



QUALITY ASSURANCE PLAN

Annexure-2

ITEM:-MODULE MOUNTED STRUCTURE

PROJECT	NLC-SOLAR PV POWER PROJECT 65MW Neyveli TN
CUSTOMER	M/s. Neyveli Lignite Corporation Ltd
CONSULTANT	---
VENDOR	M/s. BHARAT HEAVY ELECTRICALS LTD.

APPROVED
WITHOUT PREJUDICE TO
CONTRACTUAL RIGHTS

Sign: *Stamp* Date: 15/11/16
Name & Design: C.M./C.I.V.I.L.

P & BD/Corporate Office
For NLC India Ltd

00	02.11.16	First submission to NLC			
Rev. No.	Date	Details of Revision			
PROJECT ENGINEERING AND SYSTEMS DIVISION BHEL, RAMACHANDRAPURAM, HYDERABAD- 502032.			CHECKED (AKN)	APPROVED (KPP)	DATE 02.11.16
					DOC.NO. PESD/QA/NLC /0001
					REV.NO. 00



		MANUFACTURING QUALITY PLAN (PROJECT SPECIFIC)							MQP. NO.: PESD/QA/NLC /0001					
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032			PRODUCT: MODULE MOUNTED STRUCTURE		REV NO: 00		DATE: 02-Nov-2016					
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SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS	
										P	W	V		
1.0	RAW MATERIALS & BOUGHT OUT ITEMS													
1.1	Hot Rolled Structural & Cold Forming Sections	Chemical composition	Major	Chemical	1 per heat/cast	IS 2062 – 2006	IS 2062 – 2006	MTC	√	2	2	1		
		Tensile Test	Major	Mechanical		IS 2062 – 2006	IS 2062 – 2006		√	2	2	1		
		Bend Test	Major	Mechanical		IS 2062 – 2006	IS 2062 – 2006		√	2	2	1		
		Visual Check for Surface finish	Major	Visual	10%	IS 2062 – 2006	IS 2062 – 2006	Internal Test Reports	√	2	2	1		
		Dimensions												
		For Angle, Channel – Leg length	Major	Measure	10%	IS 808 – 1989 (Angle, Channel)	IS 808 – 1989 (Angle, Channel)	Fabricator Inspection Report	√	2	2	1		
		For Cold forming Sections	Major	Measure	10%	IS 852 & IS 811	IS 852 & IS 811		√	2	2	1		
		For Plates thickness	Major	Measure	10%	IS 1852 - 1985	IS 1852 - 1985		√	2	2	1		
2.0	INPROCESS INSPECTION													
2.1	Fabrication	Forming / Rolling	Major	Measure	1 st Piece & Every 50 th Piece	Approved Drawing	Approved Drawing	Inspection Report		2	2	1		
		Cutting	Major	Visual	1 st Piece & Every 50 th Piece	Approved Drawing	Approved Drawing	Inspection Report		2	2	1		

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR 3. NLC AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY  BHEL QA SIGNATURE & STAMP	APPROVED BY  BHEL QA SIGNATURE & STAMP	APPROVED BY  CUSTOMER'S SIGNATURE & STAMP
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2.2	Fabrication	Stamping	Major	Visual	1 st Piece & Every 50 th Piece	Approved Drawing	Approved Drawing	Inspection Report		2	2	1	
		Hole Punching	Major	Measure	1 st Piece & Every 50 th Piece	IS 802 – P – II - 2006	IS 802 – P – II - 2006	Inspection Report		2	2	1	
		Edge Security for all Cutting Areas	Major	Visual	1 st Piece & Every 50 th Piece	IS 802 – P – II - 2006	IS 802 – P – II - 2006	Inspection Report		2	2	1	
		Hole Distance & Orientation	Major	Measure	1 st Piece & Every 50 th Piece	IS 802 – P – II - 2006	IS 802 – P – II - 2006	Inspection Report		2	2	1	
		Dimension	Major	Measure	1 st Piece & Every 50 th Piece	IS 802 – P – II - 2006	IS 802 – P – II - 2006	Inspection Report		2	2	1	
2.3	Inspection of Weld	WPS, WPQ & PQR	Critical	Document review	100%	IS 822 – 1970	IS 822 – 1970	WPS, WPQ & PQR	✓	2	2	1	
		DPT	Major	NDT	1 piece per allotted lot.	IS 822 – 1970	IS 822 – 1970	Inspection Report	✓	2	2	1	
		Weld Size	Major	Visual	10%	Approved Drawings	Approved Drawings	Inspection Report		2	2	1	
	Proto Assembly* (Applicable for super structure supplier.)	Design verification	Critical	Prototype test	One Structure	Approved Drawings	Approved Drawings	Test Report	✓	2	-	1	* "1" shall verify proto test clearance report from BHEL engineering.

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3.0	FINAL INSPECTION & TESTING												
3.1	MMS (Column post / Super structure as applicable to supplier)	Surface Finish, Defect & Dichromating	Major	Visual	100%	IS 2629 – 1985	IS 2629 – 1985	Inspection Report	√	2	1, 3	1	A) "1&3" shall witness randomly 5 pieces/sets for dimension, surface defect and finish per allotted lot. B) For mass & uniformity of Zn coating "1&3" shall witness 3 samples per allotted lot.
		Dimensions	Major	Measure	As Per IS 4759 - 1996	IS 802 – II – 1978	IS 802 – II – 1978	Inspection Report	√	2	1, 3	1	
		Surface Defect & Finish	Major	Visual	100%	IS 2629 – 1985	IS 2629 – 1985	Inspection Report	√	2	1, 3	1	
		Thickness of Zinc Coating	Major	Measure	As Per IS 4759 - 1996	IS 4759 – 1996	IS 4759 – 1996	Inspection Report	√	2	1, 3	1	
		Mass of Zinc Coating	Major	Test	As Per IS 4759 - 1996	IS 6745 – 1975	IS 6745 – 1975	Inspection Report	√	2	1, 3	1	
		Uniformity of Zinc Coating	Major	Chemical	As Per IS 4759 - 1996	IS 2633 – 1986	IS 2633 – 1986	Inspection Report	√	2	1, 3	1	
		Adhesion Test	Major	Physical	As Per IS 4759 - 1996	IS 2629 - 1985	IS 2629 - 1985	Inspection Report	√	2	1, 3	1	
4.0	PRESERVATION & PACKING												
4.1	Packing	Packing	Major		Random	BHEL Specification	BHEL Specification	--		2	2	1	

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Notes:-

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.

Revision History:-

Rev No.	Date	Revision Status	Rev No.	Date	Revision Status
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PREPARED BY



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