



上海耀皮玻璃集团股份有限公司

Shanghai Yaohua Pilkington Glass Group Co.,Ltd.

Shanghai Yaohua Pilkington Glass Group

1

ABOUT US

2

PRODUCTS

3

QA/QC CONTROL



SYP SHAREHOLDING COMPOSITION



Shanghai Building
Materials (Group) Co.
Ltd.



PILKINGTON

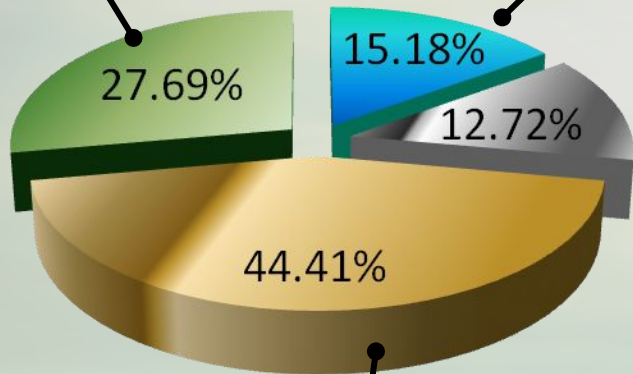
Pilkington International
Holdings BV

Total Assets: 8,202M RMB

Total Market Value: 7,021M RMB

(2015.05.11)

Total Share Capital: 934M Shares



China Composites
Group Co., Ltd

Other Social Corporation Shares
Other Outstanding Shares
Other Circulation B Shares



1. Float glass
2. Advanced auto float glass
3. Online Low-E glass

➤ Float Glass

1. Offline Low E glass
2. Solar Reflective glass
3. HS / TP glass
4. IGU
5. Laminated glass
6. Ceramic Frit glass

➤ Architectural Glass

1. Fire- and impact-resistant glass: Pyrostop®
2. Processing Activ™ Self-Cleaning Glass
3. Anti-reflective glass

➤ Pilkington Glass

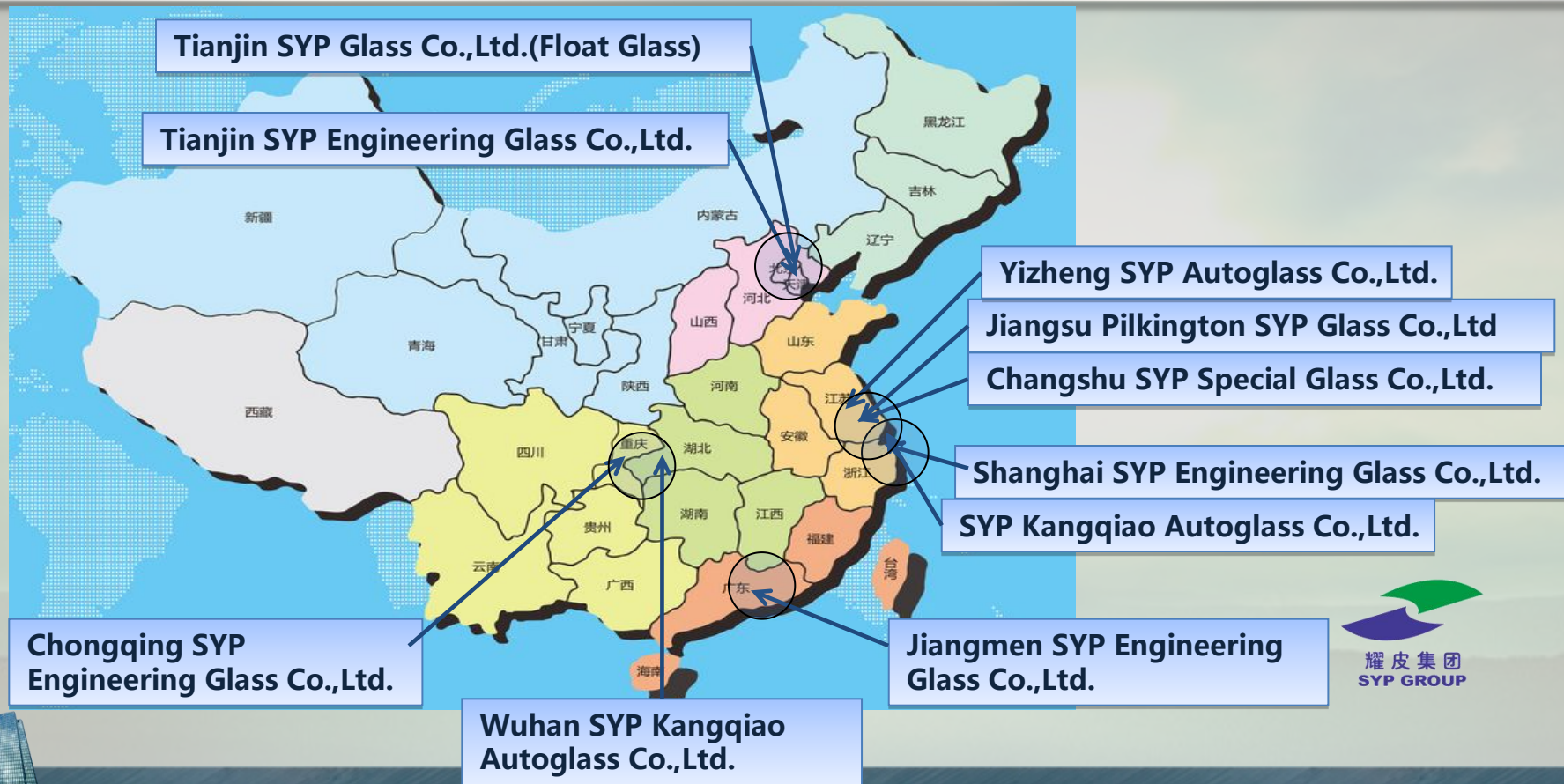
➤ Transparent conductive oxides (TCO) Glass

