

High-performance resin laminated glass

ヘラクレス Hercules

Crime Prevention / Anti-Bomb Blast / Bullet Resistant

< Product Lineup >

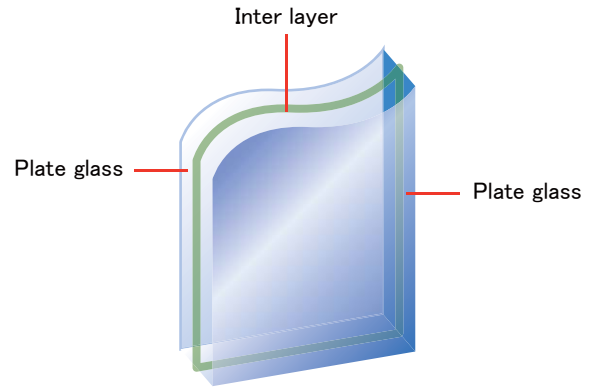
- 「HERCULES III」 Crime Prevention glass for residential
- 「HERCULES IV」 Crime Prevention glass for building
- 「HERCULES V」 Anti-Bomb Blast glass
- 「HERCULES VI」 Bullet Resistant glass



Hercules Hercules resin laminated glass

Function of HERCULES glass

Safety	Debris does not fly off even broken
	Shock thing is hard to penetrate
Sound insulation	Quiet living space
UV cutting	Reduce damage to the eyes and skin



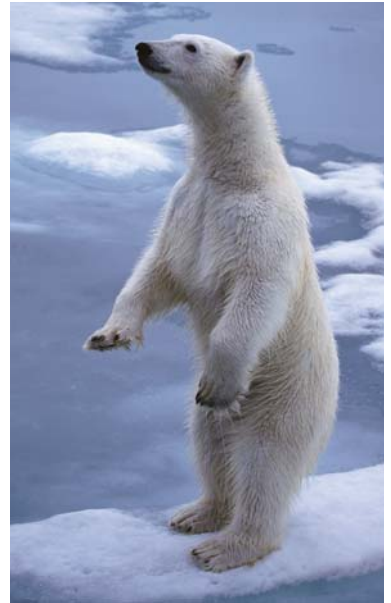
Difference between film laminated glass

The film laminated glass, by pressing in an autoclave in high temperature and high pressure across the PVB film between the glass and the glass And manufacturing, But Hercules resin laminated glass, and production by injecting resin between the layers of glass at room temperature and room pressure.

Manufacturing technology of Hercules Significant reduction in CO₂

We have developed HERCULES resin for the glass-only inter layer resin.

- 1, large-scale capital investment is not required
- 2, PVB film deposition energy is not required
- 3, Adhesion energy due to high temperature autoclave is unnecessary

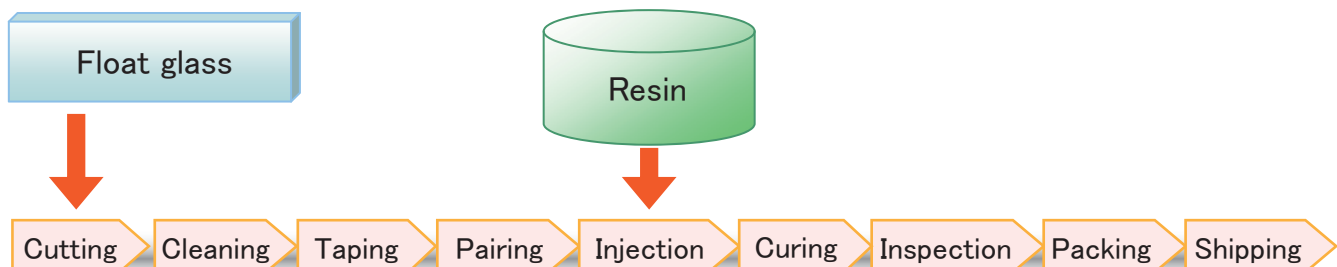


Polar Bear in the effects of global warming, it is on the verge to the risk of extinction.

CO₂ reduction is about 1kg/m²

PVB film laminated glass adhesion energy	= about 2kWh / m
CO ₂ emission of power factor	= 0.48kg · CO ₂ / kWh
2kWh / m ² × 0.48kg · CO ₂ / kWh	= 0.96kg · CO ₂ / m ²

If you switch to Hercules resin laminated glass, reduction per square meter CO₂ is approximately 1kg.



Hercules Crime Prevention Glass “HERCULES III”

Crime prevention glass strongest in Japan for Residential

- The “HERCULES III” has got the CP mark.

“HERCULES III” is registered in the inventory of building parts with high security performance.

Test: ① Hitting and breaking ② Baking and breaking ③ Prying and breaking



Common mark of building parts with high security performance

- The “HERCULES III” has passed P5A test.

P5A is the highest level of the standard of Flat Glass Manufacturers Association standards in Japan.

