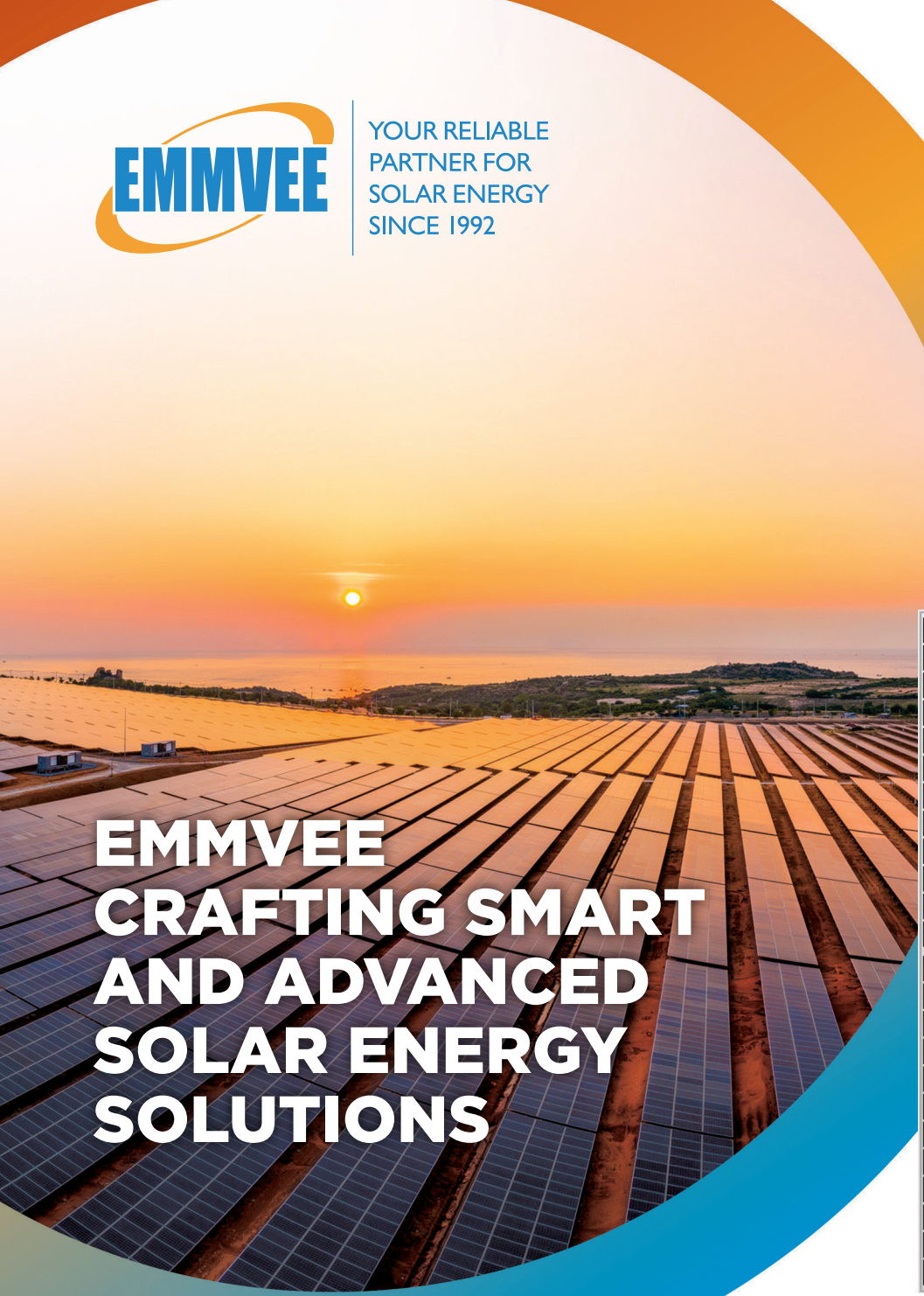
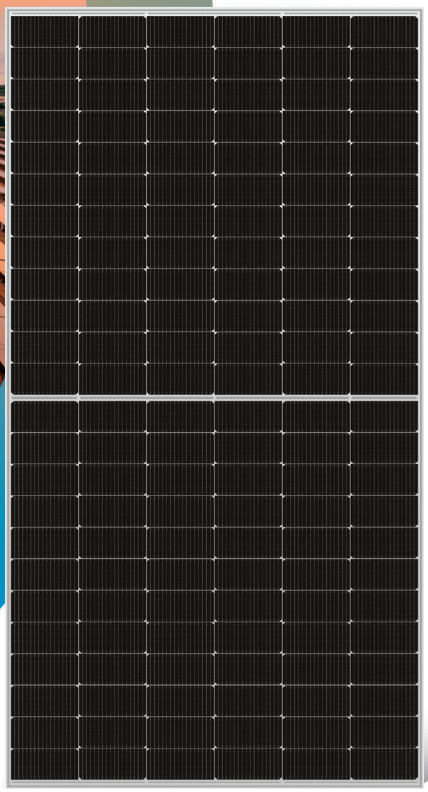
EMMVEE

