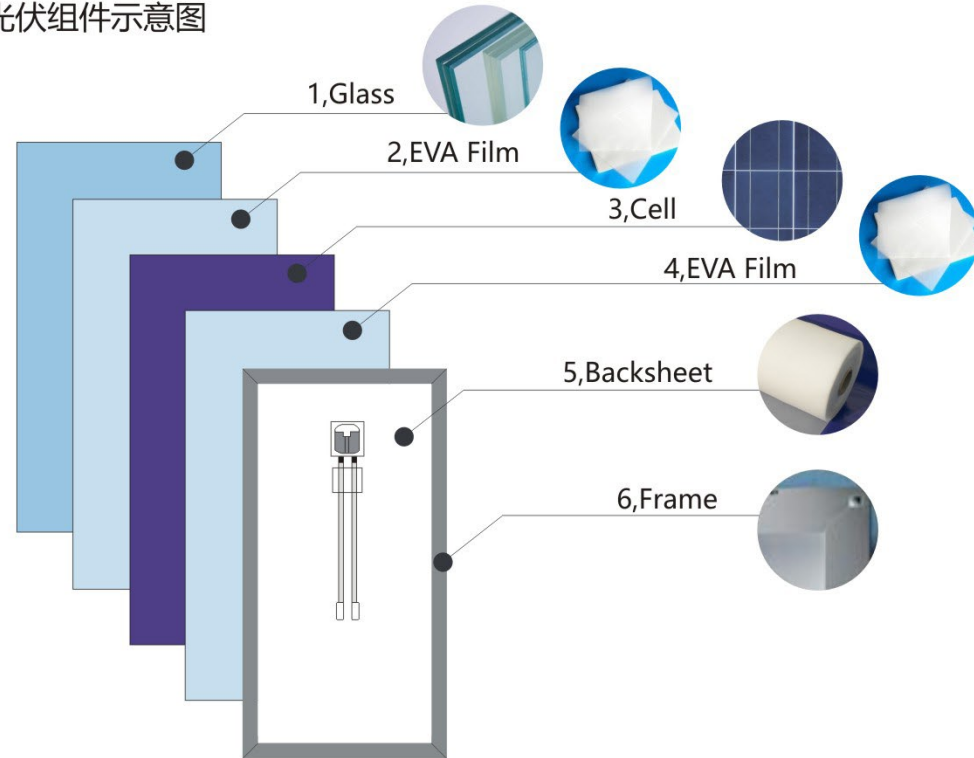


PV module components
光伏组件示意图



Hangzhou XinDongke
Energy Technology Co.,Ltd.

杭州鑫东科能源科技有限公司

SOLAR RAW MATERIAL



Hangzhou XinDongke Energy Technology Co.,Ltd.
杭州鑫东科能源科技有限公司

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Hangzhou XinDongke
 Energy Technology Co.,Ltd.



COMPANY PROFILE

Hangzhou XinDongke Energy Technology Co.,Ltd. Is a professional manufacture of solar glass, pv ribbons, providing photovoltaic raw materialthe products of company. Have certificatees of ISO 9001/TUV nord.

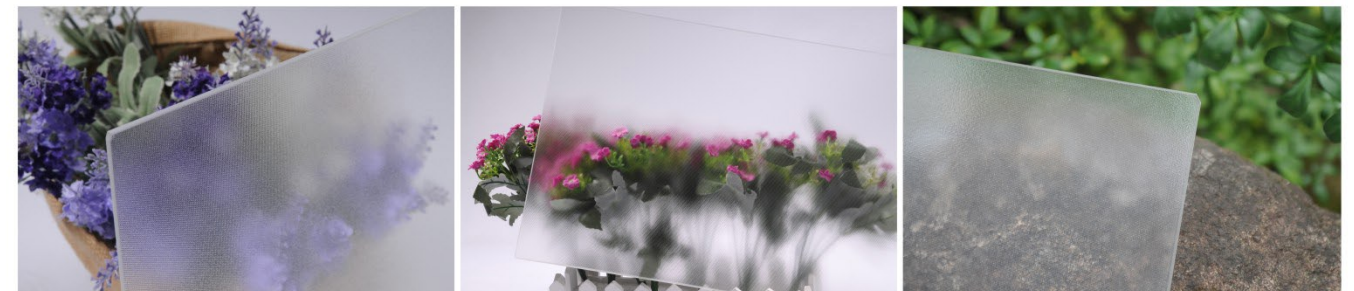
Products of dongke has been exported to Europe, USA, Middle East, Australia more than **50countries.**

We supply with reasonable price, product of high-quality and good after-sales service. Expect to have the long time business cooperation with you.

