



SAFETY SYSTEM SUBMITTAL PACKAGE

SYNTHETIC

2	Introduction
3	Synthetic Safety Climb Overview
4	Safety Climb Systems Overview & Information
5	Custom Kits
5	Top Bracket & Travel8
6	Technical & Warranty
7	Safety Climb Tag & Terms & Conditions
8-9	Technical Drawings
10	Operations & Maintenance
11	Ladder Mount Kit
12	Safety Climb Accessories Replacement Parts
13-20	Synthetic Assembly Dynamic Drop Test
21-23	Synthetic Assembly Static Test

To whom it may concern:

I would like to formally submit Allfasteners' Safety Climb System for approval and use with communication towers and elevated structures. This system meets the requirements of ANSI/TIA-222-H, ANSI A14.3-2018, and ANSI Z359.16. Please reach out to myself should you have any questions regarding the systems submitted or individual products.

Sincerely,

Tony Carmichael | Operations Manager





SYNTHETIC SAFETY CLIMB OVERVIEW

Designed with a focus on the broadcast tower industry, the new Synthetic Safety Climb from Allfasteners are made from a nonmetallic synthetic fiber strand with an external sleeve built for UV protection.

Unlike steel assemblies that can arc causing interference or burn through the cables, this new system does not arc, and does not interfere with RF frequencies on the broadcast tower. The new system has been put to the test and is ready to improve the industry!



BENEFITS

- Light weight
- Durable UV resistant outer layer
- Meets ANSI and OSHA standard 5,000lb
- Can be ordered in 10ft increments
- Systems up to 500ft available. Multiple systems can be used for taller structures.
- Quick ship in 2-3 business days

CABLE GRAB INCLUDED

Designed to provide safety while ascending and descending from a vertical structure, Allfasteners' Cable Grabs are the ideal fall protection product.

IMPORTANT

Each synthetic safety climb system includes a synthetic rope grab, which should remain on the system at all times for appropriate use.



Part#: 14RG-1200





OVERVIEW & INFORMATION

AF Safety Climb Systems offer the premier vertical lifeline system for towers, poles and other permanent structures to maximize safety, climbing mobility and productivity, all with a focus on longevity and minimizing field maintenance requirements.

SAFETY CLIMB, ENSURING SAFETY

Safety is our focus, which is why we use the Travel8 energy absorber exclusively. Tested to all relevant ANSI and TIA-222 standards, our energy absorber is rated for multiple fall events for up to four climbers and provides unmatched visibility from the ground for deployment inspection. We understand that safety climb systems need to withstand the elements for extended periods of time in an adverse environment, which is why all our systems are manufactured with UV resistant composite and hot dip galvanized components

WHY CHOOSE AF SAFETY CLIMB?

- **Adaptability.** No need to worry about parts not accommodating a variety of tower types, tower heights, and existing hardware, mounts, or obstructions on the tower.
- **Customizable or standard.** You choose the buying method that works best for you, whether it's standard kits, customized kits, or individual components.
- **Buy online.** No need to compile lists of information and wait for a quote. Just select the items you need to get the job done.
- **Made in USA.** All our systems are fabricated and assembled in the US with our proprietary Australian made Travel8 energy absorber.
- **Special solutions.** If we don't have a component to fit a one off application, we'll design, engineer, and manufacture it in-house in our fabrication facility.
- **Contractor feedback welcomed.** We listen to our customers and are always looking for ways to continually improve our safety climb system capabilities and design.

**ALL AF SAFETY
CLIMB SYSTEMS
CONFORM TO ANSI
STANDARDS**

**ALL SAFETY CLIMB SYSTEMS
HAVE BEEN FULLY TESTED.**



Installation of Safety climb





CUSTOM KITS

BUILDING A CUSTOM KIT

Need something more specific for your jobsite or tower type?

Allfasteners now offers the ability to create custom kits to adhere to most tower specifications. [Allfasteners.com custom safety climb module](https://www.allfasteners.com/custom-safety-climb-module) shows how your kit will come together as you select from hundreds of product combinations.

BENEFITS

- Ability to quote all the materials needed to complete a specific job or all jobs at once
- Ease of previewing the parts included in your kit
- "Save as you go" feature allows you to continuously add products to your custom kit up to the moment of purchase



Visit [ALLFASTENERS.COM](https://www.allfasteners.com)



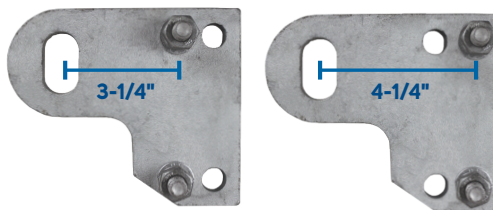
TOP BRACKET & TRAVEL8

TOP HEAD BRACKET & TRAVEL8

- The Travel8 swivels and pivots, allowing for clearance of obstructions.
- AF's Safety Climb has over 15 degree of swivel capabilities.

POLE MOUNT TOP BRACKETS

- Multiple bolt holes allow for top bracket to be customized or adapted to each tower.



AF MODULAR ADVANTAGE

- AF's safety climb assembly is modular, meaning parts are available to accommodate a variety of tower types, tower heights, and existing hardware, mounts and obstructions on the tower.





