

17662DF

QB2 WITH 3" MICROFLASHING® & MINIFLASHING®
FOR ASPHALT, EPDM, & TPO ROOFS
PATENT # 8448407



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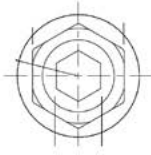
SPEC SHEET

Part #	Box Quantity
17662DF	3" Microflashing® (50); 4" QB2 (50); L-Foot (50); Miniflashing® (50)

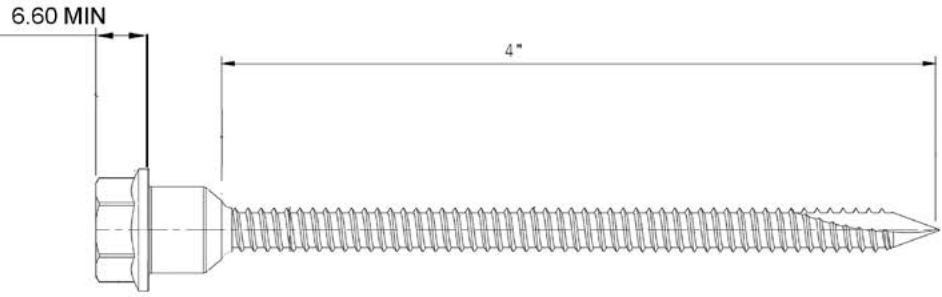


QB2

PN# 17660

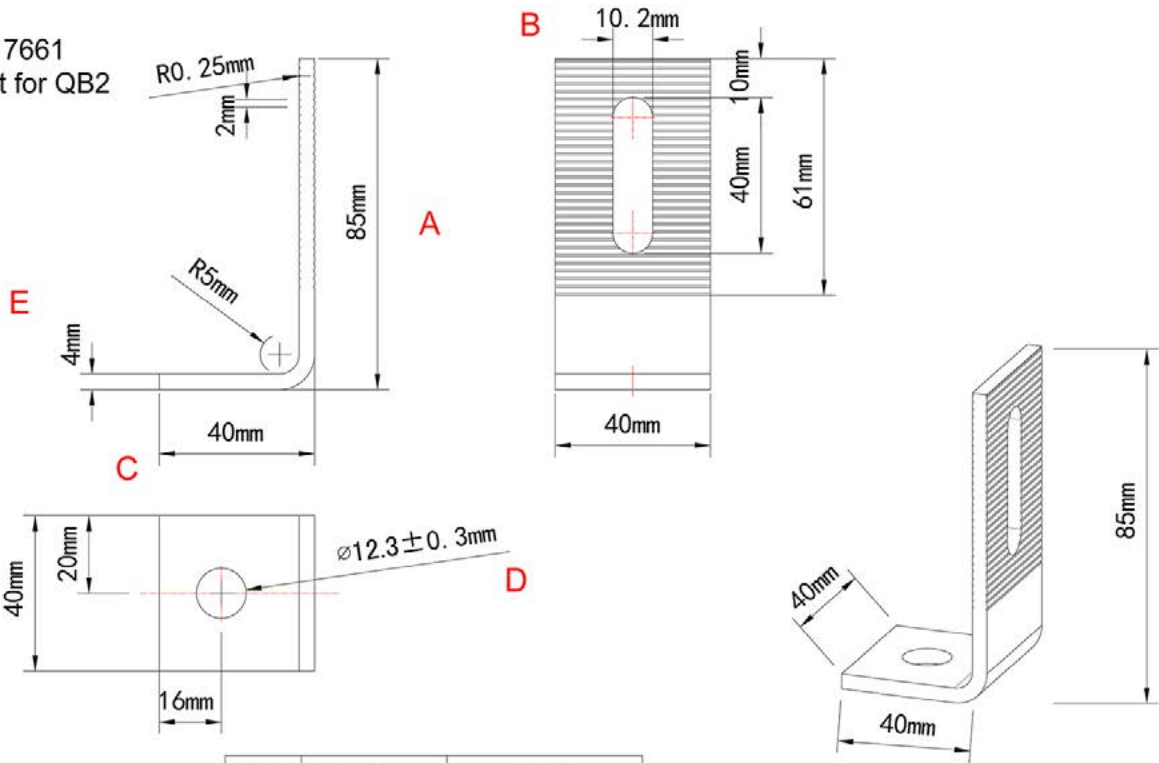


Dual Drive Technology
1/2" Hex Outer Drive
6mm Inner Drive



MATERIAL: Stainless Steel 304				STATUS: Approved
SURFACE TREATMENT: PASSIVATION				
TOLERANCE: AS PER DRAWING		VERSION: 01	FORMAT: A3	Scale: 5:1
		ISO:	PAGES: 1/1	UNIT: METRIC
		ITEM: 5/16 X 4" HEX FLANGE QUICK BOLT		
		DRAWING NO.: SL20190316-1		

