



YOUR RELIABLE
PARTNER FOR
SOLAR ENERGY
SINCE 1992



GRAPHITE BLACK ON BLACK MODULE

DESIGNED TO DELIVER MAXIMUM POWER OUTPUT

EMMVEE IS INDIA'S FIRST INTEGRATED SOLAR SOLUTIONS COMPANY, WITH 30 YEARS OF EXPERTISE IN DEVISING HIGHLY INNOVATIVE AND EFFICIENT SOLAR POWER SOLUTIONS, FROM SOLAR WATER HEATING SYSTEMS TO PHOTOVOLTAIC MODULES AND SOLAR WATER PUMPS.

Since our inception in 1992, we have dedicated ourselves to developing smart and innovative solar energy solutions using cutting edge technology. As always, our promise is to maintain enviable standards of excellent quality, timely delivery and reliable support to our customers as they explore and adopt environmentally friendly solar power solutions.

Today, we are proud of our robust presence in some of the most pioneering green energy projects across India and Europe. Our path-breaking photovoltaic modules have provided valuable and sustainable alternative power solutions in the field for over 15 years, and we continue to innovate with our new range of higher WP modules that combine exceptional quality and unbeatable efficiency.

Our goal is simple: to provide clean and reliable energy that saves our natural resources and reduces our carbon footprint, while ensuring that our diverse range of domestic and commercial solar power-related products and services always keep the needs of our customers at the forefront.

FEATURES



AR COATED HIGH
TRANSMISSION GLASS



MC4 COMPATIBLE
CONNECTORS



PID
RESISTANCE



ANODISED
ALUMINIUM FRAME



MECHANICAL
LOAD OF 5400 Pa

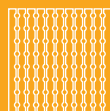
BENEFITS



LOW LCOE,
FASTER
PAYBACK PERIOD



BEST IN CLASS
EFFICIENCY
UPTO 21.5%



MULTI-BUS BAR
TECHNOLOGY FOR
BETTER CURRENT
COLLECTION



LOWEST
GUARANTEED FIRST
YEAR AND ANNUAL
DEGRADATION



WELL-COMPOSED
COMPONENTS
STRESS TO REDUCE
MICRO CRACKS

TECHNICAL SPECIFICATION

120 CUT CELL BLACK BACK SHEET MODULE

Electrical data at 1000W/m², 25°C and A.M 1.5(STC in accordance with IEC 60904-3)

MODEL NAME	E440HCM120-B	E445HCM120-B	E450HCM120-B
RATED POWER AT STC	440	445	450
POWER TOLERANCE	+5W	+5W	+5W
MODULE EFFICIENCY AT STC	20.28%	20.51%	20.74%
OPEN CIRCUIT VOLTAGE - VOC(VOLTS) (±10%)	41.44	41.46	41.56
SHORT CIRCUIT CURRENT - ISC (AMPS) (± 10%)	13.55	13.75	13.81
MAX POWER VOLTAGE - VPM (VOLTS)	34.21	34.28	34.31
MAX POWER CURRENT - IPM (AMPS)	12.87	12.99	13.12
AT LOW IRRADIANCE (200W/M ² , 25°C AND AM1.5) THE MODULE YIELDS AT LEAST 95% OF THE STC EFFICIENCY.			

Test uncertainty for Pmax ±3%

Thermal data

TEMPERATURE COEFFICIENT OPEN-CIRCUIT VOLTAGE	-0.28%/°C
TEMPERATURE COEFFICIENT SHORT CIRCUIT CURRENT	0.05%/°C
TEMPERATURE COEFFICIENT RATED POWER	-0.39%/°C
NOCT (NORMAL OPERATING CELL TEMPERATURE)	45°C ± 2°C

