



QPS Evaluation Services Inc.

Testing, Certification, and Field Evaluation Body
Accredited in Canada, the USA and Internationally

**YOUR FULL SERVICE PARTNER IN
GLOBAL CONFORMITY ASSESSMENT**

**TESTING - CERTIFICATION - FIELD EVALUATION
Energy Efficiency Verification - CB Scheme - IECEx Scheme
CE Marking - ATEX**

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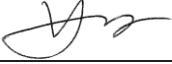



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Total Number of pages in this package: 11

TEST LOCATION:			
<input checked="" type="checkbox"/> QPS	<input type="checkbox"/> WMT	<input type="checkbox"/> SMT	<input type="checkbox"/> OTHER
Company Name QPS Evaluation Services Inc.			
Address 81 Kelfield St Unit 8, Toronto Ontario, M9W 5A3			

CLIENT INFORMATION	
Company Name	Galaxy Energy
Address	#3-40 Englehard Drive, Aurora, ON L4G 6X6

AUDIT INFORMATION:		
<input type="checkbox"/> Description of Tests	CUSTOM TESTING, as specified and witnessed by client	
<input type="checkbox"/> Tests Conducted by +	Zhanmin Yang	
	Printed name	
Reviewed and accepted by Responsible Engineer	Sridhar Das	
	Printed Name	Signature

<input type="checkbox"/> TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	<input type="checkbox"/> Comments/Parameters <input checked="" type="checkbox"/> Tests Conducted by ++
1	x	Loading Test	CUSTOM TESTING

Test Equipment- See "TEST EQUIPMENT INFORMATION"
 Samples - See "TEST SAMPLE IDENTIFICATION"

Instructions -
 + - When all tests are conducted by one person, printed name and signature can be inserted here instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.
 ++ - When a test conducted by more than one person, printed name and signature of person conducting the test can be inserted next to the test name instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.

Special Instructions -



QPS Evaluation Services.

Report No.	615-14				
Tested by	Zhanmin Yang	Signature			
Date	July 24, 2013	Page	4	of	11
Sample tag No	04779	Ambient:	23	Humidity	Atmosphere
Sample No.	1/4			47 %	Pressure:

Test fixture

Client provided the test fixture consisting of:

- a) Both mating parts (701010 and 701011) of G7 Support Clamp, Part # 701013, held together by a horizontal, connecting bolt.
- b) An eye bolt is threaded vertically (into Part # 701010) into G7 Support Clamp, Part # 701013.
- c) Bent sheet metal (to simulate the roof), secured to a wooden base.

Test Method

- i) The (bent) sheet metal was clamped between the two mating parts (701010 and 701011) of the G7 Support Clamp at 30 ft-lb (40Nm) applied to the horizontal, connecting bolt by calibrated torque wrench.
- ii) The pull force (to the G7 Support Clamp, through the eye bolt attached to Part # 701010) was gradually raised to 1000 lb. force (nominal) and maintained at that value for 30 minutes.

Test Result

There was no damage support clamp after the above test.

Notes:

- 1) After the test for 30 minutes as noted above, the pull force was gradually increased to determine the failure point. The (bent) sheet metal started getting deformed and got disengaged from its wooden support at a pull force of approximately 2200 lb. though it continued to be held by the G7 Support Clamp between its mating parts, 701010 and 701011.
- 2) Engineering drawings of the support bracket are shown on Pages 5 thru 8.
- 3) Pictures of the test set-up are shown on Pages 8 thru 11.



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Sample No.	1/4			47 %	Pressure:
					1008mBar

Drawing 1 - Part # 701010; part of G7 Support Clamp

DESCRIPTION: F PROFILE - 701010 REV. 1		PROPOSAL#: SP-19957
CUSTOMER # XXXXXXXX	CUSTOMER: GALAXY ENERGY	
DATE JUN/03/2012	LET. A	REVISION PROFILE ALTERED PER CUSTOMER
		BY R.W.

MATES WITH SP-19958
HALF SCALE

NOTE: STANDARD ALUMINUM ASSOCIATION TOLERANCES APPLY UNLESS OTHERWISE NOTED
NOTE: WALL THICKNESS IS 0.500" (12.70mm) UNLESS OTHERWISE SHOWN
NOTE: BREAK ALL CORNERS AT 0.015" (0.38mm) UNLESS OTHERWISE SHOWN

X.XXX = CRITICAL DIMENSION
X.XXX = CRIT. DIM. w/ OFFSET TOLERANCE
= 0.010 (0.25) X 90° (SPECTRA ALUMINUM ID MARK)