TECHNICAL

FALL CLEARANCE

There must be sufficient clearance below the user to arrest a fall before the user strikes the ground or another lower level hazard. The clearance required is dependent on the following factors and analyzed by competent climber.

- Elevation of anchorage
- Anchorage deflection
- Lanyard elongation on deceleration pull out (personal energy absorber)
- Lanyard length
- Operator height
- Fall distance residual clearance

SYSTEM REQUIREMENTS

The worker must wear a full body harness when connected to any fall arrest system including a personal energy absorber compliant with the relevant ANSI Standards.

TECHNICAL SPECIFICATIONS

SYSTEM TYPE

Allfasteners Safety Climb

COMPLIANCE

AF Safety Climb conforms to ANSI A14.3-2009.

PRODUCT WARRANTY

3 years from date of purchase subject to correct installation, use and maintenance in accordance with manufacturer's specifications and recommendations. (Refer to instruction manual.)

IMPORTANT NOTE

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

WARRANTY

WARRANTY PERIOD ON THIS SYSTEM - 3 YEARS FROM DATE OF PURCHASE.

Warranty on full system is for 3 years from date of purchase. Travel 8 Top Bracket Energy Absorber comes with a 5 year warranty from date of purchase. Warranty does not include general wear and tear and is subject to approval/inspection by manufacturer.

Should you have a warranty claim as a result of a defect the following procedure must be followed:

Identify the following information:

- The product/system name and code number.
- The date of purchase/installation.
- Installation company details.
- The installation identification number.
- The name of the company using this system.
- A description of the defect/warranty claim.
- The periodic system maintenance report.
- DO NOT proof load over 350lbs.

Forward the above information to sales@allfasteners.com or contact 888.859.6060.

Don't risk it...check from the ground before you climb.
If the Energy Absorber System is deployed, **do not climb!**



TECHNICAL DATA

Dimensions

- Energy absorber – 5" (static length), 16" (deployed length) in the event of a fall
- Vertical line wire rope – 1/2" synthetic rope

Materials

- Synthetic wire rope



SAFETY CLIMB METAL TAG

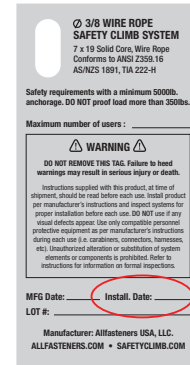
Allfasteners requires our "Safety Climb Tag" to be included in your installation process.

This tag is to be attached to the wire rope at the base of the structure, before installation is complete.

Before attaching tag, installation date will need to be completed by installer using a heavy duty permanent marker. See circled area to the left for location.

Allfasteners suggests a permanent marker with fade and weather resistant qualities, such as the example shown to the right.

Our AF reps are available to answer any questions you have on this process and suggested tips.



TERMS & CONDITIONS (SPECIFIC TO THE SAFETY CLIMB - ALL OTHER TERMS & CONDITIONS PER AF STANDARD AGREEMENT)

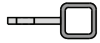
- All warranty claims must be made in writing within 14 days of the appearance of the defect.
- Incorrect installation or modifications performed by a non accredited AF system installer will void all warranty rights.
- Systems that have been installed using non proprietary equipment will void all warranties.
- Systems used by incompetent persons or use with non compatible accessories ie. harness gear, lanyards, travellers, fall arrestors etc. will void warranty.
- Systems/components used for purposes other than their intended use will void warranty.
- General wear and tear is expected and will depend on the frequency of use and is not covered by warranty.

DISCLAIMER

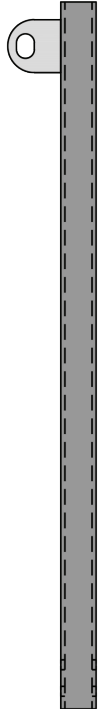
All product specifications and technical descriptions, recommendations and other information provided, are given as general guidance and advice, and are to be read in conjunction with AF installation instructions and any other data available and applicable to each particular standard product or system. Use of such data is however the user's sole responsibility, taking into account the intended application and actual conditions existing on the particular worksite. Consequent selection of the right product for any particular use, remains the user's ultimate responsibility. AF is therefore not obligated or liable for any direct or indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of the suitability and use of or otherwise, any product or system for any purpose. Implied warranties of merchantability or fitness for any particular purpose, are specifically excluded. All AF products must be installed and used by competent personnel trained in the selection, safe use and maintenance of fall arrest systems and equipment by a certified training organization. Installation not in accordance with AF requirements or the use of non AF components will void all certification and warranties. Suitability of support structure and design layout of system is the responsibility of the installer and should be verified by a competent person trained by a certified training organization in the selection, safe use and maintenance of fall arrest systems and equipment or approved by a structural engineer to ensure conformance. AF maintains a policy of continuous improvement and development, and therefore reserves the right to modify, amend or other wise alter product and system designs and specifications, models and part numbers, colors and pricing etc without prior notice. Errors and omissions are excepted, and Allfasteners accepts no liability for incorrect information, errors or omissions. * Drawings and information subject to change.



