

ROTKRAFT[®]
INFRARED HEATING

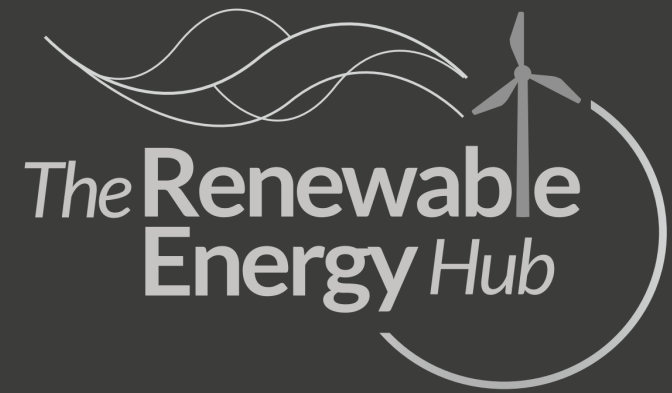
In partnership with



Rotkraft[®]: Long lasting, premium infrared heaters. Supplied by The Renewable Energy Hub

Welcome to Rotkraft®

Providing the world's first infrared heating and hot water systems.



Rotkraft® offer industry leading infrared technology and innovative hot water systems.

We strive to deliver shrewd, sustainable, cost effective and efficient products specifically designed for homes and businesses.

Our pioneering Austrian technology, commitment to lean manufacturing and pre-production quality has allowed Rotkraft® to develop products specifically tested within our research and development departments which are ideally suited for domestic and commercial environments.

Rotkraft® specialise in the production and distribution of industry leading infrared heating solutions designed to be the most efficient product available anywhere in the world. Rotkraft® is a brand of Hoechst Procurement International AG (HPI AG). HPI AG was formerly the central purchasing division of Hoechst Chemical Plants, once the world's largest chemical company.

Rotkraft® through HPI AGI therefore has the foundations to invest heavily in research and development, production and logistics. This robust vertical mechanism ensures that we can provide our clients with market leading infrared heating solutions, backed by extensive and resilient product guarantees.

Rotkraft® combine state-of-the-art expertise and equipment with our own heating controls to offer an easy to use and futuristic solution. What we have developed is interactive and intelligent heating controls which can be accessed and managed anywhere in the world via our purpose built online portal. This software will enable customers to control and monitor all aspects of the Rotkraft heating system and will form a key part of our customer friendly package.

To reinforce our commitment to developing our system, Rotkraft® will offer a unique infra-red water heating solution, suitable for commercial and residential environments.

This product will allow customers to instantaneously heat their water to the required temperature without the traditional requirement of either a boiler or water cylinder.

As homeowners and businesses become more and more energy conscious and energy prices continue to rise, our products help to tackle these fundamental issues by reducing costs, consumption and ultimately our carbon footprint.

This brochure details our core products, the benefits and our commitment to our exciting portfolio of technologies.

Please take the time to read through our brochure and learn more about business, values and heating solutions which can offer substantial and sustainable benefits to all.

Darren Pelling
Chairman



The Renewable Energy Hub

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We supply Rotkraft heaters because they are high quality and last for over 20 years. Their broad range, build quality, rigorous German testing and EU manufacture, make them the perfect addition to our approved product lines.

Richard Burdett, Managing Director at The Renewable Energy Hub.

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The Renewable
Energy Hub

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The heaters really do look good! In all our “test” situations so far the rooms get to a comfortable temperature very quickly. They are a vast noticeable improvement, a couple of my colleagues have visited, are impressed with them and overall I think they look very good.

**Nick Humphries, Project & Contracts Manager,
Citywest Homes**

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Quality

Rotkraft® leads the way in infrared heating, utilising patented and cutting edge technology.