NOTE: CHECK OR INDICATE EXPOSED SURFACES. CIRCLE CRITICAL DIMENSIONS AND INDICATE LOCATION FOR SPECTRA ALUMINUM IDENTIFICATION MARK

SHAPE DRAWING APPROVAL

PLEASE SIGNIFY BELOW THAT THE SHAPE AND DIMENSIONS CONFORM TO YOUR REQUIREMENTS AND THAT YOU AGREE TO ACCEPT ALL LEGAL RESPONSIBILITIES FOR PATENTS, TRADE MARKS, COPYRIGHTS, INDUSTRIAL DESIGN OR ANY OTHER INFRINGEMENT RELATING TO THIS SHAPE AND TO INDEMNIFY AND SAVE HARMLESS SPECTRA ALUMINUM PRODUCTS INC. FROM ANY CLAIMS, SUITS, ACTIONS OR DEMANDS ARISING THEREFROM.

SIGNED BY: _____ DATE: _____

PRINT NAME: _____

DWN. BY: R.W. SCALE: 2X DATE: JUN/04/2012

ACTUAL SIZE
PLEASE INDICATE EXPOSED SURFACE

Part# 701010 E
SPECTRA
ALUMINUM PRODUCTS
Part 2600576

EST. AREA:	1.760 sq.in.	1129.03 sq.mm	INS. PER:	0.000 in.	0.00 mm
CUT. PER:	8.220 in.	208.79 mm	FACTOR:	3.98	
EST. WT.:	2.065 lbs/ft.	3.070 kg/m	C.C.D.:	2.650 in.	66.00 mm



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Sample No.	1/4				

Drawing 2 - Part # 701011; part of G7 Support Clamp

DESCRIPTION: L PROFILE - 701011 REV. 1		PROPOSAL#: SP-19958	
CUSTOMER # XXXXXXXXX		CUSTOMER: GALAXY ENERGY	
DATE	LET.	REVISION	BY:
JUN/05/2012	A	PROFILE ALTERED PER CUSTOMER	R.W.

MATES WITH SP-19957
HALF SCALE

SPECTRA ALUMINUM PRODUCTS INC.
UNCONTROLLED
Date: JUN 16 2012

NOTE: STANDARD ALUMINUM ASSOCIATION TOLERANCES APPLY UNLESS OTHERWISE NOTED
 NOTE: WALL THICKNESS IS 0.500" (12.70mm) UNLESS OTHERWISE SHOWN
 NOTE: BREAK ALL CORNERS AT 0.015" (0.38mm) UNLESS OTHERWISE SHOWN

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 X.XXX = CRIT. DIM. w/ OFFSET TOLERANCE
 * = 0.010 (0.25) X 90° (SPECTRA ALUMINUM ID MARK)

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SIGNED BY: _____ DATE: _____

PRINT NAME: _____

DWN. BY: R.W.	SCALE: 2:1	DATE: JUN/05/2012	<p>Part # 701011 E</p> <p>SPECTRA</p> <p>ALUMINUM PRODUCTS</p> <p>Model 6005 TC</p>	
EST. AREA: 1.316 sq.in. 849.03 sq.mm		INS. PER: 0.000 in. 0.00 mm		
OUT. PER: 6.843 in. 168.73 mm		FACTOR: 4.28		
EST. WT.: 1.553 lbs/ft. 2.309 kg/m		C.G.D.: 2.466 in. 62.64 mm		

