

让阳光 更高效
MAKE SUNLIGHT MORE EFFICIENT

旗滨光能 KIBING SOLAR

创造绿色未来
Create a Green Future

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01

About Kibing Group
关于旗滨集团

KIBING

旗滨集团简介

Introduction of Kibing Group



株洲旗滨集团股份有限公司(以下简称“旗滨集团”)成立于2005年,2011年在上海证券交易所A股上市(证券简称:旗滨集团,证券代码:601636),是一家集硅砂原料、优质浮法玻璃及深加工、节能建筑玻璃、光伏玻璃、高性能电子玻璃、中性硼硅药用玻璃研发、生产、销售为一体的创新型国家高新技术企业。

经过近20年的持续耕耘和快速发展,旗滨集团总资产超过336亿,总员工超过16000人,拥有30余家全资及控股子公司。集团生产基地分布在湖南醴陵、湖南郴州、福建漳州、广东河源、浙江绍兴、浙江长兴、浙江平湖、浙江宁波、云南昭通、天津、马来西亚森美兰州及沙巴州等地。集团拥有24条优质浮法生产线、7条光伏玻璃生产线、4条高性能电子玻璃生产线、2条中性硼硅药用玻璃生产线、11条镀膜节能玻璃生产线、33条中空玻璃生产线。此外,集团深耕东南亚市场,获得了海外资源供应和项目配套的政策扶持。当前,旗滨集团已成为国内玻璃行业极具竞争力和影响力的大型现代化企业集团之一。

Zhuzhou Kibing Group Co., Ltd. (known as "Kibing Group") was established in 2005 and listed on the A-share market of the Shanghai Stock Exchange in 2011 (securities abbreviation: Kibing Group, securities code: 601636). It is an innovative national high-tech enterprise that integrates research and development, production, and sales of silica sand raw materials, high-quality float glass and deep processing, energy-saving building glass, photovoltaic glass, high-performance electronic glass, and neutral borosilicate medicinal glass.

After nearly 20 years of continuous cultivation and rapid development, Kibing Group has total assets exceeding 33.6 billion, total employees exceeding 16000, and more than 30 wholly-owned and controlling subsidiaries. The production bases of the group are distributed in Liling, Hunan, Chenzhou, Fujian, Heyuan, Guangdong, Shaoxing, Changxing, Pinghu, Ningbo, Zhaotong, Yunnan, Tianjin, Sembilang, Malaysia, and Sabah. The group has 24 high-quality float glass production lines, 7 photovoltaic glass production lines, 4 high-performance electronic glass production lines, 2 neutral borosilicate medicinal glass production lines, 11 coated energy-saving glass production lines, and 33 hollow glass production lines. In addition, the group has deeply cultivated the Southeast Asian market and received policy support for overseas resource supply and project support. Currently, Kibing Group has become one of the highly competitive and influential large modern enterprise groups in the domestic glass industry.

02

About Kibing Solar
关于旗滨光能

KIBING

旗滨光能简介

Introduction of Kibing Solar

2023

全球化分布, 跻身行业前三

Global distribution, ranking among the top 3 in the industry

福建漳州、浙江宁波、马来西亚沙巴州生产基地相继完成新建生产线点火投产, 正式开启旗滨光能光伏玻璃全球化产业布局的新篇章, 综合实力跻身光伏玻璃行业前三

The production bases in Zhangzhou, Fujian, Ningbo, Zhejiang, and Sabah, Malaysia have successively completed the ignition and production of new production lines, officially opening a new chapter in the global industrial layout of Kibing Solar's solar glass industry. The comprehensive strength ranks among the top 3 in the solar glass industry

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

Continue to expand the solar glass business

在湖南郴州投资扩建光伏玻璃生产基地, 加快促进光伏玻璃产能及质量提升

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

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

Accelerate the solar glass construction progress of Chenzhou Kibing and start solar glass business

旗滨光能, 成立于2016年, 是一家集光伏玻璃、战略资源以及新能源产业的研发、生产和销售于一体的创新型国家高新技术企业。

旗滨光能自2017年进入光伏玻璃行业以来, 大力引进全球顶尖技术研发专家团队, 购置国际先进设备, 不断优化工艺流程, 创新玻璃技术, 迅速发展成为全球光伏玻璃重要生产企业之一。

