adani
Solar

Get SUNplugged

Adani Solar is the Solar PV Manufacturing & EPC arm of Adani Group, a USD 13 bn Indian conglomerate with businesses across Resources, Logistics, Energy, Agri and Ancillary industries.

Adani Solar is India's largest solar cell & module manufacturer with 1.2 GW capacity at Mundra and fastest growing Solar EPC Solutions company with projects over 250 MW commissioned and over 400 MW under execution.

Adani Solar is India's first & largest vertically integrated solar company that offers products along with services across photovoltaics manufacturing. The company offers high efficiency Multi, Mono PERC and Bifacial modules with superior efficiency, higher performance and enhanced reliability.

It maintains market leadership, as it is the first manufacturer in India with IEC 2016 certification in all SKUs. It is accredited as Tier-1 supplier by BNEF and is the only Indian manufacturer to be awarded Top Performer by DNV GL & PVEL Global reliability testing consecutively for two years (2018, 2019).

**REVENUE**
over **13 bn**

**PRESENCE**
across **50+ countries**

**ASSETS**
worth **USD 31.2 bn**

Empowering a sustainable future

**25 years** Linear warranty assuring optimal performance

**12 years** Limited product warranty

**1.2 GW** Largest integrated cell and module manufacturer from India

# World-Class Solar Modules for you

Adani Solar's cutting-edge technology, scale of operations, cost leadership and reliability, sets it apart from all other global competitors and supporting utilities. Adani Solar produces hi-tech solar panel modules using advanced technology and supplies reliable solar modules that are proven to meet the customer's exact requirements.

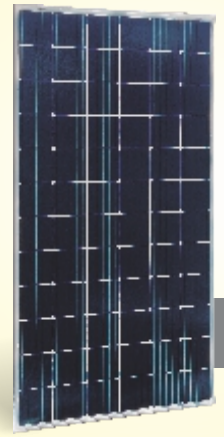
365 - 390 Wp

ASM-7-PERC-AAA

## **Eternal** Series
## **Mono-PERC**
### **P-Type**

For large-scale and rooftop PV installations

- 60 cell module power output: 295 – 315 Wp
- 72 cell module power output: 365 – 390 Wp
- Modules with low temperature coefficient, high fill factor, excellent low light irradiance performance
- 10% higher power output compared to industry average poly-crystalline module
- Higher performance at longer wavelengths of light (1100 – 1200 mm)



360 - 385 Wp

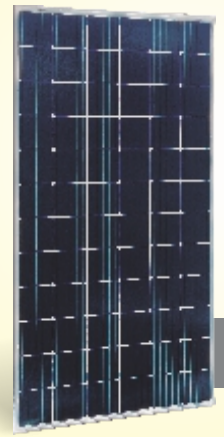
ASB-7-AAA

## **Elan** Series
## **Bifacial**
### **P-Type**

Lowest LCOE & Highest IRR

**30 Year Warranty on Power & Performance**

- 60 cell module power output: 305 – 315 Wp
- 72 cell module power output: 360 – 385 Wp
- P-Type modules up to 65% Bi-facialty
- Up to 6% gain with no reflective surface and up to 12% gain with white reflective surface using fixed tilt over lifetime
- 1500 V rated variant for large scale installations saving up to 5% of BOS costs
- Degradation limited to 0.6% per year compared to standard of 0.7%
- Low Light Induced Degradation (LID), & LetID due to LIR process
- Up to 1200 nm wavelength light capturing



355 - 370 Wp

ASB-7-AAA

## **Elan** Series
## **Bifacial**
### **N-Type**

Lowest LCOE & Highest IRR

**30 Year Warranty on Power & Performance**

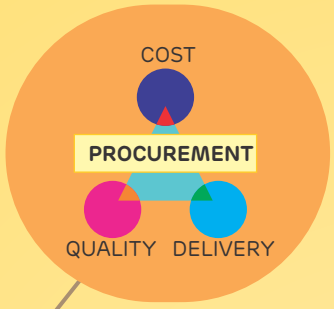
- 60 cell module power output: 305 – 315 Wp
- 72 cell module power output: 355 – 370 Wp
- N-Type modules up to 87% Bi-facialty
- Up to 13% gain with no reflective surface and up to 22% gain with white reflective surface using fixed tilt over lifetime
- 1500 V rated variant for large scale installations saving up to 5% of BOS costs
- Degradation limited to 0.4% per year compared to standard of 0.7%
- Nearly Zero Light induced degradation (LID) & LetID through use of N-Type cells
- Up to 1200 nm wavelength light capturing

# Turnkey EPC: End To End Solution

### ENGINEERING

- Reliable redundant design with best in class engineering team
- State-of-the-art design software's for compliance with international standards

### PROCUREMENT




- Equipment from top suppliers for maximum trouble-free operation
- Quality and certified products backed by tie-ups and SLA with reputed vendors
- Procurement team strength of 50+ having 9 decades of relevant experience

### CONSTRUCTION

- Robust execution methodology for ensuring quality at all stages
- Delivering projects in record time consistently with the best field quality
- Dedicated project teams for installation across globe

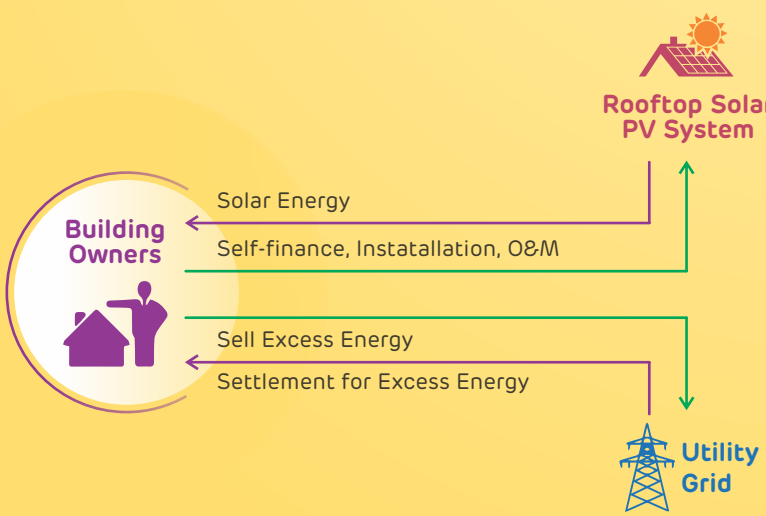
### OPERATION AND MAINTENANCE

- Faster and cost-effective performance monitoring
- O&M data analysis and reporting
- Routine, preventive and corrective maintenance

# Business Model

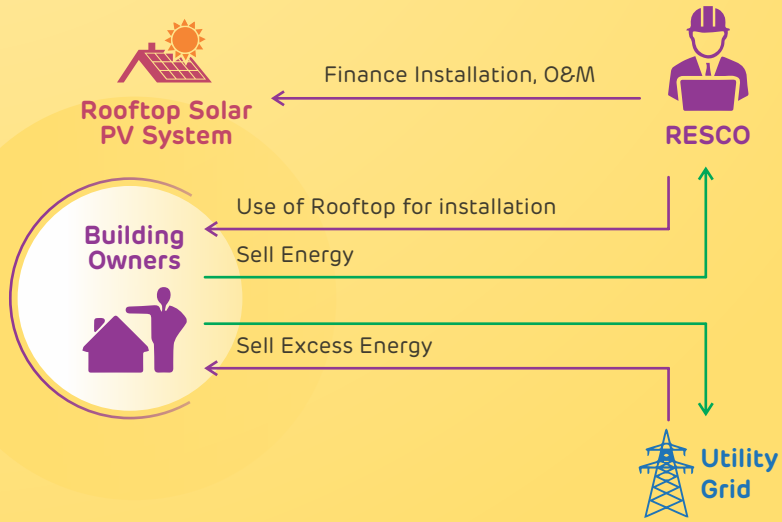
## CAPEX

CAPEX (Capital Expenditure) is a common business model for solar deployment in India where the consumer purchases the solar PV system, by making 100% of the payment upfront or financing the system, often through a bank.




## OPEX

OPEX (Operational Expenditure) model is where the RESCO developer invests in solar rooftop asset and sells the generated power to the building owner in favour of a lower solar power tariff. The excess power may be sold by the building owner to the utility, according to the power purchase agreement through net metering system.



