

GAUTAM SOLAR		Gautam Solar Private Limited IPQC Check Sheet			Document No. GSPL/IPQC/IPC/003 Issue Date 01/12/2024 Rev. No./Rev.Date 01/30-08-2025
Date: 2025-11-16		Time:	Shift: A	Po.no.: 1234	

Sr.No.	Stage	Check point	Quantum of Check Sample Size   Frequency	Shift Acceptance Criteria	Monitoring Result	Remarks,If any
1	Shop Floor	Temperature	once per shift	Temp. ≤53°C	Time: 08:00 AM - 24.66°C	Controlled
		Humidity	once per shift	RH ≤60%	Time: 08:00 AM - 44% RH	Stable
2	Glass Loader	Glass dimension(L*W*T)	once per shift	As Per PO	2375.55mm x 1127.85mm x 2.01mm - OK	Within tolerance
		Appearance(Visual)	once per shift	Glass Broken, Crack, Scratches and Line mark not allowed	No Defects Found - OK	No defects
3	EVA/EPE Cutting	EVA/EPE Type	once per shift	As per approved BOM	EPE304 Confirmed	As per BOM
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	2378.16mm x 1125.33mm x 0.69mm - OK	—
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	Clean Surface - OK	Pass
4	Eva/EPE Soldering at edge(If Applicable)	Soldering Temperature and Quality of Soldering	Once per shift	As per specification and Should be properly soldered ( 400 ± 20°C)	Time: 08:15 AM - Temp: 392.05°C - OK	OK
5	Cell Loading	Cell Manufacturer & Eff.	once per shift	Refer Process Card	Longi Solar - OK	Clear
		Cell Size(*W)	once per shift	Refer Process Card	182.54mm x 104.94mm - OK	Pass
		Cell Condition	once per shift	Free From dust,finger spot,color variation	No Damage/Cracks - OK	Pass
		Cleanliness of Cell Loading Area	once per shift	No unwanted or waste material should be at Cell Loading Area	Clean Surface - OK	No defects
		Verification of Process Parameter	once per shift	ATW Stringer Specification	No Shift - OK	Pass
		Cell Cross cutting	once per shift	Both side cutting should be equal.	-0.02mm - OK	Clear
		Verification of Process Parameter	once Month	ATW Stringer Specification	Auto Bussing - OK	Acceptable

6	Tabber & stringer	Visual Check after Stringing	once 1 String/T5 shift	TS Visual Criteria	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	Clear
		EL Image of Strings	once 1 String/T5 shift	TS EL Criteria	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	Pass
		String length	once 1 String/Stringer/ shift	Refer Process Card	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B 1163.5 1163.8 1163.0 1163.6 1163.2 1162.8 1163.6 1162.8	Match PO
		Cell to Cell Gap	once 1 String/Stringer/ shift	Refer Process Card	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	No defects
		Verification of Soldering Peel Strength	2 cell each stringer Front & Back. per shift	Peel Strength $\geq$ 1N	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	Pass
		String to String Gap	once per shift		OK	OK
		Cell edge to Glass edge distance (Top,bottom & sides)	once per shift	Refer Process Card & Module Drawing	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	Clear
		Soldering Peel Strength b/w Ribbon to busbar interconnector	once per shift	$\geq$ 2N	TS01A TS01B TS02A TS02B TS03A TS03B TS04A TS04B OK OK OK OK OK OK	No defects

