

SOLAR'S MOST TRUSTED



# REC PRODUCT BROCHURE





# REC - SOLAR'S MOST TRUSTED

## REC - A TRUSTED PARTNER

REC is an international, pioneering, solar energy company with Scandinavian heritage and a strong reputation across the world. Dedicated to bringing clean solar energy to everyone with our reliable and high-end products, 'Solar's Most Trusted' is not just a slogan – it is a promise we live up to every day in delivering outstanding, high quality products to our customers.

Founded in  
**1996**  
Headquarters  
in Norway

**46+**  
million panels  
manufactured

**13.4**  
gigawatts  
produced

**20.5+**  
million people  
powered at home

**11+**  
million tons  
of CO<sub>2</sub> reduced  
annually

REC's total global numbers at end-2022

## REC - EMPOWERING CONSUMERS

REC solar panels are already powering all parts of our lives - homes, schools, sport stadiums, hospitals, supermarkets and airports to name but a few. We believe solar is the present and future.

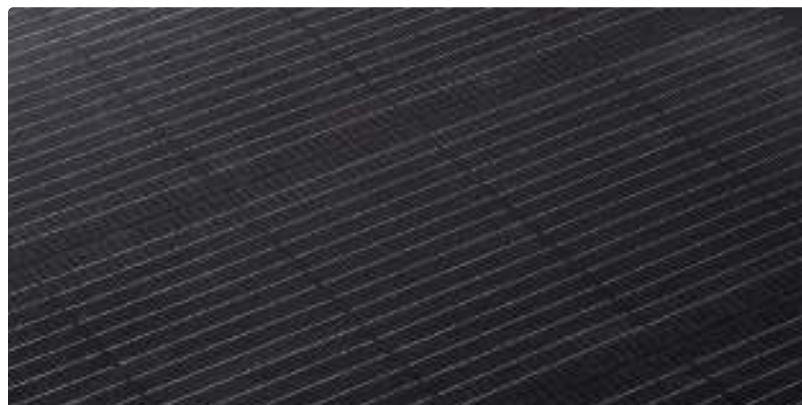


## REC - A DRIVEN FACILITATOR

REC makes it possible to power your own home or business independently and efficiently. With its iconic and cutting-edge products, REC helps you generate more energy and make significant savings on electricity bills.

## REC - A FRONT-RUNNING INNOVATOR

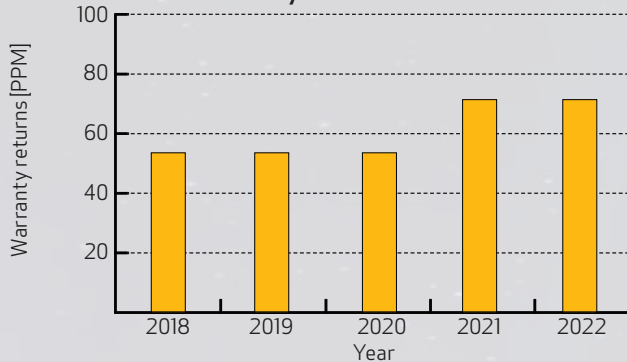
Innovation is in REC's DNA: constantly leading the way in high efficiency and powerful products. REC was the first company to introduce half-cut cell technology into multicrystalline panel production and the first to apply its iconic Twin design for extra power and efficiency.



# REC QUALITY

Supplying customers with the very best products is key to everything we do at REC. For us, this means high levels of quality at every stage of production, shipping and sales, right through to the final installation.

Warranty claims rate at REC



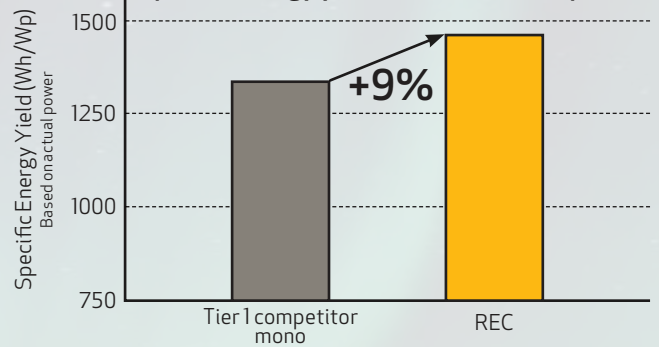
## LOW PRODUCT CLAIMS RATE

REC panels consistently demonstrate a low number of product defects according to published statistics. Calculated as parts per million panels produced, REC's claims rate is one of the lowest in solar.

