

Silk[®] Nova Duetto



n-type

TECHNOLOGY
INSIDE

460 W **23.02 %**

Maximum power

Maximum efficiency

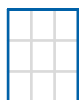
KEY BENEFITS AND FEATURES



Power from **450 to 460 Watt**



96 **G12R HC MBB n-type bifacial cells**



Black frame and
white-patterned back glass



Optimised frontal performance



Improved **long-life stability**



1762 x 1134 x 30 mm

Performance guarantee

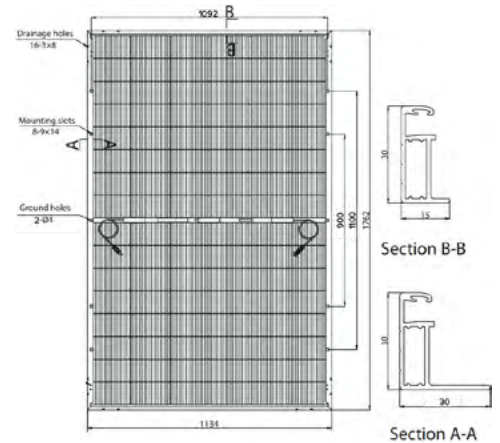
- **30-years** performance warranty with max power decrease from 1st year **0.4%/year**
- **99%** at the end of first year
- **92%** at the end of 20th year
- **87%** at the end of 30th year

Product guarantees

- **15-year** product and performance warranty
- Third-party product **liability** insurance
- All FuturaSun's modules are designed and guaranteed by the **Italian** headquarters

Mechanical specifications

Dimensions	1762 x 1134 x 30 mm
Weight	25.5 kg
Glass	Front - 2.0 mm solar glass with ARC Back - 2.0 mm heat strengthened glass
Cells	96 monocrystalline half-cut MBB n-type bifacial cells 182 x 105 mm
Frame	Black anodized aluminium frame with mounting and drainage holes
Junction boxes	Certified according to IEC 62790, IP 68 approved, 3 bypass diodes
Cables	Solar cable, length 1100 mm or customized assembled with 4mm ² compatible connectors
Back glass	white-patterned back-glass
Maximum reverse current (I _r)	35 A
Maximum system voltage	1500 V
Mechanical load (snow)	Design load: 3600 Pa, (5400 Pa including safety factor 1.5)
Mechanical load (wind)	Design load: 1600 Pa, (2400 Pa including safety factor 1.5)



Note: dimensions in mm, tolerance +/- 2 mm

Electrical data

		FU 450 M		FU 455 M		FU 460 M	
TEST CONDITIONS		STC [*]	BNPI ^{**}	STC [*]	BNPI ^{**}	STC [*]	BNPI ^{**}
Module power (P _{max})	W	450	499.00	455	504.00	460	509.00
Open circuit voltage (V _{oc})	V	35.48	35.58	35.66	35.76	35.84	35.94
Short circuit current (I _{sc})	A	15.97	17.69	16.03	17.76	16.10	17.83
Maximum power voltage (V _{mpp})	V	30.03	30.03	30.23	30.23	30.43	30.43
Maximum power current (I _{mpp})	A	14.99	16.62	15.06	16.67	15.13	16.73
Module efficiency	%	22.52	24.97	22.77	25.22	23.02	25.47
I _{sc} at BSI ^{***}	A	19.80		19.88		19.96	
Sorting tolerance	W			0/+5			

Electrical data - NOCT^{***}

		FU 450 M	FU 455 M	FU 460 M
Module power (P _{max})	W	338.40	342.30	346.20
Open circuit voltage (V _{oc})	V	33.80	33.99	34.18
Short circuit current (I _{sc})	A	12.89	12.94	12.98
Maximum power voltage (V _{mpp})	V	27.95	28.13	28.32
Maximum power current (I _{mpp})	A	12.11	12.17	12.23

Temperature ratings

Temperature coefficient I _{sc}	%/°C	0.045
Temperature coefficient V _{oc}	%/°C	-0.25
Temperature coefficient P _{max}	%/°C	-0.29
NOCT ^{***}	°C	45 ± 2
Operating temperature	°C	from -40 to +85

Certifications

Factory	ISO 9001 - 14001 - 45001
Product	IEC EN 61215, IEC EN 61730, Fire Class C, Class 1 UNI9177

Packaging

Quantity / Pallet	36 pcs
Container 40' HC	936 pcs / 26 pallets

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^{*}Standard Test Conditions (STC): 1000 W/m² - AM 1.5 - 25 °C - tolerance: P_{max} (±3%), V_{oc} (±4%), I_{sc} (±5%)
^{**}Bifacial Name Plate Irradiance (BNPI) Front side irradiation 1000 W/m² Back side reflection irradiation 135 W/m² Ambient temperature 25 °C
^{***}Nominal Operating Cell Temperature (NOCT): 800 W/m² - T=45 °C - AM 1.5
^{****}Bifacial Stress Irradiance (BSI): Front side irradiation 1000 W/m², Back side reflection irradiation 300 W/m²

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