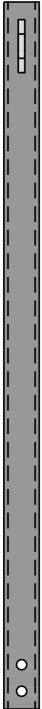
TECHNICAL DRAWINGS



TOP VIEW



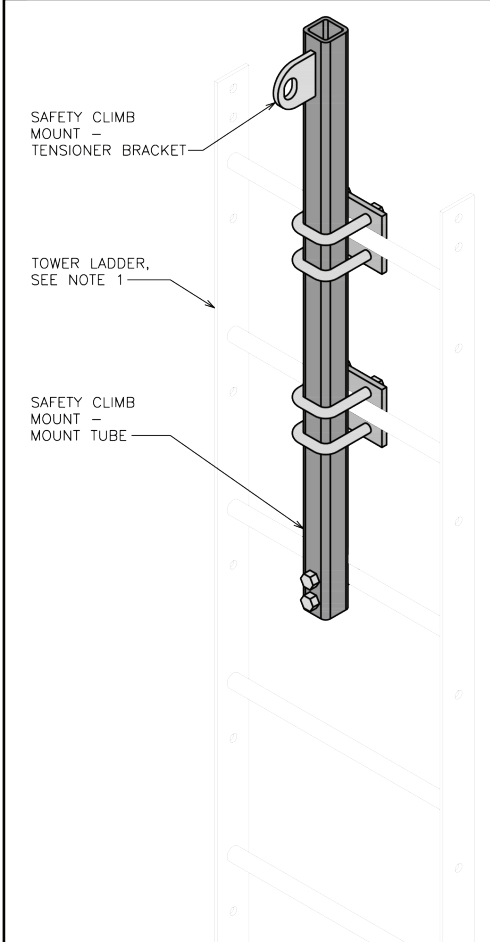
SIDE VIEW



FRONT VIEW

NOTES:

1. THE LADDER WILL NEED TO BE CHECKED INDEPENDENTLY TO DETERMINE IF IT IS SUITABLE TO RESIST THE ANCHORAGE DEMANDS IN ACCORDANCE WITH ANSI/TIA-222-G AND ANSI/TIA-222-H.
2. THE TENSIONER BRACKET STEEL PLATE CONFORMS TO ASTM A36.
3. THE MOUNT TUBE CONFORMS TO ASTM A500-42.
4. THE SAFETY CLIMB ATTACHMENT HAS BEEN DESIGNED AS A CLIMBING ATTACHMENT ANCHORAGE IN ACCORDANCE WITH ANSI/TIA-222-G AND ANSI/TIA-222-H.
5. ALL SAFETY CLIMB ATTACHMENT STRUCTURAL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, LOAD AND RESISTANCE FACTOR DESIGN (LRFD), LATEST EDITION.




ISOMETRIC VIEW

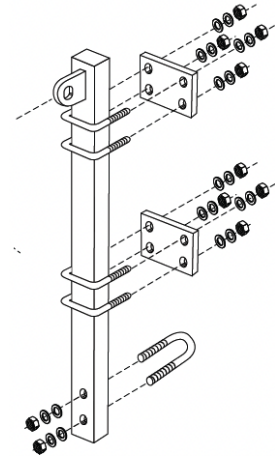
SAFETY CLIMB MOUNT - TENSIONER BRACKET

TOWER LADDER, SEE NOTE 1

SAFETY CLIMB MOUNT - MOUNT TUBE

PREPARED BY:  TOWER ENGINEERING PROFESSIONALS 326 TRYON ROAD RALEIGH, NC 27603 (919) 661-6351 www.tepgroup.net	PREPARED FOR: ALLFASTENERS 959 LAKE ROAD MEDINA, OH 44256 (440) 232-6060	PROJECT INFORMATION: SAFETY CLIMB LADDER MOUNT	REVISION: <input type="checkbox"/> TEP JOB #: SHEET NUMBER: <div style="font-size: 24pt; font-weight: bold; text-align: center;">S-6</div>
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LADDER SAFETY CLIMB MOUNT

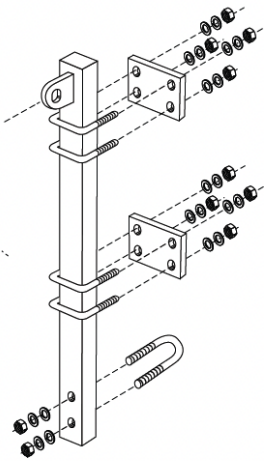


For full product description and installation drawings see page xx. Drawings may differ but application is the same.



TECHNICAL DRAWINGS

LADDER SAFETY CLIMB MOUNT



For full product description and installation drawings see page xx. Drawings may differ but application is the same.

TOP VIEW

NOTES:

1. THE LADDER WILL NEED TO BE CHECKED INDEPENDENTLY TO DETERMINE IF IT IS SUITABLE TO RESIST THE ANCHORAGE DEMANDS IN ACCORDANCE WITH ANSI/TIA-222-G AND ANSI/TIA-222-H.
2. THE TENSIONER BRACKET STEEL PLATE CONFORMS TO ASTM A36.
3. THE MOUNT TUBE CONFORMS TO ASTM A500-42.
4. THE SAFETY CLIMB ATTACHMENT HAS BEEN DESIGNED AS A CLIMBING ATTACHMENT ANCHORAGE IN ACCORDANCE WITH ANSI/TIA-222-G AND ANSI/TIA-222-H.
5. ALL SAFETY CLIMB ATTACHMENT STRUCTURAL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, LOAD AND RESISTANCE FACTOR DESIGN (LRFD), LATEST EDITION.

