Jigsaw

Infrared Heating Guide 2022

Better Heating for a Better World

MADE IN BRITAIN

Above & cover: Premium Aluminium 1000w in White in Situ

Above: Sirius Square 400w Mirror in Situ

WHO ARE JIGSAW?

Jigsaw is a family owned business. We are a team of professionals who care about providing an excellent UK manufactured product with a first class finish.

Our goal is to help modernise the way every building is heated. By using Infrared it is possible to save money on energy bills, reduce CO_2 and add premium products to domestic and commercial properties. As part of this we offer the full service from the design, manufacturing and delivery of our products.

At Jigsaw Solutions, we believe that the future of heating any building efficiently will be with infrared. Our products are highly efficient, fully controllable and market leading in their design and production. We are sure that there will be a Jigsaw product to suit your environment.

The demand of your heating could also be met by combining solar power or other renewable energy sources.

One of our main goals is to reduce the amount of pollution and wasted energy produced by our homes. We are working towards zero CO_2, zero waste, high efficiency heating. As part of our commitment to this we use products that are the most efficient on the market, have long working lives and ones that can also be recycled.

Better Heating for a Better World

CE EUROPEAN NORM EN MADE IN BRITAIN® 10 Year Guarantee

WHAT IS INFRARED?

Infrared is radiant heat, it feels like stepping out of the shade and into the sun.

What is Infrared?

Infrared heats objects directly when it touches them. That object will then either absorb heat or reflect it to another object within the space. Whereas, convection heat is lost through the materials of the building.

Infrared radiation is safe. It is 100% safe and natural for our bodies. This is asked frequently as the word radiation often scares people. Infrared heat works in exactly the same way as our sun does, whilst this sounds very Science Fiction it is perfectly safe and in fact it is often used to keep premature babies warm in hospital.

Benefits of Infrared

As well as being an efficient way to heat your home, our heaters also have added health benefits:

- They help ease allergens, mould and condensation in the space.
- Infrared does not circulate air as much as convection. Therefore, it does not circulate as much dust and pollen.
- This helps sufferers of Hay Fever, asthma and other respiratory issues. *Livestrong, 2018*

What does it feel like?

- It can help our bodies lose weight, lower high blood pressure and relieve pain. *Relaxedwellbeing.com, 2018*
- Infrared heating leads to improved circulation and allows the immune system cells and chemicals to converge on the injured areas to facilitate the healing process. *Parentgiving.com, 2017*
- Infrared light is the reason why we feel warm when the sun is shining in the middle of a wintry day. *Thegreenage.co.uk, 2018*

BENEFITS OF INFRARED

Infrared heating is super efficient and cuts down your energy use, you can be sure you're opting for an eco-friendly heating source. *The Greenage, 2017*

What is infrared heating?

Infrared is a modern, innovative way to heat your property. It looks great, takes up very little space, can be wall or ceiling mounted and comes in a wide range of shapes and sizes to suit your room.

The process is 100% energy efficient, delivering significant energy and cost saving benefits.

Comparison to Other Forms of Heating

- Up to 25% reduction on gas central heating systems.
- Up to 40% reduction on oil central heating systems.
- Up to 50% reduction on electrical storage heating.
- 100% Control as each room is controlled independently.

Energy Savings

Infrared heats the space and all the objects within it which is 30% more efficient than standard plumbing and up to 50% more than storage heaters.

Convection heaters (Radiators) heat the air, which is inefficient and causes pockets of cold air and drafts. Meaning that all the warm air can be lost.

THE ENVIRONMENT

The Future is Energy Efficient

At Jigsaw we are planning for the future and we believe that it will be an efficient one. Due to this, we have high requirements for our infrared heaters.

We have ensured that our heaters are optimised to work with solar panels and other renewable energy systems.

Where does the cost and energy saving come from?*

1/3 more energy required to heat a room using convection heat.

Infrared heaters can provide the **same comfort levels at lower temperatures** than convection heat.