旗滨光能现有总资产150亿, 员工人数超6000人, 拥有湖南郴州、福建漳州、浙江宁波、云南昭通、马来西亚沙巴州五大光伏玻璃生产基地, 并配套完善深加工生产设备; 在湖南资兴、湖南资五、福建漳州、云南彝良、马来西亚沙巴州建有五大战略资源生产基地, 并提供100%的超白硅砂原料供给保障; 同时, 在湖南郴州、株洲、福建漳州、浙江长兴以及天津, 新建五大光伏电站项目, 为“碳中和、碳达峰”目标早日实现, 贡献旗滨力量。

未来, 旗滨光能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, 旗滨光能将着眼于长远的未来, 以不懈的创新和团结奋进, 打造具有扎实功底、经得起市场风雨考验、长盛不衰的百年企业。

Kibing Solar, established in 2016, is an innovative national high-tech enterprise integrating the R&D, production and sales of solar glass, strategic resources and new energy industries.

Since Kibing Solar started the solar glass business in 2017, it has vigorously introduced the world's top technology research and development expert team, purchased international advanced equipment, continuously optimized process flows, innovated glass technology, and rapidly developed into one of the important solar glass manufacturers in the world.

With 15 billion yuan total assets and more than 6,000 employees, Kibing Solar is now with 5 solar glass production bases in both China and Malaysia including Chenzhou, Hunan, Zhangzhou, Fujian, Ningbo, Zhejiang, Zhaotong, Yunnan, and Sabah, Malaysia, which are all equipped with complete deep processing facilities. We have established five strategic resource production bases in Zixing, Hunan, Zhangzhou, Fujian, Yiliang, Yunnan, and Sabah, Malaysia, and provide 100% ultra-white silica sand raw material supply guarantee.

In the future, Kibing Solar will stimulate greater innovation and creativity through continuous change and innovation, and build Kibing into an outstanding brand with the characteristics and significance of the times and widely recognized by the market. At the same time, Kibing Solar will focus on the long-term future, forge ahead with unremitting innovation and unity, and build a century-old enterprise with solid foundation, withstanding the test of the market and lasting prosperity.

湖南·郴州 Chenzhou·Hunan

湖南旗滨光能科技有限公司
Hunan Kibing Solar Technology Co., Ltd.

湖南旗滨光能科技有限公司成立于2016年11月，位于湖南省郴州市资兴市资五产业园，注册资金32亿元，占地面积779亩，建筑面积15万平方，项目总投资40亿元，共建设1条1000T/D一窑两线超白浮法光伏玻璃和1条1200T/D一窑六线超白压延光伏玻璃，并配套11条深加工生产线。

项目年产玻璃约65.79万吨，总计13354万平方米，可满足11GW光伏组件生产需求。

Hunan Kibing Solar Technology Co., Ltd.(known as Hunan Kibing Solar) was established in November 2016. It is located in Zixing Ziwu Industrial Park, Chenzhou City, Hunan Province. With a registered capital of 3.2 billion yuan, covering an area of 779 mu (approximately 132 acres) and a construction area of 150000 square meters. The total investment is 4 billion yuan to construct a 1000T/D one furnace two line ultra-clear float solar glass and a 1200T/D one furnace six line ultra-clear patterned solar glass, along with 11 deep processing production lines.

Hunan Kibing Solar produces approximately 657,900 tons of glass annually, totaling 133.54 million square meters, which can meet the production demand of 11 GW of solar modules.



旗滨光能光伏玻璃产业布局

Solar Glass Industrial Distribution of Kibing Solar

03

Industrial
Distribution
产业布局



光伏玻璃生产

基地 **5** 个

5 solar glass production bases

光伏玻璃总产能

11800 T/D

total production capacity is 11800T/D

福建·漳州 Zhangzhou·Fujian

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，位于福建省东山县临港工业园，注册资金10亿元，占地面积762亩，建筑面积38.93万平方，项目总投资40亿元，项目共建设2条1200 T/D超白光伏玻璃，并配套完整深加工生产线。

项目年产玻璃约74万吨，总计14800万平方米，可满足12 GW光伏组件生产需求。

Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. (known as Zhangzhou Kibing Solar) was established in November 2020. It is located in Lingang Industrial Park, Dongshan County, Fujian Province. With a registered capital of 1 billion yuan, covering an area of 762 mu (approximately 126 acres) and a construction area of 389300 square meters. The total investment is 4 billion yuan to construct two 1200 T/D ultra-clear solar glasses and complete with a comprehensive deep processing production line.