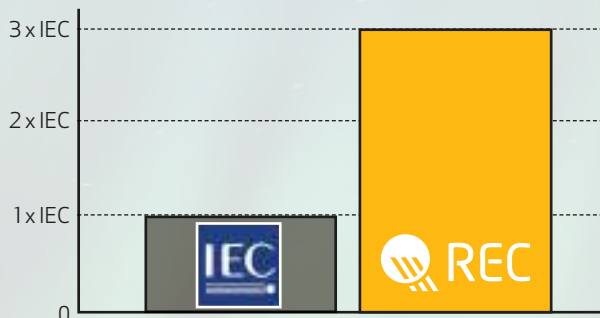
## OUTPERFORMING COMPETITORS

REC panels have been tested by third parties against competitors to directly compare performance. Testing shows REC outperforms competitive products in all climatic conditions, confirming our dedication to quality.

Specific energy yield over a 12-month period



Source: Comparative Outdoor Module Test, SERIS, Singapore, 2019



## INTERNAL QUALIFICATION TO 3 X IEC

Before even hitting the production lines, REC products are tested to at least 3 times the international quality standards for solar panels. This is central to our development program and ensures that all REC panels are robust enough for any climate.

## AWARDS & RECOGNITION



# REC WARRANTY

REC's ProTrust Warranty package covers product, performance, and labor – and is exclusively offered by REC Certified Solar Professional installers. This means unprecedented savings, more economic security, and greater energy autonomy for consumers.



## PRODUCT

Covers any panel defects and promises superior quality for at least 20 years. All panels are eligible for a **+5 year product warranty extension**, as part of the REC ProTrust Warranty.

## PERFORMANCE

Ensures that REC panels perform exactly as expected to – every year for 25 years. Higher warranted power and higher annual yields, enable greater ROI predictability.

## LABOR

Unique to the REC ProTrust Warranty, this gives added protection in the unlikely event that an REC panel needs to be serviced.

The table below provides an overview of REC's leading warranty by system size:

REC warranty type	REC PROTRUST WARRANTY		REC'S LEADING STANDARD WARRANTY
Installer group	Exclusive to REC Certified Solar Professional installers		All installers
System size	<25 kW	25-500 kW	All
Product Warranty	25 years*	25 years*	20 years
Labor Warranty	25 years*	10 years*	0
Performance Warranty	Minimum power in year 1	Year 2-25 maximum annual degradation	Guaranteed % of nameplate power in year 25
REC Alpha®	98.0%	0.25%	92.0%
REC TwinPeak 4 & 5		0.5%	86.0%

\*Installations must be registered via REC SunSnap app or REC Certified Solar Professional Portal

Visit the REC Download Center for details of each product's warranty conditions: [www.recgroup.com/warranty](http://www.recgroup.com/warranty)

# VENICE, ITALY

World's first REC Alpha installation.

**6.3 kW**

System  
size

**2019**

year  
installed

**6.2 TONS**

CO<sub>2</sub> emissions  
saved annually

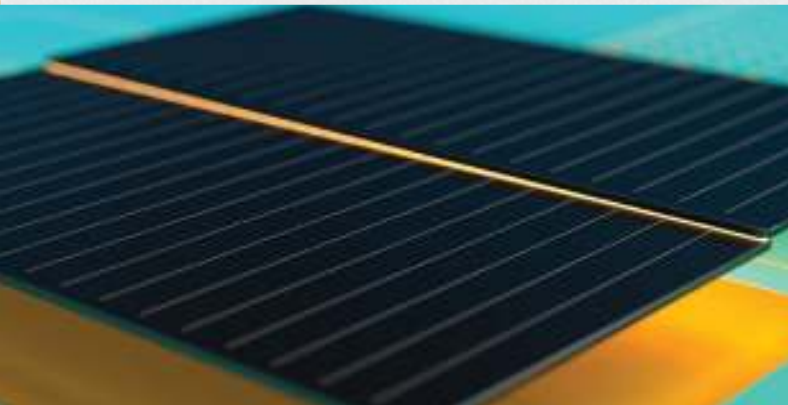


# REC ALPHA TECHNOLOGY

Leveraging the most cutting-edge cell architecture in combination with an advanced connection technology, REC Alpha panels push power, efficiency, and reliability to a whole new level. Delivering high power density and high efficiency, the technology in REC Alpha panels maximize power, savings and greatly increase the customer's energy autonomy.

## Heterojunction Cell Technology

A heterojunction cell combines all the advantages of crystalline and thin-film solar technologies in a single hybrid structure. This provides one of the most effective cell passivations on the market for high power and efficiency - even in hot climates and when the Sun shines strongest.