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7	Auto bussing , layup & Tapping	Terminal busbar to edge of Cell	once per shift	132 Cell module drawing, Refer Module Drawing- GSPL/N144/G/001	Refer Module Drawing - OK	No defects
		Soldering Quality of Ribbon to busbar	Every 4h per shift	No Dry/Poor Soldering	Busbar Peel: 21.48N - OK	Pass
		Top & Bottom Creepage Distance/Terminal busbar to Glass Edge.	Every 4h per shift	Creepage distance should be as per process card/Drawing	Top: 11.83mm   Bottom: 12.01mm - OK	—
		Verification of Process Parameter	once per shift	Specification for Auto Bussing	Auto Bussing - OK	OK
		Quality of auto taping	Every 4h per shift	Taping should be proper,no Cell Shifting allowed	Proper - OK	—
8	Auto RFID Logo/Barcode placing (If Applicable)	Position verification of RFIDs Logo /Barcode placing	Every 4h per shift	Should not be tilt	Tilt: 0.08mm - OK	Acceptable
9	EVA/EPE cutting	EVA/EPE Type	once per shift	EVA	EVA PLASTOMER - OK	Verified
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	2378.44mm x 1125.06mm x 0.7mm - OK	As per spec
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	Uniform Embossing - OK	—
10	Back Glass Loader	Glass dimension(L*W*T)	once Per shift	As per PO	2375.72mm x 1127.3mm x 2.03mm - OK	Match PO
11	Auto Busbar Flatten (If Applicable)	No. of Holes/ Holes dimension	once Per shift	3 hole with dimension 12mm ± 0.5mm	OK	Match PO
		Visual Inspection	5 pieces per shift	No crack/ breaks in busbar & properly flattened without bending and twisting	S.No: 1,2,3,4,5 - All OK	Clear
12	Pre lamination EL & Visual Inspection	EL Inspection and Visual Inspection	5 pieces per shift	Pre EL Inspection Criteria, Pre EL Visual Criteria	S.No: 1,2,3,4,5 - All OK	No defects

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13	String Rework Station	cleaning of rework station/Soldering iron and sponge	once per shift	Rework Station should be Clean/Sponge should be Wet	CLEAN - No EVA Residue	OK
		Soldering Iron Temp.	once per shift	400±30°C	Time: 08:00 - Temp: 25°C	Good
14	Module Rework Station	Method of Rework	once per shift	As per WI (GSPL/P/WI/012)	OK	—
		Cleaning of Rework station/Soldering iron sponge	once per shift	Rework Station should be Clean/Sponge should be Wet	Clean Surface	Clean
		Soldering Iron Temp.	once per shift	400±30°C	Time: 08:00 - Temp: 25°C	Good
15	Laminator	Monitoring of Laminator Process parameter	once per shift	Process Parameter of jinchen Laminator	OK	Good
		Cleaning of Diaphragm/release sheet	once 24h	Diaphragm/Release sheet should be clean,No EVA residue is allowed	CLEAN - No EVA Residue	Pass
16	Auto Tape Removing (If Applicable)	Peel of Test b/w: EVA/Backsheet EVA/EPE/POE to Glass	All position All laminators to be covered in a month	E/G ≥60N/cm E /Bs≥60N/cm	OK	Clear
		Gel Content Test		75to 95%	OK	Clear
		Visual Check after Lamination	5 pieces per shift	Check Tape Removing Should be smooth and No visual bubble Should be found.	S.No: 1,2,3,4,5 - All OK	OK
17	Auto Edge Trimming	Trimming Quality	5 pieces per shift	Excess layer from the glass edge should be removed,Uneven Trimming not allowed	Even Trim: 0.74mm deviation - OK	—
		Trimming Blade life cycle	once per month	Worn out not allowed	Even Trim: -0.24mm deviation - OK	Acceptable
18	90° Visual Inspection	Visual Inspection	5 pieces per shift	Post Lam Visual Inspection Criteria	S.No: 1,2,3,4,5 - All OK	OK

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19	Framing	Glue uniformity & continuity in frame groove	1 set per shift	Should be uniform, Back sealing should be proper	OK	—
		Short Side Glue Weight	once Per shift	Till as per Specification	Potting Weight: 22.57g - OK	Acceptable
		Long Side Glue Weight	once Per shift		Potting Weight: 22.86g - OK	Good
		Anodizing Thickness	once Per shift	≥15 micron	OK	Good
20	Junction Box Assembly	Junction Box(Connector Appearance & Cable Length)	once Per shift	As per Process Card & module drawing	JB Position: -0.66mm shift - OK	Match PO
		Silicon Glue Weight on the bottom (g)	once Per shift	21±6 gm	Potting Weight: 24.81g - OK	Good
		Max Welding time	once Per shift	As per Specification	OK	Pass
21	Auto JB Soldering	Soldering current	once per shift	As per Specification	OK	Good
		Soldering Quality	once per shift	Welding area should be fully covered & checked by twizzer,no yellowing allowed	OK	Acceptable
22	JB Potting	A/B Glue Ratio	once Per shift	As per Specification	OK	—
		Potting material weight	once Per shift	21±6 gm	EVA PLASTOMER - OK	As per BOM
		Nozzle Changing	once every 6h	Should be changed after 6 hours or when found issue of damage or extra amount dispensing.	OK	Acceptable
23	OLE Potting Inspection (If Applicable)	Visual Check	once 5 piece	Potting should be properly filled, and mounting hole should be as per drawing.	OK	Clear

