ANSI Z359.18 Type A Test Report

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Test Report Number:	2018051100101
Job Number:	129484
Product Type:	Type A Anchorage Connector
Product Model:	00101, Beamer 2000
Dates of Manufacture:	10/01/2017, 11/22/2017
Date(s) of Testing:	02/19/2018

Tests Completed	Test Date	ANSI/ASSE Z359.18-2017	Pass/Fail
Design Requirements			Pass
Static Strength	02/19/2018		Pass
Dynamic Strength	02/19/2018		Pass
Residual Strength	02/19/2018		Pass
Corrosion			Pass
Markings and Instructions			Pass

Please see attached test data for details

John Halas, Engineer: _____ Date: 5/17/18

Craig Allen, Test Technician: _____ Date: 5/17/18

Darrell Blalock, Lab Manager: _____ Date: 5/17/18

Job Number:	129484	Engineer:	John Halas
Product:	Type A Anchorage Connector	Tested By:	Craig Allen
Model Number:	00101, Beamer 2000	Reviewed By:	Darrell Blalock

TEST EQUIPMENT

Equipment	Model	Serial	
282 lb. weight	N/A	GFP001	
Static load cell	1220ACK-25K-B	347989A	

3.1	Design Requirements	
3.1.1 (a)	Connection points shall support only one user or system at a time	Pass
(c)	Anchorage connectors shall not have closed loops that could be mistaken for a connection point	N/A
(d)	Any operable gates, rings, buckles or other hardware covered by ANSI Z359.12-2012 shall comply with ANSI Z359.12-2012	Pass
(e)	Multiple connections shall only be permitted on tripod or davit style anchorages	N/A
3.1.2	Surfaces shall be free from burrs, pits, sharp corners and roughness	Pass
3.1.3.1	Hot-dipped galvanized steel shall conform with ASTM A123/123M	Pass
3.1.3.2.1	Type A and Type T anchorage connectors shall maintain toughness at temps between -30 degrees F and +130 degrees F	Pass

This test report covers these additional products:

00103

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Substrate/Fastener:	"I" or "H" structural beam		

4.2.1 Static Strength Testing of Anchorage Connectors

a) Attach anchorage on approved substrate per 4.1.2
b) (Type A and T) Apply 5,000 lbs. load in permitted direction(s) at a rate no greater than 2 inches per minute for at least 3 minutes
c) Release load
d) Evaluate results per 3.2.1.1, 3.2.1.2, 3.2.1.3 as required

Static Strength Test Requirements per 3.2.1.1, 3.2.1.2, 3.2.1.3			
SAMPLE #1	**Type:** A		
Anchorage connector withstands applied load			Pass
Actual load applied		5063	lbs.
If gates are present, no separation more than 1/8"			N/A
COMPLIANT		Yes	

Static Strength Test Requirements per 3.2.1.1, 3.2.1.2, 3.2.1.3			
SAMPLE #2	**Type:** A		
Anchorage connector withstands applied load			Pass
Actual load applied		5057	lbs.
If gates are present, no separation more than 1/8"			N/A
COMPLIANT		Yes	

Static Strength Test Requirements per 3.2.1.1, 3.2.1.2, 3.2.1.3			
SAMPLE #3	**Type:** A		
Anchorage connector withstands applied load			Pass
Actual load applied		5062	lbs.
If gates are present, no separation more than 1/8"			N/A
COMPLIANT		Yes	

Notes:

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4.2.2 Dynamic Strength Testing of Anchorage Connectors

a) Condition sample as necessary per 4.2.2.3.1
b) Attach anchorage on approved substrate per 4.1.2
c) Connect 282 lbs. test weight to anchorage connector via test lanyard
d) (Type A and T) Raise weight to achieve 3 ft. free fall
e) Release test weight and evaluate in accordance with 3.2.2.1, 3.2.2.2, 3.2.2.3 as required

Dynamic Strength Test Requirements per 3.2.2.1, 3.2.2.2, 3.2.2.3		
SAMPLE #1	**Type:** A	
Anchorage connector arrests test weight		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

Dynamic Strength Test Requirements per 3.2.2.1, 3.2.2.2, 3.2.2.3		
SAMPLE #2	**Type:** A	
Anchorage connector arrests test weight		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

