



Hybrid Solar Panel in the industrial sector

Power your industry with the full potential of the sun: the hybrid solar panel, **redefining efficiency and sustainability.**




aHTech®, hybrid solar panel


The **hybrid** solar panel with aHTech® technology sets a new standard in the solar industry.


A 2-in-1 solution for cost-effective, clean energy for your business.



 Double energy production

 Higher performance

 High efficiency cells

 Highest quality and reliability on the market

Power your industry with the full potential of the sun: the hybrid panel, **redefining efficiency and cost-effectiveness.**

Higher energy efficiency

A **hybrid** solar panel allows you to generate electricity and domestic hot water simultaneously. Thanks to its efficiency, you make the most of solar radiation. Its hybrid technology allows you to get four times as much energy as photovoltaic in a minimum space that can be used for domestic hot water, pool heating, etc. **This additional feature allows you to maximise energy production and use, making your industry more self-sufficient.**

Return on investment and financial benefits

Although the initial cost may be high, energy cost savings and financial incentives **can result in a favourable return on investment.** In the long term, **hybrid** solar panels can represent a viable economic solution. In addition, many governments offer grants, tax credits and other financial incentives to encourage the adoption of solar energy. Industries can take advantage of these programmes such as CAEs to reduce upfront installation costs.

Use of heat for industrial processes

The heat produced by **hybrid** solar panels can be used directly in various industrial processes, such as water heating, drying, space heating or other applications requiring heat. This can reduce fossil fuel consumption and improve the energy efficiency of industrial operations. In addition, hybrids can help industries become more energy independent. **By generating their own electricity and heat, industries can reduce their vulnerability to energy price fluctuations and supply disruptions.**

Power your industry with the full potential of the sun: the hybrid panel, **redefining efficiency and cost-effectiveness.**

Space optimisation

Hybrid solar panels save space by combining two functions in one system. If your building has limited roof or ground space, installing hybrid panels can be a more efficient use of that space compared to photovoltaic and thermal systems, **as the hybrid solar panel produces more energy per square metre.**

Durability and longevity

Abora panels are built to last, using high quality materials and robust construction techniques. They are rigorously tested to ensure they can withstand adverse weather conditions, temperature variations and mechanical stresses. **When you invest in hybrid panels, you benefit from long life and reliable performance, which translates into a solid return on investment.**

Image and Corporate Social Responsibility (CSR)

By producing clean energy on-site, industries can reduce their CO2 emissions. This contributes to the fight against climate change and can help meet strict environmental regulations.

Adopting renewable energy technologies improves a company's image with customers, investors and the community. **It demonstrates a commitment to sustainability and environmental responsibility, which can strengthen a company's brand and reputation.**



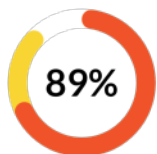
HYBRID SOLAR PANEL

aHTech®

Abora Solar designs, develops and manufactures the world's most cost-effective solar panel with an efficiency of 89%, achieving a certified world record.

The hybrid solar panel with aHTech® technology produces the same energy as 4 photovoltaic panels.