**Eternal** Series

# Mono-PERC P-Type

365 - 390 Wp

**Elan** Series

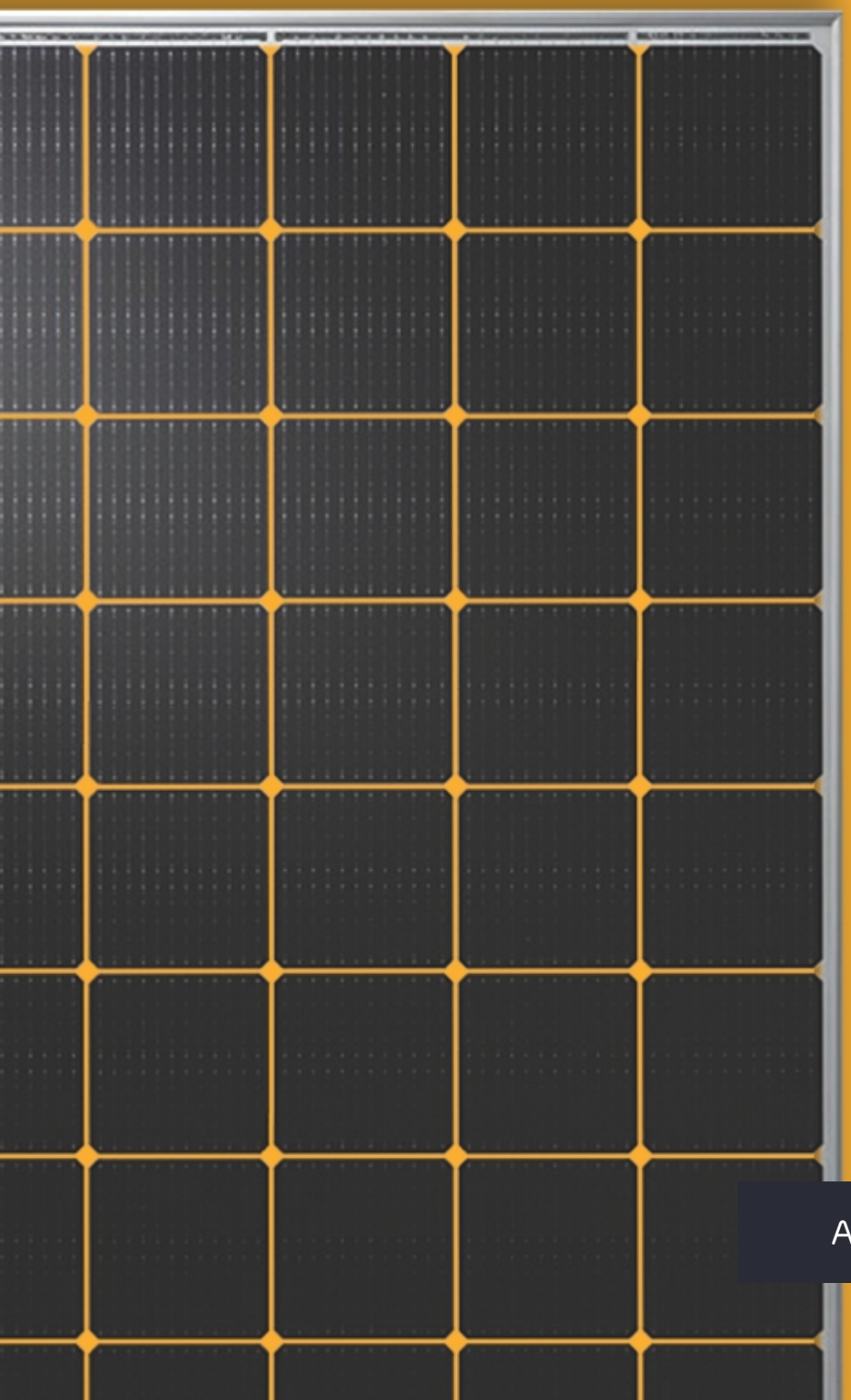
# Bifacial
# N-Type / P-Type

355 - 385 Wp

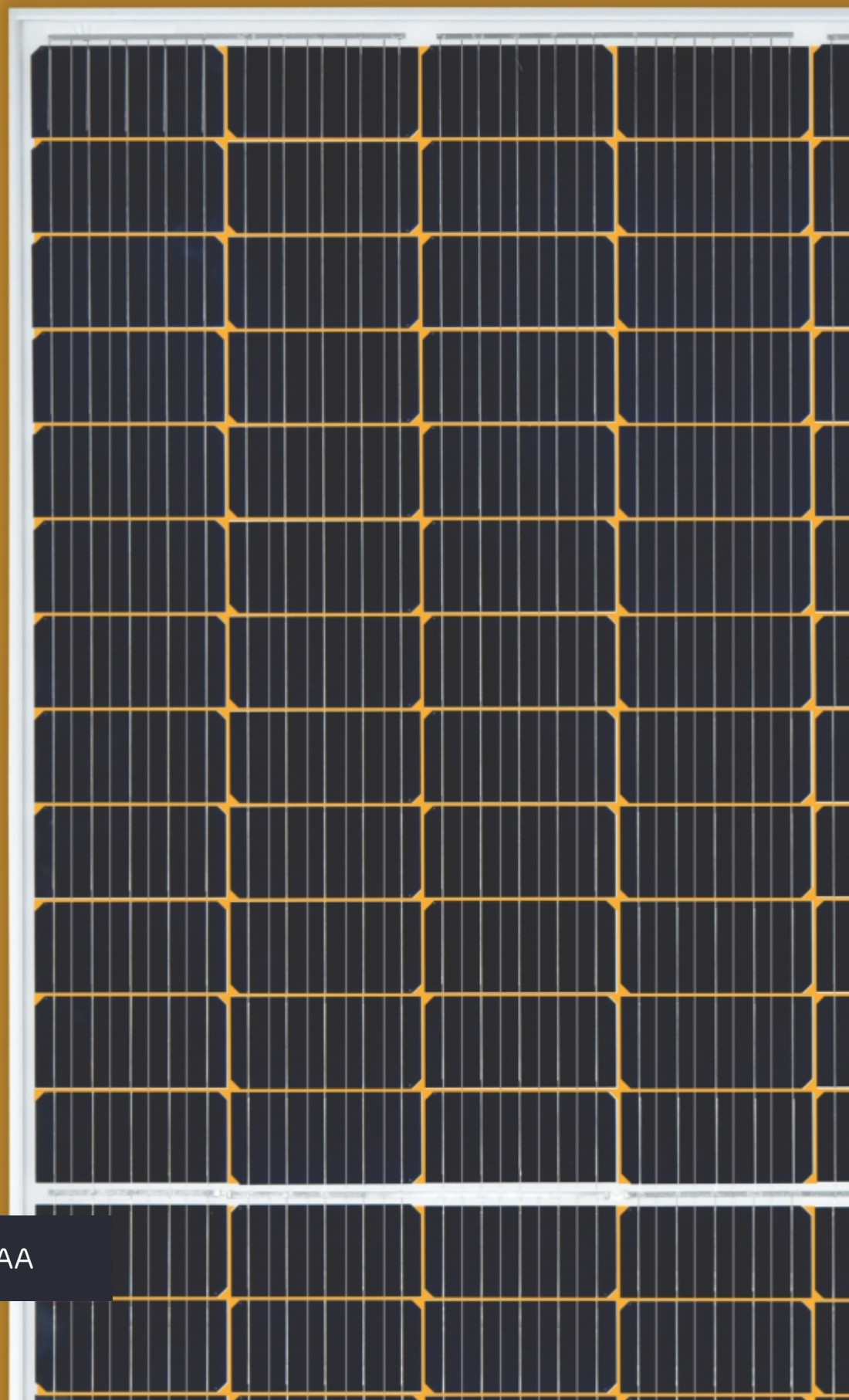
**Elan** Series

**Bifacial**
**N-Type / P-Type**

Smart
Bifacial 12BB
370 - 400 Wp



Half Cut
Bifacial 9BB
370 - 405 Wp



ASP-7-AAA

# Gallery

Location : Oklahoma, USA
289 KW

Location : Mundra, Gujarat, India
2 MW

Location : Minnesota, USA
2.8 MW

Location : EESL, India
140 MW

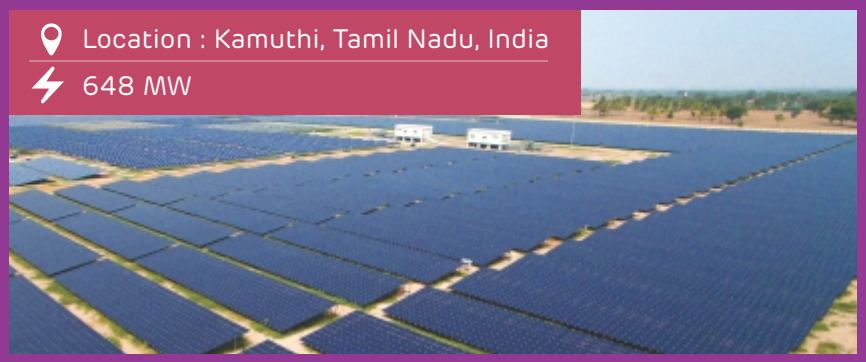
Location : Wadesboro, North Carolina, USA
5 MW

Location : Hyundai, Chennai, India
700 KW

Location : Moranbah, Queensland, Australia
12 MW

Location : Andaman Nicobar, India
3.6 MW

Location : Kamuthi, Tamil Nadu, India
648 MW



Location : Lupin, Goa, India
200 KW


Millions of customers across the globe are powered with Adani Solar's panels that delivers green, clean and reliable energy and helps lower their electricity bills in future. Adani Solar's Modules and Rooftop Solutions are spread across four continents.

# The Brighter Side of Business

**Largest BNEF Tier-1 Bankable modules from India**
1.2 GW - Cell & Module (Multi, Mono, Bifacial)

**Supreme Product Quality with Integrated Plant**
In-house Cell, EVA, Backsheet manufacturing with superior process controls

**Top Performer at DNV GL & PVEL 2018, 2019 PQP Program**
(Highest reliability & best Performance)

**3rd Party Validated PAN, IAM and LetID Files**
Assuring higher generation

**Modules Tested for 3 IEC**
Assuring superior reliability & linear warranty of PV Modules

**Audited by Black & Veatch, Solar Buyer, TUV Rheinland**

adani Solar


**Corporate Headquarters**

Mundra Solar PV Limited
Adani Corporate House, Shantigram,
S G Highway, Ahmedabad-382421,
Gujarat, India
CIN: U74999GJ2015PLC083378
Tel: +91 79 2555 5555 | Fax: +91 79 2555 5500
E-mail: cs@adani.com
**www.adanisolar.com**

**Manufacturing Unit**

Mundra Solar PV Ltd.
Revenue Survey No: 180/P
City: Kutch, Taluka: Mundra, Village: Tunda,
Post Office: Bidada; Pin: 370421

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# ETERNAL SERIES

## 5BB Mono-Crystalline PERC Silicon Solar PV Modules – 1500V Series

**ASM-7-PERC-AAA (AAA=365 - 390) | 72 Cells | 365 - 390 Wp**

TIER-1
BANKABLE MODULES

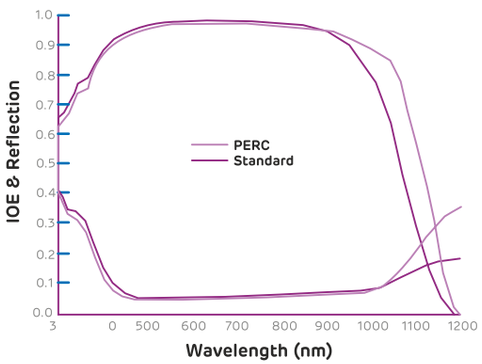
### Highlights

- Higher performance at longer wavelengths of light (1100-1200 nm)
- Superior temperature co-efficient and performance at NOCT, PTC ratings
- Excellent performance at low light irradiation (200 W/m2)
- LIR treated cells with least LID effect
- 5 bus bar cells offering better reliability against microcracks
- Triple EL checking to ensure defect free modules

| | | | |
|---|---|---|---|
| Reduces installation costs by 3% | Reduces transport costs by 3% | Reduces land costs by 3% | Reduces BOS costs by 6% |

2019 TOP PERFORMER
PVEL | DNV·GL
PV MODULE RELIABILITY SCORECARD

### Significant benefit of PERC technology




PERC technology enables better light capturing abilities at longer wavelength, weak and diffused light and in cloudy conditions.

