

HEATSTORE

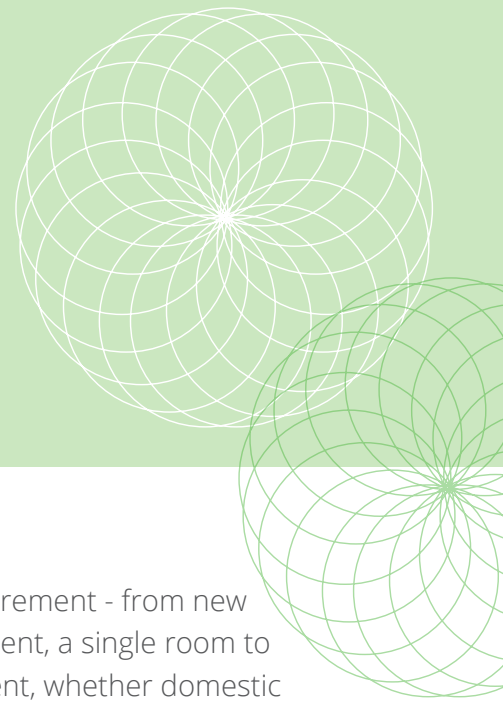
Introducing the
DYNAMIC
QUANTUM
energy system



The adaptable electric heating system



DYNAMIC HEATERS QUANTUM



Designed and developed by a team of experts and manufactured in the British Isles, Dynamic Quantum is up to **27% cheaper** to run than comparable static storage heaters.

For over 50 years, Heatstore has been dedicated to heating the nation. In the future, low-carbon electricity will make electric heating the first choice for a lower carbon footprint and low lifetime cost of ownership.

As pioneers in electric heating, Heatstore continues to lead the field with innovative and contemporary product design - all backed by nationwide after-sales support and a dedicated sales team.

All Heatstore Dynamic heating products:

- Are designed to comply with part L of the Building Regulations
- Feature advanced heating controls to help achieve the best possible SAP ratings
- Have a lower capital and maintenance cost than a gas boiler system
- Offer total flexibility in design
- Are quick and easy to install or upgrade
- Are virtually maintenance-free

Whatever the requirement - from new build to refurbishment, a single room to a whole development, whether domestic or commercial - Heatstore offers the most effective, economical and environmentally friendly heating solutions.

Now Heatstore is proud to introduce Dynamic Quantum, an electrical heating system like no other. Dynamic Quantum is up to 27% cheaper to run than comparable static storage heaters.

Dynamic Quantum:
Controlling heat
like never before.



Heatstore have developed a revolutionary system that combines state-of-the-art electric heating resulting in optimal efficiency, comfort and controllability.

The Dynamic Quantum is designed to use low-cost, low-carbon energy from renewable sources, such as hydroelectric and wind turbines - and converts this into heat. During periods of low demand it stores this energy, turning it into cheap, efficient heat to be used when required. Importantly, the Dynamic Quantum system can use electricity generated by any source.

THE DYNAMIC QUANTUM RADIATOR IS AVAILABLE IN A CHOICE OF FOUR HEATING OUTPUTS:



“Technologies that use electricity to generate heat are well placed to become major low-carbon heating technologies in the coming decades”.

DECC

Future of Heating, March 2011



AS ELECTRICITY TURNS GREENER... THE WORLD IS TURNING QUANTUM

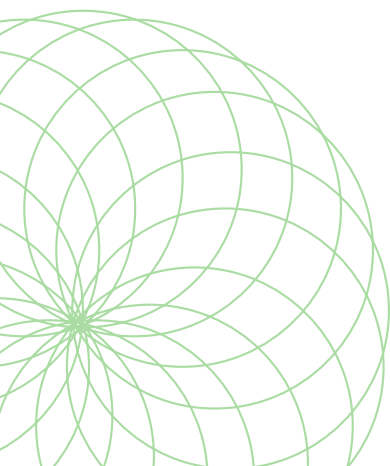
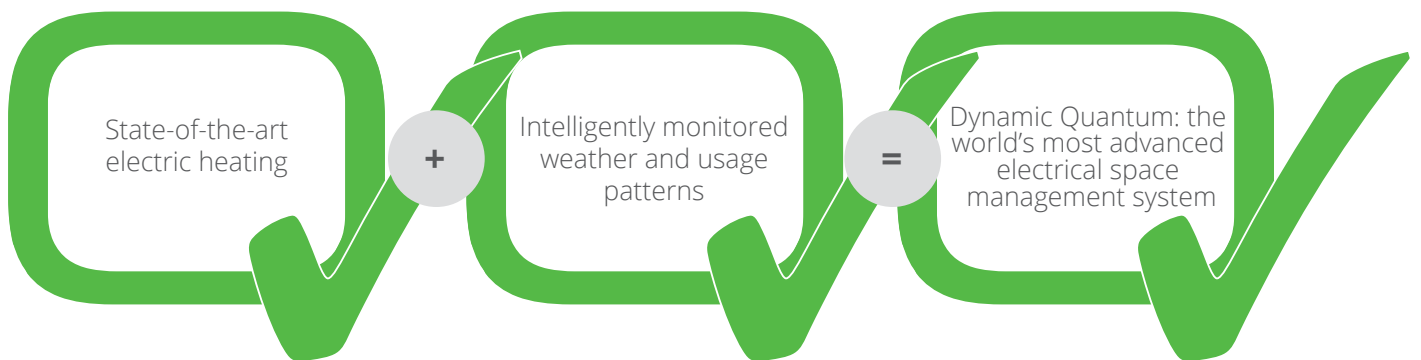
As electricity generation turns ever greener, the world is turning to electric heating. Nationally-supplied, low-carbon electricity provides security of energy supplies and low-carbon heating, while helping to reduce the devastating impact of climate change.