## Advanced Gapless Cell Connections

REC's gapless, solder-free cell connection technology provides protection from thermal stress during production for improved quality. Specially-developed with more than 1600 contact points per cell, REC Alpha cells dramatically improve current flow to produce even more power! The gapless cell connections means the cells slightly overlap to eliminate the space between them, increasing power density and achieving a higher efficiency while keeping the panel compact.

## REC's Twin Design

REC's iconic Twin Design delivers a significant power boost to REC Alpha Pure panels compared to conventional layouts, as well as improving performance in shaded conditions.

The REC Alpha Pure-R takes this principle even further by dividing than panel into four zones that mean even more output under shaded conditions.



## Super Strong Frame

With its distinctive frame, including two support bars across the rear, REC Alpha panels are able to withstand loads, e.g., snow, of up to 7000 Pa, making them stronger and more robust than competitive products. The innovative frame protects against deformation, increasing reliability and long-term high power.



# REC ALPHA® PURE SERIES

## 410 WP POWER

### Elegant looks in a lead-free panel

Full-black design with a gapless cell layout for an elegant and compelling rooftop panel choice

### Pack more power onto your rooftop space

- Most advanced cell structure for high efficiency
- High power level for maximum savings
- Gapless cell layout for high power density for more efficient use of available space

### Advanced gapless cell connection

- Low temperature production for longer-lasting quality
- Eliminates invasive soldering process
- Lead-free cells and gapless connections

### Leading temperature performance

- Leading temperature coefficient for more production in hot climates
- Keeps cells working efficiently, even at the hottest times

### Protects from initial drop in installed power

- N-type cell technology protects against light induced degradation (LID)
- You get the installed power you paid for with no drop-off

### Super strong frame

- Improved durability for a lifetime of high power
- 30 mm height for lightweight and compact installation
- Ensures long-lasting high power

### Exceptional quality

- Greatly reduced risk of defects through superior build quality
- State of the art, highly automated production

### Environmentally-friendly

- Lead-free, RoHS EU 2015/863 compliant
- Advanced technology minimizes carbon footprint

Dimensions:	1821 x 1016 x 30 mm (1.85 m <sup>2</sup> )
Weight:	20.5 kg
Efficiency:	22,2 %
Power Density:	222 W/m <sup>2</sup>
Max. System Voltage:	1000 V
Temperature Coefficient:	-0.24 %/°C



# REC ALPHA® PURE-R SERIES

## 430 WP POWER

### Higher power density in a practical size

Full-black design panel with a gapless cell layout for an elegant and compelling rooftop panel choice

#### More power for residential rooftops

- Most advanced cell structure for high efficiency
- Maximized power for maximum savings
- Gapless cell layout enable compact panel size for high power density and a better use of rooftop area
- 4 string sectors for more output under shaded conditions

#### Advanced gapless cell connection

- Low temperature production for longer-lasting quality
- Zero invasive soldering process
- Lead-free cells and gapless connections

#### Leading temperature performance

- Leading temperature coefficient for more production in hot climates
- Keeps cells working efficiently, even at the hottest times

#### Protects from initial drop in installed power

- N-type cell technology protects against light induced degradation (LID)
- You get the installed power you paid for with no drop-off

#### Super strong frame

- Better protection for cells for a lifetime of high power
- 30 mm height for lightweight and compact installation
- Ensures long-lasting high power

#### Exceptional quality

- Greatly reduced risk of defects through superior build quality
- State of the art, highly automated production

#### Environmentally-friendly

- Lead-free, RoHS EU 2015/863 compliant
- Advanced technology minimizes carbon footprint

Dimensions:	1730 x 1118 x 30 mm (1.93 m <sup>2</sup> )
Weight:	21.5 kg
Efficiency:	22,3 %
Power Density:	223 W/m <sup>2</sup>
Max. System Voltage:	1000 V
Temperature Coefficient:	-0.24 %/°C



# REC ALPHA® PURE-RX SERIES

## 470 WP POWER

### Higher power for rooftop installations

Full-black design panel with a gapless cell layout for an elegant and compelling rooftop panel choice

### More power for residential rooftops

- Most advanced cell structure for high efficiency
- Maximized power for maximum savings
- Gapless cell layout to pack more power into your installation
- 4 string sectors for more output under shaded conditions

### Advanced gapless cell connection

- Low temperature production for longer-lasting quality
- Zero invasive soldering process
- Gapless connections

### Leading temperature performance

- Leading temperature coefficient for more energy in hot climates
- Keeps cells working efficiently, even at the hottest times

