



旗滨光能
KIBING SOLAR



旗滨光能 超白光伏玻璃

Extra Clear PV Glass of Kibing Solar

创造绿色未来

CREATE A GREEN FUTURE

让阳光 更高效
MAKE SUNLIGHT MORE EFFICIENT

01

About Kibing Group 关于旗滨集团

KIBING

旗滨集团简介

Introduction of Kibing Group

- 2020** 高铝电子玻璃旗鲨系列问世
The Launch of High Alumina Electronic Glass HYSHARP Series
- 2019** 药用玻璃项目启动
Start Pharmaceutical Glass business
- 2018** 开启高铝电子玻璃时代
Start Electronic Glass business
- 2017** 进军光伏光电新材料领域
Start Solar Glass business
- 2016** 产业延伸发展
Business Extension
- 2015** 收购三星康宁子公司
Acquisition of a subsidiary of Samsung Corning
- 2013** 收购浙玻
Acquisition of Zhejiang glass
- 2011** 旗滨上市
Listed in 2011
- 2005** 收购原株洲玻璃厂
Acquisition of Zhuzhou Glass
- 1988** 旗滨诞生
Founded in 1988

旗滨集团(全称“株洲旗滨集团股份有限公司”)是一家集浮法玻璃、节能工程玻璃、光伏玻璃、电子玻璃、中硼硅药用玻璃研发、生产、销售为一体的创新型国家高新技术企业。

旗滨集团成立于1988年,2005年并购原株洲玻璃厂,全面进军玻璃行业;2011年为加速发展,于上海证券交易所A股上市[股票代码:601636]。集团现有总资产约209亿元,员工10000余人,在产优质浮法玻璃生产线26条(日熔化量17600吨)。拥有湖南醴陵、郴州、福建漳州、广东河源、浙江绍兴、长兴、平湖、马来西亚八大浮法玻璃生产基地,并分别在广东河源、浙江绍兴、长兴、湖南醴陵、天津和马来西亚投入巨资新建六大节能工程玻璃生产基地,是高中低透三银Low-E产品全覆盖的创新型节能玻璃领军企业。

Kibing Group (short for Zhuzhou Kibing Group Co., Ltd.) is an innovative national high-tech enterprise integrating R&D, production and sales. Our main product covers float glass, energy-saving glass, solar glass, electronic glass and neutral borosilicate pharmaceutical glass.

Kibing Group was established in 1988. In 2005, it merged Zhuzhou Glass Factory and entered the glass industry. In 2011, Kibing Group was listed on the Shanghai Stock Exchange [Stock code: 601636]. With around 10,000 employees, Kibing Group owns an asset of more than 20.9 billion RMB, having 26 professional glass lines (17600Tons/Day). There are 8 float glass production bases in Liling, Chenzhou, Zhangzhou, Heyuan, Shaoxing, Changxing, Pinghu, Malaysia. Kibing Group is also a leading enterprise of innovative energy-saving glass with full coverage of high, medium and low permeability triple-silver Low-E products, building its energy-saving glass bases in Heyuan, Guangdong, Shaoxing, Zhejiang, Changxing, Zhejiang, Liling, Hunan, Tianjin and Malaysia.

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About Kibing Solar 关于旗滨光能

2022

纵深突破, 全球化资源市场优化配置

Further expansion in upstream/downstream industrial chains

在福建漳州、浙江长兴、湖南醴陵、湖南郴州、天津等地投资兴建屋顶分布式光伏电站项目；
 在云南昭通、马来西亚沙巴州等地新建光伏玻璃生产线，投资战略硅砂资源，进军全球光伏市场

Invest in the construction of rooftop distributed solar power station projects in Zhangzhou, Fujian, Changxing, Zhejiang, Liling, Hunan, Chenzhou, Hunan, Tianjin, etc.;

Build new solar glass production lines in Zhaotong, Yunnan and Sabah, Malaysia, invest in strategic silica sand resources, and enter the global solar market

2021

多点开花, 全面布局光伏玻璃产业

More solar glass bases and deep processing lines are constructed

在湖南郴州、福建漳州、浙江宁波，投资新建、扩建光伏玻璃生产基地，并配套完善的深加工体系，加快集团光伏玻璃产业布局

To extend and develop solar glass business, more solar glass bases and deep processing lines are constructed in Chenzhou, Hunan, Zhangzhou, Fujian, and Ningbo, Zhejiang

2020

持续扩大光伏玻璃产业

Continuously expand the solar glass business

在湖南郴州投资扩建光伏玻璃生产基地，加快促进集团光伏玻璃产能及质量提升

Invest in the expansion of the solar glass production base in Chenzhou, Hunan, to speed up the promotion of capacity and quality

2017

开启光伏玻璃新时代

Start Solar Glass business

推进郴州旗滨光伏光电项目建设进度，全面进军光伏市场

Advance the solar glass construction progress of Chenzhou Kibing

旗滨光能隶属于旗滨集团，是一家集光伏玻璃、新能源产业研发、生产、销售为一体的创新型国家高新技术企业。

旗滨光能依托母公司产业链优势，为加速实施“做大做强”的战略规划，对现有工艺进行改进优化以及技术深度融合，延伸光伏玻璃产业布局。先后在湖南郴州、浙江宁波、福建漳州、云南昭通、马来西亚沙巴州等地扩建、新建光伏玻璃生产基地，不断提升集团光伏玻璃产能和质量。凭借优异的产品性能和服务品质，旗滨光能已经成为国内优质的光伏玻璃生产企业之一。

旗滨光能以“创造绿色未来”为使命，深耕光伏新能源产业，专业研发团队潜心研发，寻求产品性能的持续提升，致力于“让阳光更高效”，为光伏产业多贡献一份力量。未来我们也将通过持续变革创新，激发更大的创新创造能力，将旗滨打造成具有时代特征、时代意义，并为市场广泛认同的卓越品牌；同时，着眼于长远的未来，以不懈创新、团结奋进，成就具有扎实功底、经得起市场风雨考验的、长盛不衰的百年企业。

Kibing Solar, a subsidiary of Kibing Group, mainly concentrates on solar glass and new energy business.