Solar Glass

超白压花玻璃

Ultra-clear photovoltaic patterned glass(tempered glass and AR tempered glass)
 Thickness: 2.0mm/2.5mm/3.2mm/4mm Size: According to customer needs



Major Properties

1. Density	≈2.5g/cc	1. 玻璃密度	≈2.5g/cc
2. Solar Transmittance (3.2mm)	≥91%(≥93% for AR glass)	2. 太阳光透过率(3.2mm)	≥91%
3. Iron Content	≤120ppm	3. 玻璃含铁量	≤120ppm
4. Poisson's Ratio	≈0.2	4. 泊松比	≈0.2
5. Young's Modulus	≈73GPa	5. 杨氏弹性模量	≈73GPa
6. Tensile Strength	≈42MPa	6. 抗拉强度	≈42MPa
7. Hemispherical Emissivity	≈0.84	7. 半球辐射率	≈0.84
8. Expansion Coefficient	9.03×10-6m/k	8. 膨胀系数	9.03×10-6m/k
9. Softening Point	≈720°C	9. 软化点	≈720°C
10. Annealing Point	≈550°C	10. 退火点	≈550°C
1. Strain Point	≈500°C	11. 应变点	≈500°C

Ultra-clear Float Glass

超白浮法玻璃

Thickness: 3.2mm-12mm Size: According to customer needs



Major Properties

密度Density	2.5076g/cm ³
线性膨胀系数20-300°C Linear Coefficient of Expansion 20-300°C	9.28x10 ⁻⁶ °C
Linear Coefficient of Expansion 20-450°C	9.75x10 ⁻⁶ °C
转化温度Transformation Temperature	556°C
软化温度或屈服点Intenerate Temperature or Yield Point	606°C
软化点Softening Point	710°C
退火点Annealing Point	547°C
应力点Strain Point	513°C
高温粘度 log2 High Temperature Viscosity log2	1392°C
log3 High Temperature Viscosity log3	1152°C
log4 High Temperature Viscosity log4	996°C
液相温度Liquid Phase Temperature	1008°C

TCO Glass

TCO玻璃

Thickness: 3.2mm Size: According to customer needs

1. Product description:

The TCO by high temperature chemical vapor phase deposition method in the thickness 3.2mm ordinary float glass preparation of transparent conductive products, mainly used in amorphous silicon single or amorphous tandem thin film solar battery, high-quality TCO products required transmission rate, conductivity and haze achieved optimal balance of beauty.

TCO products prepared by high temperature thermal decomposition chemical vapor deposition method have the advantages of strong adhesion, and can be easily processed by two deep processing, packaging and transportation.



2. Product performance

Glass substrate	White glass
Conductive film	Fluorine doped(FTO)
Deposition method	Chemical vapor deposition(CAD)

3. Application domain

Amorphous silicon single junction or double junction amorphous thin film solar cell.

4. Product index

1. Transmittance (%)	> 80%	Within the visible range
2. Haze (%)	> 10%	According toD1007-95 standard
3. Surface resistance (Ω/°)	< 8	Standard four probe
4. Color uniformity	Neutral (0 < a < 1 , -2.5 < b < -2)	
5. Carrier concentration (1/cm ³)	3.11E+20	HALL HM-3000
6. HALL Mobility(cm ² /V*S)	≥42	HALL HM-3000

EVA Film 太阳能胶膜

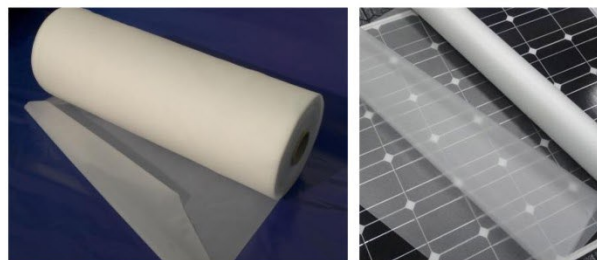
Solar cell encapsulation with EVA film is EVA resin as basic material, adding a variety of high quality modified additives after melting extrusion of yellowing with UV resistance, anti-aging, stripping degree higher characteristic of the thermosetting adhesive film.

