

Save up to


**30%**

energy with  
low temperature  
heating

## **Sustainable heating solutions**

for renovation



A modern, two-story house with a dark grey roof and light blue-grey walls. The house is illuminated from within, showing a bright interior with furniture and a dining table. The roof has three skylights, two of which are also illuminated from within. The house is set on a green lawn under a twilight sky. A decorative graphic of a house outline in yellow and blue is positioned in the upper left corner.

Buildings are responsible  
for approximately

**40%**

of the energy consumption  
in Europe.



## **A comfortable indoor climate should not come at the cost of the great outdoors**

The climate is changing fast, much of which is due to human behaviour and activities. Almost 70% of people now live in cities. As urbanisation continues and people spend more time indoors than ever before, we're using significantly more energy to manage and maintain a comfortable indoor climate.

As a leading UK brand, MYSON has made a commitment to help reduce CO<sub>2</sub> emissions with an extensive portfolio of solutions that help balance the need for better indoor climate comfort with lower energy consumption.

Energy Renovation changes a building's properties. Heat demand can be reduced by improving the insulation of the building envelope – outer walls, windows, doors, roof and ground floor - but even a well-insulated building will require heating.

At MYSON, we optimise energy efficiency through system accuracy, and integrate solutions in innovative systems for better performance and lower energy consumption. And because we offer a wide variety of heat emitters, we can help deliver the best indoor climate comfort tailored to individual needs, and at a very attractive cost for residents.

MYSON products are compatible with all heat sources and renewable energy sources. This is your guarantee of an economically and ecologically efficient heating solution.

It's about using less energy and heating and cooling in a more climate-friendly way.



# How renovating the heating system helps save our climate

Heating renovation can make a significant contribution to saving CO<sub>2</sub> in order to achieve national climate protection goals. The combination of “efficient systems” and “renewable energies” is crucial. In addition, the building and the system technology must be considered as a whole in order to fully exploit potentials. A study by the ITG Dresden\* shows that replacing the heat generator in an existing heating system can save an average of 2.7tons/annum of CO<sub>2</sub>.

If the system is further optimised and the flow temperature is reduced to 35°C, for example, a further 0.46t/a can be saved. Further CO<sub>2</sub> savings potential of 0.29t/a is offered by the room temperature control. Overall, the entire heating system, i.e. heat generation, heat transfer and the optimisation of the room temperature control, can offer potential CO<sub>2</sub> savings of up to 3.45t/a.



A heating renovation can save up to

# 3.45t

of CO<sub>2</sub> annually.

\*Private research institute who specialise in energy efficiency, climate protection & economic efficiency in the building sector.





In Europe, an estimated

**60%**

of all heating systems are old and inefficient. (Source: dena.de)

## More **innovation**, more **efficiency**

Currently in the UK, we still use large amounts of energy to heat our buildings. The power we collectively use for heating accounts for over 10% of our national CO<sub>2</sub> emissions.

In today's world of rising fuel prices and growing environmental concerns, high energy usage has become a problem that urgently needs to be addressed. Whilst providing indoor comfort remains the key objective for heating companies, the big industry challenge is how to achieve this aim in a more energy efficient and cost effective way.

Continuous innovation is the key to meeting this challenge. This is why we have recently seen the introduction and growth of high efficiency, low temperature heating systems. Existing products, such as panel radiators, have also been significantly improved by the addition of new, energy efficient heating technology.

This booklet has been created specifically to help people in the heating industry better understand how modern heat emitters have evolved and explain how they work just as efficiently with new, low temperature heating systems as they do with traditional high temperature systems.

# The reasons for a radiator replacement

Thousands of heating systems in the UK are old and inefficient. Their share of greenhouse gas emissions is considerable.

Modern heating technology can only develop its maximum potential if all system components; heat generator, heat distribution, heat emitter and control technology, are optimally matched to each other > That's efficiency with a system.

Heating renovation is a complex subject for which there are no patent remedies. The optimum solution depends not only on the existing building fabric, but also on any renovation measures planned at a later date.