### Protects from initial drop in installed power

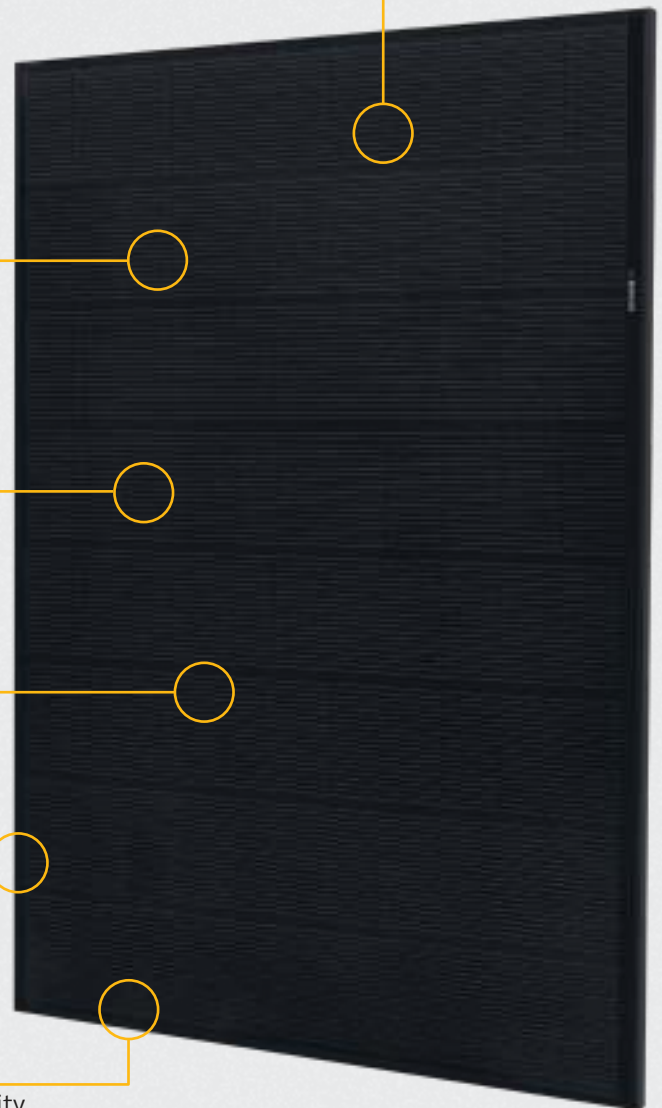
- N-type cell technology protects against light induced degradation
- You get the installed power you paid for with no drop-off

### Super strong frame

- Better protection for cells for a lifetime of high power
- 30 mm height for lightweight and compact installation
- Ensures long-lasting high power

### Exceptional quality

- Greatly reduced risk of defects through superior build quality
- State of the art, highly automated production



Dimensions:	1728 x 1205 x 30 mm (2.08 m <sup>2</sup> )
Weight:	22.7 kg
Efficiency:	22.6 %
Power Density:	226 W/m <sup>2</sup>
Max. System Voltage:	1000 V
Temperature Coefficient:	-0.24 %/°C



MUNICH, GERMANY

7.0 kW

System  
size

2019

year  
installed

6.9 TONS

CO<sub>2</sub> emissions  
saved annually



# CHÂTEAUNEUF DU RHÔNE, FRANCE

**36 kW**

System  
size

**2010**

year  
installed

**27 TONS**

CO<sub>2</sub> emissions  
saved annually

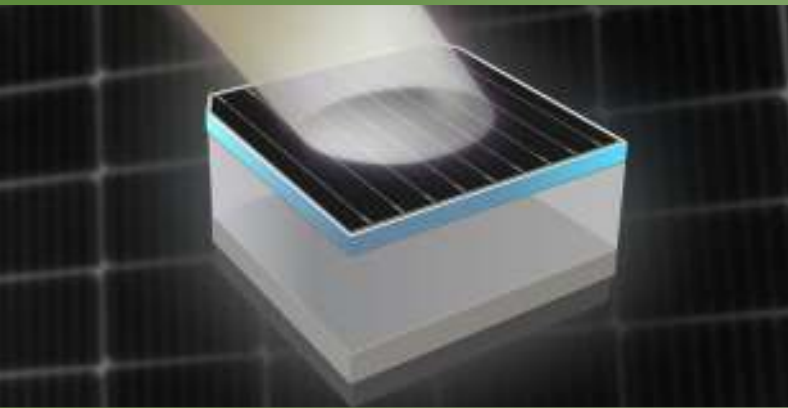


# REC TWIN DESIGN TECHNOLOGY

REC's Twin Design is an iconic advancement in crystalline solar panel technology that delivers a power boost of up to 20 Wp per panel compared to standard panels.