技术参数 Technical Data Sheet:

产品型号 Model Numbe	DK906	DK907	DK906P	DK907P
厚度 Thickness	0.2-1.0 mm	0.2-1.0 mm	0.2-1.0 mm	0.2-1.0 mm
宽度 Width	≤2200 mm	≤2200 mm	≤2200 mm	≤2200 mm
卷长 Roll length	100-150m	100-150m	100-150m	100-150m
VA含量 VA Content	30-33%	30-33%	28%	28%
密度 Density(g/cm3)	0.96	0.96	0.96	0.96
交联度 Gel Content(%)	75-90 %	75-90 %	75-90 %	75-90 %
抗拉强度 Ultimate Tensile Strength(MPa)	18Mpa	18Mpa	18Mpa	18Mpa
延伸率 Ultimate Elongation(%)	550	550	550	550
吸水率 Water absorption(%/day)	≤0.1	≤0.1	≤0.1	≤0.1
与玻璃剥离强度 Adhesion with Glass(N/cm)	≥60	≥60	≥60	≥60
与背板剥离强度 Adhesion with Backsheet(N/cm)	≥40	≥40	≥40	≥40
收缩率 Shrinkage(%)	纵向 TD	≤3.0	≤3.0	≤3.0
	横向 MD	≤2.0	≤2.0	≤2.0
体积电阻率 Volume Resistivity(Ω · cm)	≥6*1014	≥6*1014	≥1*1015	≥1*1015
紫外截止波长 UV Cut-off(nm)	305	360	305	360
黄变指数 Yellowness Index(15kw.h/m2,280-380 nm)	≤2	≤2	≤2	≤2
黄变指数 Yellowness Index(85°C/85% 2000 hs)	≤2	≤2	≤2	≤2
透光率 Light Transmission(%)	≥91	≥91	≥91	≥91
折射率 Refractive Index	1.482	1.482	1.482	1.482

Storage and using

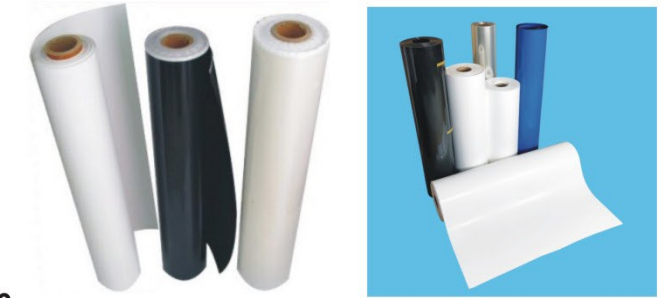
1. store in cool and dry in the room temperature, temperature ≤ 30 °C, humidity ≤ 70%; the shift time is six months; suggest use up within three months..
2. product long-term stacking height, should not be too high, below five layer is ok ,it can avoid bending deformation under the heavy pressure.
3. It is recommended that do not use the innermost and outermost circle,
4. don't make the product moisture, after opening the roll or cut a good film, is proposed use up within 48 hours.



太阳能背板用TPT复合膜/PET膜

用途：专业适用于太阳能电池组件背封衬底。

Professional suitable for solar modules back sealing substrate.
Specification: 0.2mm to 0.3mm



High-performance solar back sheets Dk30

项目 Project	单位 Unit	检测方法 Detection	数值 Value
背板厚度 Thickness	μm	电子数显千分尺 Electronic digital micrometer	300±11
抗张强度(MD) Tensile strength(MD)	N/mm ²	ASTM D882-2002	≥120
抗张强度(TD) Tensile strength (TD)	N/mm ²	ASTM D882-2002	≥120
伸长率(MD) Elongation (MD)	%	ASTM D882-2002	≥100
伸长率(TD) Elongation(TD)	%	ASTM D882-2002	≥90
收缩率150°C×30min(MD) Shrinkage 150°C×30min(MD)	%	ASTM D882-2002	≤1.0
收缩率150°C×31min(TD) Shrinkage 150°C×31min(TD)	%	ASTM D882-2002	≤0.6
层间附着力 Adhesion between the layers	等级 Level	ASTM D3359-2002	5B
与EVA粘结强度 (初始) Adhesion strength with EVA (initial)	N/10mm	GB/T 2790-1995	≥55
与EVA粘结强度(90°C×90%RH,1000h) With EVA adhesion strength (90°C×90%RH,1000h)	N/10mm	GB/T 2790-1995	≥45
局部放电电压 Partial discharge voltage	VDC	IEC60664-1,IEC61730	≥1030
击穿电压强度 Breakdown voltage strength	KV/mm	ASTM D149-1997	≥85
水蒸气透过率 Water Vapor Transmission Rate	g/m ² .d	ASTM F1249-2006	≤1.8
耐湿热老化试验(90°C×90%RH,2000h) Resistance to heat aging test		GB/T 13448-2006	不脱层, 不起泡, 不变色 No delamination, blistering
人工辐射暴露 (QUVB,3000h)		GB/T16422.3-1997	4级

