Infrared vs. Convection Heating

An infrared heater directly warms floors, walls, objects and people in the room, not the air.

Wave heating is based on a simple principle of so-called radiation (emission) where a given source emits infrared rays. Any warm object can be considered a source of such radiation.

Each heating unit transfers heat into the surrounding space by radiation and convection. However, the crucial role in the process of heat transfer is played by the specific design of the heater. The maximum emission level is achieved by so-called infrared emitters. On the other hand, hot-water radiators as well as floor or wall heating elements have significantly lower emission values.

~ Convection Heating

Convection heating systems take advantage of the great temperature disparity between the heated air and the cool air in the room. Air is used for heat transfer so it does not matter what type of primary heat-source (gas boiler, solid fuel boiler, electric convector, heat pump) is used. When a standard heater (radiator, direct heating, etc.) is used, warm air rises to the ceiling while cold air drops to the floor. Air is much warmer at the ceiling level than near the floor, where we spend most of the time.

~ Infrared Heating and Thermal Comfort

The infrared heating system directly heats walls, solid objects, but also the human body. Unlike convection heating, infrared heating uses at least 80 % of the energy to heat objects while maximum 20 % of energy to heat air. Once heated, the surfaces accumulate heat and warm up air naturally. The temperature stratification in a room heated in this manner is even and pleasant. The temperature difference between the floor and ceiling levels is only 1 °C (while it is up to 10 °C with a convection system). In relation to the ambient temperature the surrounding structures have higher or at least equal temperature and people in the room don't suffer from "cold feet".

Heating using the PION Thermo Glass infrared heater.

Our PION Thermo Glass Products

Perfectly transparent glass infrared panel in an aluminium frame.

P04	P06	P10	P 13
Input Power 440 W	660 W	1,100 W	1,400 W
Current 1.8 A	2.7 A	4.6 A	6.0 A
Voltage 230 V/50 Hz	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Dimensions *(mm)*			
835 x 117 x 23	835 x 157 x 23	835 x 268 x 23	835 x 307 x 23
Weight 2.2 kg	2.7 kg	4.0 kg	5.0 kg
Heated Area *(indicative figure)* 6.0 sqm	9.0 sqm	15.0 sqm	20.0 sqm
Price *(including VAT)* € 390	€ 490	€ 590	€ 690

** The value of the heated area is an indicative figure only applicable to a regularly heated room. In the event of occasional and short-term heating of a cold room, it is necessary to choose a heater or a system of heaters with higher input power. If you need help with the selection, do not hesitate to contact us.*

RoHS Made in Russia

Heating Costs for PION Infrared Heaters

Exclusive importer:

INFRALINE

new-generation infrared heating

www.pion.cz/en

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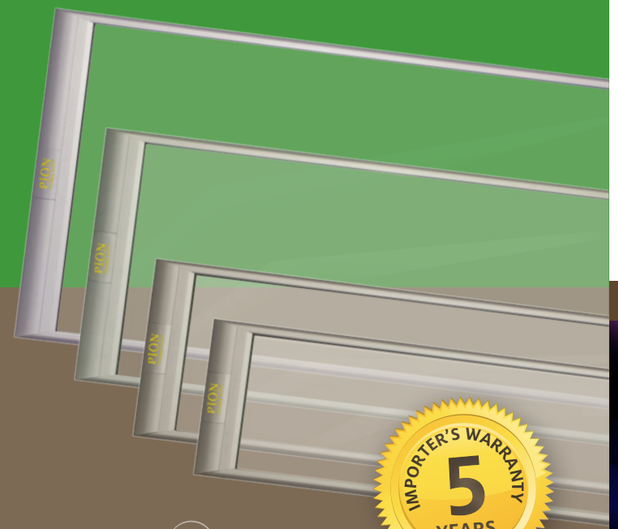
PION® THERMO GLASS

Infrared Panel

Thermo Glass

The principle of comfortable heat



IMPORTER'S WARRANTY 5 YEARS

RoHS

The most efficient heating technology

What Is Infrared Radiation?

Heat emitted by the sun, fire, tiled stove or hot pavement is the result of infrared rays.