Comprehensive Quality Control and rigorous testing reflects our focus on quality, safety and a guaranteed long life expectancy, making Rotkraft® the world's leading infrared heating solutions. Rotkraft® is owned by one of the world's largest chemical company's (HPI AG) with a purchasing volume of €4 billion making it Europe's largest logistics and procurement service for large-scale industry.

Visual

The visual impact of our products is a key consideration during our design and production phases.

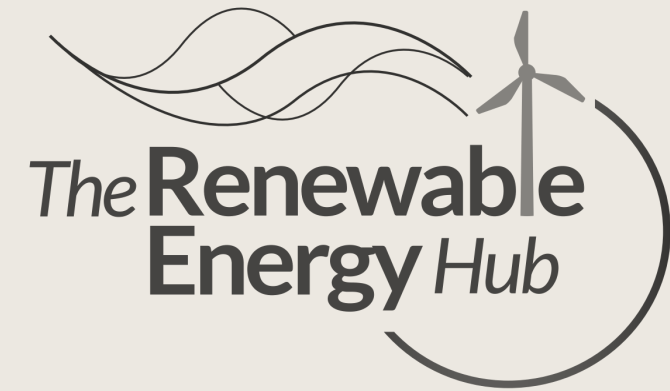
We view our products not only as an essential requirement for the heating of a property, but also a piece of art or furniture which is intended to accentuate the environment it is housed in. As a result, Rotkraft®; produce a visually stunning infrared heating panel range. A spectrum of colours, designs and bespoke images provides the flexibility to design a solution tailored to the requirements and interior design of the property. Furthermore, the heating solution is managed by an intelligent control system which will provide comprehensive functionality as well as real time and historical performance data.

Efficient

Rotkraft®; are introducing the world's first complete infrared heating solution to provide internal comfort and water heating.

Our complete solution is the most efficient and cost effective heating technology available on the market. To validate our claims, we appointed a German University who conducted an independent efficiency test report and concluded that Rotkraft's infrared heating panels have up to 18% higher efficiency than our main competitors. As a result, energy consumption and financial energy bill savings of between 30%-70% are achievable versus current traditional fuel cost.

Naturally Rotkraft®



Naturally warm.

Cold feet and hot heads are no longer a problem.



There is no better and healthier warmth than the principle of the sun. The technology for infrared heating was developed in space engineering where it is still being used.

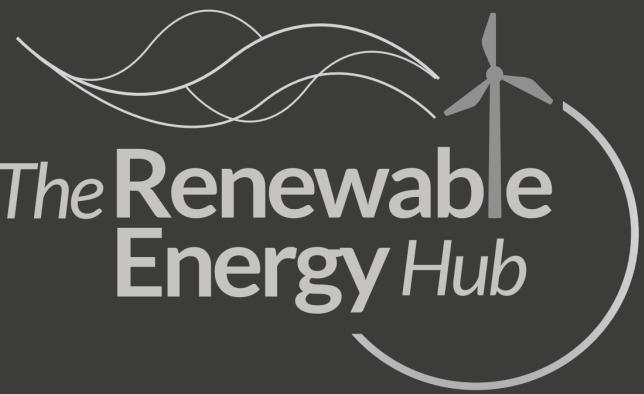
Infrared heating works like the sun: the sun's long waves do not heat the air but heat solids which store the warmth and then radiate it back into the air. This is noticeable when you step out of the shade into direct sunlight where it immediately feels much warmer even though the air temperature is the same. Using this principle it is possible to create an agreeable room environment very effectively – and much more cost-efficiently and pleasantly than with conventional convection radiators.

Conventional convection radiators will soon be a thing of the past. Conventional radiators burn gas or oil to maintain the circulation of water between the burner and the radiators with heat. The heated radiators cause warm air to rise upwards. When it reaches the ceiling it cools down again and sinks to the floor where it flows back towards the radiator. This always makes the area below the ceiling the warmest and the area nearest the floor the coolest, making an even and above all pleasant room temperature hard to achieve.

