

7 differences for online LOW-E glass VS offline LOW-E glass



1. Production process

Online Low-E glass is produced after the process of float glass by spraying a chemical solution with Tin compounds as the main component on the hot glass surface to form a single layer of Tin Oxide (SnO_2) compound film with a certain low emissivity function.

Offline Low-E glass is made in a large area glass coating line, using a vacuum magnetic sputtering method to uniformly sputter silver (Ag) and other metals and metal compounds on the glass surface. It consists of at least four-

layer films with a pure silver film between two metal oxide films. The metal oxide film provides protection for the silver layer and acts as an intermediate layer to adjust the color appearance and light transmittance.

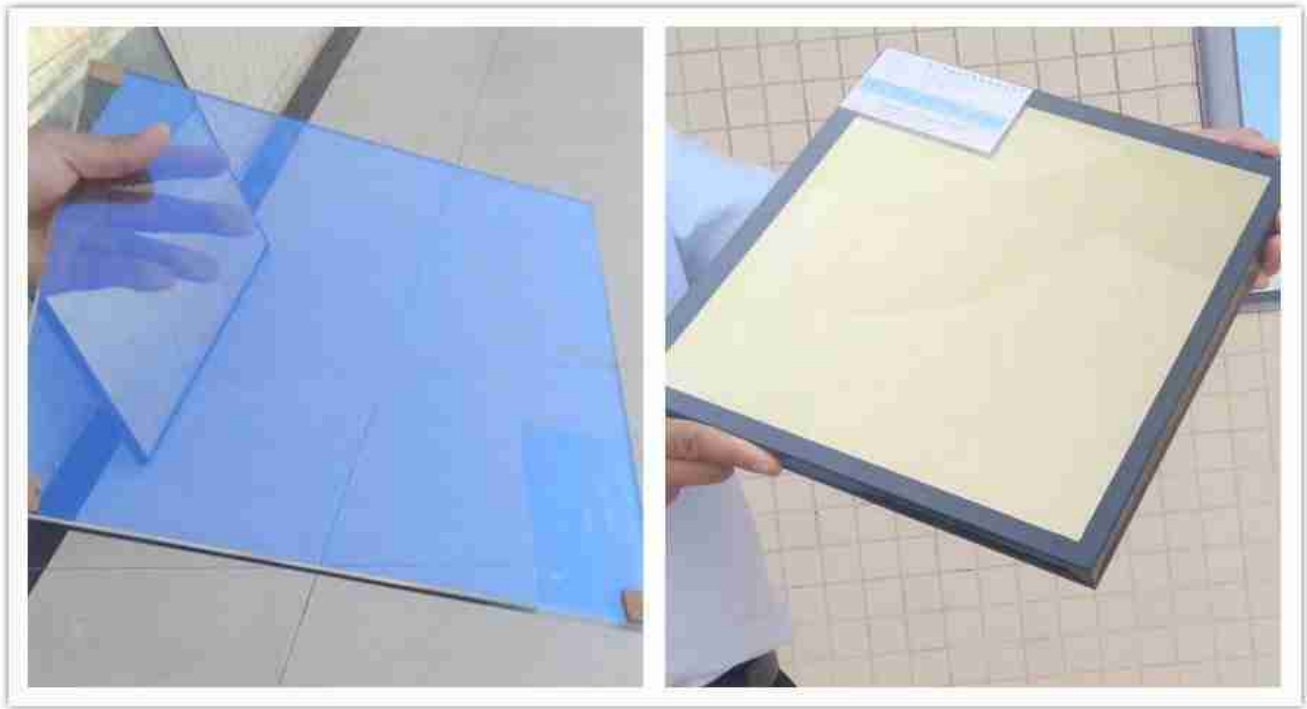


Online Low-E glass VS offline Low-E glass structure

2. Variety and appearance

The online Low-E glass has not many choices of colors & performance. The parameters such as transmittance and reflectance are not adjustable.

Offline Low-E glass has a variety of options, such as high, medium, and low transmissions according to different climate characteristics. Offline Low-E glass has rich and varied colors, parameters such as transmittance and reflectivity can be adjusted according to design requirements, the Offline Low-E glass film layer is more uniform, the color is more natural, and it presents different visual effects when reflected against the sun by different weathers.



Offline low-e glass has multiple choices of colors.

3. Performance parameters

The spectrum of **online Low-E glass** shows the characteristics of tin oxide conductive film, while the spectrum of **offline Low-E glass** shows the characteristics of both silver and tin oxide composite film, both of which have a good transmission for visible light and [near-infrared light](#).

Offline Low-E glass has much higher reflection and has less absorption & higher reflection of far infrared than the former. Therefore, compared with online Low-E glass, offline Low-E glass has an extremely low shading coefficient and extremely low U-value.



焱龙玻璃
DRAGON GLASS

Shenzhen Dragon Glass Co., Ltd

Glass Performance Data

Configuration	Visible light T%	Visible light Rout%	Visible light Rin%	Solar energy T%	Solar energy Rout%	SC	SHGC	NFRC U-Value Sum	NFRC U-Value Win.	European U-Value
8mm online Low-E	81	12	11	67	11	0.82	0.71	2.95	3.76	5.67
6mm clear single Low-e + 12A + 6mm clear	46	22	10	29	24	0.41	0.36	1.82	1.82	1.81
6mm clear double Low-e + 12A + 6mm clear	57	9	11	28	26	0.38	0.33	1.67	1.70	1.66

Online Low-E glass performance data VS Offline Low-E glass performance data

4. Technique and cost

The production technology of **online Low-E glass** belongs to chemical coating, the equipment and process are relatively simple, the production cost of the glass product is relatively low.

The production technology of **offline Low-E glass** belongs to high vacuum magnetic sputtering coating, and the equipment and process require experienced operations and technique support. The production cost is relatively high.



[Offline Low-E coating line](#)

5. Product applications

In many countries, **online Low-E glass** is mainly used for low rise buildings. This is because **online Low-E glass** can be used in a single panel, and the price is relatively cheaper. The offline Low-E glass mostly will be adopted as insulated glass or other compound products with excellent performance and relatively high price, which is used in high-end buildings such as commercial buildings.



Low-E glass applications

6. Product stability

Some people are still worrying that the offline Low-E glass coating will have the problem of silver oxidation. As a matter of fact, research and experimental data results show that the silver layer inside of the insulated glass with a dry gas environment will not oxidize at all. Over the past 20 years of offline Low-E application, experience shows us that offline Low-E glass insulating glass is a long-term stable product.



Offline Low-E insulated glass products

7. Workability

Online Low-e glass has good processability, It requires only simple production equipment, good for the tempering process, not easy to cause a scratch. It can be bent and

tempered or used as [online low e laminated glass](#). The **offline Low-e glass** has higher requirements on the glass processing plant, such as a higher requirement of the operators' tempering machine and operation experiences, high requirement of the water purity, etc. For the insulating glass process, the quality of the desiccant, aluminum spacer, butyl sealant (first sealant), and silicone sealant (second sealant) must also be very high! Otherwise, the offline Low-e glass might oxidize and color will change as well.



Offline Low-E glass tempering machine

Do you have other opinions? [Welcome to share your comments or your inquiries!](#)