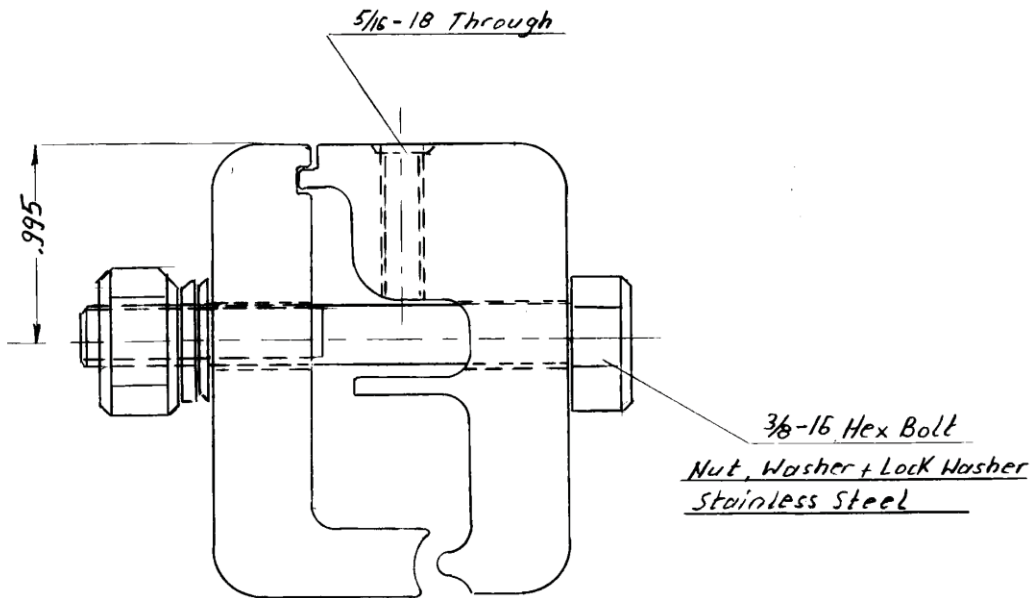


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Sample No.	1/4				

Drawing 3 - Drawing of G7 Support Clamp, Part # 701013

G7 Assembly



Part Number 701013

Material 6005 T6 Aluminum
cut to 1 1/2"

galaxy
Energy
Aurora
3-40 Englehard Drive
Aurora, ON L4G 6X6
Canada



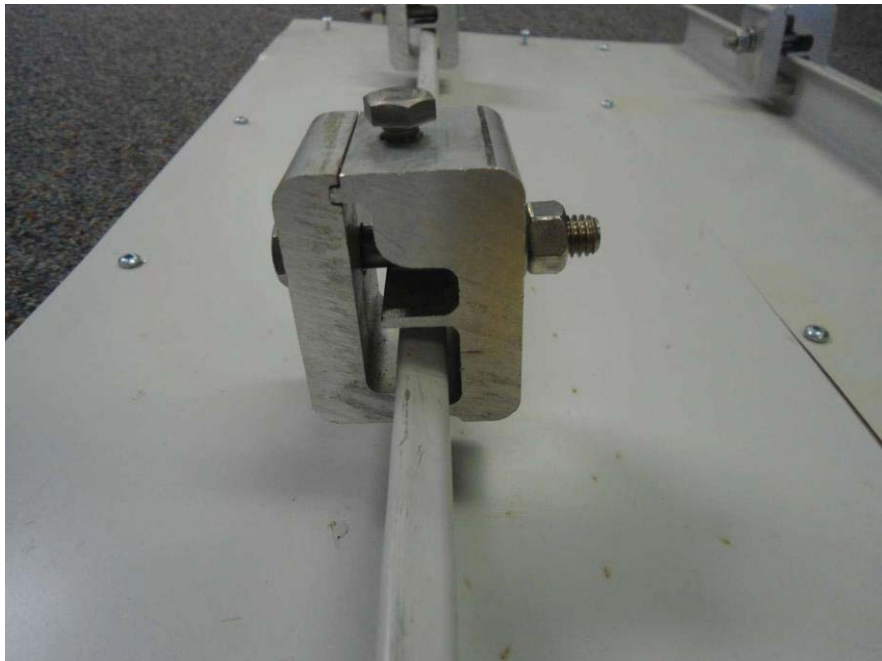
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Photo 1 - Test fixture, overall view