Dynamic Strength Test Requirements per 3.2.2.1, 3.2.2.2, 3.2.2.3		
SAMPLE #3	**Type:** A	
Anchorage connector arrests test weight		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

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4.2.3 Residual Dynamic Strength Testing of Anchorage Connectors

a) Repeat dynamic test as specified in 4.2.2
b) Evaluate results in accordance with 3.2.2.1, 3.2.2.2, 3.2.2.3 as required

Residual Dynamic Strength Test Requirements per 3.2.3.1, 3.2.3.2, 3.2.3.3		
SAMPLE #1	**Type:** A	
Anchorage connector arrests test weight		Pass
Anchorage connector supports test weight for min 1 minute		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

Residual Dynamic Strength Test Requirements per 3.2.3.1, 3.2.3.2, 3.2.3.3		
SAMPLE #2	**Type:** A	
Anchorage connector arrests test weight		Pass
Anchorage connector supports test weight for min 1 minute		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

Residual Dynamic Strength Test Requirements per 3.2.3.1, 3.2.3.2, 3.2.3.3		
SAMPLE #3	**Type:** A	
Anchorage connector arrests test weight		Pass
Anchorage connector supports test weight for min 1 minute		Pass
If gates are present, no separation more than 1/8"		N/A
COMPLIANT	Yes	

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4.2.5 Corrosion Testing of Anchorage Connectors

a) (Type A and D) Expose anchorage connector to (2) 24-hour salt spray exposures separated by a one-hour drying period

b) Evaluate results in accordance with 3.2.5.1, 3.2.5.2 as required

Corrosion Test Requirements per 3.2.5.1, 3.2.5.2		
SAMPLE #1	**Type:** A	
Type A and D anchorage connectors shall not show presence of red rust or other corrosion		N/A
COMPLIANT	N/A	

Corrosion Test Requirements per 3.2.5.1, 3.2.5.2		
SAMPLE #2	**Type:** A	
Type A and D anchorage connectors shall not show presence of red rust or other corrosion		N/A
COMPLIANT	N/A	

Corrosion Test Requirements per 3.2.5.1, 3.2.5.2		
SAMPLE #3	**Type:** A	
Type A and D anchorage connectors shall not show presence of red rust or other corrosion		N/A
COMPLIANT	N/A	

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5	**Markings and Instructions**	
5.1	**Marking Requirements**	
5.1.1	**General:** The following markings shall appear in English on a label, marking or tag that is designed to last for the lifetime of the anchorage connector and is permanently affixed to the anchorage connector.	
	a) The manufacturer's name and mark	Yes
	b) The year of manufacture	Yes
	c) Model number	Yes
	d) "ANSI Z359.18" and the type	Yes
	e) Markings to indicate restrictions on directions of loading, if applicable	N/A
	f) Where specified by the manufacturer, the working load	Yes
	g) An individual serial number or a lot or batch number that provides traceability	Yes
	h) Minimum Breaking Strength, followed by "MBS."	Yes
5.1.2	**Specific:** As required for the specific anchorage connector, the following markings shall appear in English on a label, marking or tag that is designed to last for the lifetime of the anchorage connector and is permanently affixed to the anchorage connector	Yes
5.1.2.1	An anchorage connector that incorporates a closed loop not intended for connection, but may be mistaken for a connection point shall be permanently labeled with a warning not to connect a fall protection system or suspended component to the closed loop when used in a cinching operation	N/A
5.1.2.3	The minimum service temperature for the anchorage connector according 3.1.3.2	Yes
5.1.2.4	For tripods and davit systems, the maximum number of users permitted on the system	N/A