➤ Auto Glass

耀皮产品
SYP GLASS PRODUCTS



SYP 5 PRODUCTION BASES



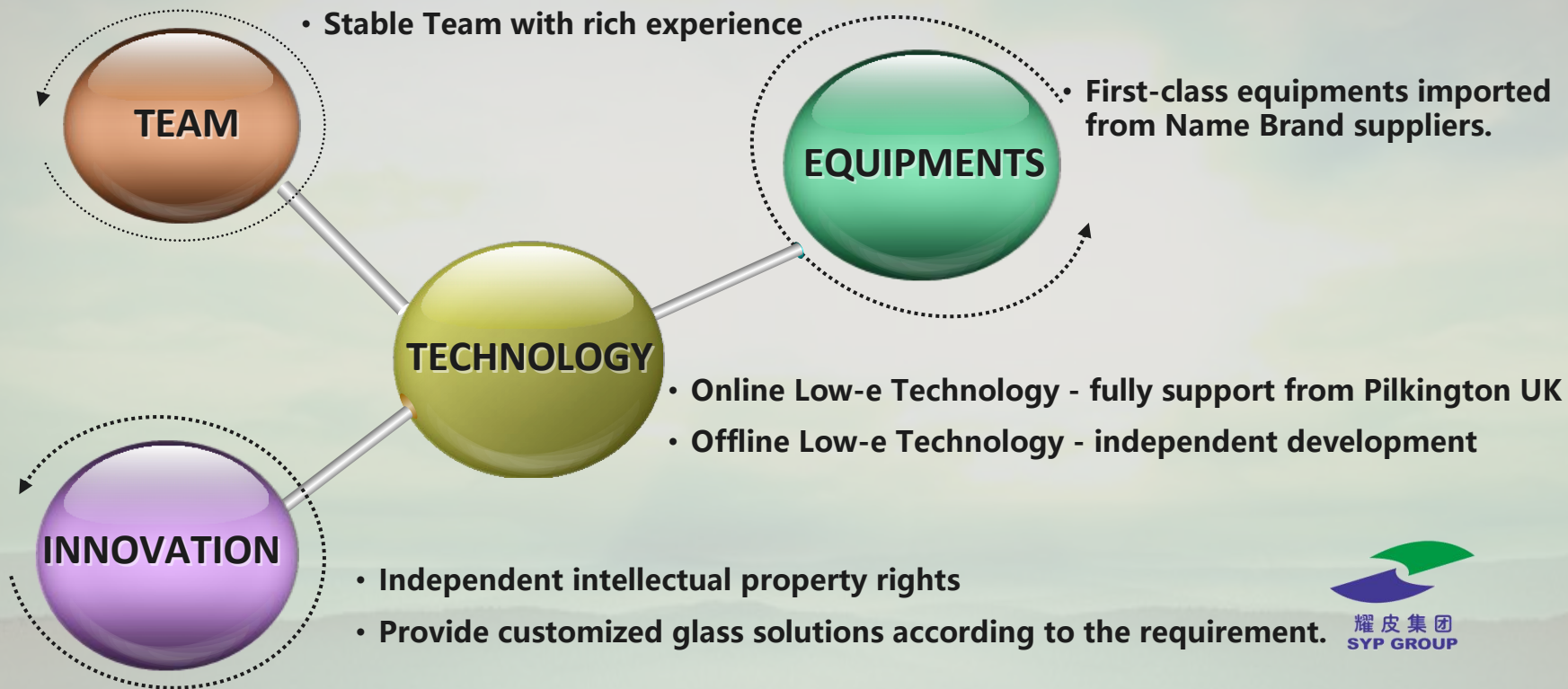
SYP 34 Years Developing Milestones

Events	Year	Industry Memo
Founded	1983	
Float Glass Clear	1987	1st in China (World's first one on 1952 by Pilkington)
IPO listed	1993	1st lot in China
Solar Reflective	1994	
Float Glass Tinted	1995	1st in China
Single Low-E	1997	1st in China (World's first one on 1982 by Gardien)
Auto Glass	2000	
Acquisition	2003	Took over AGC Chinese Investment "Tianjin AGC Float Glass Co Ltd" and renamed as "Tianjin SYP Glass Co., Ltd ."

SYP 34 Years Developing Milestones

Events	Year	Industry Memo
Double Low-E	2004	
Low Iron Line	2006	Changshu SYP Special Glass Low Iron Line went into production
Hard Coat Low-E	2009	Pilkington Energy Advantage
Triple Low-E	2011	World's first one on 2004 by PPG / Cardinal

SYP ADVANTAGE



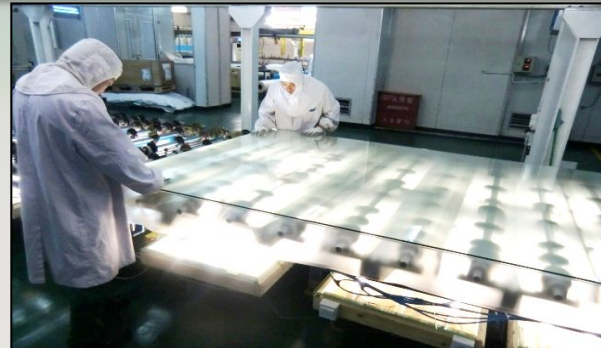
Most Advanced Name Brand Equipment



UK Pilkington Float line



Israel DIP-TECH



German Benteler - laminating



Switzerland Bystronic- cutting



Italy Glaston-grinding



Finland Tamglass -tempering

Most Advanced Name Brand Equipment



German Von Ardenne



German Leybold coating



Austria Lisec-IGU

Huge Monthly Production Output

	Cutting 切		Grinding 磨		Tempering 钢化		Coating 镀膜		Laminating 夹胶		IGU 中空	
Plant	Lines QTY	Output (K m ²)	Lines QTY	Output (K m ²)	Lines QTY	Output (K m ²)	Lines QTY	Output (K m ²)	Lines QTY	Output (K m ²)	Lines QTY	Output (K m ²)
TSYP	11	1092	18	1092	13	1092	3	540	3	113	18	450
SSYP	8	840	12	840	11	840	2	360	4	150	13	300
JSYP	4	420	6	420	6	420	1	180	2	75	6	150
CSYP	5	420	6	420	6	420	1	180	2	75	9	150
Grand Total	28	2772	39	2772	36	2772	7	1260	10	413	46	1050