Photo 2 - Test fixture, individual

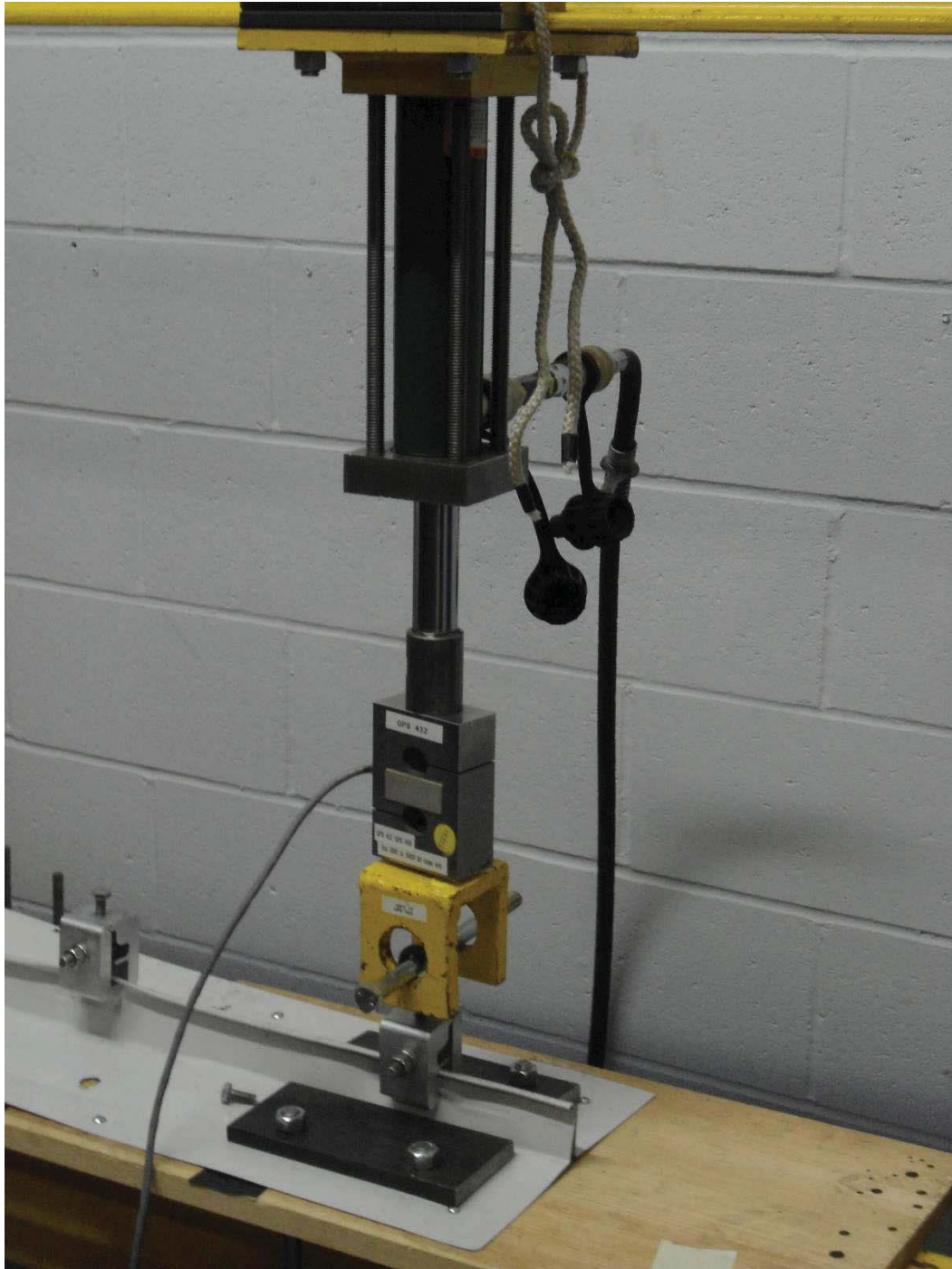




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Sample No.	1/4				

Photo 3 - Test set-up, overall view





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Sample No.	1/4				

Photo 4 - Test set-up, close-up view

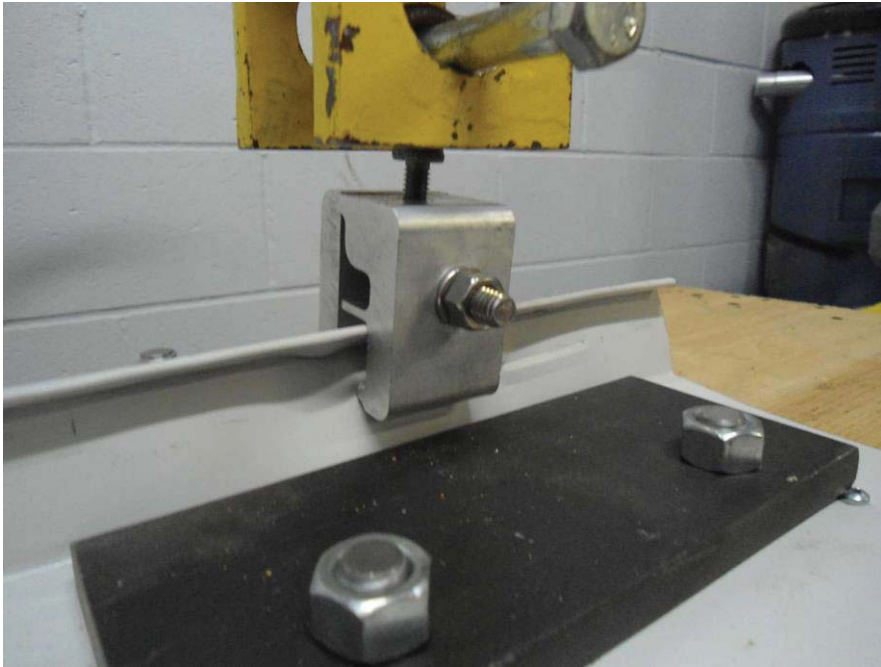


Photo 5 - Test set-up, close-up view





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Sample No.	1/4				

Photo 6 - Test set-up, close-up view



Photo 7 - Test set-up, close-up view

