the HAMWORTHY

WATER HEATERS AND STORAGE RANGE BOOK

Gas fired condensing water heaters, calorifiers and storage cylinders

SCAN ME

hamworthy-heating.com

sales@hamworthy-heating.com | 01202 662500

Hamworthy

Who is Hamworthy Heating?

Whilst we may be best known for our range of modular commercial gas boilers in the UK, Hamworthy Heating is a leading authority in the commercial heating and hot water markets. Behind the scenes, we possess a wealth of expertise supporting the low carbon transformation of the UK heating industry.

Our parent company, Groupe Atlantic, has a long history in heat pumps and currently holds the market leading position in France. By combining Groupe Atlantic's technical and manufacturing heat pump expertise, with our knowledge of UK heating systems and market, we have created a successful formula for our innovative range of Tyneham commercial air source heat pumps.

Our broad product range, whether it be modular floor standing boilers or durable stainless steel water heaters, ensures our customers have the best and most advanced solutions for heating and hot water, whilst supporting their journey towards decarbonisation. Each model in our range of commercial heat pumps can be integrated with other products in our portfolio allowing for commercial hybrid heating, and hot water systems.

Collaborating through knowledge and skills in Groupe Atlantic, we have developed a range of low-carbon products, designed to simplify our customers' lives. More than just a manufacturer, Hamworthy Heating is a company that is dedicated to providing high levels of service and aftercare to its customers. From heating design support to technical assistance, whether the product is a commercial air source heat pump, floor standing boiler, or water heater, we will deliver the same outstanding customer service and support.

Trusted expertise since 1914

SCAN ME

Contents

Introduction to the range

We've got a wide range of natural gas and LPG powered products for the safe production of domestic hot water in commercial applications. These include direct fired water heaters, calorifiers and storage tanks.

This guide gives you an overview of Hamworthy products for DHW (Domestic Hot Water) generation, covering single units with maximum power ranging from 20kW to 120kW, and maximum continuous output ranging from 360 litres/hour to 2,190 litres/hour. We also offer a range of hot water cylinders and storage vessels.

With such a wide choice of products for indirect DHW production available from Hamworthy, and with more than one potential solution for your DHW application, we always recommend that you discuss your requirements with Area Sales Managers.

DR-SG direct fired water heaters

Our DR-SG ranges are built to last using high quality stainless steel tanks and heat exchangers, for the safe production of potable hot water and excellent protection against corrosion.

Our flagship range of condensing gas fired hot water heaters, Dorchester DR-SG comes in a wide range of power outputs and sizes, giving you maximum flexibility to find the ideal solution for your project.

All versions of DR-SG surpass the minimum product efficiency requirements of Part L, ensuring compliance and reliable hot water production. Additionally, all outputs can be converted to run on LPG for off-grid installations.

Powerstock calorifiers and storage tanks

If a system requires an indirect fired calorifier for DHW, Powerstock provides the solution.

Cylinders are constructed from high grade steel with a high quality vitreous enamel lining. Some of the Powerstock calorifiers contain 2 coils, which can be used either with 2 separate heat sources or combined to be used with a single heat source.

Halstock calorifiers

Halstock calorifiers are available for DHW systems in regions where stainless steel is the preferred choice.

Our calorifiers are constructed with duplex stainless steel. Some of the Halstock calorifiers contain 2 coils which can be used with 2 separate heat sources or combined to be used with a single heat source.

Stainless steel cylinders are often chosen for their anode-free corrosion protection, particularly in areas of the country with soft water. A highly durable, simple and easy to maintain product for efficient generation of domestic hot water.

ASK Hamworthy about the right hot water product for your application: direct or indirect?

What is a direct fired unit?

Direct fired units such as our DR-SG water heaters for hot water generation have an integral gas burner that directly heats the water in its storage cylinder. This is done by supplying hot gases through its heat exchanger fire tubes within the cylinder which then transfers heat to the surrounding water.

What is an indirect unit?

Indirect fired units such as calorifiers have no integral burner but contain one or more heat exchanger coils that are filled with hot liquids (water or solar fluid) that have already been heated 'indirectly' by one or more external heat sources, such as a boiler or heat pumps.

Separation or integration?

Historically, indirect fired systems had a dedicated hot water boiler used solely for heating a calorifier. But with the high efficiencies of today's boilers the same boiler can now be used for both the heating circuit and the DHW system.

However, when space heating is not required, for example in the summer, the boiler has to operate to provide heat for the hot water system. This can result in wastage of energy if the boiler overfires. This is where the choice of boiler is crucial to be able to match the heating load, hot water load and both combined.

Direct fired water heaters are solely dedicated to the job of hot water generation. They can provide a faster heat up and response time compared with an indirect system. An indirect system is in fact 'heating water to heat water' and this increases the chance of heat losses in the boiler, and associated pipework between the boiler and calorifier. So both options need to be carefully considered against the needs of the building to determine which one is more suitable.

ASK
advice. specification. knowledge.

Chosing the right product for the system should come down to the building needs and how the application is being used. There are pros and cons to using each method and we would always recommend you tailor the system to your project. Some sites even choose a mix of the two methods.

We are happy to help and advise you which type of system would be most suited to your building. We also provide support in sizing the hot water to ensure you don't run out or oversize resulting in wasted energy.

To find out more, get in touch with your Area Sales Manager.

SCAN ME

DR-SG gas fired condensing water heater

10 models continuous flow 360-2190 litres/hour

The Dorchester DR-SG is available in 10 power outputs over 3 storage capacities. The range features a full stainless steel tank, heat exchanger and coil offering a durable solution which maximises product service life.

A great option for emergency replacement and planned refurb projects due to its wide performance capability (10 models) and its ease of installation when replacing units reaching the end of their service life.

Key features:

- Can deliver flow rates to satisfy high demand environments
- Enhanced durability under challenging water conditions
- Storage tank, heat exchanger and coil all manufactured from stainless steel
- Suitable for natural gas and LPG systems (conversion kit available)
- NOx under 40 mg/kWh across the range (Class 6)
- Quick and easy burner access
- Operated via the popular Siemens LMS Mini controls platform
- Integrated flue non-return valve
- 5 year warranty