Low cost,
Low carbon,
Adaptable electric
heating system

The result of three years' research and development, the Dynamic Quantum energy system combines the very latest in electrical heating with an intelligently monitored weather and usage patterns. The result: the world's most advanced electric heating system.

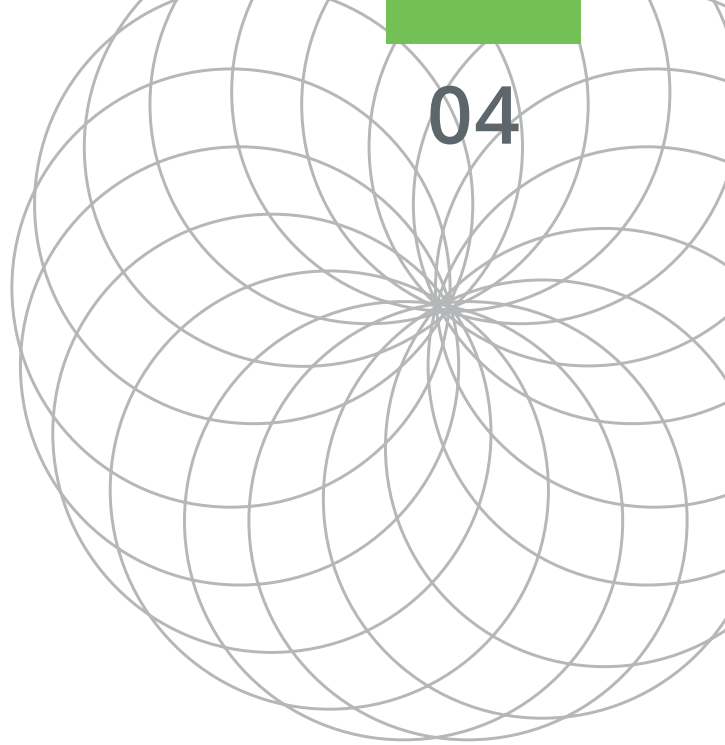
The Dynamic Quantum energy system offers homeowners:

- A low-cost, low-carbon, electric heating system
- An electric heating system whose carbon use will decrease over time
- Optimal efficiency, comfort and control



The Heatstore Dynamic Quantum Heater

- Up to 27% cheaper to run than comparable static storage heaters
- Uses off-peak tariffs for low running costs - on a room-by-room basis it is expected that 90% of the heating requirement will be met by off-peak energy
- Rapid heat-up through fan assisted output
- Automatically adjusts to the user's needs and lifestyle through its dynamic storage capacity
- Easy-to-use, electronic user interface with LCD display, featuring a room temperature setting with seven-day programmer
- Precisely matches the user's chosen heating profile
- Soft-start, ultra quiet fan for minimum intrusion
- Boost element ensures heat is always readily available
- Attractive, state-of-the-art and compact design (no deeper than a double wet radiator) with flexible mounting and adjustable feet positions
- Covers previous 'fixing marks' of most comparably sized traditional storage heaters



Dynamic Quantum has running cost savings of up to 27% than comparable static storage heaters

**HEATSTORE DYNAMIC:
THE QUANTUM LEAP IN
ELECTRIC HEATING. THE
SMART ELECTRIC HEATING
SYSTEM THAT STORES
GREEN ENERGY.**



DYNAMIC QUANTUM OPERATION

Great advances in technology, controllability and insulation ensure the Dynamic Quantum heater is up to 27% cheaper to run than comparable static storage heaters.