Infrared radiation is electromagnetic radiation with a wavelength longer than visible light but lower than microwave radiation. It is capable of transferring heat and heating objects without warming the air in between.

An ideal example is the sun. Approximately 80 % of the sun's rays are infrared light. Imagine that you are standing in the sun on a cold day. You can feel warmth even if the air around you is cold. This warmth comes from the infrared rays falling on the surface of your body and slightly penetrating your skin.

In addition, the human body tissue routinely produces infrared energy to regenerate and warm up. This type of energy is therefore inherent to humans and completely safe.

There are two reasons why the PION infrared panel operating in the wavelength range of 2 to 13 microns is ideal for the man:

- This wavelength interval is based on the biological nature of the man and his perception of heat. Humans themselves emit heat at wavelengths of 2 to 13 microns.
- Clay ovens and their successors – tiled stoves – also radiate heat in this interval for centuries.

Demonstration of convection heating using a radiator.

Benefits

A modern design that will help you save power, heat, money and space.

~ Save Up To 40 % of Operating Costs

- The room temperature can be 2 to 3 °C lower than you are accustomed to because infrared rays warm you up directly. These 2 to 3 °C may mean 25 % savings especially in winter months. But your savings can be even greater: the best way of regulating room temperature is connecting your PION Thermo Glass infrared panels to programmable thermostats.
- PION Thermo Glass infrared panels have very low maintenance costs.
- Holiday houses or cottages get cold when left uninhabited. Heating using PION infrared panels causes no heat loss by warming up air – PION directly heats floors, walls and persons in the room. Even if the ambient temperature of the room is relatively low, you will feel warm and comfortable.

~ Acquisition Costs

When purchasing PION Thermo Glass infrared panels, you save at least 30 % of the costs compared to a technologically comparable competitive product.

~ Home Interior Accessory

The PION Thermo Glass infrared panel is not only a highly functional heater but also a stylish accessory to fit into any modern interior.

~ Thermal Comfort

The great advantage of the new-generation infrared heaters is the improved feeling of thermal comfort in the heated building. Unlike conventional convection heating, temperature equalization across different height levels is rapid. The floor is always warmer than the air at the head level of a standing person so there is no “cold feet“ feeling. Thanks to the incident infrared rays, one can feel warmth all around the body.

~ Dries Damp Walls

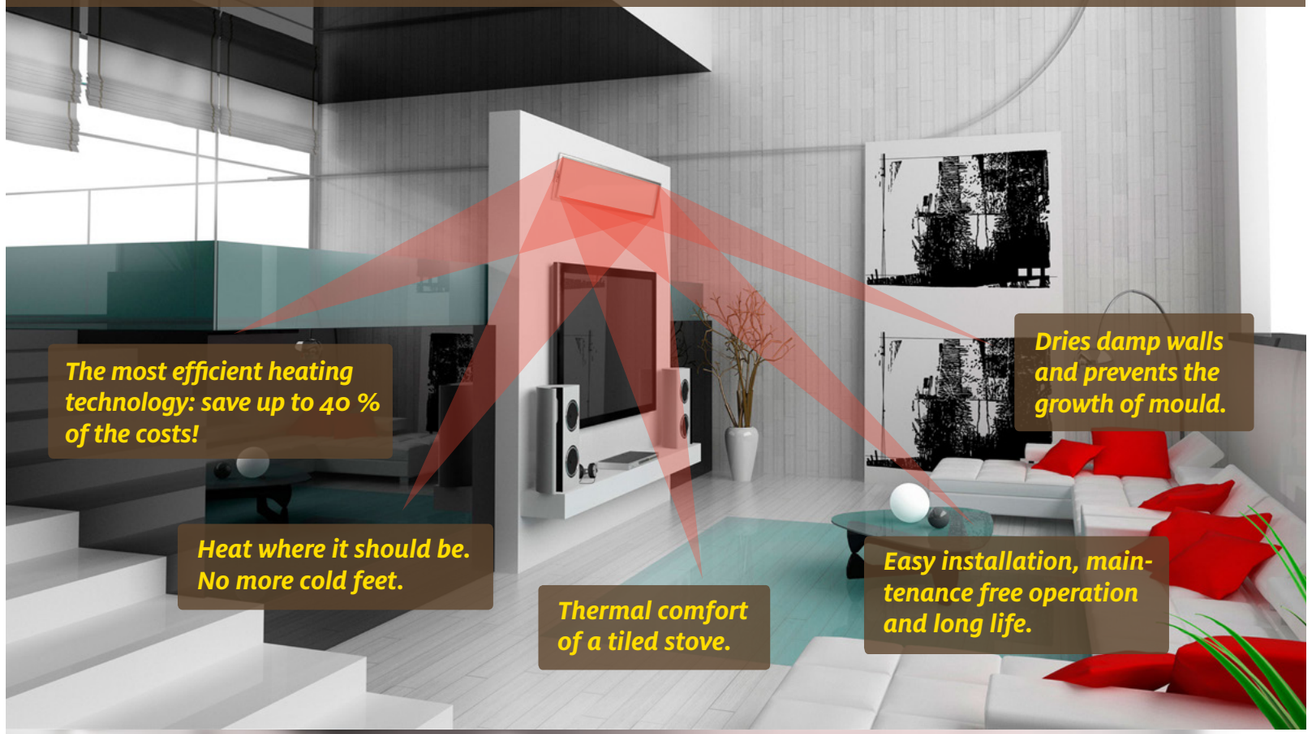
PION Thermo Glass infrared panels dry walls and other structures, preventing the growth of mould.

