

# Where luxury meets unique technology



## Interdigitated Back Contact, or IBC, technology allows for a high efficiency of no less than 21.6%, which is a significant improvement over traditional solar panels. Belinus PV modules come with a 35-year all-inclusive warranty, which is one of the longest in the industry.

The IBC technology used in Belinus' solar panels is unique in several ways. First, it moves all front contact grids to the back of the panel, which reduces shading at the front of the cell, leading to higher efficiency. IBC cells also have a lower series resistance, due to larger back contacts, allowing for easier connection and for the cells to be placed closer together in the module. Additionally, the optical and electrical optimization are independent of each other in IBC cells, so the panel's appearance can be improved while maintaining high efficiency.

However, the production process of IBC cells is more complicated than traditional solar cells, which is the main disadvantage of this technology. High-quality and long-life silicon wafers must be used in production, and the alignment of the n- and p- areas at the rear of the wafer is also more complex. The manufacturing process requires advanced cleaning procedures and contamination checks, which add to the production costs.

Despite the higher cost of IBC panels, they can provide significant financial benefits over their lifetime. The high efficiency of the panels means that they can generate more electricity per square meter of space, leading to lower electricity bills and higher returns on investment. Additionally, the sleek design of the panels can increase the value of a property, making them an excellent long-term investment.

Belinus has succeeded in producing high-quality IBC solar panels that combine luxury aesthetics with high efficiency. The company's Chairman of the Board, Francis Rome, believes that its innovative solar panels can contribute to the global challenge of meeting domestic demand for green energy solutions sustainably and responsibly.

The ultra-black design of the panels provides an elegant appearance, making them an excellent choice for residential and commercial applications.

In addition to the M8 IBC Ultra Black Glass-Glass 400W, visitors to Intersolar EU 2023 will also have a chance to observe the following modules: M7 Ultra Black Glass 410 W and M8 HJT Glass-Glass 400 W. These modules use different technologies, but all offer high efficiency and reliability, making them suitable for a variety of applications.

Belinus' commitment to sustainability extends beyond its products. The company has implemented several measures to reduce

its environmental impacts, such as using renewable energy sources and reducing waste and emissions. Belinus also works with partners and suppliers who share its values and commitment to sustainability.

Belinus' IBC technology is not the only advanced solar technology being used in the market. There are several other types of solar panels, each with their unique features and benefits. For instance, heterojunction (HJT) solar panels are becoming increasingly popular due to their high efficiency and low temperature coefficient. HJT cells have a thin layer of amorphous silicon on top of a crystalline silicon wafer, which reduces energy loss due to recombination. These cells can also operate at higher temperatures than traditional silicon cells, making them ideal for hot climates.

HJT technology combines the best advantages of crystalline silicon N-type and thin film, so the cell efficiency is greater than 24% and the panel efficiency is greater than 22%. The lowest temperature coefficient is only -0.24% and there is a very low annual degradation rate of only 0.4%.

HJT solar cells are also less susceptible to multiple degradation mechanisms, such as light-induced degradation (LID) and potential-induced degradation (PID), which can affect the operational reliability and durability of solar panels. This translates into a lower annual degradation rate of only 0.4%, resulting in a higher return on investment over the lifetime of the panels. HJT technology also has no risk of hot spots, which can cause localized overheating and damage to the solar panel.

All these advantages make HJT solar panels an attractive option for homeowners and businesses looking for high-efficiency, reliable, and durable solar panels. While they may be slightly more expensive than traditional solar panels, the long-term benefits in terms of energy output, reliability, and durability make them a worthwhile investment.

### Shingled solar panels

Belinus provides customers with a 35-year all-inclusive warranty, which is one of the longest in the industry, ensuring that their solar panels perform well in the long term and providing customers with peace of mind. The company's exceptional customer service and technical support also guarantee a positive experience for customers throughout the entire process.

Shingled photovoltaic solar panels, also known as solar shingles, are a relatively new type of solar panel technology that has gained popularity in recent years. Unlike traditional solar panels that sit on top of a roof, shingled solar panels are designed to blend in with the rest of the roof by overlapping in a roof tile pattern. This creates a more streamlined appearance that is less conspicuous than traditional solar panels.

One of the biggest advantages of shingled solar panels is their aesthetics. Solar power is a clean and renewable source of energy, but many homeowners are hesitant to install traditional solar panels on their roofs because of their bulky and unsightly appearance. Shingled solar panels, on the other hand, are designed to look like traditional roofing, so they blend in with the rest of the roof and are much less noticeable.

Another advantage of shingled solar panels is their durability. Because the solar cells overlap in a roof tile pattern, they are less likely to become damaged or dislodged during extreme weather events such as high winds or heavy rain. This means that they require less maintenance over time and can potentially last longer than traditional solar panels.

However, there are also some drawbacks to shingled solar panels. One of the biggest is their lower efficiency compared to traditional solar panels. While traditional solar panels can have efficiencies of up to 25%, shingled solar panels typically have efficiencies of up to 18%. This means that they are not as efficient at converting sunlight into electricity, and homeowners may need to install more panels to generate the same amount of power.

Another drawback of shingled solar panels is their limited availability. Because they are relatively new technology, they are not yet widely produced, and installation on rooftops can be more difficult than traditional solar panels. This means that they may not be an option for all homeowners, especially those living in areas where shingled solar panels are not yet available.