## Half-Cut Cells

REC's Twin cells are rectangular in shape, contrasting with standard full-square cells. Cutting cells this way reduces internal resistance, so cells work more efficiently and provide even more power than ever!

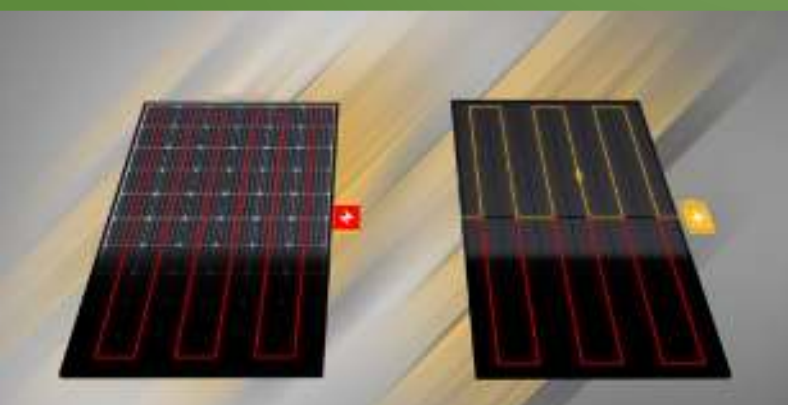
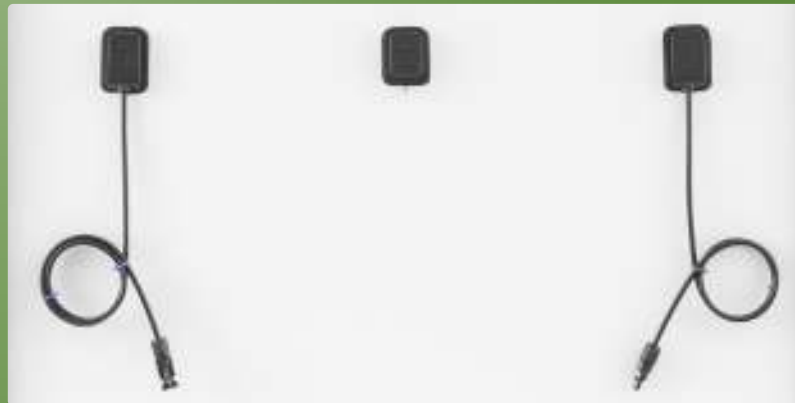


## PERC Technology

PERC is a special layer in the cell which helps keep it cooler and working more efficiently. It helps the cell absorb more light throughout the day, increasing production in low light conditions, e.g., under cloud and at dawn and dusk, for higher overall energy yield.

## Split Junction Box

The innovative 3-part junction box used in REC's Twin Design is key to the distinctive layout of our products. The smaller boxes keeping the cells around 15°C cooler than a single box. With less retained heat, the whole panel is more reliable and efficient.