Convection heaters **take 6% more energy** to raise the temperature by each 1 degree Celcius.

Convection heat is subject to **higher heat loss** from piping and draughts

IR is directional and unaffected by the medium it travels through and **they don't lose heat as they travel through the air.**
Newair.com, 2017

Convection heat is a far less efficient source of heat transfer than Infrared heating.

Government Regulation Changes

- 30%+ of the UK's carbon footprint comes from heating.
- The Future Homes Standard is aimed at delivering excellent energy standards into all new homes from 2025
- A new coding 'SAP10.2 – Part L' - **Future Homes standard** for conservation and power for new dwellings.
- This coding will show electrical heating rated to a score on parity with Gas.

RUNNING COSTS

Running Costs of Infrared

- Comparing infrared to other forms of electric heating, the savings could be over 50%.
- Due to the effective way that infrared heats a person or object.
- The heat from one of our heaters is immediate.
- Our heaters are virtually maintenance free.
- There are no moving parts, no gas boilers to maintain or to replace.
- Controls allow easy, set it to the desired temperature with your phone or thermostat.
- This can be done in each room rather than an inefficient centrally controlled system.

Domestic Energy comparisons

Convection Heater (2.5kW)	35p per hour
Fan Heater (2kW)	28p per hour
Oil Filled (2kW)	28p per hour
Storage Heater (4kW) Peak	56p per hour
Jigsaw 1000w Panel Heater	**14p per hour**

***Based on the price of electricity being 14p per hour**

Sirius Series in Situ

Pegasi Heaters in Situ

Benefits Over Gas Central Heating

- Reduced installation cost.
- No maintenance or service costs.
- 100% recyclable.
- From 2025 all new homes will be banned from installing gas.
- Reduced costs and easy to install compared to gas.
- Converts all energy into heat.
- Heating can be monitored and controlled by individual thermostats.

***More information can be found on our website:**
https://www.jigsawinfrared.com/what-is-infrared-heating/

UNIVERSITY STUDIES

As part of the European Union Regional Development Fund, (ERDF) Jigsaw completed two seperate studies with Aston University, and (ENTRESS) a project within the University of Wolverhampton.

What was the study based on-(ENTRESS)?

A simulation model of a newly-built, typical social home with our heating panels. Either the aluminium or glass range was in use.

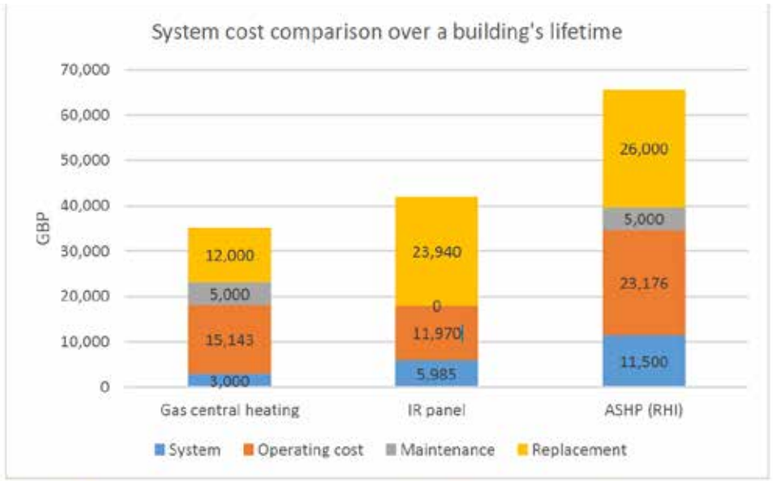


Figure 12: Comparison of overall system cost over a building's lifetime between the three heating systems