PV Ribbon

太阳能焊带

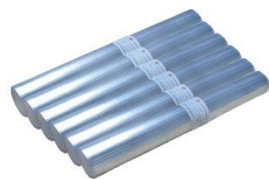


Automatic welding interlink strip

1. Environmental protection PV Ribbon has already passed SGS test with Europe Union RoHS directive standards.
2. Copper: oxygen-free copper wire planish, Contain copper quantity $\geq 99.97\%$, Conductivity $\geq 100\%$
3. Copper electrical resistivity: Oxygen-free copper $\leq 0.0165\Omega\text{mm}^2/\text{m}$
T2 copper $\leq 0.0172\Omega\text{mm}^2/\text{m}$
4. Component: 63%Sn37%Pb, 60%Sn40%Pb (TM-A)
96.5%Sn3.0%Ag0.5%Cu, 99%Sn1%Ag (TM-B)
62%Sn36%Pb2%Ag (TM-C)
5. Solder tin melting point: 179 ~ 217°C
6. Tensile strength: $\geq 200\text{N}/\text{mm}^2$
7. Extensibility: $\geq 25\%$
8. According to customer requirements, we can provide different chemical coating and different sizes of products

Hand welding interlink strip/bus bar

1. Environmental protection PV Ribbon has already passed SGS test with Europe Union RoHS directive standards.
2. Copper: oxygen-free copper wire planish, Contain copper quantity $\geq 99.97\%$, Conductivity $\geq 100\%$
3. Copper electrical resistivity: Oxygen-free copper $\leq 0.0165\Omega\text{mm}^2/\text{m}$
T2 copper $\leq 0.0172\Omega\text{mm}^2/\text{m}$
4. Component: 63%Sn37%Pb, 60%Sn40%Pb (TM-A)
96.5%Sn3.0%Ag0.5%Cu, 99%Sn1%Ag (TM-B)
62%Sn36%Pb2%Ag (TM-C)
5. Solder tin melting point: 179 ~ 217°C
6. Tensile strength: $\geq 200\text{N}/\text{mm}^2$
7. Extensibility: $\geq 20\%$
8. According to customer requirements, we can provide different chemical coating and different sizes of products



Product Performance

PV copper base material with high purity TUI oxygen-free copper (copper content $\geq 99.97\%$, conductivity $\geq 100\%$, resistivity $\leq 0.0165\Omega\text{mm}^2/\text{m}$), through the strict production process: Rolling → Surface cleaning → Hot tin-plate → Spool/Round plate/Fixed-length cutting, that finished the PV ribbon product.

PV copper(normal)Physical

- 1: Tensile strength: $\geq 200\text{N}/\text{mm}^2$
- 2: Yield strength: $\leq 60\text{N}/\text{mm}^2$
- 3: Extensibility: $\geq 25\%$
- 4: Vickers hardness: $\leq 45\text{Hv}$

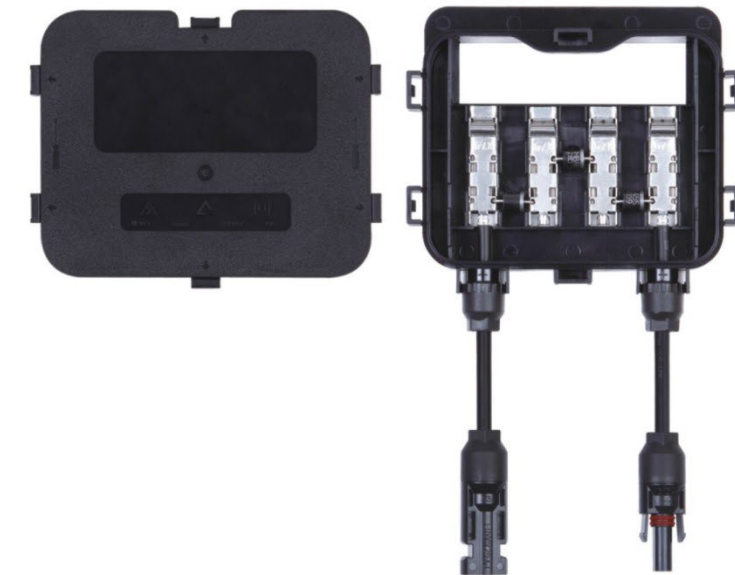
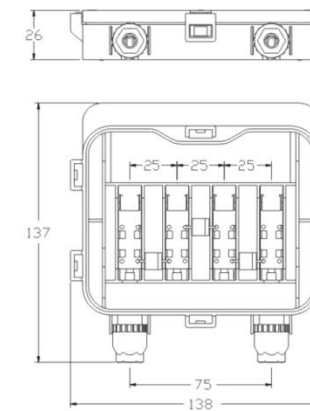
PV ribbon(normal) Physical