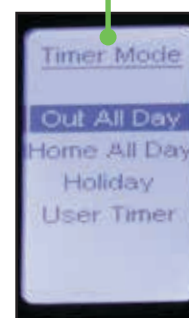
Quantum uses off-peak tariffs whenever possible to minimise costs, so users can enjoy all the benefits of electric heating.

The Quantum heater uses insulation with a thermal conductivity even lower than that of still air, is easy to install and virtually maintenance free.

Better still, Dynamic Quantum uses off-peak tariffs whenever possible to minimise costs, so users can enjoy all the benefits of electric heating, with running costs unattainable by other direct acting electrical systems. And to top it all, the Dynamic Quantum heater is easy to install and virtually maintenance free.

The Dynamic Quantum heater will:

- Monitor weather and usage patterns, learning from and adapting to them, delivering heat accordingly
- Closely follow target room temperature, intuitively adjusting settings using a thermostat that is accurate to within a fraction of a degree °C using Dynamic Efficiency+ technology
- Respond to changing climate and room temperature conditions, and alter configurations automatically
- Works seamlessly with the grid, using off-peak tariffs when possible to minimise user costs and maximum efficiency



EASY TO PROGRAMME:

7 day programmer with 3 pre-set (adjustable) timer profiles and display adjustment. Holiday mode giving frost protection, landlord setting, child lock setting and many more features.

THE DYNAMIC QUANTUM HEATER USES AN INSULATION WITH A THERMAL CONDUCTIVITY EVEN LOWER THAN THAT OF STILL AIR



Rotary knob adjusts target temperature and enables menu scrolling and selection



Target temperature display is colour coded to assist visually impaired

High controllability incredibly simple

The heater intuitively and precisely responds to user lifestyle and climate conditions, delivering the correct amount of heat. If an individual wants to adjust heat levels manually, they can - using the built-in, state-of-the-art controls.

End users can:

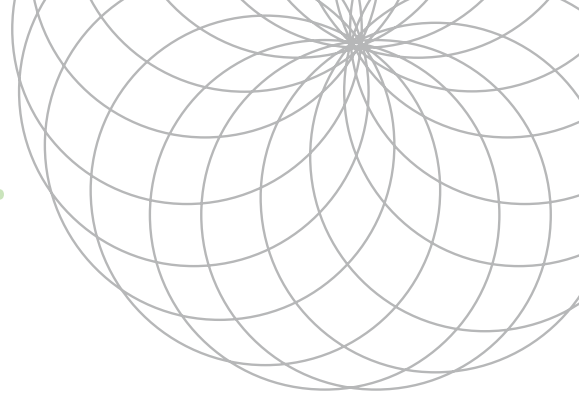
- Choose and adjust preset programmes, such as 'Home all day', then sit back and relax as the Dynamic Quantum Heating System takes control
- Manually adjust heat levels via the easy-to-use, built-in electronic interface with LCD display, advance/menu/back buttons and rotary 'click' selector
- Maintain selected temperature within $\pm 0.3^{\circ}\text{C}$ using Dynamic Efficiency+ technology



**DYNAMIC QUANTUM
INTUITIVELY FOLLOWS
TARGET ROOM
TEMPERATURE, ADJUSTING
SETTINGS USING A
THERMOSTAT THAT IS
ACCURATE TO WITHIN A
FRACTION OF A $^{\circ}\text{C}$**



THE DYNAMIC QUANTUM... BENEFITS FOR ALL



Whether you're specifying, installing, living or working with Dynamic Quantum, you'll quickly realise the benefits that this adaptable electric heating system has to offer.

For the Specifier

- Attractive, state-of-the-art design - superior to other storage and wet systems
- Technology that's low-cost, low-carbon and future-proofed
- Easy to specify within SAP
- Available in a range of heater sizes, allowing flexibility in project specification
- Virtually maintenance free system
- Compact with adjustable feet positions
- Covers previous 'fixing marks' of most comparably sized traditional storage heaters
- Easy to use controls to minimise user confusion