University of Wolverhampton (ENTRESS) - Study found

- In the context of a new build home- an infrared heating system might be more suitable than an ASHP as it has a lower upfront cost and as well as over costing over the building's lifetime.
- The infrared system also benefits the homeowner with lower running costs and no ongoing maintenance and service costs.
- An infrared heater is a highly energy-efficient electric heater. Using significantly lower energy compared to other conventional heating systems. Therefore a lower carbon footprint.
- Jigsaw's IR control system can be more energy and cost-efficient to only heat a room in use, rather than the whole house.
- Objects are heated by infrared heating in normally less than 10 minutes. This means that the heating will be on for less time using less energy. Compared to gas central heating which heats up around 30 minutes.
- Combining Solar PV and battery with IR heating and Mixergy Hot Water Cylinder, will significantly reduce the reliance on grid electricity and the total cost of energy.

IR vs GAS vs ASHP

Both universities undertook a cross-comparative analysis of Central Gas heating, Infrared Heating Panels and Air Source Heat Pumps (ASHP).

What was the study based on- (Aston University)?

The studies aim was to calculate the electrical power consumption, efficiency, and the cost per hour for all three heating systems.

Aston University - Study found

- Infrared heating systems can increase the room temperature to 18 C in 10 mins. Which are less than the other two heating systems. (2000 W and storage and convection). Which take 15 and 17 min respectively.
- The Infrared heating system can heat the room temperature to 22-23 C. Compared to up to 18.5 C for the other two systems.
- An Infrared heating system has an efficiency 2 times higher than the 2000W and storage and convection heating system.
- Therefore, the Infrared panel used half the energy. (50% less) of the storage heater. reaching room temp in almost half the time.
- The other advantages are low weight, small size, and no need for thermal bricks.

Below are the links to the full blogs with the studies:

ENTRESS- https://www.jigsawinfrared.com/heat-pump-vs-infrared-heating/

Aston University- https://www.jigsawinfrared.com/infrared-heating-characterisation/

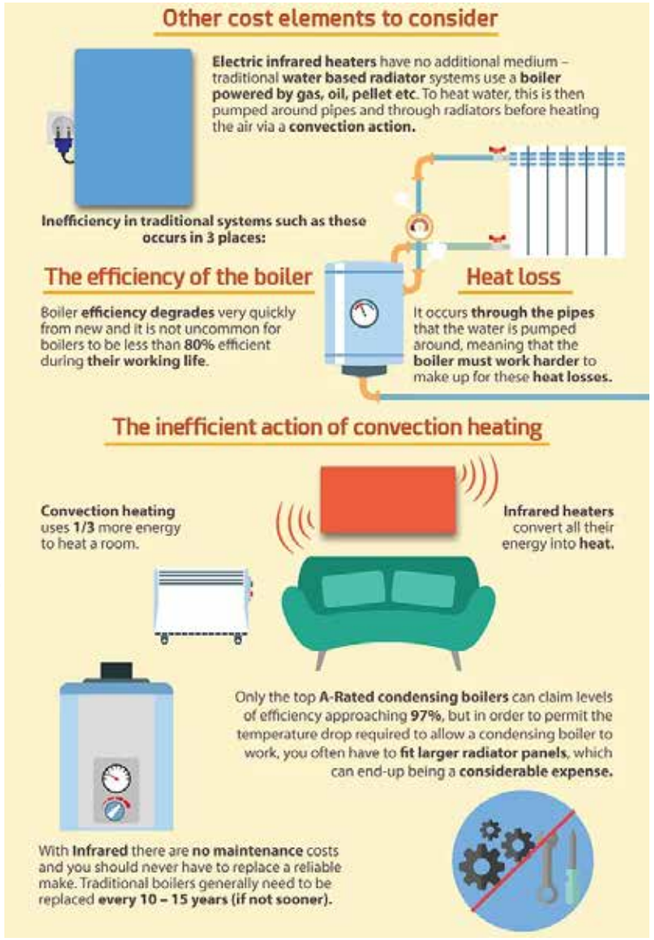
HOW EFFICIENT IS INFRARED?

