

# thermal insulation glass

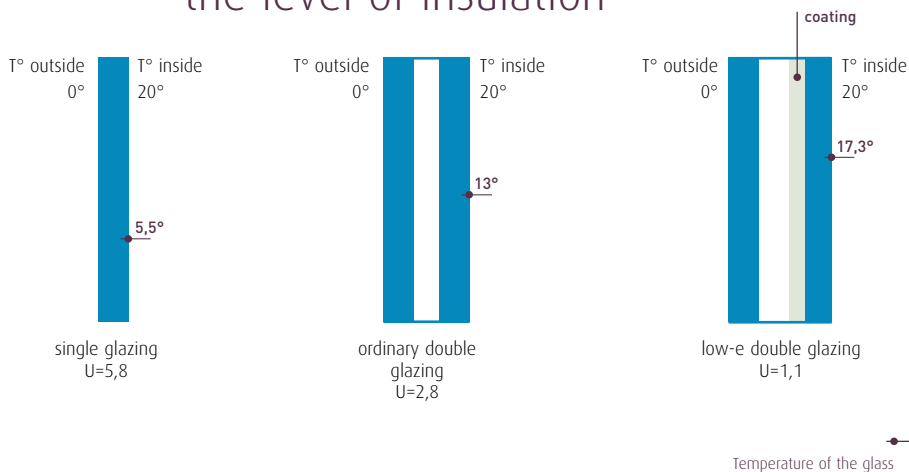
Did you know that much of the heat in your house is wasted? In an average home, one quarter of the heat is lost through the walls, and as much as 40% through the windows.

AGC Flat Glass Europe's range of double glazing is called **Thermobel**, an assembly featuring two sheets of glass separated by a space filled with dry air. This design keeps heat in your home, allowing you to turn the heating down and save money.

Low-emissivity (low-e) glass has been around for several years now. Its secret is the virtually invisible coating applied to one of the two sheets of glass. This coating lets the sun's rays through (translating into free heat) while reflecting heat in the room back inside so that it does not escape – forming a shield against the cold. As a result, **low-e glass** provides twice as much insulation as ordinary double glazing. This allows you to install larger windows without having to worry about the impact on your fuel bill - plus you'll feel comfortable everywhere in the room, even right next to the windows.

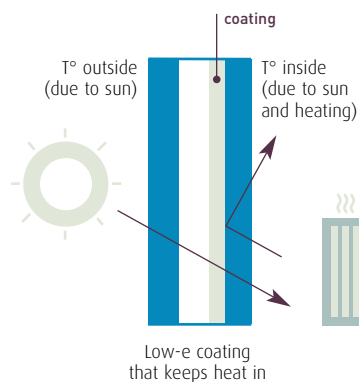
## Low-e glass:

The lower the **U-value** the higher the level of insulation



## Heat comes in... but doesn't go out

The coating on low-e glass is transparent to sunshine, which consists of ultraviolet radiation, visible light and short infrared radiation. In other words, it lets free solar heat into your home. This heat is then absorbed by walls and objects in the room, which in turn heat up and release the heat in every direction like a radiator. But since this type of radiation differs from solar radiation (in that it consists solely of long infrared radiation), it cannot pass through the coating. It is reflected back into the room, significantly cutting the amount of heat lost through the glass..



## Low-e glass

Low-emissivity (low-e) glass is also called super-insulating glass because it allows you to consume less energy while enjoying more warmth.

Within our range of low-e glasses, you can choose the level of insulation you want: Top N+ and Energy N, which is also a solar control glass.

## U-value

If you want to install insulating glass, then keep an eye on the U-value. The U-value indicates the level of heat loss, and is expressed in W/(m<sup>2</sup>.K) (Watts per square meter per Kelvin). The lower the U-value the higher the level of insulation. For instance, the U-value of single glazing is 5.8, compared to 2.8 for double glazing and just 1.1 for low-e glass.

## Coatings

These nearly invisible coatings are made of metal oxides, giving the glass its thermal insulation and/or solar control properties. There are two kinds of coatings:

- Hard or pyrolytic coatings are applied online to the glass while it is still hot. They are easily handled and processed.
- Soft coatings are applied in a magnetron (i.e. in a vacuum). They provide better insulation than hard coatings, but they are more vulnerable and are therefore generally used in double glazing applications.