Zhangzhou Kibing Solar produces approximately 740000 tons of glass annually, totaling 148 million square meters, which can meet the production demand of 12 GW of solar modules.



浙江·宁波 Ningbo·Zhejiang

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成立于2021年2月，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10亿元，占地面积759亩，建筑面积69万平方，项目总投资30亿元，项目共建设2条1200T/D超白光伏玻璃项目，并配套完整深加工生产线。

项目年产玻璃约74万吨，总计14800万平方米，可满足12 GW光伏组件生产需求。

Ningbo Kibing Photovoltaic Technology Co., Ltd. (known as Ningbo Kibing Solar) was established in February 2021. It is located in the Jingang Entrepreneurship Base in the southern Binhai New Area of Ninghai County, Ningbo City, Zhejiang Province. With a registered capital of 1 billion yuan, covering an area of 759 mu (approximately 125 acres) and a construction area of 690000 square meters. The total investment is 3 billion yuan to construct two 1200T/D ultra-clear solar glasses and complete with a comprehensive deep processing production line.

Ningbo Kibing Solar produces approximately 740000 tons of glass annually, totaling 148 million square meters, which can meet the production demand of 12 GW of solar modules.



云南·昭通

Zhaotong·Yunnan

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旧圃镇工业园区，注册资金10亿元，占地面积1168亩，建筑面积约29万平方米，项目总投资约51亿元，共规划建设4条1200T/D超白光伏玻璃生产线，并配套超白光伏玻璃基板深加工生产线。

项目全部建成投产后，年产玻璃约146.88万吨，总计约25010万平方米，可满足约24GW光伏组件生产需求。

Zhaotong Kibing Photovoltaic Technology Co., Ltd. (known as Zhaotong Kibing Solar) was established in December 2021. It is located in Jiupu Town Industrial Park, Zhaoyang District, Zhaotong City, Yunnan Province. With a registered capital of 1 billion yuan, it covers an area of 1168 mu (approximately 192 acres) and a construction area of approximately 290000 square meters. The total investment is approximately 5.1 billion yuan to construct four 1200T/D ultra-clear solar glass production lines and complete with a comprehensive deep processing production line.

Zhaotong Kibing Solar produces approximately 1.4688 million tons of glass annually, totaling approximately 250.1 million square meters, which can meet the production demand of approximately 24GW of solar modules.



马来·沙巴

Sabah·Malaysia

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KKIP，注册资金200亿元占地面积130亩，建筑面积42万平方米，项目总投资62.4亿元，项目共建设2条1200T/D超白压延光伏玻璃、1条1200T/D超白浮法光伏玻璃，并配套完整深加工生产线。

项目年产玻璃约110万吨，总计22000万平方米，可满足约15GW光伏组件生产需求。

Sabah Kibing Solar New Materials (Malaysia) Co., Ltd. (known as Sabah Kibing Solar) was established in January 2022. It is located in KKIP, Sabah, Malaysia, with a registered capital of 20 billion RMB, covering an area of 130 mu (approximately 21 acres), and a building area of 420,000 square meters. The total investment is 6.24 billion yuan to construct two 1200T/D ultra-clear patterned solar glass and one 1200T/D ultra-clear float solar glass production line, complete with a comprehensive deep processing production line.

Sabah Kibing Solar produces approximately 1.1 million tons of glass annually, totaling 220 million square meters, which can meet the production demand of 23 GW of solar modules.