DR-SG
Technical information

	Model:		DR-SG 20-210	DR-SG 25-210	DR-SG 30-210	DR-SG 35-356	DR-SG 50-356	DR-SG 60-356	DR-SG 70-538	DR-SG 80-538	DR-SG 100-538	DR-SG 120-538
Energy	Max Heat Input (Gross)	kW	20	25	30	35	50	56.6	69.9	80	100	120
	Max Power Output (Net)	kW	21	26.3	31.5	37	53	60	73.4	84	105	126
	Building regulations Part L, EN89 100% efficiency (NCV)	%	105	105	105	106	106	106	106	106	106	106
	Building regulations Part L, EN89 100% efficiency (GCV)	%	94.6	94.6	94.6	95.5	95.5	95.5	95.5	95.5	95.5	95.5
	Standby Loss	kWh/day	1.6	1.6	1.6	1.9	1.9	1.9	3.2	3.2	3.2	3.2
	Building regulations Part L, Maintenance Consumption (EN89)	kWh/day	2.7	2.7	2.7	3.4	3.4	3.4	5.6	5.6	5.6	5.6
	ErP efficiency rating		A	A	A	A	A	A	A	n/a	n/a	n/a
	Water Heater Efficiency (ErP)	%	95.9	91.7	93.5	90.3	92.5	91.4	92.7	91.3	90.8	90
	ErP Load Profile		XXL	XXL	XXL	XXL	XXL	XXL	3XL	3XL	3XL	3XL
Water	Storage Capacity	L	210	210	210	356	356	356	538	538	538	538
	1st 10 mins at ΔT 50°C	l/10'	175	205	220	330	400	435	475	500	550	600
	1st hour at ΔT 50°C	l/60'	450	570	580	630	1100	1210	1500	1700	2000	2300
	Continuous Flow at ΔT 50°C	l/hr	360	450	540	640	910	1090	1280	1460	1820	2190
	Max DHW temperature setpoint	°C	80	80	80	80	80	80	80	80	80	80
	Max operating pressure (open vented)	bar	7	7	7	7	7	7	7	7	7	7
	Max operating pressure (unvented)	bar	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Heat-up time (mins) 50°C rise		36	29	24	35	24	20	26	23	18	15
	Heat-up time (mins) 55°C rise		40	32	26	39	27	22	29	25	20	17
Gas	Gas Inlet Pressure (Nominal nat gas)	mbar	20	20	20	20	20	20	20	20	20	20
	Gas flow rate (Nominal nat gas)	m^3/hr	2.1	2.6	3.2	3.7	5.3	6	7.4	8.5	11	12.7
	Gas Inlet Pressure (Nominal, LPG)	mbar	37	37	37	37	37	37	37	37	37	37
	Gas flow rate (LPG)	m^3/hr	0.8	1	1.2	1.4	2	2.4	2.7	3.1	4	4.7
	Gas connection		R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R ¾"	R 1"	R 1"	R 1"	R 1"
Flues	Max flue gas temperature	°C	100	100	100	100	100	100	100	100	100	100
	Nominal flue gas operating temp	°C	39	55	60	40.3	50.9	51.6	56.8	58.8	59.8	59.3
	Flue Gas Volume @15°C	kg/h	33.1	41.4	49.7	53.3	79.9	95	104.4	118.8	158.4	187.2
	NOx emissions	mg/kWh	29	29	29	32	32	32	39.5	39.5	39.5	39.5
	Pressure at flue outlet	Pa	110	170	200	130	200	200	65	95	155	200
	Air inlet/Flue outlet diameter	mm	80	80	80	100	100	100	130	130	130	130
	Max system length – C type flues	m	20	20	20	20	20	20	20	20	20	20
Electrical	Electrical Supply	V	230 V AC (+10%, -15%) 50Hz									
	Fuse rating	amp	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
	Power consumption (maximum)	W	12.7	12.7	12.7	18	18	18	22.5	22.5	22.5	22.5
	Power consumption (standby)	W	3.6	3.6	3.6	3.7	3.7	3.7	4.5	4.5	4.5	4.5
	Sounds Power Level (Noise emissions)	dBA	64	64	64	75	75	75	67	69	74	78
Misc	Number of Anodes		1	1	1	2	2	2	3	3	3	3
	Dry weight	kg	96	96	96	142	142	142	240	240	240	240
	Filled Weight	kg	306	306	306	498	498	498	778	778	778	778
	Height	mm	1802	1802	1802	1874	1874	1874	2028	2028	2028	2028
	Diameter (inc insulation)	mm	600	600	600	750	750	750	890	890	890	890

DR-SG
Technical information

Connections

Models	Dorchester DR-SG XX-210			Dorchester DR-SG XX-356			Dorchester DR-SG XX-538			
	20	25	30	35	50	60	70	80	100	120
1 Hot water outlet	Rp 1"½			Rp 1"½			Rp 1"½			
2 Secondary return	Rp 1"½			Rp 1"½			Rp 1"½			
3 Cold water inlet	Rp 1"½			Rp 1"½			Rp 1"½			
4 T&P valve	Rp 1"			Rp 1"¼			Rp 1"½			
5 Gas inlet	R ¾"			R ¾"			R 1"			
6 Air inlet	Ø 80			Ø 100			Ø 130			
7 Flue outlet	Ø 80			Ø 100			Ø 130			

Dimensions

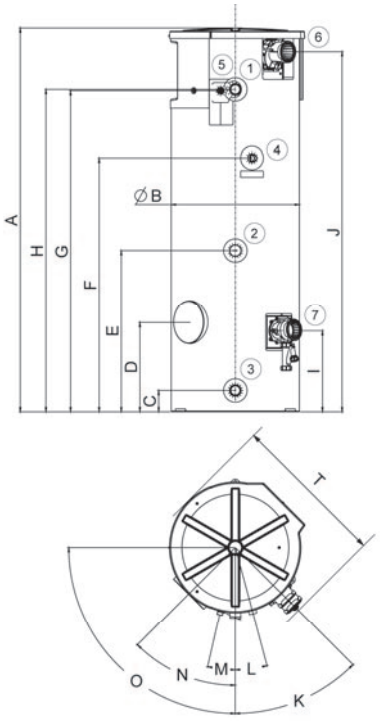
ref		DR-SG XX-210	DR-SG XX-356	DR-SG XX-538
A	Overall height	1802	1874	2028
B	Diameter	Ø 600	Ø 750	Ø 890
C	Height to cold water inlet	100	100	100
D	Height to inspection hatch	419	454	467
E	Height to secondary return	759	980	1129
F	Height to T&P valve connection	1193	1248	1373
G	Height to gas connection	1508	1580	1735
H	Height to hot water outlet	1514	1579	1748
I	Height to flue outlet	380	402	442
J	Height to air inlet	1691	1752	1871
K	Angle position of flue outlet	45°	45°	45°
L	Angle position of T&P valve fitting	13°	15°	70°
M	Angle position of gas connection	12.9°	20°	20°
N	Angle position of inspection hatch	45°	45°	38°
O	Angle position of HMI	90°	90°	90°
P	Height of lower anode fitting	NA	478	470
Q	Angle position of lower anode fitting	NA	80°	35°
R	Overall width with LPG conversion kit	NA	NA	639
S	Angle position of gas connection with LPG conversion kit	NA	NA	20°
T	Max installed width	699	884	1020
	Height to condensate trap outlet	233	230	151

Clearances

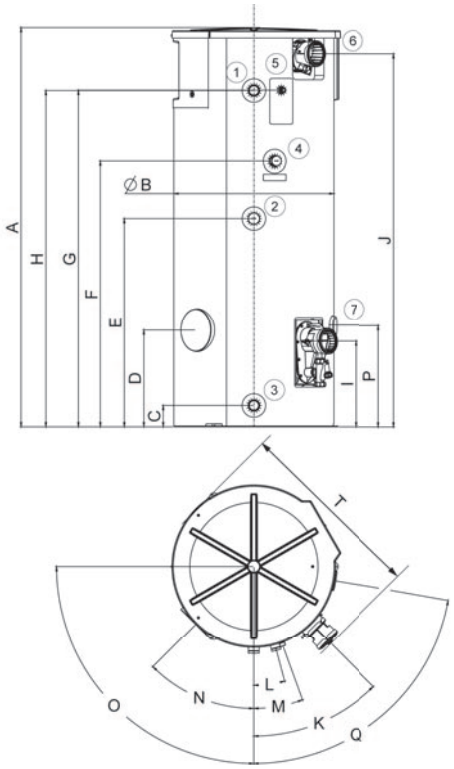
ALL MODELS		DR-SG
Clearance – front (service)	mm	Min 500
Clearance – sides	mm	500
Clearance – rear	mm	500
Clearance – top	mm	175