PN# 17661
L-Foot for QB2

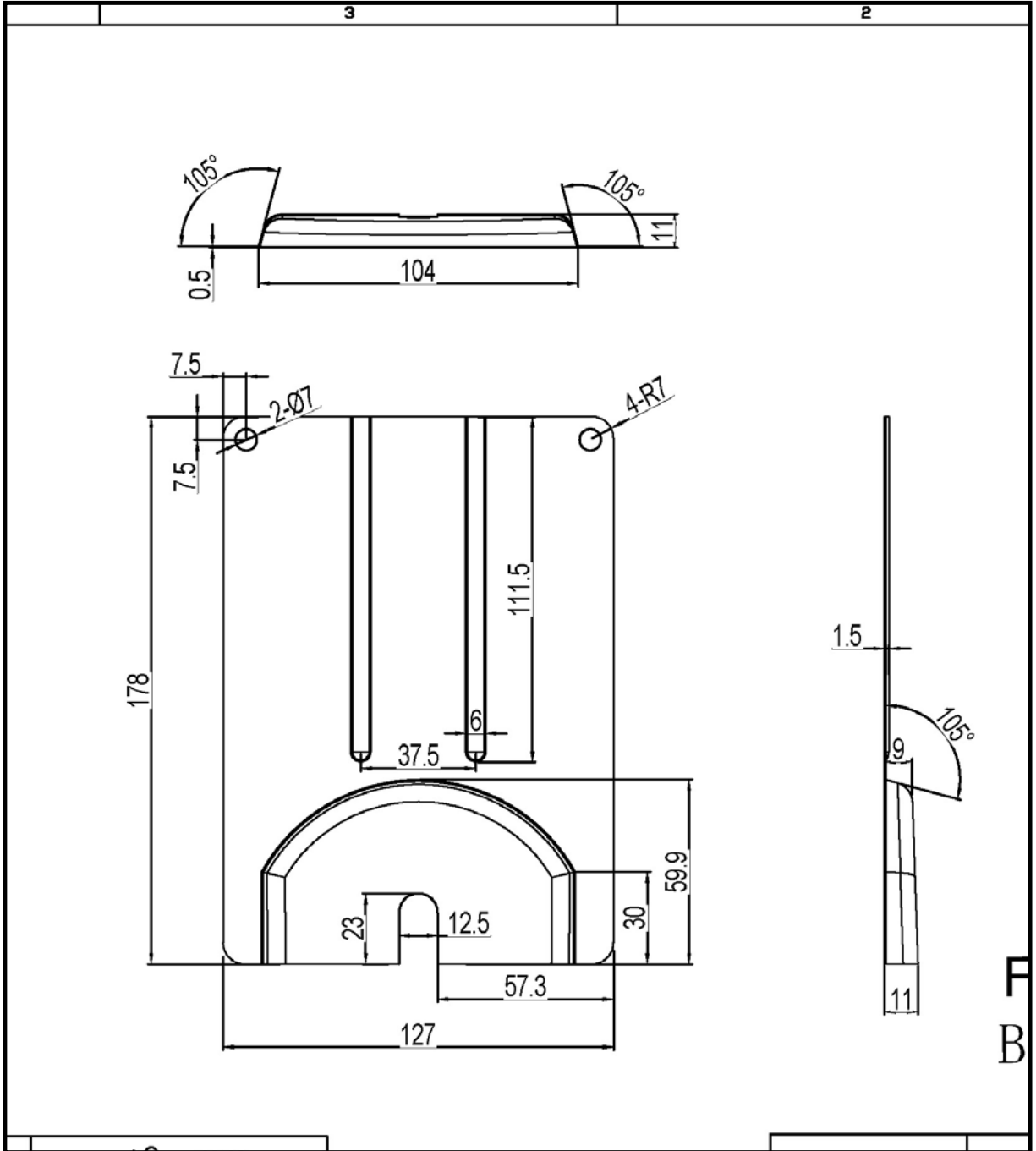


Letter	Description	Size/Length
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Part # 17669

5/16" x 3"
304 Stainless Steel
Compression Washer Black





CERTIFICATE OF COMPLIANCE

Certificate Number E493748
Report Reference E493748-20170817
Date 2023-April-07

Issued to: QuickBOLT a Division of Quickscrews International Corp
5830 Las Positas Rd
Livermore CA, 94551 US

This is to certify that representative samples of MOUNTING SYSTEMS, MOUNTING DEVICES, CLAMPING DEVICES AND GROUND LUGS FOR USE WITH PHOTOVOLTAIC MODULES AND PANELS - COMPONENT
See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.


Standard(s) for Safety: UL 2703, Mounting systems, mounting devices, clamping/retention devices, and ground lugs for use with flat-plate photovoltaic modules and panels-.

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



Deborah Jennings-Conner, VP Regulatory Services

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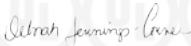
CERTIFICATE OF COMPLIANCE

Certificate Number E493748
Report Reference E493748-20170817
Date 2023-April-07

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Models:

USR – Component, Roof Mounting Hook Units, Models 15891 15893 15987 16000 16317 16318 16319 16320 16988 16990 16991 16993 17508 17509 17510 17511 17512 17513 17514 17515 17516 17517 17518 17519 17520 17521 17522 17523 17524 17525 17526 17527 17536 17537 17538 17539 17540 17541 17542 17543 17544 17545 17546 17547 17548 17549 17550 17551 17552 17553 17554 17555 17556 17558 17559 17560 17566 17567 17568 17569 17570 17571 17572 17573 17574 17575 17576 17577 17578 17579 17580 17585 17586 17587 17588 17589 17592 17596 17597 17598 17599 17600 17601 17606 17607 17608 17609 17610 17611 17612 17613 17614 17615 17616 17617 17618 17620 17621 17622 17623 17624 17625 17626 17627 17628 17629 17630 17631 17632 17633 17636 17637 17638 17639 17640 17641 17642 17643 17646 17647 17648 17649 17650 17651 17652 17653 17654 17659 17664 17667 17669 17670 17671 17672 17673 17678 17679 17680 17681 17686 17687 17688 17689 17700 17701 17702 17703 17704 17705 17706 17707 17708 17709 17710 17711 17712 17717 17718 17750 17751 17752 17753 17759 15891-10 15891BLK-10 15987A 15987B 17667SS 17672SS 17680SS 17688SS 17713SS 17720 17721SS 17723 17724SS 17726 17727SS 17729 17730SS 15894SS 15891SS 15987BSS 17660 17661 17662 17663 17747 17748



Deborah Jennings-Conner, VP Regulatory Services

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INSTALL INSTRUCTIONS



RECOMMENDED MATERIALS

- Tools to locate and mark rafter
- Drill with a 15/64" drill bit
- MFG approved sealant (optional)
- Tool for separating shingles
- 1/2" Nut Setter

INSTALLATION INSTRUCTIONS

1. Locate and mark the rafter
2. Predrill the hole
3. Optional: Fill the predrilled hole with MFG approved sealant
4. Optional: Place a ring of sealant around the bottom of the Microflashing® washer
5. Place the Microflashing®, then L-Foot
6. Insert the Miniflashing® under the shingles, over the L-Foot
7. Insert the Bolt over Miniflashing® and drive until the Microflashing® is compressed and Miniflashing® is secure

To compress Microflashing® properly with QB2 use a 150 minimum torque lbs/inch



BUILDING CODE LETTER



March 22nd, 2023

To whom this may concern,

QuickBOLT is committed to excellence. The parts tested are durable goods, meaning the material composition and detailed specifications of the parts do not change. Therefore, all stamps are current. Any part tested will have the same results no matter what year the tests are performed. All testing and reports are current and valid with 2022 CBC standards.

SolarRoofHook is the previous name of QuickBOLT. Any test result referencing SolarRoofHook is referring to a QuickBOLT product.

All our parts were tested by a third-party test facility, in possession of a current engineering license for the state where the tests were performed for the following.

1. Uplift test
2. Downward load test
3. Lateral Test – Asphalt Mounts, and Metal Mounts only
4. ASTM E2440 and ASTM E330 Waterproof Tests - QuickBOLT only

The following is an excerpt from:

CALIFORNIA BOARD FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS
guide to Engineering & Land Surveying for City and County Officials
Page 12, Line 27

27. If the license has expired between the time the engineering documents were prepared and the time when the local agency's review is performed, do the documents need to be re-sealed by a licensee with a current license? (B&P Code §§ 6733, 6735, 6735.3, 6735.4)

As long as the license was current at the time the engineering documents were prepared, the documents do not need to be re-sealed prior to review by the local agency. However, any changes (updates or modifications) to the documents that are made following the review by the local agency would have to be prepared by a licensed engineer with a current license and those changes would have to be signed and sealed.

We trust the information provided will resolve any request for the test reports submitted to have a stamp from the current year.

Regards,

Rick Gentry
Executive Vice President

ENGINEERING REPORT



QUICKSCREWS INTERNATIONAL CORP. MOCK-UP TEST REPORT

SCOPE OF WORK

UPLIFT AND LATERAL LOAD TEST FOR QB2 QUICKBOLT

Part# 17662 – 4.00" QB2 Kit 3" Microflashing® + SS-LFT 25/KTP

Part# 17663 – 4.00" QB2 Kit 4" Microflashing® + SS-LFT 20/KTP

REPORT NUMBER

K3215.01-301-44

TEST DATES

10/30/19 - 10/31/19

ISSUE DATE	REVISION 1 DATE
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12/06/19	12/19/19
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RECORD RETENTION END DATE

10/31/24

PAGES

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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2744 (04/05/18)

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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