Let's look at two examples of this:

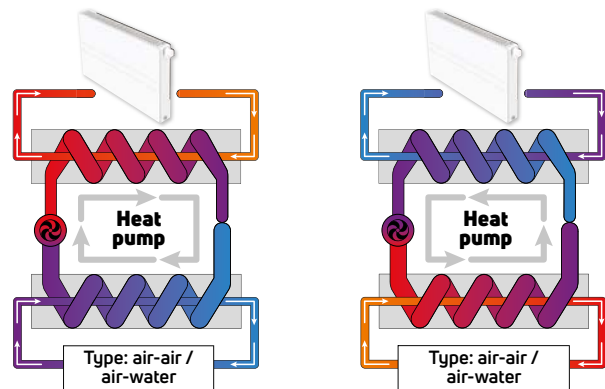
## 1 Heating renovation with a heat pump

The heat pump can be a highly efficient heating system if certain conditions are met – first and foremost, the lowest possible system temperatures.

If nothing else is changed in the building and the old radiators remain in place, then a heat pump can even increase the heating costs compared to the old boiler. This is proven by practical examples. A heating renovation with a heat pump usually only provides satisfactory results if, above all, the energy level of the building is high.

Furthermore, the heat transfer system must be adapted to low system temperatures. In the past, underfloor heating, which manages with system temperatures of around 35°C, was the preferred option for heat pumps. Thanks to technical advances, a changeover to underfloor heating systems is not the only option today, as modern panel radiators can also be operated at comparatively low temperatures (e.g. 45°C). There are also fan-assisted radiators that can be operated at temperatures below 45°C.

*Many low temperature heating systems are operated with heat pumps. Regardless of whether they are air-to-air, air-to-water, water-to-water or ground-source heat pumps, they can be used reversibly in many cases, opening up the possibility of both heating in winter and cooling in summer.*

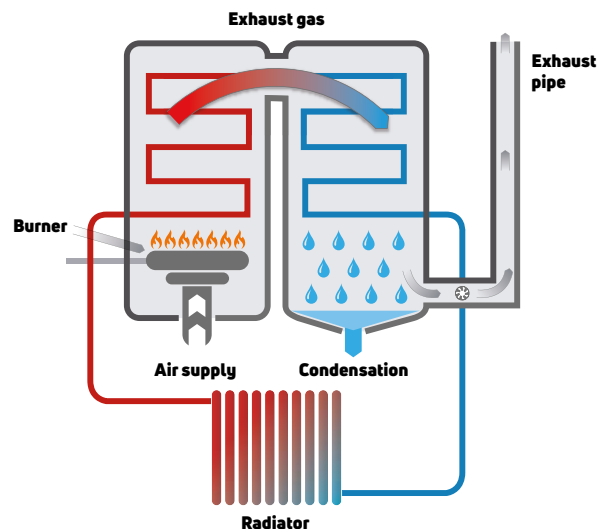


## 2 Heating renovation with gas condensing boiler that couples renewable energies

The savings potential of gas condensing technology can be exploited by means of common control technology at low system temperatures, and preferably in conjunction with renewable energies (e.g. solar support). By system temperatures, we are referring to the temperature levels in the heating circuits, i.e. the average temperature of the radiators.

On closer inspection, there is a temperature gradient in the radiator – it is warmer at the top than at the bottom - but we can neglect this in principle. If the system temperatures are low, more heat can be recovered from the exhaust gas. The energy content of the fuel is also much better utilised and the efficiency of the overall system increases.

Once the system temperatures on the boiler controller have been set, this is where recent technical advances in radiators come into play. Radiators have in fact become much more efficient through various design measures. This means that, for the same size, they provide the same performance as old radiators despite low system temperatures. In addition to aesthetic reasons, there are also energy-related reasons for replacing radiators.



Renovation with a condensing boiler in combination with renewable energies already brings a certain amount of energy savings because modern boilers simply have less emissions. However, the full savings potential of condensing boiler technology can only be tapped into with new radiators or with a highly dynamic underfloor heating system. Where it makes sense, radiators and underfloor heating can also be installed in combination.