DR-SG
Technical information

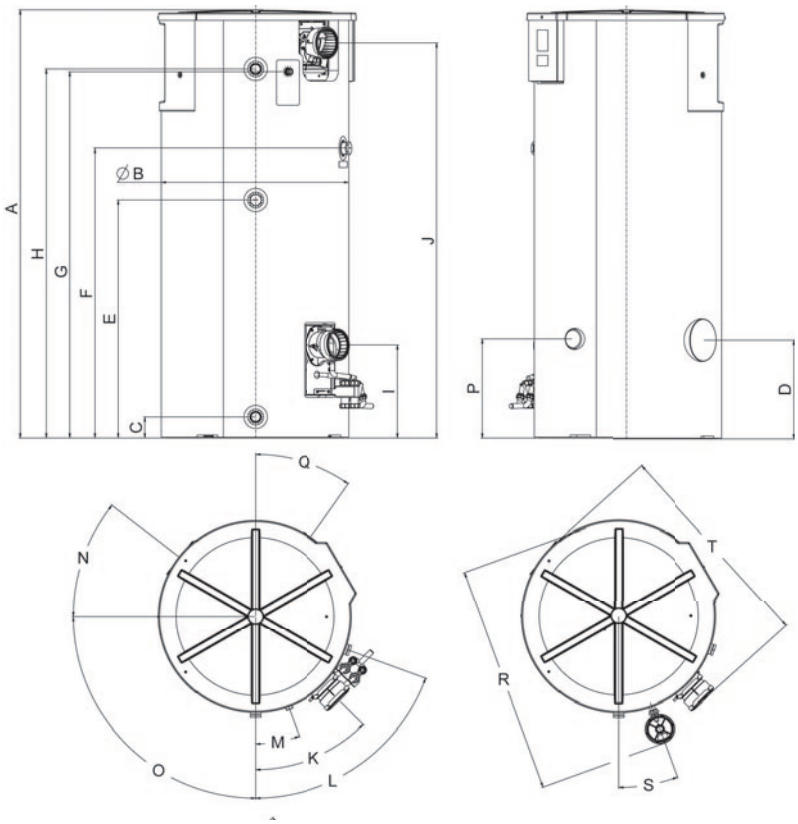
Dorchester DR-SG XX-210



Dorchester DR-SG XX-356



Dorchester DR-SG XX-538



Dorchester DR-CC condensing water heater

2 models from 201-205 litres/hour

A compact, condensing unit with integrated simple to use controls. Its size and flexible flue options make it suited to small to medium sized commercial applications.

Key benefits:

- Fits through a standard doorway
- Heat exchanger design and burner location distributes heat evenly
- Electrical anode for corrosion protection
- Easy access for service and maintenance
- Low NOX
- Minimal clearances
- Flexible flue options
- 2 year warranty

Options:

- Natural gas or LPG
- Unvented supply kit
- Horizontal or vertical flue terminal kit

Even heat distribution

A 'cold zone' heat exchanger design with the coil located in the middle of the unit, gives a greater surface area for more transfer of heat as well as even heat distribution inside the tank, and reduces the likelihood of stratification.

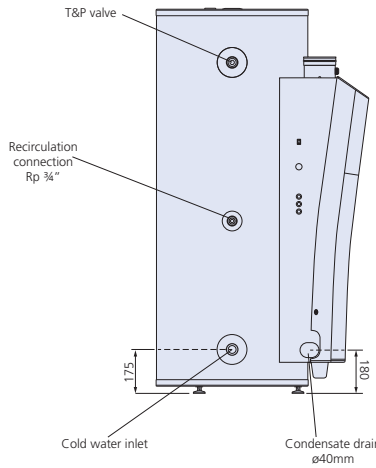
Dorchester DR-CC condensing water heater technical information

	Dorchester DR-CC model	Units	DR-CC 12-160	DR-CC 12-200
Water	Continuous output with 44°C ΔT	l/h	228	233
	1st hour output with 44°C ΔT	l	360	470
	Continuous output with 50°C ΔT	l/h	201	205
	1st hour output with 50°C ΔT	l	310	410
	Continuous output with 56°C ΔT	l/h	180	183
	1st hour output with 56°C ΔT	l	270	360
	Storage capacity	litres	162	202
	Maximum working pressure	bar	8	8
	ErP load profile	-	XL	XL
Energy	Building Regulations thermal efficiency gross	%	96	98
	ErP efficiency rating	-	A	A
	Heating-up time, ΔT = 44°C	min.	27	41
	Heating-up time, ΔT = 50°C	min.	31	47
	Heating-up time, ΔT = 56°C	min.	34	52
	Standby losses	kW/24h	2.16	2.3
Nat Gas	Input, gross – maximum	kW	12.1	12.1
	Input, net – maximum	kW	10.9	10.9
	Output – maximum	kW	11.7	11.9
	Gas inlet pressure - nominal	mbar	20	20
	Gas flow rate – maximum @1013.25 mbar and 15°C	m^3/h	1.2	1.2

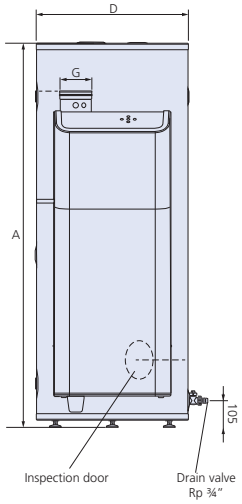
Dimensions

Reference	Dimension	DR-CC 12-160	DR-CC 12-200
A	Total Height	1270	1545
D	Width	560	560
E	Depth	805	805
G	Flue Size	80/125	80/125

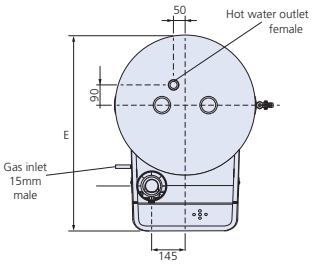
Note: *All dimensions in mm unless otherwise stated.*



Side



Front



Plan

Clearances:

- 1000mm at front
- 500mm at sides
- 1000mm at top
- No rear clearances

Benefits of stainless steel

With stainless steel becoming a popular choice for hot water products, we take a look at some of the key factors driving this trend.

What is stainless steel?

Stainless steel is a generic name for more than 150 carbon alloys that have a minimum of 10.5% chromium. Chromium makes stainless steel corrosion-resistant by oxidizing quickly, forming a thin layer on the metal surface that protects the underlying metal from corrosion. With this thin passive film completely covering the metal surface, the metal is passivized, and the risk of corrosion is greatly reduced.

The most commonly used grades of stainless steel employed in hot water generators are 304, 316(L) and duplex which have a higher level of corrosion resistance and the ability to shape and form the metal into tanks and detailed heat exchangers.

The battle against corrosion

When it comes to dedicated water heaters and hot water stores for domestic hot water, corrosion is the enemy, particularly wet corrosion. Wet corrosion occurs through an electrochemical reaction that requires the presence of oxygen. For example, steel interacts with water and oxygen to form hydrated iron (III) oxide–rust, which will eventually cause structural damage, resulting in costly maintenance and repair, unless otherwise prevented. Here, the material composition of stainless steel provides high resistance to corrosion and provides consistent performance to stresses caused by harsh operating conditions, thus maximising the service life of the water heater or store. Stainless steel will react with oxygen to self-passivate, which means it naturally forms a protective layer that is key to its corrosion resistance by preventing further oxdiation.

Durability of the heat exchanger

As with boilers, when it comes to dedicated water heaters and DHW storage vessels, materials are also best selected for their thermal performance properties. As the heat exchanger plays a key role in maximizing effective and reliable heat transfer, stainless steel offers a robust long-lasting solution.

Frequently confronted with minerals, oxygen, chemicals and sediment, not to mention high temperatures, thermal stress and flue gas condensate, stainless steel is, without doubt, a strong, durable contender that can withstand water and fire side attacks. In comparison to heat exchangers made from steel or copper, which can struggle to withstand acidic flue condensate, stainless steel is a good material choice due to its high corrosion and flexibility. Also, due to their composition of corrosion-resistant alloys, stainless steel products often have a longer warranty such as our market-leading five-year warranty for our DR-SG range of gas fired condensing water heaters and Halstock range of indirect calorifiers and storage vessels.

Looking at the bigger picture

Often assumed to be more expensive than some of the other materials traditionally used, such as copper, aluminium and steel, when you look at the bigger picture and consider total life cycle costs, stainless steel is often a cost effective option.

Stainless steel water heaters and storage vessels also have the added advantage of being lightweight. Featuring a typically much thinner wall, this makes them much easier and safer to transport and install.

Lastly, compared with other commonly used materials, stainless steel has relatively low embodied carbon, which contributes to longevity and should be considered within the whole-life carbon impact assessment.

The solution

The recently acclaimed Dorchester DR-SG stainless steel condensing water heater ticks all the boxes when it comes to achieving a durable solution that will stand the test of time. Available in ten power outputs over three storage capacities, the Dorchester DR-SG features a durable full stainless-steel tank, heat exchanger and coil for increased performance, efficiency, and increased service life.

Offering enhanced durability with electrical anode protection, the DR-SG offers excellent performance, even under the most challenging water conditions. Acting as a ‘fit and forget’ part of the water heater while providing corrosion protection benefits in hard water areas, the anodes do not require any routine maintenance or replacement and have an estimated service life of more than 10 years.