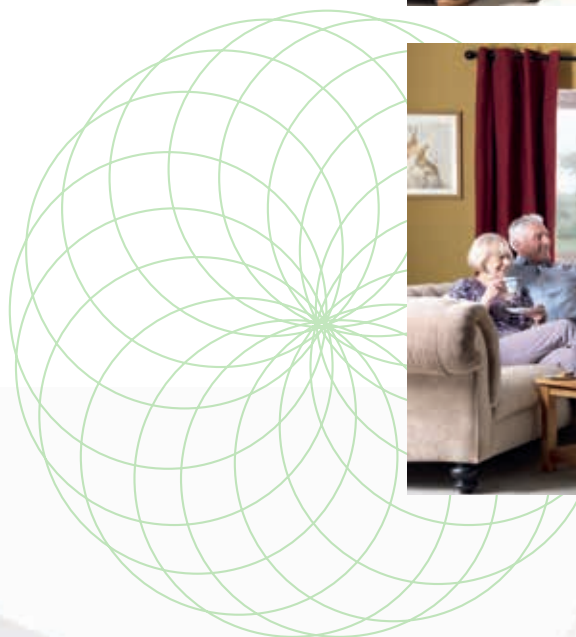
For the Installer

- Simple to install - with separate instructions for both installer and end user
- Electronic controller pre-loaded with time/ date as well as user programmes
- Reversible cable entry points and adjustable feet to ensure the chassis covers previous 'fixing marks' of most comparably sized storage heaters
- Easy to use controls to minimise user confusion

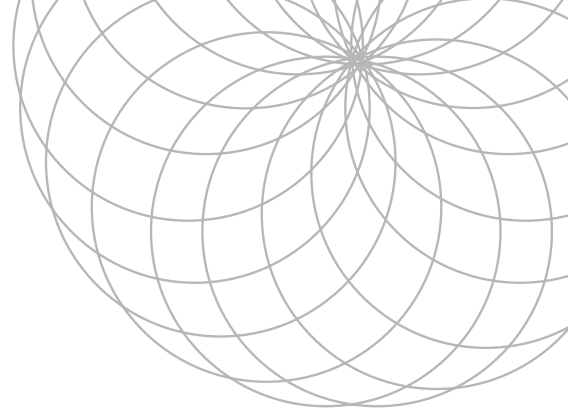


For the End User

- Attractive, state-of-the-art design - superior to other storage and wet systems
- Automatic system once set up
- Economical to run, helping to alleviate the increasing problem of fuel poverty
- Offers improved comfort levels, heating only when required
- Set and forget electronic controller accurate to within $\pm 0.3^{\circ}\text{C}$ using Dynamic+ technology
- Responsive to external temperature changes
- Nationally-supplied, future-proofed fuel source
- Very low maintenance delivering high reliability



COMPARATIVE TEST DYNAMIC QUANTUM VS STATIC STORAGE HEATER



Climate Room Test Chamber - conditions for Room Temperature Profile graph on page 10

A climate room was built to accurately replicate a room from typical UK housing stock. It has two external walls and two internal walls, and the temperatures outside all walls, ceiling and floor are accurately controlled.

The U values of walls, windows and door are as follows:

ROOM DIMENSIONS	4m X 3m X 2.4m
U VALUES:	
DOUBLE LAYER SOLID BRICK OUTER WALLS	2.0
INSULATED INTERNAL WALLS AND CEILING	0.34
INSULATED FLOOR	0.25
UPVC DOUBLE GLAZED WINDOW	3.3
UPVC DOUBLE GLAZED DOOR	3.0
AIR CHANGE RATE	1 A/C per hour

The Test

A daily temperature profile was set up outside the two external walls to simulate an average heating day in a property based in Sheffield, England.

Minimum outside temperature +4°C
Maximum outside temperature +11°C

The heating periods were set at 07:00 to 09:00 and 16:00 to 23:00.

The target room thermal comfort temperature was 21°C during these times.

The following heaters were tested under these conditions:

3.4kW (input) static storage heater with manual charge control - supplemented with a direct acting heater

2.8kW (input) Quantum heater (HSDQ125)

For results please see graph on [page 10](#).