Infrared heating generates a pleasant environment. Infrared waves reduce the formation of mould because condensate is deposited in cold places. In the building envelop, walls are often the coldest places in the house, especially inner corners. If condensate is deposited for a length of time, then mould is sure to form there.

Since the infrared waves from our heating panels heat up the walls, there is practically no condensate there – and so much less likelihood of mould growth. Infrared radiators make a positive contribution to feeling good. Infrared heating means air circulation in the room is avoided and so house dust, pollen, bacteria and mould spores are not stirred up, something that is especially important for allergy sufferers.

Infrared radiation not only helps with hygiene, but increases circulation in the skin, stimulates your metabolism and therefore has a cleansing effect. It is proven that rheumatism sufferers respond very well to less air circulation and stable humidity. Infrared warmth also has the advantage of boosting the immune system through thermal radiation.



The Renewable Energy Hub



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We recently had over 300 units installed in our care home by one of Rotkraft's accredited installers. We were very happy with the care and attention to detail from the installers. We are pleased with the product and are now reaping the benefits with cheaper fuel bills.

Maurice Walters at Brookvale Care Home, Manchester.

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Safe & Cost Effective

An expert report from the Technical University of Kaiserslautern proves it.

Modern infrared heating systems are vastly superior to gas condensing boilers. As part of a research project, the Technical University of Kaiserslautern has produced proof that modern infrared panel heating, particularly in old buildings, means economical, health-promoting and environmentally friendly heating systems are a possibility for everyone.

An experiment not undertaken in the laboratory, but in a field study directly comparing two identically inhabited residential units has now confirmed what users of heating systems like this have known all along.

A brief overview of the advantages of modern infrared heating systems:

- They save more energy than conventional convection radiators
- They produce a living environment which is particularly good for your health
- Despite using electricity, they generate far fewer CO₂ emissions than other heating systems and make the best possible use of renewable energy sources.
- In terms of supply, installation and maintenance, they are much cheaper than other heating systems.

In summary, the experts said:

“This study shows that infrared radiation heating is a sensible alternative to conventional heating systems. Correct use of infrared radiation heating offers advantages in terms of energy consumption as well as in terms of cost and the carbon footprint.

Based on initial rough estimates, as the investment costs with infrared heating are only around half the costs for gas heating, the cost benefit is achieved much earlier, possibly even immediately.

In the regions there are special tariffs from some providers for what is known as direct heating power.

This generally makes the consumption costs of infrared heating immediately much lower than gas heating.”

Rotkraft® infrared radiators meet all safety criteria.

The production process inspected under ISO and GS guarantees extremely high-quality mass production. Each panel is fitted with five built-in safety sensors which stop it from overheating. As it is protected on both sides by aluminium plates, the structure of the panel offers a 100-per cent guaranteed protective conductor. Infrared heating panels from Rotkraft® are CE compliant and have been awarded the GS certificate from Rhineland TÜV. They are also IP44 rated (dust and splash-proof).

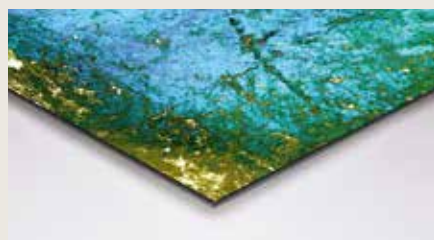


Product Range

A wide variety of designs

Almost every size and watt class can be delivered to you quickly, either as standard or with a personalised design. If you would like particular dimensions, just let us know.

We can do practically anything you like when it comes to specially manufactured items.