SIDE VIEW

FRONT VIEW

ISOMETRIC VIEW

<p>PREPARED BY:</p> <p>TOWER ENGINEERING PROFESSIONALS 326 TRYON ROAD RALEIGH, NC 27603 (919) 661-6351 www.tepgroup.net</p>	<p>PREPARED FOR:</p> <p>ALLFASTENERS 959 LAKE ROAD MEDINA, OH 44256 (440) 232-6060</p>	<p>PROJECT INFORMATION:</p> <p>SAFETY CLIMB LADDER MOUNT XL</p>	<p>REVISION: 0</p> <p>TEP JOB #:</p> <p>SHEET NUMBER:</p> <p style="font-size: 24px; font-weight: bold;">S-5</p>
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OPERATIONS MUST BE READ PRIOR TO USE

1. Prior to use, ensure all operating procedures have been read and understood.
2. This fall arrest system is only to be used by competent climbers who have experience and training in the safe use of the system and associated equipment.
3. Ensure all workplace OSHA requirements are identified and understood. A job hazard assessment with a safe work method ANSI/ASSE A10.48 must be completed and approved by management prior to work commencing.
4. This system requires periodic inspection and maintenance by a competent person.
5. Authorization to access any risk area must be obtained from the person in control of the worksite
6. Only approved full body harness, gear and equipment with energy absorber certified to ANSI 359, to be used with this system.
7. Visually inspect the system for damage prior to use. System must not be used if there is any deterioration or deformation of any components or structure to which the system is attached.
8. If the safety system is damaged or has arrested a fall, discontinue use until it has been fully inspected and re-certified by a competent person.
9. Ensure all fixings, fittings and components are securely attached. Any tightening and replacement of components must be carried out by a competent person.
10. Persons must not be allowed to work alone in fall arrest situations in case emergency rescue assistance or first aid is required.
11. All applicable ANSI Standards, OSHA Acts & Regulations, and Codes of Practice & Guidelines must be read and obeyed when using this safety system.
12. This user manual does not in any way, does not replace the need for competent/authorized climber. Failure to follow all warnings, usage and maintenance instructions may result in serious injury or death.

MAINTENANCE

1. This system needs to be checked and re-certified by a competent person according to ANSI requirements.
2. Never clean using acids or other chemicals that could damage the system components.
3. The identification/certification label must be completed confirming maintenance and recertification of the system.
4. Any deterioration or damage to the system or equipment must be reported to the person in control of the worksite and relevant corrective action undertaken.
5. Maintenance inspections must be clearly documented. Any non-conformance must be clearly identified and tagged 'Do Not Use' until corrective action by a competent person has been completed.

System Maintenance Checklists are located on individual product pages.

The checklists mentioned above, outlines key checking criteria required to ensure the safe use of this system. Any item of concern not shown on the checklist must be noted on the maintenance report and brought to the attention of the tower owner.

Items checked PASS- **YES** means they conform with the required checking criteria and are suitable for normal use.

Item checked PASS - **NO** means they do not conform to the required checking criteria. These items must be clearly tagged 'Do Not Use' and the required corrective actions put in place. The maintenance report must clearly document all non-conforming criteria.

This system must be maintained by a person trained in the safe use and maintenance of this system.

This section is to define the maintenance and condition assessment requirements of a synthetic rope safety climb.

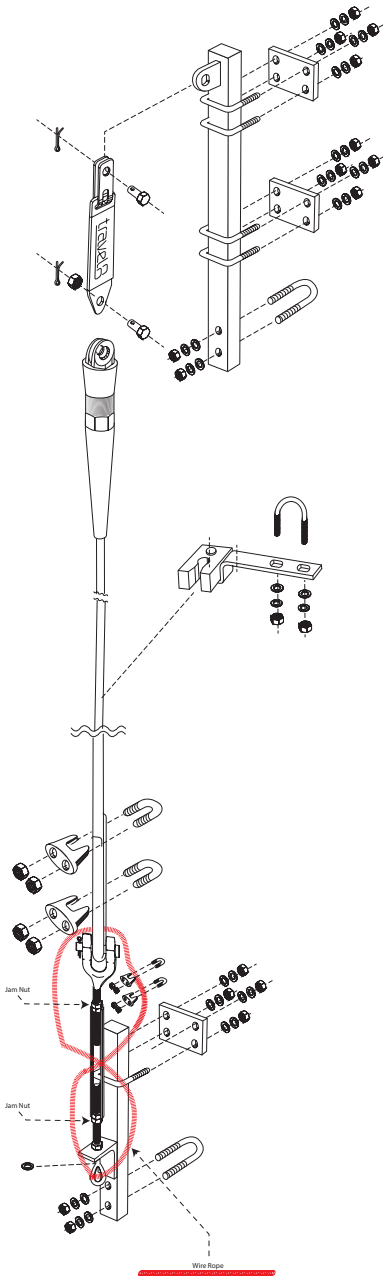
The synthetic rope safety climb is considered an appurtenance and therefore maintenance and condition assessments shall occur in accordance with recommended ANSI/TIA-222 intervals or tower owner/EOR recommendations, who may shorten or lengthen ANSI/TIA-222 intervals based upon an established maintenance and condition program.