Suitable for both renovation and new build projects, including locations with substantial and continuous hot water demands such as hotels and sports facilities, the Dorchester DR-SG meets all of the latest Building Regulations and offers significantly improved efficiency and performance when replacing a non-condensing water heater.

Case study: The Knaresborough Inn

Sector:	Leisure
Building:	Hotel
Products:	Stratton mk3 wall hung boiler, Dorchester DR-SG stainless steel condensing water heater
Application:	LTHW heating system

The Knaresborough Inn (formerly known as Dower House) recently reopened its doors, following an exciting and major multi-million-pound investment programme by its new owners, The Inn Collection Group.

As part of the refurbishment, Sine Consulting Ltd was employed by the new owners to develop the mechanical and electrical design of the building. This involved employing a high-efficiency low-temperature hot water (LTHW) heating system from Hamworthy Heating to help the inn minimise energy costs and maintain a comfortable environment for all bedrooms and circulation spaces.

To find a solution that was energy efficient whilst meeting the demands of the new Inn, the existing system, which consisted of indirect cylinders with system boilers providing thermal input, was stripped out and replaced with a new low-temperature hot water (LTHW) heating arrangement.

To meet the demands of the building and provide sufficient coverage for an inn of this standard, Sine Consulting Ltd specified a system that comprised two Stratton mk3 wall-hung condensing boilers and two Dorchester DR-SG stainless steel condensing water heaters.

Designed to fit through a standard 800mm doorway without needing to remove any product elements (such as insulation jackets), the DR-SG features a narrow diameter (excluding 538 models) and is light for its class. This simplified the installation process and offered a practical solution for routing the flues.

When it came to specifying a boiler, the Stratton mk3 also addressed the issue of space. Designed for simple installation and maintenance, the boiler features a small lightweight design, ideal for restricted plant rooms such as the Knaresborough Inn's.

Hamworthy also supplied a low loss header to work in conjunction with the boiler. The header is sized with a very low velocity and when positioned correctly will effectively separate the primary and secondary systems and help to keep any system pollutants away from the boiler circuit.

The stainless steel aspect of both the Stratton mk3 and the Dorchester DR-SG offer considerable resistance to corrosion helping maximise service life and achieving valuable cost savings from reduced service and maintenance intervals.

Suitable for both renovation and new build projects, both the Stratton mk3 and the Dorchester DR-SG are fully compliant with Building Regulations Part L and are supplied with a market-leading 5-year warranty as standard.

What to consider when upgrading to a condensing water heater system

In line with updates to Approved Document L of Building Regulations and the uplift that ends the option to carry out like-for-like non-condensing water heater replacements in most commercial buildings, we assess the key practical factors to consider when upgrading to a new energy efficient hot water system.

Sizing up for the job

To be forewarned is to be forearmed, so the best starting point is to gather as much information as possible about the building and its current usage. This is particularly important for refurb projects in buildings such as hotels, sports facilities, or care homes, which may have experienced an extension, sanitary fittings upgrade or increase in occupancy since the previous installation. Oversize and you could be faced with a reduction in system efficiency and increased energy wastage. Undersize and you could end up with very frustrated building occupants and the risk of a bad reputation.

Consider existing flue requirements

Once hot water demand is established, it's important to recognise the type and condition of the existing flue system and its route. When changing commercial non-condensing water heaters to condensing systems, existing flues often need to be replaced or lined to cope with condensate, which is acidic. As part of the upgrade, new flue systems need to be watertight and pressure-tight and designed to drain the condensate back into the water heater to then be drained out fully.

Coping with condensate drainage

As part of the upgrade, a provision must also be put in place to remove condensate. Without this, condensate can leak, corrode and ultimately cause damage to other equipment on the plant room floor. To avoid this, a suitable drainage system must be installed next to the water heater. For plant rooms where this is not an option, a trap using corrosion-resistant material can be connected to the drainage system. For basement plant room installations, installing a condensate removal pump is also another consideration.

Further thoughts

Things can and do change over time, so it's also worthwhile to take a look at the whole hot water system as part of your final assessment. This can highlight any other potential updates that might be required, such as the specification of a flow-through expansion vessel. This will also provide the opportunity to ensure unvented accessories are in full working order.

In addition to improving overall efficiency, these additional checks can also help to enhance service life and guard against the breeding of harmful bacteria, most notably Legionella.

Hamworthy has the solution. The Dorchester DR-SG range of stainless steel condensing water heaters delivers exceptional peak and continuous volumes of hot water with long-term cost savings. Available in ten power outputs over three storage capacities, it features a durable stainless-steel tank, heat exchanger and coil for enhanced performance, efficiency, and increased service life.

A fully condensing unit which meets all the requirements for Part G and Part L for a fully compliant installation.

Powerstock glass lined calorifier

Offering a flexible approach to indirect heating and storage, Powerstock calorifiers can be easily coupled to any heating boiler or renewable energy source to provide highly efficient domestic hot water.

Key benefits:

- Twin coils connect to two energy sources or can be linked together for even better performance
- Safe storage of hot water
- Integration with renewable energy products
- Magnesium anode corrosion protection for longer life
- Adaptable to match load demand
- Inspection & clean out door for easy maintenance
- 2 year warranty

Options:

- Unvented supply kit
- Top-to-bottom pump recirculation kit
- Electrical anode protection
- Electric immersion heater kits with ratings of 4kW or 9kW

Easy access for service & maintenance

An easily accessible clean out door as well as all serviceable parts being located at the front of the unit make the Powerstock easy to service and maintain. This allows for minimal side and no rear clearances so the unit can be easily installed in tight plantrooms.

6 models continuous outputs 600-1635 litres/hour

Twin coils

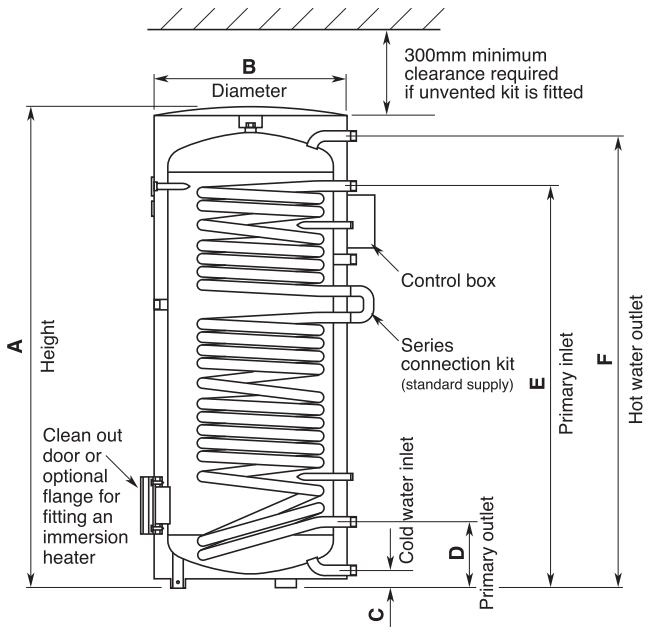
All but the smallest model (P200) have twin coil arrangements which can be connected to two heat sources such as a heating boiler and a solar thermal system.

Alternatively the coils can be connected in series to create an extended surface area single coil.