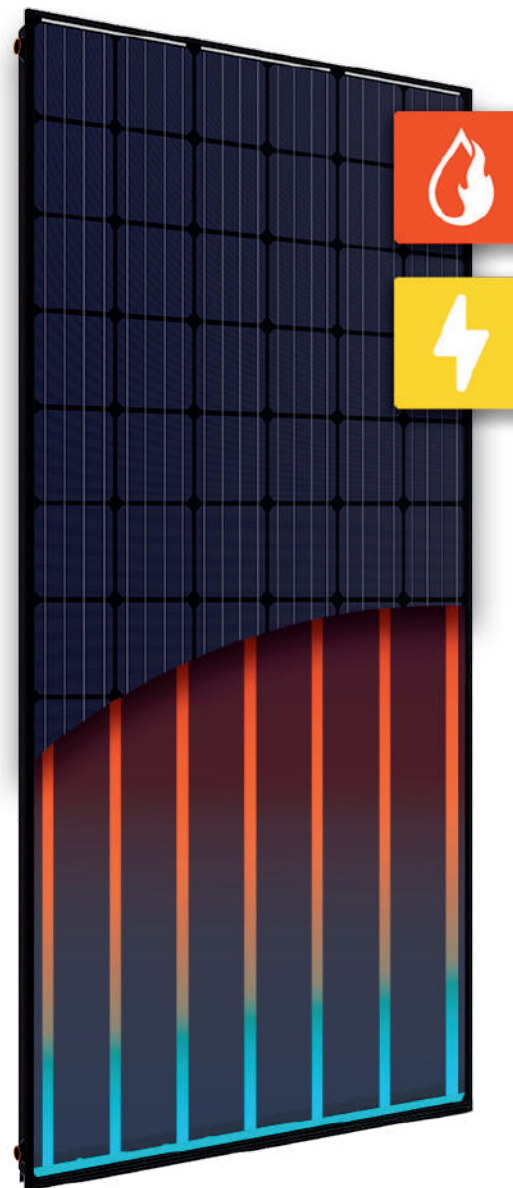
Efficiency



Manufacture



Quality



Product

Hybrid solar panel

Energy

Thermal production
Electricity production

Compatible auxiliary systems

Biomass boilers
Gas boilers
Heat pumps

Application

Industrial sector
Tertiary sector
Residential sector

Benefits

Higher efficiency
Higher savings
Best reduction of CO2 emissions

TECHNICAL DATA

HYBRID SOLAR PANEL

General specifications

Length x width x thickness	1.970 x 995x (85+22) mm
Total area	1,96 m ²
Opening area	1,88 m ²
Number of cells	72
Weight	50 kg
Front glass	3,2 mm. tempered
Framework	Aluminium
Connection box protection	IP65
Number of diodes	3 dio des
Dimensions of the cell	156 x 156 mm
Connection type PV / length cables	Solar lok PV4/ 1m

Electric specifications

Cell type	mono-crystalline
Rated power (W)	350W
Maximum power voltage (Vmpp)	39,18V
Maximum power current (Impp)	8,98A
Open circuit voltage (Voc)	48,82V
Short circuit current (Isc)	9,73A
Module efficiency (%)	17,8
Power tolerance (W)	+/- 4%
Maximum system voltage	DC 1000V(IEC)
Backsheet	Black
Temperature coefficient of Pmpp	-0,36%/°C
Temperature coefficient of Voc	-0,28%/°C
Temperature coefficient of Isc	+0,06%/°C
Maximum reverse current	15A
NOCT Temperature	45+/-2 °C

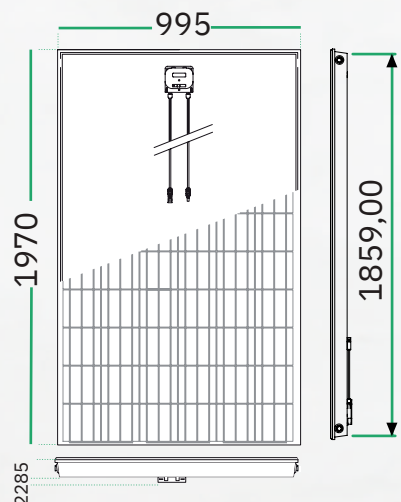
Standard test conditions STC: AM 1.5. irradiation 1000 W / m²
Cell temperature 25 C°

Thermal specifications

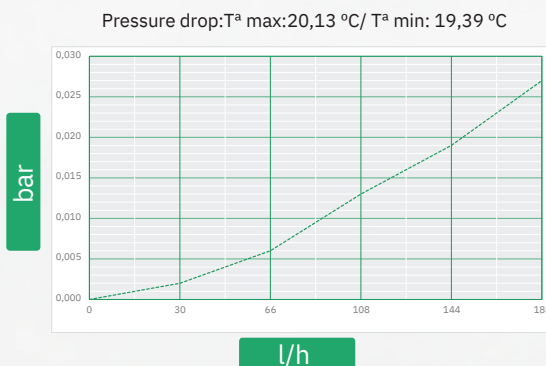
Optical performance	0,7
Coefficient of thermal losses, a1	5,98W/m ² .K ²
Coefficient of thermal losses ,a2	0,00W/m ² .K ²
Internal liquid capacitance	1,78L
Stagnation temperature	126°C
Number of hydraulic connection	4 Conexions
Measure hydraulic connectios	Quick connection
Maximum permissible pressure	10bar
Nominal flow	60L/h

