

TENDER REF: EPD/PV/SOLARCELL4BB/122729

REVISED Qty. : 1,22,45,000 NUMBERS

	Quantity required is changed. Revised quantity is 1,22,45,000 NUMBERS	
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Clauses from ITB**E. Purchaser's Standard Commercial Terms :-**

1. Unless specified otherwise in the RFQ , following are the Purchaser's standard commercial terms:-

Sl No	Description	For Purchase within India	For Foreign Purchase(Direct Imports)
i	Delivery Terms	Door Delivery to BHEL – EPD Stores ,Bangalore with Freight and Insurance paid	CIF ICD BANGALORE
ii	Payment Terms	<u>100% direct payment with 45 days credit from the date of</u> a) Receipt of material for Door delivery BHEL stores	100% against sight draft with 45 days credit on negotiation of complete set of documents
iii	Reckoning of Delivery Date	<u>For Door Delivery at BHEL Stores:-</u> Date of receipt of material at BHEL Stores.	<u>For Delivery Terms of CIF/CIP/ FCA / FOB</u> Date of House Airway Bill(HAWB) / Bill of Lading / Date of receipt by BHEL's Freight Forwarder whichever is earlier
iv.	Penalty for Delayed Delivery	As per clause 15 of General Conditions of Contract (DOC .NO.BHEL :EPD:GCC-SHOP:REV:00)	
v	Cancellation/ Termination of Contract & Risk Purchase	As per Clause 24 of General Conditions of Contract (DOC.NO.BHEL:EPD:GCC – SHOP :REV:00)	

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Unless specified otherwise in the RFQ and if the Purchaser decides to accept offers with deviations in respect of the standard commercial terms given at Clause No. E1 above, such offers will be subjected to loading on the **quoted basic material value** as detailed below:-

SI No	Deviation on	Nature of Deviation / Offered Terms	Loading %
i	Delivery Terms	<u>For purchase within India :-</u> Other than SI No.1 (i) of clause E above.	10
ii.	Payment Terms	<u>For purchase within India :-</u> 1) Payment against receipt & acceptance of material with 45 days credit from the date of receipt of material.	0
		<u>For foreign purchase :-</u> 1) Payment through Letter of Credit with usance credit of 45 days from the date of B/L	5
		2) Sight Draft with credit period of 45 days from the date of B/L	0
iii	Penalty for Delayed Delivery	1) Non – Acceptance	10
		2) Partial Acceptance (X%)	(10 – X)

* All bank charges shall be to seller's account. If bank charges of BHEL banker are to BHEL's account then **additional loading of 2% on the quoted basic value** is applicable.

NOTE: Offer/ s with payment terms other than the standard payment terms indicated at E1(ii) or Deviated Payment Terms with loading indicated at F(ii) above are liable for rejection.

START OF DELIVERY PERIOD: - DELIVERY PERIOD WILL START FROM THE DATE OF LC FOR FOREIGN VENDORS IF HE QUOTES PAYMENT AGAINST LC INSTEAD OF DATE OF PO.



ELECTROPORCELAINS DIVISION
BENGALURU – 560012, INDIA

PS 901 05 0002

Rev No : 01

Purchase Specification
Group : Photovoltaic Module

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SILICON SOLAR CELL - MULTI CRYSTALLINE (MC) 4 BUS BARS

1.0 PHYSICAL CHARACTERISTICS

- 1.1. Material : Multi Crystalline Silicon
- 1.2. Dimensions : 156 ± 1 mm (Side to Side)
- 1.3. Shape : Square
- 1.4. Thickness : 200 ± 20 microns
- 1.5. Metallization
- 1.5.1. : Front – Silver
- 1.5.2. : Back – Silver bus bars with Aluminium BSF
- 1.5.3. : Number of Bus Bars – 4 (Four – Front & Back)
- 1.6. Anti-Reflection coating : PECVD – Silicon Nitride (Blue color)

2.0 ELECTRICAL CHARACTERISTICS:

- 2.1 Power out Put : ≥ 4.45 Watts per Cell
- 2.2 Solar Cell Efficiency : $\geq 18.3\%$
- 2.3 Voltage at Max. Power Point : 530 mV (Typical)
- 2.4 Open Circuit Voltage : 640 mV (Typical)
- 2.5 Short Circuit Current : 8.80 A (Typical)
- 2.6 Fill Factor : 0.78 (Typical)

Prepared By : PK

Reviewed By : NAR

Approved By : CNP

Date of Issue

12/09/2016
12/09/16

12.09.2016



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3.0 VISUAL CHARACTERISTICS :

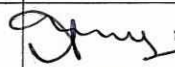
- a. Cells shall not have any edge chips of size more than 0.5 mm width and 2.0 mm length. Chip extending on to grid line irrespective of size shall not be acceptable.
- b. Cells shall not have any surface chipping or hole of size more than 0.5 mm.
- c. Cells shall not have any visible cracks or deep scratches.
- d. Cells shall not have bow formation of more than 2.0 mm.
- e. Cells shall not have print shift, finger knots and other printing defects of more than 0.5 mm on width and 3.0 mm on length.
- f. Cells shall not have busbar interruptions, finger print interruptions, finger breaks, etc.
- g. Cells shall not have Silicon Nitride coating colour variations or inhomogeneity, as examined visually.

4.0 PACKING CONDITIONS

- a. Cells shall be packed tightly with heat shrinkable sleeves or polythene / polypropylene sachets. Sachets shall be packed in foam / thermocol boxes with soft pads on both ends or in polyethylene foam packing to absorb transit handling shocks. Packing of sachets shall be in carton boxes with soft spacers. The final packing of the individual carton boxes shall be in an outer sealed plywood box.
- b. Manufacturer name, Cell type, lot number, wattage / efficiency, quantity, date of manufacture to be identified on each sachet. Total quantity of cells in each carton and plywood box to be displayed.
- c. Certificate of Conformance (COC) shall be provided along with each consignment.
- d. BHEL Purchase Order (PO) Number and Item Description to be mentioned on the outer sealed plywood boxes.

5.0 INSPECTION AT BHEL

- a. Visual Inspection, Dimensional & Electrical Measurement
- b. Single Sampling Plan as per IS:10673-1983, Special Inspection Level S-4, AQL 1.0 for physical / mechanical defects and AQL 1.50 for surface defects.

Prepared By : PK	Reviewed By : NAR	Approved By : CNP	Date of Issue
	 12/9/2016		12.09.2016