



enel x



Peñalolén
Crece para tod@s



Agencia de
Sostenibilidad
Energética

Experiencia en Peñalolén

Proyectos de Eficiencia Energética y ERNC

- Apuntando al plan nacional de eficiencia energética para alcanzar la descarbonización y disminución de consumos energéticos, las alianzas público-privadas permiten la implementación de proyectos de eficiencia energética y de energías renovables por medio de diversos métodos de financiamiento.



- PROYECTO: EFICIENCIA ENERGÉTICA Y ENERGÍAS RENOVABLES CORPORACION DE DEPORTES PEÑALOEN
- COMUNA: PEÑALOEN
- TECNOLOGIA IMPLEMENTADA: PANELES FOTOVOLTAICOS
BOMBAS DE CALOR PARA PISCINA
BOMBAS DE CALOR ACS
LUMINARIAS LED
- INVERSION: \$235 MILLONES
- AHORRO: \$42.3 MILLONES
- AHORRO CO2 EQ: 221 TON CO2/AÑO



- 13 bombas de calor de ACS tecnología All In One de 300 lt de capacidad
- 2 bombas de calor de 42 kW térmicos
- Acumulador existente de 2000L



- 3 bombas de calor de 50 kW c/u térmicos para piscina semi-olímpica
- 1 bomba de calor de 13 kW térmicos para piscina de niños



- Sistema fotovoltaico de 25,9 kWp compuesto por 72 paneles FV de 360 kWp
- Inversor 25 kW marca SMA



- Cambio de luminarias a tecnologías LED un total de 417 luminarias
- Potencia total LED de 33,6 kW

Instalación de Plantas Fotovoltaicas con paneles rígidos



Instalación de energía solar Fotovoltaica con paneles semiflexibles para lugares donde la carga de la techumbres no acepta la tecnología rígida y sus accesorios. Muros, estanques, etc.

**LIGHTWEIGHT
FLEXIBLE SOLAR MODULE**

25.1%
Efficiency up to

10 YEAR
Quality warranty

25 YEAR
Performance warranty

- 

Light Weight, Thinness

3.1kg and 3mm thickness, match various requirements for weak roof projects.



Convenient Installation

Easy installation and convenient transportation with lower cost.



BI-FACIAL Flexible Tech

Double-sided power generation efficiency and gain, offering energy conversion up to 25.1%.



Ultra Flexible

High quality and efficiency TOPCON N type solar cells encapsulated by advanced organic polymer encapsulation materials;
Minimum bending radius of 0.3m;
Fit all kinds of curved surface perfectly.



Customizable

Customized designs for different applications.

[illegible]

Arquitectura BIPV

SOLAR ROOF TILES

Product Features

Superior Waterproof Performance

Lightweight

Easy Installation & Construction

Standard Tile Dimensions

05

SOLAR ROOF TILES

ESM-R12/8W

25.1%

Efficiency up to

10 YEAR

Quality warranty

25 YEAR

Performance warranty

Superior Waterproof Performance

Highly resistant to water infiltration
Durable in extreme weather
Ensures long-term roof protection

Lightweight Design

Only 1.3KG
Reduces structural load
Easy to transport and handle

Easy Installation & Construction

Quick installation
Compatible with standard roofing methods
Saves time and labor costs

Characteristics(STC)

Module Type	ESM-R12W FULL BLACK	ESM-R8W TERRA COTTA
Pmax	12W	8W
Voc	3.42V	3.42V
Isc	4.51A	3.10A
Vmpp	2.9V	2.9V
Imp	4.26A	2.76A
Weight	1.3kg	1.3kg
Product size	400*300*39mm	
Cell Size	210*52.5mm	
Dimension	930*1300*1900mm	

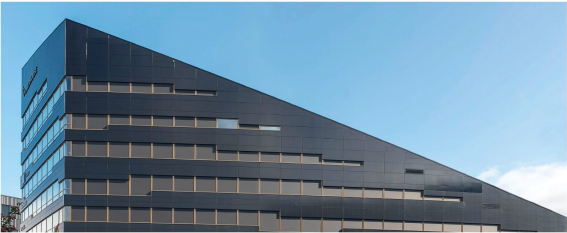
06

TUBSA

EL FUTURO DE LA ENERGIA

SOCIO DE
ANESCO
CHILE A.G.

