

A complete guidance of curved glass by Shenzhen Dragon Glass (2024)



What is curved glass?

Curved glass in architecture has allowed designers to make a fantasy outlook that outstands from the sharp edge or flat surface which was mostly applied in facades or other building parts in the past. Curved glass is made of glass panels to be curved shape either by hot treatment or cold treatment process, to achieve curved shape for architectural applications for aesthetic purposes.

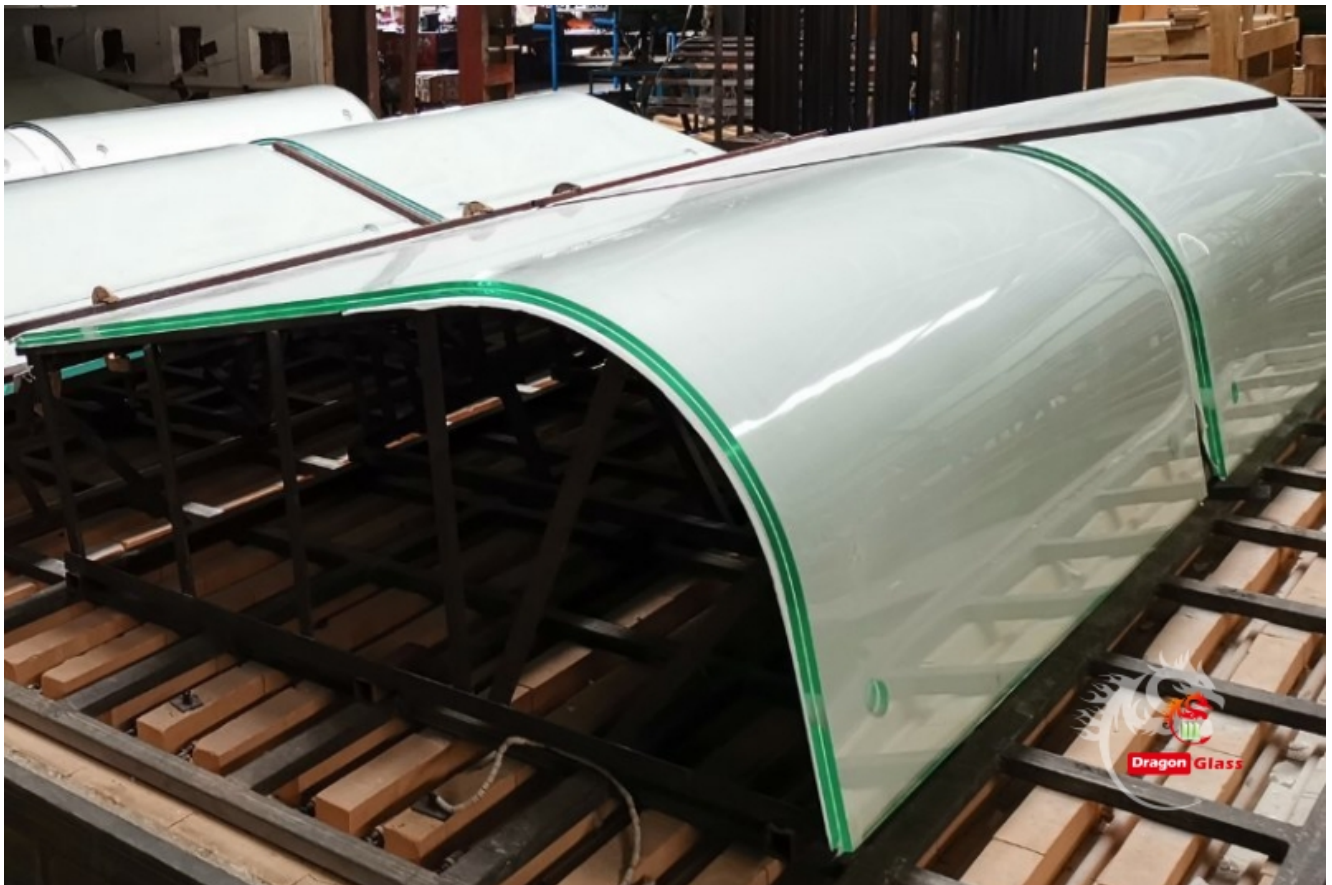
Here we are going to discuss the whole thing related to curved glass, welcome to comment and make a supplement.