Standard test conditions STC: AM 1.5. irradiation 1000 W / m²
Cell temperature 25 C°

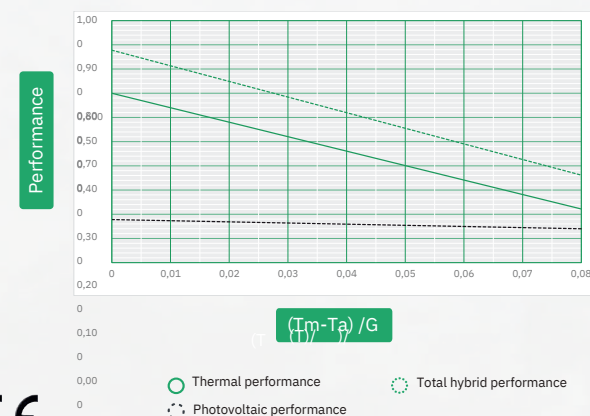
Dimensions



Head loss



Yield curve



aHtech®

Industry

Save up to 70% on your centre's energy costs thanks to Abora Solar's hybrid solar panel.

The hybrid responds to your

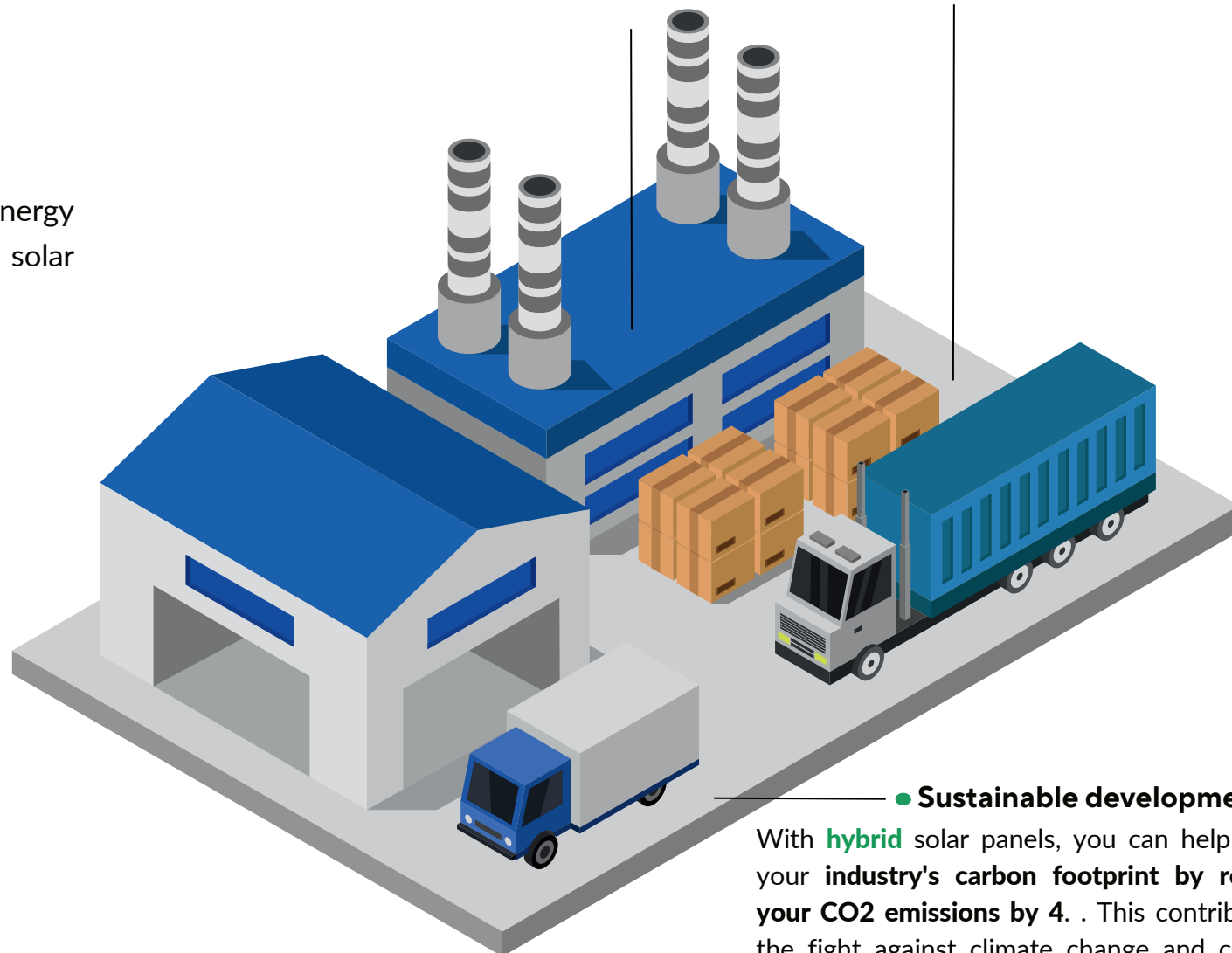
- High DHW demand
- Electricity demand
- Limited roof space
- EU and customer obligation to lower your emissions