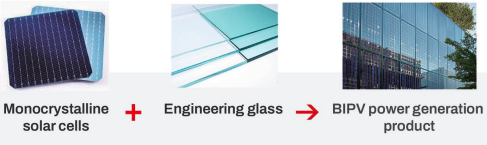
Arquitectura BIPV



SOLAR FACADE

Einnova Solar Facade is a testament to the harmony of form and function. The elegance of architectural cladding meets the power of BIPVs, fusing aesthetic design, solar power, and unparalleled performance. Our innovative Solar Facade, is crafted to seamlessly replace your building's facade while harnessing the power of the sun.

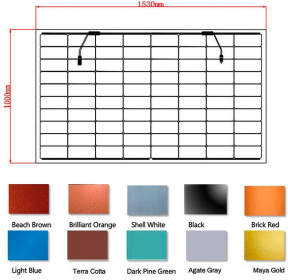
EINNOVA MONOCRYSTALLINE BIPV PRODUCT FEATURES



Monocrystalline BIPV combines the power generation monocrystalline solar cells and engineering laminated glass to form a double-glass structure. The product integrates the dual advantages of monocrystalline solar energy and engineering laminated glass.

- New Green Building Materials**
It meets the requirements of building materials and has the same lifespan as the building.
- High Efficiency**
High conversion efficiency >20%, more energy-saving.
- Customizable**
Color, light transmittance, size, thickness, shape etc. can be customized and adapted to the installation method of building walls to meet architectural design needs.
- Safe**
Thickened tempered glass, Class A fireproof, high strength and corrosion resistance, high temperature and humidity resistance, etc., suitable for extreme weather.

BIPV FACADE MODEL 1



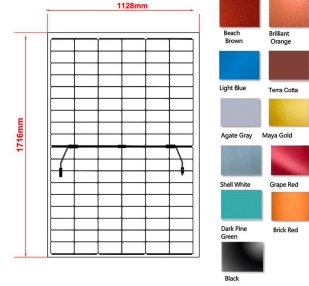
Technical Parameter under STC		
Product Size	1530*1000*7.5(mm)	
Product Color	Black	Terra Cotta
Back Sheet Color	Black	Black
Pmax (W)	270	215
Power Tolerance	±3%	±3%
Power per m²	176	140
Weight	26.5	26.5
Cell Coverage(%)	86	86

BIPV FACADE MODEL 2



Technical Parameter under STC		
Product Size	1160*400*7.5(mm)	
Product Color	Black	Shell White
Back Sheet Color	Black	Black
Pmax (W)	80	40
Power Tolerance	±3%	±3%
Power per m²	172	86
Weight	8.5	8.5
Cell Coverage(%)	85	85

BIPV FACADE MODEL 3



Technical Parameter under STC		
Product Size	1530*1000*7.5(mm)	
Product Color	Black	Terra Cotta
Back Sheet Color	Black	Black
Pmax (W)	360	310
Power Tolerance	±3%	±3%
Power per m²	184	158
Weight	34	34
Cell Coverage(%)	91.5	91.5

Paneles transitables, veredas Fotovoltaicas.

SOLAR PAVEMENT

The solar pavement is a new emerging technology with the function of generating electricity and providing electrical supply for transportation infrastructures and/or facilities.

Einnova solar pavement solution is an innovative, energy-generating paver with an in-built solar panel available in different sizes and materials to cater for different kinds of roadways.

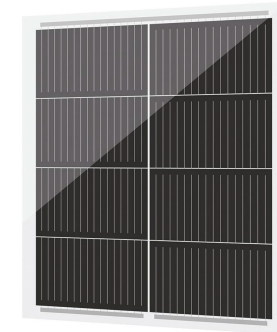
Features and Benefits

- Anti-slip & Anti-scratch
- Aesthetic and space-saving design
- Easy for installation and maintenance
- Various sizes, shapes and designs available for customization.

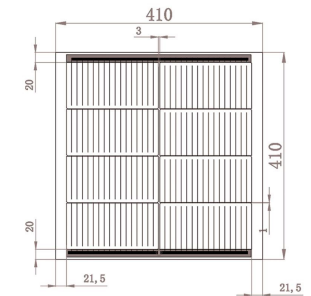


Characteristics(STC)

Model Type	ESM-30	ESM-31
Pmax	30	31
Voc	5.67±3%	5.73±3%
Isc	6.50±3%	6.68±3%
Vmpp	4.92	4.97
Impp	6.1	6.24