How to curve glass?

Generally speaking, there are **3 ways** to curve glass. As below:

Hot bending process

The [hot bending process](#) is also called gravity bending, it is to put the glass panel on a premade mold, when heating the glass to a temperature over 600 degrees, the glass will soften and fall on the mold due to its gravity to form a desired shape. In this process, the glass could be a curved shape.



Curved tempering

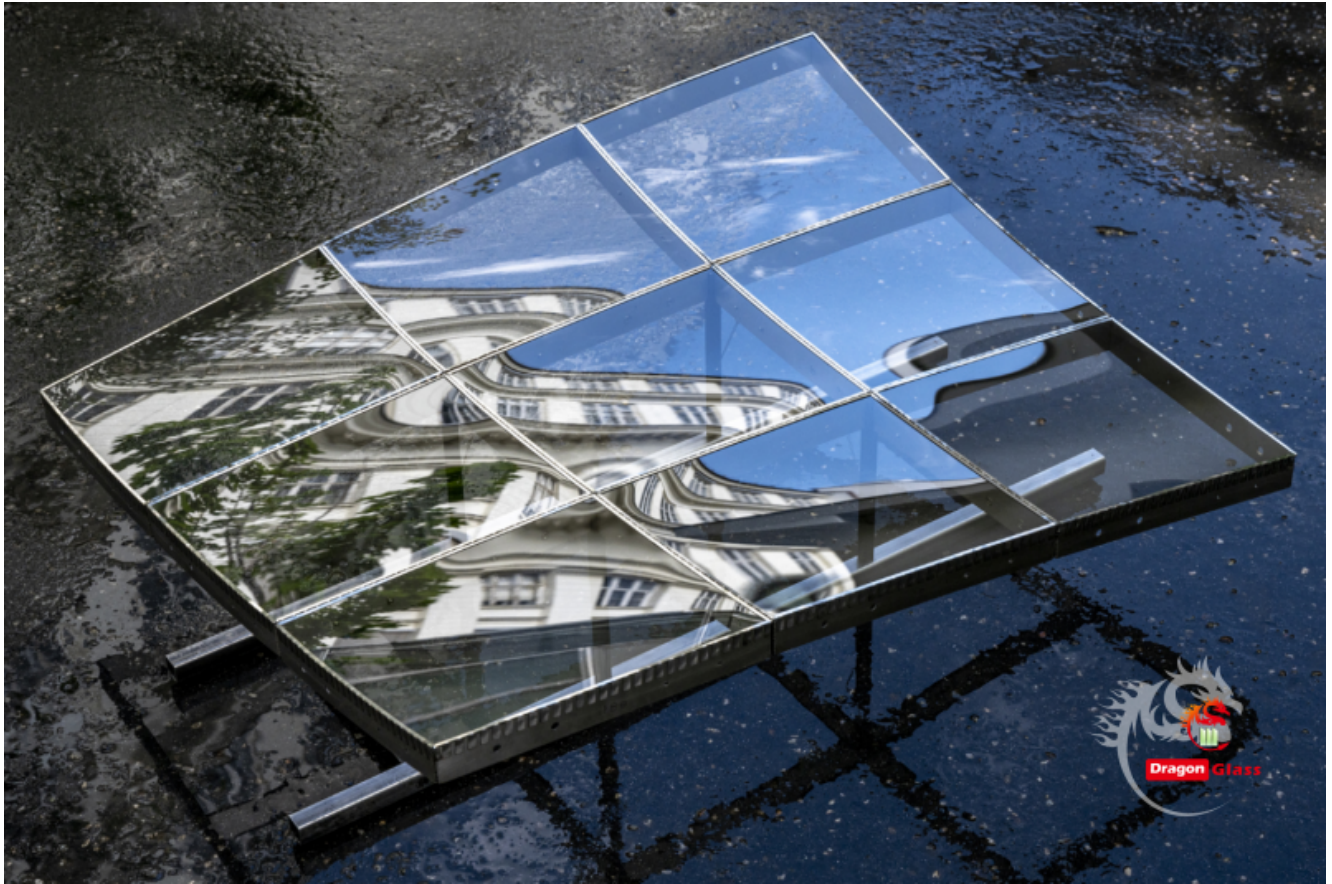
[Curved tempering](#), is similar to the tempering process in the first stage, the edge-worked glass panel is sent to the