Test result :

	Frequency to be Penetrated
Standard	9 times
HERCULES III	17 times
Third party highest	11 times

How to test : The steel ball of 4.1kg in weight should be dropped from height 9m to each 3 apex of one side 130mm regular triangle. (3 apex × 3 times = 9 times)

If there is no penetration after 9 times dropping, this glass is successful for P5A.



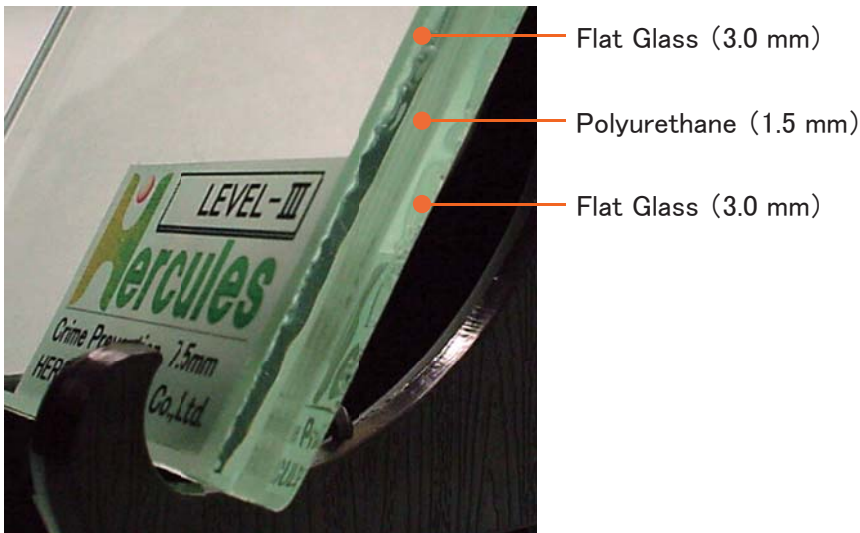
Security mark of Flat Glass Manufacturers Association of Japan

- Workability of “HERCULES III”

7.5 mm in thickness, can be mounted easily on the sash groove width 9 mm existing. Weight is 17kg / m²

- “The quality of HERCULES III”

We are equivalent to JIS R3205 pass heat resistance, light resistance, weather resistance, and shot bag test.



P5A Test equipment

Hercules Crime Prevention Glass “HERCULES IV”

Crime prevention glass strongest in Japan for Building

■ The test to break the glass case



Common mark of building parts with high security performance



Security mark of Flat Glass Manufacturers Association of Japan

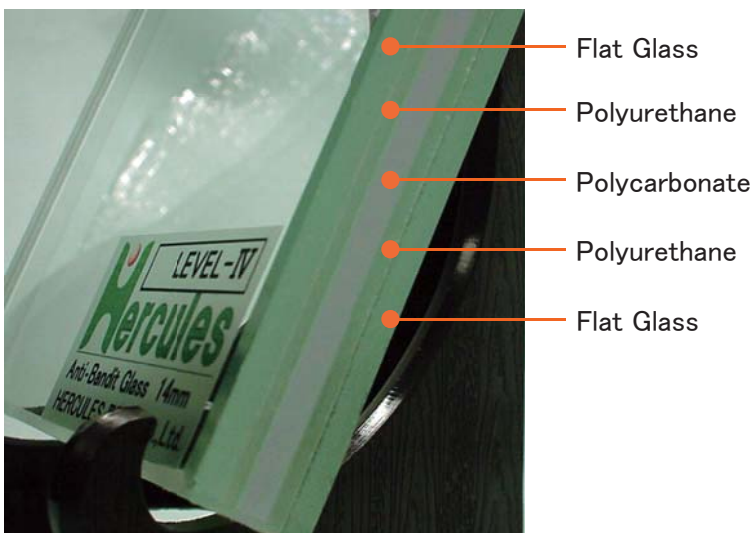
“HERCULES IV” is equivalent to P6B level of European security standard EN356. In this standard, 18 times a big ax and 12 times a big hammer, total even 30 times, the glass is not gone through.

■ Workability of “HERCULES IV”

14 mm in thickness, and Weight is 27kg / m².
Standard maximum dimension is 1.2 m × 2.4 m.

■ “The quality of HERCULES IV”

We are equivalent to JIS R3205 pass heat resistance, light resistance, weather resistance, and shot bag test.



Hercules Anti-Bomb Blast Glass “HERCULES V”

HERCULES V to overcome grenade attack by terrorists

- HERCULES V to compete in an explosion in the development test room of lithium-ion Battery

- International standard of “HERCULES V”

Bomb Blast-Hand Grenade HE
the Australian New Zealand Standard 2343:1997

This is a test pass equivalent of High Explosive HG85.
In this test, a grenade HG85 is detonated on the ground away
1m from the glass, one foot above the ground level once again,
the glass is passed if the debris doesn't pop out through the glass.



