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: 2025-11-27	**Time:**	**Shift:** A	**Po.no.:** PO-20251127

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	24.66°C	Controlled
		Humidity	once per shift	RH ≤60%	54% RH	Stable
2	Glass Loader	Glass dimension(L*W*T)	once per shift	As Per PO	2375.65mm x 1128.7mm x 1.99mm	OK
		Appearance(Visual)	once per shift	Glass Broken, Crack, Scratches and Line mark not allowed	No Defects Found	Clear
3	EVA/EPE Cutting	EVA/EPE Type	once per shift	As per approved BOM	EPE304	Verified
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	2377.51mm x 1125.48mm x 0.68mm	OK
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	Uniform Embossing	OK
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)	382.31°C	OK
5	Cell Loading	Cell Manufacturer & Eff.	once per shift	Refer Process Card	Solar Space	Clear
		Cell Size(*W)	once per shift	Refer Process Card	182.47mm x 105.13mm x 0.16mm (L x W x T)	No defects
		Cell Condition	once per shift	Free From dust,finger spot,color variation	Clean - No Defects	Pass
		Cleanliness of Cell Loading Area	once per shift	No unwanted or waste material should be at Cell Loading Area	Clean Surface	Clear
		Verification of Process Parameter	once per shift	ATW Stringer Specification	Verify	Acceptable
		Cell Cross cutting	once per shift	Both side cutting should be equal.	-0.01mm	Clear
		Verification of Process Parameter	once Month	ATW Stringer Specification	Verify	Pass

6	Tabber & stringer	Visual Check after Stringing	once 1 String/TS/Shift	TS Visual Criteria	TS01A: OK, TS01B: OK, TS02A: OK, TS02B: OK, TS03A: OK, TS03B: OK, TS04A: OK	Pass
		EL Image of Strings	once 1 String/TS/Shift	TS EL Criteria	TS01A: OK, TS01B: OK, TS02A: OK, TS02B: OK, TS03A: OK, TS03B: OK, TS04A: OK	Pass
		String length	once 1 String/Stringer/ shift	Refer Process Card	TS01A: 1162.7mm, TS01B: 1163.0mm, TS02A: 1163.6mm, TS02B: 1162.3mm, TS03A: 1163.1mm, TS03B: 1163.2mm	As per spec
		Cell to Cell Gap	once 1 String/Stringer/ shift	Refer Process Card	TS01A: 0.77mm, TS01B: 0.74mm, TS02A: 0.79mm, TS02B: 0.79mm, TS03A: 0.74mm, TS03B: 0.74mm	Pass
		Verification of Soldering Peel Strength	2 cell each stringer Front & Back. per shift	Peel Strength ≥1N	TS01A: OK, TS01B: OK, TS02A: OK, TS02B: OK, TS03A: OK, TS03B: OK, TS04A: OK	No defects
		String to String Gap	once per shift		2.3mm	Acceptable
		Cell edge to Glass edge distance (Top,bottom & sides)	once per shift	Refer Process Card & Module Drawing	TS01A: OK, TS01B: OK, TS02A: OK, TS02B: OK, TS03A: OK, TS03B: OK, TS04A: OK, TS04B: OK	Clear
		Soldering Peel Strength b/w Ribbon to busbar interconnector	once per shift	≥2N	TS01A: OK, TS01B: OK, TS02A: OK, TS02B: OK, TS03A: OK, TS03B: OK, TS04A: OK, TS04B: OK	Pass
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	5.36mm	OK
		Soldering Quality of Ribbon to busbar	Every 4h per shift	No Dry/Poor Soldering	OK, OK, OK	OK
		Top & Bottom Creepage Distance/Terminal busbar to Glass Edge.	Every 4h per shift	Creepage distance should be as per process card/Drawing	Top: 11.82mm, 11.9mm, 11.68mm | Bottom: 11.76mm, 11.7mm, 11.66mm	Pass
		Verification of Process Parameter	once per shift	Specification for Auto Bussing	Verify	Good
		Quality of auto taping	Every 4h per shift	Taping should be proper,no Cell Shifting allowed	Proper, Proper, Proper	Good
8	Auto RFID Logo/Barcode placing (If Applicable)	Position verification of RFIDs Logo /Barcode placing	Every 4h per shift	Should not be tilt	Center, Center, Center	Acceptable
9	EVA/EPE cutting	EVA/EPE Type	once per shift	EVA	EPE304	Verified
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	2378.21mm x 1124.98mm x 0.68mm	—
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	Clean Surface	OK