ARCHITECTURAL GLASS PRODUCTION CAPACITY

Equipment	Jiangmen			Shanghai			Tianjin			Chongqing		
	Min. Size (mm)	Max. Size (mm)	Thickness (mm)	Min. Size (mm)	Max. Size (mm)	Thickness (mm)	Min. Size (mm)	Max. Size (mm)	Thickness (mm)	Min. Size (mm)	Max. Size (mm)	Thickness (mm)
Ceramic Frit	300*300	2440*4500	3-19	300*300	2400*4800	3-19	300*300	2440*4500	4-19	300*300	2440*4800	3-19
DIP-Tech Printing	-	-	-	-	-	-	-	-	-	No limits	2800*4000	2-19
Tempering	100*250	2440*6000 / 3000*5000	4-19	100*250	2440*6000	3-22	300*300	3300*12000	4-19	400*500	2400*14000 / 3000*5000	5-19
Coating	300*800	2400*7200	3-19	300*800	2540*4200	3-19	300*800	3300*12000	3-19	300*800	2400*12000	3-19
Laminating	300*300	2440*6000	≤80	300*300	2440*6000	6-60	300*300	3300*12000	6-65	500*500	3300*14000 耀皮集团 SYP GROUP	3-19
IGU	300*300	2500*5000	≤54	300*300	2700*5000	12-55	300*300	2700*5000	≤60	300*300	2400*4500	≤54

Over Size Machine

Autoclave oven for lamination: **3300mm*14000mm**



Over Size Machine

Heat Soak Test Oven Size: 2500mm*16000mm

Capacity: 14 ton / oven



Over Size Machine

The largest coating line in Asia: 3300mm*12000mm



SPECIAL PRODUCTS

- **Oversize Tempered / Laminated / Low-E, IGU**
- **Hyperbolic Curved Glass (Double Curved)**
- **Digital Printing frit Glass (720dpi)**

Oversize Tempered / Laminated / Low-E, IGU

10mm Clear TP w/ Low-E (#2) +12Air + 10mm Clear TP

Size: 1500*10500mm



Oversize Tempered / Laminated / Low-E, IGU



10mm Low Iron Curve Tempered
+2.28PVB
+10Low Iron Curve Tempered
w/ Holes & Notches

Size: 1500*9000mm

Panorama of Hyperbolic Curved Tempering Machine



In/out

E Multiple curve

B16 single curved

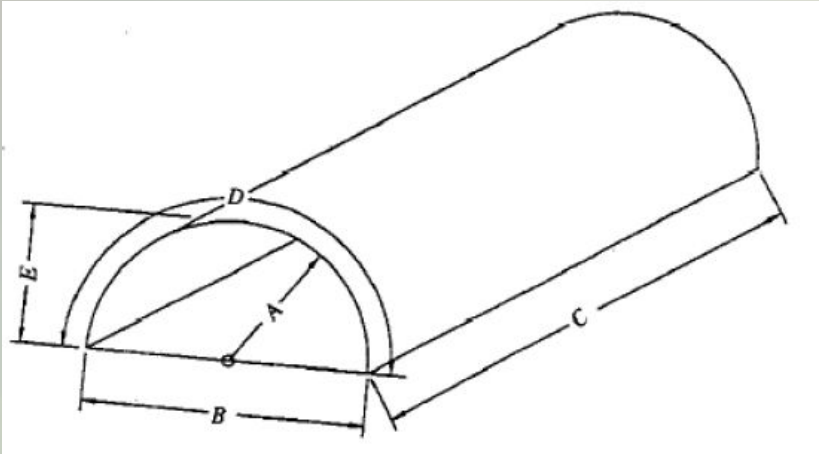
B30 single curve

IN / OUT

(Flat/Curve) Tempering Machine:

2400mm*14000mm

Curve Glass

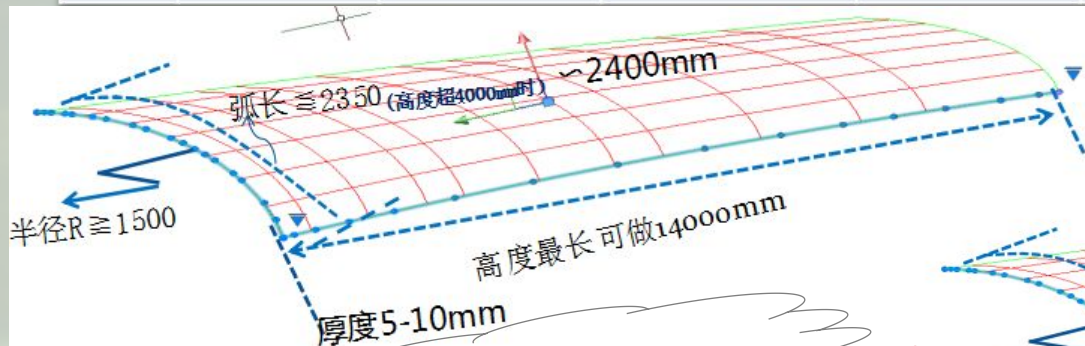


- A - Curve Radius
- B - Chord
- C - Height
- D - Arch Length
- E - Arch Height

1. **Cold Bending** 冷弯: Processed by façade company, to destroy the glass structure
2. **Hot Bending** 热弯: Not tempered glass easily to cause thermal stress breakage
3. **Tempered Curve** 钢化弯钢:
 - A. Single Radius :over size up to 14m, the minimum R is 750mm)
 - B. Double or multi-radius :(Gradient curve glass, the radius difference can reach 350mm