tempering machine, with heating to over 600-degree temperature. Later the softened glass was sent to the part under the twinjet, there is a curved mold, with a preset curved radius, and the glass will be deformed to a certain curved shape.



Cold bending

If the hot-bent glass is heated until softened and then curved, then the cold-bent glass has bent the glass directly under normal temperature. That's right, it uses the flat glass itself with certain deformability. During installation, the installer will manually press and bend the glass in place & install it properly. Deformation by bending and twisting multiple pieces of flat glass to achieve the effect of fitting the curved curtain wall surface.



How many types of curved glass?

There are multiple types of curved glass to satisfy the higher & higher performance requests.

1. Curved tempering glass panel

A curved tempered glass panel is the most simple one, it is under a curved tempering process and completes a curved shape with a single double or multiple radius curving. In this type of glass, the curved glass thickness could be carried from 4mm to 19mm. Radius and Arch or Length limits vary due to the machine capacity of different curved glass manufacturers. Shenzhen Dragon Glass, as a professional curved glass manufacturer, [can provide curved tempered capacity](#) as below:

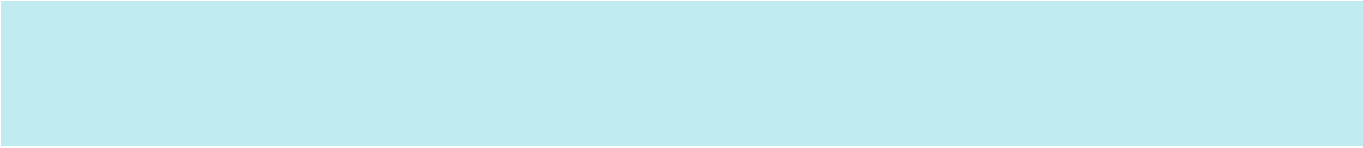


Double Curved

- Max Size: 2400mm x 6000mm
- Min Size: 500mm x 500 mm



Reverse Bending of 1800 mm

- Max Size: 2400mm x 5000mm
 - Min Size: 500mm x 500 mm
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Min Radius of 1500 mm

- Max Size: 2750mm x 6200mm
- Min Size: 500mm x 500 mm

Min Radius of 1000 mm

- Max Size: 2400mm x 5000mm
- Min Size: 500mm x 500 mm

Min Radius of 900 mm

- Max Size: 1800mm x 2440mm
- Min Size: 500mm x 500 mm



Min Radius of 800 mm

- Max Size: 2000mm x 3600mm
- Min Size: 500mm x 500 mm



Min Radius of 420 mm

- Max Size: 1200mm x 2000mm
- Min Size: 500mm x 500 mm

2. Curved laminated glass

Curved laminated glass forms two or multiple curved glass panels together by using a laminating process, with PVB, SGP, or EVA interlayer between the glass to bind the curved glass panels permanently under high temperature & super high pressure.

Curved laminated glass, is different from the flat laminated glass process, the curved laminated glass will require a vacuum bag to perform the lamination, whereas the flat laminated glass does not need it. One thing that especially needs to be paid attention to is, making sure the two curved glass panels match the arch & radius which should be calculated in advance. Otherwise, the curved laminated glass will have flaws like bubbles, delamination, etc, which will lead to failures after several years of usage.





3. Curved insulated glass

Curved insulated glass is made of two curved glass panels with one aluminum spacer in between, with butyl sealant and structural sealant to seal the glass seamlessly to ensure no leaking points. The aluminum spacer is filled with moisture to isolate the vapor or air from outside. The curved insulated glass is intended to provide better soundproofing & energy-saving performance. It has a better U value than curved laminated glass or curved tempered glass.



