THE HEATING REVOLUTION OF THE 21ST CENTURY

*PROVEN ENERGY SAVINGS OF UP TO 50% WITH PATENTED TECHNOLOGY*

**OUR PANELS HAVE THE HIGHEST POSSIBLE EFFICIENCY RATES AND HEAT IN THE**

**OPTIMUM IR SPECTRUM**

**Basics of Electric Radiant Heaters**

Infrared radiant panels use the same principle as the sun. It is easy to feel the difference between having the rays hit your body and when they stop (for example when the sun is blocked by a cloud). The rays of the sun mainly heat objects they hit, not the air. The sun is the world’s best heater. The rays used for heating are the infrared rays.

The best radiant panel heater is the one which produces the maximum amount of infrared rays. Only then will a panel work efficiently and use the advantages of the sun as described. However, as infrared heating has become more popular over recent years, more and more electric heaters call themselves “infrared heaters”, even they have an output rate of infrared which is below 25% (which means 25% of the input power is transferred into IR rays and 75% into normal convectional heat or heat/energy loss). There are no national or international regulations, above which percentage a heater can be called “infrared heater”, but from our understanding the limit should be at least above 50%.

Our panels have an efficiency ratio with is above 81% (in theory the highest possible ratio is a bit higher than 84% (check Wikipedia). Our panels are from the leading manufacturer of infrared panels and guarantees, with its unique techniques and highest grade of materials used, this outstanding performance.

**Optimum IR Spectrum**

As mentioned above, it is very important that a radiant panel produces IR rays at a certain higher efficiency rate. However, it is important that most of the rays are in a certain infrared spectrum. Our manufacturer has developed, along with Japanese and Austrian technicians, a special formula for its heating element and a unique reflector technique that 99% of the produced infrared rays are in the optimum IR spectrum.

Here is some further background information: Infrared is electromagnetic energy. It is part of the electromagnetic spectrum which is comprised of radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma rays. In the electromagnetic spectrum, infrared falls in between microwaves and visible light waves. Its wavelengths are shorter than microwaves but longer than those of visible light.

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The prefix infra derives from the Latin word which means below. Thus, infrared means below red, indicating its position in the electromagnetic spectrum. Red is the colour of visible light. Infrared is invisible to the human eye.

Also the sun produces many different type of rays (from Microwaves to Visible Light and X-Rays, see graph above). Only rays which fall in a certain spectrum (0.75 to 15 microns) do the actual heating. These rays are called Infrared Rays (A) Near-, (B) Medium- and (C) Far IR Rays. The best and most efficient spectrum for heating is the C Spectrum (Far IR rays, 6 to 10 microns).

Therefore, it is important that an infrared panel heater produces most of its IR rays in this optimum spectrum. Our panels produce 99,82% of its output in the C-range and more than 90% of it in the optimum spectrum of it (6 to 10 microns, see test report from Seibersdorf Laboratories, Austria).

Our panels reach this optimum spectrum with a patented formula of a very high grade Carbon Nickel mixture (developed by Austrian technicians) and a Nano Silver conductor (developed by Japanese technicians). All coated by dielectric layer and 100% PE protection. A unique reflector technology emits all IR to one side (no loss to backside, backside gets hot but no IR rays to backside).

Another important factor for reaching the optimum IR spectrum is that the heating panel performs at a certain temperature range. The less input power (W) used to achieve this certain surface temperature, the better the panel (e.g.: a panel of same size with same surface temperature which use less power is better than a panel which needs more power to achieve the same surface temperature). Our panels are exactly in this mentioned temperature range. Furthermore, it is essential that the heat distribution on the surface is equal. Only an equal heat distribution (surface temperature) guarantees that the total input power (W) is used for working at best performance.

Converting infrared radiant energy into an image that the human eye can see and understand is the process called thermal imaging. This is achieved with the use of an infrared camera that accurately measures the temperature and translates it into colour. Infrared imaging shows the heat distribution of certain bodies. The image below shows the outstanding heat distribution of INFRAPOWER radiant panels. 5

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In a research done by the University of Kaiserslautern (Germany, Univ. Prof. Dr.-Ing. Peter Kosack), a German distributor compared our panels with conventional gas heating. The result: up to 50% energy savings possible with our panels.

Over a period of 5 months, two identical apartments (one apartment is located in second floor and the other one located in third floor) were tested. In one apartment traditional gas heating was installed and the in the other one only infrared panels were used to heat the rooms (only the water was heated with gas). The average consumption of gas and electricity per square meter was 187,85 kWh for gas heated apartment and 71,21 kWh for the apartment which was heated by infrared panels. This result means that using gas heater will need almost 3 times more energy to heat the same room. Depending on the gas and electricity price, the cost advantage using our panels is different in each country (savings from 20 to 50% with infrared panels).

However, the factor mentioned above does not take into account the development of the increase in gas and electricity prices over the last 10 years. Gas prices are rising in average 7,1% per year and electricity prices only 2,25% per year. In a few years if all countries around the world were heating with our panel, we would at least save 40 to 50%.

Especially in Europe, the austerity measurements obliged to several member states of the EU increase the cost of oil and gas in percentage even further and high taxes lead to advantages in using electricity for heating. This effect makes infrared heating even more popular and will revolutionize the worldwide heating market of the future!

This cost advantage can be heavily increased when infrared panels are used to heat up not the total house/apartment, but only certain living spaces (areas where people are located when staying at home). ONLY with infrared heaters this advantage can be used (as mentioned above, not the air but the bodies/things are heated up). With infrared heaters, it is not the air circulating throughout the room, but objects/bodies absorbing the pleasant infrared waves and releases the warmth back to the room.

The above mentioned study confirms that this will lead to the advantage that with infrared panels the temperature within a room can be reduced by 1-2 C in order to have the same warm feeling compared to all other heating systems. A saving in heating costs up to 50% can be achieved.

As mentioned above, the gas/oil prices increase at a higher rate than electricity – this leads in few years to a further savings using our panels.

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**Cheap, Easy and Safe To Use**

In addition to all these advantages, the purchase costs of our radiant panels are much lower than all other heating systems. Furthermore, there are almost no installation costs. Our panels can be fixed and mounted very easily and quickly, and in a little as 5 to 10 minutes.

Our panels were used in scientific and medical settings for several years (for example to warm newborns in the hospital, promote the healing of sprains or strained muscles and to maintain the cardiovascular fitness level of NASA astronauts during spaceflights, etc.). However, cost restraints in production made it not affordable to install our radiant panels for common home use.

A new developed technique produced in mass production makes it now possible to provide our panels for every home. Depending on the finishing of the certain panel, which is mainly chosen by the distributors of our panels according to their market needs, prices range from low to medium.

Our infrared panels will play a major role in this revolution and lead the market in terms of quality, improvements and developments. We are constantly spending all our effort in upgrading our panels in order to help customers to save energy costs. The future will show that infrared radiant panels will be the only affordable heating system and with our panels, you can be sure to have chosen the best IR panels.