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# Technical Data

## Electrical data – All data measured to STC*

| Peak power, (0 ~+ 4.99 Wp) Pmax (Wp) | | 365 | 370 | 375 | 380 | 385 | 390 |
|---|---|---|---|---|---|---|---|
| Maximum voltage, Vmpp | (V) | 39.01 | 39.16 | 39.34 | 39.5 | 39.66 | 39.82 |
| Maximum current, Impp | (A) | 9.36 | 9.46 | 9.55 | 9.64 | 9.743 | 9.84 |
| Open circuit voltage, Voc | (V) | 47.31 | 47.47 | 47.67 | 47.77 | 47.99 | 48.16 |
| Short circuit current, Isc | (A) | 9.93 | 9.99 | 10.03 | 10.06 | 10.11 | 10.16 |
| Module efficiency | (%) | 18.09 | 18.34 | 18.58 | 18.9 | 19.1 | 19.35 |

## Electrical parameters at NOCT

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Maximum Power Pmax @ NOCT | | 275 | 279.2 | 283.4 | 287.6 | 291.72 | 295.88 |
| Maximum voltage, Vmpp | (V) | 38.13 | 38.4 | 38.6 | 38.8 | 39.02 | 39.24 |
| Maximum current, Impp | (A) | 7.21 | 7.28 | 7.35 | 7.41 | 7.48 | 7.55 |
| Open circuit voltage, Voc | (V) | 46.87 | 47.09 | 47.31 | 47.53 | 47.77 | 48.00 |
| Short circuit current, Isc | (A) | 7.61 | 7.68 | 7.75 | 7.82 | 7.87 | 7.94 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5% at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3%, measurement uncertainty <3%

*NOCT irradiance 800 W/m2, ambient temperature 20°C, wind speed 1 m/sec

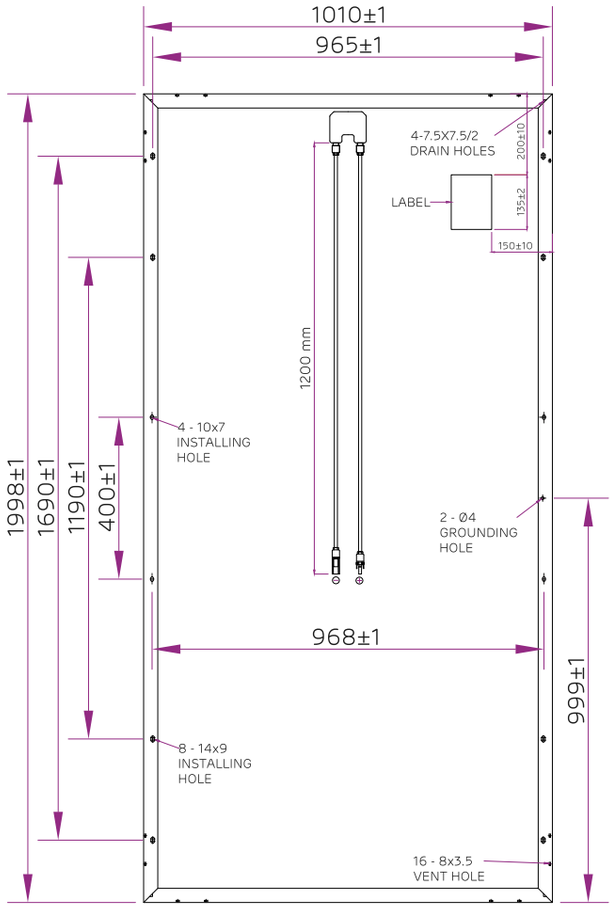
## Temperature co-efficients (TC) and permissible operating conditions

| | | |
|---|---|---|
| TC of open circuit voltage | ( β ) | -0.29% /°C |
| TC of short circuit current | ( α ) | 0.048% /°C |
| TC of power | (γ) | -0.39% /°C |
| Maximum system voltage | | 1500 V (IEC & UL) |
| NOCT | | 45°C ± 2°C |
| Temperature range | | -40°C to + 85°C |

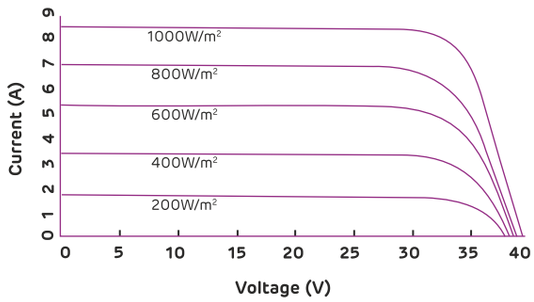
## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 35 mm/40 mm |
| Weight | 22.7 Kg (35 mm) / 23 Kg (40mm) |
| Junction box | IP68 |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance arc glass |
| Cells | 72 mono-crystalline PERC solar cells; 5 bus bars |
| Encapsulation | Low shrinkage PID resistant EVA |
| Substrate | Tri layer backsheet |
| Frame | Anodized aluminium frame with twin wall profile |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 15 A |

## Dimensions in mm




## Current-Voltage Curve




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 3% in first year
<- 0.68% / year in 2-25 years

**Approvals and certificates:** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62759, IEC 62804, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

Note:
- The specifications included in this datasheet are subject to change without notice.
- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order. All models sold will be as per MSPVL QAP.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

MSPVL/MDL/PDM/Spec/27/Rev 01

adani Solar

# ETERNAL SERIES

## Mono-Crystalline PERC Silicon Solar PV Modules

**ASM-6-PERC-AAA**
**ASM-6-B-PERC-AAA (Black frame, white backsheet)**
**ASM-6-AB-PERC-AAA (Black frame, black backsheet)**
**60 Cells | 295-315 Wp**

TIER-1
BANKABLE MODULES

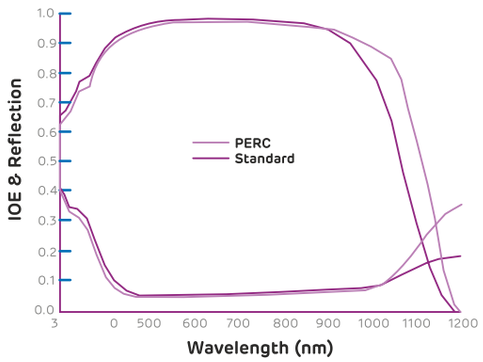
### Highlights

- 7% higher power output compared to industry average poly-crystalline module
- Higher performance at longer wavelengths of light (1100-1200 nm)
- Superior temperature co-efficient and performance at NOCT, PTC ratings
- Excellent performance at low light irradiation (200 W/m2)
- LIR treated cells with least LID effect
- PID, salt mist and Ammonia resistant
- Triple EL checking to ensure defect free modules

| Reduces installation costs by 3% | Reduces transport costs by 3% | Reduces land costs by 3% | Reduces BOS costs by 3% |
|---|---|---|---|

2019 TOP PERFORMER
PVEL | DNV·GL
PV MODULE RELIABILITY SCORECARD

### Significant benefit of PERC technology




PERC technology enables better light capturing abilities at longer wavelength, weak and diffused light and in cloudy conditions.

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# Technical Data

## Electrical data – All data measured to STC*

| Peak power, (0 ~+ 4.99 Wp) Pmax (Wp) | 295 | 300 | 305 | 310 | 315 |
|---|---|---|---|---|---|
| Maximum voltage, Vmpp (V) | 32.4 | 32.55 | 32.76 | 32.93 | 33.11 |
| Maximum current, Impp (A) | 9.1 | 9.21 | 9.3 | 9.42 | 9.52 |
| Open circuit voltage, Voc (V) | 39.44 | 39.53 | 39.92 | 40.11 | 40.35 |
| Short circuit current, Isc (A) | 9.93 | 10.01 | 10.27 | 10.41 | 10.58 |
| Module efficiency (%) | 17.91 | 18.2 | 18.52 | 18.8 | 19.11 |

## Electrical parameters at NOCT

| | | | | | |
|---|---|---|---|---|---|
| Maximum Power Pmax @ NOCT | 215 | 218 | 222 | 225 | 228 |
| Maximum voltage, Vmpp (V) | 29.68 | 29.91 | 30.25 | 30.56 | 30.85 |
| Maximum current, Impp (A) | 7.26 | 7.29 | 7.33 | 7.37 | 7.41 |
| Open circuit voltage, Voc (V) | 36.60 | 36.80 | 37.00 | 37.20 | 37.40 |
| Short circuit current, Isc (A) | 7.66 | 7.70 | 7.72 | 7.74 | 7.77 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5% at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3%, measurement uncertainty <3%