Diagrams



Paneles transparentes

ESM-260 TRANSPARENT PV

182mm Bifacial | Transparent Mono | Half Cell PV Module

Mechanical Specifications

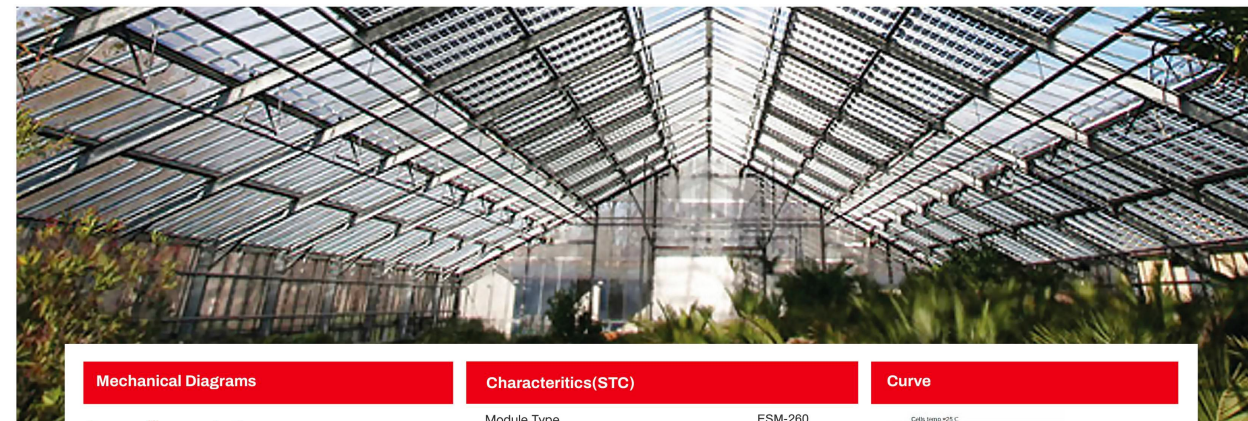
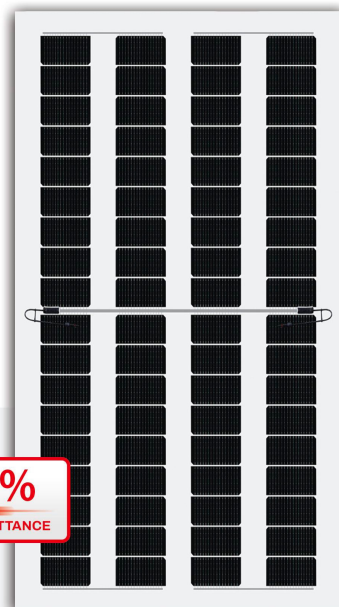
Dimensions	1722*1134*30mm	IEC61215(2016), IEC61730(2016)
Weight	19kgs	ISO9001:2015: Quality management system
Solar Cells	Mono crystalline 182mm (4x16pcs)	ISO14001:2015: Environmental management system
Front Glass	3.2mm	ISO45001:2018: Occupational health and safety management system

Long and reliable quality assurance

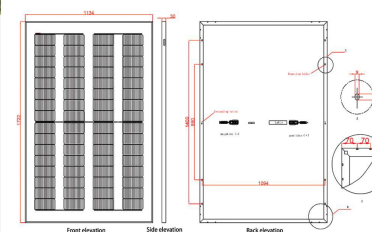
- MBB Technology Half Cut Solar Cell
- Fire Class A
- Strengthened Mechanical Load

- High Energy Performance
- 100% Inspection 30years Guarantee
- Advanced Bifacial Efficiency

40%
TRANSMITTANCE



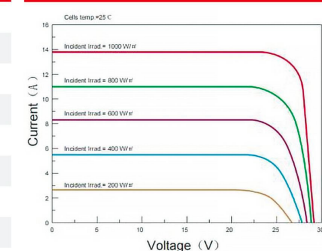
Mechanical Diagrams



Characteritics(STC)

Module Type	ESM-260
	STC
MaximumPower-Pmax(W)	260
Open Circuit Voltage - Voc(V)	23.35
Short- CircuitCurrent -Isc(A)	13.94
Voltage atPmax -Vmp(V)	19.59
Current atPmax -Imp(A)	13.27
ModuleEfficiency - ηm(%)	9.55

Curve

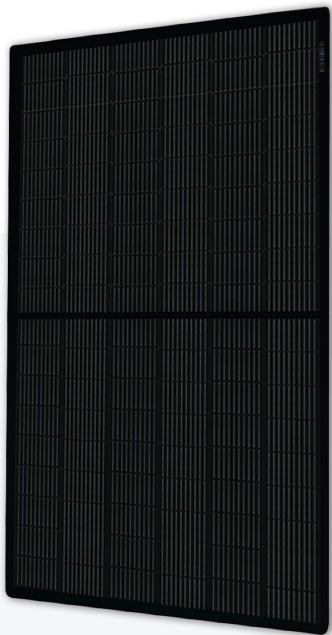


Paneles antireflejo.