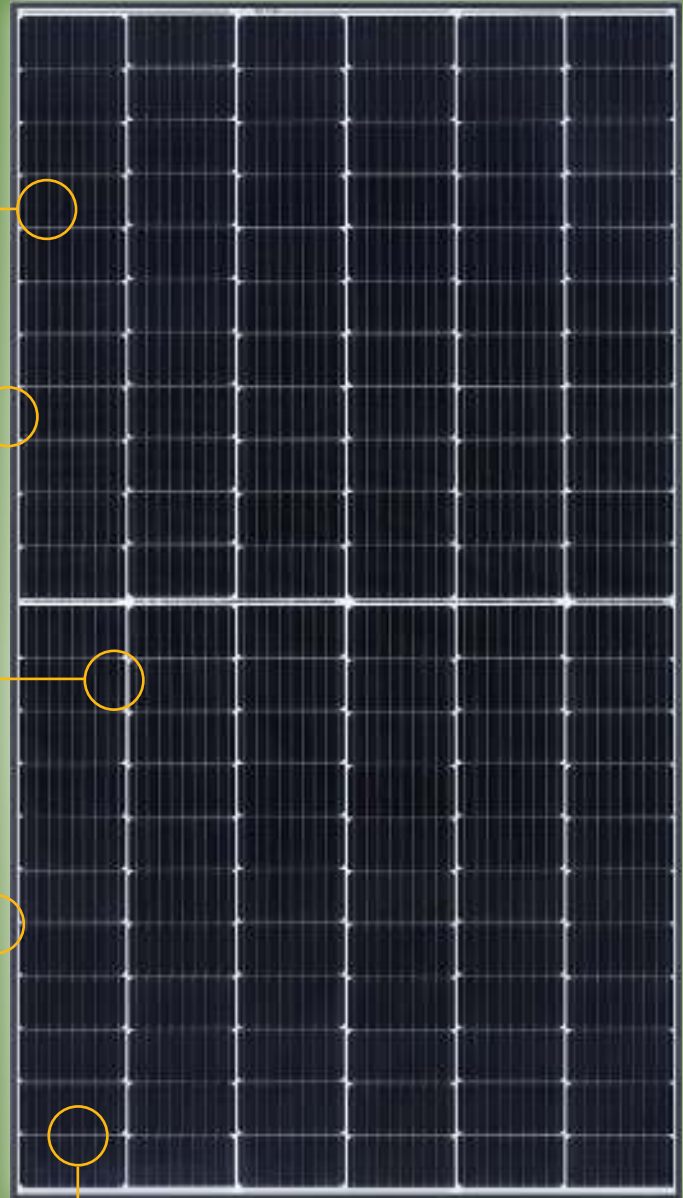


## Improved Performance When Shaded

Splitting the panel into two sections creates an advantage under certain types of shading e.g., between rows. Where a conventional panel fully stops generation even if only a small part is shaded, REC's Twin Design ensures continued production, improving overall yield.

# REC TWINPEAK 5 SERIES

## 410 WP POWER



### More power through reduced resistance

- 66 p-type monocrystalline cells for more light absorption
- Half-cut cells reduce resistance for higher power

### Darker appearance

- Monocrystalline cells for a dark color and high efficiency
- Reduced cell spacing for higher panel efficiency, a compact size and improved aesthetics

### Improved performance in shaded conditions

- REC's iconic Twin Design generates more energy
- When one half is shaded, the other half can still generate electricity

### Super strong frame

- Improved durability for a lifetime of high power
- 30 mm height for lightweight and compact installation

### Reliable production

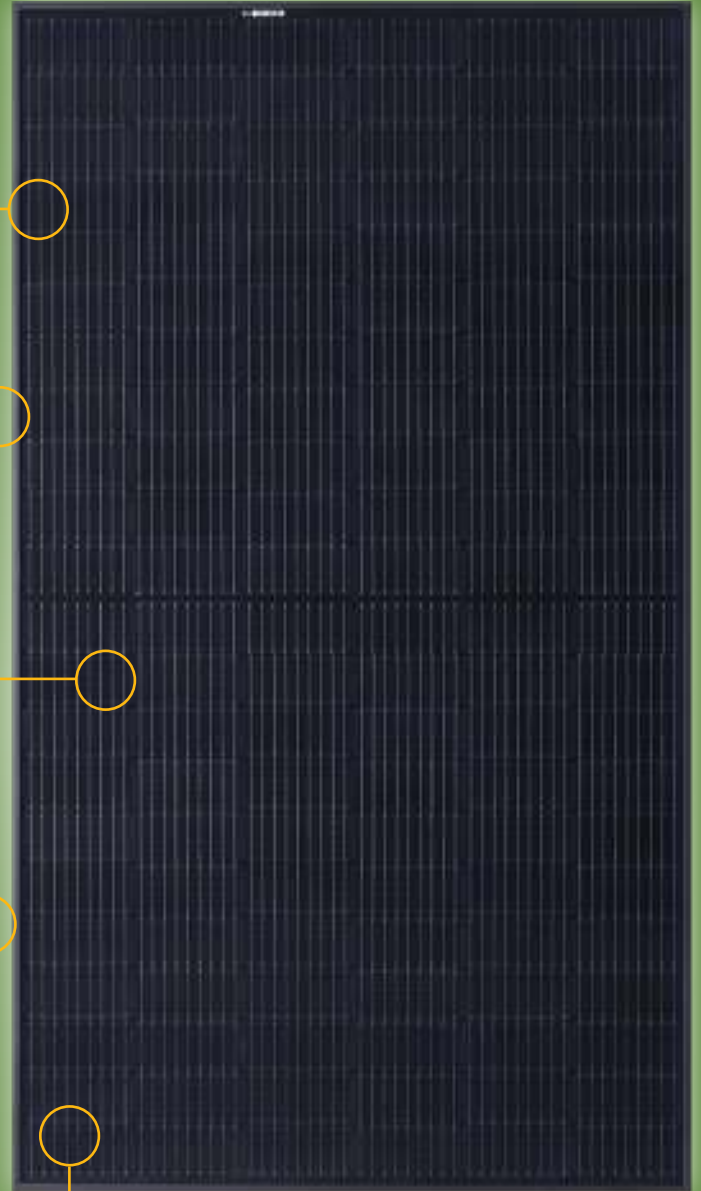
- Lower operating temperature for better reliability
- Reduced chance of defects due to lower operating temperature