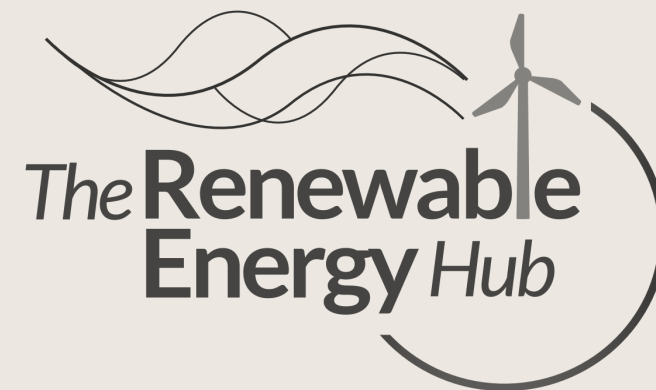
All panels from Rotkraft® carry the GS and CE mark.

Pictured from left to right, top to bottom:

- Aluminium Panel White with aluminium frame
- Glass Panel Mirror without frame
- Glass Panel Black without frame
- Glass Panel White without frame
- Glass Panel with Picture without frame
- Aluminium Panel with Aluminium frame

Tested safety

All Rotkraft® panels carry the GS logo (tested for safety) awarded by Rhineland TÜV. In addition, every radiator has five sensors that stop the module from overheating.



Aluminium panels in white, with aluminium frame

| Model name | Size LxWxD (cm) | Power (W) |
|-------------------|-----------------|-----------|
| Rotkraft 300 RW | 30 x 90 x 2.5 | 300 |
| Rotkraft 400 RW | 60 x 60 x 2.5 | 400 |
| Rotkraft 400 RWP | 30 x 120 x 2.5 | 400 |
| Rotkraft 600 RW | 60 x 90 x 2.5 | 600 |
| Rotkraft 800 RW | 60 x 120 x 2.5 | 800 |
| Rotkraft 1000 RW* | 60 x 120 x 2.5 | 1000 |

Glass panel black, without frame

| Model name | Size LxWxD (cm) | Power (W) |
|-------------------|-----------------|-----------|
| Rotkraft 600 GS | 60 x 90 x 2.5 | 600 |
| Rotkraft 800 GS | 60 x 120 x 2.5 | 800 |
| Rotkraft 1000 GS* | 60 x 120 x 2.5 | 1000 |

Glass panel white, without frame

| Model name | Size LxWxD (cm) | Power (W) |
|-------------------|-----------------|-----------|
| Rotkraft 600 GW | 60 x 90 x 2.5 | 600 |
| Rotkraft 800 GW | 60 x 120 x 2.5 | 800 |
| Rotkraft 1000 GW* | 60 x 120 x 2.5 | 1000 |

Glass panel mirror, without frame

| Model name | Size LxWxD (cm) | Power (W) |
|------------------|-----------------|-----------|
| Rotkraft 400 GSp | 60 x 60 x 2.5 | 400 |
| Rotkraft 600 GSp | 60 x 60 x 2.5 | 600 |

Glass panel with picture, without frame

| Model name | Size LxWxD (cm) | Power (W) |
|-----------------|-----------------|-----------|
| Rotkraft 600 GB | 60 x 90 x 2.5 | 600 |
| Rotkraft 800 GB | 60 x 120 x 2.5 | 800 |

Aluminium panel with picture, with aluminium frame

| Model name | Size LxWxD (cm) | Power (W) |
|------------------|-----------------|-----------|
| Rotkraft 300 RB | 30 x 90 x 2,5 | 300 |
| Rotkraft 400 RB | 60 x 60 x 2,5 | 400 |
| Rotkraft 400 RBP | 30 x 120 x 2,5 | 400 |
| Rotkraft 600 RB | 60 x 60 x 2,5 | 600 |
| Rotkraft 800 RB | 60 x 120 x 2,5 | 800 |

*Recommended as a ceiling-mounted device





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Excellent product. Economical to operate and very effective heaters. Completely solved my damp problem. Highly recommended.

Mr Alec Wheeler, Stevenage, Hertfordshire.