*NOCT irradiance 800 W/m2, ambient temperature 20°C, wind speed 1 m/sec

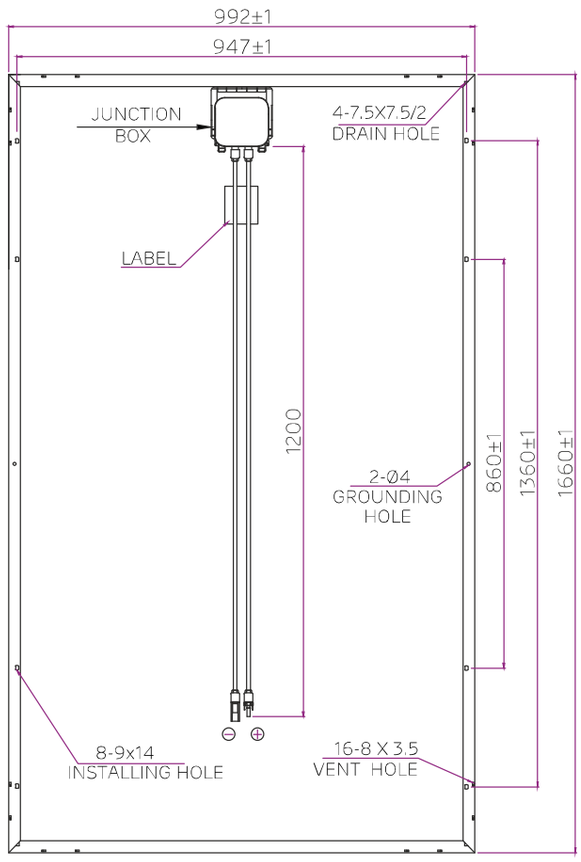
## Temperature co-efficients (TC) and permissible operating conditions

| | | |
|---|---|---|
| TC of open circuit voltage | ( β ) | -0.31% /°C |
| TC of short circuit current | ( α ) | 0.068% /°C |
| TC of power | (γ) | -0.40% /°C |
| Maximum system voltage | | 1000 V (IEC & UL) |
| NOCT | | 44°C ± 2°C |
| Temperature range | | -40°C to + 85°C |

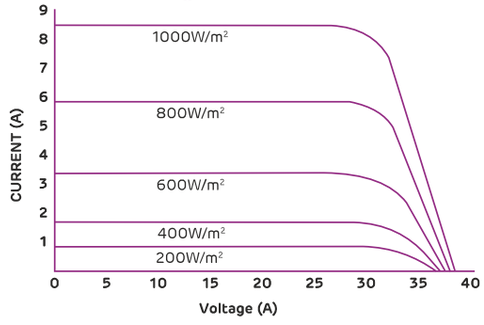
## Mechanical data

| | |
|---|---|
| Length | 1660 mm |
| Width | 992 mm |
| Height | 35 mm / 40 mm |
| Weight | 17.5 Kg (35 mm) / 18.8 Kg (40mm) |
| Junction box | IP67, 14A junction box |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass |
| Cells | 60 mono-crystalline PERC solar cells; 5 bus bars |
| Encapsulation | Low shrinkage encapsulant |
| Substrate | Back sheet (Also available in black colour)# |
| Frame | Anodized aluminium frame with twin wall profile (Silver and Black) |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 15 A |

## Dimensions in mm




## Current-Voltage Curve




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 2.5 % in first year <- 0.68% / year in 2-25 years

**Approvals and certificates:** IEC 61215 ED2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62759, IEC 62804, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

Note:
- The specifications included in this datasheet are subject to change without notice.
- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order. All models sold will be as per MSPVL QAP.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

TIER-1
BANKABLE MODULES

# ELAN Series

## N-Type PERT Bifacial PV Modules

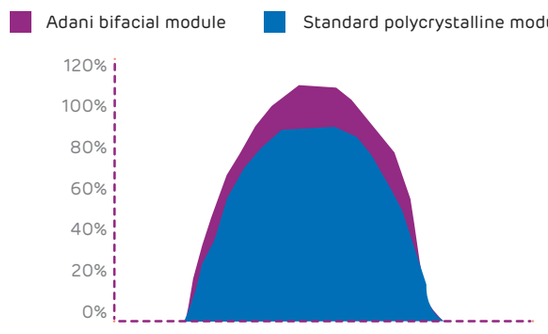
**ASB-7-AAA (AAA=350-370) | 72 Cells | 350-370 Wp**

### Highlights

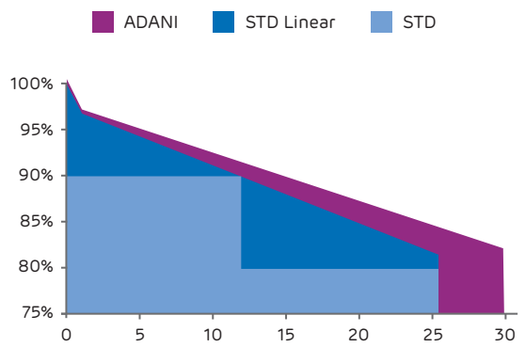
- Modules made with N-type bifacial solar cells
- Up to 450 Wp at 25% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 82% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Near zero LID, PID free, 1500 V module
- High insulation resistance due to special raw materials
- Linear warranty of 30 years

| Reduces installation costs by 2% | Reduces transport costs by 4% | Reduces land costs by 4% | Reduces BOS costs by 5% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | |
|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **350** | **355** | **360** | **365** | **370** |
| Maximum voltage, Vmpp (V) | 37.5 | 37.9 | 38.3 | 38.65 | 39.02 |
| Maximum current, Impp (A) | 9.34 | 9.37 | 9.42 | 9.46 | 9.5 |
| Open circuit voltage, Voc (V) | 46.4 | 46.4 | 46.7 | 46.85 | 46.99 |
| Short circuit current, Isc (A) | 9.72 | 9.74 | 9.88 | 9.9 | 9.96 |
| Module efficiency (%) | 17.34 | 17.59 | 17.84 | 18.09 | 18.34 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 360 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 410 | 430 | 450 | 475 |
| Maximum voltage, Vmpp (V) | 40.20 | 40.57 | 41.03 | 41.61 |
| Maximum current, Impp (A) | 9.61 | 9.73 | 9.89 | 10.09 |
| Open circuit voltage, Voc (V) | 48.30 | 48.59 | 48.97 | 49.44 |
| Short circuit current, Isc (A) | 9.90 | 9.98 | 10.08 | 10.20 |
| Module efficiency (%) | 20.59 | 21.34 | 22.34 | 23.59 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

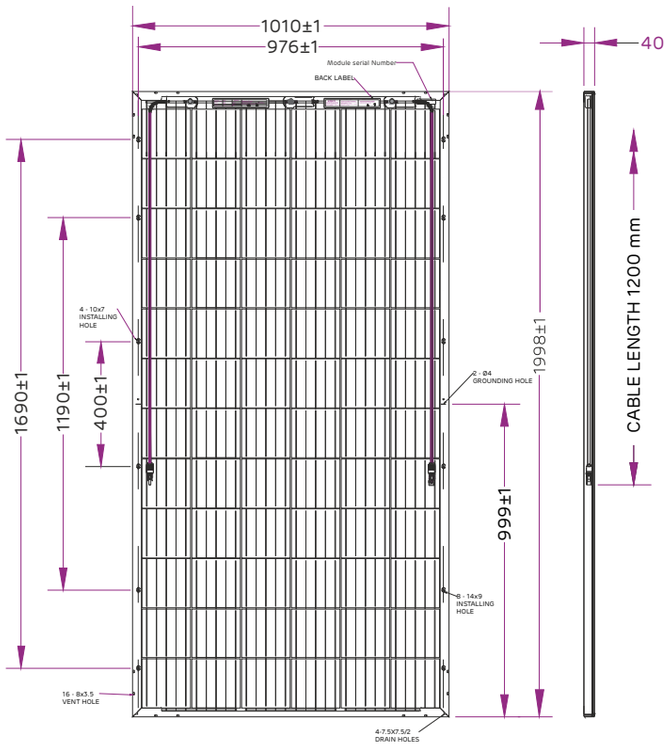
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 40 mm |
| Weight | 23 Kg (40 mm) |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 3.2 mm |
| Cells | 72 mono-crystalline N-type bifiacial PERT solar cells; 5 bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | Transparent Backsheet |
| Frame | Anodized Frame |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

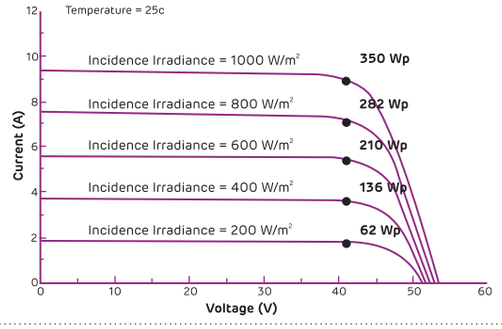
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 0.8 % in first year <- 0.62 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

**Note:**
- The specifications included in this datasheet are subject to change without notice.
- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

MSPVL/MDL/PDM/Spec/27/Rev 01

TIER-1
BANKABLE MODULES

# ELAN Series

## N-Type PERT Bifacial Dual Glass PV Modules - Frame

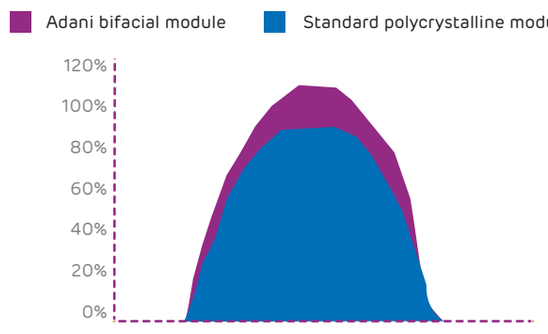
**ASB-7-AAA (AAA=350-370) | 72 Cells | 350-370 Wp**

