Dimplexrenewables®

A world of expertise

*smart*rad®

intelligent fan convector

Intelligent heating for a
low energy world

*...heat pump systems become not only more **cost effective** in new build projects, but can also be **retro-fitted** in to existing premises with minimal disruption.*

SmartRad – the perfect heat pump partner

Dimplex SmartRad sets new standards for the way we think about our heating. Fast and responsive, accurate room by room control, attractively styled and designed specifically to work with modern, renewable heating systems such as heat pumps.

You might be forgiven for believing that at the low water temperatures produced by heat pumps, underfloor heating is the only suitable option, but now SmartRad offers a practical, cost effective alternative without the constraints associated with oversized radiators.

It means that heat pump systems become not only more cost effective in new build projects, but can also be retro-fitted in to existing premises with minimal disruption.

- Cost effective, practical alternative to underfloor heating
- Much more energy efficient than conventional radiators
- Stylish, compact design, with a choice of white metal, white glass or black glass finishes
- Designed for low water temperature operation
  - Optimises heat pump CoP
  - Reduces heat pump running costs
  - Reduces heat pump CO_2 emissions
- Ultra low water content means:
  - Low thermal mass
  - Better response
  - Faster heat up
  - Improved efficiency through lower energy wastage

- Two times faster room heat up time
- 40% less energy consumption to bring a room from 10°C to 21°C
- Responsive reaction to incidental heat gains (e.g. solar gains)
- Integral electronic thermostatic control, providing automatic control over fan speed output and room temperature stability
- Optional plug-in 24-hour or 7-day programmers

The stylish white metal fronted SRX140M with standard left and right hand plumbing connections.

3

smartrad®
intelligent fan convector

Less energy
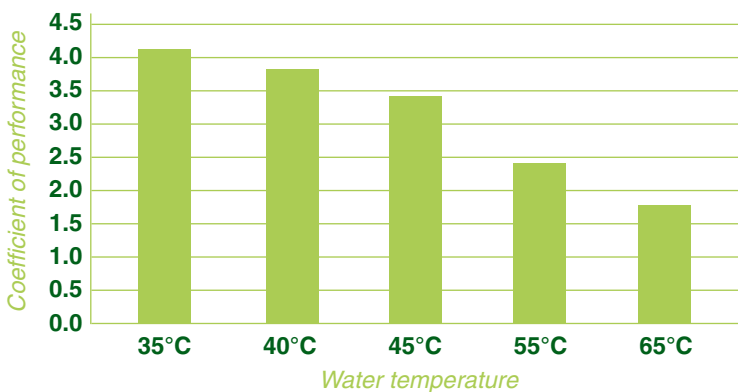# less water
more heat

SmartRad is an intelligent fan convector, able to use far lower temperature water – and far less of it – than conventional radiator systems. This provides a number of advantages, not least that it makes SmartRad ideal for use with heat pumps.

Heat pumps operate most efficiently at low water heating temperatures and SmartRad has been developed specifically to provide excellent levels of heat output at the temperatures normally associated with underfloor heating, typically around 40°C.

This allows the heat pump's coefficient of performance to be maximised, reducing system running costs and household CO_2 emissions. It also allows SmartRad to be used in conjunction with underfloor heating systems, for example with SmartRads on upper floors – as both can be operated at the same temperature.

And SmartRad is not limited to use only with heat pumps. With an operating range of water temperatures from 30 to 80°C – significantly wider than most types of heat emitters, SmartRad can be used with a range of heat sources. When used with high efficiency condensing boilers, the high heating outputs obtained by SmartRad at 55°C water temperature means that boilers can be run more effectively in condensing mode and are likely to run more efficiently than when operated with conventional radiators at higher temperatures.

Heat Pump CoP vs Water Temperature

Coefficient of performance (y-axis: 0.0 to 4.5)

Water temperature	CoP
35°C	~4.1
40°C	~3.8
45°C	~3.4
55°C	~2.4
65°C	~1.7

Water temperature

*SmartRad has been developed specifically to provide **excellent levels of heat output** at the temperatures normally associated with underfloor heating.*

The contemporary SRX120WG finished in white glass and with hidden 'through the wall' plumbing connections.

SmartRad's low thermal mass provides an **energy saving advantage** once the room temperature has been reached or when heating is no longer needed.

Space saving high efficiency

Unlike conventional radiators, SmartRad utilises a compact, high efficiency heat exchanger and intelligently controlled fan to assist convection and delivery of heat into the room.