Powerstock glass lined calorifier Technical information

		Units	PS200	P300	PS400	PS500	PS750	PS1000
General data	Storage capacity	l	196	299	382	474	750	972
	ErP efficiency rating		C	C	C	C	C	C
	Top coil surface area (volume)	m^2 (l)	N/A	0/8 (6.6)	1.05 (7.0)	1.3 (8.9)	1.17 (8.2)	1.12 (7.9)
	Bottom coil surface area (volume)	m^2 (l)	0.95 (6.2)	1.55 (10.4)	1.8 (12.2)	1.9 (12.2)	1.93 (13.5)	2.45 (17.1)
	Maximum operating pressure – primary coil (secondary storage)	bar	10 (10)	10 (10)	10 (10)	10 (10)	10 (10)	10 (10)
	Maximum operating temperature – primary coil (secondary storage)	°C	110 (70)	110 (70)	110 (70)	110 (70)	110 (70)	110 (70)
	Standby losses	kW/24hr	1.63	1.99	2.06	2.4	3.1	3.41
Bottom coil only in operation	Continuous output – ΔT = 50°C	l/h	600	816	976	1109	1062	1281
	Heat input	kW	35.6	48.4	57.9	65.7	63.0	76.0
	10 min peak output – ΔT = 50°C	l	362	448	615	771	1100	1197
	Recovery time	min.	20	22	24	26	42	46
Top & bottom coil connected in series	Continuous output – ΔT = 50°C	l/h	N/A	1032	1285	1549	1432	1635
	Heat input	kW	N/A	61.2	76.2	91.8	85.0	97.0
	10 min peak output – ΔT = 50°C	l	N/A	567	889	1077	1319	1483
	Recovery time	min.	N/A	17	18	18	31	36

Dimensions



Ref	PS200	PS300	PS400	PS500	PS750	PS1000
A	1445	1794	1591	1921	2030	2030
B	540	600	700	700	950	1050
C	55	90	55	55	105	106
D	193	254	221	220	293	297
E	n/a	1424	1355	1604	1471	1423
F	1370	1725	1526	1853	1423	1905

Note:
All dimensions in mm

Note:
The flow rates stated are based on 80°C primary temperature from the boiler and a secondary temperature rise from 10°C to 60°C.

Products are delivered on a pallet base, please add extra 300mm to the height for shipping dimensions.

Powerstock hot water storage tank

Easily coupled to any direct or indirect water heater system to supplement storage volumes to suit large demand applications.

Key benefits:

- Safe storage of hot water
- Supplements hot water storage volumes to suit large demand applications
- Increases system security
- Magnesium anode corrosion protection for long life
- Inspection & clean out door for easy maintenance
- 2 year warranty

Options:

- Unvented supply kit
- Top-to-bottom pump recirculation kit
- Electrical anode protection
- Electric immersion heater kits with ratings of 4kW or 9kW

2 models
storage capacity
300 - 478 litres/hour

Increase system security

Locations with substantial and continuous hot water demands can use Powerstock storage tanks to increase the security of their DHW system.

Powerstock hot water storage tank Technical information

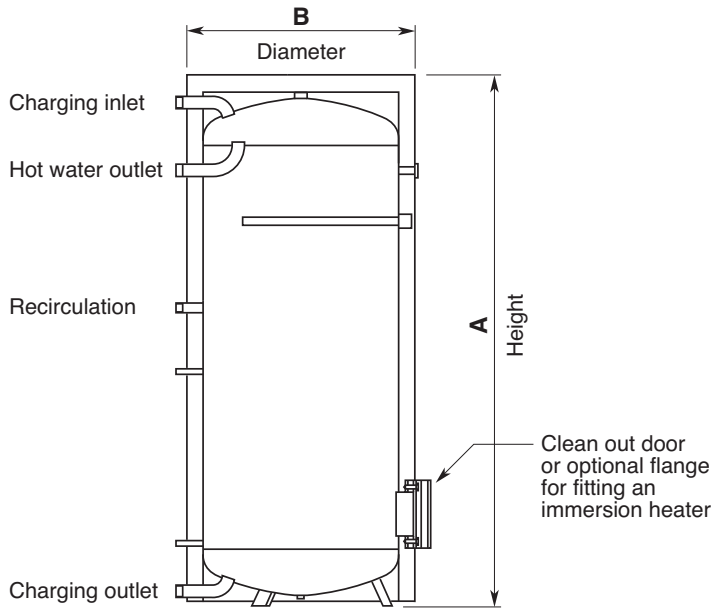
		Units	ST300	ST500
General data	ErP class		C	C
	Storage capacity	l	301	478
	Maximum operating pressure	bar	10	10
	Maximum operating temperature	°C	95	95
	Weight – empty (filled with water)	kg	87 (387)	111 (613)
	Standby losses	kW/24hr	2.4	3.12

Dimensions

Model	ST300	ST500
Charging inlet	R 1½"	R 1½"
Charging outlet	R 1½"	R 1½"
System hot water outlet	R 1½"	R 1½"
System hot water return	R ¾"	R ¾"
Height 'A'	1794mm	1921mm
Diameter 'B'	600mm	700mm

Note:
Products are delivered on a pallet base, please add extra 300mm to the height for shipping dimensions.
Clearances for anode removal: ST300 and ST500 - 1000mm above vertical anode.

ST300 & ST500



Halstock stainless steel calorifier

Simple and easy to maintain, the highly durable stainless steel Halstock comes with a 5 year cylinder guarantee.

Key benefits:

- Single and twin coil options for improved performance or connection to dual heat sources
- Corrosion-resistant stainless steel tank
- Quick heat recovery to match your hot water demands
- Low heat loss for maximum economy
- No sacrificial anode - low maintenance
- Can be installed wherever convenient – no flues needed
- Fire retardant CFC/HCFC-free insulation
- 5 year warranty

Options:

- Open vented or unvented variants
- De-stratification pump kit (factory fitted)
- Levelling feet (400L + models)

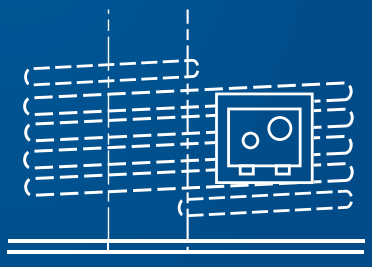
No anodes required

- An anode protection can be inserted into the water for added protection, but a more sensible and reliable option would be to choose a durable material that can withstand these conditions and provide better resistance to attack. The use of 316L stainless steel offers consistent performance under stress caused by harsh operating conditions.

  Halstock calorifiers are constructed using high quality duplex stainless steel meaning there is no requirement for additional corrosion protection anodes. This results in reduced maintenance and lower lifetime costs.

Dual heat sources

All but the two smallest models have twin coil arrangements which can be connected to two heat sources such as a heating boiler and a solar thermal system. Alternatively the coils can be connected in series to create an extended surface area single coil.



5 models continuous outputs 344-1853 litres/hour

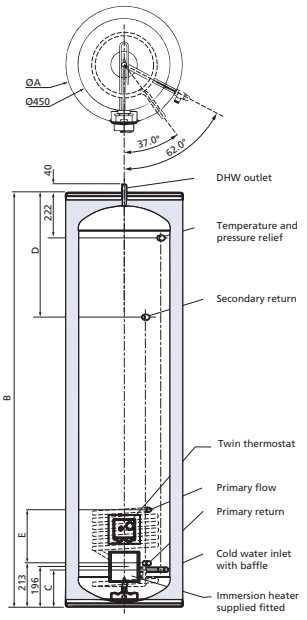
Halstock stainless steel calorifier Technical information

	Halstock model	Units	HS305UV*	HS400 / HS400UV*	HS5002CO / HS500UV2CO*	HS8102CO / HS810UV2CO*	HS9652CO / HS965UV2CO*
Energy	Lower coil output	kW	20	27	67.5	67.5	81
	Upper coil output	kW	N/A	N/A	27	27	27
	ErP efficiency rating	–	C	C	C	Compliant	Compliant
	Coil max operating temperature/ pressure	°C	100 (3)	100 (3)	100 (3)	100 (3)	100 (3)
	Heat up time @50°C ΔT, lower coil only	min	54	53	26	42	42
	Recovery time 70% @50°C ΔT, combined coils	min	38	36	13	21	22
	10 min peak output @50°C ΔT	litres	361	481	770	1080	1274
	Standby losses	kW/24hr	1.77	2.35	2.74	3.29	3.43
Water	Capacity, nominal (Capacity with coil)	litres	305 (298)	400 (396)	500 (496)	810 (803)	965 (958)
	Continuous output @44°C ΔT	l/h	390	527	1843	1843	2106
	Continuous output @50°C ΔT	l/h	344	464	1622	1622	1853
	Maximum working pressure, tank	bar	6	6	6	6	6
	Hydraulic test pressure	bar	9	9	9	9	9
Misc.	Expansion vessel size	litres	24	35	35	50	80
	Weight empty (full)	kg	75 (379)	105 (505)	115 (515)	140 (950)	180 (1145)
	Optional Immersion heater power (Phase)	kW	3 (1ph)	6 (3ph/1ph)	6 (3ph/1ph)	9 (3ph)	12 (3ph)

