

Cyclone Testing Station
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TEST SUMMARY SHEET – TS909

Reappraisal Date of Test Summary Sheet: 31 December 2017 (See Note 2 below).

Simulated cyclic wind load strength testing was conducted on **Q.PRO-G3** photo voltaic solar panels mounted on the **KRINNER Flex III-4 SK8** support system. The testing was performed with the use of new materials provided by **Hanwha Q CELLS Australia Pty Ltd** and **Krinner Australia**, respectively.

Description of Tested Photovoltaic Solar Panels

Product Name: Q.PRO-G3 Photovoltaic Solar Panels and KRINNER Flex III-4 SK8 support system
 Panel Dimensions: 1,670 mm long and 1,000 mm wide
 Panel Description: 3.2 mm thick photovoltaic module fixed to top flange of a perimeter frame
 Panel Frame Description: Nominally 2 mm thick “Cee” shaped aluminium extrusion cross section with outer top and bottom flange width of 13 mm and 30 mm, respectively, a web height of 35 mm
 Clamping Claw: 61 mm high by 86 mm long and 4 mm thick aluminium extrusion bracket; Two M10 100 mm long bolts with nuts; Integrated gate shaped head: height 60 mm, depth 66 mm, thickness 4 mm, width 50 mm
 Module Mounting Rail: Slotted parallelogram shaped hollow aluminium extrusion section with overall dimensions 110 × 55 mm and 2 mm thick
 End Clamp: “Z” shaped aluminium extrusion bracket with an outer top and bottom flange width of 12 mm and 20 mm, respectively, web height of 39 mm, depth 50 mm, and total thickness of on average 3 mm
 Mid Clamp : 33 × 19 mm “U” shaped cross section bracket with 12 mm horizontal flanges fabricated from an aluminium extrusion; 50 mm deep and nominally 3 mm thick
 End and Mid Clamp Bolt: M8 × 20 mm stainless steel bolts, with a 12.7 × 12.7 × 6.3 mm square nut

Client’s Details

Name of Client: Hanwha Q CELLS Australia Pty Ltd and Krinner Australia.
 Address of Client: Level 2, 56 Berry Street, North Sydney NSW 2060, Australia and Unit 1, 32 Liney Avenue, Clemton Park NSW 2206, respectively.

Report and Test Details

Report Details: Cyclone Testing Station Report No. TS909, dated 23 September 2013
 Report Title: Static and Cyclic Strength Wind Load Testing of Q.PRO—G3 Photovoltaic Solar Panels mounted on KRINNER Flex III-4 SK8
 Wind Load Testing: Static strength test to AS 4040.2 and cyclic strength tests to BCA 2012 LHL test regime

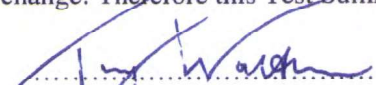
Recommended Ultimate Strength Limit State Design Wind Capacities for Three Panel Configuration

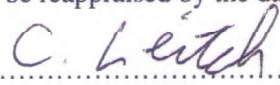
Panel Size (mm)	Rail Spacing (mm)	Clamping Claw Spacing (mm)	Recommended Non-Cyclonic Ultimate Strength Limit State Design Wind Capacity (kPa)	Recommended Cyclonic Ultimate Strength Limit State Design Wind Capacity based on LHL testing (kPa)
1,670 × 1,000	1,180	2,500	6.79	5.65

Conditions of Use

1. Refer to Report No. TS908, (contact Hanwha Q CELLS Australia Pty Ltd or Krinner Australia) for full details of the specimen, test methods, acceptance criteria and results;
2. These design capacities are based on legislation and standards that are current at the time of issue and may be subject to change. Therefore this Test Summary Sheet should be reappraised by the date noted.

Signed


 Mr. T. Walther
 Senior Engineer


 Mr. C. J. Leitch
 Authorised Signatory
 Senior Consulting Engineer

Date

23/9/2013

23-9-2013

