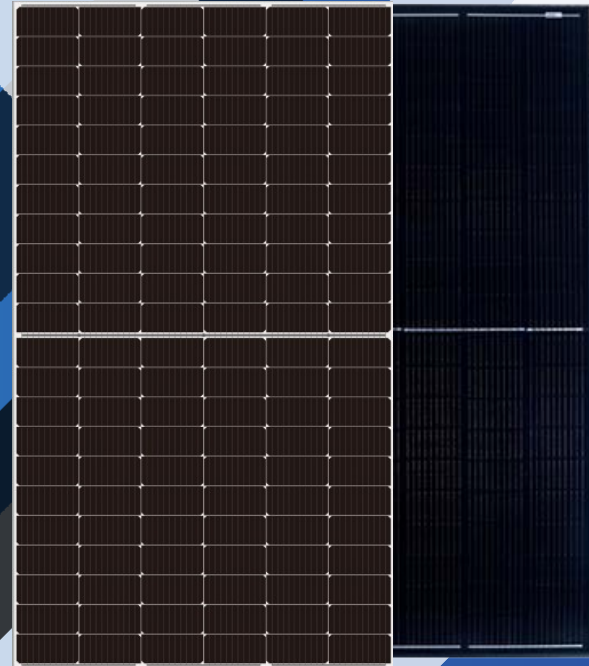


MBB PERC MONOFACIAL MODULE








450W-455W-460W



● MBB PERC MONOFACIAL MODULE

High Performance Half-Cut Cells
With White or Black Backsheet
Photovoltaic Modules

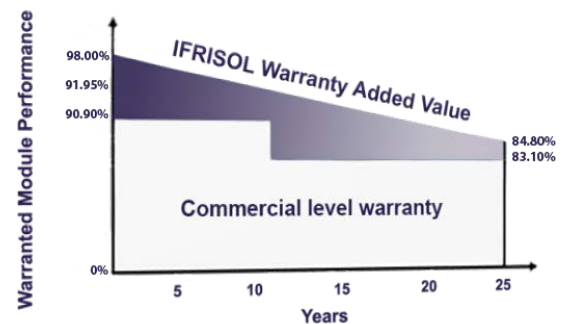
● KEY FEATURES

-  MBB 1/2 Cut Monofacial Cell Technology
-  Lower Risk Of HotSpot
-  Higher Power Output
-  High Snow (5400Pa) and Wind Loads (2400Pa)
-  Dual EI Inspection
-  Excellent Low Light Performance
-  Excellent PID Resistance

● LINEAR HIGH PERFORMANCE GUARANTEED

12 Years Product Warranty on 91.95%
of the Nominal Performance

25 Years Linear Power Output Warranty on 84.80%
of the Nominal Performance



According to Ifri-sol product and performance warranty

● CERTIFICATIONS

Management system TÜV-Certified
ISO 9001:2015: ID 011001317684
ISO 14001: 2015: ID 011041317684
ISO 45001:2018: ID 011131815622



Electrical Specification

Module Type	Nominal Power Pmpp	Nominal Voltage Umpp	Nominal Current Impp	Open Circuit Voltage (Uoc)	Short Circuit Current (Isc)	Module Conversion Efficiency
IF-HWM450-120	450 Wp	34.72 V	12.97 A	41.37V	13.85A	20.96%
IF-HWM455-120	455 Wp	34.93 V	13.04 A	41.64V	13.93A	21.19%
IF-HWM460-120	460 Wp	35.14 V	13.13 A	41.91V	14.01 A	21.42 %

Electrical Data At STC (STANDARD TEST CONDITIONS): 1000W/m² Irradiance, 25°C Cell Temperature, AM1.5g Spectrum According to EN 60904-3. Manufacturing Tolerance (Pmax,Voc,Isc) : ±3%

NMOT

Module Type	Nominal Power Pmpp	Nominal Voltage Umpp	Nominal Current Impp	Open Circuit Voltage (Uoc)	Short Circuit Current (Isc)
IF-HWM450-120	335.8 Wp	32.33 V	10.37 A	39.03 V	11.16 A
IF-HWM455-120	339.9 Wp	32.56V	10.42 A	39.24 V	11.24 A
IF-HWM460-120	344.7 Wp	32.78 V	10.47 A	39.43V	11.31 A

Electrical Data At NMOT: 800W/m² Irradiance, 20°C Ambient Temperature, 1m/s Wind Speed. Manufacturing Tolerance (Pmax,Voc,Isc) : ±3%