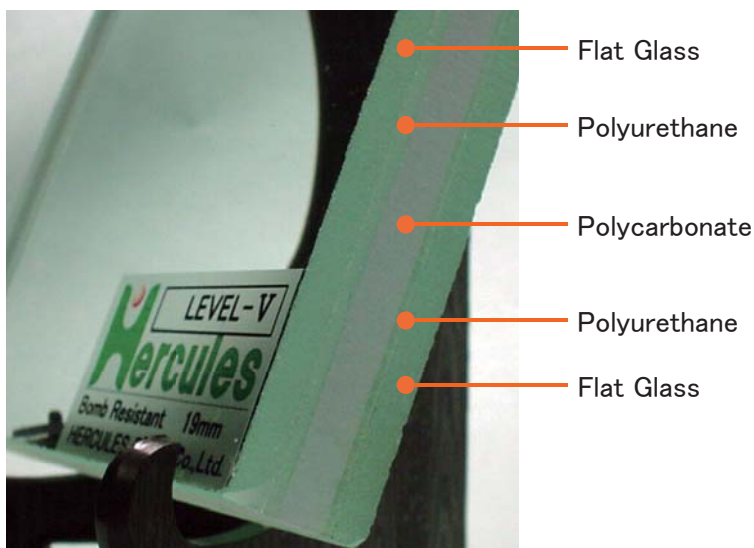
This is the glass passed the certification test,
and a grenade that was used for the test.

- Workability of “HERCULES V”

19 mm in thickness, and Weight is 36kg / m².
Standard maximum dimension is 1.2 m × 2.4 m. We can discuss the products over the standard size.

- “The quality of HERCULES V”

We are equivalent to JIS R3205 pass heat resistance,
light resistance, weather resistance, and shot bag test.



HERCULES VI to overcome bullet attack by terrorist

■ The threat of terrorism has been increasing

In official residence, embassies, banks, prisons as well as military facilities, Bullet Resistant Glasses are used more often.

■ International standard for Bullet Resistant Glass

There is no Japanese standard for Bullet Resistant Glass now, but internationally, there are standard such as the EN of Europe, the AS of Australia, which correspond to the Bullet Resistant level.

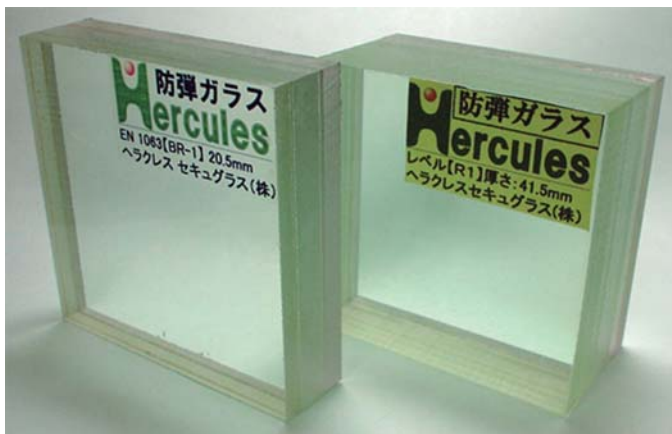
■ “HERCULES VI” is equivalent to the Bullet Resistant Glass certificated, as follows.

【HERCULES VI】

Standard	Threat	Number of shots	Laminated Material
EN BR-1	.22 LR 40 grain lead round	3	G/P
AS G0	9mm Parabellum 115 FMJ	3	G/P
AS G1	.357 Magnum 158g SWC	3	G/P
AS G1	.357 Magnum 158g SWC	3	G/P
AS G2	.44 Magnum 240g SWC	3	G/P
NIJ-3A	.44 Magnum 240g SWC	5	G/P
EN BR-5	5.56*45 NATO 62g SS109 (M855)	3	G/P
AS R2	.30 cal. 7.62 NATO 147g M80	3	G/P

G : Glass P : Polycarbonate panel

We develop and market our own bullet resistant glass, but we procured from manufacturers in countries with a connection by Certificate.



Firearms that was used for the test.

HERCULES,

With the aim of SAFE and COMFORTABLE
living environment CLEAN

We will continue to spread to the world of
High-performance resin laminated glass.

Safety Glass : Laminated glass not scattered to be safe

Ecology Glass : Cooling and heating effect by infrared cut function

Clean Glass : Manufacturing technology fit friendly clean environment

Corporate Profile

- Company name : HERCULES GLASS TECH Co.
- Head Office : 2-37-61 Katsuradai, Aoba-ku, Yokohama, Kanagawa, 227-0034 Japan
- Institute : 705-1 Shimo-imaizumi, Ebina, Kanagawa, 243-0435 Japan
Kanagawa Prefectural Industrial Technology Center
- President : Masaki Ijichi
- Establishment : August 2002
- Capital : 10 million yen
- Business : 1. Development, manufacture and sale of high-performance resin laminated glass
2. Manufacturing technology licensing of high-performance resin laminated glass
3. Raw materials, such as the sale of high-performance resin laminated glass

ヘラクレスガラス技研株式会社は
地球温暖化防止を推進します





Please refer to our company URL for details.

<http://www.hercules.co.jp/>

 **Hercules**

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