



Engineered in Australia  
for Australian Conditions



## A Secure & Reliable Investment

Tindo Solar offers a 12 warranty for our 72 cell modules with a 25 year performance guarantee.



## Great Visual Appearance

The Tindo Karra series has been designed with appearance in mind. Their deep black cells, with black frames and thinner wires give an aesthetically pleasing appearance.



## High Efficiency

Higher module conversion efficiency (up to 19.1%) benefit from Passivated Emitter Rear Contact (PERC) technology.



## Proven Field Performance

Our panels are mounted and performing everyday at the Desert Knowledge Testing Centre in Alice Springs. The Karra series panels are consistently one of the highest performing panels at the centre. [www.dkasolarcentre.com.au](http://www.dkasolarcentre.com.au)



## Maximum Cost Reductions

Much lower logistics costs due to our modules being made in South Australia with flexible module numbers per pallet on request.



## Innovative All Weather Technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



## Low-light Performance

Advanced glass and solar cell surface texturing allow for excellent performance in low-light environment.

# Karra Series Data Sheet

## Electrical Characteristics

72 Cell Module		Karra - 380H	
Item	Unit	*STC	*NMOT
Max. Power (Pmax)	Wp	380	278
Max. Power voltage (Vmp)	V	40.77	37.02
Max. Power current (Imp)	A	9.32	7.52
Open circuit voltage (Voc)	V	49	45.21
Short circuit current (Isc)	A	9.94	8.10
Panel efficiency	%	19.1	
Positive power tolerance	W	0 + - 5	

\*STC (Standard Test Condition): 1,000 W/m<sup>2</sup>, AM 1.5, 25°C / \*NMOT (Nominal Module Operating Temperature): 800W/m<sup>2</sup>, 20°C, wind speed 1m/s, Tolerance of Pmax, Vo & Isc ± 3% within each watt class at STC.

## Qualification Test

Thermal cycling test	- 40°C to 85°C for 200 cycles
Damp heat test	85°C and 85% relative humidity for 1000 hr
Front Load test	5400Pa
Rear Load test	2400Pa
Hail Impact test	25mm hail at 23m/s from 1m distance

Safety factor of \*static load test: 1.5 (Test load = Design load x Safety factor)

## Mechanical Characteristics

Cells per panel	72 Cells (6x12)
Cell Type	5BB PERC Mono-crystalline
Panel Dimension (Lx Wx Hx)	1987 x 1000 x 40mm
Panel Weight	22 Kg
Front Glass	3.2mm Tempered Glass
Frame	Black Anodized Aluminium
Junction Box	With bypass diode / IP67 (≥1.0M/4mm <sup>2</sup> )
Connector Type	KST4-EV02(M), KBT4-EVO2(F) /Stabli-MC4

## System Integration Parameters

Temperature Range	-40°C to 85°C
Maximum System Voltage	1,500V DC(IEC)
Maximum over-current protection	15 A

## Thermal Characteristics

Rating	Unit	Value	
*NMOT	°C	44	
Temperature Coefficient	Isc	%/°C	+0.06
	Voc	%/°C	- 0.30
	Pmax	%/°C	-0.37

NMOT: Nominal Module Operating Temperature

## Safety Ratings & Warranties

Safety Application Class	Class II
Fire Safety Classification	Class C
Certifications	IEC 61215 , IEC 61730
Warranty	12 years limited product warranty
Performance Guarantee	25 years limited warranty 80% power

## Packaging

Stacking Method	Horizontal / Palletised
Panels per Pallet	25
Pallet Dimensions & Weight	2050x1050x1200, 560kg
Pallets & Panels per 20-ft container	10 Pallets - 235 Panels
Pallets & Panels per 40-ft container high cube	22 Pallets - 550 Panels

[Panel Diagram]