~ Health Benefits

Infrared heat has beneficial effects on the immune system. It provides relief to people suffering from rheumatism, asthma and allergies. Infrared heating stimulates metabolism, has detoxifying effects and helps keep cleaner air in the room.

Modern design, a simple method of mounting, unique nanotechnology radiating heat at a wide angle – all these are benefits that make the PION Thermo Glass infrared panel number one in its category.

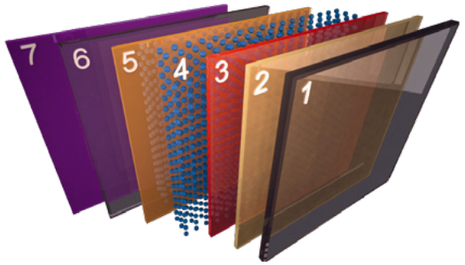
PION Thermo Glass Infrared Panel ~ The Principle of Comfortable Heat



Thermo Glass Infrared Heating – Perfectly Transparent Heating

Unique Technology

PION Thermo Glass uses nanotechnology.



1. Heavy duty tempered glass; 2. “Thermo Glass Infrared Ceramic” layer;
3. “Thermo Glass Nano Energy” heating layer; 4. Air layer for insulation;
5. Layer reflecting infrared radiation; 6. Heavy duty tempered glass;
7. Protective layer boosting reflection of infrared radiation.

The unique “Thermo Glass Nano Energy“ heating layer made up of carbon nanofibers heats up as electric current passes through it, generating, together with the transparent “Thermo Glass Infrared Ceramic“ layer, long-wave infrared radiation.

Long-wave infrared radiation is currently the most efficient way of transforming electricity to heat. This thermal radiation is capable of heating objects more easily than heat produced by a gas heater or a traditional electric heater. Up to 80 % of radiation is absorbed by objects in the room.

The infrared heating principle as such is not new. What is truly innovative is the combination of several unique features into the PION Thermo Glass panel:

~ Ideal Wavelength of 2 to 13 Microns

This wavelength interval is based on the biological nature of the man and his perception of heat. Every man emits infrared radiation of exactly this wavelength. The same heat radiation wavelength interval has been known for centuries from heating in tile stoves or even earlier in clay ovens.

~ Unique Technology

Special layers ensure high emission values of infrared waves directed “into the room“ and perfect shielding of the structure “behind the glass“.

~ Light Weight and Easy Installation

Thanks to its unique design and the combination of modern technologies, the weight of the most powerful 1,400 W PION Thermo Glass infrared panel is only 9.7 kg.