- 1: Tensile strength: $\geq 150\text{N}/\text{mm}^2$
- 2: Yield Strength: $\leq 60\text{N}/\text{mm}^2$
- 3: Extensibility: $\geq 20\%$

Solar Junction box

太阳能接线盒

A PV junction box is attached to the back of the solar panel with silicon adhesive. It wires the (usually) 4 connectors together and is the output interface of the solar panel. With the use of a junction box, it becomes easy to connect the solar panel to array.



Basic Technical Data / 基本技术参数

Certifications / 认证	TUV	UL
Certificate No. / 证书号码	R 50277747	E310508
Rated Voltage / 额定电压	1000VDC	600V DC/100V DC
Ambient Temperature Range / 温度范围	-40°C ~ +85°C	-40°C ~ +90°C
Safety Class / 安全等级	Class II/II级	
Protection Degree / 保护等级	IP67	IP65
Wire Size Range / 线缆尺寸范围	4mm ²	12AWG
Flame Resistance / 阻燃等级	5VA	
Waterproof Structure / 防水结构	Seal Ring/密封圈	
Width Of Ribbons / 汇流条宽度	Up to 8mm/最大8mm	
Centerline Spacing Between Terminals / 端口间距	25mm	
Connection Method / 汇流条连接方式	Spring Clamping/卡接	
Insulation Material / 绝缘材料	POO	
Contact Material / 接触材料	Copper, Tin-Plated/铜, 镀锡	
Overall Size / 外形尺寸	138*137*26mm	
Optional Connector / 可选配连接器	PV-GZX0601-1, MC4, H4	PV-GZX0601-1, MC4

Silicone Sealant for solar photovoltaic assembled parts

太阳能光伏组件有机硅密封胶

Products

Our silicon is designed for solar photovoltaic assembled parts designed for specific silicone adhesive sealant. Adhesion for aluminum frame, terminal control box and back material. Bonding fixed is also suitable for thin film solar cell back metal stent and glass. and other relative electronics, appliance, auto parts and measuring meters.

1. Good Adhesion, mostly without primer,
2. Neutral curing, no corrosive to metals,
3. Excellent electrical insulation,
4. Excellent weatherproof, anti-UV, anti-ozone,
5. Can be used in -60°C to 260°C work environment.
6. Passed to yellowing, environmental corrosion, mechanical shock, thermal shock, vibration and so on.
7. Passed TUV, SGS, UL, ISO9001/ISO14001 Certification.

Technical data

数据为准。

颜色color	白色或黑色White/black
粘度Viscosity , cps	非流动Non-slump
固化类型Solidification type	单组份酮肟型 Single component alkone wo
密度Density, g/cm ³	1.39±0.05
表干时间Tack-Free Time (min)	5~20
硬度Durometer hardness, 邵氏A	40~55
拉伸强度Tensile strength, MPa	≥2.0
断裂伸长率Elongation at Break, %	≥300
体积电阻Volume resistivity, Ω.cm	1×10 ¹⁴
介电强度disruptive strength, KV/mm	≥17
使用温度working temp., °C	-60~260

注：测试条件：温度23~25°C，相对湿度50±5%下固化7天。表中数据仅供参考，请以实测数据为准。

Available packing

Black, white, available customer tailored, in 310ml cartridges, 400ml flexible packaging, 20L or 200L metal pail.

Storage shelf life

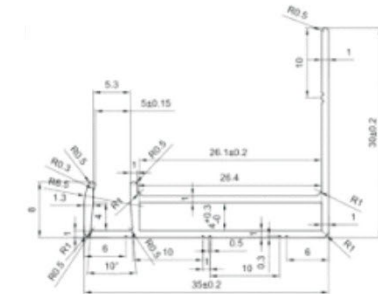
This product is non-dangerous goods, save in temperature below 27 °C in a cool dry place for a period of 12 months.



Aluminum Frame

太阳能电池封装边框

Solar panel frame is fixed aluminum alloy frame applied in PV field.



Advantage

1.Excellent quality

The complete quality control system is guaranteeing 100% measure up.

2.Enormous output

We can make customizsd products with different specifications with stable quality.

3.Excellent equipments

We imported the equipments from japan and German, and the precision of the molds can reach 0.02mm.