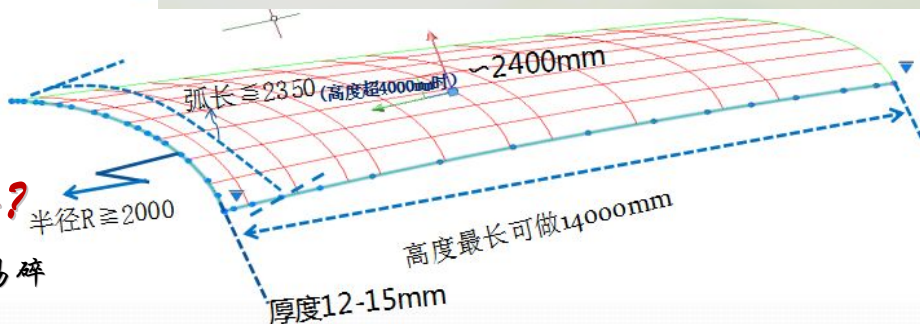
C150: Single Curve, Max size of 14m

Eqpt.	THK (mm)	Min R(mm)	Max R(mm)	Min Size(mm)	Max Size(mm)	Max Arch Rise(mm)	Heat Treat
C150	5--6	1500	16000	400*900 (Arc L)	4000*2400 (Arc L)	320	HS
	8--10					T	
	12--15	2000			14000*2350 (Arc L)	240	T
	19	2500				197	T



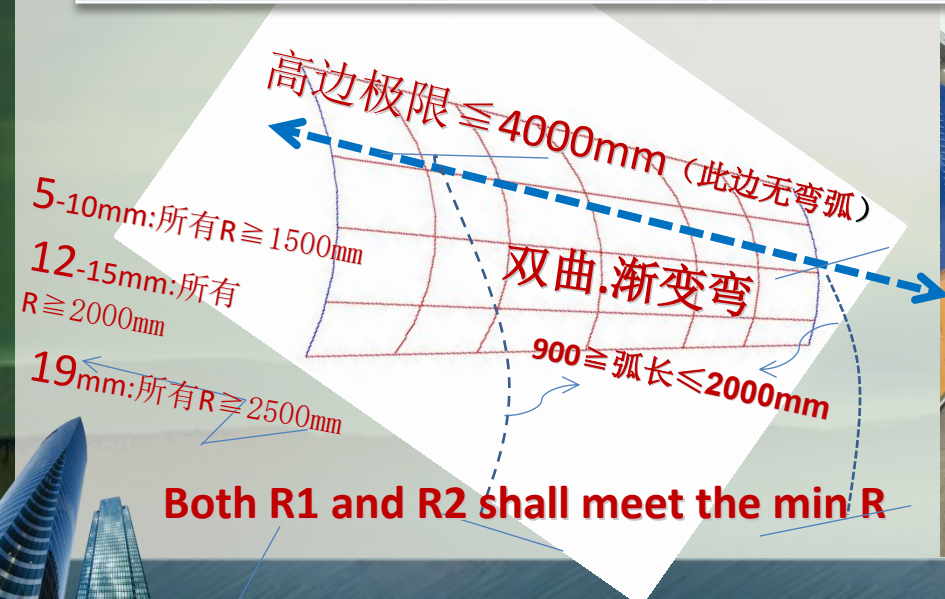
为何厚薄玻璃的半径限定存在差异?

弯钢在成型过程, 厚玻璃半径过小, 在成型过程易碎
或中部出现暗裂



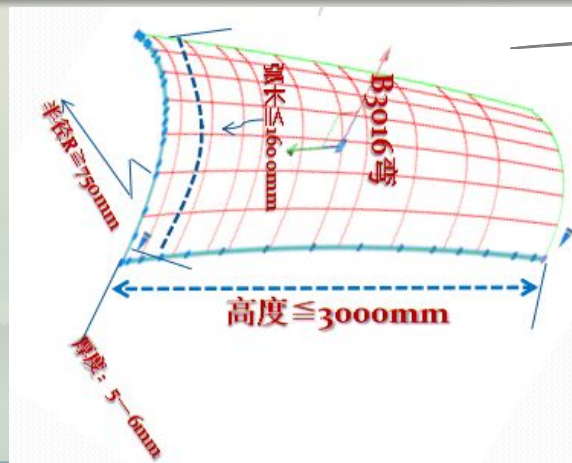
C150: Hyperbolic Curve - Trumpet Curve & Gradient Curve

Eqpt.	THK (mm)	Min R(mm)	Max R(mm)	Min Size(mm)	Max Size(mm)	Heat Treat
C150	5--6	1500	16000	400*900 (Arc L)	4000*2000 (Arc L)	HS
	8--10					T
	12--15	2000				T
	19	2500				T



B3016: Single Curve R750

Eqpt.	THK (mm)	Min R(mm)	Max R(mm)	Min Size(mm)	Max Size(mm)	Max Arch Rise(mm)	Heat Treat
B3016	5--6	750	20000	400*500 (Arc L)	3000*1600 (Arc L)	387	T
	8--10	1500				208	T
	12--15	2000				157	T
	19	2500				126	T



