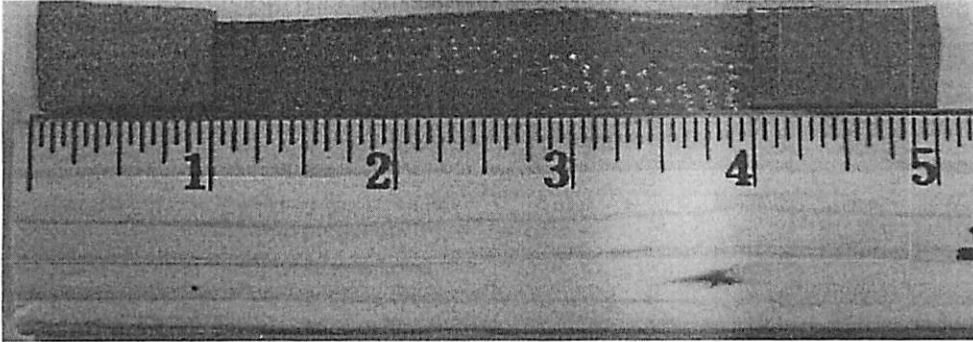
**Pull test steps:**

**Part 1:** Visually inspect the samples with a 10X maximum magnification prior the test to make sure the samples do not have any defects, knots, broken or loose strands.

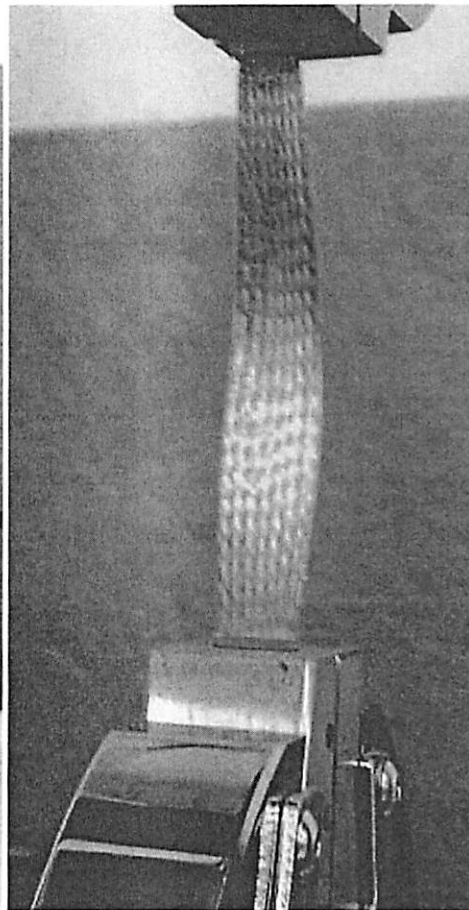
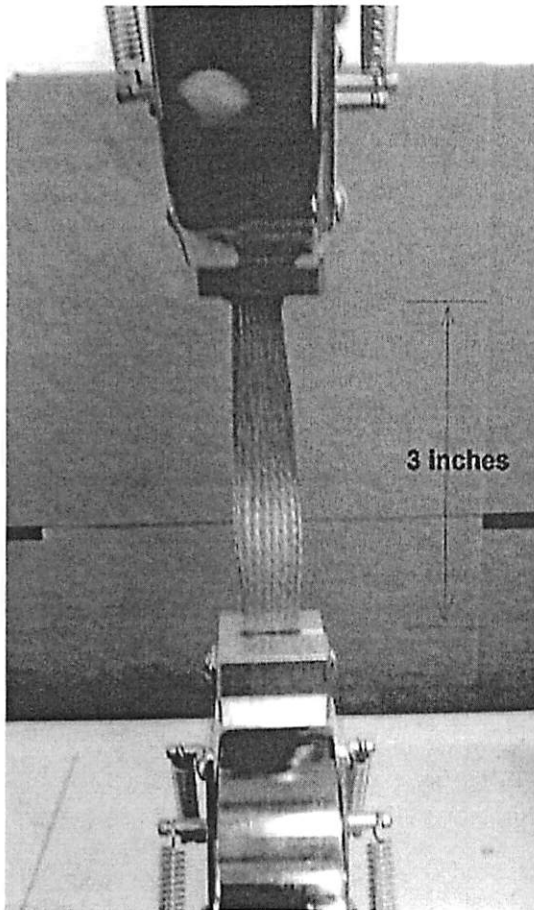
**Part 2:** The wedge action grips shall be used for braid's loading, alignment and positioning.

**Part 3:** Cut all samples into five (5) inches long pieces. Apply tapes to one (1) inches of the top and one (1) inches of the bottom of braids in order to prevent them from coming unraveled. After applying the tapes, three (3) inches of the braid's length shall be visible.

Prepared by: Ali Saberi  
Date issued: 3/10/2011



Part 4: Place the sample between the wedge action grips and make sure the action grips are tight enough. Make sure the three (3) inches of the braid is visible.



Part 5: Calibrate the Instron by zeroing out the display's force reading without braid being pulled (braid shall be relaxed).

**Acceptance Test Plan  
Doc. No. ATP186**



**1) Start at 0 lbs, Stop at 90 lbs**

Part 6: Start the test with samples in f) and the values as described in a) and b).