Design

Front Glass	3.2mm High transmission Low Iron Tempered Glass AR Coated
Encapsulant	Ethylene Vinyl Acetate (E.V.A)
Cell	MBB Mono PERC/182 mm X 91mm - 120Pcs
Backside	White or Black Composite Film
Frame	35 mm Anodized Aluminum Alloy Type 6063-T6 (Silver/Black)

Temperature Coefficients

voltage Uoc (β)	-0.26%/°C
Current Isc(α)	+0.048%/°C
Output Power(γ)	-0.35%/°C
NMOT	43±2°C

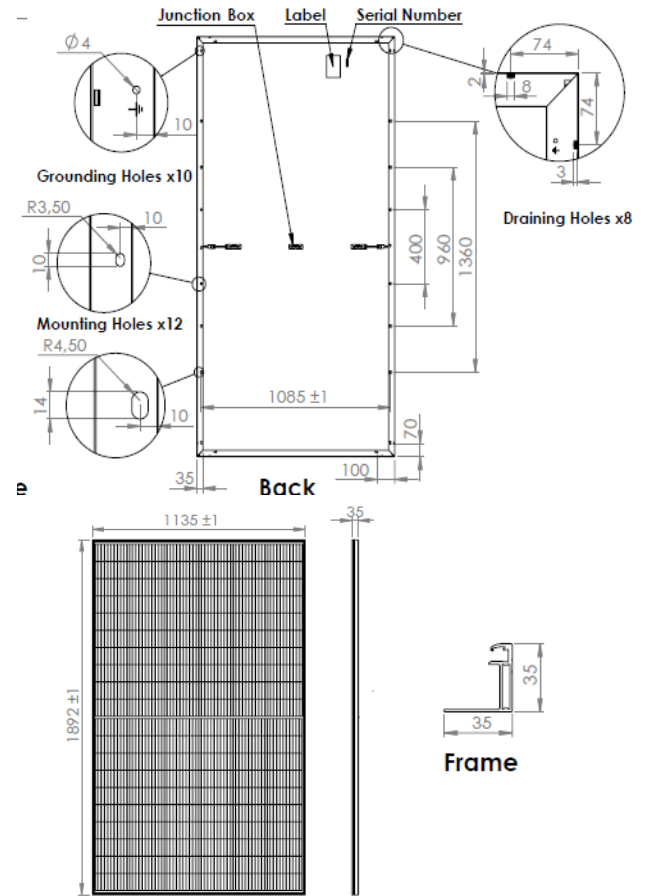
Operating Conditions

Maximum System Voltage	1500 VDC
Maximum Series Fuse	25A
Operating Temperature Range	From -40°C to 85°C
Mechanical Load test (Front/Back)	5400Pa/2400Pa

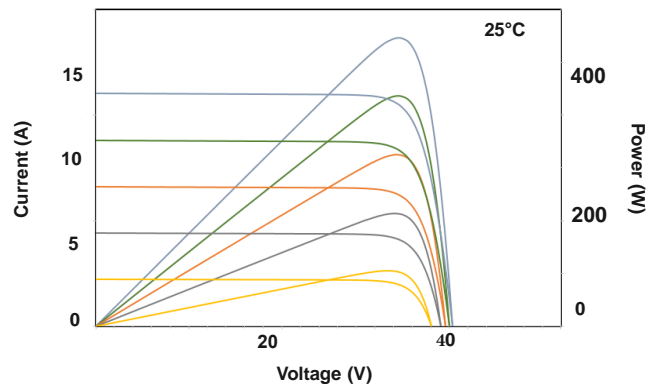
Power Connection

Junction Box	3xIP68 Junction Box With Bypass Diodes
Solar Cable	Length 300mm, 4mm ² Prefabricated with Latching Type Connectors
Safety Class	Class II (According to IEC 61140)

Technical Drawing



Current-Voltage/Power-Voltage Curves, IF-HWM455-120



Legend for Current-Voltage/Power-Voltage Curves: 1000 W/m², 800 W/m², 600 W/m², 400 W/m², 200 W/m²

Mechanical Specification

Dimensions (LxWxH)	1892mm x 1135 mm x 35 mm (±2mm)
Weight	24.2 Kg

Packaging Specification

Dimensions (LxWxH)	1920mm x 1150mm x 1275mm	Modules Qty per Carton	31	Modules Qty per Container 40'HC	744
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