In order to fulfill the strategy of Becoming Bigger and Stronger, Kibing Solar has improved and optimized the existing technics with the advantages of the existing industrial chain, and deepened the integration of technologies, and extended the layout of the solar glass industry, building its solar glass bases in Chenzhou, Hunan, Ningbo, Zhejiang, Zhaotong, Yunnan, Sabah, Malaysia to expand the capacity and improve quality. Kibing Solar has become one of the domestic high-quality solar glass manufacturers in products and service.

With the mission of Creating a Green Future, Kibing Solar is deeply engaged in the solar new energy industry. The professional research team is devoted to seeking continuous improvement of product performance, and is committed to Making Sunlight More Efficient. In the future, we will also stimulate greater innovation and creativity through continuous reform and innovation, and build Kibing into an excellent brand and century-old enterprise with the characteristics and significance of the times, and is widely recognized by the market.



03

Industrial Distribution 产业布局

光伏玻璃基地

Photovoltaic Glass Base



湖南·郴州 Hunan·Chenzhou

郴州旗滨光伏光电玻璃有限公司
Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd.

郴州旗滨光伏光电玻璃有限公司成立于2016年11月,位于湖南省郴州市资兴市资五产业园,首期投资7.8亿元,建设1000T/D的一窑两线(350T/D和650T/D各一条)高档超白光伏玻璃生产线,能够生产多种厚度、多种规格的高档超白太阳能光伏玻璃产品。

2020年7月,郴州光伏总投资1亿元人民币新上光伏背板深加工线,并于同年12月投产,选用国内先进设备组合而成的生产线,具有良好的稳定性和加工精度,自动化程度高,年产量达3100万m²。

二期项目建设一条1200T/D一窑六线高透基片生产线及八条配套光伏组件高透基板材料加工线,总建筑面积约152084m²,项目已于2022年4月8日点火投产。二期项目达产后,预计年产值50亿元,年税收2.5亿元。

Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd. was established in November 2016 and is located in Ziwu Industrial Park, Zixing City, Chenzhou City, Hunan Province. The primary investment is 780 million RMB to construct a high-grade extra-clear glass production line of one furnace two line with 1000Tons/Day. Which can produce high-grade extra-clear float glass products of various thicknesses and specifications.

In July 2020, Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd. invested a total of 100 million RMB to build a new rear PV glass deep processing line, and was put into production in December of the same year. The deep processing line is composed of advanced equipment with a good stability and accurate machining accuracy and high degree of automation which can reach an output of 31 million square meters.

The second stage investment is 3 million RMB to construct a 1200Tons/Day's high-grade extra-clear glass production line of one furnace six line with eight deep processing lines which covers an area of 152,084 square meters. The project has been started on April 8, 2022. After that, Chenzhou Kibing is expected to have an annual output value of 5 billion RMB and an annual tax of 250 million RMB.



福建·漳州

Fujian · Zhangzhou

漳州旗滨光伏新能源科技有限公司
Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd.

漳州旗滨光伏新能源科技有限公司成立于2020年11月，位于福建省东山县，注册资本为5亿元。计划新建两条1200T/D超白玻璃及深加工生产线，生产和销售光伏光电基板材料。目标是将漳州旗滨光伏新能源科技有限公司建设成为在福建地区具有积极影响力的新能源玻璃制造企业。

Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. was established in November 2020 and is located in Dongshan County, Fujian Province, with a registered capital of 500 million RMB. Zhangzhou Kibing plans to build two new 1200Tons/Day's extra-clear glass production line with several deep processing lines to produce and sell high-grade extra-clear glass. At the same time, Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. also plans to let itself to be an influential PV glass manufacturer in Fujian province.



浙江·宁波

Zhejiang · Ningbo

宁波旗滨光伏科技有限公司
Ningbo Kibing Photovoltaic Technology Co., Ltd.

宁波旗滨光伏科技有限公司位于浙江省宁波市宁海县宁波南部滨海新区金港创业基地，注册资金10亿，占地面积约759亩，总投资30亿，总建筑面积约37万平方，项目共建设2条1200T/D光伏高透基板材料项目，并配套部分深加工生产线，计划2023年投产。

Ningbo Kibing Photovoltaic Technology Co., Ltd. is located in the Jingang Entrepreneurship Base, Binhai New Area, South Ningbo, Ninghai County, Ningbo City, Zhejiang province with a registered capital of 1 billion, covering an area of about 759 mu. There is a total investment of 3 billion to construct two high-grade extra-clear glass production lines of 1200Tons/Day with several deep processing lines which covers an area of about 370,000 square meters. It's expected to be put into operation in 2023.



云南·昭通

Yunnan · Zhaotong

昭通旗滨光伏科技有限公司

Zhaotong Kibing Photovoltaic Technology Co., Ltd.