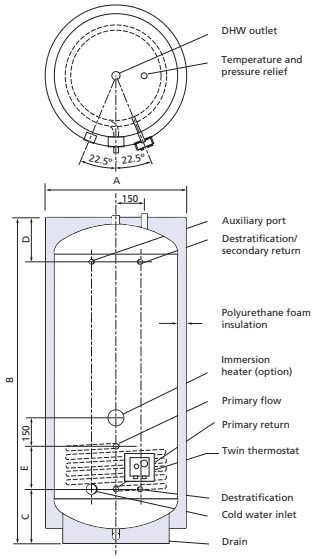
Dimensions

Dimensions	Reference	HS305UV*	HS400/ HS400UV*	HS5002CO / HS500UV2CO*	HS8102CO / HS810UV2CO*	HS9652CO / HS965UV2CO*
Tank diameter	A	570	750	750	1080	1080
Tank height	B	2028	1435	1715	1604	1850
Cold inlet	C	182	286	286	341	341
2nd return	D	610	234	234	341	341
Bottom coil centres	E	262.5	225	495	315	405

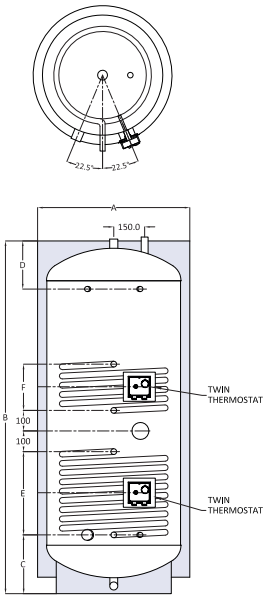
Note: *All dimensions in mm unless otherwise stated. *Supplied with unvented kit*



HS305UV



HS400 & HS400UV



HS5002CO & HS500UV2CO
HS8102CO & HS810UV2CO
HS9652CO & HS965UV2CO

Halstock hot water storage tank

Simple and easy to maintain, the highly durable stainless steel Halstock comes with a 5 year cylinder guarantee.

Key benefits:

- Supplements hot water storage volumes to suit large buildings with large and peak hot water demand
- Minimal heat loss for maximum economy thanks to layer of CFC-free polyurethane tank insulation under protective plastisol cladding
- Light weight
- 5 year warranty

Options:

- Immersion heaters (6, 9 or 12kW)

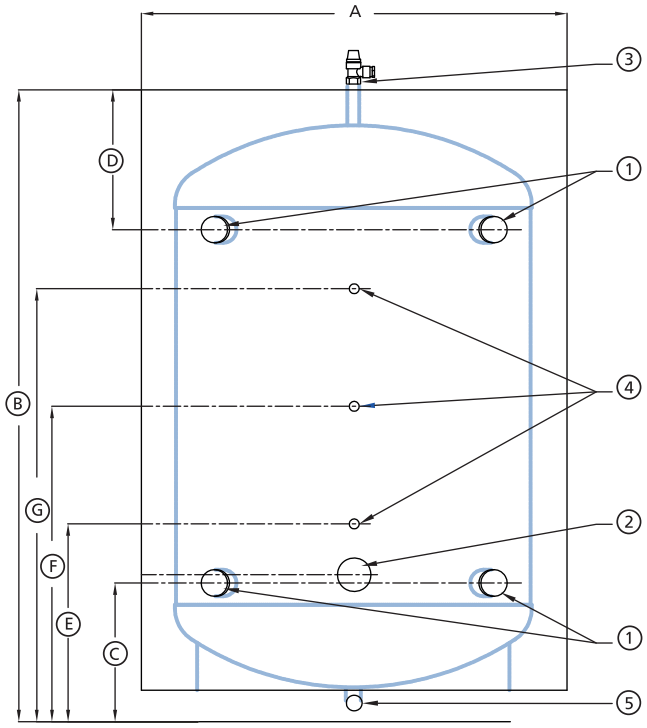
5 models storage capacity 300-965 litres

Increase System security

Locations with substantial and continuous hot water demands can use Halstock storage tanks to increase the security of their DHW system.

Halstock hot water storage tank Technical information

Parameter	Units	HB300	HB400	HB500	HB810	HB965
Capacity nominal	litres	300	400	500	810	965
Max operating temperature	°C	100	100	100	100	100
Max operating pressure	bar	6	6	6	6	6
Standby loss	kW/hr/24hr	1.77	2.35	2.74	3.29	3.43
ErP category		C	C	C	Compliant	Compliant
Hydraulic test pressure	bar	9	9	9	9	9
Immersion heater option power	kW	3	6,9 or 12	6,9 or 12	6,9 or 12	6,9 or 12
Phase		1ph	1ph or 3ph	1ph or 3ph	3ph	3ph
Weight empty	kg	55	80	95	155	175
Weight full	kg	355	480	595	965	1140



Dimensions

Models	Dimensions (mm)								Connections (BSP female)				
	A	B	C	D	E	F	G		1	2	3	4	5
	Width	Height	Bottom inlet	Top inlet	Bottom sensor pocket	Middle Sensor pocket	Top sensor pocket	Insulation	Top/Bottom inlet	Immersion	T&P	Sensor pockets	Drain
300	570	2028	185	222	355	1029	1653	60	28mm stub	1¾"	¾"	½"	None
400	750	1430	295	254	445	736	1027	50	2"	2¼"	¾"	½"	1"
500	750	1715	295	254	445	878	1312	50	2"	2¼"	¾"	½"	1"
810	1080	1604	352	355	502	800.5	1098	90	2"	2¼"	¾"	½"	1"
965	1080	1850	352	355	502	923	1345	90	2"	2¼"	¾"	½"	1"

Note: *All dimensions in mm unless otherwise stated.*

Accessories

Direct water heating

DR-SG

Flue systems
All components that an installer would need to install a DR-SG onto a B23 open flue system, a C13 horizontal concentric flue system or a C33 vertical concentric flue system are available.

Wall brackets and roof flashings are also available to ensure that the flue system is secure.

LPG conversion
LPG conversion accessories and guidance is supplied with the DR-SG water heater for all models from 20-60kW. For XX-538 models, the LPG conversion kit must be ordered separately.

Recirculation pump
A recirculation pump can be supplied for connection across the hot water flow and bottom cold supply. This gives enhanced temperature control and can be used in the control of legionellosis.

Additional system controls
Additional accessories are available to provide accurate system control where necessary. These accessories include an immersed temperature sensor for additional storage tanks and a strap on temparature sensor for secondary return temperature monitoring.

Unvented accessories
An unvented supply kit is essential for any unvented installation to ensure compliance with Part G3 of the Building Regulations. The DR-SG unvented kit includes a pressure reducing valve, non-return valve, expansion relief valve, tundish and drain valve. The T&P combined relief valve is supplied with the water heater. Expansion vessels must be ordered separately.

Indirect water heating

Powerstock calorifiers and storage tanks

Electrical anode protection
Due to poor conductivity levels of water in some areas it may be necessary to fit an electric current anode system to provide additional tank protection.

Recirculation kit
A pump circulating kit can be supplied to connect across the hot water flow and cold supply connection to give enhanced temperature control for the production of safe hot water. Kits include a recirculation pump, pre-sized copper pipework, non-return valves, isolation valves and fittings for installation.

Unvented accessories
An unvented supply kit is essential for any unvented installation to ensure compliance with Part G3 of the Building Regulations. The Powerstock unvented kits include a pressure reducing valve, non-return valve, expansion relief valve, tundish, T&P combined relief valve and expansion vessel.

Electric immersions
Conversion kits for flanged immersion elements alongside 4kW and 9kW immersion options are available.

Halstock calorifiers and storage tanks

Recirculation kit
A pump circulating kit can be supplied connection across the hot water flow and cold supply connection to give enhanced temperature control for the production of safe hot water.