Date: 12/06/19

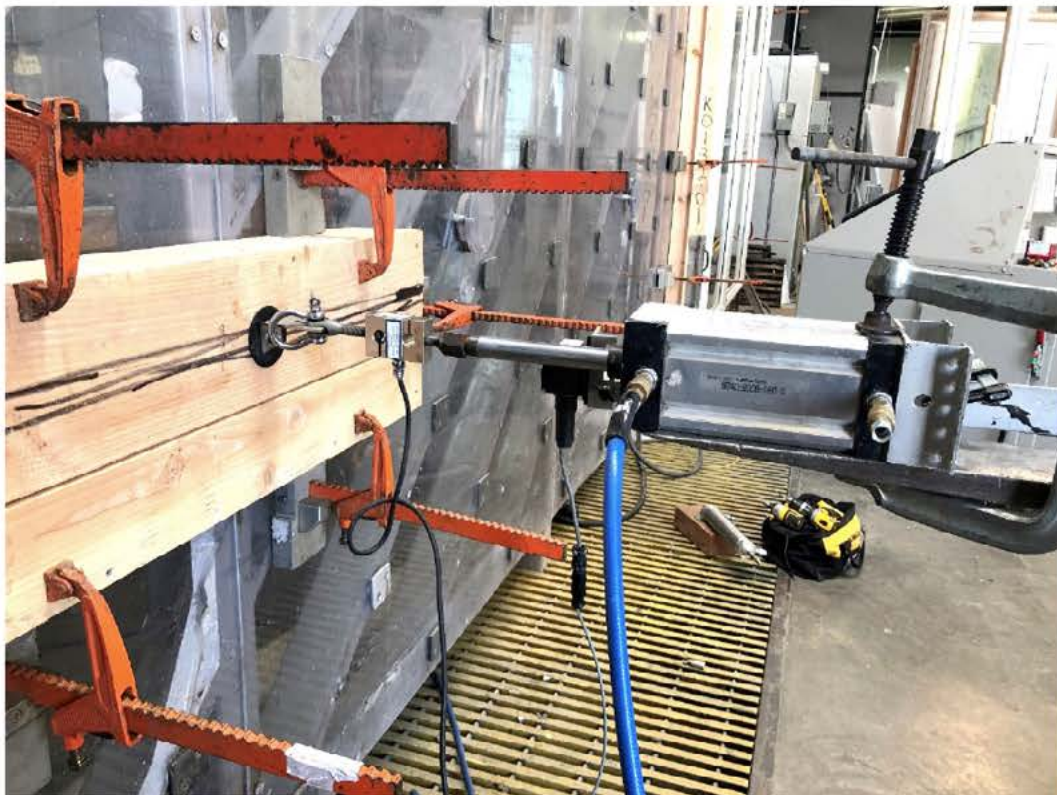
REPORT ISSUED TO

**QuickBOLT - A Division of
QUICKSCREWS INTERNATIONAL CORP.**

5830 Las Positas Road
Livermore, California 94551

PROJECT

UPLIFT AND LATERAL TEST



For INTERTEK B&C:

COMPLETED BY: Ricardo Cortez

TITLE: Technician

SIGNATURE: *R. Cortez*

DATE: 12/19/19

REVIEWED BY: Tyler Westerling, P.E.

TITLE: Senior Project Engineer

SIGNATURE: *T. Westerling*

DATE: 12/19/19

RC:ms



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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

Date: 12/06/19

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by QuickBOLT to perform performance testing on the QB2 Asphalt Mount at the Intertek B&C test facility in Fresno, CA. Results obtained are tested values. This report includes complete written and photographic documentation of all testing performed and a copy of "As-Built" mock-up drawings.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. This report and related test records that are retained such as "As-Built" mock-up drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be serviced by Intertek B&C for the entire test record retention period. At the end of this retention period, such materials shall be discarded without notice and the service life of this report by Intertek B&C will expire.

SECTION 2

TEST METHOD

Mock-up testing was performed in accordance with referenced test methods as specified in the bid documents.

SECTION 3

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Dustin Harris	Intertek B&C
Meng Vang	Intertek B&C
Tyler Westerling, P.E.	Intertek B&C

SECTION 4

GENERAL MOCK-UP DESCRIPTION

Uplift and Lateral Load Test

Material Source/Installation

The mock-up materials/components were supplied by QuickBOLT. The installation of the mock-up was completed by Intertek B&C.

TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

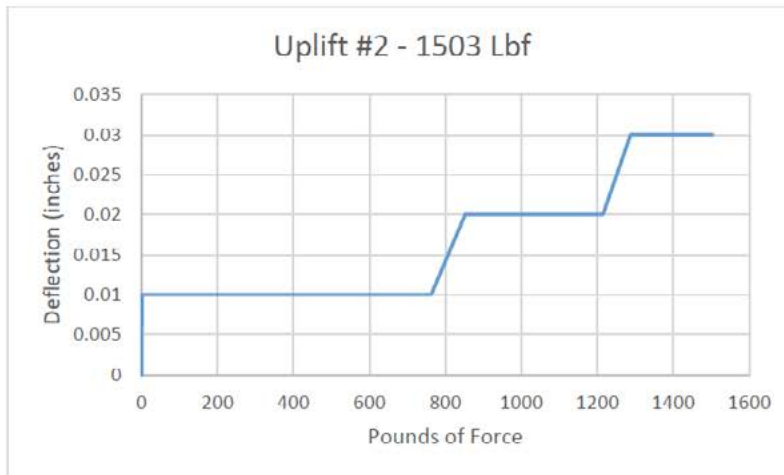
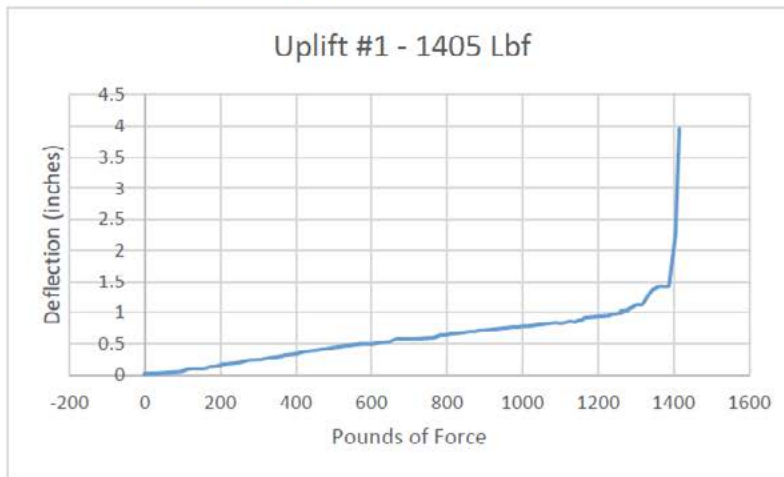
Date: 12/06/19

SECTION 5

FINAL TEST RESULTS

Charts below represent Uplift and Lateral loads.

