FINNGLASS

Electrically heatable FGL Heated glass on top and sloped areas. Mercury City Tower, Moscow. Customer Josef Gartner GmbH Germany.

FGL HEATED

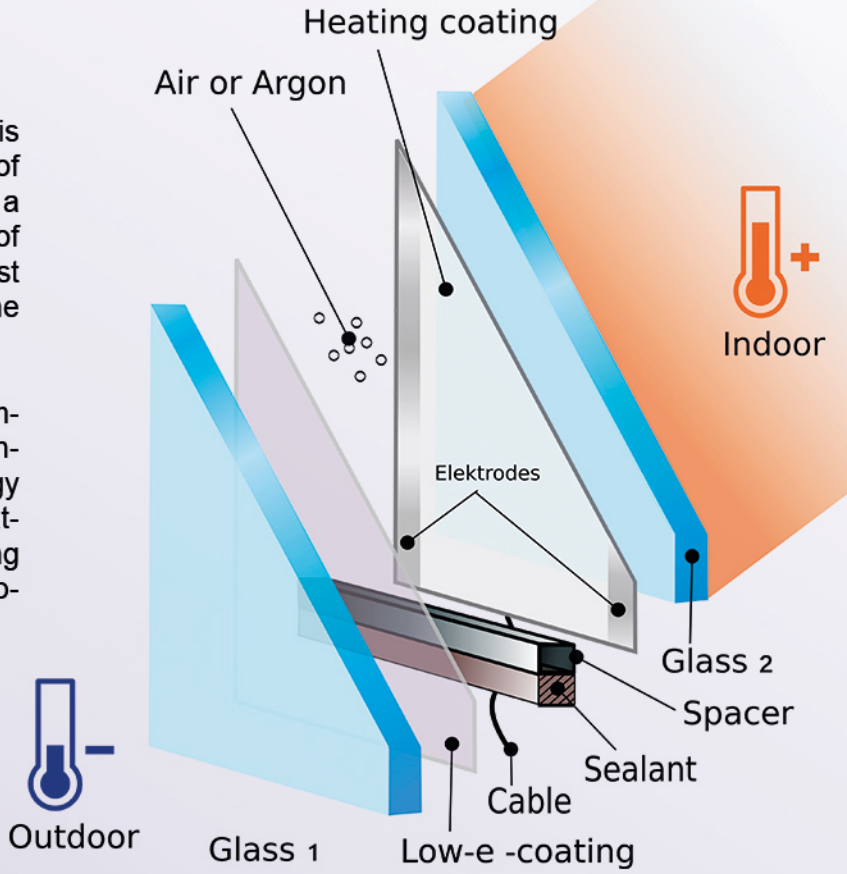
ELECTRICALLY HEATABLE GLASS

DEVELOPED, PLANNED AND MANUFACTURED 100% IN FINLAND ACCORDING TO ALL EUROPEAN NORMS.

FGL HEATED
– electrically heatable glass

Electrically heatable glass for versatile use is developed in Alavus, Finland in the beginning of 1980's. Since then Finnglass has been a pioneer, developer and leading manufacturer of electrically heatable glass for the most demanding customers and projects all over the world.

Heatable glass is an insulating glass unit or laminated glass which emits electronically controlled radiant heat. The most recent technology offers various options to use electrically heatable glass to save space, energy and building costs, as well as to increase well-being and productivity among people.

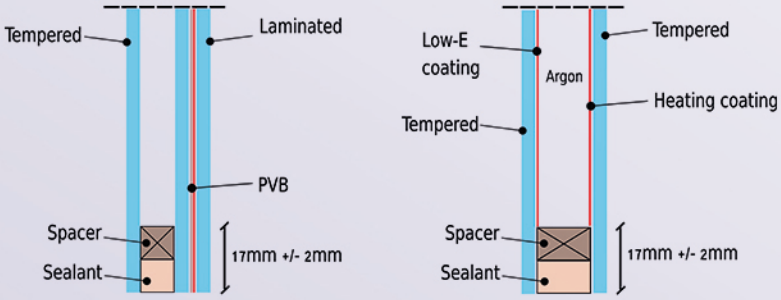


Electrically heatable glass in facades
– offering thermal comfort and savings

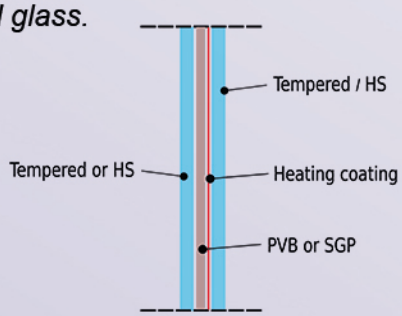
Cold weather conditions are often challenging to building design, especially near the large window surfaces. The temperature difference between the interior glass surface and room temperature creates radiation asymmetries and uncomfortable cold wall effect inside. The cold air near the window surface inside starts to flow downwards, which creates convection and feeling of draft.

