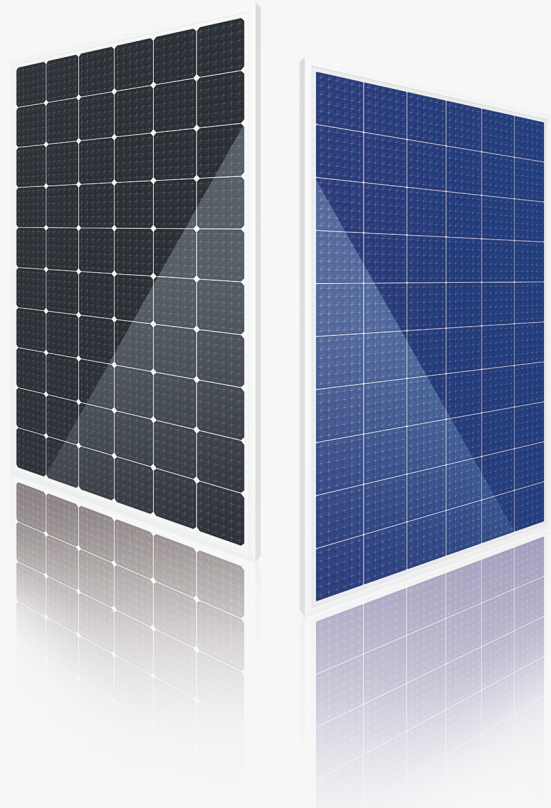


高效有内涵 领跑 30 年 标杆系列高效背接触组件

High-Efficiency PV modules
Top runner performance for 30 years
Benchmark Series MWT PV Module

- 
高效率
 High Efficiency
- 
高可靠性
 High Reliability
- 
高寿命
 Long Life
- 
高颜值
 Aesthetics Appearance



高效率 High Efficiency

无主栅线，发电面积提高3%
No main grid, power generation increased by 3% with the same area.

- 高光电转化效率，相同规格尺寸比常规组件输出功率高7%以上；
- 更低的功率温度系数 $-0.36\% / ^\circ\text{C}$ ，保持更高发电功率；
- 国家第一期领跑者项目大同煤矿运行10个月中，日托MWT组件的发电效率比常规其它组件表现更为优异。
- *7% more power output than conventional modules for each module.*
- *Lower NOCT: $-0.36\% / ^\circ\text{C}$, higher power output.*
- *The first 10 months work performance in top-runner projects in Datong, the power generation efficiency of SPP MWT modules higher than other conventional modules.*

高寿命 Long Life

中国人保30年质量保证
 30 Years Quality Re-Assurance by PICC

- 保证首年2%以内衰减，30年后发电量保证80%以上；
- 采用了“导电箔线路”，在传统组件电池片与背板中，增加了一层金属箔，使组件背板的透水性大幅降低，提高了组件使用过程中的耐候性及可靠性。
- *Guarantee that the first year of degradation is within 2%, the power generation ensures that more than 80% after 30 years.*
- *Adopted the "conductive foil line" and metal foil, so that the module backsheet greatly reduced by the water permeability and improve the resistance and reliability of the modules.*

高可靠性 High Reliability

先进MWT技术 欧洲进口工业4.0设备
Advanced MWT Technology with imported Industrial 4.0 equipment from Europe

- 独有类半导体式平面二维封装技术，减少组件封装损失；
- 摒弃传统组件高温焊接，有效避免焊接应力和由此导致的隐裂；
- 产品通过第三方3倍IEC标准加严测试。
- *Unique semiconductor planar packaging technology to reduce package loss.*
- *Abandon the traditional high-temperature welding process, effectively avoid the welding stress and the micro-crack.*
- *Pass triple IEC standard test.*

高颜值 Aesthetics Appearance

高效组件花纹美观 自带防伪
Advanced MWT Technology with imported Industrial 4.0 equipment from Europe

- 日托光伏的MWT单、多晶高效组件花纹与常规组件差异化明显，更为时尚美观；
- 市场唯一大规模 量产的无主栅组件，辨识度极高；
- 区别于常规组件的独有花纹布局，自带“防伪”。
- *Unique semiconductor planar packaging technology to reduce package loss.*
- *Abandon the traditional high-temperature welding process, effectively avoid the welding stress and the micro-crack.*
- *Pass triple IEC standard test.*

高效MWT背接触电池技术 High efficiency MWT cell technology

技术介绍 Technology Introduction

技术释义: MWT (Metal Wrap Through) 翻译为金属穿孔卷绕技术, 应用在太阳能电池中。通过激光打孔, 背面布线的技术消除了正面电极的主栅线, 将电池正面的电极穿引至背面, 这样电池的正负电极点都分布在电池片的背面, 有效减少了正面栅线的遮光, 从而提高了转化效率。

Metal Wrap Through(MWT) is a new cell technology to increase the conversion efficiency by reducing the busbars. By laser drilling, both the negative electrodes of solar cells are leading to the rear side together with the positive electrodes. Without busbars, it reduces shading area and improves efficiency on the cell.

工艺步骤 Technology Path

- 1、在电池片上设计贯穿电池片的孔洞;
 - 2、利用导电浆料将这些孔洞填充从而将正面的电极引到背面;
 - 3、将引到背面的相应区域与背电场进行隔离。
- 这样电池的正负电极均位于电池的背面, 所以称为MWT背接触技术。

Step1. design the holes that go through the cells

Step2. fill with conductive paste to direct the electrode from the front to the rear side via drilled holes

Step3. isolate the back field.

As both the positive and negative electrodes are on the rear side of the cells, it's named as MWT Rear-Contact solar cell.

技术优势 Technology Advantages

MWT背接触电池将正面的电流汇聚到背面, 背面由点状的电极来代替条状。这样会带来多项好处, **首先**, 银浆的耗量减低; **第二**, 遮光面积减少, 效率提升; **第三**, 可以订制电池表面的图案, 例如熊猫和树叶图案等, 颜值更高。

The MWT cell converges the current from the front to the back, and it is replaced by a dotted electrode on the back. There are many benefits. First, the consumption of silver pulp is reduced. Secondly, the shading area was reduced by 3% to 4%, and the efficiency was improved. Third, you can customize the patterns on the surface of the battery, such as panda and leaf patterns, for a higher level of appearance.

电池特点 Technology Feature

无主栅线——更少遮光、更高转换效率 (绝对值提升0.4%以上)

无焊条——避免了焊接应力 and 微裂导致的性能衰减; 同时还适合更薄硅片, 有助于降低成本

技术兼容性——与其他技术具有很好的兼容性, 包括黑硅、PERC等

Without busbars— it reduces 3% shading area and improves efficiency more than 0.4% on the cell.

Without welding strips—the welding stress and micro-crack caused by poor welding are eliminated, and it is also suitable for thinner silicon chips, helping to reduce costs.

Technical compatibility – good compatibility with other technologies, including black silicon, PERC, etc