10	Back Glass Loader	Glass dimension(L*W*T)	once Per shift	As per PO	2376.79mm x 1128.4mm x 2.0mm	Match PO
11	Auto Busbar Flatten (If Applicable)	No. of Holes/ Holes dimension	once Per shift	3 hole with dimension 12mm ± 0.5mm	3 holes: 12.14mm, 11.81mm, 12.14mm	Match PO
		Visual Inspection	5 pieces per shift	No crack/ breaks in busbar & properly flattened without bending and twisting	S.No: GS04875KG30225045025, GS04875KG30225045068, GS04875KG30225045077, GS04875KG30225045079, GS04875KG30225045081 - Found 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: GS04875KG30225045001, GS04875KG30225045015, GS04875KG30225045026, GS04875KG30225045057, GS04875KG30225045071 - Found OK	No defects
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: 27.1°C	OK
14	Module Rework Station	Method of Rework	once per shift	As per WI (GSPL/P/WI/012)	As per spec	OK
		Cleaning of Rework station/Soldering iron sponge	once per shift	Rework Station should be Clean/Sponge should be Wet	CLEAN - No EVA Residue	Good
		Soldering Iron Temp.	once per shift	400±30°C	Time: 08:00 - Temp: 24.6°C	Acceptable
15	Laminator	Monitoring of Laminator Process parameter	once per shift	Process Parameter of jinchen Laminator	As per spec	OK
		Cleaning of Diaphragm/release sheet	once 24h	Diaphragm/Release sheet should be clean,No EVA residue is allowed	Clean Surface	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	As per spec	Pass
		Gel Content Test		75to 95%	As per spec	No defects
		Visual Check after Lamination	5 pieces per shift	Check Tape Removing Should be smooth and No visual bubble Should be found.	S.No: GS04875KG30225045019, GS04875KG30225045028, GS04875KG30225045040, GS04875KG30225045044, GS04875KG30225045070 - Found OK	Pass
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: -0.37mm deviation	—
		Trimming Blade life cycle	once per month	Worn out not allowed	Even Trim: -0.03mm deviation	—

18	90° Visual Inspection	Visual Inspection	5 pieces per shift	Post Lam Visual Inspection Criteria	S.No: GS04875KG30225045006, GS04875KG30225045020, GS04875KG30225045030, GS04875KG30225045087, GS04875KG30225045097 - Found OK	Pass
19	Framing	Glue uniformity & continuity in frame groove	1 set per shift	Should be uniform,Back sealing should be proper	As per spec	OK
		Short Side Glue Weight	once Per shift	Till as per Specification	Refer Document GSPL/IPQC/QC/011	Good
		Long Side Glue Weight	once Per shift		Refer Document GSPL/IPQC/QC/011	Pass
		Anodizing Thickness	once Per shift	≥15 micron	>15 micron (16.6 micron)	OK
20	Junction Box Assembly	Junction Box(Connector Appearance & Cable Length)	once Per shift	As per Process Card & module drawing	JB Position: -0.5mm shift	—
		Silicon Glue Weight on the bottom (g)	once Per shift	21±6 gm	Refer Document GSPL/IPQC/QC/011	—
		Max Welding time	once Per shift	As per Specification	As per spec	Clear
21	Auto JB Soldering	Soldering current	once per shift	As per Specification	21.0A	—
		Soldering Quality	once per shift	Welding area should be fully covered & checked by twizzer,no yellowing allowed	OK, OK, OK	—
22	JB Potting	A/B Glue Ratio	once Per shift	As per Specification	As per spec	Pass
		Potting material weight	once Per shift	21±6 gm	EPE304	Confirmed
		Nozzle Changing	once every 6h	Should be changed after 6 hours or when found issue of damage or extra amount dispensing.	As per spec	Good
23	OLE Potting Inspection (If Applicable)	Visual Check	once 5 piece	Potting should be properly filled, and mounting hole should be as per drawing.	S.No: GS04875KG30225045007, GS04875KG30225045053, GS04875KG30225045067, GS04875KG30225045074, GS04875KG30225045079 - OK	Clear
24	Curing	Temperature	once per shift	25±3■	Time: 08:00 - Temp: 22.73°C	Within Limit
		Humidity	once per shift	≤50%	Time: 08:00 - RH: 56%	Acceptable
		Curing Time(H)	once Per shift	≥4 hours	>4 hr (5.5 hr)	—