This significantly increases heat output, meaning that – despite much lower water temperatures – SmartRads are significantly more powerful and as a result can be 3½ times smaller than a conventional steel convector radiator with the same level of output.

To put this another way, a conventional radiator of the same size would need to operate at over 70°C, while a SmartRad can utilise water at 40°C and be no larger in size. This means that for heat pump installations into existing properties, SmartRad provides an obvious and practical solution.

Utilising fan assisted convection also provides the advantage of even distribution of warm air throughout the room, unlike conventional radiators which heat a room unevenly and tend to leave colder air at lower levels. Ultimately this can also lead to further energy savings as rooms feel more comfortable at lower temperatures.

An added benefit of SmartRad is that it allows flexible left or right handed plumbing connections, or even 'invisible' through the wall connection, offering complete flexibility over installation, particularly in retrofit situations.

SRX180BG in contemporary black glass finish. Pipework is hidden by through the wall plumbing connections.

White metal fronted SRX140M with left hand side plumbed connections.

Low mass
accurate control
less energy

Containing only 5% of the water volume of a conventional radiator, the low thermal mass of SmartRad means heat up time, responsiveness, control – and ultimately comfort – are significantly improved.

Low water content inside each SmartRad – less than a litre – means reduced thermal inertia so when heating is needed SmartRad is able to respond quickly, compared with a conventional, high water content radiator, which can take up to 100 minutes to reach its full operating output.

This also has a significant impact on the energy consumption during the heat up time of a room. The reduced heat up time and high thermal output from SmartRad allows room temperatures to be raised up to 2 times more quickly than a conventional radiator, reducing energy wastage due to early switch on.
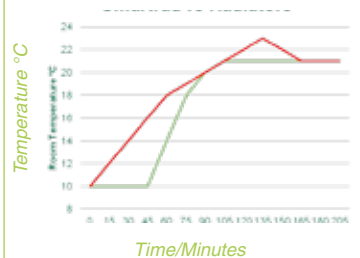
In tests, SmartRad required 40% less energy to raise the temperature of a room from 10°C to 21°C than a radiator (heated by a heat pump at 45°C), simply because the room temperature could be raised so much faster and therefore heating could be started later.

Further tests also revealed SmartRad's advantages over underfloor heating. Using the same flow temperature of 35°C, SmartRad was able to raise the room temperature to 21°C more than 4 times as quickly as the underfloor system and used 1/13th of the energy.

SmartRad's low thermal mass also provides an energy saving advantage once the room temperature has been reached or when heating is no longer needed. Unlike conventional radiators that continue to stubbornly output heat into the room, SmartRad cools quickly, preventing further energy wastage.