4. Curved laminated Igu glass

Curved laminated IGU glass can combine the advantages of curved laminated glass & curved insulated glass, it could provide excellent soundproofing performance like $STC > 42dB+$ or even more. Whereas the U value could be as low as $1.3W/m^2K$ with argon gas filling the chamber. This configuration is becoming more and more popular due to the increasing requests for high-end architecture demands.

Below is what we provide for the laminated IGU glass, it consists of 8mm low iron HST glass + 2.28acoustic PVB+ 8mm low iron HST low e glass + 20Ar+8mm low iron HST glass + 2.28acoustic PVB+ 8mm low iron HST low e glass.



Curved glass applications

Curved glass can be applied to many places, below we are going to show you some of them.



curved glass for curio cabinet curved glass for cabinet



curved glass for shower



curved glass for greenhouse



curved glass for windows



curved glass for staircase



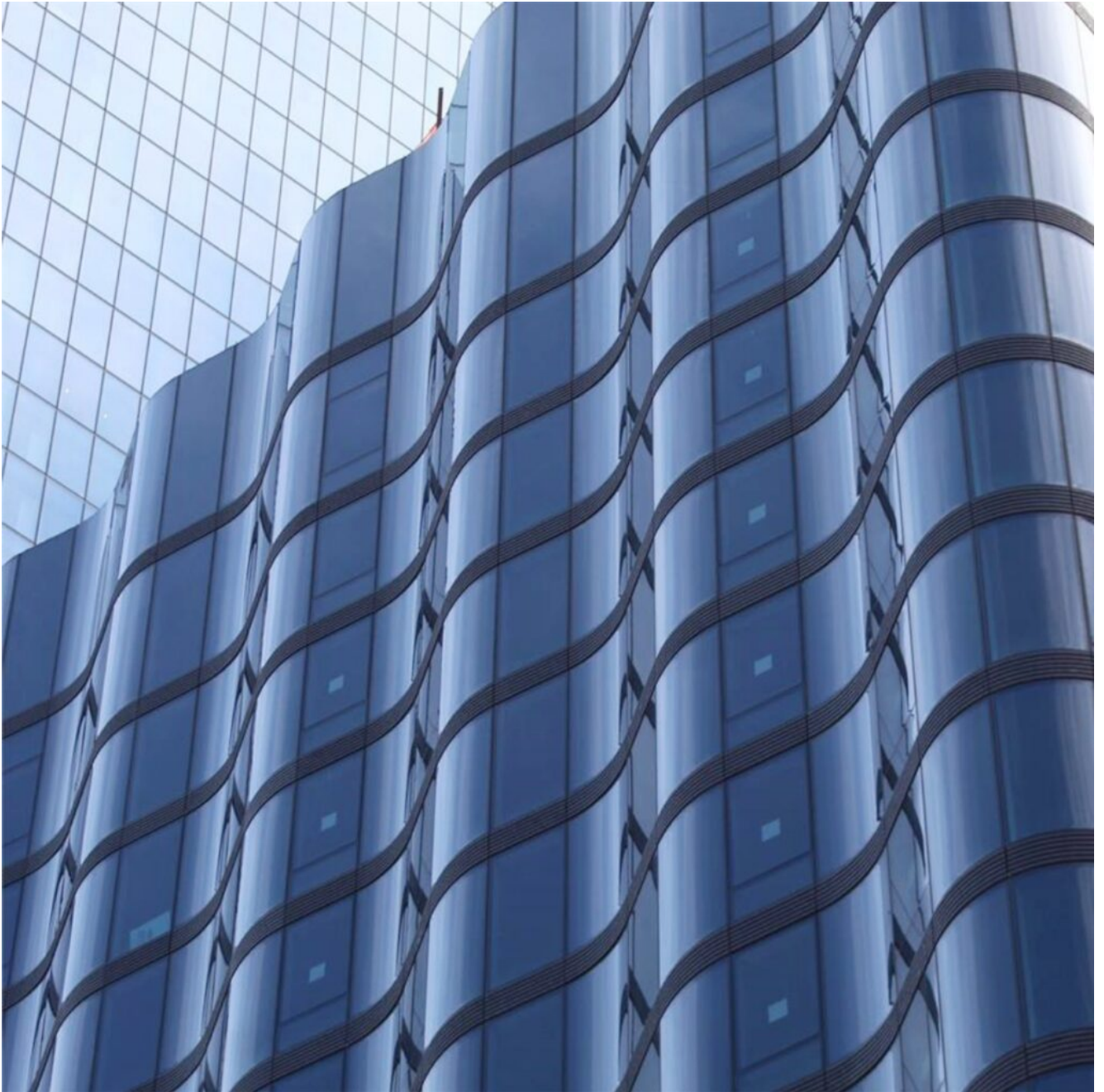
curved glass wall



curved glass railing



curve glass partition



curved glass facade



curved glass for aquarium



curved glass for balcony



curved glass canopy



curved glass door



curved glass for boat



curved glass for furniture

How much does curved glass cost?

Is curved glass expensive? Most of us might come to this question when it comes to curved glass projects. Well, curved glass cost will depend on several factors:

- **Glass sizes:** as we all know, glass size will influence the cutting rate, the grinding efficiency, the curved tempering loading rate, the packing rate, etc.
- **Glass thickness:** with thicker glass, the material cost is higher, and the tempering process time is longer, so the price is higher as well.
- **The curved process:** generally speaking, hot bending process glass is more expensive than curved tempered glass.
- **Mold cost:** for glass carving, we need to adjust the curved mold in the curved tempering process, and we need to make a curved mold in the hot bending process. When it comes to different curved shapes, multiple molds will be needed, thus the mold cost is also a factor influencing the curved glass cost.
- **Glass surface treatment:** when you need extra functions on glass, you need to apply different processes on the glass surface such as low e coating, ceramic frit printing, digital printing, etc. Sometimes you might even need pattern glass such as carved glass, fluted glass, etc for decoration, then the glass curving difficulty is different.
- **Curved shape difficulty:** A smaller radius will require a higher cost, as well as jumbo-sized curved glass. Double radius or multiple radius curved shapes cost is higher.