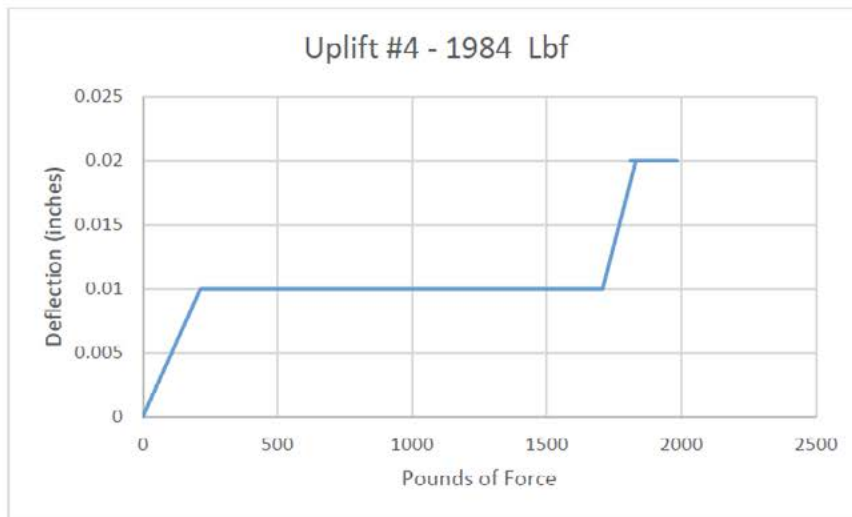
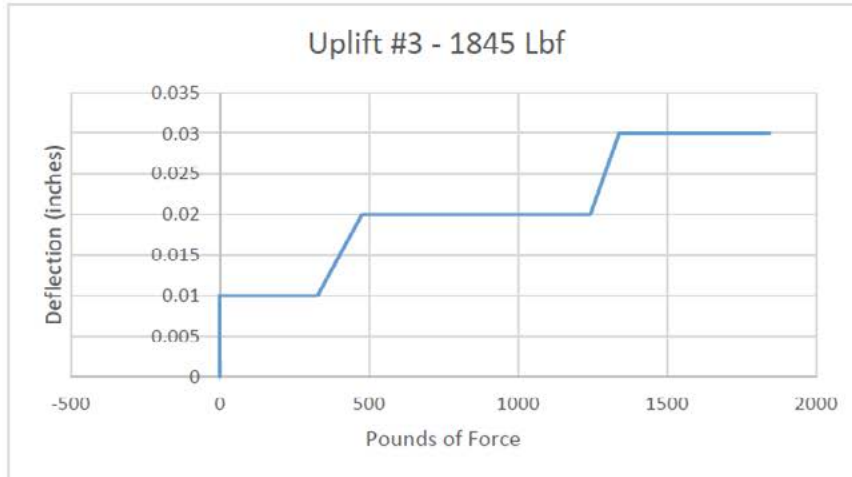
Uplift		Lateral	
Run #	Lbf	Run #	Lbf
#1	1,405	#1	475
#2	1,503	#2	498
#3	1,845	#3	501
#4	1,984	Average =	491 lbf
#5	2,113		
Average =	1,770 lbf		



TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

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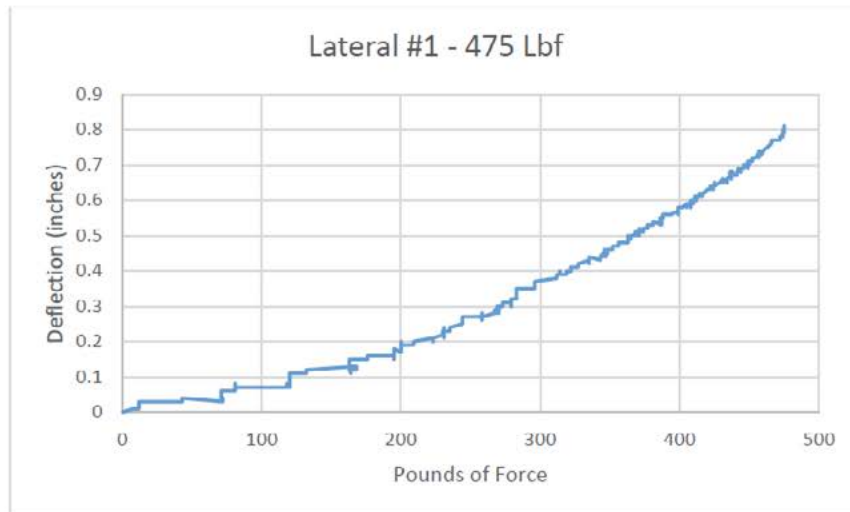
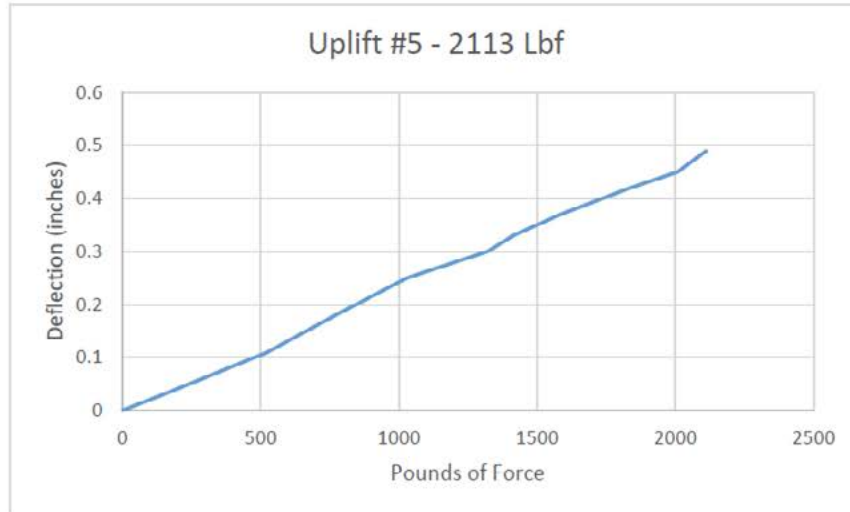
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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

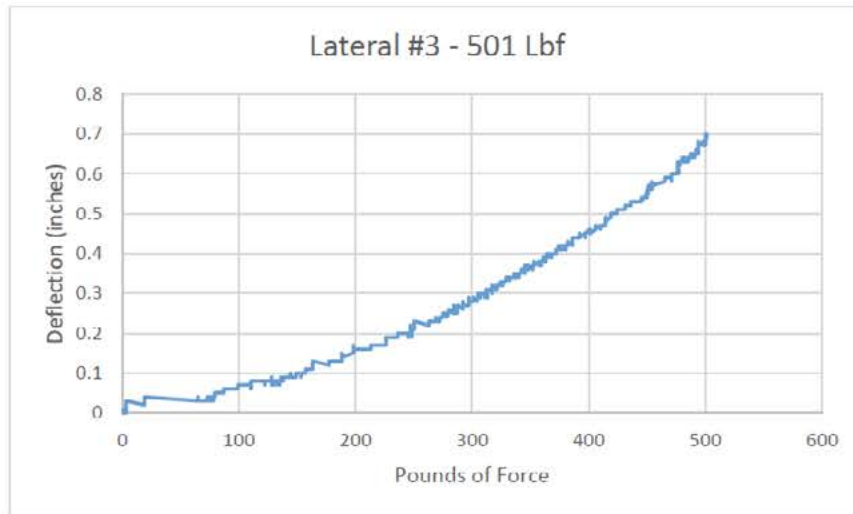
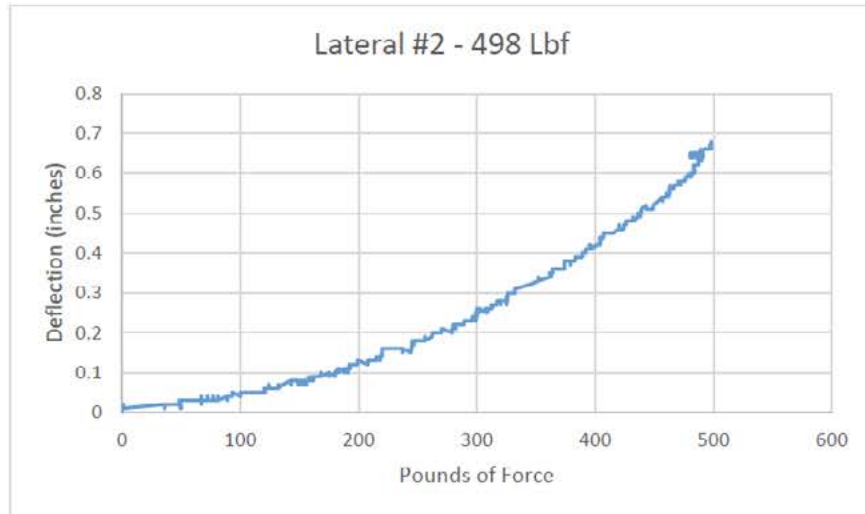
Date: 12/06/19



TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

Date: 12/06/19





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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K3215.01-301-44

Date: 12/06/19

SECTION 6

CONCLUSION

The mock-up met the specified performance requirements.