SmartRad also provides individual room temperature control, with an integral electronic thermostat to monitor room temperature, control fan speed output accordingly and reduce energy consumption as much as possible. As the room temperature nears its set point, the fan speed is automatically reduced and the room temperature is closely monitored and accurately maintained. In addition, SmartRad can also be fitted with digital programmable timers, allowing individual rooms to be configured with their own heating profile.
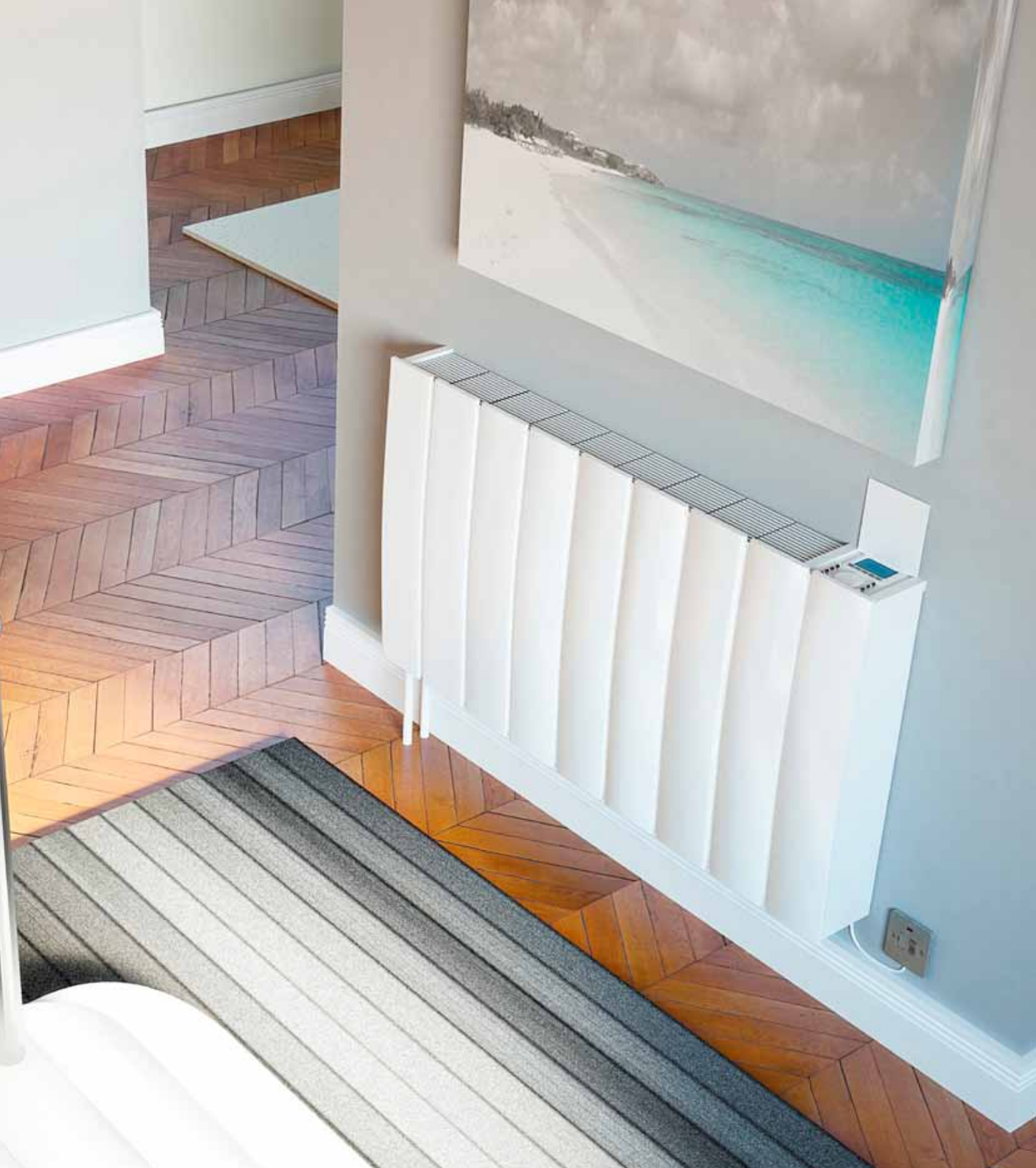
White metal fronted SRX180M with left hand side plumbed connections.

SmartRad and Radiator during heat up

Temperature °C / Room temperature °C

Time/Minutes

— SmartRad
— Raditator

Programmable 24 hour digital timer

- The RX24Ti timer provides programmable 24 hour time control, so each SmartRad can be configured to its own individual operating programme.

- 24 hour digital programming cassette, plugs directly into SmartRad

- 4 programmable time periods, switching heater between On/Off modes

- Programme advance and manual over ride features.1 timer required per SmartRad

- Cassette can be removed for easy programming

- Back lit LCD with power-save mode

- Programmes saved in memory for 12 hours in event of power failure

- Available in white (RX24Ti) or black (RX24TiB)