ANTI-GLARE SOLAR PANEL

0~+5% POWER TOLERANCE

High efficiency TOPCon N - type solar module



Strong Mechanical Strength

Passes the wind load test of 2400Pa and the snow load test of 5400Pa



Lower attenuation

N-type, Components have better reliability and lower LID/LETID attenuation



Harsh environmental adaptation

Third party certification for salt spray and ammonia corrosion tests



PID resistance

The attenuation probability of PID phenomenon is minimized through solar cell production technology optimization and raw material control



Uses a special coating or surface treatment

Uses a special coating or surface treatment to diffuse light and reduce reflections. This makes the glass easier to view in bright environments by minimizing glare from ambient light sources.

19



Electrical Parameters

Model Type	ESM-435T		ESM-440T		ESM-445T		ESM-450T		ESM-455T	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	435	329	440	333	445	337	450	340	455	345
Open Circuit Voltage (Voc)	40.02	38.24	40.31	38.52	40.60	38.80	40.90	39.04	41.20	39.28
Short Circuit Current (Isc)	13.58	10.90	13.64	10.91	13.70	10.91	13.76	10.92	13.82	10.93
Maximum Power Voltage (Vmp)	33.14	30.99	33.44	31.27	33.75	31.56	34.05	31.84	34.34	32.11
Maximum Power Current (Imp)	13.13	10.62	13.16	10.64	13.19	10.67	13.22	10.69	13.25	10.72
Module Efficiency - ηm (%)	22.27		22.53		22.78		23.04		23.30	

20

Paneles de colores.

TERRACOTTA COLORED PANEL-400W

0~+5W POWER TOLERANCE

Orange-terracotta colored glass and frame for special architectural requirements (similar to RAL 8007)*



A variety of colors available



Aesthetics and practicality



Transmittance customization



Construction-grade materials with the same life span as the building



Surface texture with low reflection is easy to clean



High strength, light, corrosion resistant

21

New Building Materials

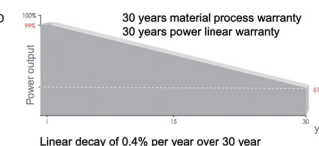
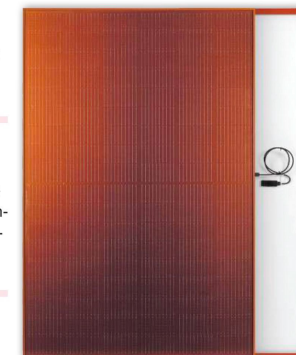
Fashion Aesthetic Photovoltaic technology perfect combination of architecture.

Fashion

Optimizing the mainstream material textures of the building materials market, grasping the annual fashion colors, and becoming the trend leader of photovoltaic building materials.

Aesthetic

Class A fire protection, can be used as roof tiles, window, curtain wall, etc., perfectly integrated into the architectural design.



QUALIFICATIONS & CERTIFICATES

IEC61215(2016), IEC61730(2016), ISO9001:2015: Quality management system
ISO14001:2015: Environmental management system,
ISO45001:2018: Occupational health and safety management system

Electrical Parameters

Model Type	ESM-400S	
	STC	NOCT
Maximum Power(Pmax)	400	316
Open Circuit Voltage(Voc)	33.25	32.97
Short Circuit Current(Isc)	12.03	9.59
MaximumPowerVoltage(Vmp)	39.10	38.70
MaximumPowerCurrent(Imp)	12.66	10.12
ModuleEfficiency - ηm(%)	20	

Specification

Cell type	mono-crystalline 182x93.4mm
Half-cell quantity	108pcs(6x18)
Cable	1000mm(can be customized)
Frame	Terracotta Anodized Aluminum Alloy
Glass	2+2mm, terracotta toughened and AR coated

GENERAL CHARACTERISTICS

Dimensions	1762x1134x30mm
Weight	21.7kg±3%
Safety Class	Class II

22

Hernán Urrutia
Hua@tubsa.cl