YOUR RELIABLE PARTNER FOR SOLAR ENERGY SINCE 1992

30 YEARS. POWER FOR GOOD.



EMMVEE CRAFTING SMART AND ADVANCED SOLAR ENERGY SOLUTIONS



TITANIUM BLACK

N-TYPE MONOFACIAL GLASS TO BLACK BACK SHEET MODULE

- Committed to Quality, Punctuality, and Customer Support since 1992.
- Over 15 Years of Sustainable Power with Photovoltaic Modules, New High WP Modules United with Quality and Efficiency
- With presence in Green Energy Projects Across the Globe
- Our Mission: Delivering Clean, Reliable Energy while Reducing Carbon Footprint through wide range of Residential and Commercial Solar Offerings.

120 CUT CELL N-TYPE MONOFACIAL GLASS TO BLACK BACK SHEET MODULE

TECHNICAL SPECIFICATION

Electrical data at 1000W/m², 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E465HCM120-BT	E470HCM120-BT	E475HCM120-BT	E480HCM120-BT	E485HCM120-BT
Rated Power at STC	465	470	475	480	485
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficience at STC	21.50%	21.70%	22.00%	22.20%	22.40%
Open Circuit Voltage-VOC(Volts)(±10%)	42.68	42.82	42.01	43.18	43.32
Short Circuit Current-ISC (AMPS)(±10%)	13.74	13.81	13.88	13.94	14.02
Max Power Voltage-VPM(Volts)	35.71	35.91	36.12	36.34	36.51
Max Power Current-IPM (AMPS)	13.02	13.09	13.15	13.21	13.12

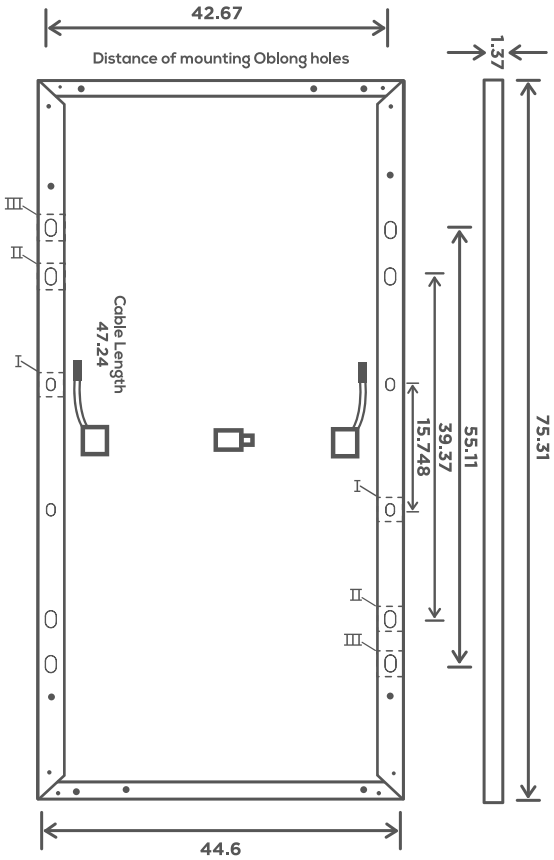
At low irradiance (200W/M², 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