旗滨光能战略资源储备

Strategic Resource Reserve of Kibing Solar



光伏玻璃生产超白硅砂

总需求 **666** 万吨/年

The total demand for ultra white silica sand in solar glass production is 6.66 million tons/year

旗滨光能超白硅砂

总供应 **700** 万吨/年

Kibing Solar's total supply of ultra white silica sand is 7 million tons/year

100%

满足旗滨光能自给自足

100% satisfaction with Kibing Solar's self-sufficiency

战略资源生产基地
Strategic resource production base

湖南·郴州 Chenzhou·Hunan

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位于湖南省资兴市州门司镇，成立于2016年12月。公司自有大型石英矿山一座，矿区面积0.1753平方公里，生产规模133万吨/年，原矿供应至湖南旗滨光能科技有限公司资兴分公司，选矿加工后的超白石英砂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。

公司坚持走绿色矿山发展路线，以产业与环境和谐发展为建设理念，遵循一边生产，一边复垦的原则，高度重视生产过程中的环境保护、综合治理、节能减排、科技创新、矿产资源综合利用以及社区和谐建设，在2020年被录入湖南省绿色矿山名录。

Zixing Kibing Silicon Materials Co.,Ltd. (known as Zixing Kibing Silicon Sand) was established in December 2016. Located in Zhoumensi Town, Zixing City, Hunan Province. It has its own large-scale quartz mine with a mining area of 0.1753 square kilometers and a production scale of 1.33 million tons/year. The raw ore is supplied to Hunan Kibing Solar Technology Co., Ltd. Zixing Branch. The ultra-white quartz sand after mineral processing is widely used in neutral borosilicate medicinal glass tubes, solar glass, high alumina glass, special ceramics, wear-resistant materials and advanced fillers and other fields.

Zixing Kibing Silicon Sand adheres to the green mining development route, takes the harmonious development of industry and environment as its construction concept, and follows the principle of producing while reclamation and also attaches great importance to environmental protection, comprehensive management, energy conservation and emission reduction, technological innovation, comprehensive development and utilization of mineral resources and harmonious community construction in the production process. It was included in the Hunan Province Green Mine Directory in 2020.



湖南·郴州 Chenzhou·Hunan

湖南旗滨光能科技有限公司资兴分公司
Hunan Kibing Solar Technology Co., Ltd. Zixing Branch

湖南旗滨光能科技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，是旗滨集团依托资兴市丰富的矿产资源打造的，为旗滨在郴州地区的光伏光电及高端医药玻璃提供产业配套的石英砂原料供应基地。

公司建有2条高品质超白石英砂生产线，年产量达58万吨，可为郴州光伏玻璃生产基地提供100%超白硅砂原料保障。

Hunan Kibing Solar Technology Co., Ltd. Zixing Branch (known as Ziwu Kibing Silicon Sand) was established in March 2021. Located in No. 9 Jianggao Road, Ziwu Industrial Park, Tangdong Street, Zixing City, Hunan Province. The total investment of the project is 600 million yuan, with a total land area of about 140 mu (approximately 23 acres). It is built by Kibing Group based on the rich mineral resources of Zixing City, providing industrial supporting quartz sand raw material supply base for Kibing's solar glass and high-end pharmaceutical glass in Chenzhou area.

Ziwu Kibing Silicon Sand has built 2 high-quality ultra-white quartz sand production lines with an annual output of 580,000 tons, which can provide 100% ultra-white silica sand raw material guarantee for Hunan Kibing Solar Technology Co., Ltd.



云南·昭通 Zhaotong·Yunnan

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12月，位于云南省昭通市彝良县奎香苗族彝族乡松林村，注册资金4.5亿元，总用地面积510.48亩，项目总投资10.73亿元，拥有年产400万吨高品质超白石英砂加工生产线，生产工艺及设备先进。

项目超白石英砂可为昭通光伏玻璃生产基地提供100%原料保障。

Yiliang Kibing Silicon Materials Co., Ltd. (known as Yiliang Kibing Silicon Sand) was established in December 2021. Located in Songlin Village, Kuixiang Miao and Yi Ethnic Township, Yiliang County, Zhaotong City, Yunnan Province. It has a registered capital of 450 million yuan, a total land area of 510.48 mu (approximately 84 acres), and a total project investment of 1.073 billion yuan. It has an annual output of 4 million tons of high-quality ultra-white quartz sand processing production lines with advanced production technology and equipment.

The ultra-white quartz sand of Yiliang Kibing Silicon Sand can provide 100% raw material guarantee for Zhaotong Kibing Photovoltaic Technology Co., Ltd.