# What **technical improvements** have been made in panel radiators?

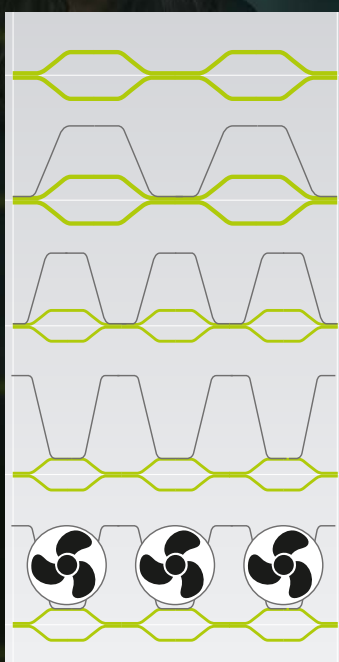
## Performance increase for panel radiators

With panel radiators, the main focus of improvement in recent decades has been to increase performance. There are a number of starting points for this, such as narrowing water channels to use less water, and increasing the size and quantity of convector fins for more rapid heat response.

In addition, panel radiators are now available in more heights and configurations for increased heat output, including the triple panel, triple convector Type 33 model for maximum performance.

The convector fins located between the front and rear radiator panels cause hot air to rise like in a chimney. But today, there are also fan-assisted radiators that can be operated at temperatures below 45°C. Such models produce heat outputs of up to 60% more than traditional radiators, which brings an innovative heating approach to low temperature heating.

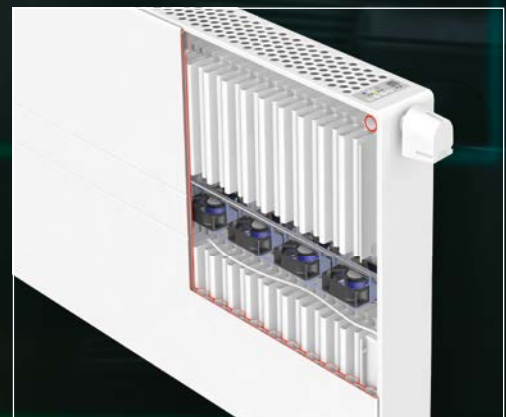
Fan convectors may also offer an alternative to radiators, with inventive low water content models which are ideal for low temperature heating.