Mechanical data

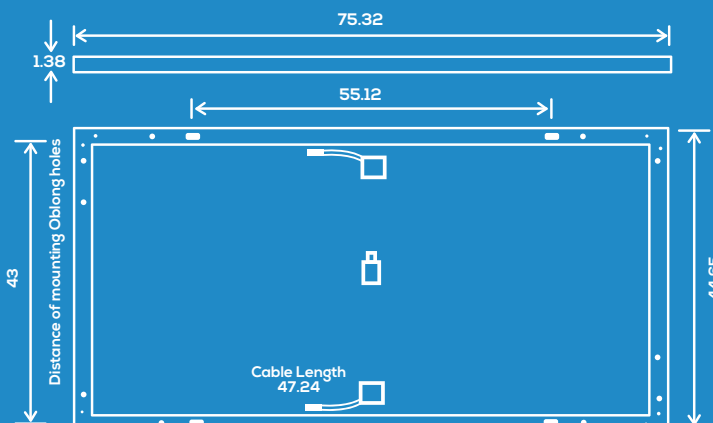
NUMBER OF CELLS AND CELL TYPE	120 MONO PERC SOLAR CELLS (182mm X 91mm)
DIMENSIONS: (L X W X H)	75.32 inch X 44.65 inch X 1.38 inch
WEIGHT	52.91 Pounds
FRONT GLASS	3.2 mm HIGH TRANSMISSION, SOLAR GLASS
EMBEDDING	EVA
BACK SHEET	BLACK BACK SHEET
JUNCTION BOX	3 SPLIT JUNCTION BOX IP68
NUMBER OF BYPASS DIODES	3
CABLES	4mm ² SOLAR CABLES, LENGTH 1200±10mm
CONNECTORS	MULTI CONTACT OR STAUBLI OPTION AVAILABLE

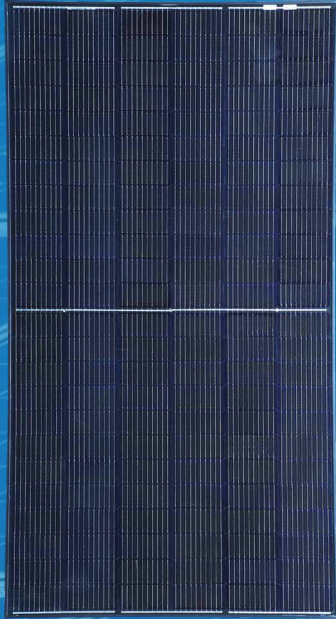
Permissible operating conditions

OPERATING TEMPERATURE RANGE	-40°C TO 85°C
MAX.SYSTEM VOLTAGE	1500V DC
MAXIMUM SNOW LOAD CAPACITY	5400PA
RESISTANCE AGAINST HAIL	MAX Ø24 MM WITH IMPACT SPEED OF 83KM/H
PROTECTION CLASS AGAINST ELECTRICAL SHOCK	II
MAXIMUM REVERSE CURRENT	25 A

Warranty

PRODUCT WARRANTY	12 YEARS
PERFORMANCE WARRANTY	25 YEARS
ANNUAL DEGRADATION	1ST YEAR DEGRADATION, 2%, FROM 2ND YEAR 0.55% ANNUAL DEGRADATION.

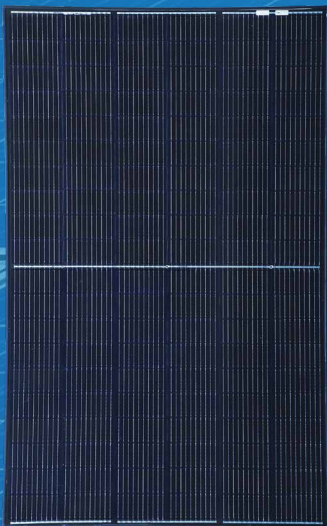




MONO-FACIAL MODULE

Positive power tolerance +5W

- Half Cut Cell Technology
- Best Warranty
- 10BB instead of 5BB
- Enhanced Mechanical Load
- Higher lifetime Power Yield
- Multi Busbar Technology
- Longer Life-time Power Yield
- PID Resistance
- Excellent Low-light Performance
- Higher Power Output



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(An ISO 9001:2015, ISO 14001:2015 & OHSAS 45000:2018 Certified Company)