Dimensions:	1899 x 1040 x 30 mm (1.97m <sup>2</sup> )
Weight:	21.6 kg
Efficiency:	20.8 %
Power Density:	208 W/m <sup>2</sup>
Max. System Voltage:	1000 V
Temperature Coefficient:	-0.34 %/°C



# REC TWINPEAK 5 BLACK SERIES

## 410 WP POWER



### More power through reduced resistance

- 66 p-type monocrystalline cells for more light absorption
- Half-cut cells reduce resistance for higher power

### Darker appearance

- Monocrystalline cells for a dark color and high efficiency
- Reduced cell spacing for higher panel efficiency, a compact size and improved aesthetics

### Improved performance in shaded conditions

- REC's iconic Twin Design generates more energy
- When one half is shaded, the other half can still generate electricity

### Super strong frame

- Improved durability for a lifetime of high power
- 30 mm height for lightweight and compact installation

### Reliable production

- Lower operating temperature for better reliability
- Reduced chance of defects due to lower operating temperature

Dimensions:	1899 x 1040 x 30 mm (1.97m <sup>2</sup> )
Weight:	21.6 kg
Efficiency:	20.8 %
Power Density:	208 W/m <sup>2</sup>
Max. System Voltage:	1000 V
Temperature Coefficient:	-0.34 %/°C



# REC REFERENCE INSTALLATIONS



SUPHANBURI, THAILAND  
REC PEAK ENERGY SERIES

<b>72 MW</b> System size	<b>2014</b> year installed	<b>110223 TONS</b> CO <sub>2</sub> emissions saved annually
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SCOTTSDALE, AZ, USA  
REC N-PEAK SERIES

<b>21.8 kW</b> System size	<b>2019</b> year installed	<b>25 TONS</b> CO <sub>2</sub> emissions saved annually
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BATTICALOA, SRI LANKA  
REC TWINPEAK 72 SERIES

<b>1.6 MW</b> System size	<b>2017</b> year installed	<b>1175 TONS</b> CO <sub>2</sub> emissions saved annually
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KAUA'I, HI, USA  
REC PEAK ENERGY SERIES

<b>14.5 MW</b> System size	<b>2015</b> year installed	<b>12731 TONS</b> CO <sub>2</sub> emissions saved annually
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COBBITTY, NSW, AUSTRALIA  
REC TWINPEAK 2 MONO SERIES

**10** kW  
System size

**2019**  
year installed

**16** TONS  
CO<sub>2</sub> emissions saved annually

SAN FRANCISCO, CA, USA  
REC TWINPEAK 2S 72 SERIES



**905** kW  
System size

**2019**  
year installed

**927** TONS  
CO<sub>2</sub> emissions saved annually



RUDAWA, POLAND  
REC TWINPEAK BLACK SERIES

**9.9** kW  
System size

**2016**  
year installed

**12** TONS  
CO<sub>2</sub> emissions saved annually

DEN BOSCH, NETHERLANDS  
REC PEAK ENERGY SERIES



**921** kW  
System size

**2013**  
year installed

**656** TONS  
CO<sub>2</sub> emissions saved annually

# REC CERTIFIED SOLAR PROFESSIONALS

The REC Certified Solar Professional Program was created with installers and end customers in mind, providing numerous advantages to both.

Not every installer can call themselves an 'REC Certified Solar Professional': members of the Program are carefully selected to undergo a unique installer certification program. Through this, we ensure solar installers are equipped with the know-how and best practices to install REC panels and can in turn, assure end customers that in addition to high-quality REC solar panels, they will receive a high-quality solar installation. For more information, visit: [www.recgroup.com/rcsp](http://www.recgroup.com/rcsp)



## QUALITY PRODUCT, QUALITY INSTALLATION

Knowing that not only is the panel of high quality, but also that the person installing it is highly skilled and trained, gives end customers greater peace of mind for the quality of their installation.

## ADDED COMFORT

Take comfort in knowing that your solar installer has been carefully selected, trained, and certified by REC. To be an 'REC Certified Solar Professional', the installer must be offering best-in-class service and reliability.