● Space optimisation

Hybrid solar panels save space by combining two functions in one system. If your building has limited roof space, installing hybrid panels can be a more efficient use of that space than separate PV and thermal systems. **This can be especially advantageous in urban areas where space for solar installations is limited.**

● Cost reduction

Hybrid solar panels with aHtech® technology are **certified and patented as the most efficient solar panel in the world, with an efficiency of 89%**. This high efficiency translates directly into profitability, as our panel will produce more energy in a smaller space.



● Sustainable development

With **hybrid** solar panels, you can help reduce your **industry's carbon footprint by reducing your CO2 emissions by 4**. . This contributes to the fight against climate change and can help you meet strict environmental regulations.

The right solution for your industry.

The **most efficient and cost-effective** solar panel,
100% made in Spain, in the world.
More than 40,000 m2 installed in more than 38
countries.

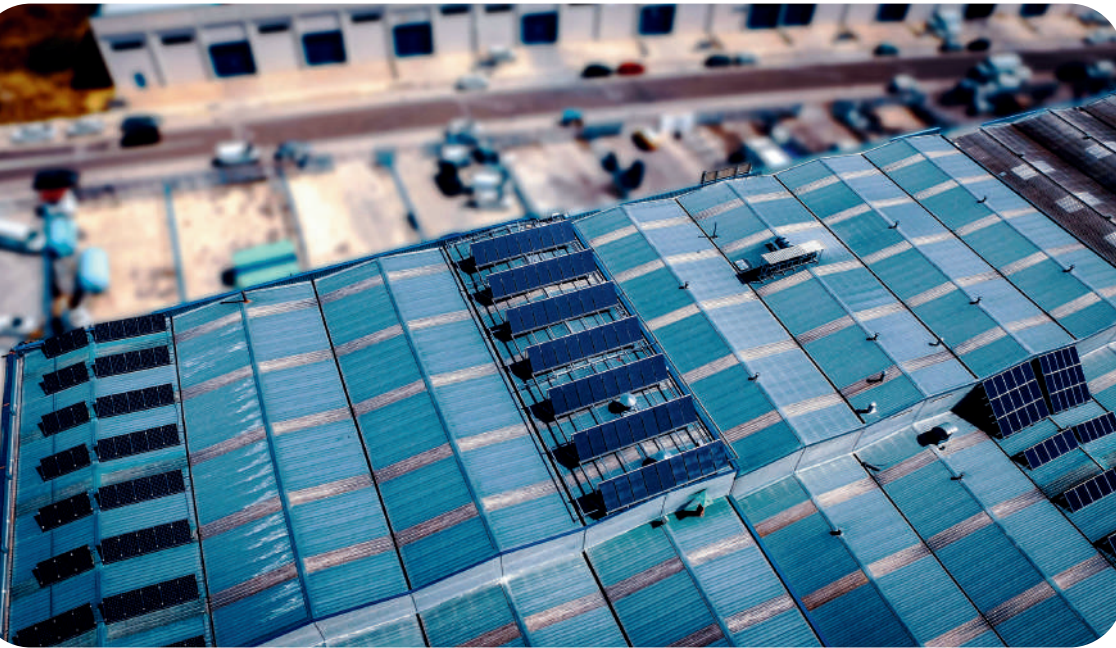
They already trust Abora.