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5.2	**Instruction Requirements**	
5.2.1	**General:** Provide the following instructions and information in English with each anchorage connector.	
5.2.1.1	**Overall:**	
	a) A statement that the anchorage connector has been tested in compliance with the requirements of ANSI/ASSE Z359.7, and caution that the ANSI compliance testing covers only the hardware and does not extend to the anchorage and substrate to which the anchorage connected is attached	Yes
	b) Specifications for appropriate anchorages(s) to which the anchorage connector can be attached, including instructions on how to proceed when the user is unable to determine whether the anchorage meets the manufacturer's specification and instructions that the anchorage connector shall only be connected to anchorages that:	Yes
	i) Can withstand 5,000 lbs. (22.2 kN) without failure, except that lower strengths are acceptable when permitted by applicable legislation; or	Yes
	ii) Are certified by a professional engineer as having the required strength for fall arrest or travel restraint, as applicable, or;	N/A
	iii) The manufacturer may provide specifications of allowable materials including the minimum shapes, sizes and geometry of structural elements to which the anchorage connector may be fastened. A qualified person shall approve these specifications.	N/A
	c) The manufacturer shall clearly label the minimum service temperature for the anchorage connector according to 3.1.3.2	Yes
	d) The manufacturer shall supply complete specifications for fasteners	N/A
	e) The anchorage type	Yes
	f) The permitted uses of the anchorage connector	Yes
	g) The connection point(s), working load limit	Yes
	h) The material used in the anchorage connector's construction	Yes
	i) The length of the anchorage connector and any other dimensions that may affect its compatibility with anchorage to which it may be connected	Yes
	j) The manufacturer shall make available upon request information for the design of systems, such as AAF and/or force vs. displacement curve(s) for the device	N/A
	k) A statement that only one fall protection system or positioning system may be attached to an individual connection point	Yes
	l) Specification providing the intended directions(s) of loading of the anchorage connector	Yes
	m) A complete list of the anchorage connector components provided by the manufacturer at the time of sale	Yes
	n) A warning against unauthorized alterations, relocations or additions to the anchorage connector	Yes

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5.2.1.2	**Use:**	
	a) Instructions on proper installation and use, including, but not limited to, compatibility with other fall protection components	Yes
	b) The length of the anchorage connector and any other dimensions that may affect its compatibility with anchorages to which it may be connected	Yes
	c) Where applicable, directions regarding the appropriate length of lanyard to use with the anchorage connector to compensate for the additional length that it may add to the lanyard	N/A
	d) Permitted and forbidden uses, including clear description of and the recommended ways of dealing with applicable compatibility concerns	Yes
	e) A warning to remove any surface contamination such as concrete, stucco, roofing material, etc., that could accelerate cutting or abrading of attached components	N/A
	f) Warnings concerning environments and conditions that may degrade the anchorage connector	Yes
	g) Training requirements	Yes
5.2.1.3	**Inspection and Field Testing:**	
	a) Instructions on testing, if needed	N/A
	b) Where applicable, directions for the installer to perform and document proof testing upon installation. Directions shall include proof load forces and acceptable methods	N/A
	c) Field serviceability testing: The manufacturer shall provide guidelines for how often field load testing must be undertaken to prove that the anchorage connector continues to be adequately secured to the structure. These guidelines shall include recommended methods for testing, including the direction and point of application of test loads	N/A
	d) The recommended frequencies and procedures for inspection, maintenance, and when applicable, testing.	Yes
	e) Instructions for inspecting and servicing an anchorage connector after it is subjected to a fall or an inspection reveals an unsafe condition	Yes
	f) If applicable, guidelines for retirement of the anchorage connector	Yes
	g) The action to be taken if an inspection of and anchorage connector reveals an unsafe condition	Yes
	h) The action to be taken after the anchorage connector is subjected to a fall	Yes
	i) Criteria for removal of an anchorage connector from service if deformed from its original installed configuration	Yes

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5.2.1.4	**Cinching and Non-Cinching Style Anchorage Connectors:**	
	a) Where the anchorage connector includes an abrasion pad, provide directions that the abrasion pad shall be installed between the anchorage and the load bearing strap	N/A
	b) The proper method of installing the anchorage connector including, as applicable for non-cinching anchorage connectors, the maximum angle permitted between connecting legs	N/A
5.2.1.5	**Tripod and Davit Style Anchorage Connectors Instructions and Information:**	
	a) For a tripod or davit, the maximum number of fall protection systems allowed to be attached to the anchorage connector and where applicable, a warning against simultaneously attaching more then the number of systems permitted	N/A
	b) The characteristics of the surface on which the tripod may be installed	N/A
	c) The maximum slope of the surface under any leg and of the plane supporting the three or more legs	N/A
	d) Minimum distance from each leg to opening	N/A
	e) Instructions regarding maintenance of adequate clearance around and within the tripod to provide clearance around and within the tripod to provide unrestricted movements in, through, and around the tripod and minimizing tripping or other events which may results in dislodging the tripod	N/A
	f) The minimum overhead clearance required to erect the tripod	N/A