Specific Heat Loss	Temperature Star Rating	Heating Circuit Flow Temperature °C	Likely Space Heating SPF		Standard Radiator Recommended Oversizing Factor from Domestic Heat Emitter Guide	SmartRad Sizing Guide for Living Areas Room				
			GSHP	ASHP		10	12	14	16	18
ROOM WITH SPECIFIC HEAT LOSS LESS THAN 30W/M²	★★★★★	35	4.3	3.6	6.8	SRX080	SRX080	SRX120	SRX120	SRX140
	★★★★☆	40	4.1	3.4	4.3	SRX080	SRX080	SRX080	SRX080	SRX080
	★★★☆☆	45	3.7	3	3.1	SRX080	SRX080	SRX080	SRX080	SRX080
	★★☆☆☆	50	3.4	2.7	2.4	SRX080	SRX080	SRX080	SRX080	SRX080
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX080	SRX080	SRX080
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX080	SRX080
ROOM WITH SPECIFIC HEAT LOSS 30 – 40W/M²	★★★★★	35	4.3	3.6	6.8	SRX120	SRX120	SRX140	SRX140	SRX180
	★★★★☆	40	4.1	3.4	4.3	SRX080	SRX080	SRX120	SRX120	SRX120
	★★★☆☆	45	3.7	3	3.1	SRX080	SRX080	SRX080	SRX080	SRX120
	★★☆☆☆	50	3.4	2.7	2.4	SRX080	SRX080	SRX080	SRX080	SRX080
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX080	SRX080	SRX080
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX080	SRX080
ROOM WITH SPECIFIC HEAT LOSS 40 – 50W/M²	★★★★★	35	4.3	3.6	6.8	SRX120	SRX140	SRX180	SRX180	SRX180
	★★★★☆	40	4.1	3.4	4.3	SRX080	SRX120	SRX120	SRX140	SRX140
	★★★☆☆	45	3.7	3	(3.1)	SRX080	SRX080	SRX080	SRX120	SRX120
	★★☆☆☆	50	3.4	2.7	2.4	SRX080	SRX080	SRX080	SRX080	SRX120
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX080	SRX080	SRX080
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX080	SRX080
ROOM WITH SPECIFIC HEAT LOSS 50 – 60W/M²	★★★★★	35	4.3	3.6	6.8	SRX140	SRX180	SRX180	2 x SRX120	2 x SRX140
	★★★★☆	40	4.1	3.4	4.3	SRX120	SRX120	SRX140	SRX140	SRX180
	★★★☆☆	45	3.7	3	3.1	SRX080	SRX120	SRX120	SRX120	SRX140
	★★☆☆☆	50	3.4	2.7	2.4	SRX080	SRX080	SRX080	SRX120	SRX120
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX080	SRX080	SRX120
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX080	SRX080
ROOM WITH SPECIFIC HEAT LOSS 60 – 70W/M²	★★★★★	35	4.3	3.6	6.8	SRX180	SRX180	2 x SRX120	2 x SRX140	2 x SRX140
	★★★★☆	40	4.1	3.4	4.3	SRX120	SRX140	SRX180	SRX180	SRX180
	★★★☆☆	45	3.7	3	3.1	SRX080	SRX120	SRX120	SRX140	SRX140
	★★★☆☆	50	3.4	2.7	2.4	SRX080	SRX080	SRX120	SRX120	SRX140
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX080	SRX120	SRX120
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX080	SRX120
ROOM WITH SPECIFIC HEAT LOSS 70 – 80W/M²	★★★★★	35	4.3	3.6	6.8	SRX180	2 x SRX120	2 x SRX140	2 x SRX140	2 x SRX180
	★★★★☆	40	4.1	3.4	4.3	SRX140	SRX140	SRX180	2 x SRX120	2 x SRX120
	★★★☆☆	45	3.7	3	3.1	SRX120	SRX120	SRX140	SRX180	SRX180
	★★★☆☆	50	3.4	2.7	2.4	SRX080	SRX120	SRX120	SRX140	SRX140
	★★☆☆☆	55	3.1	2.4	1.9	SRX080	SRX080	SRX120	SRX120	SRX120
	★☆☆☆☆	60	2.8	2.1	1.6	SRX080	SRX080	SRX080	SRX120	SRX120

Sizing example using standard radiators

The Oversize Factor required to achieve the maximum recommended Temperature Star Rating for a radiator system in a room with a specific heat loss in the range of 40-50W/m² is 3.1 (circled)

- Room specific heat loss band: 40 – 50W/m²
- Emitter type: Radiator
- Design Temperature Star Rating: 4 stars ★★★★☆☆
- Design Radiator Flow Temperature: 45°C
- Likely GSHP SPF: 3.7
- Likely ASHP SPF: 3.0
- Required Oversize Factor: 3.1
- Required rated output for a 20m² room: 20m2 x 50W/m² x 3.1 = 3100W
- Typical radiator dimensions: 1600mm x 700mm x 135mm

Sizing example using Smartrad Radiators

SmartRad's have a higher heat output than a similarly sized standard radiator. It is therefore possible to achieve a higher Temperature Star Rating without the heat emitter becoming too large for the room. The SmartRad required to achieve the maximum recommended Temperature Star Rating for the same room as the first example is also circled.

- Room specific heat loss band: 40 – 50W/m²
- Emitter type: SmartRad
- Design Temperature Star Rating: 5 stars ★★★★★
- Design Radiator Flow Temperature: 40°C
- Likely GSHP SPF: 4.1
- Likely ASHP SPF: 3.4
- Required rated output for a 20m² room: 20m² x 50W/m² = 1000W
- SmartRad required: SRX180
- Rated output at 40°C (fan speed 2): 1273W
- Dimensions: 911mm x 530mm x 145mm

KEY FOR GUIDA...