25	Buffing	Corner Edge-Buffing belt condition	5 pieces per shift	Should not be sharp & No worn out	S.No: GS04875KG30225045006, GS04875KG30225045013, GS04875KG30225045073, GS04875KG30225045079, GS04875KG30225045088 - OK	OK
26	Cleaning	Module should be free from Tape,Dust,Dirt,EVA/Backs heet residue,Corner Burrs,Glue residue on glass,backsheet,JB,Wire etc.)	5 pieces per shift	Post Lam Visual Criteria	S.No: GS04875KG30225045017, GS04875KG30225045019, GS04875KG30225045061, GS04875KG30225045093, GS04875KG30225045094	Clean
27	Flash Tester	Ambient Temp.	once per shift	25±3■	Time: 08:00 - Temp: 23.31°C	Good
		Module Temp.	once per shift	25±3■	Time: 08:00 - Temp: 24.78°C	Acceptable
		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: 13.29A, Golden Module: GM-2024-001	Acceptable
		Validation	once every 4h	As per GSEN/QA/K/11	As per spec	—
		Silver Reference Module Iv Check	once Two weeks	Should be same as original I-v picture	EL - OK	OK
28	Hipot Test	DCW/IR/Ground continuity	5 pieces per shift	≤50μA , >40MΩ·m² , (0-100) mΩ	GS04875KG30225045018: DCW=29.0μA, IR=91.5MΩ, GND=34.7mΩ | GS04875KG30225045030: DCW=20.2μA, IR=57.6MΩ, GND=35.3mΩ | GS04875KG30225045078: DCW=34.0μA, IR=72.6MΩ, GND=19.3mΩ | GS04875KG30225045016: DCW=21.1μA, IR=50.3MΩ, GND=21.4mΩ | GS04875KG30225045040: DCW=16.4μA, IR=60.9MΩ, GND=21.1mΩ	Pass
29	Post EL Test	Verification of current configuration in DC power supply	once Shift	As per WI (GSPL/P/WI/027)	Pmax: 626.76W	Acceptable
		EL Inspection and Visual Inspection	5 pieces per shift	Post EL Inspection Criteria, Post EL Visual Criteria	S.No: GS04875KG30225045020, GS04875KG30225045030, GS04875KG30225045042, GS04875KG30225045052, GS04875KG30225045063 - Found OK	OK
30	RFID	RFID Position	once per shift	As per Process card	Center, Center, Center	—
		Cell & Module Make & Manufacturing Month Verification	once per shift	As per BOM and Process card	As per spec	Pass

31	Final Visual Inspection	Visual Inspection	5 pieces per shift	Post lam visual inspection criteria	S.No: GS04875KG30225045009, GS04875KG30225045031, GS04875KG30225045033, GS04875KG30225045037, GS04875KG30225045073 - Found OK	Clear
		Re-label	5 pieces per shift	No bubble,Tilt,Align,no folded label not acceptable	S.No: GS04875KG30225045005, GS04875KG30225045050, GS04875KG30225045055, GS04875KG30225045059, GS04875KG30225045093 - Found OK	Pass
32	Dimension measurement	L*W and Module Profile	once per shift	As per Module drawing (±1mm)	2382mm x 1134mm x 30mm	—
		Mounting Hole X & Y (H/L)	once Per shift		1400mm x 1091mm	Good
		Diagonal Difference	once Per shift	≤3mm	FF: 78.79%	Acceptable
		Corner Gap	once Per shift	As per visual inspection criteria	0.02mm	Acceptable
		JB Cable length	once Per shift	As per Process Card	1200mm	Match PO
33	Packaging	Packaging Label	once Per shift	WI For Packaging	Tilt: 0.63mm	OK
		Content in Box	once Per shift		As per spec	OK
		Box Condition	once Per shift	Damage,dull printing,wet boxes not allowed	As per spec	Good
		Wooden Pallet dimension	once Per shift	should not be less than module dimension	2386mm x 1019mm x 146mm	Match PO