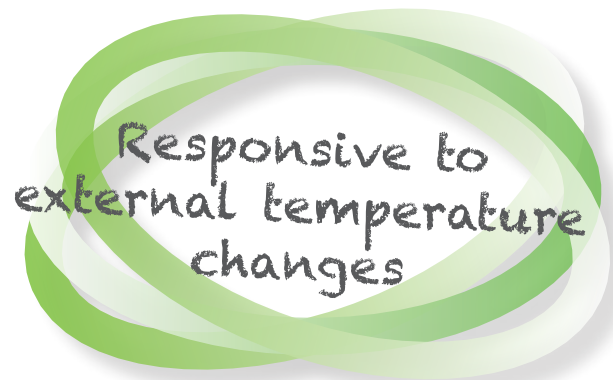
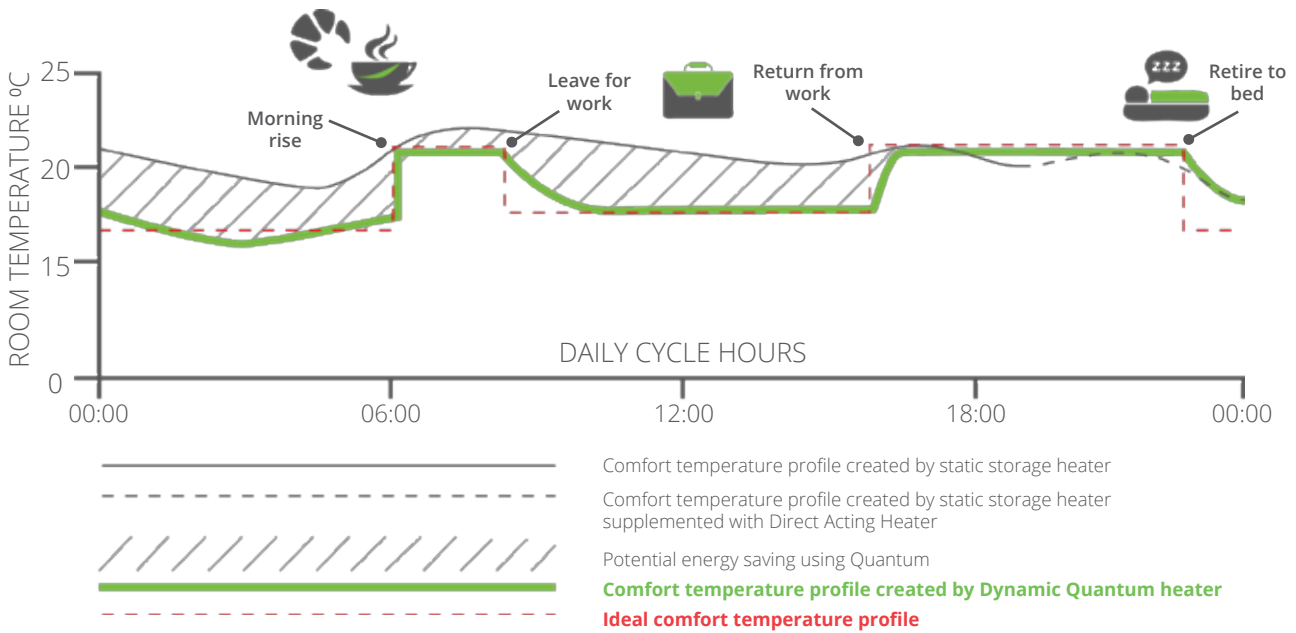
RESULTS

Room Temperature Profile

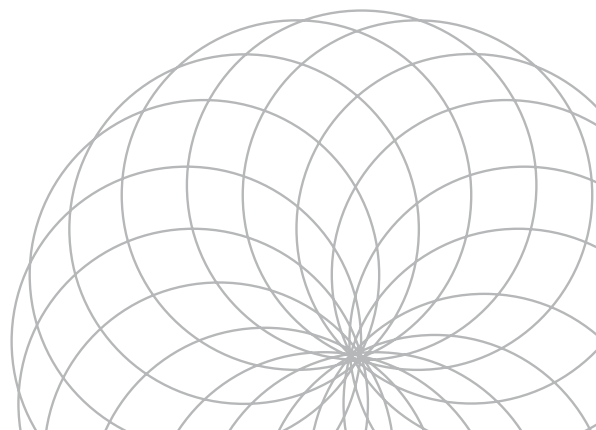
Dynamic Quantum HSDQ125 vs Conventional Static 24kWh Storage Heater & Direct Acting Heater
Average weekday profile

Dynamic Quantum Energy Use = 10 kWh - 9 hours heating @ 21°C

Conventional Storage Energy Use = 12.2 kWh + 1.3kWh Direct Acting Supplementary Heating = 13.6kWh - 9 hours heating @ 21°C



WHETHER YOU'RE SPECIFYING, INSTALLING, LIVING OR WORKING WITH DYNAMIC QUANTUM, YOU'LL QUICKLY REALISE THE BENEFITS THAT THIS ADAPTABLE ELECTRIC HEATING SYSTEM HAS TO OFFER.