More than 40 000 m² installed





HYBRID SOLAR PANELS

SUCCESS CASE STUDIES



HYBRID SOLAR PANEL INSTALLATION

Industry Arpa

Sector
Industry

Hybrid solar panels
112

Year of installation
2018

Emissions avoided
59 360 KgCO₂/year

Location
Zaragoza



HYBRID SOLAR PANEL INSTALLATION

Farm Garijo Brothers

Sector

Farm

Emissions avoided

92 692 KgCO₂/year

Hybrid solar panels

100

Location

Zaragoza

Year of installation

2023



HYBRID SOLAR PANEL INSTALLATION

I.T.L
Car wash

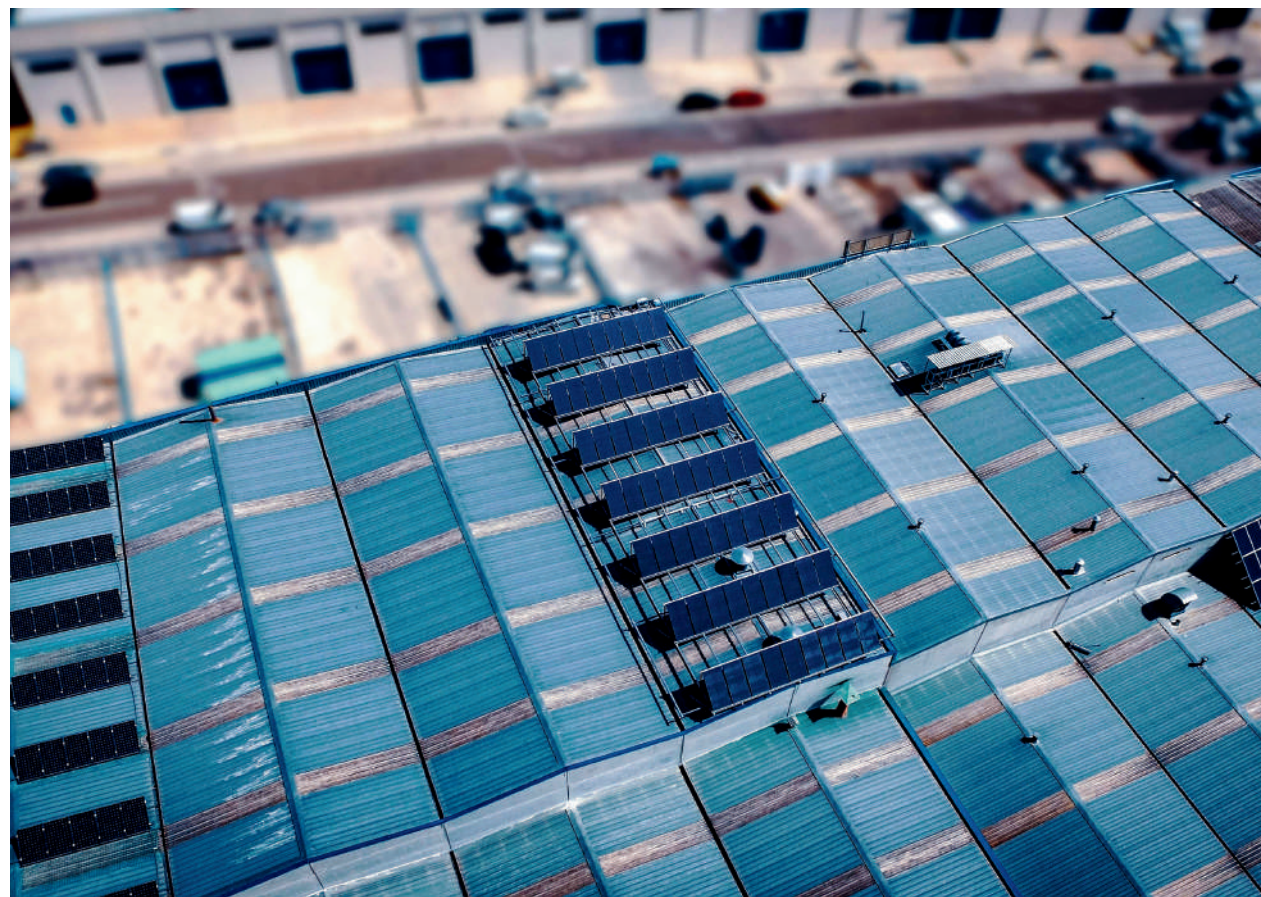
Sector
Industry

Emissions avoided
40 715 KgCO₂/year

Hybrid solar panels
63

Location
Huesca

Year of installation
2020



HYBRID SOLAR PANEL INSTALLATION

Car wash

Sector

Industry

Emissions avoided

9 tCO₂/year

Hybrid solar panels

36

Location

Hanko, Finland

Year of installation

2023



HYBRID SOLAR PANEL INSTALLATION

SYTA - Car wash of cisterns

Sector
Industry

Emissions avoided
84 800 KgCO₂/year