Unvented accessories
Specific Halstock models are supplied with the unvented kit. Requirements for an unvented kit need to be specified upon ordering. The kit includes a safety relief and pressure reducing valve (as well as a non return valve), a 22x28mm tundish and a pre-sized expansion vessel. The combined T&P relief valve is supplied fitted to the vessel.

Electric immersions
6kW, 9kW and 12kW immersions are available to provide back up water heating capability.

Levelling feet
Adjustable feet can be ordered for Halstock models 400L and above to provide additional stability on uneven floor surfaces. These are factory fitted and must be requested at the time of ordering the cylinder.

All water heating types

Expansion vessels
The Burstock range of expansion vessels are available in 10 different capacities from 25 litres to 1000 litres to maintain stable pressure on a hot water system. All vessels are pre-charged to 3.5 bar for DHW systems.

Flowthrough valves and expansion vessels are also available for installations which require these to be installed.

Water composition and the benefits of stainless steel

Poor water composition can directly affect the performance and life expectancy of water heaters and storage products. As experts in commercial heating and hot water products, we explore the effects water composition can have on DHW products and discuss the benefits of stainless steel in product selection.

Different water composition

Starting its journey as rainwater, which is soft and acidic, water moves through the soil under the force of gravity towards rivers and streams, as part of the infiltration process.

Largely dependent on region, water composition is determined by the amount of minerals (such as calcium and magnesium bicarbonates) that dissolve in this rainwater as it passes through the ground.

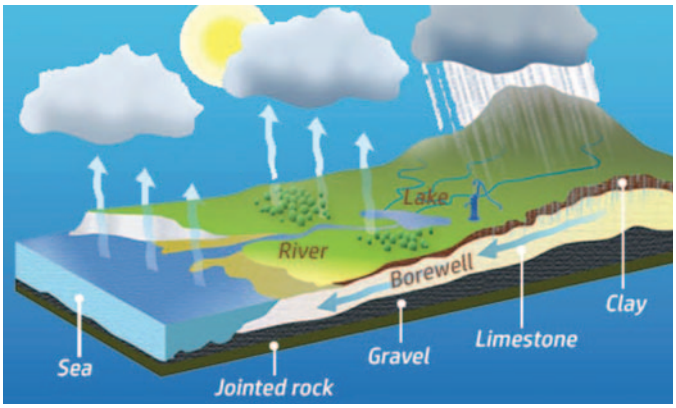
When rainwater lands in an area with porous rock such as chalk and limestone, the water penetrates the ground as it passes through and collects and dissolves particles and minerals such as calcium and magnesium. This raises the hardness level of water and is more prevalent in the South and East of England.

In contrast, when water falls on non-porous rock, such as granite, the water cannot penetrate the ground and cannot pick up any particles. As a result, water stays soft. Regions in the North and West of the UK are typically much softer than the rest of the UK, with a hardness measurement of 100 parts per million (ppm) or less.

Different water composition can have a huge impact on the service life of a storage vessel, which can heavily influence the total cost of ownership.

Scale Build-Up

In hard water areas, scale occurs when water is heated and excess minerals in the water accumulate and become drawn to the hottest point, which is often the inside of the tank surface / inner tank surface and the heat exchanger. With the scale acting as an insulator, this means more heat will be required to permeate the scale and heat the water. As a result, heat-up times will start to lengthen, as well as recovery times which will see more energy used for the same output. With approximately every 1mm of scale reducing efficiency by 7-10%, this is an important consideration in terms of running costs. Moreover, as the metal underneath the scale eventually starts to corrode due to the increasingly acidic conditions, an eventual breakdown is likely. Here, stainless steel offers a durable first line of defence. Offering high thermal expansion rates which help to repel scale deposits, product efficiency and longevity can be considerably increased.



Corrosion

When it comes to corrosion, there is a risk of efficiency loss, increased maintenance and ultimately plant shutdown. Enamelled or glass lined steel products are widely used throughout the UK, however additional measures need to be taken to reduce the risk of corrosion as the tank material cannot resist corrosion by itself.

An anode protection can be inserted into the water for added protection, but a more sensible and reliable option would be to choose a durable material that can withstand these conditions and provide better resistance to attack. The use of 316L stainless steel offers consistent performance under stress caused by harsh operating conditions. Our range of stainless steel products, such as the Dorchester DR-SG condensing water heater, is constructed from high grade 316L austenitic stainless steel and is designed to reduce maintenance and increase system lifespan.

Designed to offer outstanding performance under challenging water conditions, the Dorchester DR-SG is perfectly suited to cope with the extremities of soft and hard water.

The benefits of using stainless steel

When it comes to tackling the different issues commonly associated with water composition and DHW systems, the biggest advantage of utilising stainless steel is its durability. Robust and sturdy, due to the composition of corrosion resistant alloys, stainless steel products often have a longer warranty, such as our five-year warranty. Also, as no lining needs to be applied to the inside of a stainless steel vessel, this reduces the risk of imperfections and small crevices from appearing, which can cause water to become stagnant and corrode over time.

Offering relatively low maintenance, their smooth surface also makes them easy to clean, which can help to minimise the risk of scale build-up and sediment accumulation.

Lastly, from a practical point of view, stainless steel products have the added advantage of being lighter in weight, which makes them easier to transport, handle and install.

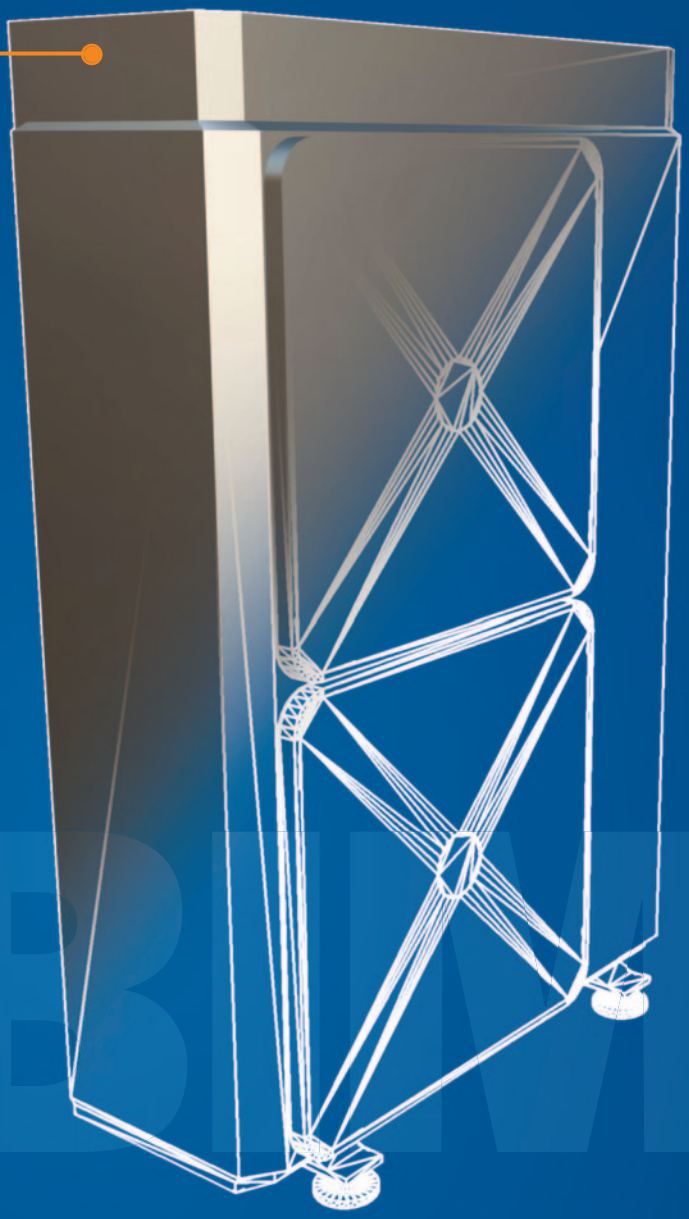
Building Information Modelling (BIM)

bimstore

Working in partnership with **bimstore**, we have produced data enriched 3D BIM objects available for our range of commercial heating and hot water products.

