

# REGIONAL TEST CENTRE (SOLAR THERMAL)

School of Energy, Environment and Natural Resources  
Madurai Kamaraj University  
Madurai - 625 021  
Phone: 0452 - 2456391, 2458497  
Email rtmadurai@gmail.com



PAGE 1 OF 6

**Sponsored by**

**MINISTRY OF NEW AND RENEWABLE ENERGY  
GOVERNMENT OF INDIA**

## TEST REPORT

As per IS 12933 (Part 1) : 2003  
Together with amendments  
No. 1 of June 2005,  
No. 2 of August 2007 &  
No. 3 of May 2013

BIS CODE NUMBER  
Not Applicable

REPORT NUMBER  
928

DATE  
02.01.2014

Checked by

  
Research Associate  
Dr. Tennyson Daniel



Authorized Signatory  
Dr. C. GOPINATHAN  
PRINCIPAL INVESTIGATOR  
REGIONAL SOLAR ENERGY TESTING CENTRE  
Madurai Kamaraj University  
MADURAI-625 021



REPORT NUMBER : 928

As per IS 12933 (Part 1) : 2003



**1. PARTICULARS OF SAMPLE RECEIVED**

- |   |   |   |
|---|---|---|
| a) Nature of sample                     | : | Solar collector   |
| b) Grade / Variety / Type / Glass /etc. | : | Flat plate type   |
| c) Declared value, if any               | : | Not applicable  |
| d) BIS code number                      | : | Not applicable  |
| e) Batch number and date of manufacture | : | Not applicable  |
| f) Quality and mode of packing          | : | Crate packed with EPS sheet   |
| g) Date of receipt of sample            | : | 24.06.2013  |
| h) BIS seal                             | : | Not applicable  |
| i) IO's signature                       | : | Not applicable  |
| j) Any other information                | : | Nil   |
| k) Date of commencement of tests        | : | 25.06.2013  |
| l) Date of completion of tests          | : | 30.12.2013  |
| <br>m) Name and address of manufacturer | : | M/s. Focusun Energy Systems<br>Old No. 27, New No. 30<br>Jaganathan Nagar<br>Opp CMC, Avinashi Road<br>Coimbatore - 641 014 |
| <br>n) Serial No.                       | : | 0107  |
| o) Country of manufacture               | : | India*  |
| p) Maximum working pressure in kPa      | : | 245 kPa*  |
| q) Standard mark details, if present    | : | Nil   |

2

**2. CHARACTERISTICS OF COVER PLATE**

*(Section 1 of Part 2)*

Tests	Specified requirements	Results
Cover plate	Cover plate shall be fixed with the collector box through gasket which could provide an effective sealant against water and dust between the collector box and cover	Cover plate is fixed with the collector box through gasket which could provide an effective sealant against water and dust between the collector box and cover
Material appearance	Single piece glass Tempered / toughened	Toughened*
General appearance of glass	Free from bubbles and rough surface	Free from bubbles and rough surface
Transmittance test	82% (Min)	83%
<b>Environmental condition:</b>	<b>Test carried out on a clear sunny day and near solar noon</b>	
Impact resistance test (5.7 of Part 5)	Glass broken or cracked/ did not break or crack	Did not break or crack

Checked by

Research Associate



\* All instruments used for testing are traceable to national standards through reference standards and their calibrations are valid  
 \* Results presented in this report relate only to the item mentioned and tested at RTC, Madurai  
 \* This report, in full or in part, shall not be published, advertised, used for commercial purpose or any legal action unless prior permission has been secured from The Director General, Bureau of Indian Standards and RTC, Madurai  
 \* This report is intended for BIS certification marks purpose only



**3. CHARACTERISTICS OF COLLECTOR BOX**  
(Section 2 of Part 2)

Tests	Specified requirements	Results
Material appearance	Al / fibre glass / CRCA / GS / HRC	Aluminium*
Thickness (in mm)	Al - channel section for sides : 1.4 (Min)	1.4
	Sheet for bottom : 0.45 (Min)	0.47
	Support for glass retaining : 1.2 (Min)	1.3
	Sheet for entire body :1.0 (Min)	Not applicable
	Fibre glass : 3.0	Not applicable
	GS / SS : 0.80	Not applicable
	CRCA / HRC : 0.91	Not applicable
Size (in mm)	May be 1860 x 1240 x 100 / 2120 x 1040 x 100 / 2050 x 930 x 100 for size a, b, c respectively with a tolerance of $\pm 10$	2029 x 1029 x 97 (Other size)
Workmanship and finish (appearance) (7 of Part 2)	Surface shall be smooth / free from roughness / raised spots / scale / any other defects	Surface is smooth, free from roughness, raised spots, scale and other defects
	Sharp edges / corners shall be rounded off	No sharp Edges
Corrosion resistance coating (appearance) (7.2 of Part 2)	Only for CRCA or HRC boxes both sides	Not applicable
Resistance to abrasion (appearance) (7.3 of Part 2)	Examine for scratch jigged edges and penetration	Not applicable
Fabrication (appearance)	Al : 8.1 of Part 2 Fibre glass : 8.2 of Part 2 CRCA/HRC/GS/ any other : 8.3 of Part 2	Screw joints are leak proof

3

Checked by

Research Associate



\* All instruments used for testing are traceable to national standards through reference standards and their calibrations are valid  
\* Results presented in this report relate only to the item mentioned and tested at RTC, Madurai  
\* This report, in full or in part, shall not be published, advertized, used for commercial purpose or any legal action unless prior permission has been secured from The Director General, Bureau of Indian Standards and RTC, Madurai  
\* This report is intended for BIS certification marks purpose only