昭通旗滨光伏科技有限公司成立于2021年12月，位于云南省昭通市昭阳区经开区，项目计划总投资约518,000万元，投资新建4条1200T/D光伏高透基材项目，建设周期预计三年，分期建设。

Zhaotong Kibing Photovoltaic Technology Co., Ltd. was established in December 2021 and is located in Industrial Park, Zhaoyang District, Zhaotong City, Yunnan Province. There is a total investment of 5.18 billion RMB to construct four 1200Tons/Day high-grade extra-clear glass production lines. The construction will be carried out in stages with about 3 years.



马来·沙巴

Malaysia · Sabah

沙巴旗滨光伏新材料(马来西亚)有限公司

SBH Kibing Solar New Materials (M) SDN. BHD.

沙巴旗滨光伏新材料(马来西亚)有限公司成立于2022年1月，位于马来西亚沙巴州，项目计划总投资约312,000万元人民币，新建2条1200t/d光伏玻璃生产线，预计建设周期16个月。

SBH Kibing Solar New Materials (M) SDN. BHD. was established in January 2022 and is located in Sabah, Malaysia. Totally 3.12 billion RMB is invested to construct two 1200Tons/Day photovoltaic glass production lines with a construction stages about 16 months.



战略资源基地

Strategic Resource Base



湖南·郴州

Hunan·Chenzhou

资兴旗滨硅业有限公司

Zixing Kibing Silicon Materials Co.,Ltd.

资兴旗滨硅业有限公司成立于2016年12月,位于湖南省资兴市州门司镇,公司自有大型石英矿山,主营业务为超白石英砂的生产与销售。公司建成年产30万吨高品质超白石英砂加工生产线,生产模式采用物理选矿加浮选的方法,工艺及设备先进,产品广泛应用于中性硼硅药用玻璃素管、光伏光电玻璃、高铝玻璃、特种陶瓷、耐磨材料及高级填料等领域。

Zixing Kibing Silicon Materials Co.,Ltd. was established in December 2016 and is located in Zhoumensi Town, Zixing City, Hunan Province. With its own large-scale quartz mine, it mainly concentrate on the production and sales of extra-white quartz sand. There is a 300,000Tons/Year high-quality extra-white quartz sand processing production line with advanced technology and equipment. The production mode is physical beneficiation and flotation and the products are widely used in Neutral Borosilicate Pharmaceutical glass tube, Photovoltaic glass, High Alumina glass, special ceramics, wear-resistant materials and advanced fillers and other fields.



湖南·郴州

Hunan·Chenzhou

郴州旗滨光伏光电玻璃有限公司资兴分公司
Zixing Branch of Chenzhou Kibing Photovoltaic & Electronic Glass Co.,Ltd.

郴州旗滨光伏光电玻璃有限公司资兴分公司成立于2021年3月,位于湖南省资兴市唐洞街道资五产业园江高路9号。项目总投资6亿元人民币,总用地面积约140亩,建设2条高品质环保超白石英砂生产线,年产量达58万吨,年产值约3亿元,提供就业岗位约150多个。产品广泛应用于中性硼硅药用玻璃、光伏光电玻璃、超白玻璃、高铝玻璃等领域。同时,依托资兴市丰富的矿产资源,为旗滨集团在郴州地区的光伏光电及高端医药玻璃提供产业配套的超白石英砂原料供应基地。

Branch of Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd. was established in March 2021 and is located at No. 9 Jianggao Road, Ziwu Industrial Park, Tangdong Street, Zixing City, Hunan Province. There is a total investment of 600 million RMB and the total land area is about 140 mu to construct two high-quality environmentally friendly extra-white quartz sand production lines which can reach an annual output of 580,000Tons and annual output value of about 300 million RMB, provide more than 150 jobs. Products are widely used in Neutral Borosilicate glass, Photovoltaic glass, extra-clear glass, High Alumina glass and other fields. At the same time, relying on the rich mineral resources of Zixing City, it provides an industrial supporting extra-white quartz sand raw material supply base for photovoltaic optoelectronics and high-end medical glass for Kibing Group in Chenzhou.



云南·昭通

Yunnan·Zhaotong

彝良旗滨硅业有限公司
Yiliang Kibing Silicon Materials Co.,Ltd.

彝良旗滨硅业有限公司成立于2021年，位于云南省昭通市，项目计划总投资约108,000万元人民币（分期投入），项目建设周期预计3年，分期建设。公司在云南昭通配套建设石英砂生产基地，一是确保旗滨集团昭通光伏玻璃生产基地的用砂需求和供应安全；二是提升旗滨集团在玻璃全产业链上的综合竞争力，增强集团发展后劲。

Yiliang Kibing Silicon Industry Co., Ltd. was established in 2021 and is located in Zhaotong City, Yunnan Province with a total investment about RMB 1.08 billion (invested in stages). The construction period of the project is expected to be 3 years and the construction will be carried out in stages. Building a quartz sand production base in Zhaotong, Yunnan, firstly, is to ensure the sand demand and supply safety of Zhaotong photovoltaic glass production base; secondly, is to enhance the comprehensive competitiveness of Kibing Group in the entire glass industry chain and enhance the development of the group stamina.



马来·沙巴

Malaysia·Sabah

沙巴旗滨硅材料(马来西亚)有限公司
SBH Kibing Silicon Materials (M) SDN. BHD.