If deficiencies, outside of routine maintenance or manufacturer specifications, are found in any of the synthetic rope safety climb components, the manufacturer of the synthetic rope safety climb or tower owner/EOR shall be consulted for corrective action.

For questions associated with the ANSI/TIA-222 antenna supporting structure, including climbing facilities and appurtenance connections, communication shall occur with the tower owner/EOR.

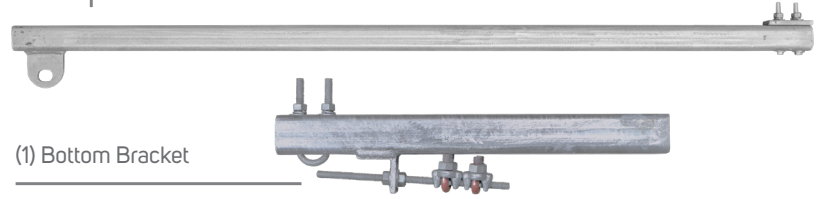


LADDER MOUNT KIT



ALL AF SAFETY CLIMB SYSTEMS CONFORM TO ANSI STANDARDS

(1) Top Bracket - Available in standard (40") or extended (60") length*



(1) Bottom Bracket

Additional Backing Plate - Comes with Extended Top Bracket

Cable Grab

Synthetic Wire Rope - Available in up to 500' lengths in 10' increments

(3) Backing Plates

25' Spacing Cable Guides**

(1) Metal Safety Climb Tag~

* Additional parts may be required.

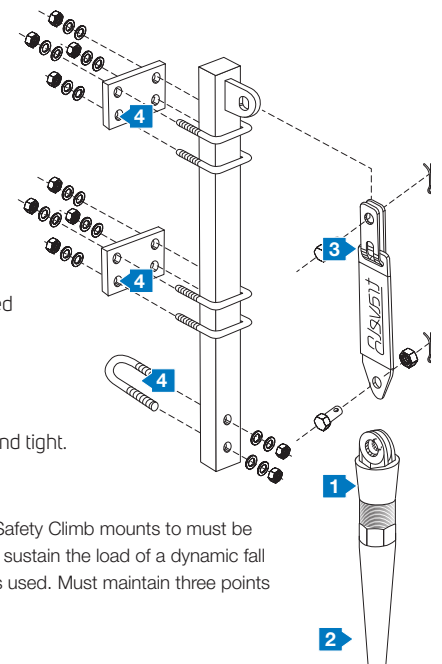
** Cable Guide quantity is determined by tower type and should be positioned every 30' on tower.

~ See Instruction booklet for guidance for completing & attaching safety climb tag

SYSTEM MAINTENANCE CHECKLIST

1. Ensure that the wire rope swaged to the safety climb is in serviceable condition.
2. A) Must be no evidence of wear, kinks, cuts, abrasions, fraying, or corrosion on the synthetic cable . B) Cable must be tensioned correctly and free of grime and dirt.
3. Make sure energy absorber bolt is in place and lock nut is snug and tight.
4. Make sure all mounting bolts are in place and tight.

* Please note that any existing ladder that the AF Safety Climb mounts to must be analyzed by the relevant EOR to ensure that it can sustain the load of a dynamic fall on the safety climb after installation and before it is used. Must maintain three points for connection.