Hybrid solar panels
160

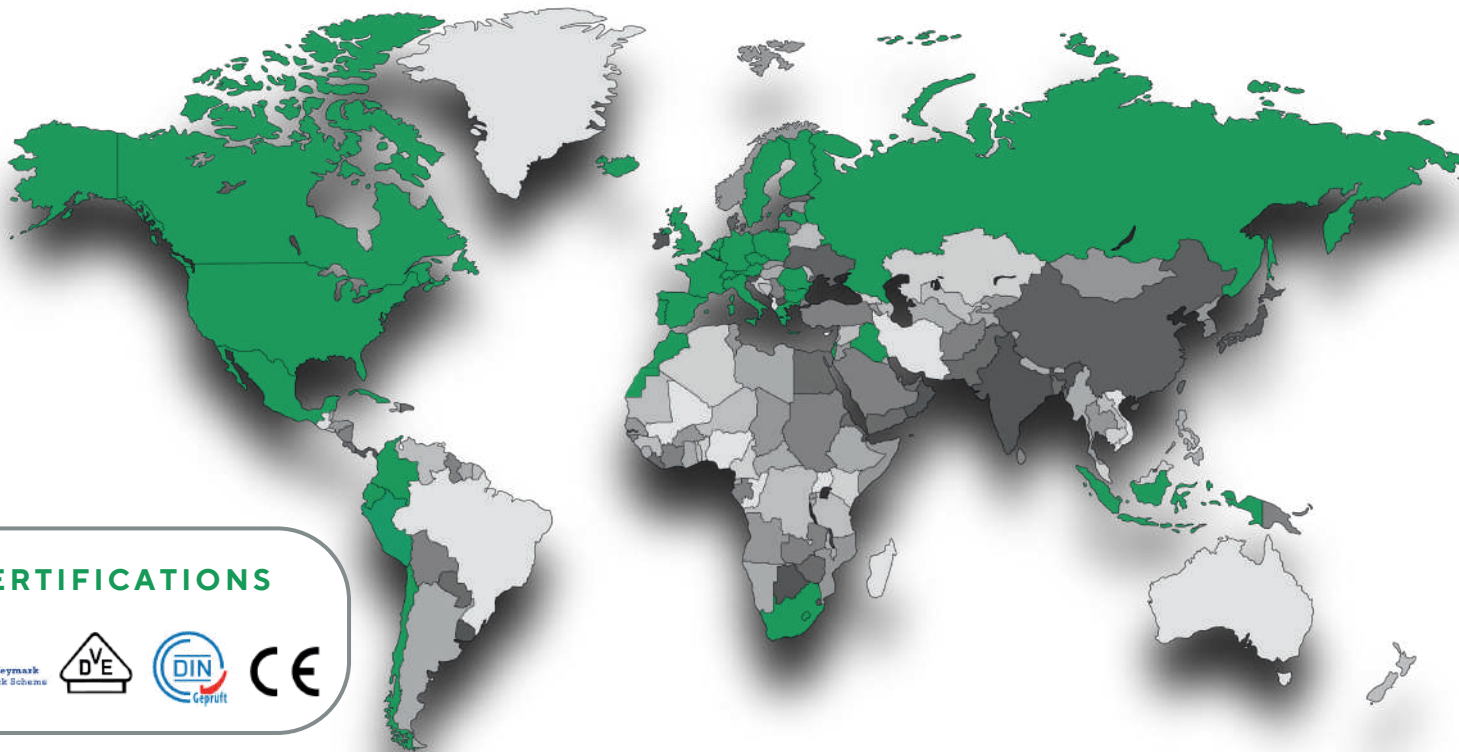
Location
Alfajarín

Year of installation
2018



THE DATA DON'T LIE

Our panels have already reached 38 countries around the world.
Don't settle for less when you can choose the best, choose **Abora**.



CERTIFICATIONS



INTERNATIONAL PARTNERS

EUROPE

- Spain
- France
- Germany
- Ireland
- England
- Netherlands
- Romania
- Czech Republic
- Portugal
- Poland
- Finland

AMERICAS

- Colombia
- Peru
- Ecuador
- Canada



ARTICLE

Hybrid solar panels in the industrial sector

Decarbonisation of the industrial sector: AhTech® technology for the energy transition

Today we would like to answer one of the most frequently asked questions: in which sectors are our hybrid solar panels used? The answer to this question is many: they are perfectly suited to several sectors, such as the hotel and industrial sectors, for example. And these are not our only sectors. We would like to tell you more about all our sectors and why our solar panels are suitable for them.

