ecoHeatwave

Thin film carbon radiant heating system

ecoHeatwave is an advanced low-profile electric radiant heating system engineered to deliver energy-efficient thermal comfort through infrared heat-transfer technology — for modern residential, commercial and retrofit applications.

0.44mm	220W/m²	20 yr	100%
FILM THICKNESS	MAXIMUM POWER	WARRANTY	UK MANUFACTURED

DIMENSIONS

- System width
  300mm or 500mm
- Film thickness
  0.44mm
- Reflective insulation thickness
  4.8mm

THERMAL

- Heat resistance
  Up to 100°C
- Maximum operating temperature
  48°C
- Protection against water
  IPX1

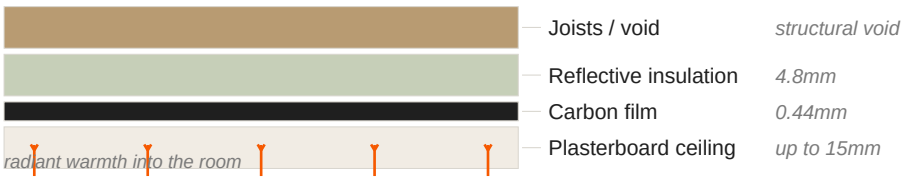
ELECTRICAL

- Operating voltage
  230 – 250V
- Maximum power
  220W / sqm ± 10%
- Maximum current
  1A / sqm
- Appliance insulation
  Class 2

COMPLIANCE & CERTIFICATION

- Compliance
  Part 1, 18th Edition Wiring Regs.
- Mark
  UKCA compliant
- System manufacturing facility
  ISO 9001 & ISO 14001
- Our manufacturing facility
  ISO 9001 & ISO 14001

SYSTEM CROSS-SECTION



CERTIFIED & TESTED

UKCA · ISO 9001 · ISO 14001 · BS EN 60335 · BS 7671 · Class 2

Registered Made in Britain

Designed, manufactured and tested in the UK · Backed by a 20-year warranty

PERFORMANCE · COMPLIANCE

Technical performance & advantages.

Radiant heating technology

ecoHeatwave uses long-wave infrared radiant heating to warm surfaces, furnishings and occupants directly — rather than relying on heated air circulating around the room. This dramatically improves thermal transfer efficiency and minimises convective heat loss.

- Reduced thermal stratification within occupied environments
- Enhanced thermal comfort at lower ambient temperatures
- Faster thermal response characteristics
- Reduced airborne particulate circulation vs. convection systems
- Improved zonal heating control and energy optimisation

Ultra-low profile construction

At just 0.44mm of carbon film and 4.8mm of integrated reflective insulation, ecoHeatwave has an exceptionally low build-up height — ideal where ceiling depth and coordination with services matter.

- Retrofit installations
- Space-constrained developments
- Modern, highly coordinated ceiling build-ups
- Renovation projects where height tolerance is critical

Energy efficiency & thermal optimisation

The reflective insulation layer is engineered to minimise downward heat loss and maximise upward radiant energy transfer into the occupied space.

- Optimised watt density at 220W/m²
- Reduced thermal inertia
- Faster heat-up and cool-down cycles
- Lower operational energy demand with programmable thermostatic control
- Designed for integration with renewable energy infrastructure

Electrical safety & compliance

ecoHeatwave is designed and manufactured to current UK electrical and manufacturing standards.

- Class 2 appliance insulation for enhanced electrical protection
- IPX1-rated water ingress protection
- Tested to BS EN 60335 and BS EN 60335-1 safety standards
- Manufactured in ISO 9001 and ISO 14001 certified facilities
- Fully compliant with UKCA regulatory requirements
- Designed for installation under the 18th Edition Wiring Regulations

SUSTAINABILITY · APPLICATION

Sustainability & application.

Environmental & sustainability benefits

ecoHeatwave has been developed with sustainability-focused engineering principles to support environmentally conscious building design.

- Directional radiant heat transfer reduces energy wastage
- Low operational carbon when paired with renewable electricity
- Minimal material thickness reduces raw material use
- Low-maintenance, long operational lifecycle
- Potential contribution to improved EPC performance
- Reduced air movement supports stable indoor air quality

Application suitability

ecoHeatwave is suitable for a broad range of building types and construction methods.