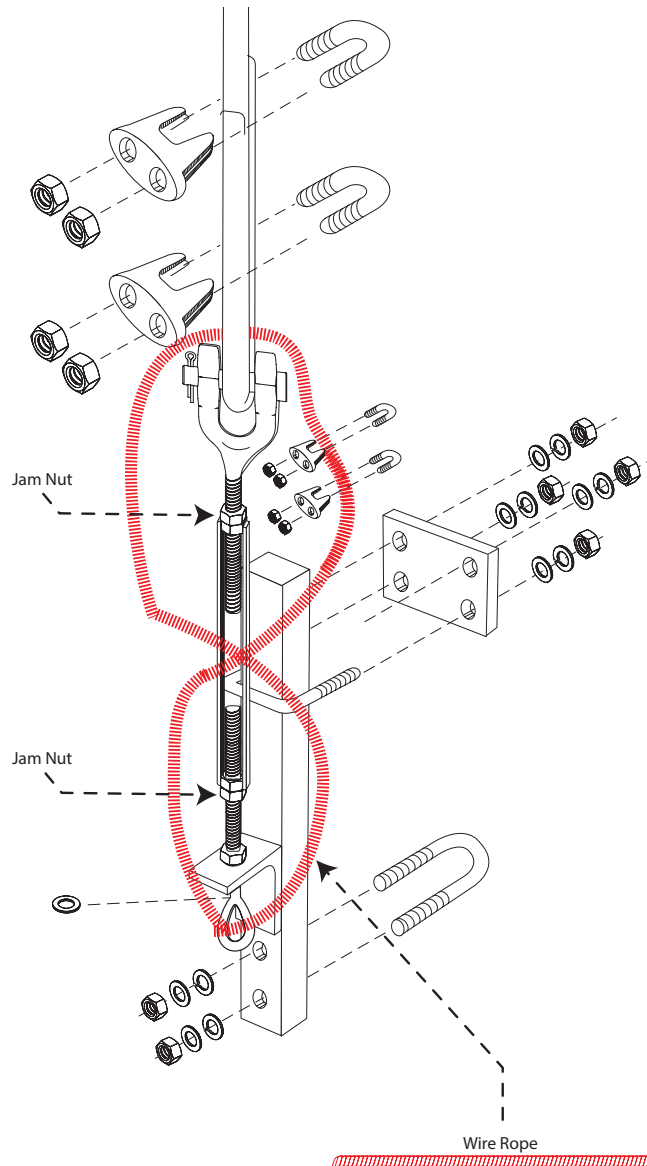




BOTTOM BRACKET: CLOSER LOOK

Allfasteners synthetic safety climb system requires a unique bottom bracket assembly as shown in the drawing on the left.

Finished installation can be seen below.



**ALL AF SAFETY
CLIMB SYSTEMS
CONFORM TO ANSI
STANDARDS**



ACCESSORIES & REPLACEMENT PARTS

Ladder Mount Bottom Bracket

Used in ladder and face mount safety climb systems.

Part #14AFLMBB01

GAL



Face Mount Backing Plate

Used in 60" ladder mount safety climb systems

Part #14AFLMKTBO1-EXT

GAL



Ladder Mount Backing Plate

Works with top and bottom ladder mount brackets.

Part #14AFLMKTBO1

GAL



Head Extension Plate

Extension plate for monopole & leg mount safety climb systems

Part #14HEP

GAL

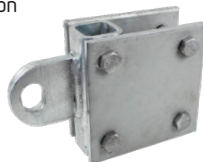


Head Extension Bracket

Extension bracket for square tube head connection

Part #14HEP-2

GAL



U-Bolt Cable Guide

U-bolt style intermediate bracket for ladder mount safety climb.

Part #14AFLMIB01

GAL



Step Bolt Tie Off Bracket

45 Degree, Yellow.

Part #14STO34



Climbing Ladder Hardware Kit

See AF tower catalog for exact contents

Part #14HDCLKIT

GAL



Ladder Mount Head Bracket - 40"

40" Standard length bracket

Part #14LMHB01

GAL



Synthetic Cable Assembly

Available in lengths up to 500' in 10' increments.

Ask a Sales Rep for a Part#



Climbing Ladder - 10 ft. Heavy Duty

With splice hardware - 18" wide

Part #14HDCL10FT

GAL

Climbing Ladder - 10 ft. Light Duty

With splice hardware - 12" wide

Part #14LDCL10FT

GAL



Ladder Mount Head Bracket - 60"

40" Length for ladder & face mounts

Part #14LMHB01-60

GAL





SYNTHETIC SAFETY
CLIMB REPORTS

DYNAMIC DROP TEST



A DIVISION OF J.T. ADAMS CO., INC.

4520 WILLOW PARKWAY
CLEVELAND, OHIO 44125
PHONE (216) 641-3290
FAX (216) 641-1223
www.tensile.com

CERTIFIED TEST REPORT

Amended Copy: 3-9-2022

Allfasteners
959 Lake Road
Medina OH 44256

Job No.: 2202-28-1742
Date: 3-4-2022
Cust. PO#: P33745

Description: 3 samples Synthetic Safety Climb Assemblies

----- TEST RESULTS -----

Dynamic Drop Test

Three tests were conducted using the same assembly supplied by customer. Passing result.

<u>Test#</u>	<u>282 lb Weight</u>
1	12" Drop
2	24" Drop
3	36" Drop

Authorized Agent

Amended: Revised Description and Report.



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

TENSILE TESTING METALLURGICAL LABORATORY

4520 Willow Parkway
Cleveland, OH 44125
Joseph Boyle Phone: 216 641 3290

CHEMICAL

Valid To: May 31, 2023

Certificate Number: 0161.01

In recognition of the successful completion of the A2LA evaluation process (including compliance to R223 – Specific Requirements – GE Aviation S-400 Accreditation Program), accreditation is granted to this laboratory to perform the following tests on aerospace, nuclear, automotive parts, bar, forgings, castings, fasteners, medical implants, heat treated parts, eyebolts, weldments, coatings, paint, billets, stampings, rebar, wire, buckles, shackles, hitches, hooks, chains, cargo rings, clevis, turnbuckles, inserts and tubular products:

<u>Test</u>	<u>Test Method(s)</u>
<u>Spectroscopy</u> Optical Emission Spectrochemical Analysis - Argon Path (OES) (Al, As, B, Bi, C, Cd, Co, Cr, Cu, Mg, Mn, Mo, Ni, P, Pb, Sb, Sn, Ti, V, W, Zn)	ASTM E415, E1086, E1251, E1999; TTML C-01
<u>Combustion</u> LECO Carbon and Sulfur Analyzer (C, S)	ASTM E1019; TTML C-04
LECO Oxygen, Nitrogen, and Hydrogen Analyzer (O, N, H)	ASTM E1019, E1447; TTML C-05

Note: Testing performed on the following materials: Aluminum, Carbon and Alloy Steel, Copper Alloys (Brass, Bronze), Titanium, Cobalt, Superalloys, Tool Steels, Hadfield Manganese and Stainless Steels.