SPECIFICATION & SIZING

Controls	Charge Controller	Dynamic Efficiency+	Thermal Cut-out (Safety Devices)
Electronic user interface with LCD display offering room temperature setting, 7-day programmer, installer settings, 3 pre-set timer profiles, holiday settings and more.	Fully automatic charge controller incorporates self learning algorithms to optimise daily energy storage, using multiple sensors to automatically adjust the charge taken based on recent energy use patterns and future programmed requirements.	Electronic thermostat accurate to +/- 0.3°C during heater operation.	<ul style="list-style-type: none"> Electromechanical cut-out (manual reset). Electromechanical limit thermostat (self resetting). Electromechanical over temperature thermostat for fan. Electromechanical over temperature limit thermostat for fan.

Fan	Charge Controller	Battery Backup	Safety Devices
Low rev/low noise heat circulation fan with variable speed and soft start.	Front, rear top and ends - microporous silica. Base - calcium silicate slab.	3.3V coin cell battery to backup real time clock. Battery life > 5 years.	CE, BEAB, EN60335, EMC

Storage Core	Colour/Finish	Supply	Warranty
High density bonded magnetite energy cells.	White.	230-240V/50Hz. Off-peak + 24 hour supply required.	2 years.

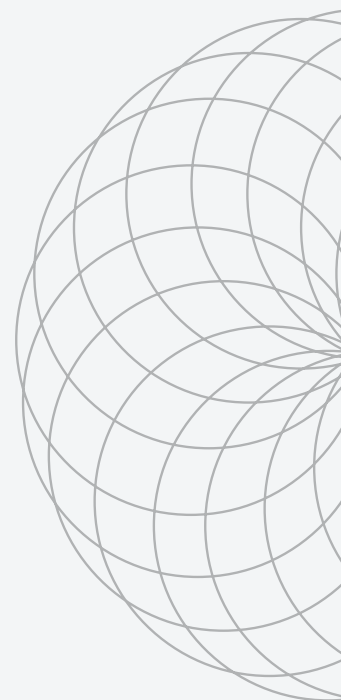
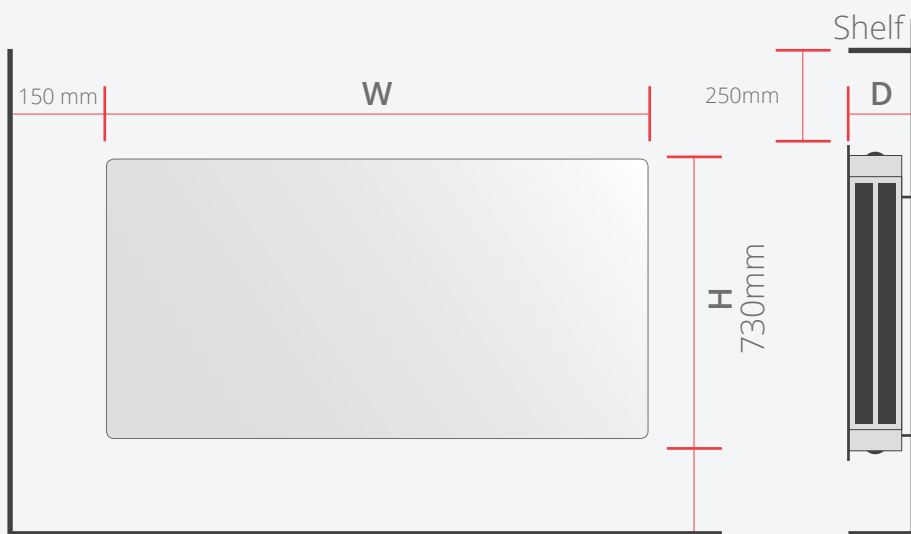
Thermal Insulation

Front, rear, top and ends - microporous silica.
Base - calcium silicate slab.

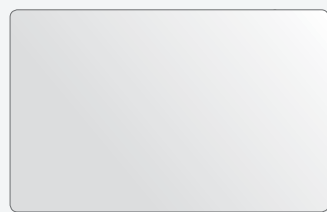
MODEL NO.	HSDQ070	HSDQ100	HSDQ125	HSDQ150
HEIGHT	730mm	730mm	730mm	730mm
WIDTH	703mm	865mm	1069mm	1069mm
DEPTH	185mm	185mm	185mm	185mm
INSTALLED WEIGHT	83kg	107kg	135kg	155kg
OUTPUT RATING (STORED ENERGY)	700W	1000W	1250W	1500W
INPUT RATING	1560W	2200W	2760W	3300W
MAX. STORAGE CAPACITY	10.9kWh	15.4kWh	19.3kWh	23.1kWh
BOOST ELEMENT RATING	630W	880W	1130W	1300W