福建·漳州

Zhangzhou·Fujian

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

漳州旗滨光伏新能源科技有限公司东山分公司成立于2022年12月,位于福建省漳州市东山县康美镇,项目总投资约1.27亿元人民币,总占地面积约46亩,共建成1条年产80万吨高品质超白石英砂生产线。

项目超白石英砂可为光伏玻璃生产基地提供100%原料保障,实现东山县玻璃产业升级的重大战略。

Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. Dongshan Branch (known as Dongshan Kibing Silicon Sand) was established in December 2022. Located in Kangmei Town, Dongshan County, Zhangzhou City, Fujian Province. The total investment in the project is approximately 127 million yuan, the total area is approximately 46 mu (approximately 8 acres) to construct a high-quality ultra-white quartz sand production line with an annual output of 800,000 tons.

The ultra-white quartz sand of Dongshan Kibing Silicon Sand can provide 100% raw material guarantee for Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. and realize the major strategy of upgrading the glass industry in Dongshan County.



马来·沙巴

Sabah·Malaysia

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古达县,注册资金4.3亿元,总用地面积1.1万亩,项目总投资8.5亿元,建设1条年产120万吨高品质超白石英砂生产线,年产量高达120万吨。

项目超白石英砂可为沙巴光伏玻璃生产基地提供100%原料保障。

SBH Kibing Silicon Materials (M) SDN. BHD. (known as Sabah Kibing Silicon Sand) was established in January 2022. Located in Kudat County, Sabah, Malaysia. It has a registered capital of 430 million yuan, a total land area of 11,000 mu (approximately 1812 acres), and a total project investment of 850 million yuan. Build a high-quality ultra-white quartz sand production line with an annual output of 1.2 million tons, with an annual output of up to 1.2 million tons.

The ultra-white quartz sand of Sabah Kibing Silicon Sand can provide 100% raw material guarantee for SBH Kibing Solar New Materials (M) SDN. BHD.



太阳能发电站
Solar power plants



浙江·长兴
Zhejiang·Changxing



湖南·醴陵
Hunan·Liling



湖南·郴州
Hunan·Chenzhou



04

Product Introduction
产品介绍

04-1 新一代超白光伏 面板玻璃
New Generation Ultra-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。

Ultra-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%. Ultra-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 ultra-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 ultra-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%

旗滨新一代超白光伏玻璃钢化性能参数

Tempering Properties of New Generation Ultra-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	1350×2500mm	1350×2500mm	1350×2500mm
弓形度 General bow	≤0.25%	≤0.20%	≤0.20%
波形度 Local bow	≤0.50mm/300mm	≤0.30mm/300mm	≤0.25mm/300mm
表面应力 Comprehensive stress	≥60MPa	≥80MPa	≥120Mpa
落球测试 Impact test	标准227g钢球1m Standard 227g steel ball from 1m height	标准227g钢球1.2m Standard 227g steel ball from 1.2m height	标准1040g钢球1.0m Standard 1040g steel ball from 1.0m height
颗粒数 Fragmentation test	/	/	60-90粒 60-90pcs
耐静压测试 Static pressure test	2000pa	2400pa	4000pa
弯曲强度 Bending strength	≥120pa	≥140pa	≥150pa

旗滨新一代超白光伏玻璃镀膜性能参数

Coating Properties of New Generation Extra Ultra-clear 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



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 Ultra-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 Ultra-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 / Specifications

厚度范围: 1.6mm-4.0mm

Thickness range: 1.6mm-4.0mm

厚度偏差: 2.0mm±0.15mm; 3.2mm±0.2mm

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

厚薄差: 2.0mm, ≤0.2mm; 3.2mm, ≤0.25mm

Thickness difference: 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)

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.

主要性能参数 / Main Parameters

旗滨新一代超白光伏背板玻璃主要性能参数

Main Parameters of New Generation Ultra-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 $\geq 91.5\%$ 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	$\geq 60\text{N/cm}$

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, ultra-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 / 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

最大规格: 1400*2500mm (轻松兼容182、210等大型组件)

原片透过率: ≥ 91.8%

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

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

Raw glass sheet transmittance: ≥ 91.8%

镀膜性能 / Coating Performance

镀膜玻璃透过率, 单镀 ≥ 94.0%, 双镀 ≥ 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 ≥ 94.0% for single coating and ≥ 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).