沙巴旗滨硅材料(马来西亚)有限公司成立于2022年1月，位于马来西亚沙巴州，项目计划总投资约85,000万元人民币。公司在马来西亚沙巴州建设石英砂生产基地，一是保证旗滨马来西亚光伏玻璃生产线项目的用砂需求和稳定供应；二是降低对外购硅砂的依赖，大幅提高上游采购议价能力，有效控制和降低产品生产成本，提升产品质量；三是充分利用当地砂资源，布局海外光伏玻璃生产基地的硅砂资源战略储备，进一步增强集团国内光伏玻璃硅砂资源供应保障。

SBH Kibing Silicon Materials (M) SDN. BHD. was established in January 2022 and is located in Sabah, Malaysia with a total investment of 850 million RMB. Building a quartz sand production base in Sabah, Malaysia, firstly, is to ensure the demand and stable supply of sand for the Kibing Solar's photovoltaic glass production line, secondly, is to reduce the dependence on external purchases of silica sand, greatly improve the bargaining power of upstream purchases, and effectively control and reduce products production costs. The third is to make full use of the local sand resources, lay out the strategic reserves of silica sand resources in overseas photovoltaic glass production bases, and further enhance the supply guarantee of the domestic photovoltaic glass silica sand resources of Kibing Solar.



新能源基地

New Energy Base



湖南·郴州

Hunan·Chenzhou

24 MWp 装机容量

2 万吨 年度CO2节能减排量



湖南·醴陵

Hunan·Liling

50 MWp 装机容量

4 万吨 年度CO2节能减排量



福建·漳州

Fujian·Zhangzhou

25 MWp 装机容量

2 万吨 年度CO2节能减排量



天津

Tianjin

11.88 MWp 装机容量

1 万吨 年度CO2节能减排量



浙江·长兴

Zhejiang·Changxing

32.14 MWp 装机容量

2 万吨 年度CO2节能减排量



04

Description of Products 产品介绍

03-1 新一代超白光伏 面板玻璃 New Generation Extra Clear Solar Glass

超白光伏玻璃是一种超透明低铁玻璃,也称低铁玻璃、高透明玻璃。它是一种高品质、多功能的新型高档玻璃品种,透光率可达91.5%以上,具有晶莹剔透、高档典雅的特性,有玻璃家族“水晶王子”之称。超白玻璃同时具备优质浮法玻璃所具有的一切可加工性能,具有优越的物理、机械及光学性能,可像其它优质浮法玻璃一样进行各种深加工。无与伦比的优越质量和产品性能使超白玻璃拥有广阔的应用空间和光明的市场前景。

集团充分研究光伏产品特性并独创推出新一代超白光伏玻璃,通过不断融合先进技术、优化产品工艺,原片性能、钢化性能、镀膜性能及耐候性能均得到了极大的提升。

Extra clear solar glass is a kind of Extra-transparent low-iron glass, also known as low-iron glass and high-transparency glass. It is a new type of high-quality and multi-functional high-grade glass with a light transmittance of more than 91.5%. Extra clear glass also has all the processing properties of high-quality float glass, and has excellent physical, mechanical and optical properties, and can be processed in various deep processes. Unparalleled superior quality and product performance make extra clear glass have broad application and bright market prospects.

Based on the complete study on the solar product, Kibing Solar has launched the new generation extra clear solar glass. Through continuous integration of advanced technology and optimization of production process, the performance of raw glass sheet, mechanical strength, coating and weather resistance have been greatly improved.

玻璃规格 / Specifications

厚度范围:1.6mm-4.0mm

厚度偏差:2.0mm±0.15mm;3.2mm±0.2mm

厚薄差:2.0mm, ≤0.2mm;3.2mm, ≤0.25mm

宽度范围:3000-3660mm (轻松兼容182、210等大型组件)

镀膜玻璃透过率: ≥94.3%

Thickness range: 1.6mm-4.0mm

Thickness deviation: 2.0mm±0.15mm; 3.2mm±0.2mm

Thickness difference: 2.0mm, ≤0.2mm; 3.2mm, ≤0.25mm

Width range: 3000-3660mm (easily compatible with 182, 210 and other large modules)

Coated glass transmittance: ≥94.3%

钢化性能 / Tempering Properties

旗滨新一代超白光伏玻璃钢化性能参数

Tempering Properties of New Generation Extra Clear Solar Glass

玻璃厚度 Glass thickness	1.6mm	2.0mm	3.2mm
钢化程度 Tempered or not	半钢化 Heat-strengthened	半钢化 Heat-strengthened	钢化 Tempered
最大规格 Max size	1400×2500mm	1400×2500mm	1400×2500mm
弓形度 General bow	≤0.20%	≤0.20%	≤0.20%
波形度 Local bow	≤0.25mm/300mm	≤0.25mm/300mm	≤0.25mm/300mm
边部翘曲 Edge warp	≤0.4mm/300mm	≤0.4mm/300mm	≤0.4mm/300mm
表面应力 Comprehensive stress	≥80MPa	≥80MPa	≥120MPa
颗粒数 Fragmentation test	/	/	60-90粒 60-90pcs
落球测试 Impact test	标准227g钢球1m Standard 227g steel ball from 1m height	标准1040g钢球0.7m Standard 1040g steel ball from 0.7m height	标准1040g钢球1.2m Standard 1040g steel ball from 1.2m height
静压测试 Static pressure test	2000pa	3000pa	4000pa