Despite these drawbacks, shingled solar panels are still a promising technology that offers many benefits over traditional solar panels. They are a more aesthetically pleasing option, which can make them more attractive to homeowners who are concerned about the appearance of their

## Ultimately, the decision to install shingled or traditional solar panels will depend on a variety of factors, including cost, efficiency, power, and flexibility, as well as personal preferences and aesthetic considerations.

homes. They are also a more durable option, which can make them a better choice for homeowners who live in areas with extreme weather conditions.

In terms of cost, shingled solar panels are generally more expensive than traditional solar panels. This is partly because they are

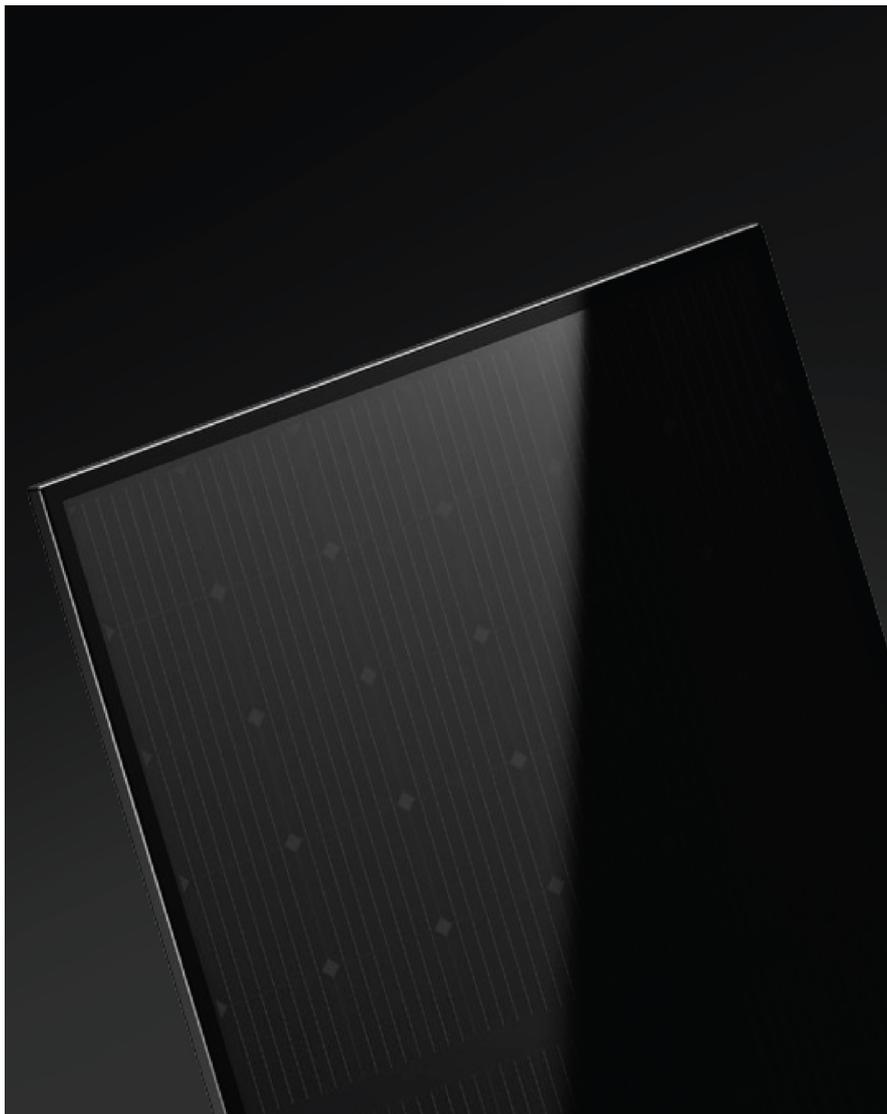
a newer technology and are not yet produced on a large scale. However, as production increases and technology become more widely adopted, the cost of shingled solar panels may decrease.

Another factor to consider when comparing shingled solar panels to

traditional solar panels are their flexibility. Shingled solar panels are designed to be installed directly onto the roof, replacing traditional roofing materials. This means that they may not be a good option for homeowners who want to install solar panels on a separate mounting structure or frame. Traditional solar panels, on the other hand, can be installed on a variety of structures, making them a more flexible option in terms of installation.

Despite these differences, shingled solar panels and traditional solar panels share many similarities. Both types of solar panels use photovoltaic technology to convert sunlight into electricity, and both qualify for the same subsidies and incentives. Ultimately, the decision to install shingled or traditional solar panels will depend on a variety of factors, including cost, efficiency, power, and flexibility, as well as personal preferences and aesthetic considerations.

🔗 <https://belinus.com/en/>



### About the company

Belinus is a Belgian company specializing in the production of solar panels and energy storage batteries.

It was founded in 2015 to provide sustainable and reliable energy solutions to households, businesses, and governments.

Since then, Belinus has become a leading player in the solar industry, thanks to its cutting-edge technology and commitment to innovation.

One of Belinus' most innovative products is its Interdigitated Back Contact (IBC) solar panel, which will be exhibited at Intersolar EU 2023.

Solar panels will be showcased at two different booths: C4.434 and the outdoor networking space, FM.703/43.