Accredited Laboratory

A2LA has accredited

TENSILE TESTING METALLURGICAL LABORATORY

Cleveland, OH

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of GE Aviation S-400 in the Chemical field. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 28th day of May 2021.

A blue ink signature of a person, likely the Vice President of Accreditation Services, written over a horizontal line.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0161.01
Valid to May 31, 2023

For the types of tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

TENSILE TESTING METALLURGICAL LABORATORY

4520 Willow Parkway
Cleveland, OH 44125
Joseph Boyle Phone: 216 641 3290

MECHANICAL

Valid To: May 31, 2023

Certificate Number: 0161.02

In recognition of the successful completion of the A2LA evaluation process (including compliance to R223 – Specific Requirements – GE Aviation S-400 Accreditation Program), accreditation is granted to this laboratory to perform the following tests on aerospace, nuclear, automotive parts, bar, forgings, castings, fasteners, medical implants, heat treated parts, eyebolts, weldments, coatings, coils, plates, paint, billets, stampings, rebar, wire, buckles, shackles hitches, hooks, chains, cargo rings, clevis, turnbuckles, inserts and tubular products¹:

Test:

Test Method(s):

Mechanical:

Ball Punch Deformation (Olsen, Erichsen)

ASTM E643

Bend Test

ASTM A370 (Sec. 15), A489, E190, E290;
ISO 5173, 7438

Charpy Impact (-320, -300 to 212) °F

ASTM A370 (Sec. 20-29), A923 (Method B), E23;
EN 10045-1; ISO 083, 148

Compression

ASTM E9

Flare Test

ASTM A370 (Sec. A2.5.1.4)

Flattening Test

ASTM A370 (Sec. A2.5.1.1)

Fracture Toughness

ASTM E399, ISO 12135

Hardness:

Brinell (500, 1500 & 3000) Kg

ASTM E10; ISO 6506, ISO 898-5 (6.1.2)

Rockwell / Superficial Rockwell (HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRHW, HRKW, HR15TW, HR30TW, HR45TW, HR15N, HR30N, HR45N)

ASTM E18, F606/F606M; NASM 1312-6;
ISO 6508, ISO 898-5 (6.1.3)

Jominy Hardenability

ASTM A255; SAE J406

Microhardness:

Knoop (100, 200, 500) g

ASTM E384, E92, F606/F606M; NASM 1312-6;
ISO 5454

Vickers (300 g, 500 g, 1000 g, 10 Kg)

ASTM E92, E384, F606/F606M; NASM 1312-6;
ISO 6507, ISO 898-5 (6.1.1)

Pencil Hardness

ASTM D3363

Tape Adhesion

ASTM D3359

Test:

Evaluation of the Degree of Blistering of Paints
 Stress Rupture (Up to 1500) °F
 w/ Smooth, Notch and Combination Bars
 Tensile
 Room Temperature (Up to 400K for
 Ultimate Tension, Yield, Modulus)

 R Value
 N Value
 Elevated Temperature (Up to 1500) °F

Test Method(s):

ASTM D714
 ASTM E139, E292; ISO 204; NASM 1312-14

 ASTM A370 (Sec. 6-14), A770, B557, E8/E8M;
 DIN 50125; EN 10002 (Withdrawn 2001)², 10164;
 JIS Z2201, Z2241; NASM 1312-8; ISO 6892-1
 ASTM E517; ISO 10113
 ASTM E646; ISO 10275
 ASTM E21; NASM 1312-18

Fastener:

Discontinuities

 Ductility
 Hydrogen Embrittlement / Debrittlement
 Verification (Stress Durability)
 Prevailing Torque
 Proof (Internal & External Threads)

 Rotational Capacity (RoCap)

 Tensile
 Axial Tensile

 Wedge Tensile

 Screw Thread Insert
 Shear / Double Shear

 Torque Tension
 Torque Testing

 Turnbuckle Test

ASTM F788, F812; SAE J122, J123 (Cancelled
 2012)²; ISO 6157
 SAE J78, J81
 ASTM F519, F606/F606M; NASM 1312-5
 USCAR-5, USCAR-7
 IFI 100/107
 ASTM A370 (Annex A3), F606; SAE J429, J995;
 ISO 898-2, -6
 AASHTO M164 (Withdrawn 2005)²;
 ASTM A325 (Sec. 10.2), F3125

 ASTM F606/F606M; ISO 898-1;
 ICC AC437 (Sec. 4-1-4.3 only)
 ASTM F606/F606M; ISO 898-1

 MIL-I-45914A
 ASTM F606; NASM 1312-13, 1312-20;
 ICC AC437 (Sec. 4-1-4.3 only)
 ISO 16047
 ASTM F738 (Sec. 10.2.4), F880 (Sec. 12.3),
 F912 (Sec. 11.2); IFI 101; ISO 898-5 (6.3), -7
 ASTM F1145

Metallographic Evaluation:

Alpha Case
 Banding / Orientation of Microstructures
 Case Depth
 Depth of Decarburization / Chord Method

 Ferrite Rating
 Graphite in Castings / Nodularity
 Grain Size (Comparison Method)
 Volume Fraction by Systematic Manual Point Count
 Inclusion Rating / Microcleanliness
 Metallographic Specimen Preparation
 Macro / Micro Etch