70s

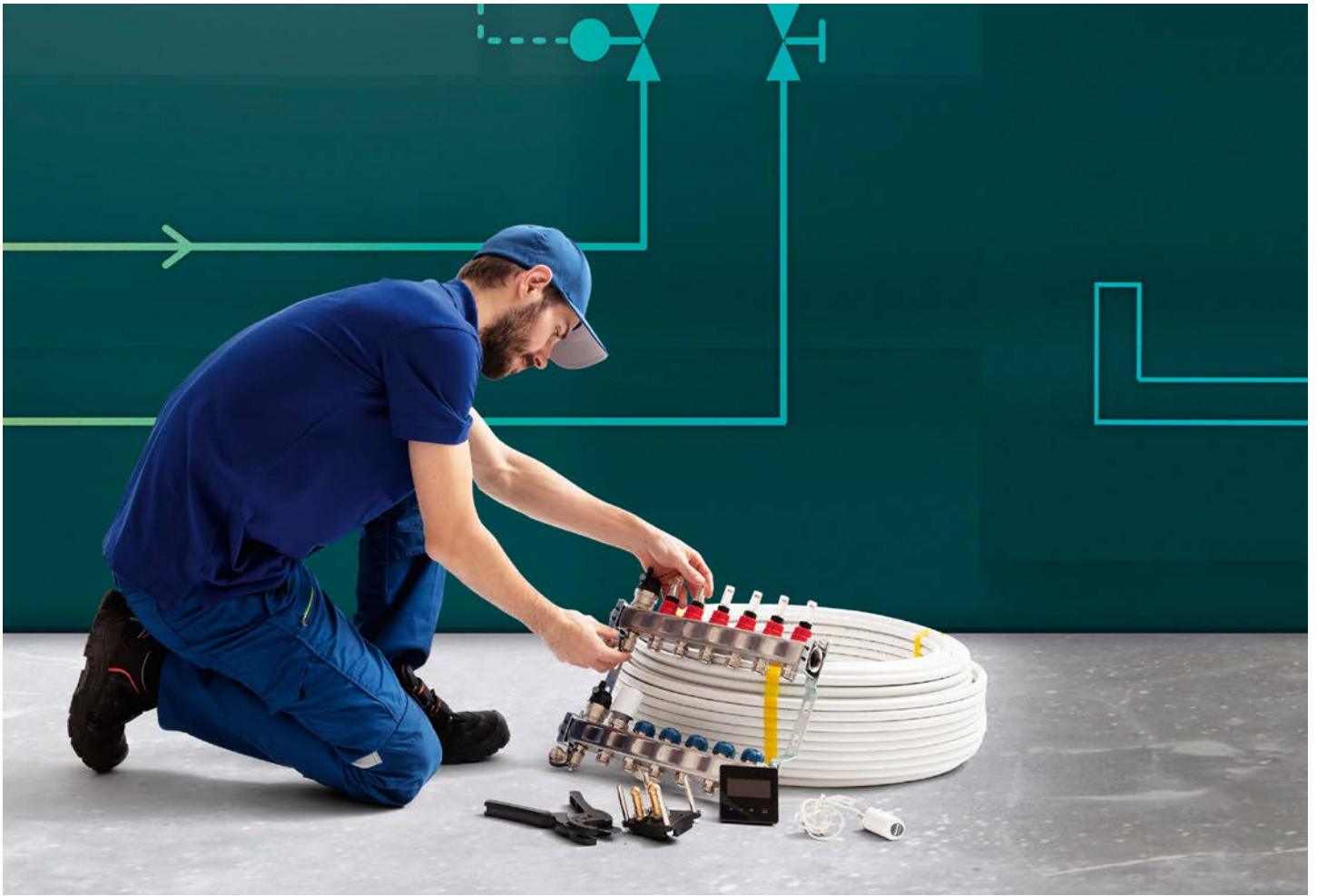
Water content has become lower over the years, but the heating surface has become larger, which means: less water, less energy, higher performance and faster reaction to changing heating loads.

today



*The content of the water-bearing channels of radiators (shown here in green) is smaller, the heat-radiating surface has simultaneously become larger due to improved convector fins (shown here in black).*

*The ULOW-E2 is an excellent example of a fan-assisted radiator.*



## What about **underfloor heating renovation systems?**

The demands on an underfloor heating system for modernisation are high. In new buildings a wet system is mostly applied, while in renovation projects it is better to go for a dry system floor or a special thin-layer system because of the low installation height. One also has to consider high heat output and quick and easy installation. Today there are underfloor heating systems that react significantly faster than their predecessor. For example, the highly dynamic Microboard and MicroPlate systems.

Including the cost of insulation and installation, underfloor heating used to be considerably more expensive to install than a radiator heating system, but that's no longer the case. It is also worth bearing in mind that, with its high energy-efficiency, underfloor heating can recover the costs more quickly.

Thanks to the low water temperature and the fact that you can easily combine underfloor heating with renewable energy sources such as a heat pump, it's an interesting alternative, both economically and environmentally.

Be mindful that there is no one-size-fits-all approach when it comes to heating a building, and low temperature radiators, or a combination of underfloor heating and radiators, can help to keep the energy bill in check.





# Saving energy with heating controls

To reach our ambitious climate targets, thermal retrofitting should be complemented by a review of the central heating system to ensure that an efficient heating system is working inside an efficient building.

If the budget allows, this can involve renovating the entire heating system and switching to a heat pump, renewable energy, and a low temperature system.

However, if budgetary or practical restraints make it impossible to upgrade the entire system at once, making small changes in the use of the heating controls can already make a significant difference in the reduction of both fuel consumption and carbon emissions.

## Modern hydronic and electronic heating controls

Despite the fact that both hydronic and electronic heating controls continue to improve in terms of accuracy and user comfort, practice shows that many people still don't really understand and use their controls properly.