When we think of the concept of hybrid technology, we think directly of hybrid technology in cars. Although the idea of the concept is the same: 'technology that comes from or combines two different technologies into one'. In the case of the car, one or the other mode of energy production is chosen, not both at the same time. In the case of hybrid solar technology, however, there is no choice: both energies are produced at the same time and simultaneously.

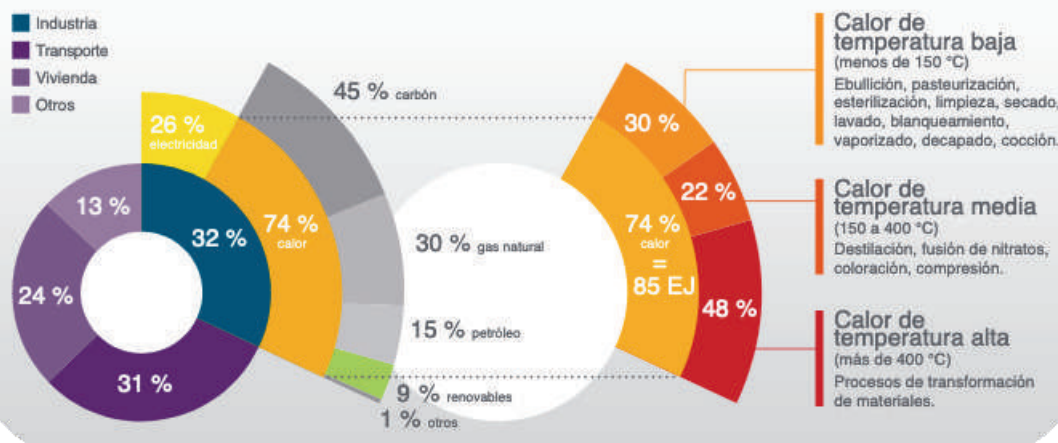
Thus, a hybrid solar panel is a technological innovation that combines solar photovoltaic and solar thermal technology. This means that the hybrid solar panel produces electricity and heat with solar energy. We emphasise that with a hybrid solar panel you will be able to satisfy your demand for electricity and heat at the same time, as it produces both simultaneously.