MODEL NO.	HSDQ070	HSDQ100	HSDQ125	HSDQ150
ENERGY CELL PACKS REQUIRED	6	8	10	12

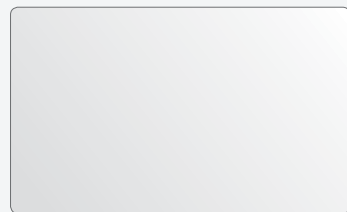
MAIN & FIXING DIMENSIONS



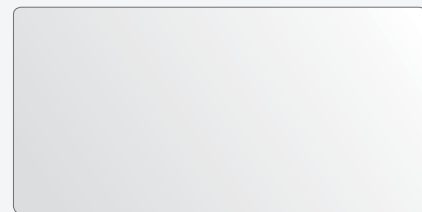
HSDQ070



HSDQ100



HSDQ125 AND HSDQ150



HEATER SIZING GUIDE

Heatstore provides a number of options, to meet different property and timescale requirements.

If you need to obtain an indication of the heating requirements for estimating or if you need heating for one or two rooms, please use this Selection Guide.

Alternatively, please contact our Technical Department on 0117 923 5375.

The tables below provide heater sizing guidance for Dynamic Quantum heaters; floor area, the wall construction, and the number of outside walls, as well as the heater loading in kilowatts. These tables do not take into account old properties or those built very recently. If your property fits into one of these classifications, please contact Heatstore.

Living or dining room: Dynamic Quantum
Heater loading in kW. Temperature 21°C

Floor area m	Solid walls no. of outside walls			Cavity walls no. of outside walls			Insulated cavity walls no. of outside walls		
	1	2	3	1	2	3	1	2	3
12	1.84	2.16	2.88	1.60	1.92	2.48	1.12	1.28	1.68
16	2.08	2.48	3.20	1.84	2.32	2.88	1.36	1.60	1.92
20	2.64	3.12	3.92	2.32	2.72	3.44	1.68	1.92	2.32
24	2.96	3.44	4.32	2.64	3.12	3.76	2.08	2.32	2.64
28	3.28	3.92	4.80	2.96	3.44	4.24	2.16	2.48	2.96
32	3.52	4.32	5.28	3.28	3.76	4.72	2.40	2.72	3.20

Bedrooms: Dynamic Quantum
Heater loading in kW. Temperature 18°C

Floor area m	Solid walls no. of outside walls			Cavity walls no. of outside walls			Insulated cavity walls no. of outside walls		
	1	2	3	1	2	3	1	2	3
8	0.8	1.3	1.7	0.8	1.0	1.4	0.8	0.9	1.4
12	0.9	1.8	2.3	0.9	1.4	2.1	0.8	1.4	1.8
16	1.2	2.1	2.7	1.0	1.7	2.2	0.9	1.6	2.1
20	1.4	2.2	3.1	1.2	2.0	2.6	1.0	1.8	2.4
24	1.5	2.3	3.4	1.2	2.1	2.9	1.0	1.9	2.5

Kitchen: Dynamic Quantum
Heater loading in kW. Temperature 21°C

Floor area m	Solid walls no. of outside walls			Cavity walls no. of outside walls			Insulated cavity walls no. of outside walls		
	1	2	3	1	2	3	1	2	3
10	1.28	1.68	2.32	1.12	1.60	1.92			
12	1.52	2.16	2.64	1.36	1.84	2.32			
14	1.68	2.40	2.88	1.60	2.08	2.48			
16	1.92	2.64	3.12	1.68	2.32	2.72			

For all kitchens with cavity wall insulation direct heating is preferred.

Commercial heating For greater control and economy of operation, Dynamic Quantum heaters are recommended. Sizing is based on a single storey with a ceiling height of 3m and a minimum of 75mm of roof insulation.

Office: Dynamic Quantum
Heater loading in kW. Temperature 21°C

Floor area m	Solid walls no. of outside walls			Cavity walls no. of outside walls			Insulated cavity walls no. of outside walls		
	1	2	3	1	2	3	1	2	3
15	2.16	2.96	4.08	2.00	2.56	3.52	1.68	2.08	2.64
20	2.64	3.52	4.48	2.40	3.12	4.00	2.08	2.56	3.12
25	2.96	4.08	5.20	2.72	3.68	4.56	2.40	3.04	3.60
30	3.52	4.72	5.84	3.36	4.24	5.20	2.88	3.52	4.16
40	4.80	5.92	7.68	4.40	5.36	6.72	3.92	4.48	5.36
50	5.28	6.80	8.40	4.96	6.24	7.44	4.48	5.28	6.08



HEATING SCHEMES DESIGN & GUARANTEE

Dynamic Heating Scheme

The Dynamic Quantum heating design service is a part of Heatstore's commitment to electrical contractors and their customers providing specialist product and technical support.