### Highlights

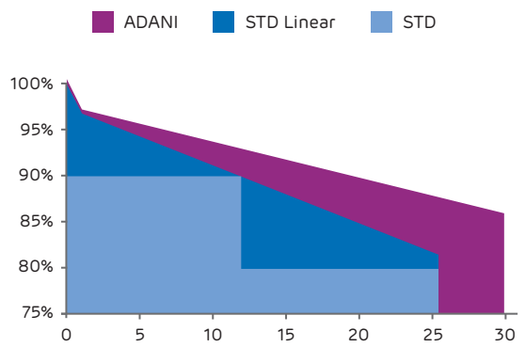
- Modules made with N-type bifacial solar cells
- Up to 450 Wp at 25% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 87% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Near zero LID, PID free, 1500 V module
- High insulation resistance due to special raw materials
- Linear warranty of 30 years

| Reduces installation costs by 4% | Reduces transport costs by 7% | Reduces land costs by 8% | Reduces BOS costs by 7% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | |
|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **350** | **355** | **360** | **365** | **370** |
| Maximum voltage, Vmpp (V) | 37.5 | 37.9 | 38.3 | 38.65 | 39.02 |
| Maximum current, Impp (A) | 9.34 | 9.37 | 9.42 | 9.46 | 9.5 |
| Open circuit voltage, Voc (V) | 46.4 | 46.4 | 46.7 | 46.85 | 46.99 |
| Short circuit current, Isc (A) | 9.72 | 9.74 | 9.88 | 9.9 | 9.96 |
| Module efficiency (%) | 17.34 | 17.59 | 17.84 | 18.09 | 18.34 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 355 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 410 | 430 | 450 | 475 |
| Maximum voltage, Vmpp (V) | 40.20 | 40.57 | 41.03 | 41.61 |
| Maximum current, Impp (A) | 9.61 | 9.73 | 9.89 | 10.09 |
| Open circuit voltage, Voc (V) | 48.30 | 48.59 | 48.97 | 49.44 |
| Short circuit current, Isc (A) | 9.90 | 9.98 | 10.08 | 10.20 |
| Module efficiency (%) | 20.59 | 21.34 | 22.34 | 23.59 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

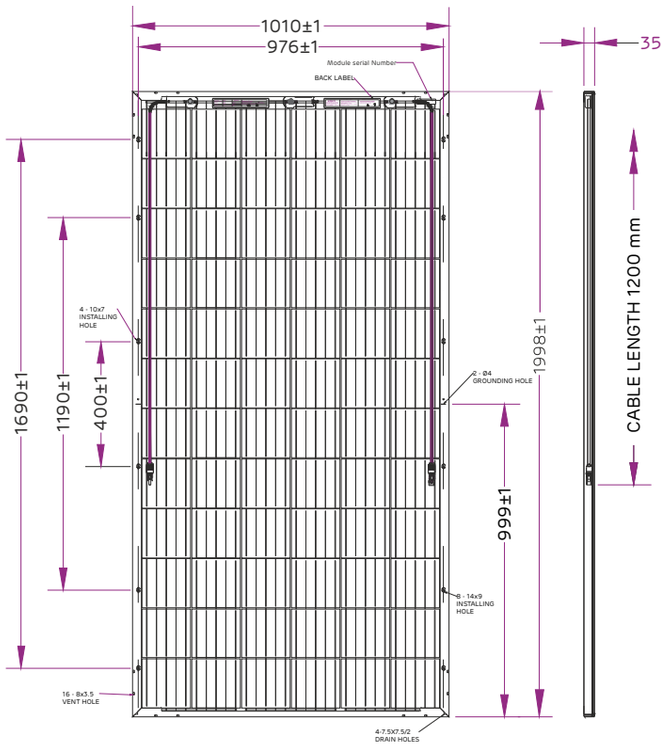
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 35 mm |
| Weight | 31.1 Kg |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 2.5 mm |
| Cells | 72 mono-crystalline N-type bifiacial PERT solar cells; 5 bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | High transmittance glass 2.5 mm |
| Frame | Anodized Frame (35 x 28) |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

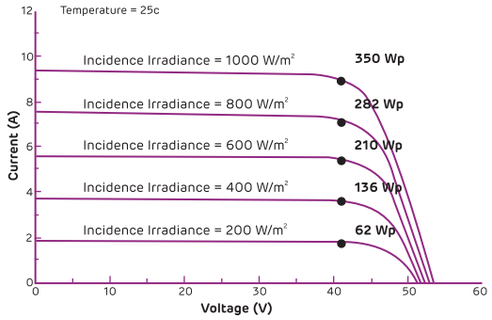
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 682 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 0.8 % in first year <- 0.40 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

**Note:**
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- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

MSPVL/MDL/PDM/Spec/27/Rev 01

TIER-1
BANKABLE MODULES

# ELAN Series

## 5BB P-Type PERC Bifacial PV Module

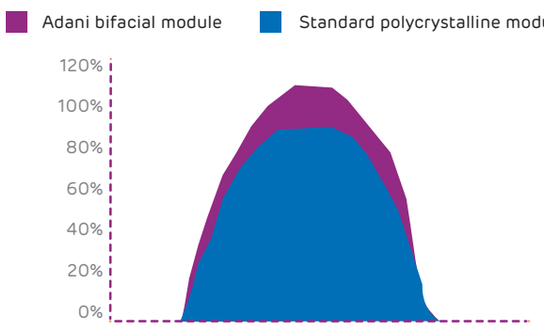
**ASB-7-AAA (AAA=360-385) | 72 Cells | 360-385 Wp**

### Highlights

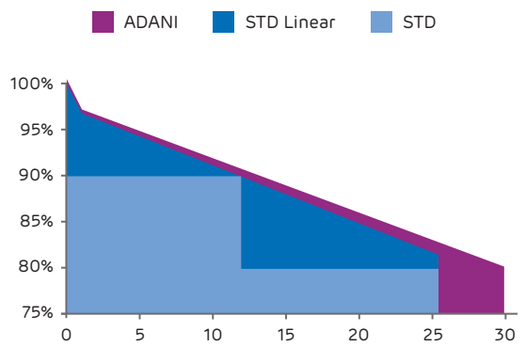
- Modules made with P-type bifacial solar cells
- Up to 450 Wp at 25% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 65% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Least degradation for LID & LeTID
- Higher performance at wavelength (1100-1200)
- Linear warranty of 30 years

| Reduces installation costs by 2% | Reduces transport costs by 4% | Reduces land costs by 4% | Reduces BOS costs by 5% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | | |
|---|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **360** | **365** | **370** | **375** | **380** | **385** |
| Maximum voltage, Vmpp (V) | 38.85 | 39.01 | 39.16 | 39.34 | 39.5 | 39.66 |
| Maximum current, Impp (A) | 9.25 | 9.36 | 9.46 | 9.55 | 9.64 | 9.74 |
| Open circuit voltage, Voc (V) | 47.07 | 47.31 | 47.47 | 47.67 | 47.77 | 47.99 |
| Short circuit current, Isc (A) | 9.89 | 9.93 | 9.99 | 10.03 | 10.06 | 10.11 |
| Module efficiency (%) | 17.84 | 18.09 | 18.34 | 18.58 | 18.9 | 19.10 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 360 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 410 | 430 | 450 | 475 |
| Maximum voltage, Vmpp (V) | 40.20 | 40.57 | 41.03 | 41.61 |
| Maximum current, Impp (A) | 9.61 | 9.73 | 9.89 | 10.09 |
| Open circuit voltage, Voc (V) | 48.30 | 48.59 | 48.97 | 49.44 |
| Short circuit current, Isc (A) | 9.90 | 9.98 | 10.08 | 10.20 |
| Module efficiency (%) | 20.59 | 21.34 | 22.34 | 23.59 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

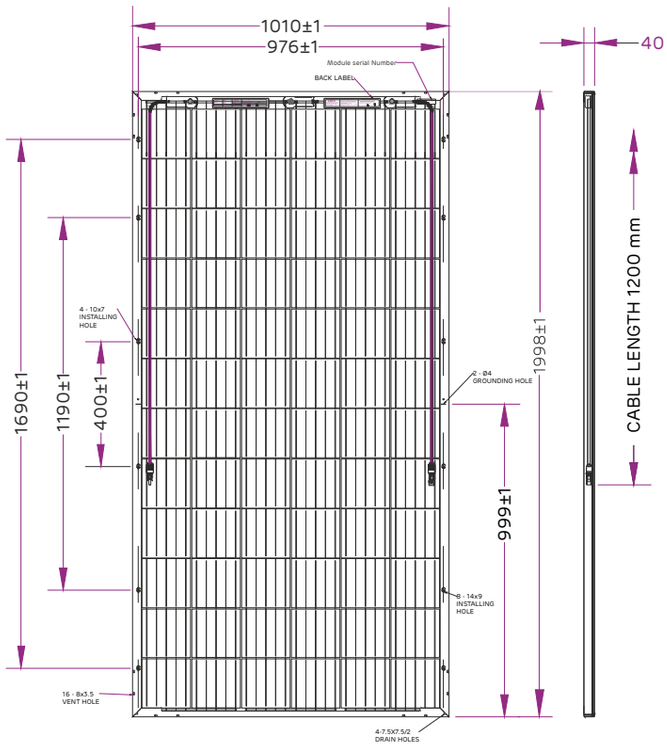
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 40 mm |
| Weight | 23 Kg (40 mm) |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 3.2 mm |
| Cells | 72 mono-crystalline P-type PERC solar cells; 5 bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | Transparent Backsheet |
| Frame | Anodized Frame |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

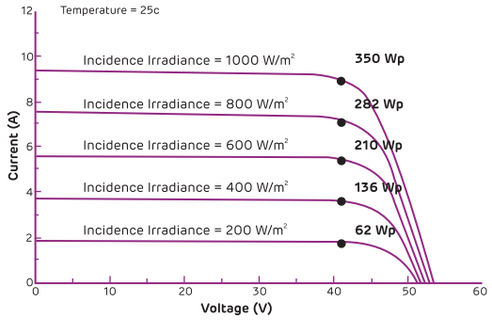
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 3% in first year
<- 0.62 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

**Note:**
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- Please confirm your exact requirements with the sales representative while placing your order.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