ENGINEERING REPORT



QUICKSCREWS INTERNATIONAL CORP. TEST REPORT

SCOPE OF WORK

LOAD TESTING OF Part# 17662 – 4.00" QB2 Kit 3" Microflashing® + SS-LFT 25/KTP

REPORT NUMBER

K8370.01-301-18- R1

TEST DATE

05/04/20

ISSUE DATE

06/04/20

REVISION 1 DATE

05/10/22

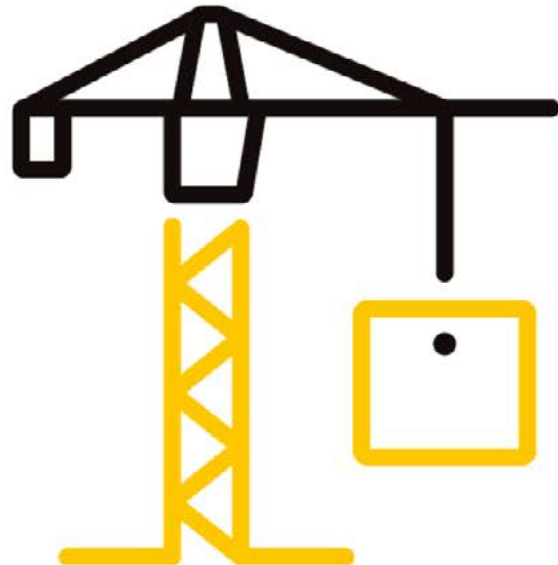
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6

DOCUMENT CONTROL NUMBER

GFT-OP-10c (AUGUST 27, 2018)

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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K8370.01-301-18- R1

Date: 05/10/22

REPORT ISSUED TO

QUICKBOLT - A DIVISION OF QUICKSCREWS INTERNATIONAL CORP.

5830 Las Positas Road
Livermore, California 94551

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Quickscrews to perform additional load testing on their 3" Microflashing® + SS-LFT 25/KTP anchor bracket system. Testing was conducted at the Intertek B&C test facility in Fresno, California.

Intertek B&C in Fresno, California has demonstrated compliance with ISO/IEC International Standard 17025 and is consequently accredited as a Testing Laboratory (TL-264) by International Accreditation Service, Inc. (IAS).

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends five years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.



2022.05.11 10:09:25 -07'00'

For INTERTEK B&C:

COMPLETED BY: Dennis Janzen
TITLE: Technician

Dennis Janzen
Digitally Signed by: Dennis Janzen

SIGNATURE:
DATE: 05/10/22

REVIEWED BY: Tyler Westerling., P.E.
TITLE: Operations Manager

Tyler Westerling
Digitally Signed by: Tyler Westerling

SIGNATURE:
DATE: 05/10/22

TW:ms

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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K8370.01-301-18- R1

Date: 05/10/22

SECTION 2

SUMMARY OF TEST RESULTS

JOIST CONNECTION PERFORMANCE (DIRECT VERTICAL LOAD - SHEAR PERPENDICULAR) ¹	Part# 17662 – 4.00" QB2 Kit 3" Microflashing® + SS-LFT 25/KTP	Load at 1/8 in Displacement
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²

SECTION 3

TEST METHODS

ASTM D7147-11 (Reapproved 2018), Standard Specification for Testing and Establishing Allowable Loads of Joist Hangers

Limitations

Bracket systems to the supporting structure is not included in the scope of this testing and would need to be evaluated separately.

SECTION 4

MATERIAL SOURCE/INSTALLATION

All anchor components including wood posts used for the testing reported herein were supplied by Quickscrews and were not independently sampled or selected by a third-party inspection agency.

SECTION 5

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Tyler Westerling	Intertek B&C
Dennis Janzen	Intertek B&C



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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K8370.01-301-18- R1

Date: 05/10/22

**SECTION 6
TEST PROCEDURE**

Specimens were mounted to an Asphalt shingle covered nominal 2x6 Douglas Fir, with moisture ranging from 7% to 12%, frame. Vertical load was applied to the bearing block through a load cell attached to the testing machine. Test speed was 0.200 in/min. Displacement was taken with one linear transducer, attached to the frame, which were zeroed at zero load. Ultimate load was the maximum load the test assembly could withstand in that direction without deflection exceeding 1/8". See photographs in Section 10 for typical test set-up.

**SECTION 7
TEST SPECIMEN DESCRIPTION**

COMPONENT	MATERIAL	DESCRIPTION
Microflashing® Part# 17669	Stainless Steel Backed EPDM	3" x 3/16" Thick Microflashing®
L-Foot – Part# 15894SS	0.158" thick Stainless Steel	Measuring 1.575" x 1.575" with a 3.35" tall leg.
QB2 Mount Screw Pt# 17660	5/16" X 4"	Stainless Steel Lag

Refer to photographs in Section 10 and drawings in Section 11 for additional details.

**SECTION 8
TEST RESULTS**

Connection Performance Testing (Direct Vertical Load - Shear - Perpendicular)

The purpose of this testing was to determine the direct load capacity of the L-foot in three direction in accordance with ASTM D7147.

Specimen No. 1

Pounds Load at 0.125" deflection					
Load Direction	Anchor #1	Anchor #2	Anchor #3	Average	With Safety Factor of 3
Bending (weak direction)	58 lbs	60 lbs	59 lbs	58 lbs	19.3 lbs
Pullout	1,415 lbs	1421 lbs	1417 lbs	1,418 lbs	473 lbs
Shear	474 lbs	473 lbs	477 lbs	475 lbs	158 lbs



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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K8370.01-301-18- R1

Date: 05/10/22

Test/Ulimate loads should not be used as design loads or safe working loads.