Part 7: The test shall reach the value described in c)

Part 8: Inspect all Six (6) samples visually with a 10X maximum magnification. Record the braid's elongation. Record any failure or defects such as knots, breaks, or coating damage.

**2) Start at 0 lbs, Stop at 150 lbs**

Part 9: Start the test with samples in g) and the values as described in a) and b).

Part 10: The test shall reach the value described d)

Part 11: Inspect all Four (4) samples visually with a 10X maximum magnification. Record the braid's elongation. Record any failure or defects such as knots, breaks, or coating damage.

**3) Start at 0 lbs, Stop at 220 lbs**

Part 12: Start the test with samples in h) and the values as described in a) and b).

Part 13: The test shall reach the value described e)

Part 14: Inspect the Two (2) samples visually with a 10X maximum magnification. Record the braid's elongation. Record any failure or defects such as knots, breaks, or coating damage.

**4) Start at 0 lbs, Stop at breakage**

Part 15: Start the test with samples in i) and the values as described in a) and b). Continue pull test beyond the 220 lbs until the braid breaks. Record the breaking value.

**4. Test requirements**

The PASS criteria shall meet these requirements:

Samples shall be visually inspected with a 10X magnification.

Size 008 samples should not have any types of defects such as, knots, breaks, or plating damage for up to 90 lbs.

Size 012 samples should not have any types of defects such as, knots, breaks, or plating damage for up to 150 lbs.

Size 024 samples should not have any types of defects such as, knots, breaks, or plating damage for up to 220 lbs.

The post-test braid length (elongation) should be within the 8% to 10% (Industry wire standard) of the sample's pre-test length. Record the elongation value.

Prepared by: Ali Saberi

Date issued: 3/10/2011





Date: 3/11/2011

### ArmorLite 0 - 90 Lbs. Pull Test

Samples	Braid Size	Elongation Length	Force Lbs	Test Results
Sample 1	103-051-008	.082 inches ( 2.73 % )	90 lbs.	PASS
Sample 2	103-051-008	.080 inches ( 2.66 % )	90 lbs.	PASS
Sample 1	103-051-012	.069 inches ( 2.3 % )	90 lbs.	PASS
Sample 2	103-051-012	.065 inches ( 2.16 % )	90 lbs.	PASS
Sample 1	103-051-024	.063 inches ( 2.1 % )	90 lbs.	PASS
Sample 2	103-051-024	.061 inches ( 2.03 % )	90 lbs.	PASS

Test Performed by: ALEX MCEWAN

DAU PHUNG



Date: 3/11/2011

### ArmorLite 0 - 150 Lbs. Pull Test

Samples	Braid P/N	Elongation Length	Force Lbs	Test Results
Sample 1	103-051-008	.161 inches ( 5.36 % )	150 lbs.	FAIL (broke @ 102.1 lbs.)
Sample 2	103-051-008	.140 inches ( 4.66 % )	150 lbs.	FAIL (broke @ 91.3 lbs.)
Sample 1	103-051-012	.130 inches ( 4.33 % )	150 lbs.	PASS
Sample 2	103-051-012	.131 inches ( 4.36 % )	150 lbs.	PASS
Sample 1	103-051-024	.063 inches ( 2.1 % )	150 lbs.	PASS
Sample 2	103-051-024	.075 inches ( 2.5 % )	150 lbs.	PASS

Test Performed by: ALEX MCEWAN

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Date: 3/11/2011

### ArmorLite 0 - 220 Lbs. Pull Test

Samples	Braid P/N	Elongation Length	Force Lbs	Test Results
Sample 1	103-051-008	.087 inches ( 2.9 % )	220 lbs.	FAIL (broke @ 92 lbs.)
Sample 2	103-051-008	.188 inches ( 6.26 % )	220 lbs.	FAIL (broke @ 104.1 lbs.)
Sample 1	103-051-012	.172 inches ( 5.73 % )	220 lbs.	FAIL (broke @ 152.2 lbs.)
Sample 2	103-051-012	.164 inches ( 5.46 % )	220 lbs.	FAIL (broke @ 151.6 lbs.)
Sample 1	103-051-024	.089 inches ( 2.96 % )	220 lbs.	PASS
Sample 2	103-051-024	.094 inches ( 3.13 % )	220 lbs.	PASS

Test Performed by: ALEX MCEWAN

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Date: 3/11/2011

### ArmorLite Maximum Breaking Pull Test

Samples	Braid Size	Elongation Length	Force Lbs	Test Results
Sample 1	103-051-008	.164 inches ( 5.46 % )	Max Breaking Load	101.4 lbs.
Sample 2	103-051-008	.140 inches ( 4.66 % )	Max Breaking Load	100.8 lbs.
Sample 1	103-051-012	.202 inches ( 6.73 % )	Max Breaking Load	153.8 lbs
Sample 2	103-051-012	.239 inches ( 7.96 % )	Max Breaking Load	151.7 lbs.
Sample 1	103-051-024	.207 inches ( 6.9 % )	Max Breaking Load	297 lbs.
Sample 2	103-051-024	.153 inches ( 5.1 % )	Max Breaking Load	225.1 lbs.

Test Performed by: ALEX MCEWAN

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