"Does Infrared Heating Save Money?"
Every home owner would like to save money on their heating. We are happy to report that in most cases, infrared heating can save you money.

Lifetime Saving

First of all we need to consider how infrared heat works. Infrared heating is scientifically proven to be more efficient than traditional heating.

The total life cost of an infrared heating solution is considerably lower than a traditional convection based heating system. Savings are year on year. Over a 10, 15 or 20 year period these savings are quite large.



It is also important to consider potential heat loss (see the info graphic) within a commercial or domestic heating system. A convection based heating system relies generally on a boiler to heat water, which will then be pumped around a heating circuit losing heat. Radiators may be located a considerable distance from the boiler causing a number of inefficiencies. Heat will be lost simply due to the length of the circuit, also through the distribution pipework and finally the efficiency of the boiler.

It has been estimated that a boiler degrades quite quickly. It is not uncommon to find a 5 year old boiler working at only 85% efficiency. Radiators can also get clogged with material and air. Due to this, a radiator will not heat efficiently.

By contrast, infrared heaters deliver heat at the point of energy consumption. There are no distributed heat losses and they do not suffer the same loss of efficiency. In addition, no annual maintenance or servicing is required to keep the system operating at maximum efficiency. Good quality and well designed infrared heating panels will be the cheapest option to run. They also provide many benefits over conventional boiler run households.

HEATING WITHOUT MAINS GAS

According to the LSOA, at the end of 2018 there were 3.95 million households in the UK with access to mains gas. What are the best options in 2022?

Upgrade your existing LPG or Oil boiler to something more efficient.
It is an option, but an expensive option. The additional downside is that even though you will have a more efficient boiler, you will still be using the same expensive fuel you were.

Install an air or ground source heat pump
In theory great. However, you will also need to upgrade all your radiators to cope with the lower temperature water circulating. All in all a very costly option. It's also worth remembering that although the efficiency (COP) may appear to be great in the literature, a lot of off gas properties are in the coldest regions of the UK and as the temperature drops so does the efficiency of a heat pump.

Biomass installation
This may be a better option than a heat pump if you don't have underfloor heating. The flow temperatures are high enough so that you can work with your existing radiators. However the equipment is expensive and you'll need to make sure of a reliable pellet supplier. Pellet prices also seem to be going up and up.

Storage heaters
Expensive to run, inconvenient to use.

Modern infrared heating - The cost effective alternative

If you don't want the expense and upheaval of ripping out boilers, changing radiators to match low flow temperatures, installing under floor heating or constantly feeding a wood burner, then infrared heating is a sensible and cost effective option.

Modern infrared heaters cost less than storage heaters for example.

Infrared heaters are very efficient, flexible, easy to control and provide instant heat. Radiant heaters are the most efficient form of electric heating and the infrared heat provided is stored in your building, not the air.

What does that mean?

With infrared heating, if someone opens a door or you have a draughty window for example you are far less likely to lose heat with an infrared heater than you are with convection based heat. You can learn more about the significant benefits of infrared heating.

See our cost "Running Costs" for further comparison on page 7.

TRADITIONAL HEATING SYSTEMS

Replacing storage heaters. The best alternative to heat a home.

Stepping into the new era. The majority of us use traditional heating to keep our homes cosy.

Convectional heaters heat homes up by heating the air directly and pushing warm air around the room. Therefore, you're losing 25% of your heat through your radiators. Which is not very efficient.

However, given around 15% of UK carbon emissions are created by heating buildings. Is there a more efficient way for us to stay warm through the British winter? Choosing which is the most affordable and green replacement can be demanding, when homeowners will need to meet the target for all new heating systems to be installed in the UK by 2035. So, what is the best electric heating system to better future homes standards.

Electric heating is the key.

What is the alternative to Traditional Heating?

Something sleek. Something modern.

An efficient form of smart heating.

Imagine a heater designed to be mounted at picture height. A heater disguised as a mirror. No really! How about your favourite picture? A colour to match your decor? Even wallpaper can be incorporated into the design of our heaters.

