München Energieprodukte
MAXIMALENERGIE

MSMDxxxM6-72
166 M6 cells half cut

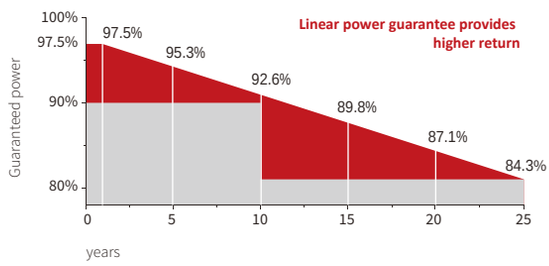
440W-460W

KEY FEATURES

- **Class A fire resistants (possible on request)**
- Outstanding performance in low-light conditions
- Low temperature coefficient (Pmax): -0.35 % / °C
- +5W 0~+5W positive tolerance - to assure high output
- Lower internal current, lower hot spot temperature
- Cell crack risk limited in small region, enhance the module reliability
- PID FREE Excellent anti-PID module design, TÜV SÜD certified
- Cerfified to withstand high wind loads (3600pa) and snow loads (8000pa) possible on request
- Salt mist and ammonia corrosion resistant

WARRANTY

- Our linear power guarantee
- Standard linear power guarantee



15 years Enhanced product guarantee on product and workmanship

25 years Linear power output warranty

PRODUCT CERTIFICATES

info@muenchen-energieprodukte.de

MSMDxxxM6-72

ELECTRICAL CHARACTERISTICS

STC	440	445	450	455	460
Maximum Power at STC (Pmax)	440 W	445W	450 W	455 W	460 W
Optimum Operating Voltage (Vmp)	41.0 V	41.2 V	41.4 V	41.6 V	41.8 V
Optimum Operating Current (Imp)	10.74 A	10.81 A	10.87 A	10.94 A	11.0 A
Open Circuit Voltage (Voc)	48.8 V	49.0 V	49.2 V	49.4 V	49.6 V
Short Circuit Current (Isc)	11.47A	11.54 A	11.61 A	11.68 A	11.75A
Module Efficiency	20.2%	20.4%	20.7 %	20.9%	21.1%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1500 V DC				
Maximum Series Fuse Rating	(IEC)				
Power Tolerance	20 A				

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%. 0/+5W

NMOT	440	445	450	455	460
Maximum Power at NMOT (Pmax)	331.2 W	335.0 W	338.2 W	342.5 W	346.3W
Optimum Operating Voltage (Vmp)	38.3 V	38.5 V	38.7 V	38.9 V	39.1 V
Optimum Operating Current (Imp)	8.65 A	8.59 A	8.74 A	8.80 A	8.86 A
Open Circuit Voltage (Voc)	46.6 V	46.8 V	47.0 V	47.2 V	47.4 V
Short Circuit Current (Isc)	9.14 A	9.19 A	9.22 A	9.27 A	9.33 A

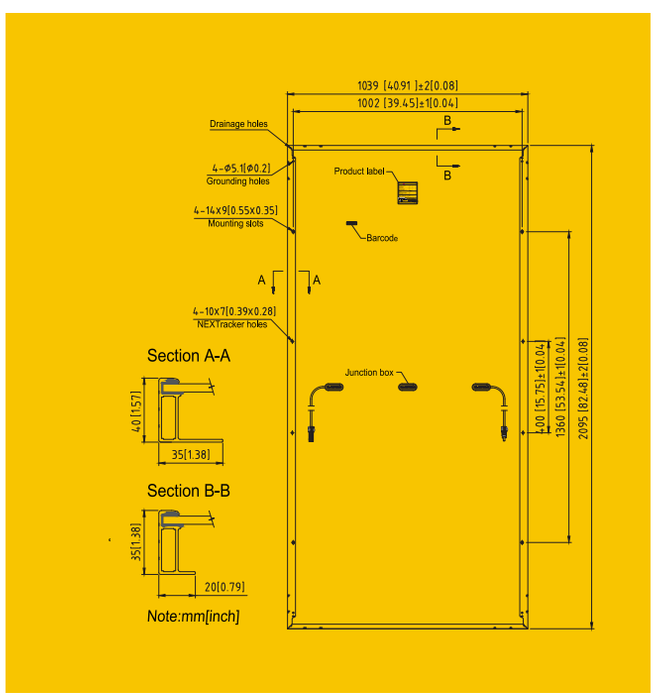
NMOT: Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Nominal Module Operating Temperature (NMOT)	42±2°C
Temperature Coefficient of Pmax	-0.35 %/°C
Temperature Coefficient of Voc	-0.304 %/°C
Temperature Coefficient of Isc	0.050 %/°C

MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline silicon 166 mm (9BB)
No. of Cells	144 (6 × 24)
Dimensions	2095 x 1039 x 35 mm
Weight	24 kgs
Front Glass	3.2 mm tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm², symmetrical lengths (-) 1400 mm and (+) 1400 mm



PACKING CONFIGURATION

Container	20' GP	40' HC
Pieces per pallet	31	31+2
Pallets per container	5	22
Pieces per container	155	726

Current-Voltage & Power-Voltage Curve (445S)