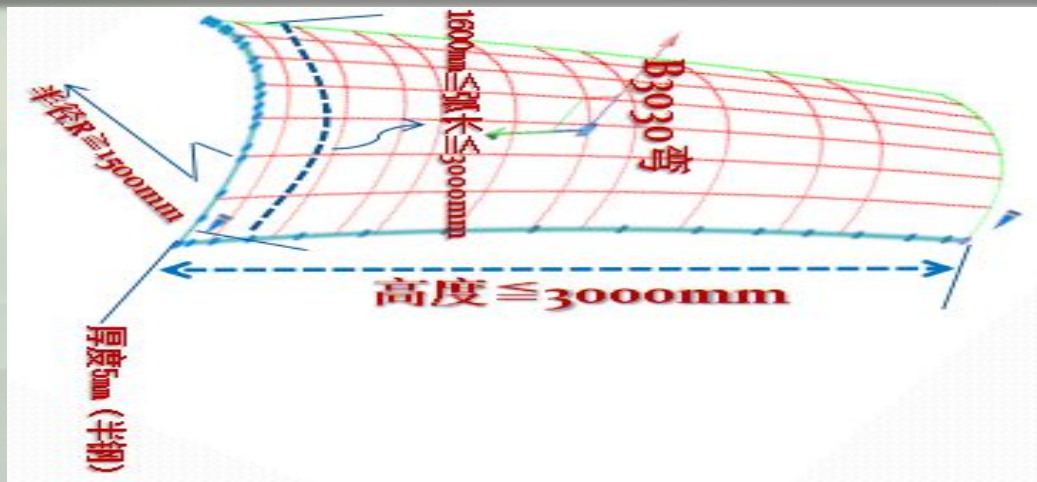
为何厚薄玻璃的
半径限定存在差
异?

弯钢在成型过程，厚
玻璃半径过小，在成型过程易
碎或中部出现暗裂

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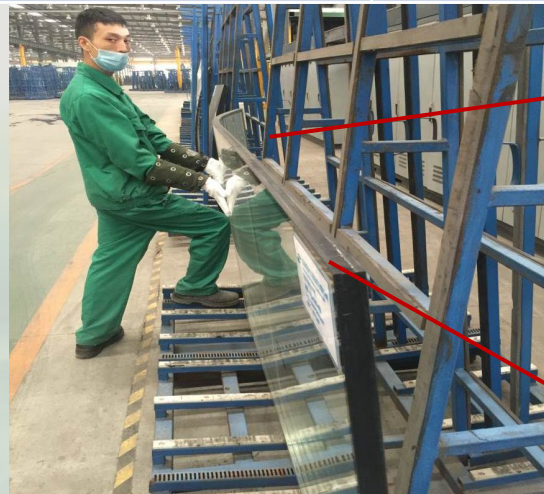
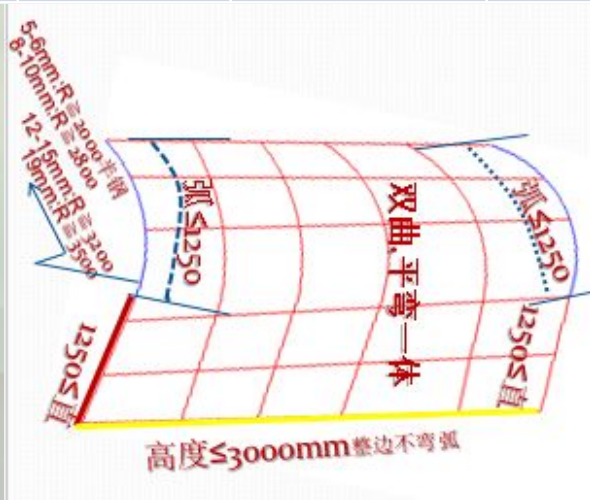
B3030: Single Curve R1500

Eqpt.	THK (mm)	Min R(mm)	Max R(mm)	Min Size(mm)	Max Size(mm)	Max Arch Rise(mm)	Heat Treat
B3030	5	1500	20000	400*500 (Arc L)	3000*3000 (Arc L)	689	HS
	6					689	T
	8--10					689	T
	12--15	2000				536	T
	19	2500				436	T



B3030: Hyperbolic Curved- L Shape

Eqpt.	THK (mm)	Min R(mm)	Max Loading Panel	Max Arch Rise(mm)	Heat Treat
B3030	5	2000	3000*1250(Arc length)+1250(Straight)	96	HS
	6		3000*1250(Arc length)+1250(Straight)	96	T
	8--10	2800	3000*1250(Arc length)+1250(Straight)	69	T
	12--15	3200	3000*1250(Arc length)+1250(Straight)	60	T
	19	3500	3000*1250(Arc length)+1250(Straight)	55	T



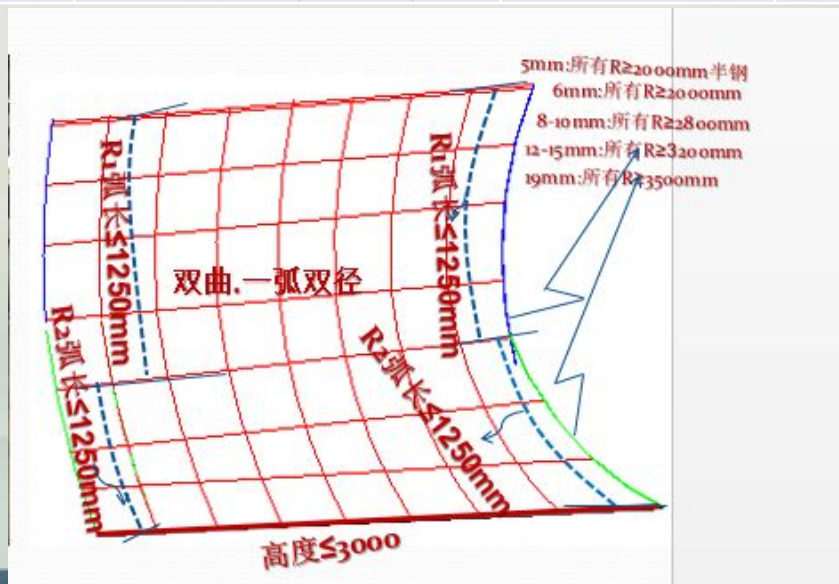
Curved

Flat



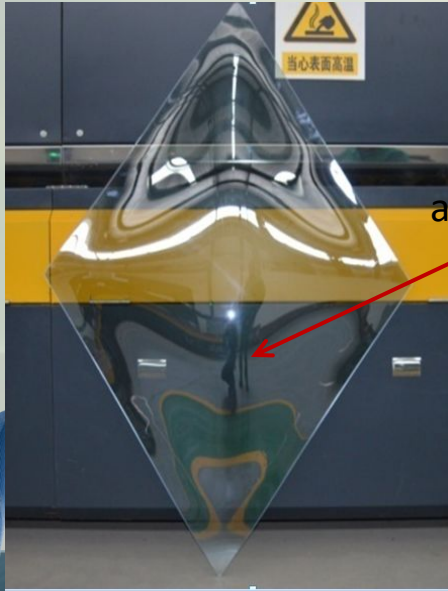
B3030: Hyperbolic Curved- One Arc length with Double R