Two types of heating controls hold the key to preventing the temperature from rising unnecessarily: the room thermostat and the thermostatic radiator valves. This is endorsed by recent test results published by BEAMA, the UK trade association for manufacturers and providers of energy infrastructure technologies and systems. They

calculated the potential savings on fuel bills through the application of a number of heating controls. Their baseline situation is a timeclock, Class I on/off room thermostat and manual radiator valves. The tests show that by simply adding thermostatic radiator valves (TRVs), homeowners can already save an average of 18% on their fuel bills. Upgrading the Class I room thermostat to a Class IV device with load compensation or Class V/VI with load/weather compensation results in an additional average saving of 10 and 12%, respectively.

In their report BEAMA also includes results for savings from smart controls based on a study by the Behavioural Insights Team. These results indicate that by upgrading a basic programmer to one with smart control, there is a cost savings potential of 6%. When the smart controls are combined with the other studied elements to do a full upgrade, the average estimated savings further increase to 31% with a Class IV room thermostat and 32% with a Class V or VI room thermostat. A great indication of how heating controls can help to lower the cost of comfort without renovating the entire heating system at once.



Basic heating controls for a central heating system include at least a programmer, a room thermostat and, in the case of a radiator system, thermostatic radiator valves. The right use of these core elements can already improve efficiency and energy use. Adding modern heating controls, or even smart heating controls such as MYSON's UNISENZA PLUS range, makes it easier than ever before to upgrade existing systems and further optimise both fuel consumption and the system's carbon footprint.

# Which heat emitter is the right one?

Flat panel radiators (often mixed with underfloor heating) are fast becoming a preferred solution for renovations. They are a powerful and inexpensive option, with different front panel designs and a wide range of sizes to choose from.

Additionally, there may be special requirements for heat emitters, such as availability of pipework or wall space. These days, aesthetics and design preferences also speak strongly in favour of making the right choice.

Whatever the reason for renovation; energy-saving, aesthetics, low temperature or otherwise, MYSON has a solution.

Terms of Reference	Type of Heating Device	Solution from MYSON	Description	Reasons for Use	Style	Suitable for Low Temperature Systems	Smart Heating Control
Modernisation	Panel radiators	Premier HE, Select Compact	Classic panel radiators in a wide range of sizes	High performance, wide range of sizes, models and heat outputs available	Traditional style white panel radiators	✓	
	Premium panel radiators	Plan, Plan Plus	Stylish, sleek front panel radiators, available in horizontal and vertical models	Combines good looks with high performance	Minimalist feel, modern and simple design	✓	
	Designer radiators	Column, Décor, Opus	Fashionable, functional and flexible, décor radiators available in horizontal and vertical models	Great looks and excellent heat outputs	Classical shape	✓	
	Vertical radiators	Plan (Kos V*), Plan Plus (Faro V*), Column, Décor, Opus	Various models; traditional panel, sleek front panel, column and tubular radiators	Modern, space-saving design with high heat outputs	Space-saving, stylish and functional	✓	
	Fan-assisted radiators	Ulow-E2	Built in fans deliver up to 60% more heat than traditional radiators	Rapid heat response when required, and summer breeze function for warm days	Traditional style with additional functionality	✓	
	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any floor type	High performance. Frees up space. Can be combined with other heat emitters	Concealed under floor	✓	
Sophisticated living space design	Vertical radiators	Plan (Kos V*), Plan Plus (Faro V*), Column, Décor, Opus	Various models; traditional panel, sleek front panel, column and tubular radiators	Modern, contemporary designs to suit décor and free up wall space	Space-saving, stylish and functional	✓	
	Designer radiators	Column, Décor, Opus	Fashionable, functional and flexible, available in horizontal and vertical models	Great looks and excellent heat outputs	Classical shape	✓	
	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any floor type	High performance, radiant heating. Frees up space for enhanced interior décor	Concealed under floor	✓	
Bathroom	Contemporary towel warmers	Fatala, Kasai, Interlude, Maranoa, Mersey, Ouse, Sokoto, Stour	Wide range of contemporary models in a choice of finishes and colours	Good looking and highly functional	Attractive designs and colours to suit décor		
	Traditional towel warmers	Awe, Buttermere, Dee, Inn, Saxby, Thirlmere, Ullswater	From simple rails to elaborate designs, this range offers a classic, vintage and elegant feel	Adds a touch of style to the room	Attractive designs in chrome finish		
	Multi-rail towel warmers	Avonmore, Angara, Ferlo, Lindi, Tyne	Simple elegant and practical designs, including straight and curved models	Great looks as well as functional	Attractive designs, most available in white or chrome		
	Bathroom radiator	Topaz	High output double multi-rail towel warmer, ideal for low temperature systems	High heat output combined with modern looks	Ladder style in attractive colours	✓	
	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any floor type	High performance radiant heating. Can be combined with other heat emitters	Concealed under floor	✓	
	Fan convectors	Hi-Line LV	High level, wall-mounted fan convector that utilises unused space above a door	Low voltage model ideally suited to bathrooms where safety matters most	Discreet overhead fan heater		
Allergy sufferers	Tubular radiators	Column	Fashionable, functional and flexible, available in horizontal and vertical models	Easy to clean due to rounded edges and wide distance between tubes, minimises dust	Classical shape	✓	
	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any floor type	Warm surfaces effectively reduce bacteria, mould and mites, low dust turbulence	Concealed under floor	✓	