	CONSIDER MEASURE... AND VENTILATION HE... perform at these design... SmartRads required lik...
	CAUTION – system ca... these conditions, but n... reduced to a single Sm... heat loss
	GO AHEAD – system ... efficiencies with the se...

AREAS (BASED ON SMARTRAD OUTPUT AT FAN SPEED 2)
OM FLOOR AREA (M²)

	20	22	24	26	28	30
	SRX140	SRX140	SRX180	SRX180	SRX180	SRX180
	SRX120	SRX120	SRX120	SRX140	SRX140	SRX140
	SRX080	SRX080	SRX120	SRX120	SRX120	SRX120
	SRX080	SRX080	SRX080	SRX080	SRX080	SRX120
	SRX080	SRX080	SRX080	SRX080	SRX080	SRX080
	SRX080	SRX080	SRX080	SRX080	SRX080	SRX080
	SRX180	SRX180	2 x SRX120	2 x SRX120	2 x SRX140	2 x SRX140
	SRX140	SRX140	SRX140	SRX180	SRX180	SRX180
	SRX120	SRX120	SRX120	SRX140	SRX140	SRX140
	SRX080	SRX120	SRX120	SRX120	SRX120	SRX120
	SRX080	SRX080	SRX080	SRX120	SRX120	SRX120
	SRX080	SRX080	SRX080	SRX080	SRX080	SRX120
	2 x SRX120	2 x SRX140	2 x SRX140	2 x SRX140	2 x SRX180	2 x SRX180
	SRX180 (circled)	SRX180	SRX180	2 x SRX120	2 x SRX120	2 x SRX120
	SRX140	SRX140	SRX140	SRX180	SRX180	SRX180
	SRX120	SRX120	SRX120	SRX140	SRX140	SRX140
	SRX080	SRX120	SRX120	SRX120	SRX120	SRX140
	SRX080	SRX080	SRX120	SRX120	SRX120	SRX120
	2 x SRX140	2 x SRX140	2 x SRX180	2 x SRX180	2 x SRX180	2 x SRX180
	SRX180	2 x SRX120	2 x SRX120	2 x SRX140	2 x SRX140	2 x SRX140
	SRX140	SRX180	SRX180	SRX180	2 x SRX120	2 x SRX120
	SRX120	SRX140	SRX140	SRX180	SRX180	SRX180
	SRX120	SRX120	SRX120	SRX140	SRX140	SRX140
	SRX120	SRX120	SRX120	SRX120	SRX140	SRX140
	2 x SRX180	2 x SRX180	2 x SRX180	3 x SRX140	3 x SRX140	3 x SRX180
	2 x SRX120	2 x SRX140	2 x SRX140	2 x SRX140	2 x SRX180	2 x SRX180
	SRX180	SRX180	2 x SRX120	2 x SRX120	2 x SRX120	2 x SRX140
	SRX140	SRX140	SRX180	SRX180	SRX180	2 x SRX120
	SRX120	SRX140	SRX140	SRX140	SRX180	SRX180
	SRX120	SRX120	SRX120	SRX140	SRX140	SRX140
	2 x SRX180	2 x SRX180	3 x SRX140	3 x SRX180	3 x SRX180	3 x SRX180
	2 x SRX140	2 x SRX140	2 x SRX140	2 x SRX180	2 x SRX180	2 x SRX180
	SRX180	2 x SRX120	2 x SRX120	2 x SRX140	2 x SRX140	2 x SRX140
	SRX180	SRX180	SRX180	2 x SRX120	2 x SRX120	2 x SRX120
	SRX140	SRX140	SRX180	SRX180	SRX180	2 x SRX120
	SRX120	SRX140	SRX140	SRX140	SRX180	SRX180

NCE TABLE

...ES TO REDUCE FABRIC
...EAT LOSSES – system can
...n conditions but number of
...ly to be excessive

...n perform at
...umber design could be
...martRad by reducing room

...can perform at the stated
...lected SmartRad radiator

NOTES

1. For rooms with specific heat loads >80W/m², Consult the Dimplex SmartRad technical manual for further sizing guidance.