Eqpt.	THK (mm)	Min R(mm)	Max Loading Panel	Max Arch Rise(mm)	Heat Treat
B3030	5	2000	3000*1250双弧+1250双弧	96	HS
	6	2000	3000*1250双弧+1250双弧	96	T
	8--10	2800	3000*1250双弧+1250双弧	69	T
	12--15	3200	3000*1250双弧+1250双弧	60	T
	19	3500	3000*1250双弧+1250双弧	55	T



Section E: Hyperbolic Curved - E Shape Glass by Mould

Type	THK (mm)	Min R(mm)	Max Loding Area	Max Arch Rise(mm)	Heat Treat
E Shape Curve	5--6	1200	1500*1800	320	HS
	8	1500	1700*2000	320	HS/T
	10	2000	1700*2000	244	T
	12--15	2500	1700*2000	197	T
	19	3000	1700*2000	165	T



Four sides have different arc length in same orientation



Wangjing SOHO, Beijing, China



Wangjing SOHO, Beijing, China



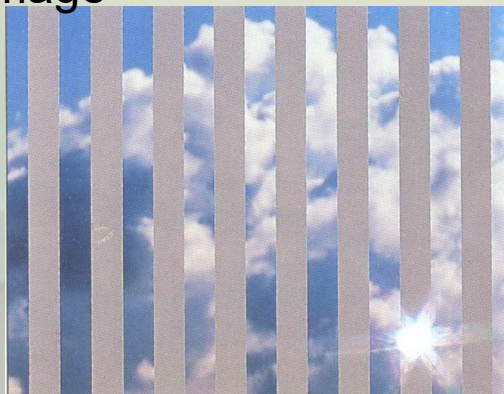
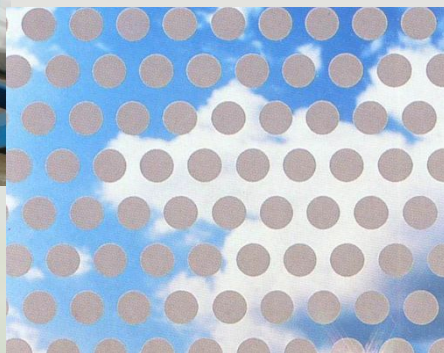
Digital Printing Frit Glass



Traditional Ceramic Frit Glass



Sky image



Marble-imitated



Digital Printing Frit Glass



- Brand: DIP TECH
- Max. Resolution: 720dpi
- 2mm-19mm
- Processing Size: 2800*4000mm
- DIP-TEC Glassjet AR400, apply the DIP SPECTRUM Ink (DIP光谱釉墨), it could fill in 6 kinds of basic ink in one time and get you All the Pantone & RAL Color in most complex pattern.
- High wear-resistant, acid-soda-resistant, ultraviolet ray resistant and water-resistant...



Digital Printing frit Glass Application



High Performance Low Emissivity Glass



ONLINE HARD COAT PRODUTS

- 1. SFC (F-Green Color)**
- 2. YEA (Clear)**
- 3. YSC60 (Grey Color)**
- 4. YSL60 (Bluish)**

ONLINE HARD COAT PRODUCTS

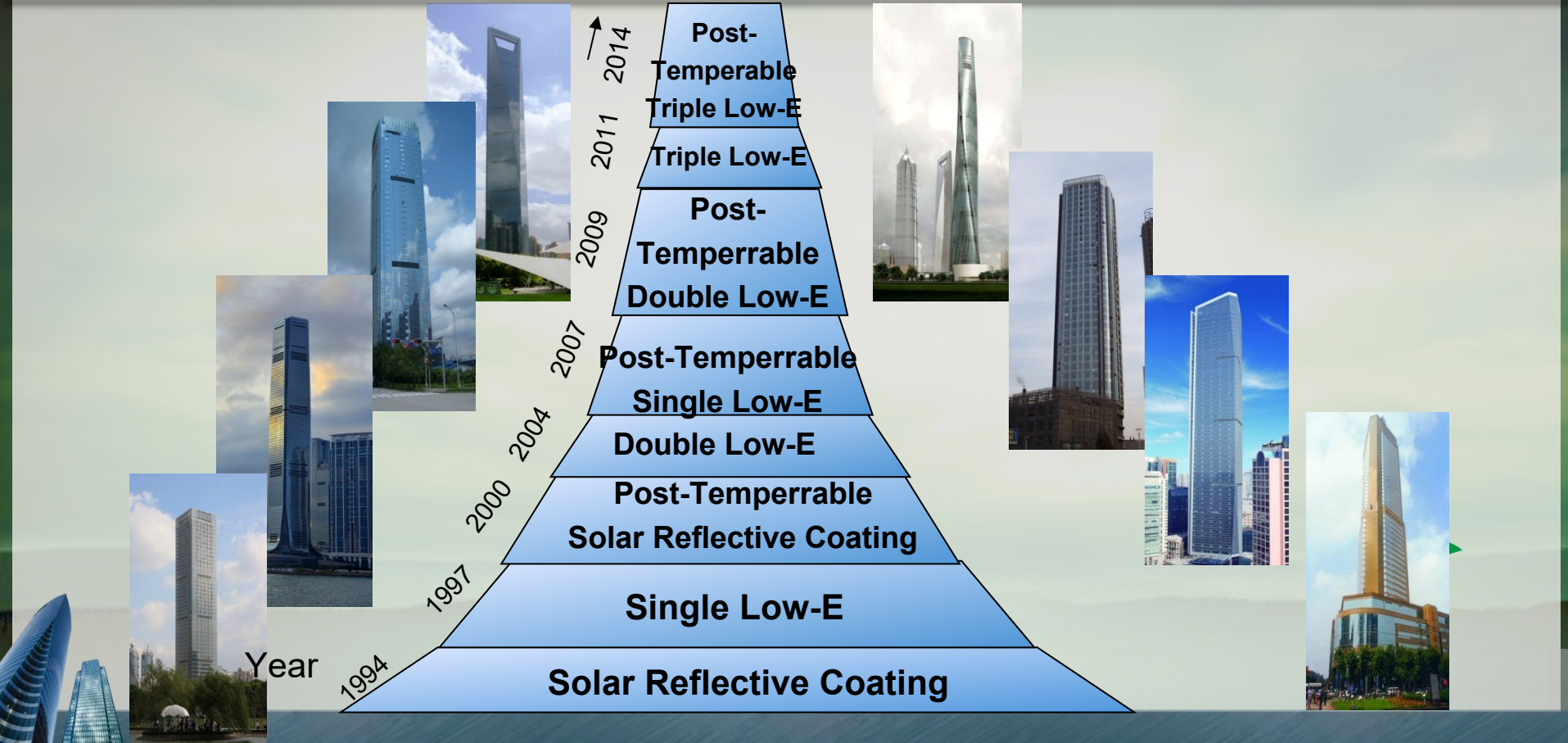
SYP obtains the most advanced pyrolytic Low- E Coating glass production technology from Pilkington.