旗滨新一代超白光伏玻璃镀膜性能参数

Coating Properties of New Generation Extra Clear Solar Glass

测试项目 Test item	测试条件 Test condition	标准(ΔT) Standard(ΔT)	结果 Result
耐酸性能 Acid resistance	JC/T2170-2013(2017)/6.8	<1%	合格 Qualified
耐中性盐雾性能 Neutral salt spray resistance	JC/T2170-2013(2017)/6.9	<1%	合格 Qualified
耐热循环性能 Thermal cycling stability	JC/T2170-2013(2017)/6.10	<1%	合格 Qualified
耐湿冻性能 Resistance to wet and cold	JC/T2170-2013(2017)/6.11	<1%	合格 Qualified
耐湿热性能 Resistance to wet and heat	JC/T2170-2013(2017)/6.12	<1%	合格 Qualified
耐紫外性能 UV Test	JC/T2170-2013(2017)/6.13	<1%	合格 Qualified
PCT加速老化性能 PCT accelerated ageing resistance	120°C, 99%RH, 48h	<1%	合格 Qualified
紫外热循环性能 UV thermal cycling performance	200W/m ² , -40°C和85°C, 100次循环 200W/m ² , -40°C and 85°C, 100 cycles	<1%	合格 Qualified
耐沾污性能 Stain resistance	6G, 23°C, 50%RH, 24H, 5次循环 6g, 23°C, 50%RH, 24h, 5cycles	<1%	合格 Qualified

03-2 新一代超白光伏背板玻璃

New Generation Extra Clear Rear Solar Glass

超白光伏背板玻璃是双玻光伏组件的背面用玻璃。双玻光伏组件顾名思义就是指由两片玻璃和太阳能电池片及胶膜材料组成复合层，电池片之间由导线串、并联汇集到引线端所形成的光伏电池组件。双玻组件兼具背面可以发电、生命周期长、高防火等级、耐候耐磨耐腐蚀等优点，而且玻璃是无机环保材料，对户外环境更加友好。随着技术的不断进步，双玻光伏组件越来越普及，且成为组件行业的重要发展方向。

新一代超白光伏背板玻璃产品为我司独立研发，拥有自主知识产权，并且申请专利保护的产品。产品质量稳定，目前已经通过各项测试认证，并稳定向多家组件企业供货。

The New Generation Extra Clear Rear Solar Glass is the back side glass for bifacial solar modules. Bifacial solar modules which made up with two pieces of glass, solar cells and encapsulation materials, and the cells are connected in series or parallel to the lead end. There are several advantages of bifacial solar modules such as power generation on the back, long life cycle, high fire resistance, weather resistance, wear resistance and corrosion resistance, and glass is an inorganic environmentally friendly material. With the continuous advancement of technology, bifacial solar modules are becoming more and more popular, and have become an important development direction of the module industry.

The New Generation Extra Clear Rear Solar Glass is independently developed by Kibing Group, having independent intellectual property rights, and with patent protection. With stable quality, it has passed various tests and certifications, and has been supplied to major module manufacturers continuously.

玻璃规格 / Range of Size

厚度范围: 1.6mm-4.0mm

厚度偏差: 2.0mm ± 0.15mm; 3.2mm ± 0.2mm

厚薄差: 2.0mm, ≤ 0.2mm; 3.2mm, ≤ 0.25mm

宽度范围: 3000-3660mm (轻松兼容182、210等大型组件)

Thickness range: 1.6mm-4.0mm

Thickness deviation: 2.0mm ± 0.15mm; 3.2mm ± 0.2mm

Thickness difference: 2.0mm, ≤ 0.2mm; 3.2mm, ≤ 0.25mm

Width range: 3000-3660mm

(Easily compatible with large components such as 182, 210)

对玻璃钻孔采用行业领先的激光钻孔工艺，孔位精准，不易形成毛刺等边部缺陷；同时兼具白色丝印和黑色丝印工艺，釉层平整，位置精准，满足客户对釉料的各种性能要求

The industry-leading laser drilling process is used for precise glass drilling and to avoid edge defects such as burrs. At the same time, it has both white silk screen printing and black silk screen printing technology, the glaze layer is flat and the position is precise, which can meet the various performance requirements of customers for the glaze.



旗滨新一代超白光伏背板玻璃主要性能参数

Main Parameters of New Generation Extra Clear Rear Solar Glass

钻孔 Hole drilling	孔径 $3.0 \leq d \leq 30\text{mm}$, 公差 $\pm 1\text{mm}$ Diameter $3.0 \leq d \leq 30\text{mm}$, tolerance $\pm 1\text{mm}$	
原片透光率 Glass raw sheet transmittance	超白光伏玻璃: 非镀膜区域应 $\geq 91.5\%$ NON ceramic printing area $\geq 91.5\%$	
釉层基础性能 The basic performance of ceramic printing	硬度 Hardness	$\geq 4\text{H}$
	附着力 Adhesion	≤ 1 级
	反射率 Reflectivity	镀膜层反射率 $\geq 75\%$ (波长380-1100nm) Reflectance of printing $\geq 75\%$ (wave length 380-1100nm)
	厚度 Thickness	15-35 μm
与封装材料 (EVA/POE) 粘结力 Adhesion to EVA/POE	$\geq 60\text{N/cm}$	

03-3 超白压延太阳能玻璃

Extra Clear Patterned Solar Glass

集团可提供优质超白压延太阳能玻璃,并配套完善的深加工体系。集团生产的超白压延太阳能玻璃具有高透过率、高机械强度、高平整度、低含铁量等优异特点,是理想的太阳能光电、光热转换系统封装材料,并已经在光伏行业得到了丰富的应用。

Kibing Solar provides high-quality extra clear Patterned Solar Glass. With characteristics such as high transmittance, high mechanical strength, high flatness, and low iron content, extra clear solar pattern glass is the ideal packaging material for photoelectric conversion systems and has been widely used in the solar industry.