SECTION 9 PHOTOGRAPHS



**Photo No. 1
Pullout Test**



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TEST REPORT FOR QUICKSCREWS INTERNATIONAL CORP.

Report No.: K8370.01-301-18- R1

Date: 05/10/22

SECTION 10
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	06/04/20	N/A	Original Report Issue
1	05/10/22	N/A	Updated product and installation details. Added the 3x safety factor.



AOstructures Inc.
916.541.8586
www.AOstructures.com

June 13, 2022

Re: Quick Bolt 17662
Flashed L Foot

To: Quickscrew
Attn: Rick Gentry

OBJECTIVES/SCOPE OF WORK:

AOstructures, Inc. (AOstructures) was asked to review available testing materials for the QuickBolt 17662 component (subject component) and provide a certification of the subject components lateral (shear) and tensile (uplift) capacities for use in the state of Virginia for roof mounted solar PV applications on composition shingle roofs. The findings of this report are applicable for the following building codes:

DESIGN CRITERIA/BUILDING CODES:

- 2015 International Building Code (IBC)
- Minimum Design Loads for Buildings and Other Structures, ASCE 7-10

USER RELIANCE:

AOstructures was engaged by Quickscrew (Client) to perform this assessment. This report and the information therein, are for the exclusive use of the Client. AOstructures assumes no liability to any party other than the client and liability is limited to the terms and conditions of the agreement between AOstructures and the Client.

LIMITATIONS:

- A certification of the underlying building is not implied or included in the scope of this report.
- The project specific structural or civil engineer of record shall review the underlying structure's condition and capacity to support any proposed loads to the roof and determine if the subject component meets their intended attachment application and site-specific demand loads.
- It is assumed the underlying structure is in good repair and has not been damaged by water intrusion, fire, mold, pests, etc.
- The installer shall field verify that the roof build-up has not limited lag embedment. The engineer shall adjust the ultimate loads that follow to appropriately account for limited lag embedment if such a condition exists.
- All waterproofing shall be provided by the contractor.

REVIEWED MATERIALS:

We reviewed the following documentation, provided to us by the Client, to conduct this assessment.

- Intertek Report # K8370.01-301-18-R1, Load Testing of Part # 17662 – 4.00" QB2 Kit 3" Microflashing ® + SS-LFT 25/KTP, dated May 10, 2022

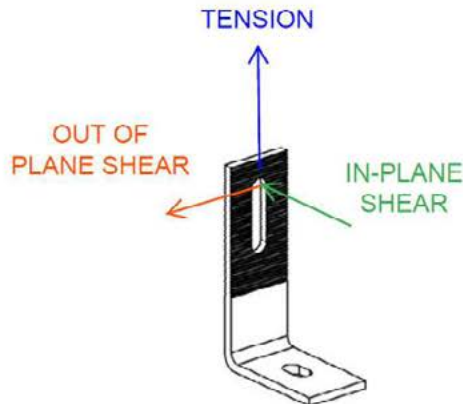


DESCRIPTION OF TESTED SYSTEM:

Three tests were conducted on the subject component for uplift, in-plane shear and out of plane shear. Samples consisted of a shingle layer of composition shingle atop CDX plywood atop of 2x6 rafters (G = 0.50) with moisture contents ranging from 7%-12%. The subject component was fastened to the underlying rafter using (1) 5/16" diameter x 4" long lag screw, rigidly affixed to the testing device and loaded until ultimate failure. Per Intertek, ultimate failure is defined as the point at which the subject component deflects 1/8".

RESULTS:

The reported lateral and uplift values below are ultimate failure loads. The project specific engineer shall apply appropriate factors of safety to their design and ensure excessive deflections do not impact the PV module or module/rail attachments, the underlying waterproofing system, or any other facet of the proposed PV system.



The ultimate tension (uplift) failure loads of the three tests average to 1,418#.

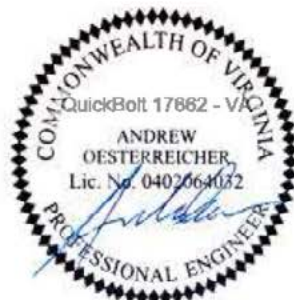
The ultimate in-plane lateral (in-plane shear) failure loads of the three tests average to 475#.

The ultimate out of plane lateral (out of plane shear) failure loads of the three tests average to 58#.

If you have any questions on the above, do not hesitate to call.

Sincerely,

Andrew Oesterreicher, PE



CHEMLINK COMPATIBILITY



February 15, 2023

ATTN: Rick Gentry, Executive VP

QuickBolt

5830 Las Positas Blvd.

Livermore, California 94551

Subject: Product compatibility:

This letter is regarding the compatibility of the ChemLink M-1® Universal Adhesive and Sealant with the Microflashing® by QuickBolt. My testing indicated that there are no known compatibilities issues with Microflashings® and M-1® when they are used as directed. Acceptable adhesion was achieved within seven days of application. The M-1® adhesive / sealant was applied at 70° fahrenheit and 50% percent relative humidity.

All surfaces should be clean, dry, and free of all contaminates. Use isopropyl alcohol to prepare surfaces. Do not use mineral spirits or xylene.

Thank you,

Rick Berthiaume

Technical Services Manager