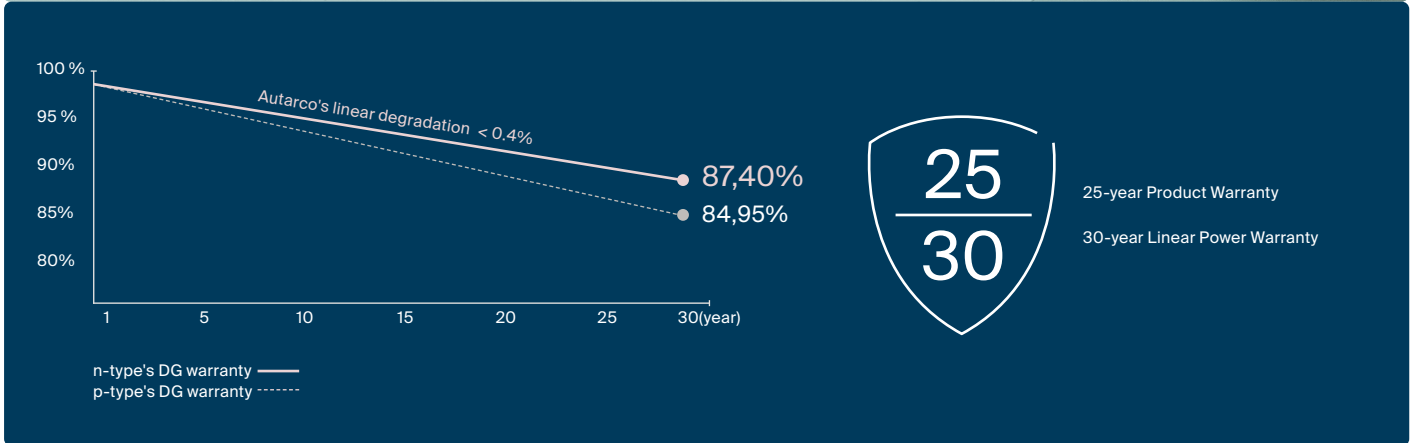
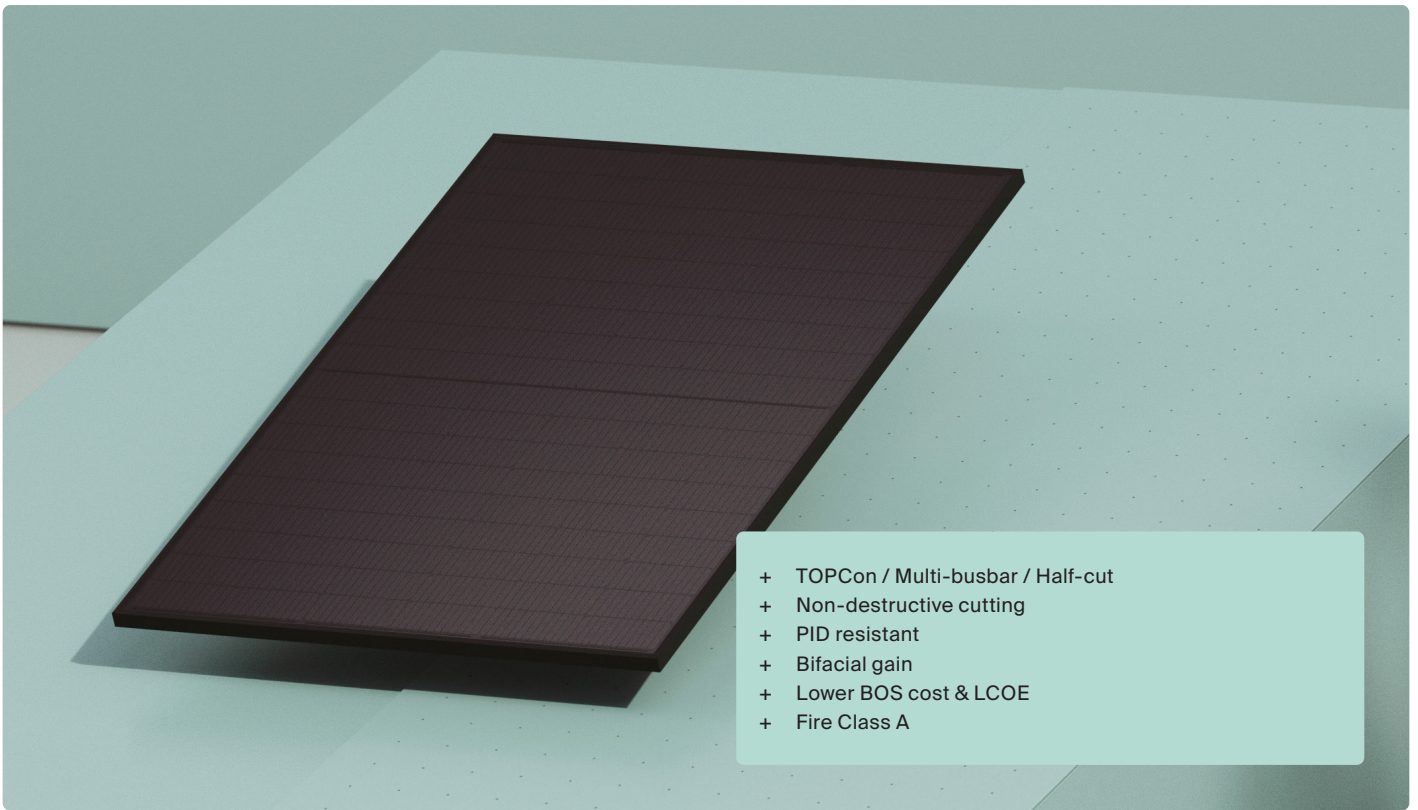