钢化性能 / Tempering Properties

旗滨光能新超白压延光伏玻璃钢化性能参数

Tempering Properties of Ultra-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

BIPV光伏玻璃 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。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。BIPV光伏玻璃形式多样, 尺寸灵活, 兼具高透过率和高强度等优良性能, 是BIPV光伏组件的重要组成材料。

BIPV, or Building Integrated Photovoltaic, is a technology that integrates solar power (photovoltaic) products into buildings. The BIPV project realizes the integration of solar modules and buildings. The solar modules appear in the form of a building material, and the photovoltaic array becomes an integral part of the building. Such as photovoltaic tile roofs, photovoltaic curtain walls and photovoltaic lighting roofs. Since BIPV does not take additional ground space so it can meet both the functional and aesthetic needs of the building, it is a new trend in the future development of building + photovoltaics. BIPV solar glass has various forms, flexible dimensions, and has excellent properties such as high transmittance and high strength. It is an important material for BIPV solar modules.

薄膜TCO光伏玻璃

Thin Film TCO Photovoltaic Glass

薄膜光伏组件, 是一种把碲化镉、铜铟镓硒或砷化镓等, 通过共蒸法或者溅射法沉积在超白浮法光伏玻璃或者柔性材料基板上形成的新型组件。薄膜光伏组件具有重量轻、弱光响应好、温度系数低、适用于各种复杂综合场景等优势。薄膜TCO光伏玻璃, 具有对太阳的高透过率和高导电率, 是薄膜光伏组件的重要组成材料。

Thin film solar module is a new type of module formed by depositing cadmium telluride, copper indium gallium selenide or gallium arsenide on ultra-white float photovoltaic glass or flexible material substrate by co-evaporation method or sputtering method. Thin-film solar modules have the advantages of light weight, good weak light response, low temperature coefficient, and suitable for various complex and comprehensive scenarios. Thin-film TCO solar glass has high transmittance and high conductivity to sunlight, and is an important material for thin-film solar modules.

集团拥有丰富的色白玻原片及深加工工艺, 并拥有深厚的TCO在线镀膜工艺技术和人才储备, 可满足光伏建筑一体化项目(BIPV)和薄膜光伏组件对玻璃的多样化需求, 为各种光伏项目提供一站式玻璃解决方案。

The group has a wealth of original color and white glass and deep processing technology, and has a deep TCO online coating process technology and talent pool, which can meet the diversified needs of building integrated photovoltaic projects (BIPV) and thin-film photovoltaic modules for glass. The project provides 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 ultra-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 solar 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 ultra-clear solar glass thickness can be less than 1mm, with high flatness, which is suitable for the development of solar module.

04 | 尺寸灵活

新一代超白光伏玻璃原片最大板宽达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

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

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

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 | Strong weathering resistance

Kibing ultra-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 complicated environment, and ensure the stability of the battery module Power generation efficiency

06 | Dust not easy to be accumulated

Kibing ultra-clear solar 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.



高质量超白硅砂 High-quality Ultra-white 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、熔化、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。

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.

With the ultra-white silica sand mine bases in Hunan and Malaysia, Kibing Group provides a stable and reliable raw material supply 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 and storage of finished products strictly comply with the group's high-quality unified production standard.



先进的生产设备及优良的制程控制

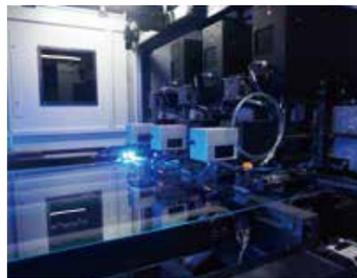
Advanced Production Equipment and Excellent Process Control

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。

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



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

旗滨光能为加速实施“做强做大”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。

Kibing Solar has expanded existing and built new solar glass production bases in Chenzhou, Hunan, Ningbo,Zhejiang, Zhangzhou,Fujian, Zhaotong,Yunnan, and Sabah,Malaysia, so as to continuously upgrade production capacity and quality, thus to accelerate the pace of realizing the “Going Strong and Big” strategy.