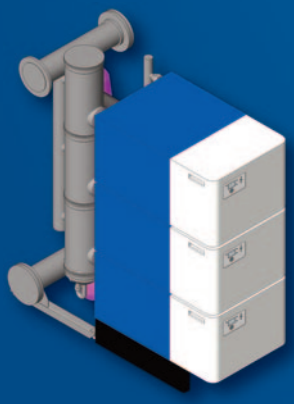
Our range of BIM objects offer a host of configurable options built in for you. They are loaded with extensive metadata including size, outputs, efficiencies, dimensions, clearance zones and pipe kit options.

The benefits of BIM are huge, including improved collaboration and design co-ordination. Wastage in materials and on-site production are reduced and BIM will also assist in asset and lifecycle management.



Visit our website to download the latest BIM drawings for your project.

SCAN ME



Modumax mk3

Tyneham 290HT

Dorchester DR-SG

Stratton mk3

CIBSE approved
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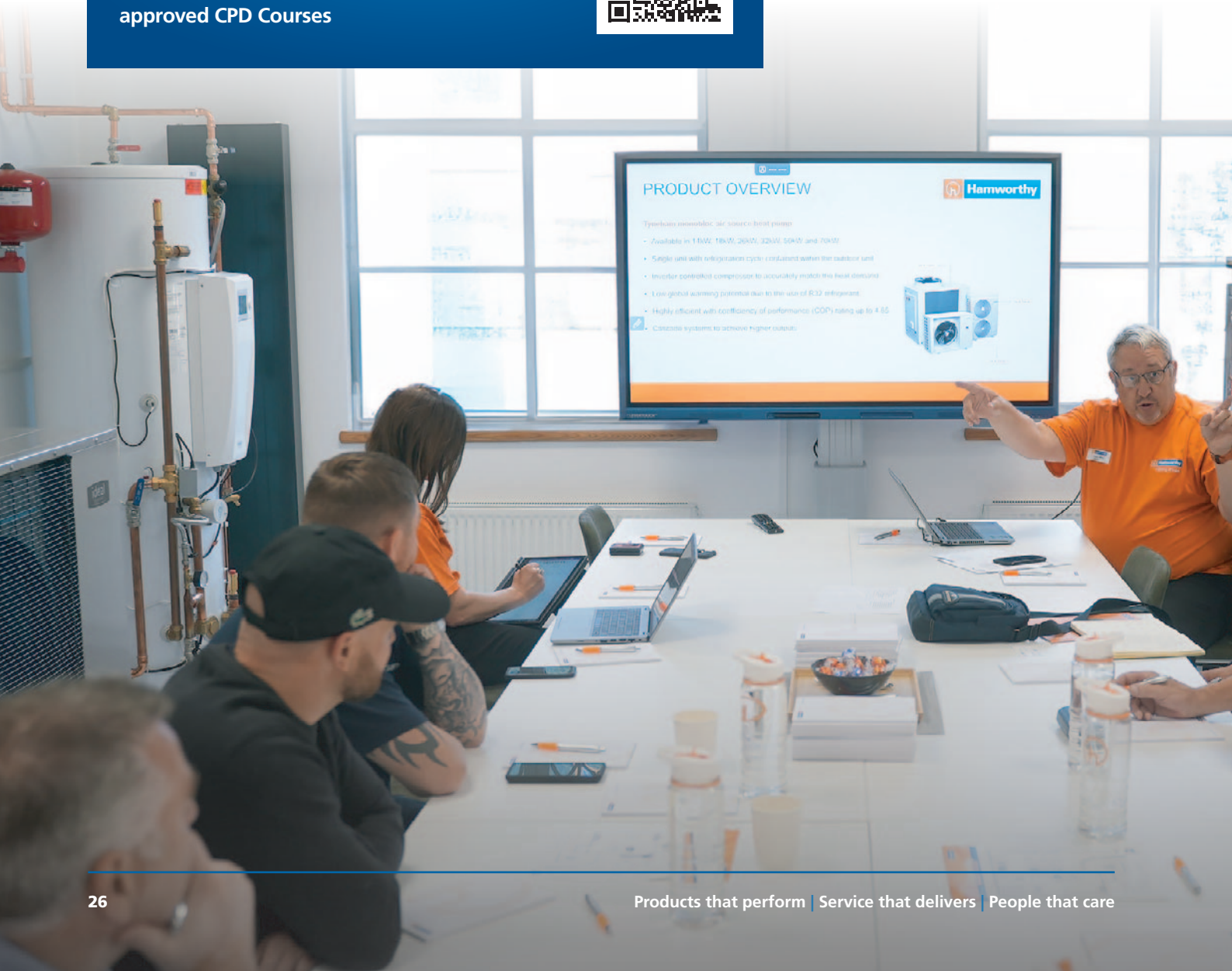
Our CIBSE approved CPD courses are beneficial for anyone wishing to understand the latest industry developments and discover new ways to add value, performance and efficiency to your commercial heating and hot water projects.

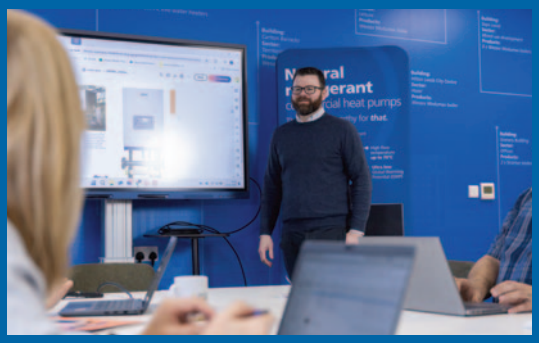
We can offer seminars online, or in person, at our site, or yours.

Book now

Please speak to your Area Sales Manager to discuss and book one of our CIBSE approved CPD Courses



CIBSE CPD



Courses

> Considerations for commercial ASHP selection, specification and system application

This CIBSE approved CPD seminar builds on our Introduction to commercial heat pumps – technology and principles course to guide you through selection and specification of the right heat pump and/or heating system for your customers requirements and expectations.

> Introduction to heat pumps – technology and principles

Heatpumps will play a major part in the future of commercial heating and hotwater in the UK.Learn about the technology and principles behind heat pumps to help you with your system design and specification.

> Boiler controls – unwiring the jargon

Get to know the terminology used in controls and how best to setup your boilers for highest efficiency and performance.

> New boilers on old heating systems – hydraulic design

Understand the hydraulic design options available when installing new boilers on old systems.

Learn the difference between open and closed heating systems and how to choose the best method of separating the primary and secondary circuits.

> Best practice in DHW

DHW in commercial applications is a big topic, so we've developed a series of 3 independent, 1 hr CPD seminars. Each seminar is CIBSE approved and topics include system design, safety and legislation, and sizing.

Service and support

Our Group Commercial Service Division is a dedicated commercial service team created to support all our commercial brands and customers.

A new dedicated Group Service team that unites our commercial product knowledge into a single source of expertise, making us the most responsive and easiest to work with in the industry.

What this means for Hamworthy customers:

New industry-leading dedicated commercial service team

Expert knowledge on all group commercial products

Faster, more responsive support when you need us most

A single service team for commissioning, warranty, servicing and breakdowns on all commercial product ranges

Easier to work with providing best-in-class service

UK nationwide coverage with next-day breakdown cover for critical sites*

* Terms and conditions apply. Speak to a member of the commercial service division team for more information.

Looking for trusted support on your next commercial installation?

Contact your area sales manager or visit our website to find out how the Commercial Service Division can help.

Notes

Notes

British engineering excellence from Hamworthy Heating; the commercial heating and hot water specialists.

SUPPORT BRITISH MANUFACTURING

Hamworthy Heating Accreditations
ISO 9001 Quality Management System
ISO 14001 Environmental Management System
ISO 45001 Health & Safety Management System

Hamworthy Heating Limited

Tel: **01202 662500**
Email: **sales@hamworthy-heating.com**
hamworthy-heating.com