Permissible Operating Conditions	
Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 51 Mph
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30 A

Thermal Data	
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45°C ±2°C

Mechanical Data	
Number of Cells and Cell Type	120 Topcon Solar Cells (182mm X 91mm)
Dimensions: (L X W X H)	75.31 inch X 44.65 inch X 1.38 inch
Weight	52.91 Pounds
Front Glass	3.2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Sheet	Black Back sheet
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm² Solar Cables, Length 47.24 inch
Connectors	mc4 Compatible, Staubli Option Available



Warranty	
Product Warranty	12 years
Performance Warranty	25 years

1ST YEAR DEGRADATION	1.0%	YEAR 2-25 POWER DEGRADATION	0.40%	END OF 25 YEARS	89.40%

108 CUT CELL N-TYPE MONOFACIAL GLASS TO BLACK BACK SHEET MODULE

TECHNICAL SPECIFICATION

Electrical data at 1000W/m², 25°C and A.M1.5 (STC in accordance with IEC 60904-3)

Model Name	E415HCM108-BT	E420HCM108-BT	E425HCM108-BT	E430HCM108-BT	E435HCM108-BT
Rated Power at STC	415	420	425	430	435
Power Tolerance	+5W	+5W	+5W	+5W	+5W
Module Efficience at STC	21.30%	21.50%	21.80%	22.00%	22.30%
Open Circuit Voltage-VOC(Volts)(±10%)	38.35	38.5	38.64	38.9	39.06
Short Circuit Current-ISC (AMPS)(±10%)	13.65	13.73	13.78	13.83	13.19
Max Power Voltage-VPM(Volts)	31.95	32.16	32.39	32.6	32.81
Max Power Current-IPM (AMPS)	12.99	13.09	13.12	13.19	13.26

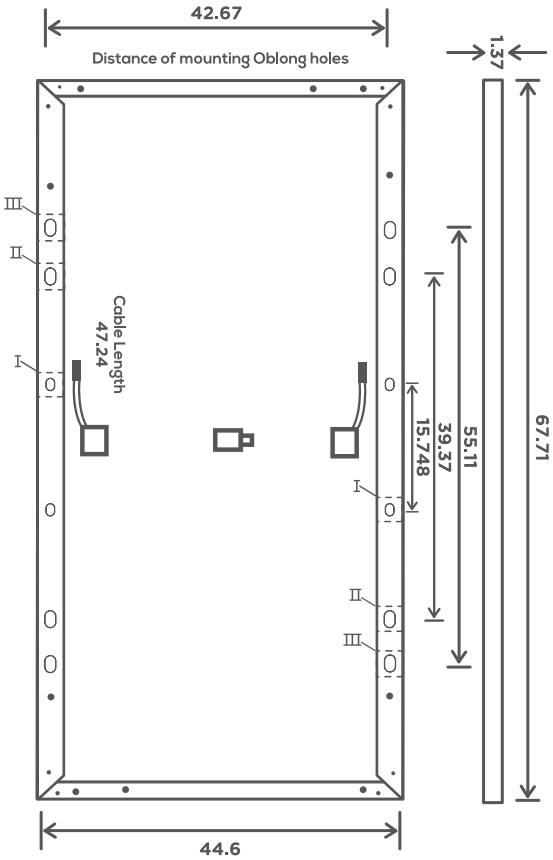
At low irradiance (200W/M², 25°C and AM1.5) the module yields at least 95% of the STC efficiency.