TIER-1
BANKABLE MODULES

# ELAN Series

## P-Type PERC Bifacial Dual Glass PV Modules - Frame

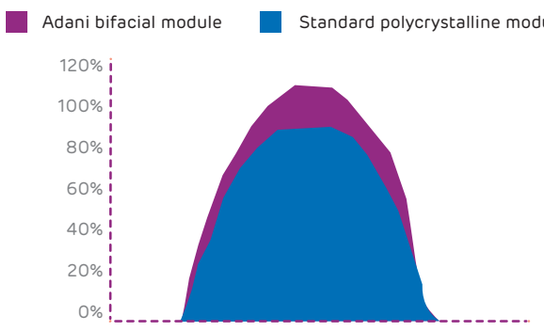
**ASB-7-AAA (AAA=360-385) | 72 Cells | 360-385 Wp**

### Highlights

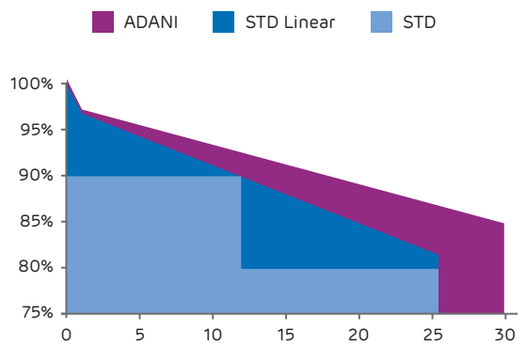
- Modules made with P-type bifacial solar cells
- Up to 450 Wp at 25% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 70% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Least degradation for LID & LeTID
- Higher performance at wavelength (1100-1200)
- Linear warranty of 30 years

| Reduces installation costs by 4% | Reduces transport costs by 7% | Reduces land costs by 8% | Reduces BOS costs by 7% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | | |
|---|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **360** | **365** | **370** | **375** | **380** | **385** |
| Maximum voltage, Vmpp (V) | 38.85 | 39.01 | 39.16 | 39.34 | 39.5 | 39.66 |
| Maximum current, Impp (A) | 9.25 | 9.36 | 9.46 | 9.55 | 9.64 | 9.74 |
| Open circuit voltage, Voc (V) | 47.07 | 47.31 | 47.47 | 47.67 | 47.77 | 47.99 |
| Short circuit current, Isc (A) | 9.89 | 9.93 | 9.99 | 10.03 | 10.06 | 10.11 |
| Module efficiency (%) | 17.84 | 18.09 | 18.34 | 18.58 | 18.9 | 19.10 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 360 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 410 | 430 | 450 | 475 |
| Maximum voltage, Vmpp (V) | 40.20 | 40.57 | 41.03 | 41.61 |
| Maximum current, Impp (A) | 9.61 | 9.73 | 9.89 | 10.09 |
| Open circuit voltage, Voc (V) | 48.30 | 48.59 | 48.97 | 49.44 |
| Short circuit current, Isc (A) | 9.90 | 9.98 | 10.08 | 10.20 |
| Module efficiency (%) | 20.59 | 21.34 | 22.34 | 23.59 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality Factor.

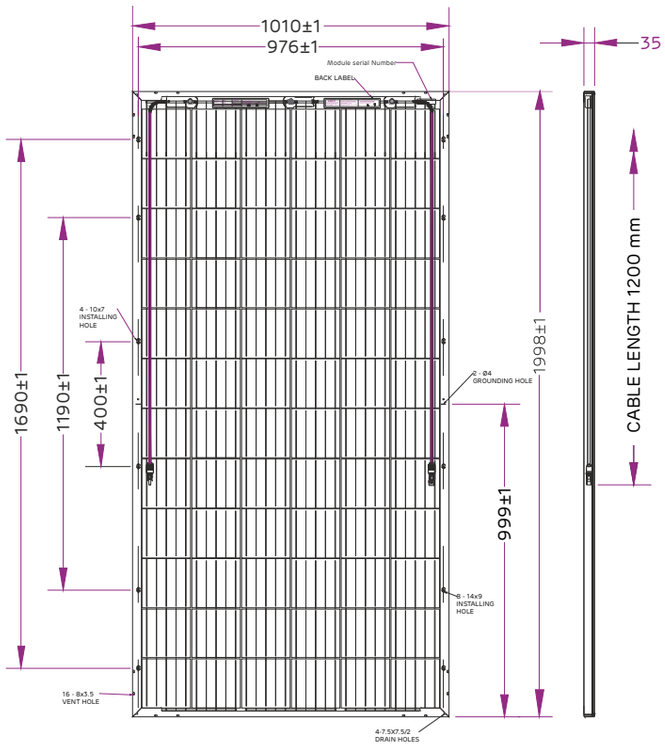
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 35 mm |
| Weight | 31.1 Kg |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 2.5 mm |
| Cells | 72 mono-crystalline P-type bifacial PERC solar cells; 5 bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | High transmittance glass 2.5 mm |
| Frame | Anodized Frame (35 x 28) |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

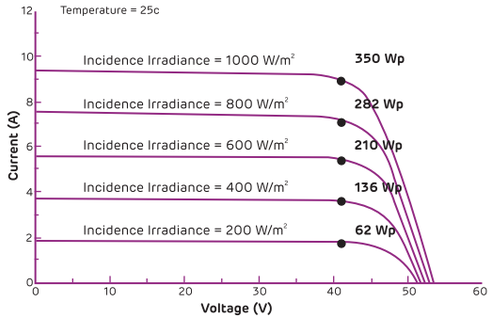
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 682 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 3% in first year
<- 0.40% / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

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- The electrical data given here is for reference purpose only.
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** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

TIER-1
BANKABLE MODULES

# ELAN Series

## 12BB N-Type PERT Bifacial PV Modules

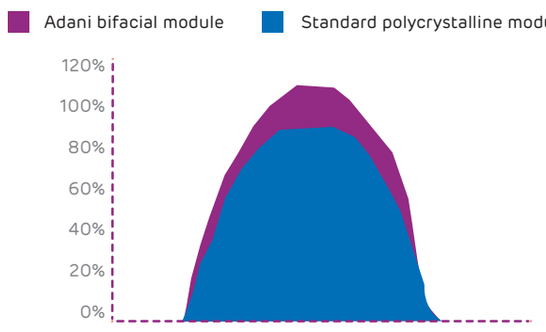
**ASB-7-AAA (AAA=370-390) | 72 Cells | 370-390 Wp**

### Highlights

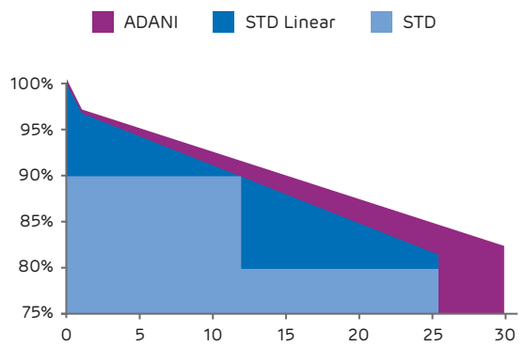
- 12BB cell technology - excellent anti-microcracking performance with more balanced interior stress; grid pattern current path, lower cost
- Up to 500 Wp at 30% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 82% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Near zero LID, PID free, 1500 V module
- High insulation resistance due to special raw materials

| Reduces installation costs by 2% | Reduces transport costs by 4% | Reduces land costs by 4% | Reduces BOS costs by 5% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | |
|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **370** | **375** | **380** | **385** | **390** |
| Maximum voltage, Vmpp (V) | 39.02 | 39.39 | 39.78 | 40.15 | 40.53 |
| Maximum current, Impp (A) | 9.50 | 9.54 | 9.59 | 9.63 | 9.67 |
| Open circuit voltage, Voc (V) | 46.99 | 47.13 | 47.28 | 47.42 | 47.56 |
| Short circuit current, Isc (A) | 9.96 | 10.11 | 10.14 | 10.21 | 10.29 |
| Module efficiency (%) | 18.34 | 18.58 | 18.83 | 19.08 | 19.33 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 390 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | | |
|---|---|---|---|---|---|
| Ground Reflectance | 14% | 18% | 22% | 26% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 445 | 460.2 | 475.8 | 491.4 | 507 |
| Maximum voltage, Vmpp (V) | 44.66 | 45.79 | 46.92 | 48.05 | 49.18 |
| Maximum current, Impp (A) | 10.13 | 10.25 | 10.37 | 10.49 | 10.62 |
| Open circuit voltage, Voc (V) | 49.12 | 49.55 | 49.97 | 50.40 | 50.83 |
| Short circuit current, Isc (A) | 11.11 | 11.34 | 11.56 | 11.79 | 12.01 |
| Module efficiency (%) | 22.05 | 22.80 | 23.54 | 24.28 | 25.03 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

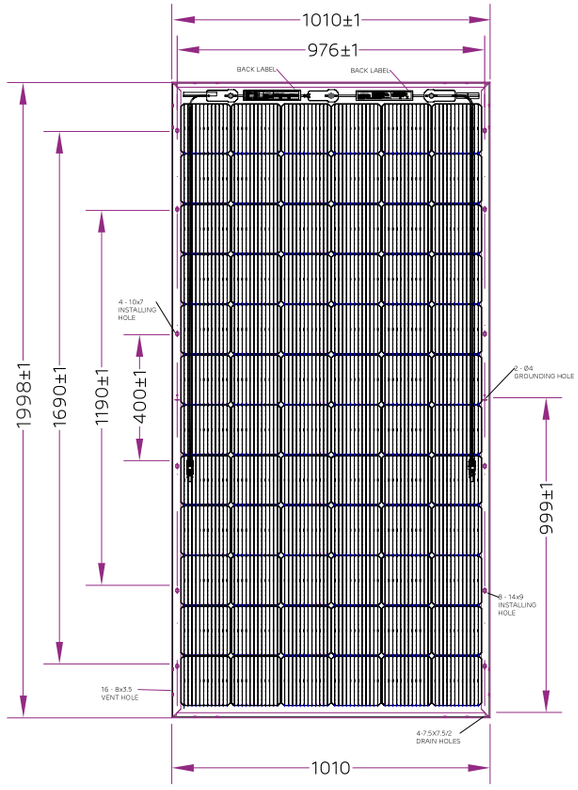
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 40 mm |
| Weight | 24 kg (40mm) |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 3.2 mm |
| Cells | 72 mono-crystalline N-type bifacial PERT solar cells; 12BB bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | transparent backsheet |
| Frame | Anodized Frame (35 X 28) |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

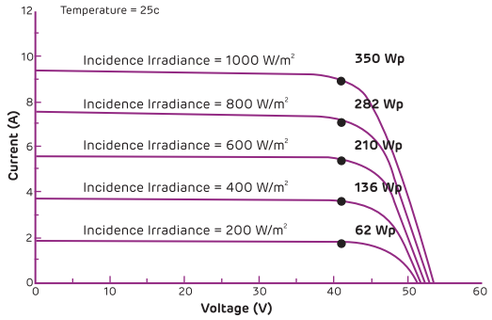
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 0.8 % in first year <- 0.62 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

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** Warranty:
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*Caution: Please read safety and installation instructions before using the product.

