

<div>GAUTAM</div> <div>SOLAR</div>	<div>Gautam Solar Private Limited</div> <div>IPQC Check Sheet</div>			<div>Document No.</div> <div>GSPL/IPQC/IPC/003</div> <div>Issue Date</div> <div>01/12/2024</div> <div>Rev. No./Rev.Date</div> <div>01/30-08-2025</div>
<div>Date: 2025-11-15</div>	<div>Time:</div>	<div>Shift: A</div>	<div>Po.no.: 12345678</div>	

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 - 25°C	
		Humidity	once per shift	RH ≤60%	Time: 08:00 AM - 45% RH	
2	Glass Loader	Glass dimension(L*W*T)	once per shift	As Per PO	1956mm x 991mm - OK	
		Appearance(Visual)	once per shift	Glass Broken, Crack, Scratches and Line mark not allowed	No Scratches/Cracks - OK	
3	EVA/EPE Cutting	EVA/EPE Type	once per shift	As per approved BOM	EVA Type: PLASTOMER OK	
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	1956mm x 991mm - OK	
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	No Damage - 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)	Time: 08:15 AM - Temp: 350°C	
5	Cell Loading	Cell Manufacturer & Eff.	once per shift	Refer Process Card	Refer Process Card - Longi/Jinko	
		Cell Size(*W)	once per shift	Refer Process Card	Refer Process Card - 182mm	
		Cell Condition	once per shift	Free From dust,finger spot,color variation	No Damage/Cracks - OK	
		Cleanliness of Cell Loading Area	once per shift	No unwanted or waste material should be at Cell Loading Area	Clean Surface - OK	
		Verification of Process Parameter	once per shift	ATW Stringer Specification	Monitoring of ATW STRINGER - OK	
		Cell Cross cutting	once per shift	Both side cutting should be equal.	Both Side Cutting - OK	
		Verification of Process Parameter	once Month	ATW Stringer Specification	Monitoring of ATW STRINGER - OK	

6	Tabber & stringer	Visual Check after Stringing	once 1 String/T5 shift	TS Visual Criteria	TS Visual Criteria - OK	
		EL Image of Strings	once 1 String/T5 shift	TS EL Criteria	TS EL Criteria - No Defects	
		String length	once 1 String/Stringer/ shift	Refer Process Card	1163 mm \pm 2mm	
		Cell to Cell Gap	once 1 String/Stringer/ shift	Refer Process Card	0.75 mm (Within Tolerance)	
		Verification of Soldering Peel Strength	2 cell each stringer Front & Back. per shift	Peel Strength \geq 1N	Ribbon to Cell: 2.5N (OK)	
		String to String Gap	once per shift		2.0 mm \pm 0.5mm	
		Cell edge to Glass edge distance (Top,bottom & sides)	once per shift	Refer Process Card & Module Drawing	Refer Module Drawing - OK	
		Soldering Peel Strength b/w Ribbon to busbar interconnector	once per shift	\geq 2N	Ribbon to Cell: 2.5N (OK)	

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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 Drawing GSPL/N144 - OK	
		Soldering Quality of Ribbon to busbar	Every 4h per shift	No Dry/Poor Soldering	Busbar Peel Test: 3.0N (OK)	
		Top & Bottom Creepage Distance/Terminal busbar to Glass Edge.	Every 4h per shift	Creepage distance should be as per process card/Drawing	Refer Drawing GSPL/N144 - OK	
		Verification of Process Parameter	once per shift	Specification for Auto Bussing	Specification for Auto Bussing - OK	
		Quality of auto taping	Every 4h per shift	Taping should be proper,no Cell Shifting allowed	OK	
8	Auto RFID Logo/Barcode placing (If Applicable)	Position verification of RFIDs Logo /Barcode placing	Every 4h per shift	Should not be tilt	Scannable - OK	
9	EVA/EPE cutting	EVA/EPE Type	once per shift	EVA	EVA Type: PLASTOMER OK	
		EVA/EPE dimension(L*W*T)	once per shift	As per Specification	1956mm x 991mm - OK	
		EVA/EPE Status	once per shift	Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date	No Damage - OK	
10	Back Glass Loader	Glass dimension(L*W*T)	once Per shift	As per PO	1956mm x 991mm - OK	
11	Auto Busbar Flatten (If Applicable)	No. of Holes/ Holes dimension	once Per shift	3 hole with dimension 12mm ± 0.5mm	OK	
		Visual Inspection	5 pieces per shift	No crack/ breaks in busbar & properly flattened without bending and twisting	No Defects - OK	
12	Pre lamination EL & Visual Inspection	EL Inspection and Visual Inspection	5 pieces per shift	Pre EL Inspection Criteria, Pre EL Visual Criteria	No Defects - OK	