Terms of Reference	Type of Heating Device	Solution from MYSON	Description	Reasons for Use	Style	Suitable for Low Temperature Systems	Smart Heating Control
Kitchen has limited space	Plinth heaters	Kickspace®	Innovative plinth heater for a discreet space-saving solution where wall space is limited	Frees up wall space and provides rapid heat	Discreetly located under kitchen units		
	Fan convectors	iVector S2	Innovative low water content fan convector with discreet ceiling installation options	Fast and efficient heating, ceiling installation frees up wall space	Unobtrusive, can be ceiling mounted or discreetly recessed in the ceiling	✓	
	Vertical radiators	Plan (Kos V*), Plan Plus (Faro V*), Column, Décor, Opus	Various models; traditional panel, sleek front panel, column and tubular radiators	Modern, space-saving design with high heat output	Space-saving, stylish and functional	✓	
Occasionally used rooms	Electric radiators	Rio Plus, Finesse, Décor, Column	A wide range of electric radiators including standard panel, stylish column and design radiators	Flexible installation option with fast heat reaction	Traditional, modern and contemporary		✓ (Rio Plus)
	Electric towel warmers	Avonmore, Tamar, Innoko	Ideal for occasionally used rooms (range of dual fuel towel warmers also available)	Perfect for small areas like bathrooms, cloakrooms	Stylish designs		
	Fan convectors	iVector S2	Innovative low water content fan convector with flexible installation options	Rapid heat up times with low water content. Can offer both heating and cooling	Unobtrusive, can be surface mounted or recessed	✓	
	Plinth heaters	Kickspace®	Innovative and discreet plinth heater with fast heat response	Frees up wall space and provides rapid heat when required	Discreetly located		
	Temperature controllers	TRV, Electronic Thermostatic Head	Wide range of manual, electronic and decorative thermostatic valves and heads	Controls temperature to reduce wasted energy. ETH enables remote wireless control	Attractive and functional accessories		✓ (ETH)
	Smart controls	Unisenza Plus	Solution that allows users to easily connect and control numerous heating and cooling devices	Centralised control of connected devices via an intuitive app, compatible with Android/iOS	Smart heating control		✓
Cooling in Summer	Fan convectors	iVector S2	Innovative low water content fan convector; can be wall mounted or recessed, ceiling mounted or recessed	Cooling in summer (when combined with a reversible heat pump or cooling source)	Unobtrusive design, can be surface mounted or recessed	✓	
	Fan-assisted radiators	Ulow-E2	Fans provide gentle air movement to create a pleasant 'summer breeze' effect	Summer breeze function for warm days and rapid heat response in winter	Traditional style with additional functionality	✓	
Limited/ restricted wall space	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any floor type	High performance, radiant heating. Frees up wall space. Can be combined with other heat emitters	Concealed under floor	✓	
	Vertical radiators	Plan (Kos V*), Plan Plus (Faro V*), Column, Décor, Opus	Various models; traditional panel, sleek front panel, column and tubular radiators	Modern designs with high heat output. Frees up wall space	Space-saving, stylish and functional	✓	
	Fan convectors	iVector S2	Innovative low water content fan convector	Fast and efficient heating, ceiling installation frees up wall space	Ceiling mounted or discreetly recessed	✓	
No gas/ hot water supply	Electric radiators	Finesse, Décor, Column	A wide range of electric radiators including standard panel, stylish column and design radiators	Flexible location and easy operation without central heating or pipework	Traditional, modern and contemporary		
	Smart electric radiators	Rio Plus - Compact, Plan and Linea	Modern electric radiators with unique, energy-saving features built in	Flexible location, energy saving and option to control remotely via an app	Modern and contemporary		✓
	Electric towel warmers	Avonmore, Tamar, Innoko	Classic multi-rail and contemporary designs, available in chrome or white	Perfect for small areas like bathrooms, cloakrooms where there is no existing pipework	Stylish designs		
	Plinth heaters	Kickspace® Electric	Plinth heater ideal for properties without central heating or rooms with no pipework	Discreet electric option for rapid heat where there is no hot water pipework available	Discreetly located		
	Underfloor heating	MYSON Electric Underfloor	A great alternative for small areas without central heating or existing pipework	Easy to install, perfect for renovations, bathrooms, kitchens and conservatories	Concealed under floor	✓	
Healthcare/ Educational facility	Low Surface Temperature radiators	LST - Vertical and Horizontal	Low surface temperature radiators coated with antibacterial paint	Complies with NHS Estates Guidance Notes 1998	Safety-conscious round steel casing, no sharp edges, pipework is concealed		
	Underfloor heating	Floortec fixing systems	Wide range of fixing systems and controls to suit any installation	Efficient heating solution without the risk of injury in healthcare and educational facilities	Concealed under floor	✓	
	Fan convectors	iVector S2	Innovative low water content fan convector; can be ceiling mounted or recessed	Fast and efficient heating, safely installed in or on the ceiling	Modern and discreet	✓	