玻璃规格 / Specification

厚度范围: 1.6mm-4.0mm

厚度偏差: 2.0mm \pm 0.15mm; 3.2mm \pm 0.2mm

厚薄差: 2.0mm, \leq 0.2mm; 3.2mm, \leq 0.25mm

最大规格: 1400*2500mm (轻松兼容182、210等大型组件)

原片透过率: $\geq 91.8\%$

Thickness range: 1.6mm-4.0mm

Thickness deviation: 2.0mm \pm 0.15mm; 3.2mm \pm 0.2mm

Thickness difference: 2.0mm, \leq 0.2mm; 3.2mm, \leq 0.25mm

Maximum size: 1400*2500mm (easy compatible with 182, 210 and other large modules)

Raw glass sheet transmittance: $\geq 91.8\%$

镀膜性能 / Coating Properties

镀膜玻璃透过率, 单镀 $\geq 94.0\%$, 双镀 $\geq 94.3\%$

并同样通过各种镀膜性能测试(如PCT加速老化、耐酸、耐盐雾、耐热循环、耐湿热、耐湿冻等各种耐候性测试项目)。

The transmittance of coated glass is $\geq 94.0\%$ for single coating and $\geq 94.3\%$ for double coating; it also passes various coating performance tests (such as PCT accelerated ageing, acid resistance, salt spray resistance, heat resistance cycle, humidity and heat resistance, humidity and cold resistance, and other weather resistance test items).

旗滨光能新超白压延光伏玻璃钢化性能参数

Tempering Properties of Extra Clear Patterned Solar Glass of Kibing Solar

玻璃厚度 Glass thickness	1.6mm	2.0mm	3.2mm
钢化程度 Tempered or not	半钢化 Heat-strengthened	半钢化 Heat-strengthened	钢化 Tempered
最大规格 Max size	1400×2500mm	1400×2500mm	1400×2500mm
弓形度 General bow	≤0.20%	≤0.20%	≤0.20%
波形度 Local bow	≤0.25mm/300mm	≤0.25mm/300mm	≤0.25mm/300mm
边部翘曲 Edge warp	≤0.4mm/300mm	≤0.4mm/300mm	≤0.4mm/300mm
表面应力 Comprehensive stress	≥70MPa	≥70MPa	≥90Mpa
颗粒数 Fragmentation test	/	/	≥40粒 ≥40pcs
落球测试 Impact test	标准227g钢球1m Standard 227g steel ball from 1m height	标准1040g钢球0.6m Standard 1040g steel ball from 0.6m height	标准1040g钢球1m Standard 1040g steel ball from 1m height
静压测试 Static pressure test	2000pa	2400pa	2400pa

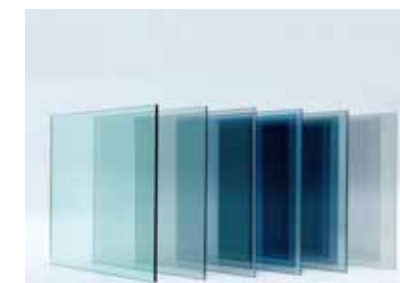
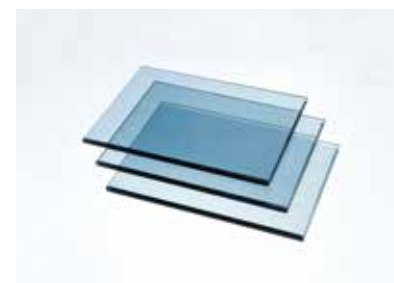
03-4 BIPV玻璃
BIPV Glass

BIPV, 即光伏建筑一体化, 是一种将太阳能发电(光伏)产品集成到建筑上的技术, 这是应用太阳能发电的一种新概念。光伏建筑一体化(BIPV)不同于光伏系统附着在建筑上(BAPV)的形式。BIPV项目实现了光伏组件与建筑的集成, 光伏组件以一种建筑材料的形式出现, 光伏方阵成为建筑不可分割的一部分。如光电瓦屋顶、光电幕墙和光电采光顶等。由于BIPV不占用额外的地面空间, 并且兼具建筑的功能和美观需求, 是未来建筑+光伏发展的新趋势。

集团拥有各种超白、普白、色玻原片及丰富的深加工工艺, 可满足光伏建筑一体化项目(BIPV)对玻璃的多样化需求, 为BIPV项目提供一站式玻璃解决方案。

BIPV, or Building Integrated Photovoltaic, is a technology that integrates solar power products into buildings. Compared to BAPV which attached to the building, the BIPV project brings out a integrate with solar modules and buildings. There are more forms of power generation, such as solar tile roofs, solar curtain walls and solar lighting roofs. Since BIPV does not occupy additional ground space and has both the functional and aesthetic needs of the building, solar modules are not only be a part of buildings, but also be a kind of buildings' material, which has become a new trend in the future development of building + solar modules.

Kibing Solar has a rich variety of clear and tinted glass sheets and glass deep processing technologies, which can meet the diversified needs of glass for BIPV projects, and provide one-stop glass solutions.



05

Product Advantages 产品优势



01 | 高透过率

新一代超白光伏镀膜玻璃在380-1100nm波段透过率可达94.3%以上,通过光谱曲线优化,可以适配各类高效电池响应曲线,获得更高组件功率输出

01 | High transmittance

The new generation extra clear ARC glass is with more than 94.3% transmittance in 380-1100nm wavelength. Through the optimization of the spectral curve, it can be adapted to the response curve of various high-efficiency batteries and obtain higher module power output.