They are not only pleasing on the eye. Simply control them with our Smart control system, so you can heat any room up seperately. Normally in less than 10 minutes.

That's a technology that's right for you!

SAVING ENERGY IN THE HOME

"Turn those lights off!'

Save money- save energy- save the planet.

Reduce your Energy Bills

If you're not using it, turn it off. Spending more time at home could mean you're receiving larger energy bills than usual. So, there are simple changes you can make in your home to reduce your electricity and gas usage. It is important to know how much electricity you're already using in your home. From there, you can make small changes in almost every room in your home.

Use a smart thermostat (We have some really SMART ones)!

Don't heat empty rooms. Most heating controls are old fashioned and encourage inefficient use of your heating. Replace the control with something smarter. What makes it smart? Control and flexibility. The Jigsaw Smart Control system will allow you to control individual rooms to the temperatures you need in those spaces.

Quick & Simple Tips

1, Turn down your thermostat, with infrared heating you'll do this naturally because all the surfaces will be warmer. 1°C lower on the thermostat translates as a 6% saving. Over 20° and it becomes 10-15%.

2, Have you got the best deal on your gas and electric costs? It's easy to check and easy to switch to a better deal if you need to. There are a number of comparison sites available.

3, How about an extra blanket on the bed (or an extra cuddle) rather than having the heating on while you sleep? Rooms at 18° should be the max.

4, Room thermostats. Every room has different heating requirements, a thermostat in each room means that your heating system will be working efficiently and specifically as required.

5, Cavity wall insulation, if you've not done it yet, bear in mind that around 1/3 of the heat lost in an uninsulated house disappears out through the walls!

6, Loft insulation is quite often supported with a grant from your local authority, they may even come out and do the job for you.

SMART CONTROLS

How do you control Infrared Heaters efficiently? Smart control just got smarter!

The true sign of a good Smart device is the lack of need touch it once your desired settings have been found. That is true in two ways for our system. The control system that we provide and install do not need actually need a 'normal' thermostat if you don't want one. They can be controlled completely by phone or by being triggered when you walk in to the room.

There are a few choices to make when building your heating system:

- Is the system to be controlled on a thermostat?
- Or, is it better to hide the controls completely?
- Or, reduce the control that the occupant has on the heating system

All of these are options with our Smart heating system. During our conversation and site visits we discuss how best to control your heating system. As standard, all the heaters and rooms will be able to be controlled on a phone, tablet, computer or by voice (Alexa required).

Ready, Set, Go!

All our systems come preprogrammed with your initial connections made between the Hub and device. It's literally plug and play. The Hub is also preset with a general timed programme for all the rooms. But, there are plenty of settings to refine your ideal room temperatures.

Potential Savings

With the power to control all your heaters in every room provides the potential for high levels of savings. The general savings that clients with the system installed state is around 25% compared to their previous system. There are case studies to show that the savings can be over 60%. This saving was proven with a hotel that converted some of its rooms to the system and left others.

App Controlled Heating

GETTING A QUOTE

For us to prepare an idea of price for you, we will need some more detailed information.

You've reached the point where you'd like an idea of how much infrared heating will cost you to install. You need a quote for infrared heating.

What is the address of the property?

We need to know this so we can look at the average temperatures. A house in Cornwall will benefit from a warmer climate that one in the Hebrides for example.

What is the construction of the property (or what will it be)?

For example, it may be a 19th Century, stone built farmhouse. It could be a modern, brick built property with cavity wall insulation. Perhaps you live in a timber frame, modular build.

What levels of insulation are there in the property?

You may have cavity wall insulation, insulation in the loft space, underfloor insulation. The more insulation you have the less heat you will require to heat and maintain the temperature in the space you want to heat.

How many external walls are there on each room you want to heat?

External walls lose more heat than internal walls. This means that the heating requirement will increase when you have more external walls.