## EXTENDED WARRANTY

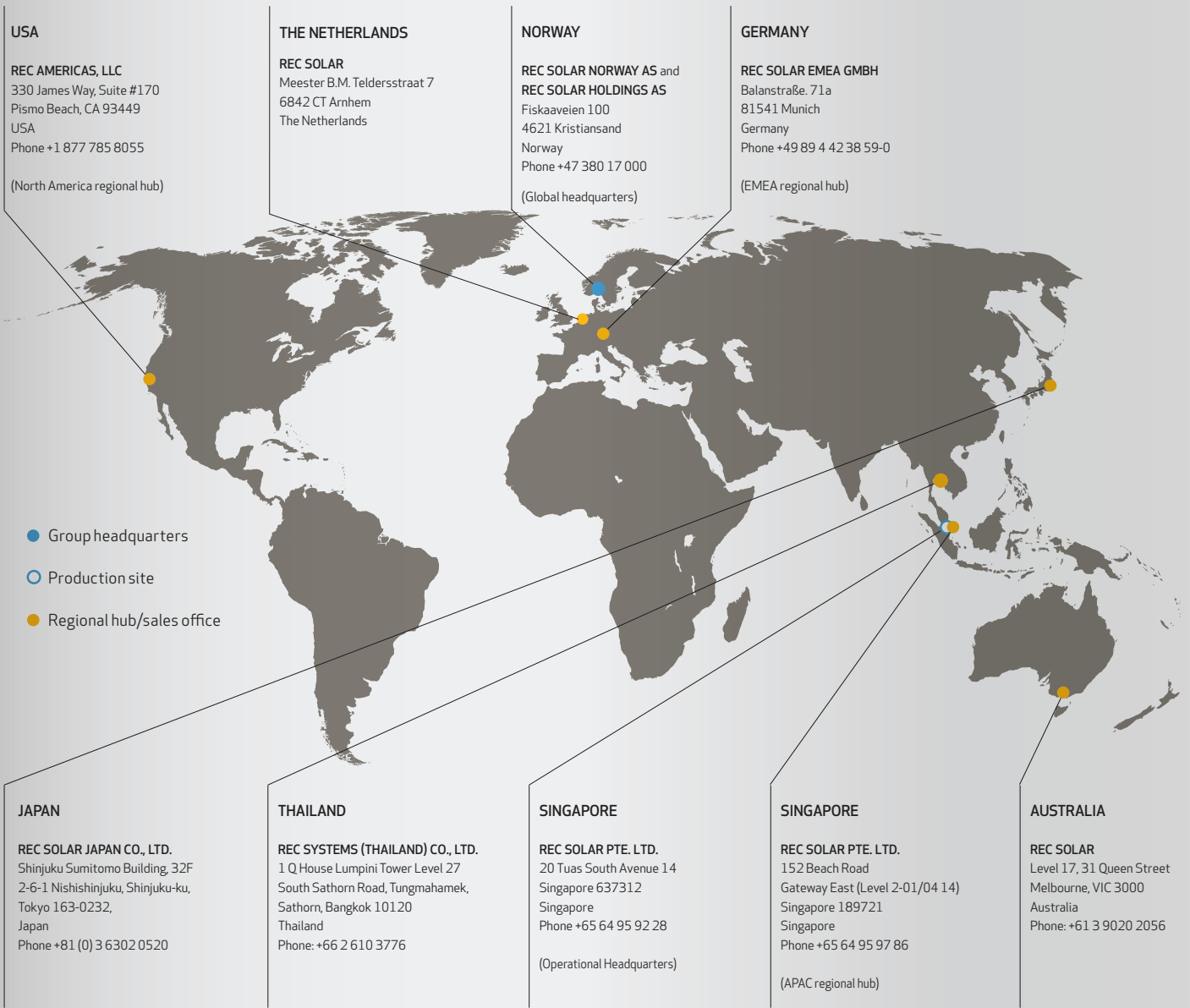
By choosing an REC Certified Solar Professional for your installation, you can benefit from REC's unique REC ProTrust Warranty package at no extra cost. The REC ProTrust Warranty gives you an extra 5 years product warranty cover (25 years total) and up to 25 year labor cover\* in addition to REC's 25-year performance warranty.



\* Conditions apply. See [www.recgroup.com](http://www.recgroup.com) for more details



# GLOBAL PRESENCE



Available from:

REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power through high-quality solar panels with a leading power density. As Solar's Most Trusted, REC is known for its patented innovations and multiple award-winning products with reliable long-term performance. The cornerstone for REC's strong reliability is advanced and highly efficient manufacturing using Industry 4.0 practices. Founded in 1996 in Norway, REC has always been committed to a low carbon footprint in its solar materials and panels. REC is headquartered in Norway with operational headquarters in Singapore and regional hubs in North America, Europe, and Asia-Pacific.

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