02 | 高强度

新一代超白光伏玻璃表面平整度良好,钢化性能更优,机械强度提升卓越,可为电池组件提供高效的保护

02 | Good performance in mechanical strength

The new generation of ultra-clear photovoltaic glass has good surface flatness, better tempering performance, and excellent improvement in mechanical strength, which can provide efficient protection for battery components

03 | 易轻薄化

新一代超白光伏玻璃原片厚度可低至零点几毫米,板面平整度高。且轻微的气泡、划伤等缺陷都非常明显,原片质量要求更高,更适合新型组件开发需求

03 | Easy to be light and thin

Kibing extra clear PV glass thickness can be lower than 1mm, with high flatness, which is suitable for the development of PV module.

04 | 尺寸灵活

新一代超白光伏玻璃原片最大板宽可达4880mm,深加工最大规格为1350×2500mm,通过优化切裁可轻松兼容182和210等大尺寸组件

04 | Flexible size

The max width of raw sheet can be around 4880mm, and the max size of deep procession is 1350×2500mm. Through optimized cutting, it can be easily compatible with large-size module with 182 and 210 cell design.

05 | 强耐候性

新一代超白光伏玻璃在锡面镀膜,可有效阻挡玻璃本体中钠离子的迁移,可以提高玻璃表面以及玻璃镀膜的耐候性,保护电池组件在户外复杂环境下的稳定性,确保电池组件稳定的发电效率

05 | Strong weathering resistance

Kibing extra clear Solar ARC glass is coated on tin side, which can effectively block the migration of sodium ions in glass, can improve the weather resistance of the glass surface and the glass coating, protect the stability of the battery module in the outdoor complex environment, and ensure the stability of the battery module Power generation efficiency

06 | 不易积灰

新一代超白光伏玻璃采用浮法工艺成型,玻璃表面平整光滑,不容易积灰,始终保持良好的外观和较高的透过率,减少灰尘对组件发电量的影响

06 | Dust not easy to be accumulated

Kibing extra clear PV glass is formed by float technics. The glass surface is flat and smooth, and dust is not easy to be accumulated. It always maintains a good appearance and high transmittance, reducing the impact of dust on the power generation of the module.



06

STRENGTHS

综合实力

专业的技术团队

Professional Technical Team

新一代超白光伏玻璃核心团队,由一支多年从事超白光伏玻璃企业管理、产品研发、生产实操、财务决策和市场开发的高级人才团队组成,掌握先进的超白光伏玻璃研发、生产核心技术,积累了丰富的成功经验。

The Kibing's core team is composed of experienced professionals in glass production, business management, R&D, finance, and market development.

高质量的超白硅砂

High-quality Extra Clear Silica Sand

集团在湖南、云南、马来西亚等地拥有高品质硅砂生产基地,为超白光伏玻璃的生产提供了稳定可靠的原料保障。硅砂从破碎、精选、尾泥处理等工序起,到经过强力磁选设备、循环水处理等硬件设施,再到专业的硅砂运输车队运输,全程均受严格的数据监控,确保石英砂从开采、融化、深加工到成品储藏等过程严格执行集团高质量统一生产标准方案。

With the extra clear silica sand mine bases in Hunan and Malaysia, Kibing Group provides a stable and reliable raw material guarantee for the glass production. The whole process is subject to strict data monitoring from crushing, selecting, tailing treatment and other process, to hardware facilities such as powerful magnetic separation equipment, circulating water treatment, and to professional silica sand transportation fleet transportation. To ensure that the process of mining, melting, deep processing to storage of finished products are strictly implements the group's high-quality unified production standard.



先进的生产设备及优良的制程控制

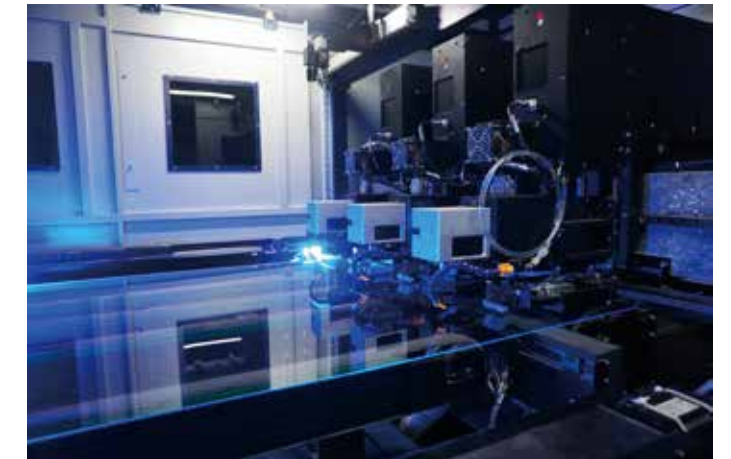
Advanced Production Equipment and Excellent Process Control

集团从国外引入先进的生产设备,从原片生产、磨边、镀膜、钢化到包装,由集团最新一代全自动在线缺陷检测系统全程监控,极大提升了生产流程自动化水平及玻璃生产质量。

Kibing Group has introduced advanced equipment from abroad. The online defect detecting system has been introduced to monitor the overall production process, from glass raw sheet, edging, coating, tempering to packaging, which greatly improves the production automation and quality.