TIER-1
BANKABLE MODULES

# ELAN Series

## 12BB P-Type PERC Bifacial PV Modules

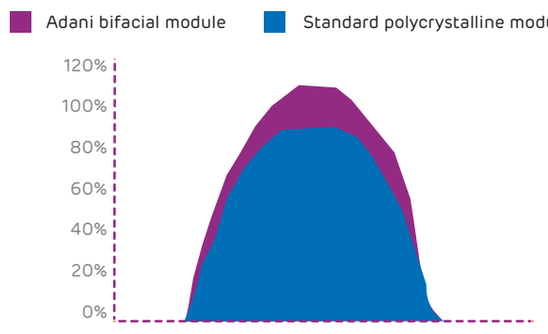
**ASB-7-AAA (AAA=380-400) | 72 Cells | 380-400 Wp**

### Highlights

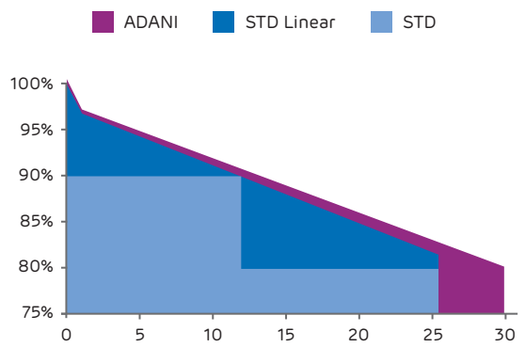
- 12BB cell technology - excellent anti-microcracking performance with more balanced interior stress; grid pattern current path, lower cost
- Up to 500 Wp at 30% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 65% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Least Degradation for LID & LeTID
- Higher performance at wavelength (1100-1200nm)

| Reduces installation costs by 2% | Reduces transport costs by 4% | Reduces land costs by 4% | Reduces BOS costs by 5% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



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# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | |
|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **380** | **385** | **390** | **395** | **400** |
| Maximum voltage, Vmpp (V) | 39.78 | 40.15 | 40.53 | 40.90 | 41.28 |
| Maximum current, Impp (A) | 9.59 | 9.63 | 9.67 | 9.72 | 9.76 |
| Open circuit voltage, Voc (V) | 47.28 | 47.42 | 47.56 | 47.70 | 47.84 |
| Short circuit current, Isc (A) | 10.14 | 10.21 | 10.29 | 10.36 | 10.44 |
| Module efficiency (%) | 18.64 | 18.89 | 19.13 | 19.38 | 19.63 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 390 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | | |
|---|---|---|---|---|---|
| Ground Reflectance | 14% | 18% | 22% | 26% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 445 | 460.2 | 475.8 | 491.4 | 507 |
| Maximum voltage, Vmpp (V) | 44.66 | 45.79 | 46.92 | 48.05 | 49.18 |
| Maximum current, Impp (A) | 10.13 | 10.25 | 10.37 | 10.49 | 10.62 |
| Open circuit voltage, Voc (V) | 49.12 | 49.55 | 49.97 | 50.40 | 50.83 |
| Short circuit current, Isc (A) | 11.11 | 11.34 | 11.56 | 11.79 | 12.01 |
| Module efficiency (%) | 22.05 | 22.80 | 23.54 | 24.28 | 25.03 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

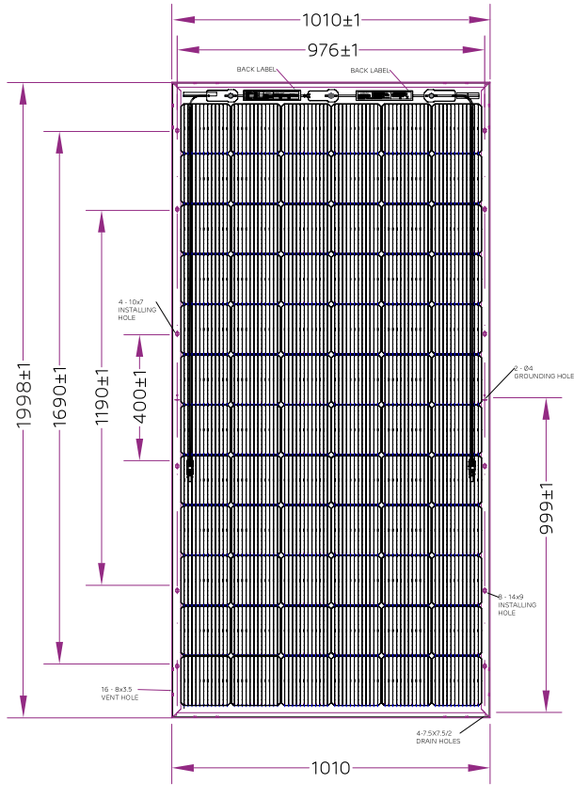
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 1998 mm |
| Width | 1010 mm |
| Height | 40 mm |
| Weight | 24 kg (40mm) |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass 3.2 mm |
| Cells | 72 mono-crystalline P-type PERC bifacial solar cells; 12BB bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | transparent backsheet |
| Frame | Anodized Frame (35 X 28) |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

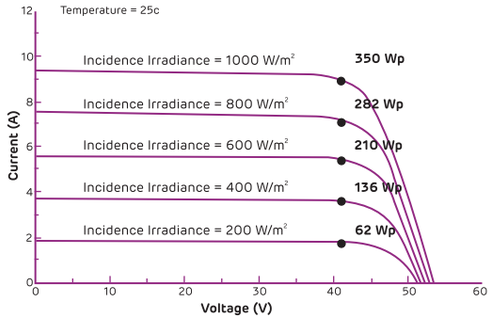
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-7-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 3 % in first year
<- 0.62 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

*All certifications are under process

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- Please confirm your exact requirements with the sales representative while placing your order.

** Warranty:
Please read Adani solar warranty documents thoroughly.

*Caution: Please read safety and installation instructions before using the product.

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# ELAN Series

## 9BB N-Type PERT Half Cut Bifacial PV modules

TIER-1 BANKABLE MODULES

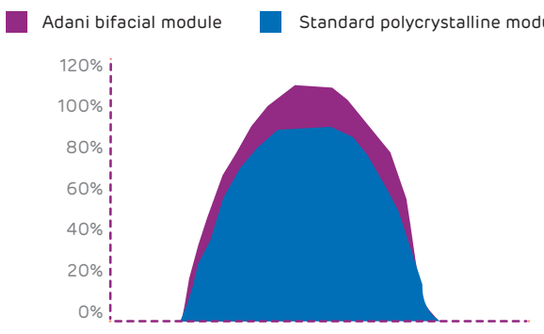
**ASB-14-AAA (AAA=370-395) | 144 Cells | 370-395 Wp**

### Highlights

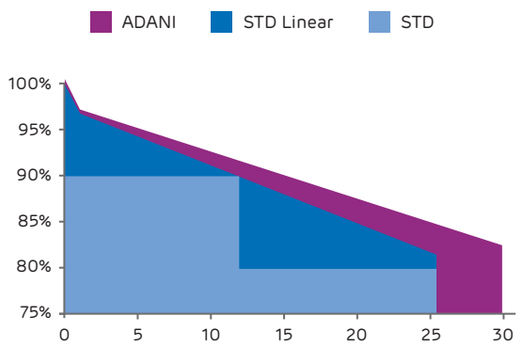
- 9BB cell technology - excellent anti-microcracking performance with more balanced interior stress; grid pattern current path, lower cost
- Up to 500 Wp at 30% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 82% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
- Near Zero LID, PID, 1500 V Module
- Light-weight design for easy installation and low BOS cost

| Reduces installation costs by 2% | Reduces transport costs by 4% | Reduces land costs by 4% | Reduces BOS costs by 5% |
|---|---|---|---|

Higher generation due to bifacial technology




Bifacial technology



# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | | |
|---|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **370** | **375** | **380** | **385** | **390** | **395** |
| Maximum voltage, Vmpp (V) | 39.41 | 39.71 | 40.01 | 40.30 | 40.53 | 40.90 |
| Maximum current, Impp (A) | 9.50 | 9.54 | 9.59 | 9.63 | 9.67 | 9.72 |
| Open circuit voltage, Voc (V) | 47.15 | 47.26 | 47.37 | 47.48 | 47.56 | 47.70 |
| Short circuit current, Isc (A) | 10.09 | 10.14 | 10.20 | 10.25 | 10.29 | 10.36 |
| Module efficiency (%) | 18.78 | 18.94 | 19.10 | 19.26 | 19.33 | 19.57 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 390 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 450 | 470 | 490 | 510 |
| Maximum voltage, Vmpp (V) | 44.70 | 46.10 | 47.51 | 48.92 |
| Maximum current, Impp (A) | 10.19 | 10.36 | 10.53 | 10.71 |
| Open circuit voltage, Voc (V) | 49.12 | 49.65 | 50.18 | 50.70 |
| Short circuit current, Isc (A) | 11.09 | 11.36 | 11.63 | 11.90 |
| Module efficiency (%) | 21.89 | 22.76 | 23.64 | 24.51 |

* Power gain from rear side depends upon the ground reflectance (Albedo) & Bifaciality factor.