TBT Full Black

Series solar panels

Reach full potential



435~450W

Power Range

0~+5W

Power Tolerance

22.02%

Max Module Efficiency

≤ 1.0%

First Year Power Degradation

≤ 0.4%

Year 2-30 Power Degradation

Electrical specification

STC: Irradiance 1000W/m², Cell Temperature 25 °C, AM=1.5

Rated output (P _{mpp} / W _p)	435	440	445	450
Open circuit voltage (V _{oc} / V)	39.18	39.38	39.58	39.78
Short circuit current (I _{sc} / A)	13.80	13.86	13.93	14.00
Rated voltage (V _{mpp} / V)	32.61	32.81	33.02	33.22
Rated current (I _{mpp} / A)	13.34	13.41	13.48	13.55
Module efficiency	21.77%	22.02%	22.27%	22.52%

NMOT: Irradiance 800W/m², Ambient Temperature 20 °C, AM=1.5, Wind Speed 1m/s

Rated output (P _{mpp} / W _p)	330	333	337	341
Open circuit voltage (V _{oc} / V)	35.65	35.84	36.02	36.20
Short circuit current (I _{sc} / A)	11.13	11.18	11.24	11.29
Rated voltage (V _{mpp} / V)	30.00	30.19	30.38	30.56
Rated current (I _{mpp} / A)	10.99	11.05	11.10	11.16

Temperature ratings

Temp. coefficient (P _{mpp})	-0.29% / °C
Temp. coefficient (I _{sc})	+0.046% / °C
Temp. coefficient (V _{oc})	-0.25% / °C
Nominal module operating temperature (NMOT)	43°C (+/- 2°C)

Operating parameters

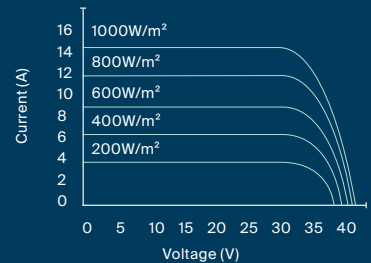
No. of diodes	3
Junction Box IP rating	IP 68
Max. series fuse rating	25 A
Max. system voltage (IEC/UL)	1500V _{DC}

Mechanical specifications

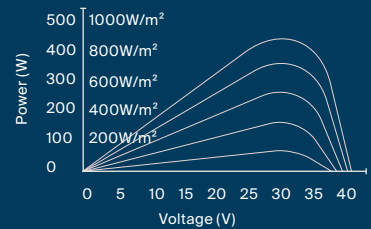
Dimensions (W x H x D)	1762 x 1134 x 30mm
Cells	108 (182 x 94 mm), N type mono-crystalline, in a 6 x 18 matrix connected in series
Frame technology	Aluminum, black anodized
Construction	Front: 2 mm glass (coated) Backsheet: 2 mm glass (black pattern) Encapsulant: EVA
Cable length (IEC/UL)	1200 mm
Cable diameter (IED/UL)	4 mm ² / 12 AWG
① Max. mechanical test load	5400 (front) / 2400 Pa (back)
Connector type (IEC/UL)	MC4-EVO2A
Operating temperature	-40°C to 85°C
Passed hail test	45mm hail @ 30.7m/s
Fire performance	Class A (IEC)
Module weight	24.5 kg
Packing unit	36 pcs / pallet
Weight of packing unit	919 kg
Quantity per 40'HQ container	936 pcs

Curve

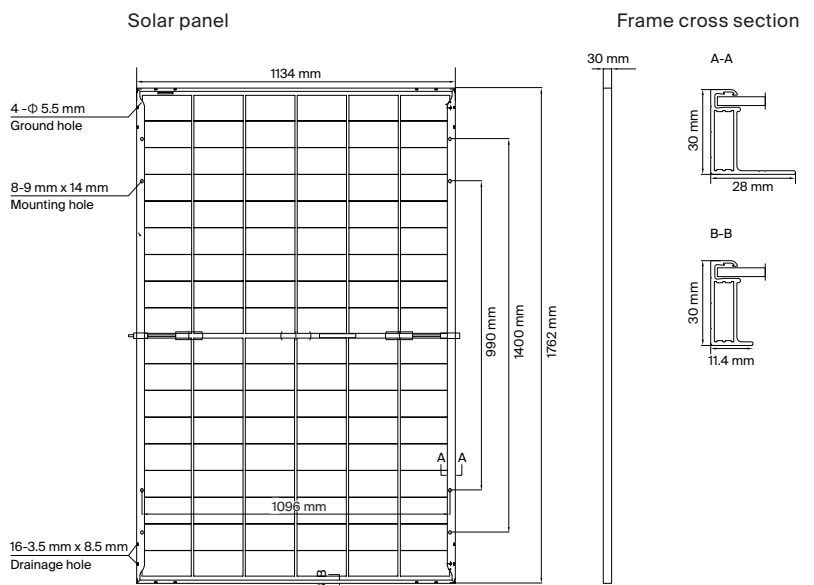
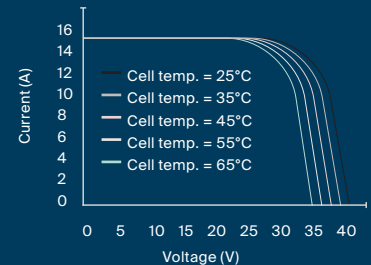
Current-Voltage (440W)



Power-Voltage (440W)



Current-Voltage (440W)



① Refer to Autarco installation manual or contact technical department. Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

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