- **Curved glass configurations:** curved laminated glass, curved laminated IGU glass, curved IGU glass, etc cost is higher than simple curved glass panels.
- **Glass quantity:** as it is known to us all, with a larger quantity, the curved glass cost will be lower.

For more factors you need to know or would like to discuss with us, welcome to consult a professional curved glass manufacturer – [Shenzhen Dragon Glass](#)

Some more FAQ you might be interested in

Curved glass VS flat glass

- **Aesthetic:** curved glass shape is more beautiful when it comes to the edge treatment on the building, instead of sharp edge flat glass, you won't feel so much aggressive when you see a curved corner building or curved glass facade.
- **Strength:** generally speaking, curved glass will endure a higher wind load compared with flat glass.
- **Cost:** the curved glass cost is higher than flat glass.

Hot bending glass VS curved tempered glass

- **Production process:** Hot bending glass is to form a curved shape by its gravity against the mold. It is produced in a much milder process compared with curved tempering. The curved tempering will form a certain strength in the quenching process.
- **Cost:** The hot bending process cost is higher than curved tempering.
- **Process capacity:** hot bending glass could achieve smaller radii and more complex shapes.
- **Process difficulty:** curved tempering is more efficient when it comes to processability when the curved shape is within the curved tempering range.
- **Strength:** for a single glass panel, the hot bending glass's strength is about the same as annealed glass,

however, the curved tempered glass strength is generally 4~5 times higher than annealed glass, in most cases, hot bending glass will later be further processed as curved laminated glass to enhance its strength and safety.

Where to buy curved glass?

It is not easy to choose a reliable curved glass manufacturer, because curved glass requires accuracy, quality control on the surface, and other related process.

We, Shenzhen Dragon Glass have 4 factories in total, and we have 4 curved tempering machines and 2 large hot bending furnaces. We are capable of handling most of the curved glass cases for you! Meanwhile, we have ceramic frit printing lines, heat-soaked ovens, etc to support the increasing demands of glass performance. Also, we have our strict quality control system and 100% glass inspection before loading and shipment. We are capable of supplying you with the best quality curved glass!



So get in contact with us now!