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Benefits

Easy to install

Rotkraft® infrared heaters do not require expensive piping, a socket is sufficient. The installations done with screws to the wall, ceiling or mobile with the optional floor stands. Thanks to its timeless elegant design, the only 2.5 cm thick panels integrate harmoniously into any living area.

Economical to run

Rotkraft® infrared heaters convert 100 % of the energy consumed in comfortable warmth. They heat quickly and accurately - without any service and maintenance costs. The walls remain dry and the insulation properties are improved in the long term.

Comfortable to use

In combination with optional room thermostats, Rotkraft® infrared heaters provide perfect heat according to your needs. Even in a single room several different thermal comfort zones can be generated.

Economical to purchase

Rotkraft® infrared heaters are up to 50% cheaper than conventional heating systems. Highest quality components are assembled in order to produce an infrared heater with virtually unlimited lifetime.

Eco-friendly

Rotkraft® has a common environment policy for the implementation and execution of green issues. Rotkraft's infrared heaters in combination with clean energy or photovoltaic systems are a perfect contribution to protect resources and the environment. No components include metals (such as lead) or PVC which are harmful to the environment.

Essential for a comfortable and healthy indoor climate

Rotkraft® infrared heaters promote a dust- and bacteria-free air, preventing the unpleasant dry breeze of convection heating.

They keep the masonry work free of mould and operate completely silent. The temperature is evenly spread throughout the room. No more cold feet and hot heads.

Reducing carbon footprint

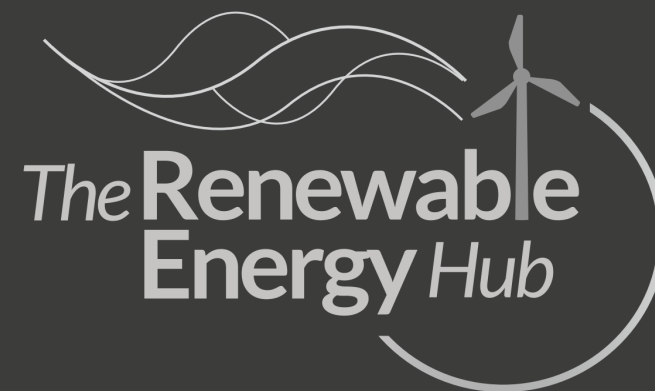
The innovative Rotkraft® product range was designed with energy consumption and carbon footprint reduction at the forefront of our worldwide strategy. Our efficient and intelligent products are designed to tackle these issues and assist homeowners and businesses in the ongoing challenge to reduce wastage, increase efficiency and reduce spend.

As people become more conscious of the requirement to manage their heating more efficiently with minimal environmental impact the Rotkraft® product range attacks these matters with carbon efficient technology capable of generating substantial energy savings.

Fireguard fire detection

Our product range has in-built fireguard detection technology to protect against the potential for fire spreading undetected in multi storey homes and commercial environments.

Our portfolio of Rotkraft® infrared panels has a temperature sensitive and fluctuation detection intelligent hub designed to safeguard customers in the event of a fire. In this unfortunate circumstance our intelligent systems will dial into our Emergency Centre to analyse any detected problems.



Next Generation Infrared Hot Water Systems



Rotkraft® has an exclusive partnership with SuperGreen Europe Ltd, the world's only manufacturers of infrared hot water systems.

Specialists in harnessing the power of infrared, SuperGreen offers a wide range of hot water generators and tanked systems designed to provide mains pressure instantaneous hot water on-demand for both residential and commercial applications.

Recognised for their reliability and energy efficiency SuperGreen products are installed worldwide with clients including the UK's National Health Service.