What type of glazing will be used. Single, double, triple or other?

Once again, this relates to potential heat loss / heat retention in the space you are heating. There is a big difference between no double glazing and triple glazed units. The type of glazing you have on your windows impacts on the heating required in the space.

Will there be any other sources of heat for the building?

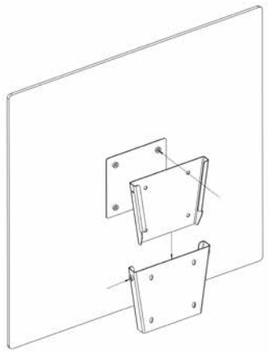
You may be using infrared heating to supplement an existing or planned heating system. You may be using infrared heating as your primary heat source.

What are the measurements of the rooms?

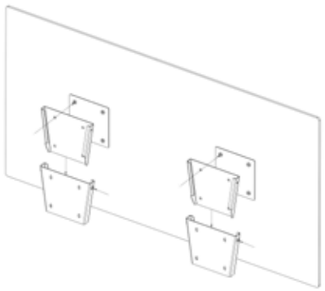
We need to work out the volume of each space. We will need to know the width, length and height.

INSTALLATION

How easy is it to install infrared heating? Easy to add to any room. Very easy if you already have electric heating.



Aluminium 400w Design



Aluminium 800w Design

At Jigsaw, we have designed our products to be easy to install and control.

All the heater ranges use the same bracket system. It is just like a TV bracket fixing. There is a single for the smaller models and a double bracket for the larger ones.

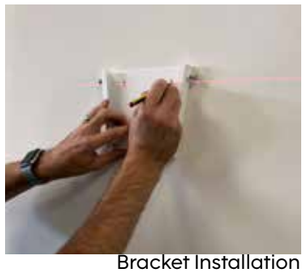
Attach it to the wall and slide the heater in. Tighten the fixing point to hold the heater safely. Connect to the control system (Competent person required). Job done!

The heaters are also interchangable.

If you have a 400w Aluminium panel on a wall and you would like to swap it with a 400w Mirror or Glass heater. No problem. Safely disconnect the heater from the mains (Competent person required) and install the new glass heater. This can be done in minutes.

Heating Controls

The Infrared Heating Controls are setup by our staff and ready to use on installation. They come labelled for each room. Connect the Hub, register your account and away you go. Each room will already be paired.



Bracket Installation

Installed Panel

Wireless Control

CLEAN INSTALLATIONS

The aim of our installations is to leave your home clean and tidy. With all the heating controls at your finger tips.

ECO Aluminium 800w in White in Situ Ceiling Mounted
Sirius Square 400w Mirror in Situ

Adding a single heater

Easy. A competent person (Electrician) can install a heater and connect it to existing wiring. This can be installed in around an hour.

Building a new home?

When building a new home all that is required is to specify that Infrared heating is the option for you. Your architects, designers, builders and electricians can easily add the system to their plan. The wiring for the heaters will be on the first fix. The installation of the heaters will be the second fix.

Updating your electric heating to Infrared

The cabling for the new infrared heating system could be ready to use. As long as it is fit for today's electrical standards. If you are updating from an electric heater or storage heater it will be a case of removing the old heaters and using the wiring to connect the new system. A two bed property can be completed in a day or two depending on how many heaters there are to install.

Changing your heating from oil, gas or any other fuel source

If you are moving away from fossil fuels. The old boiler and piping can be removed from the property completely. New wiring will be required for the heaters. This can be done by feeding wires directly from the main fuse board. Cables can be hidden in walls, ceilings and in floors. Some redecoration might be needed dependant on wiring roots.

JIGSAW ECO Aluminium Heater

Our all new Aluminium Panel Series Infrared Heaters are a stylish white slim Aluminium design. They are completely frameless and have a clean edge to blend in to any environment. These Infrared Panel Heaters are easy to install on the wall or ceiling with our sliding mounting points.