Based on this data, we can generalise our field of application to all sectors with a very high demand for electricity and a very high thermal demand, especially for domestic hot water. Indeed, all buildings consume electricity, but if your building also has a very high heat demand, the installation of our hybrid solar panels is a winning bet. You won't have to choose where to save on your energy bill because you can save on both. And you won't have to make a double investment by installing both photovoltaic and thermal panels. You may not have the roof space for this double installation.

Now let's go a step further in our explanation by taking the example of industries. The demand for industrial heat will increase by 1.7% every year until 2030. The final consumption of thermal energy in the industrial sector is much higher than the global electricity consumption.

Decarbonisation of the industrial sector: AhTech® technology for the energy transition

GRAN DEMANDA DE CALOR EN LA INDUSTRIA A NIVEL GLOBAL



With the installation of our hybrid solar panels, an industry will be able to produce its own electricity and also meet its heating needs with a clean energy source and at the same time significantly reduce its CO2 emissions. You will reduce your CO2 emissions up to 4 times more with our technology than if you opt for photovoltaics. This makes a lot of sense, as it will meet 74% of your actual energy demand.

With our technology, an industry will produce 4 times more energy than with PV. In addition, your investment will pay for itself 2 times faster than with a PV installation.

However, many people still only talk about electricity when they think of their energy transition, which is a mistake. Heat generation at low temperatures (below 150°C) is ideal for common industrial processes in the agri-food and beverage sectors (such as pasteurisation or sterilisation), in the paper industry or the textile sector (bleaching, dyeing, etc.). Thinking of the energy transition only in terms of electricity is a monumental mistake for the industrial sector, but also for all other sectors with a high demand for heat, such as hotels, hospitals, slaughterhouses or even residences.



Testimonial

Marcelo Esco, I.T.L. Car Wash Manager

*'We have opted for the Abora hybrid panel because of the fact that in the same panel we can have thermal and photovoltaic technology. In terms of profitability, **we have been able to see that from the first day of operation the panels have already been reducing parts of the bills for both gas and electricity month by month. We are complying quite well with the notes we had.***

This type of installation in companies also helps you to reduce CO2 and help the environment. You are also putting your company at the forefront in terms of climate change and if in the future measures are put in place to reduce CO2, your company will already be prepared to deal with this type of measures'.



COMPARISON: INSTALLATION IN AN INDUSTRY IN MADRID

Barcelona

Location

Industry

Type of building

14 m³

Capacity

Flat roof

Type of roof



- According to CTE 2019
- DHW temperature: 60°C
- Daily consumption: 55L/day* pers.
- 100% occupancy every month



- The electricity produced is self-consumed
- in the building



COMPARISON: INSTALLATION IN AN INDUSTRY IN MADRID

Photovoltaic system

59 829,41 kWh/year

10 171 €/year

Payback 5 years

15% a 25 years (317 843€)

20 213 Kg CO₂/Emissions avoided

PVT system

229 266 kWh/year

29 374 €/year

Payback 4 years

25% a 25 years (1.259 425€)

79 093 Kg CO₂Emissions avoided

x4

x3

-1

x3,5

x4



The hybrid to save more with your solar installation.

Thanks to their dual power generation, electricity and heat, our **hybrid** solar panels silently convert sunlight into energy for decades. Their hybrid technology makes it possible to achieve four times as much energy as photovoltaics in a minimum of space.

ASK FOR YOUR STUDY AT ABORA-SOLAR.COM