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Sr.No.	Stage	Check point	Quantum of Check Sample Size Frequency	Shift Acceptance Criteria	Monitoring Result	Remarks,If any
13	String Rework Station	cleaning of rework station/Soldering iron and sponge	once per shift	Rework Station should be Clean/Sponge should be Wet	Surface Clean - OK	
		Soldering Iron Temp.	once per shift	400±30°C	Time: 08:00 - Temp: 25°C	
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	Surface Clean - OK	
		Soldering Iron Temp.	once per shift	400±30°C	Time: 08:00 - Temp: 25°C	
15	Laminator	Monitoring of Laminator Process parameter	once per shift	Process Parameter of jinchen Laminator	OK	
		Cleaning of Diaphragm/release sheet	once 24h	Diaphragm/Release sheet should be clean,No EVA residue is allowed	Surface Clean - OK	
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	
		Gel Content Test		75to 95%	OK	
		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	
17	Auto Edge Trimming	Trimming Quality	5 pieces per shift	Excess layer from the glass edge should be removed,Uneven Trimming not allowed	S.No: 1,2,3,4,5 - All OK	
		Trimming Blade life cycle	once per month	Worn out not allowed	OK	
18	90° Visual Inspection	Visual Inspection	5 pieces per shift	Post Lam Visual Inspection Criteria	No Defects - OK	

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Sr.No.	Stage	Check point	Quantum of Check Sample Size Frequency	Shift Acceptance Criteria	Monitoring Result	Remarks,If any
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	OK	
		Long Side Glue Weight	once Per shift		OK	
		Anodizing Thickness	once Per shift	≥15 micron	OK	
20	Junction Box Assembly	Junction Box(Connector Appearance & Cable Length)	once Per shift	As per Process Card & module drawing	1200mm ± 50mm	
		Silicon Glue Weight on the bottom (g)	once Per shift	21±6 gm	OK	
		Max Welding time	once Per shift	As per Specification	OK	
21	Auto JB Soldering	Soldering current	once per shift	As per Specification	Isc: 14.2A (OK)	
		Soldering Quality	once per shift	Welding area should be fully covered & checked by twizzer,no yellowing allowed	OK	
22	JB Potting	A/B Glue Ratio	once Per shift	As per Specification	OK	
		Potting material weight	once Per shift	21±6 gm	OK	
		Nozzle Changing	once every 6h	Should be changed after 6 hours or when found issue of damage or extra amount dispensing.	OK	
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	

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

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Sr.No.	Stage	Check point	Quantum of Check Sample Size Frequency	Shift Acceptance Criteria	Monitoring Result	Remarks,If any
25	Buffing	Corner Edge-Buffing belt condition	5 pieces per shift	Should not be sharp & No worn out	FF: 78.5% (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: 1,2,3,4,5 - All OK	
27	Flash Tester	Ambient Temp.	once per shift	25±3■	Time: 08:00 - Temp: 25°C	
		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: 14.2A (OK)	
		Validation	once every 4h	As per GSEN/QA/K/11	OK	
		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	Resistance < 0.1Ω - Pass	
29	Post EL Test	Verification of current configuration in DC power supply	once Shift	As per WI (GSPL/P/WI/027)	Isc: 14.2A (OK)	
		EL Inspection and Visual Inspection	5 pieces per shift	Post EL Inspection Criteria, Post EL Visual Criteria	No Defects - OK	
30	RFID	RFID Position	once per shift	As per Process card	OK	
		Cell & Module Make & Manufacturing Month Verification	once per shift	As per BOM and Process card	OK	

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31	Final Visual Inspection	Visual Inspection	5 pieces per shift	Post lam visual inspection criteria	No Defects - OK	
		Re-label	5 pieces per shift	No bubble,Tilt,Align,no folded label not acceptable	S.No: 1,2,3,4,5 - All OK	
32	Dimension measurement	L*W and Module Profile	once per shift	As per Module drawing (±1mm)	Refer Module Drawing - OK	
		Mounting Hole X & Y (H/L)	once Per shift		OK	
		Diagonal Difference	once Per shift	≤3mm	FF: 78.5% (OK)	
		Corner Gap	once Per shift	As per visual inspection criteria	OK	
		JB Cable length	once Per shift	As per Process Card	1200mm ± 50mm	
33	Packaging	Packaging Label	once Per shift	WI For Packaging	Proper Packing - OK	
		Content in Box	once Per shift		OK	
		Box Condition	once Per shift	Damage,dull printing,wet boxes not allowed	OK	
		Wooden Pallet dimension	once Per shift	should not be less than module dimension	OK	