These panels can be hidden on the ceiling and walls. They are also sized to slot discretely into suspended ceilings. Our Aluminium panels are built to last. The 5 year guarantee and the quality of the workmanship and product surpass any other product on the market.

400w, 800w, &1200w White Aluminium Panel

800w Heater in Situ

Quality manufacturing

400 - 1200w | **10 Year** | **Colour Choice** | **Colour Choices**

SUITABLE FOR INDOOR USE

Recommended installation point: Wall & Ceiling
Dimensions (W x H): 595mm x 595mm - 1595mm x 620 mm (10mm depth)
Weight: 4.3kg - 10.5kg
Cable Supplied 1.8m
Voltage: 230v

JIGSAW Premium Glass Heater

Our premium range of Premium Glass heaters come in five shapes, a range of wattages and colours. See the website for further images and information.

High quality materials have been used to design and make our top of the range Infrared Heaters. Extremely well crafted, these panels are beautiful and will add an elegant focal piece to any environment.

Jigsaw's infrared heaters can be tailored to suit your style and decoration. Whether you would prefer something subtle or if you would like something bespoke that stands out.

Sirius, Pegasi and Antares Mirror Panel

800w Sirius Heater in Situ

1500w Pegasi Mirror Heater in Situ

400 - 1500w | **10 Year** | **Colour Choice** | **Colour Choices & Mirror**

SUITABLE FOR INDOOR USE

Recommended installation point: Wall
Dimensions (W x H): 595mm x 595mm - 1600mm x 600mm (10mm depth)
Weight: 7.2kg - 19kg
Cable Supplied 1.8m
Voltage: 230v

QUALITY MANUFACTURING

Why Choose Jigsaw?

At Jigsaw we are positive you will be extremely happy with our products. Our manufacturers have a combined experience of 80+ years.

All of our products are manufactured to the highest of standards. The components we have chosen are the best to increase the panel's reliability and performance.

- Experienced staff members with a wealth of knowledge of infrared.
- Range of the best products on the market to choose from.
- UK manufactured.
- Bespoke installations and products.
- 10 year warranty* on our products.
- Extremely energy efficient heating systems.

Certification

Our heaters are frameless, with simple, elegant lines enhancing the quality. We use a robust aluminium to create a substantial heater which retains a light weight.

The heaters can be either ceiling or wall mounted with our simple and elegant mounting system. Certified in the UK to the following standards:

EN 60335-1:2012 / EN60335-2-30 (Safety of Electrical Appliances)

EN55014 1 + 2 / EN61003-2 / EN61003-3 (EMC)

EN62233-2008 (EMF)

EN60529-1992 + A2 (IP44 rating)

2011/66/EU RoHS

CE Certified

High Quality Hand Manufacturing In The UK

Panel Powder Coating

*10 Year warranty on Premium Aluminium Panels and Glass Heaters

APPLICATIONS

Bedrooms, Guest Bedrooms, Hotel Rooms, En Suites

Living Areas, Conservatory, Lounge, Open Plan Areas

Bathrooms, Changing Areas, Hotels, Spas, Waiting Rooms

Kitchen, Dining Areas, Lounges, Bars, Lobbies, Corridors

Office, Communal, Shops, Classrooms, Bars, Retail Spaces

Yoga studios, Gym, Dance Studios, Changing Rooms

1500w Bespoke Printed Glass Heater in Situ

Jigsaw

Better Heating for a Better World

For Further Information Contact:

Email: info@jigsawinfrared.com

Web: www.jigsawinfrared.com

Trade: https://www.jigsawinfrared.com/trade/

Phone: 0121 794 2081

CE

EUROPEAN NORM EN

MADE IN BRITAIN®

10 Year Guarantee

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Head Office: 1 St Kenelm Court | Steel Park Road
Halesowen| West Midlands | B62 8HD | Company Number 10669703 | VAT 315 3643 21