镀膜机
Coating machine



云管理激光钻孔机
Cloud management laser machine



先进的超薄钢化炉
Advanced tempering machine for extra-thin deep processing



丝印机
Ceramic printing machine



原子吸收光谱仪
Automatic absorption spectrometer (AAS)



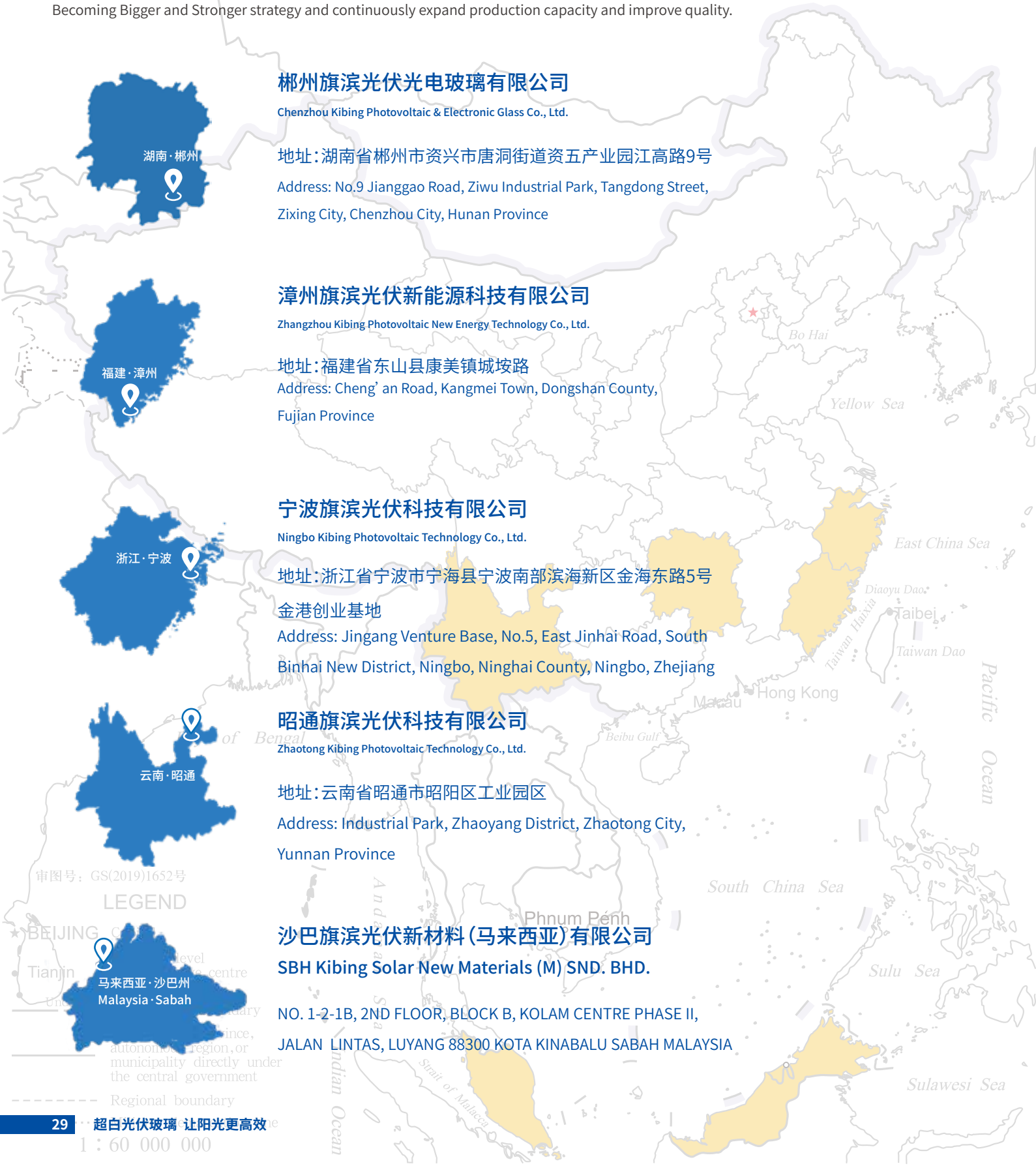
X荧光光谱仪
X-Fluorescent spectrometer

多方位的光伏玻璃生产基地

Solar glass production bases

旗滨光能依托母公司产业链优势,为加速实施“做大做强”的战略规划,先后在湖南郴州、浙江宁波、福建漳州、云南昭通、马来西亚沙巴州等扩建、新建光伏玻璃生产基地,并配备完善的深加工体系,不断提升集团光伏玻璃产能和质量。

Relying on the advantages of the parent company's industrial chain, Kibing Solar has expanded and newly built solar glass production bases in Chenzhou, Hunan, Ningbo, Zhejiang, Zhangzhou, Fujian, Zhaotong, Yunnan, and Sabah, Malaysia, so as to accelerate the implementation of the Becoming Bigger and Stronger strategy and continuously expand production capacity and improve quality.



完善的体系资质证书

Perfect system qualification certificate

旗滨光能光伏玻璃产品质量满足
GB15763.2-2005, AS/NZS2208:1996
EN12150/DIN1249D
ASTM-E-903(891)-96
等标准。产业体系完善,已经申请并通过了ISO9000/14000、SAI Global、IGCC、SGCC、SIRIM/CIDB等认证。

Kibing Solar's products meet standards such as GB15763.2-2005, AS/NZS2208:1996, EN12150/DIN1249D, ASTM-E-903(891)-96, and has applied and passed the certification such as ISO9000/14000, SAI Global, IGCC, SGCC, SIRIM/CIDB.