Electrically heatable glass heats the inner glass surface slightly above the room temperature. This prevents the draft and convection inside, which increases well-being and comfort. Also the buildings can be constructed more efficiently, when the floor space is not wasted in fan coils or radiators: big savings can be reached especially in building and investment costs.

As more than 90 % of the heat is directed to the interior, electrically heatable glass is also an energy-efficient solution. Besides preventing cold wall effect and convection, the room temperature can be lowered 1-2°C, which saves energy up to 5 %. Electrically heatable glass can be also used as a main heating source of the building.



Double/triple glazed unit with tempered or tempered and laminated glass.



Tempered and laminated glass (PVB).

Electrically heatable glass in floors – safe environment

Glass floors are highly aesthetic, but the usual problem with them is that the surface gets slippery when it is wet or icy.
By using electrically heatable glass safety risks can be eliminated, as the product melts the ice and dries the surface, leaving it heated and comfortable. Heatable glass floor is equipped with anti-slip treatment.

Electrically heatable glass floor can be equipped with similar fully automatic control system as the intelligent glass roof. The glass can be single laminated from many layers or multiple layer insulating glass unit.

Electrically heatable glass – long-lasting comfort

Water condensing to glass surfaces makes risks for the surrounding construction and glazing systems and disturbs the transparency. By using electrically heatable glass, the glass surface is heated just above the dew point, to make the glass surface 100% condense free: the system can be used in challenging conditions, like swimming halls.

Use of electrically heatable glass is a solution to increase well-being and thermal comfort inside a building. The system is the most energy-efficient compared to the traditional systems, as the smallest possible heating power is used to reach a temperature above the dew point.

Electrically heatable glass in roofs – intelligent snow melting

Even very thin layer of snow on glass roof will prevent light from coming through. Accumulating snow on the roof creates structural risks for the glazed roofs, and the dropping ice can cause serious damage to people.

By using electrically heatable glass the roof will stay clean from ice and snow in winter conditions. Savings can be achieved in frame construction, and especially when man work is no more needed to clean the snow from the roof. It is possible to enjoy natural light inside also during winter, and when the roof stays clear from snow, also solar energy can be utilized through the glass in winter period.

Electrically heatable glass can be equipped with intelligent feeding and control system - the melting process runs automatically and energy-efficiently with snow sensors. The system only forces snow to melt, so the practical projects' annual energy costs have been less than 1 Eur/m2 per year. The product is tested in the most demanding conditions, even in -50°C.

Customer Gangloff Cabins AG Switzerland.

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Shapes can be manufactured:
With the latest technology FINNGLASS can supply FGL HEATED to all shaped glass.
Dimensions: Standard 2300 x 4700, other sizes available on request.
IP Rating: IP 34 and IPx7.
Connection voltage: According to each country feeding voltage 230V, 400V, 110/115V etc. No transformers needed.
Power: According to need: 0 – 3000W/m2, for indoor use 0 – 700 W/m2 certified, double side heating can heat the insulating glass unit to two sides separately with different powers. It can also heat only one part of the glass if necessary. In uniform power distribution, the glass is heated uniformly.
Cable: Standard highly flexible double insulated cable, standard length 5 meters.
Glazing systems: For standard polyurethane sealant, for structural glazing silicone sealant. Also point fixations possible in structural glazing.

Warranty: Standard 5 years

Certificates:
FGL HEATED is CE marked including all glass properties and electrical properties. It fulfills requirement of EN60335, certificate number FI29912 and CB FI33667, certifier SGS FIMKO Ltd. Insulating glass properties are audited by third party Inspecta and insulating glass certificate number is 3995-13.

NRTL certified for north American market USA and Canada.
CCC certified for China market.
Tested with electromagnetic compatibility, certificate number EMC/098/96 SGS FIMKO Ltd.
Glass properties: EN572, EN1096, EN1279, EN1863, EN14449, EN14179, EN 12150, EN12600, EN1288, EN50106, EN410, EN356, ISO614.
Developed, planned and manufactured 100% in Finland according to all European Norms.

Structural glazing sealant depth is calculated case-by-case based on slope, loads (wind, snow, climatic) and glass construction and supporting system.

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