From drawings supplied by the contractor, the technical team will develop a design solution providing a scheme, listing the number and size of the Dynamic Quantum heaters required. This will be calculated taking into account "U" values and construction details such as walls, floors, windows and roof, whether these are insulated, cavity or solid walls, timber or solid floor, pitched or flat roof and level of glazing for the windows.

Available free of charge with no obligation to the customer, computer generated heating schemes with over 650,000 combinations are individually designed to the specific property. This can be from a one bedroom flat to a 200 room hotel, offering the same level of high detail and complexity.

The computer generated results are then transferred onto the drawings supplied clearly

showing where to sight the appropriate heater.

Based on the results of the property, an approximate running cost for the heating season will also be supplied showing design temperatures, heat loss, kW installed and the calculation of daily running costs.

Within 48-hours results are returned by email or post.

Dynamic Guarantee

Once our technical team have designed a heating solution and scheme, we are so confident that the Dynamic Quantum heaters will meet your requirements that, in addition to the two-year service warranty at the customers address, we offer Dynamic Quantum customers more; the **Dynamic Guarantee**.

If for any reason the property does not achieve and hold the designed specified room temperature after installation, we will offer free of charge Dynamic Quantum heaters to ensure the design temperature of the scheme is achieved.



APPROVALS

CE

Certifies that a product has met the health, safety and environmental requirements of the European Union, thereby ensuring consumer and workplace safety.

BEAB

The British Electrotechnical Approvals Board is an electrical safety organisation currently owned by Intertek Group. The BEAB Mark of Approval is the main symbol used in the UK for domestic appliances deemed to be safely manufactured.

EN60335

Certifies that a product meets the Low Voltage Directive (LVD) series of standards for domestic appliances.



EMC

Products constructed within standards set by the Electromagnetic Compatibility (EMC) Directive; they do not cause excessive electromagnetic interference and are not unduly affected by electromagnetic interference.

GREEN SPOT

“Designed with the environment in mind”. Our Green Spot products are designed and manufactured with the environment in mind, offering energy savings and efficiencies over the life of the product.



“Our residents are very pleased and are getting used to the controls quite easily as the thermostat is easy to see on top of the heater and it can be turned up or down, giving virtually instantaneous results.”

- Specifier

“As an installer, the Quantum heater is really well designed and all the details have obviously been thought through to ensure we can fit the heaters safely and with minimal hassle. I like the fact that the Quantum just feels really solid and substantial which gives you confidence that it’s a quality job and it won’t let you down.”

- Installer

“When the heaters were installed I noticed a big difference immediately. And it was fantastic that the controls only took me five minutes to work out.”

- End User



SAFETY

ELECTRICITY VS OTHER FUELS

Whether you are a specifier, social housing provider, homeowner or tenant, safety is a key consideration when selecting a heating system.

Heatstore Dynamic Quantum has a number of safety benefits over other fuels:

- With the vast majority of electric heating systems, there are no radiators to leak or burst, so there is less risk of property damage – especially relevant if the property is likely to be vacant for a period of time, or the property is within an apartment block which could damage neighbouring properties.
- With very few moving parts to break down or wear out, electric heating is also extremely reliable and will normally run satisfactorily for much longer than a conventional wet system, avoiding the need for inconvenient call backs.

- Because electric heaters do not burn fuel internally to generate heat, there are none of the associated safety risks, such as carbon monoxide poisoning or explosions. If you are a social housing provider or private landlord, the law also requires you to ensure that any gas appliances in your properties are checked annually to confirm they are working safely*. Apart from how much this will cost in inspection and servicing charges, there is the additional expense of gaining access to tenants' properties, in selected cases necessitating the services of locksmiths and even the police where tenants refuse access.

*1994 Gas Safety Regulations, amended 1998



The Heatstore logo consists of three horizontal red bars of varying lengths to the left of the word "HEATSTORE" in a bold, sans-serif font. The entire logo is enclosed in a thin red rectangular border.

HEATSTORE

The logo for the Dynamic Quantum energy system features the word "DYNAMIC" in a grey, sans-serif font above the word "QUANTUM" in a larger, bold, grey, sans-serif font. A green checkmark is integrated into the letter 'Q' of "QUANTUM". Below "QUANTUM" is the phrase "energy system" in a smaller, green, sans-serif font. A thick vertical grey bar is positioned to the left of the text.

DYNAMIC
QUANTUM
energy system



NEED TO CONTACT HEATSTORE?

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Heatstore reserve the right to alter specifications without notice.
All specification and performance data is correct at the time
of printing. Issue 1 2014