\*Enhanced vertical radiator models, coming soon.



# More solutions. More service.

MYSON's expertise in the design, development and manufacture of heat emitters goes back over 50 years, making us one of the most trusted, reliable and innovative heat emitter manufacturers in Europe.

As the UK's only total heating solutions provider, MYSON is in a unique position to offer unbiased options and advice on the most effective indoor climate solutions, integrating mixed system layouts for maximum efficiency.

## Radiators

Options to suit any interior; standard panel radiators, compact radiators, flat-front plan radiators, column, designer, horizontal and space-saving vertical models. LST radiators for healthcare and educational facilities.

## Towel warmers

A wide range of contemporary, traditional and multi-rail towel warmers and accessories, in various colours to suit any bathroom (or kitchen). Many available with dual fuel kit.

## Fan convectors

A versatile alternative to radiators, from space-saving plinth heaters to wall-mounted, ceiling-mounted, and discreetly recessed models.

## Underfloor

A full and comprehensive range of fixing systems available for solid floors, suspended floors, floating floors and retrofit.

## Heating valves

Solutions for every application; manual valves, thermostatically controlled valves, electronic thermostatic heads, decorative valves and options specially for LST radiators.

## Electronic controls

Solutions for efficient, effective and precision control, from mechanical dial thermostats to WiFi enabled touch controls and completely wireless smart control systems.

## Electric heating

A range of electric options as an alternative to, or to complement, hydronic heating. Practical panel radiators, stylish contemporary and designer radiators, towel warmers, underfloor heating and space-saving plinth heaters.

Full product range and detailed information available via [www.myson.co.uk](http://www.myson.co.uk)



DESIGN SERVICES



BIM



TRAINING



TECHNICAL SUPPORT

Our representatives are always there to make selecting our products easier for you, and our customer support team are on hand, ready to provide assistance when you might need it.

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