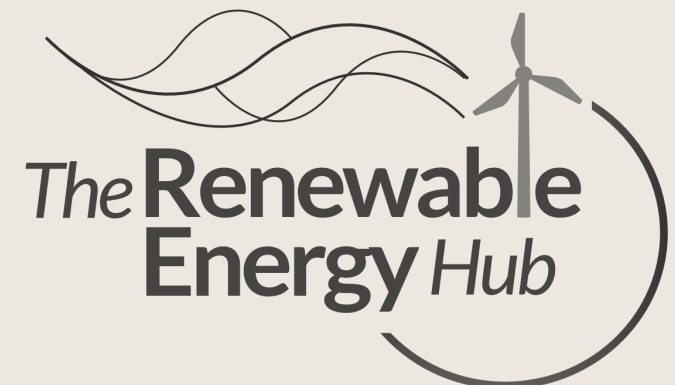
Combining the SuperGreen's patented technology with the Rotkraft® Infrared Heating system will provide any property with a highly efficient, economical and healthy solution.

- Continuous Hot Water On Demand
- No Limescale Build-Up (ideal for hard water areas)
- Maintenance-Free
- Silent Operation
- Intelligent Self-Regulating Anti-Scald Protection
- 10 Year Heat Exchanger Warranty (IR-Series)
- No Venting Required
- Can Be Installed On Internal Walls



High Power Quartz Infrared Heating Elements

- Non-Metallic Quartz Infrared Heating Elements
- No Corrosion or Calcium Deposits (ideal for hard water areas)
- Environmentally Friendly
- Unprecedented Warranty
- Maintenance-Free
- Superior Heating Efficiency
- Operational Longevity
- Recyclable Materials
- Reduces Water Consumption







Heating Controls

Rotkraft® have developed a revolutionary wireless intelligent heating control system that provides the user with a full visual and total control over their infrared heating solution.

The heating control application is web based which means the user can access their heating control centre from their smart phone, tablet or laptop anywhere in the world. Furthermore, the heating controls communicate wirelessly. As a result, zero disruption is caused during installation and once operational, allows for all data to be wirelessly stored in our dedicated datacentre based in the UK.

This removes the requirement for on-site servers which saves the end user money and mitigates the risk of data loss.

The Rotkraft® Intelligent Heating Control System (RHICS) has been designed to be extremely user friendly whilst also providing control and information regarding the whole infrared solution.



The key features are:

Monitor

- Current heating costs per hour
- Historical heating costs for previous week, month etc
- Carbon savings
- Usage reports

Control

- The temperature of each room
- Timing settings
- Heating zones

The control system also enables most household electrical compliance such as the lighting, television, washing machine, dishwasher etc to be connected and controlled by the HCS. The contribution of electricity from solar panels can also be monitored to maximise usage of electricity from the solar PV system.

Energy Consumption

The RHICS provides users with extensive information regarding energy consumption including:

- Current energy consumption per hour
- Energy consumption history over previous day/ week/ month
- Average consumption during different parts of the day
- Carbon emissions
- Carbon savings
- Current consumption VS Status quo consumption

Financial Overview

The RHICS provides users with extensive financial information including:

- Current cost per hour
- Energy cost history over previous day/week/month
- Average cost during different parts of the day
- Savings
- Current costs VS Status quo costs

Fire Alert

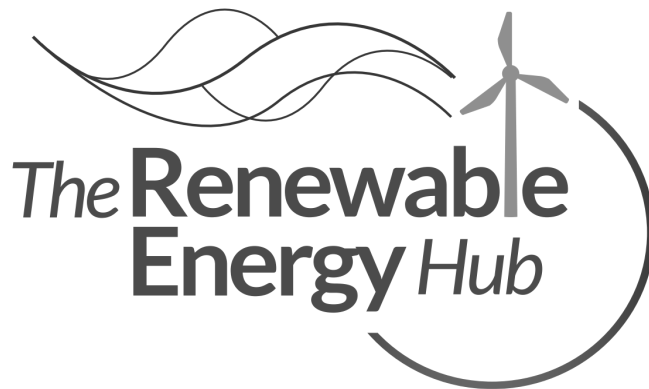
If the temperature of a room exceeds 40 °C, a fire alert will be created and our rapid response unit notified.