Test uncertainty for Pmax ±3%

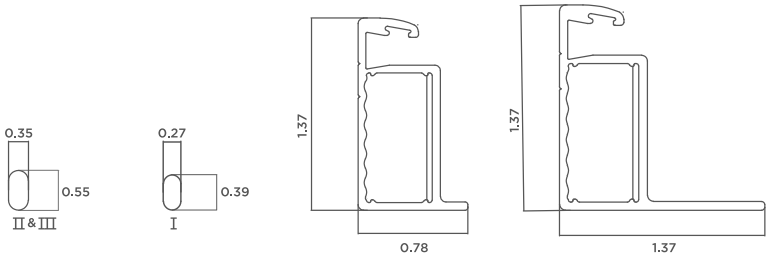
Permissible Operating Conditions	
Operating Temperature Range	-40° C TO 85° C
Max.system Voltage	1500V DC
Maximum Snow Load Capacity	5400PA
Resistance Against Hail	MaxØ24mm With Impact Speed of 51 Mph
Protection Class Against Electrical Shock	II
Maximum Reverse Current	30 A

Thermal Data	
Temp. Coefficient Open-circuit Voltage	-0.25%/°C
Temp. Coefficient Short Circuit Current	0.045%/°C
Temp. Coefficient Rated Power	-0.29%/°C
NOCT (Normal operating cell temperature)	45° C ±2°C

Mechanical Data	
Number of Cells and Cell Type	108 Topcon solar cells (182x91mm)
Dimensions: (L X W X H)	67.71 inch x 44.64 inch x 1.37 inch
Weight	44.09 Pounds
Front Glass	3.2 mm High Transmission, Solar Glass
Embedding	EVA/POE/EPE
Back Sheet	Black Back sheet
Junction Box	3 Split Junction Box IP68
Number of Bypass Diodes	3
Cables	4mm² Solar Cables, Length 47.24 inch
Connectors	mc4 Compatible, Staubli Option Available



Warranty	
Product Warranty	12 years
Performance Warranty	25 years



1ST YEAR DEGRADATION	1.0%	YEAR 2-25 POWER DEGRADATION	0.40%	END OF 25 YEARS	89.40%

FEATURES

AR Coated High Transmission Glass

MC4 Compatible Connectors

PID Resistance

Anodised Aluminium Frame

Snow Load Resistance upto 5400 Pa

BENEFITS

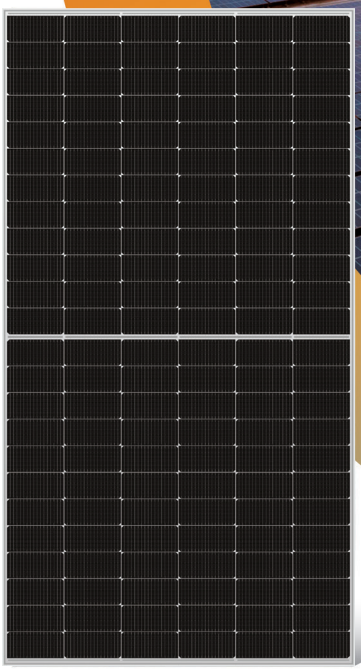
Low LCOE, Faster Payback Period

Best In Class Efficiency upto 23%

Multi-Bus Bar Technology for Better Current Collection

Lowest Guaranteed First Year and Annual Degradation

Well-Composed Components Stress to Reduce Micro Cracks



EMMVEE PHOTOVOLTAIC POWER PRIVATE LIMITED

Corporate Office: No. 13/1, International Airport Road, Bettahalasur Post, Bengaluru-562 157, India
Phone: +91 80 2217 4328, +91 80 2217 4333 | info@emmvee.in | www.emmvee.com
(An ISO 9001:2015, ISO 14001:2015 & OHSAS 45000:2018 Certified Company)