Feature:

- 1. World leading pyrolytic coating technology, coating before glass cooling, coating become part of the glass after cooling.**
- 2. Durable coating side can be exposed to air directly for long time; coating will not peel off, stain or discolor. Long term storage can short the lead time and speed up the project progress.**
- 3. Can be used in monolithic form or assembled into IGUs or Laminates; no edge deletion required.**
- 4. Can be used in commercial and residential building.**
- 5. Easy to handle, bent, heat- strengthened and tempered like float glass.**



SYP OFFLINE COATING DEVELOPMENT



TALLEST TEN BUILDINGS IN THE WORLD: FIVE SUPPLIED BY SYP

R	Building[A][9]	City	Country/ Area	Height (ft)	Height (m)	Floors	Built
1	Burj Khalifa	Dubai	UAE	2,717	828	163	2010
2	Shanghai Tower	Shanghai	China	2,073	632	128	2015
3	Abraj Al-Bait Clock Tower	Mecca	Saudi Arabia	1,971	601	120	2012
4	Ping An Finance Centre	Shenzhen	China	1,965	599	115	2017
5	Lotte World Tower	Seoul	South Korea	1,819	554.5	123	2016
6	One World Trade Center	NYC	USA	1,776	541.3	104	2014
7	CTF Finance Centre	Guangzhou	China	1,739	530	111	2016
8	Taipei 101	Taipei	Taiwan	1,667	508	101	2004
9	Shanghai World Financial Center	Shanghai	China	1,614	492	101	2008
10	International Commerce Centre	Hong Kong	China	1,588	484	118	2010



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SYP GROUP

From Wikipedia, March 2017

2

Shanghai Tower



5

Lotte World Tower



7

CTF Finance Centre



9

**Shanghai World
Financial Center**

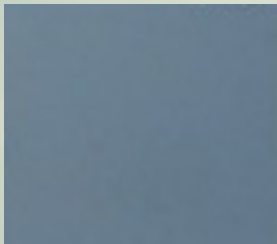
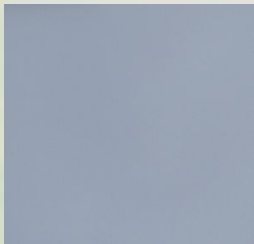
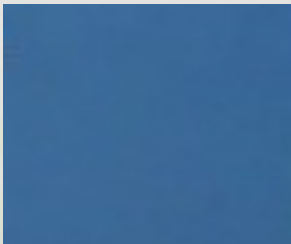
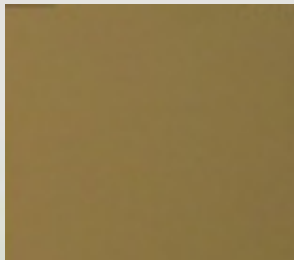
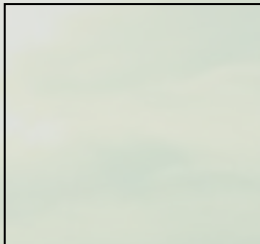


10

**International
Commerce Centre**



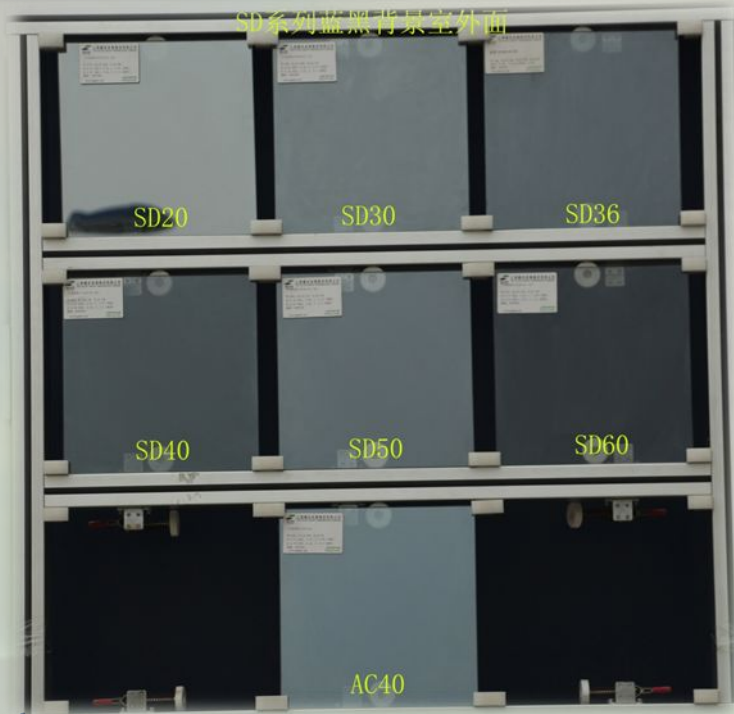
OFFLINE LOW-E PRODUCTS (COLORS)

1	2	3	4	5
Grey	Silver	Bluish	Golden	Neutral
				



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SYP GROUP

OFFLINE LOW-E PRODUCTS (COLORS)



SD & AC series of Solar Reflective Coating, color is kind of bluish grey.