2. Selections based on SmartRad outputs at fan speed 2. For bedroom applications fan speed 1 is recommended. Consult SmartRad technical manual for sizing guidance at fan speed 1

3. Estimated heat pump SPF's and standard radiator oversizing factors taken from Heat Emitter Guide for Domestic Heat Pumps

Heat Emitter Guide for Domestic Heat Pumps

Heat pump performance is optimised if low-temperature heat emitters are used for heat distribution. The Heat Emitter Guide for Domestic Heat Pumps has been published by industry for use in conjunction with the MCS heat pump design standard, MIS3005.

The guide uses a Temperature Star Rating to indicate how efficient the proposed system is likely to be. More efficient systems are given more stars. The maximum is 6 stars. More stars are given when lower emitter temperatures are used because the heat pump is able to operate more efficiently.

Based on the information provided by the Heat Emitter Guide, this guidance table provides an estimate of the required SmartRad radiator required to provide adequate heating for a variety of room sizes and room heat losses. For comparison purposes, it also includes a recommended oversizing factor to enable standard radiators to meet the same heat output at a range of mean water flow temperatures.

FINISH	NOMINAL OUTPUT kW			
	0.8	**1.2**	**1.4**	**1.8**
White metal	SRX080M	SRX120M	SRX140M	SRX180M
White glass	SRX080WG	SRX120WG	SRX140WG	SRX180WG
Black glass	SRX080BG	SRX120BG	SRX140BG	SRX180BG

OPERATING LIMITS	SRX080	SRX120	SRX140	SRX180
Heating water system/return °C	Max 85 / Min 15 at 150 l/h			
PERFORMANCE	*at medium fan speed and air inlet temp of 20°C			
Heating capacity* mean water flow temp 40°C (kW)	0.6	0.9	1.1	1.5
Heating capacity* mean water flow temp 45°C (kW)	0.8	1.1	1.4	1.8
Heating capacity* mean water flow temp 50°C (kW)	1.0	1.4	1.7	2.2
Heating capacity* mean water flow temp 55°C (kW)	1.1	1.6	2.0	2.6
Heating capacity* mean water flow temp 60°C (kW)	1.3	1.8	2.3	2.9
SOUND PRESSURE LEVEL AT 1M dB (A)				
Low	26			
Medium	29			
Boost	36			
AIR FLOW RATE				
Low (m²/hr)	60	100	120	160
Medium (m²/hr)	125	190	225	300
Boost (m²/hr)	228	345	410	540
DIMENSIONS (mm) HxWxD	530x503 x145	530x670 x145	530x740 x145	530x911 x145
Weight (kg)	13	16	18	23
POWER INPUT (W)				
Low	17	22	26	24
Medium	20	32	40	35
Boost	27	47	60	53
Standby power	1W			
Nominal voltage / fuse rating (V/A)	~230 / 3			
Hydraulic connections	15mm left and/or right hand connection or from rear			
Water content (l)	0.31	0.43	0.48	0.60
Cable supplied	1 metre			

Specifications

Dimplex policy is one of continuous improvement; the Company therefore reserves
the right to alter specifications without notice. The information contained in this brochure is
correct at the time of printing. You are advised to consult your Dealer before purchasing.

Installation Guidance

This brochure is designed to assist you with your choice of Dimplex products and it is not intended
as an installation guide. For safety, products should only be installed by a competent person,
in accordance with current regulations and the manufacturer's instructions.

The Dimplex Range

Dimplex offers the widest range of electric space and water heating products
in the world – over 400 – to meet almost any heating need. In addition to this publication,
we have a wide range of brochures for both domestic and commercial applications.
Please visit our website www.dimplexrenewables.co.uk for more information.

Heat pumps
brochure
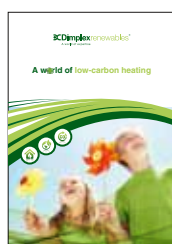
A world of
low-carbon heating

EC-Eau Cylinder
brochure

Solar PV
brochure

Renewables
brochure

Solar brochure

Domestic heating
brochure

Electric fires brochure

Solid fuel brochure

**For more information on our wide range of renewables technologies,
please visit www.dimplexrenewables.co.uk
email marketing@dimplex.co.uk
or call 0845 600 5111 (consumer)
0845 601 5111 (trade)**

⊃⊂Dimplexrenewables®

A world of expertise

FSC logo to be
dropped in by printer,
Patch is spot, do not print

A division of the GDC Group, Millbrook House, Grange Drive, Hedge End, Southampton SO30 2DF

For Northern Ireland, contact Glen Dimplex N.I. Limited, Unit No 24, Seagoe Industrial Estate, Portadown, Craigavon, Co. Armagh BT63 5TH

D1568/0212