- New-build residential properties
- Apartments and multi-occupancy developments
- Commercial office environments
- Hospitality settings
- Retail installations
- Renovation and retrofit projects
- Low-energy and modern insulated buildings

Installation considerations

For optimum performance, installation should be carried out by appropriately qualified professionals in accordance with:

- Manufacturer installation guidance
- Local electrical regulations
- 18th Edition Wiring Regulations
- Applicable ceiling build-up specifications

IN SUMMARY

A high-performance, low-carbon system.

ecoHeatwave combines radiant heat-transfer technology, ultra-low profile construction and certified UK manufacturing — engineered for contemporary residential and commercial buildings.

OPERATIONAL CARBON · ASHP COMPARISON

Operational carbon comparison.

Embodied carbon refers to the total greenhouse gas emissions associated with the extraction, manufacture, transport, installation, maintenance and end-of-life processing of a heating system. ecoHeatwave's simplified construction and low-material architecture offers material embodied-carbon advantages over hydronic Air Source Heat Pump (ASHP) systems.

ASPECT	ecoHEATWAVE	ASHP
Refrigerants	**None**	Refrigerants with varying GWP
External plant	**None**	Outdoor condenser units required
Hydraulic circuits	**None**	Copper pipework, manifolds, pumps
Thermal mass	**Minimal — film only**	Screed-based mass in some builds
Thermal inertia	**Low — rapid response**	High — slow warm-up periods
Zonal control	**Granular, room-by-room**	Centralised, less responsive at part load
Installation	**Low complexity, pre-engineered**	High complexity, wet trades, plant room
Maintenance	**No annual servicing required**	Annual servicing recommended
End-of-life	**Simple recycling pathway**	Refrigerant disposal, complex plant

Reduced material intensity

ASHP systems typically require substantial quantities of construction materials and mechanical infrastructure that ecoHeatwave avoids by design — reducing embodied manufacturing carbon, transportation emissions and end-of-life processing impacts.

- No external condenser units
- No compressors or refrigerant systems
- No copper pipework or hydraulic manifolds
- No water circulation pumps or buffer vessels
- No structural mounting systems for plant
- No screeded floor build-ups required

Lower thermal inertia

Hydronic ASHP systems often require substantial thermal mass to be heated before comfort is achieved, particularly in screeded floor constructions. ecoHeatwave is the opposite.

- Rapid thermal response
- Lower warm-up periods
- Faster zoning adaptability
- Reduced standby energy demand

Improved zonal heating efficiency

ecoHeatwave supports highly granular, room-by-room control — enabling precision heating that matches actual occupancy and usage patterns.

- Precision occupancy-based heating
- Reduced overheating risk
- Lower unnecessary energy usage
- Enhanced load management capability

OPERATIONAL CARBON · CONTINUED

Renewable, refrigerant-free, recyclable.

Compatibility with renewable electricity

As a direct-electric radiant heating technology, ecoHeatwave integrates natively with on-site renewables and grid-flexible tariffs — no compressors, refrigerants or pumps to interpose.

- Solar photovoltaic systems
- Battery storage infrastructure
- Smart grid demand-response systems
- Time-of-use electricity tariffs

No refrigerants. No mechanical plant.

ASHP relies on refrigerants and compressor-based mechanical systems, which carry manufacturing, servicing and end-of-life environmental impacts. ecoHeatwave eliminates them entirely.

- No refrigerants (no GWP / leakage risk)
- No compressors
- No hydraulic pipe circuits
- No outdoor condenser units
- No pressurised water systems

Reduced installation carbon

The simplicity of ecoHeatwave installation reduces install-stage carbon emissions — particularly valuable on retrofit projects where minimising construction intervention is a priority.

- Reduced transportation logistics
- Lower equipment requirements on site
- Reduced labour intensity
- Minimal wet-trade construction processes
- Less concrete or screed thermal mass

BUILDING PERFORMANCE CONTEXT

Operational carbon depends on the building, not just the system.

The operational carbon performance of any heating system is heavily influenced by insulation standards, airtightness, occupancy patterns, control strategy, renewable energy integration and grid carbon intensity.

In highly insulated modern buildings with low heat-demand profiles, ecoHeatwave delivers competitive operational carbon — through rapid responsiveness, precise zonal control and minimal system complexity.