OFFLINE LOW-E PRODUCTS (COLORS)

BE系列低辐射镀膜中空玻璃



BE系列低辐射镀膜中空玻璃



BE series is bendable Single Low E coating, color is kind of bluish grey.

OFFLINE LOW-E PRODUCTS (COLORS)



Project :

Guangxi Construction Group Building

Glass:

8mm Clear HS **YBE0160J**(2#)

+12Air

+8mm Clear HS



OFFLINE LOW-E PRODUCTS (COLORS)

RE系列暗黑背景室外



RE系列无背景室外



RE series is kind of Single Low E coating with high reflective outdoor($\geq 30\%$) the developed color and performance could match the RE coating of Viracon.

OFFLINE LOW-E PRODUCTS (COLORS)



Project :
International Commerce Center Hongkong

Architect:
KPF Hongkong

Glass:
8mm Clear HS **YRE0138**(2#)
+12Air(Black)
+8mm Clear HS



OFFLINE LOW-E PRODUCTS (COLORS)

NE系列蓝黑背景室外面



NE系列无背景室外面



NE series is the old double low e type, color is bluish grey, which is stable and fresh. Reflective outdoor is within 20%, and transmittance is within 40%-70%.

OFFLINE LOW-E PRODUCTS (COLORS)

Project:
Garden By the Bay Singapore

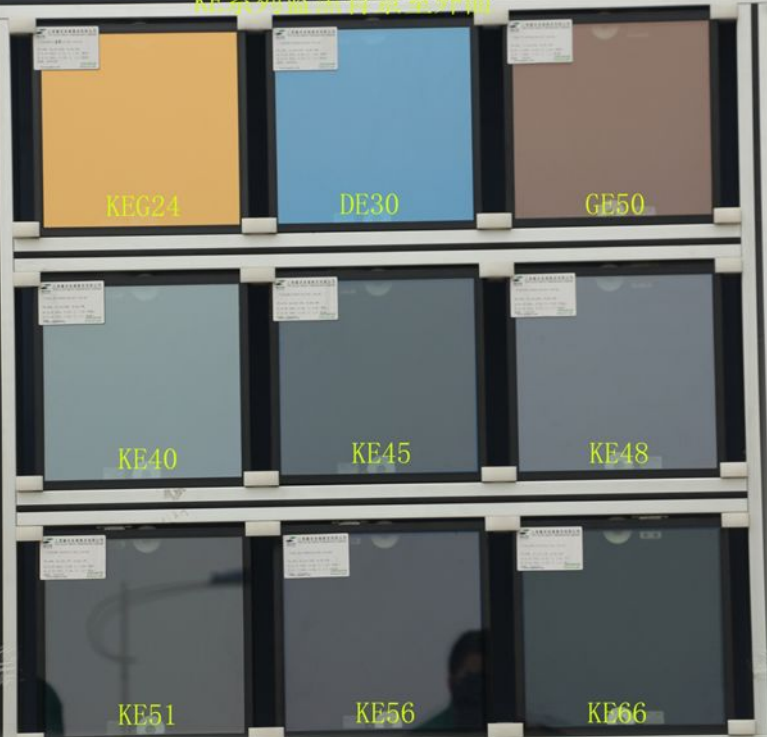
Architect:
Grant Associates

Glass:
10mm Clear HS **YNE0175J**(2#)
+12Air(Black)
+6mm Clear HS
+1.52PVB
+6mm Clear



OFFLINE LOW-E PRODUCTS (COLORS)

KE系列蓝黑背景室外面



KE系列无背景室外面



KE series is the new developed double low e series, color is more rich, including blue, grey, golden, bronze; it has the high performance, SC could be low as 0.21.

OFFLINE LOW-E PRODUCTS (COLORS)



Project:
Shenzhen Outfonetek Innovation Center

Middle Glass:
8mm Low Iron HS **YJE0645J**(2#)
+12Air
+8mm Clear HS

Right & Left Glass:
8mm Low Iron HS **YDE0636J**(2#)
+12Air
+8mm Clear HS



OFFLINE LOW-E PRODUCTS (COLORS)



TE series is kind of triple low e in high performance, the infrared transmission is less than 5%, which is almost fully insulated and has the good property of daylight and comfort.

OFFLINE LOW-E PRODUCTS (COLORS)



Project:

Singapore Management University Law Library

Architect:

MKPL Architects Singapore

Glass:

6mm Crystal Grey HS

+1.52mm Clear PVB

+5mm Clear HS with **YTE0158** & Dot Ceramic Frit(#4)

+12mm Airspace (Black)

+5mm Clear HS

+1.52mm Clear PVB

+5mm Clear HS



CERTIFICATIONS

Region	Certifications	Standard
Quality Management System	ISO9001: 2008	
China	3C (TP / Laminated/ I	63.3
North America	IGCC (IGU) SGCC (Laminated)	
Europe	BS for Safety Glass BS for IG Units	
Australian and New Zealand	AS	





广州东塔
530米

上海环球金融中心
492米

香港环球贸易中心
484米

阿布扎比中心市场
385米

科威特哈马拉大厦
412米

广州新电视塔
610米

香港港岛东中心
308米

上海中心
632米

上海会德丰国际广场
298米

俄罗斯联邦大厦
506米



**MAKE A DIFFERENCE
STRIVE FOR EXCELLENCE**

永远有新的追求！