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、GB/T 30984.1-2015、JC/T 2170-2013、EN12150、ASTM-E-903(891)-96等标准。

质量管理体系完善,已申请并获得ISO9001:2015、ISO14001:2015、ISO45001:2018、ISO50001:2018等体系认证和CCC、PCCC、CE、CPVT、RACAH、ROHS等第三方产品认证和测试报告。

Kibing Solar's solar glass products meet the standards of GB15763.2-2005, GB/T 30984.1-2015, JC/T 2170-2013, EN12150, ASTM-E-903(891)-96 and other standards.

Kibing Solar has a complete quality management system, and has applied for and obtained ISO9001: 2015, ISO14001: 2015, ISO45001: 2018, ISO50001: 2018 and other system certifications and third-party product certifications such as CCC, PCCC, CE, CPVT, RACAH, and ROHS. testing report.



光伏玻璃生产基地

Solar glass production base

湖南旗滨光能科技有限公司

Hunan Kibing Solar Technology Co., Ltd.

地址:湖南省郴州市资兴市唐洞街道资五产业园江高路9号 423400

Address: No.9 Jianggao Road, Ziwu Industrial Park, Tangdong Street, Zixing City, Chenzhou City, Hunan Province 423400

电话 Tel:86-735-3396698

漳州旗滨光伏新能源科技有限公司

Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd.

地址:福建省漳州市东山县光伏及玻璃新材料产业基地光伏二路南侧 363400

Address: South of Photovoltaic and Glass New Material Industry Base, Dongshan County, Zhangzhou City, Fujian Province 363400

电话 Tel:86-596-3910822

宁波旗滨光伏科技有限公司

Ningbo Kibing Photovoltaic Technology Co., Ltd.

地址:浙江省宁波市宁海县宁波南部滨海新区南滨南路168号 315600

Address: No. 168, Nanbin South Road, Binhai New District, Southern Ningbo, Ninghai County, Ningbo City, Zhejiang Province 315600

电话 Tel:86-574-65103001

昭通旗滨光伏科技有限公司

Zhaotong Kibing Photovoltaic Technology Co., Ltd.

地址:云南省昭通市昭阳区旧圃工业园区 657004

Address: Jiupu Industrial Park, Zhaoyang District, Zhaotong City, Yunnan Province 657004

电话 Tel:86-870-2355023

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.

地址 Address: Industrial Zone 7, Phase 2, Jalan 7 KKIP Timur, Kota Kinabalu Industrial Park (KKIP), 88460 Kota Kinabalu, Sabah.

电话 Tel:+60-88497749

战略资源生产基地

Strategic resource production base

湖南旗滨光能科技有限公司资兴分公司

Hunan Kibing Solar Technology Co., Ltd. Zixing Branch

地址:湖南省郴州市资兴市唐洞街道资五产业园江高路9号 88460

Address: No.9 Jianggao Road, Ziwu Industrial Park, Tangdong Street, Zixing City, Chenzhou City, Hunan Province 88460

电话 Tel:86-735-2110808

资兴旗滨硅业有限公司

Zixing Kibing Silicon Materials Co.,Ltd.

地址:湖南省资兴市州门司镇 423411

Address: Zhoumensi Town, Zixing City, Hunan Province 423411

漳州旗滨光伏新能源科技有限公司东山分公司

Zhangzhou Kibing Photovoltaic New Energy Technology Co., Ltd. Dongshan Branch

地址:福建省漳州市东山县光伏及玻璃新材料产业基地光伏二路南侧 363400

Address: South of Photovoltaic and Glass New Material Industry Base, Dongshan County, Zhangzhou City, Fujian Province 363400

彝良旗滨硅业有限公司

Yiliang Kibing Silicon Materials Co.,Ltd.

地址:云南省昭通市彝良县奎香苗族彝族乡松林村 657604

Address: Songlin Village, Kuixiang Miao and Yi Township, Yiliang County, Zhaotong City, Yunnan Province 657604

电话 Tel:86-870-5127596

沙巴旗滨硅材料(马来西亚)有限公司

SBH Kibing Silicon Materials (M) SDN. BHD.

地址 Address:Lot SH3A, First Floor, Shop Lot, Friendly Garden 3B, 89058 ,Kudat, Sabah.