

8 difference between pyrolytic low-E and sputtered low-E

Low-E glass (Low Emissivity Glass), not only has high visible light transmittance, but also has strong infrared blocking, which can play the dual functions of natural lighting and heat insulation and energy saving. It is more and more widely used in construction. According to the manufacturing process, Low-E glass is mainly divided into "offline" and "online".

- Pyrolytic low-E: also named hard coated low-e, online low-E.
- Sputtered low-E: also named as soft coated low-E, off-line low-E.



So what characteristics do different production methods bring to the application of products? As how architects, designers judge their cost performance? Here we analysis the 8 difference.

1. Different production method.

Pyrolytic Low-E glass is produced in float glass production line to form a layer of low-radiation functional film on the surface of the glass through chemical vapor deposition process and special materials. Its film material is semiconductor oxide with only a few varieties such as cold gray and transparent.

Expand: [Hard coated low-E options in China.](#)

Sputtered Low-E glass adopts special vacuum magnetron sputtering coating equipment and process technology to coat a multilayer composite film to realize the Low-E function. The main functional film layer is

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Your turnkey China tempered glass/laminated glass/insulated glass supplier silver (Ag), and other metal and compound film layers are auxiliary film layers, which can strengthen the adhesion between the layers, adjust the reflection color, and control the light transmittance and reflectance. , Protect the Low-E film from scratches and corrosion.

<https://www.youtube.com/watch?v=p9H0ahGVRMM>

2. Different energy saving performance

Off-line low-E has emissivity varies from 0.03 to 0.12. Shading coefficient has a larger control range. It can be as low as 0.2 to more effectively block the solar heat radiation, or as high as 0.7 to collect more solar heat energy, which is suitable for different climate. In addition, offline Low-E also has a lower U value and better [thermal insulation performance](#).

In comparison, hard coated low-E has around 0.15 emissivity. it is difficult to reduce the Sc value to below 0.4. its heat transfer coefficient U value is also higher, so the overall energy saving effect is slightly worse.

3. Different processing ability.

Online Low-E glass can be directly tempered, heat-strengthened, and hot-bent, and can be used as single glazing or double glazing; while offline Low-E glass is generally made into [insulating glass](#) after removing glass edge coatings.

4. Different types and appearance.

The color of hard coated low-e are mostly gray and colorless. If other colors are needed, it needs to be coated on body tinted glass.

Offline Low-E glass controls the optical performance by adjusting the material and thickness of each film layer. Therefore, the product variety is rich and diverse. A variety of color series such as silver, gray, blue, green, brown, gold and transparent coatings can be achieved on clear glass substrate. Combined with [body tinted glass substrate](#), more colors are available.





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5. Different electromagnetic shielding performance.

Low-E glass has the function of electromagnetic shielding, which can shield electromagnetic waves, prevent information leakage and improve information security. The shielding effectiveness of offline single-layer Low-E glass is generally 19-28dB; while for online Low-E glass products, it is between 15-20dB.

Hard coated low-E produced by Shandong Hualiang glass can have different square resistance from $6-8 \Omega$ to $260-320 \Omega$. Check the performance: [Hard coated low-E technical performance](#)

6. Different application.

Online Low-E glass is mainly used in residential buildings, refrigerators. offline Low-E glass is used in high-end buildings such as public buildings and commercial buildings for its wide variety of colors and excellent energy-saving effects.





6. Different durability and lifetime

The online Low-E glass uses tin dioxide semiconductor film, which has very good chemical stability, whether it is used in single glazing or double glass units, the coating performance can be guaranteed never attenuation. Traditional offline Low-E glass uses metallic silver to block infrared radiation. However, if the silver layer exposed in the air, the coating emissivity will increase significantly.

A new product-offline silver-free Low-E glass, its functional layer blocking infrared radiation is a semiconductor compound, the film is corrosion-resistant and scratch-resistant, so the glass can be used monolithic or laminated glass.

7. Glass price.

Online low-E price is similar to single silver off-line low-E coating, but is much lower than double and triple silver low-E coating.

Morn work with AGC, Jinjing, SYP glass to offer hard coated low-E, and various offline coating manufacturers to suite different project requirement, we're leading coated glass manufacturer and supplier in China, welcome contact us for your next great buildings.

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