24	Curing	Temperature	once per shift	25±3■	Time: 08:00 - Temp: 25°C	Within Limit
		Humidity	once per shift	≤50%	Time: 08:00 - RH: 45%	Stable
		Curing Time(H)	once Per shift	≥4 hours	OK	Acceptable

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25	Buffing	Corner Edge-Buffing belt condition	5 pieces per shift	Should not be sharp & No worn out	FF: 78.44% - OK	OK
26	Cleaning	Module should be free from Tape,Dust,Dir, EVA/Backsheet residue,Corner Burrs,Glue residue on glass,backsheet,JB,Wire etc.)	5 pieces per shift	Post Lam Visual Criteria	S.No: 1,2,3,4,5 - All OK	No contamination
27	Flash Tester	Ambient Temp.	once per shift	25±3■	Time: 08:00 - Temp: 25°C	Good
		Module Temp.	once per shift	25±3■	Time: 08:00 - Temp: 25°C	—
		Isc/simulator Calibration	once 12h	Isc/simulation should be calibrated at the start of the shift with Golden/Silver module(GSEN/QA/K/11)	Isc: 13.18A - OK	Good
		Validation	once every 4h	As per GSEN/QA/K/11	OK	Acceptable
		Silver Reference Module Iv Check	once Two weeks	Should be same as original I-v picture	OK	—
28	Hipot Test	DCW/IR/Ground continuity	5 pieces per shift	≤50µA , >40MΩ·m² , (0-100) mΩ	S.No: 1,2,3,4,5 - All OK	Pass
29	Post EL Test	Verification of current configuration in DC power supply	once Shift	As per WI (GSPL/P/WI/027)	Pmax: 626.44W - OK	OK
		EL Inspection and Visual Inspection	5 pieces per shift	Post EL Inspection Criteria, Post EL Visual Criteria	S.No: 1,2,3,4,5 - All OK	Clear
30	RFID	RFID Position	once per shift	As per Process card	Tilt: -0.6mm - OK	Acceptable
		Cell & Module Make & Manufacturing Month Verification	once per shift	As per BOM and Process card	OK	No defects

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31	Final Visual Inspection	Visual Inspection	5 pieces per shift	Post lam visual inspection criteria	S.No: 1,2,3,4,5 - All OK	Clear
		Re-label	5 pieces per shift	No bubble,Tilt,Align,no folded label not acceptable	Tilt: -0.23mm - OK	Clear
32	Dimension measurement	L*W and Module Profile	once per shift	As per Module drawing ( $\pm 1\text{mm}$ )	Refer Module Drawing - OK	Pass
		Mounting Hole X & Y (H/L)	once Per shift		OK	—
		Diagonal Difference	once Per shift	$\leq 3\text{mm}$	FF: 78.33% - OK	OK
		Corner Gap	once Per shift	As per visual inspection criteria	OK	Within tolerance
		JB Cable length	once Per shift	As per Process Card	Cable: 1188.39mm - OK	OK
33	Packaging	Packaging Label	once Per shift	WI For Packaging	Tilt: 0.62mm - OK	OK
		Content in Box	once Per shift		OK	Acceptable
		Box Condition	once Per shift	Damage,dull printing,wet boxes not allowed	OK	OK
		Wooden Pallet dimension	once Per shift	should not be less than module dimension	OK	OK