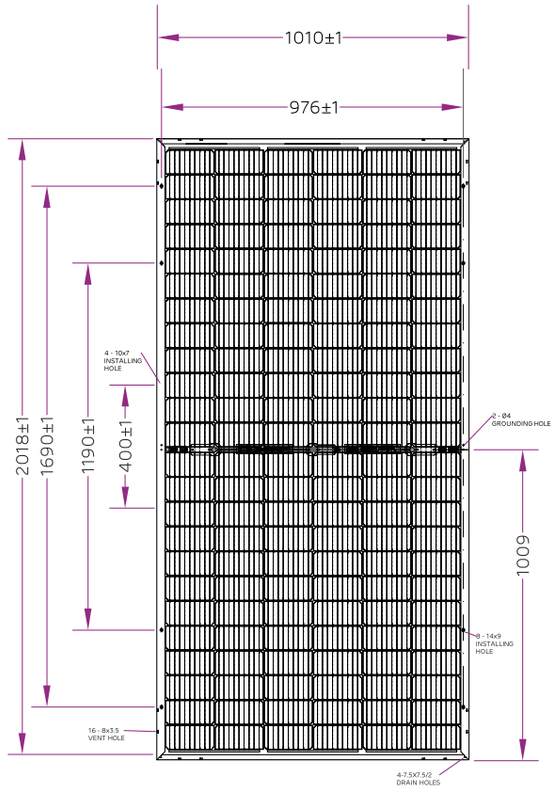
## Temperature co-efficients (TC) and permissible operating conditions

| | |
|---|---|
| TC of open circuit voltage ( β ) | -0.31% /°C |
| TC of short circuit current ( α ) | 0.065 % /°C |
| TC of power (γ) | -0.40 % /°C |
| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
| Length | 2018 mm |
| Width | 1010 mm |
| Height | 40 mm |
| Weight | 24 kg (40mm) |
| Junction box | IP67; junction box, MC4 compatible |
| Cable and connectors | 1200 mm length cable, MC4 & Amphenol compatible connectors |
| Application class | Class A (Safety class II) |
| Superstrate | High transmittance ARC glass |
| Cells | 144 mono-crystalline N-type bifiacial solar cells; 9BB bus bars |
| Encapsulation | Low shrinkage PID free encapsulant POE |
| Substrate | Transparent Backsheet |
| Frame | Anodized Frame |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

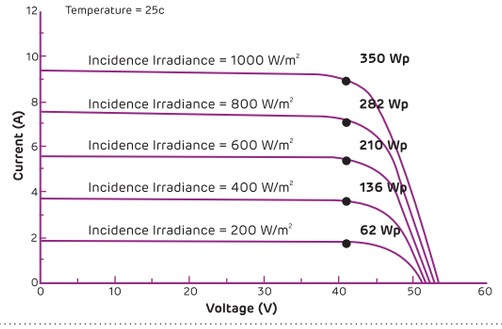
## Dimensions in mm




## Packing information

| Container | 40'HC |
|---|---|
| Pallets / Container | 22 |
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-14-AAA




## Warranty and certifications

**Product warranty****
12 years of product warranty

**Performance guarantee****
Power degradation <- 0.8 % in first year <- 0.62 % / year in 2-30 years

**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

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# ELAN Series

## 9BB P-Type Half Cut PERC Bifacial PV modules

TIER-1 BANKABLE MODULES

**ASB-14-AAA (AAA=385-405) | 144 Cells | 385-405 Wp**

### Highlights

- 9BB cell technology - excellent anti-microcracking performance with more balanced interior stress; grid pattern current path, lower cost
- Up to 500 Wp at 30% ground reflectivity
- Characterised for 1000W/m2 & 200W/m2 on the front and rear side respectively
- Up to 65% bifaciality factor
- 2*IEC testing to ensure extremely high reliability of PV modules
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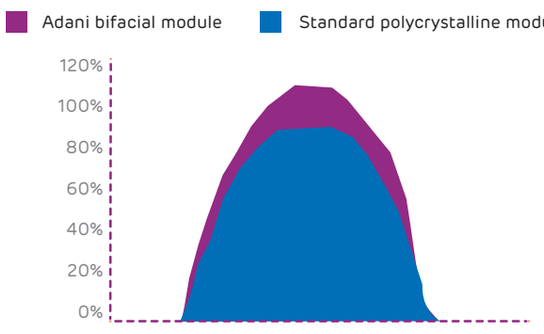
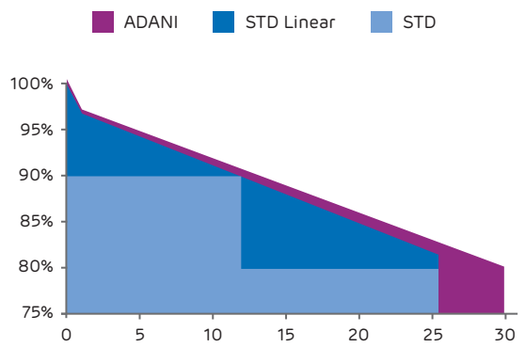
Higher generation due to bifacial technology




Bifacial technology



# Technical Data

## Electrical data – All data measured to STC*

| Electrical Specification | Only front (STC) | | | | |
|---|---|---|---|---|---|
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | **385** | **390** | **395** | **400** | **405** |
| Maximum voltage, Vmpp (V) | 40.15 | 40.53 | 40.90 | 41.28 | 41.66 |
| Maximum current, Impp (A) | 9.63 | 9.67 | 9.72 | 9.76 | 9.80 |
| Open circuit voltage, Voc (V) | 47.42 | 47.56 | 47.70 | 47.84 | 47.99 |
| Short circuit current, Isc (A) | 10.21 | 10.29 | 10.36 | 10.44 | 10.51 |
| Module efficiency (%) | 18.89 | 19.13 | 19.38 | 19.63 | 19.87 |

*STC: Irradiance 1000 W/m², cell temperature 25°C, air mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5 % at 200 W/m² according to EN 60904-1. Except Pmpp, all other parameters have a tolerance of +/-3 %, measurement uncertainty <3 %

## Electrical Characteristics with different rear side power gain (Reference 390 Wp Front)

| Electrical Specification | Pmax gain from rear side* | | | |
|---|---|---|---|---|
| Ground Reflectance | 15% | 20% | 25% | 30% |
| Peak power, (0 ~+ 4.99 Wp) Pmax(Wp) | 450 | 470 | 490 | 510 |
| Maximum voltage, Vmpp (V) | 44.70 | 46.10 | 47.51 | 48.92 |
| Maximum current, Impp (A) | 10.19 | 10.36 | 10.53 | 10.71 |
| Open circuit voltage, Voc (V) | 49.12 | 49.65 | 50.18 | 50.70 |
| Short circuit current, Isc (A) | 11.09 | 11.36 | 11.63 | 11.90 |
| Module efficiency (%) | 21.89 | 22.76 | 23.64 | 24.51 |

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| Maximum system voltage | 1500 V (IEC & UL) |
| NOCT | 44°C ± 2°C |
| Temperature range | -40°C to + 85°C |

## Mechanical data

| | |
|---|---|
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| Width | 1010 mm |
| Height | 40 mm |
| Weight | 24 kg (40mm) |
| Junction box | IP67; junction box, MC4 compatible |
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| Superstrate | High transmittance ARC glass |
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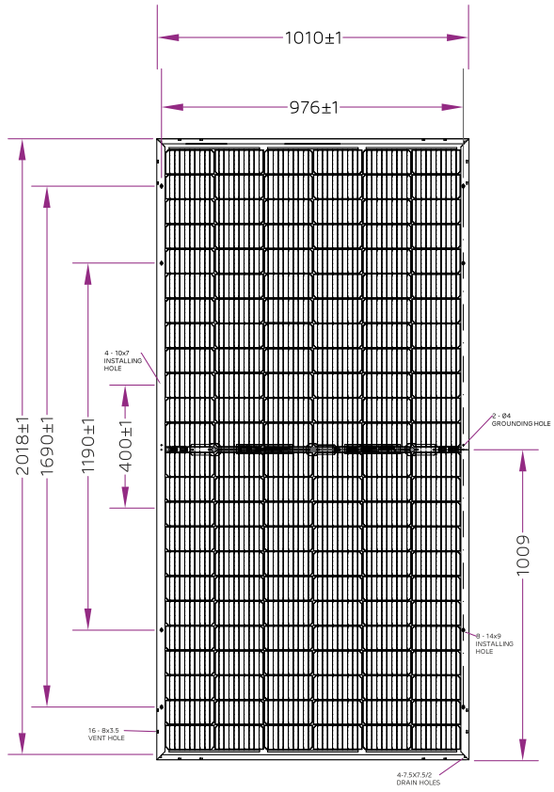
| Substrate | Transparent Backsheet |
| Frame | Anodized Frame |
| Mechanical load test as per IEC & UL | 5400 Pa-front; 2400 Pa-back |
| Maximum series fuse rating | 20 A |

## Dimensions in mm




## Packing information

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|---|---|
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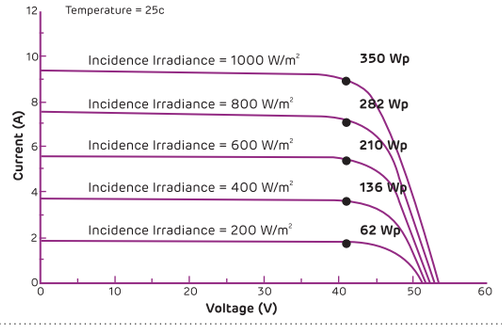
| Pieces / Container | 594 |

## Multi irradiance curve for ASB-14-AAA

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**Performance guarantee****
Power degradation <- 3 % in first year
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**Approvals and certificates* :** IEC 61215 Ed2, IEC 61730, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62782, IEC 60068-2-68, IEC 61853

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