ASTM E407; TTML LI-019
 ASTM E1268; ASM Handbook (Vol. 9)
 SAE J423, J121 (Cancelled 2013)²; ISO 18203
 ASTM A574, E1077, F2328; SAE J121,
 SAE ARP 1820, ISO 898-5 (6.2)
 AMS 2315
 ASTM A247; GM9095P
 ASTM E112, E930
 ASTM E562
 ASTM E45 (Method A & D)
 ASTM E3
 ASTM A604, E340, E381, E407

Test:

Photomicrography
Plating Thickness / Coating Thickness

Material Property Analysis:

Coating Weight
Conductivity
Surface Roughness / Surface Finish
Adhesion of Metallic Coatings

Test Method(s):

ASTM E883
ASTM B487

ASTM A90, A428, B137; NASM 1312-12
ASTM E1004
ASME B46.1
ASTM B571 (Methods 3, 4, 7, 8, 9)

Corrosion:

Corrosion Test
Intergranular Corrosion (IGA)
Salt Spray
Humidity

ASTM A923 (Method A & C)
ASTM A262 (Practice A & E)
ASTM B117; ISO 9227
ASTM D1735; ISO 7253

Other:

Failure Analysis
(using the test technologies listed above)
Heat Treat³
Weld Evaluation – PQR, WPS

TTML LI-011; ASM Metals Handbook Vol. 11

SAE-AMS-H6875, AMS 2750
ASME Section IX, AWS D1.1, D1.5

¹Testing performed on the following materials: Aluminum, Carbon and Alloy Steel, Copper Alloys (Brass, Bronze), Titanium, Cobalt, Superalloys, Tool Steels, Nickel Alloys and Stainless Steels.

²This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn.

³Heat Treatment Performed Only on Samples Prior to Testing. (Heat Treat Capability) including age, anneal, austenitize, bake, heat resistance, normalize, PWHT (Post Weld), stress relieve, quench & temper, 24 hour on nuts.



Accredited Laboratory

A2LA has accredited

TENSILE TESTING METALLURGICAL LABORATORY

Cleveland, OH

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of GE Aviation S-400 in the Mechanical field. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 28th day of May 2021.

A blue ink signature of a person, likely the Vice President of Accreditation Services, written over a horizontal line.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0161.02
Valid to May 31, 2023

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.



SYNTHETIC SAFETY
CLIMB REPORTS

STATIC TEST

CERTIFICATE OF TEST

COMPANY NAME

ALLFASTENERS

ADDRESS

959 LAKE ROAD MEDINA, OH 44256

CERTIFICATE SERIAL NUMBER

ARS-1203-2

DATE

01/21/2022

P.O. NUMBER

0034215

INVOICE NO.

242004-00

DISTINGUISHING NUMBER OR MARK	DESCRIPTION OF GEAR	NUMBER TESTED	DATE OF TEST	FAILURE LOAD APPLIED	WORKING LOAD LIMIT
CERT, WLL	1/2" X 3 FT JACKETED ARAMID ROPE ASSEMBLY W/ NAK-150B CLEVIS ON BOTH ENDS.	1 EA	01/21/2022	7,800 LBS OUTER JACKET INSIDE ONE END FITTING DETACHED FROM CORE ROPE COMPLETELY AT THIS LOAD	N/A

HAS THE MATERIAL BEEN MARKED WITH THE PROPER LOADS?

This is to Certify THAT THE ABOVE MENTIONED GEAR HAS BEEN PROOF TESTED AS STATED.

R. Carver

Signature of person witnessing test and/or
representing Organization issuing certificate.

EVALUATION REPORT

1.1 PRODUCT IDENTIFIER

Date: 01/11/2022
Type of Rope: HPTG 154001 .510 O.D.
 OF JACKET RATED AT 14400 LBS Line

Method: Clamped over jacket with split plug

Customer: Allfasteners USA

Performed By: Don Eberle

Comments Minimum strength needed of fitting is 5,000 LBS. Customer wants to know at what point does the fitting fail.

Jacket was left on, clamped on outside of jacket with external plug.

Plug was beat down until it quit moving. When the clevis was screwed down, the threads bottomed out.

Test Machine Dillon 20,000lb Horizontal Tester

Force At Failure: lbs.

Location of Failure Kevlar stretched (snakeskin)

Results:



Length	Time	LBS.
19-3/8		
19-9/16	2 minutes	pulled to 2659 relaxed to 2380
19-9/16	2 minutes	pulled to 5001 received to 3383
19-9/16	1 hour	pulled to 5001 received to 3383
20-5/8	1 hour	pulled to 6223 relaxed to 4566
20-5/8	1 hour	pulled to 6085
20-3/4	Sat 1 hour	relaxed to 5022
20-3/4	Sat 1 hour	relaxed to 4818
20-3/4	Sat 2 hours	relaxed to 4581
20-3/4	Sat 66 hours	relaxed to 3184
		pulled to 8300 black cover
		broke and slid off kevlar

5X safety factor, $14,400 / 5 = 2,880$.

3X safety factor, $14,400 / 3 = 4,800$.

**FOR ALL
THINGS
FASTENING.** [®] **A**