Fault Alerts

The Heating control system has intelligent fault alerts built in which will alert the datacentre when the alert is triggered. This allows our dedicated IT support to remotely identify and rectify the fault remotely.

Software Updates

As newer versions and software updates become available, the heating controls will automatically receive and apply the updates wirelessly.



Quality and Guarantees



Lean Manufacturing

Lean Manufacturing (LM) is an important part of Rotkraft®. By following principles of LM, Rotkraft® is able to operate at a faster, more efficient capacity which results in cost savings for customers and continued high levels of quality.

Following principles are applied:

- Continuous Improvement Program
- Quality at the source initiative
- 5S system
- Provide yield/quality reports
- Plant layout material flow
- Eliminate non-value added waste
- Visual workplace

Process Controls

In order to sustain quality, Rotkraft® utilises multiple process controls. These controls assure that a quality product is being produced at all stages of the production cycle.

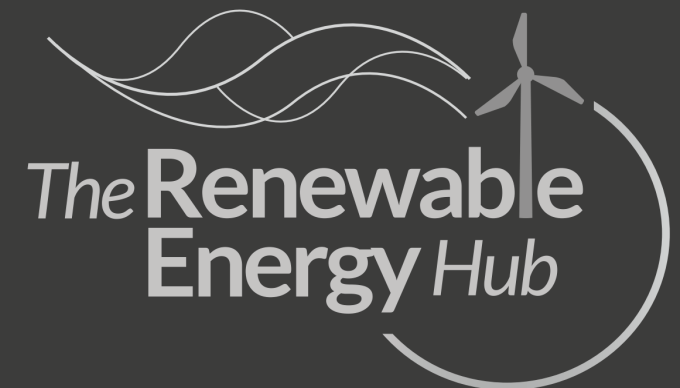
- In-process data collection system
- Weekly quality review meetings with use of SPC carts and defect data
- Receiving inspection – verify incoming product meets customer and/or manufacturer specifications
- ESD controls, internal and external audits
- Final electrical test (HIPOT/etc.) to verify components and/or assembly function as designed
- Internal and external corrective and preventative action system
- Non-conforming material review (MRB)

Pre-production Quality and Process Controls

- New Product Introduction (NPI)/Design for Manufacturability (DFM) review process
- PCB penalization optimization for process quality results
- Custom tooling for selective wave
- Quality assurance strategy by standard and automated inspection and test
- Manufacturing readiness review

Research & Development

Together with Austrian technicians and laboratories, Rotkraft® is constantly improving and upgrading the efficiency of the infrared panels. As energy costs are rising worldwide, our aim is to provide economic heaters which work at highest efficiency ratio (transformation percentage of taken electricity into emitted infrared waves).



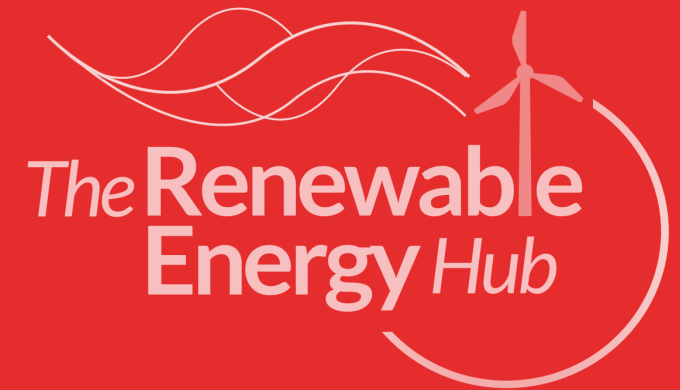


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My wife and I have just redecorated our bungalow and on recommendation had IR panels from Rotkraft® fitted. We have had an exceptional experience with everyone involved and would have no hesitation in recommending the products or company to anyone else.

Mr McHugh, Kent.

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