

the **HAMWORTHY**

# TYNEHAM AIR SOURCE HEAT PUMP

## RANGE GUIDE



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# ASK

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## Technical advice

We know that one size doesn't fit all so we'll make sure that we understand your needs and requirements to fully support you at each stage of your commercial project.

## Commercial specification

With an extensive range of the latest **heating, hot water** and **low carbon technology**, we can help you specify the right solution for your commercial needs.

## Expert knowledge

It's not just our award-winning products that set us apart. It's our people. **Your technical experts** and their impressive industry knowledge makes a real difference to your projects.

From help with **sizing hot water** to **replacing commercial boilers**, and everything you need to know about heat pumps, legislation and technology – you'll find us friendly, knowledgeable and easy to deal with, every step of the way.

## ASK Hamworthy for:

- **Technical *advice***
- **Commercial *specification***
- **Expert *knowledge***

## Don't just take our word for it:

*"Hamworthy is a leading name in the industry and has a general reputation of being reliable and robust."*

(Heating and Plumbing Contractor and Hamworthy customer for over 5 years)

*"We are delighted with the service support and products Hamworthy give our company. We are made to feel part of the team."*

(HVAC Contractor and Hamworthy customer for over 5 years)

*"Excellent service and always understands our needs."*

(Plumbing, heating & cooling specialist merchant and Hamworthy customer for over 5 years)

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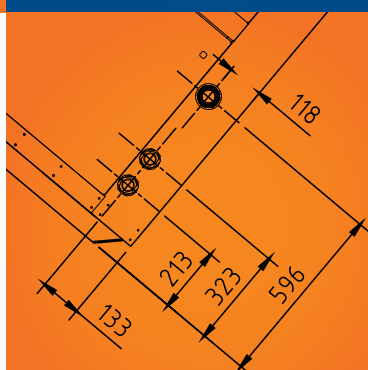
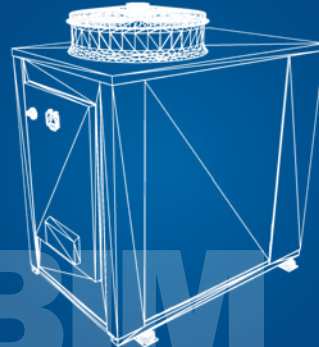
# The Tyneham range of air source heat pumps

**With over 100 years of experience and knowledge, we have a track record of developing market leading solutions for commercial properties.**

We have led the way in commercial heating by ensuring our heating products are at the forefront of technology, quality and design by delivering both high efficiency and low running costs.

Now, we have taken the next step forward by introducing our new Tyneham natural refrigerant commercial heat pumps.

Featuring R290 and CO2 refrigerant for ultra-low GWP they are able to achieve high temperatures up to 75°C. These innovative heat pumps will ensure our customers have the best and most advanced solutions for heating and hot water, while helping businesses in the UK on their journey to Net Zero.



# The journey to net zero

The desire to achieve net zero targets are based around the UK's environmental commitments, consumer awareness and public opinion.

Building regulations, increasing consumer awareness and future energy policy are key drivers in the uptake of renewable technologies such as heat pumps. UK home owners, social housing associations and local authorities are collectively seeking robust solutions to minimise their carbon emissions and reduce the environmental impact of residential energy use.

We have the knowledge, experience and skills to play our part in ensuring the nation achieves its net zero targets and so our customers have the best and most advanced solutions for heating and hot water, whatever their needs and requirements..

## Why are heat pumps a good low carbon solution?

Heat pumps reduce the reliance on fossil fuels

- Heat pumps produce zero local carbon emissions.
- Heat pump technology can be up to 400% more efficient than traditional boilers.
- Fossil fuel combustion contributes towards carbon emissions and global warming which is not environmentally friendly.

Heat pumps produce renewable heat

- A heat pump utilises the free energy in the air to heat water.
- When heat pumps are partnered with a renewable electricity supplier, heat generation is 100% carbon neutral.

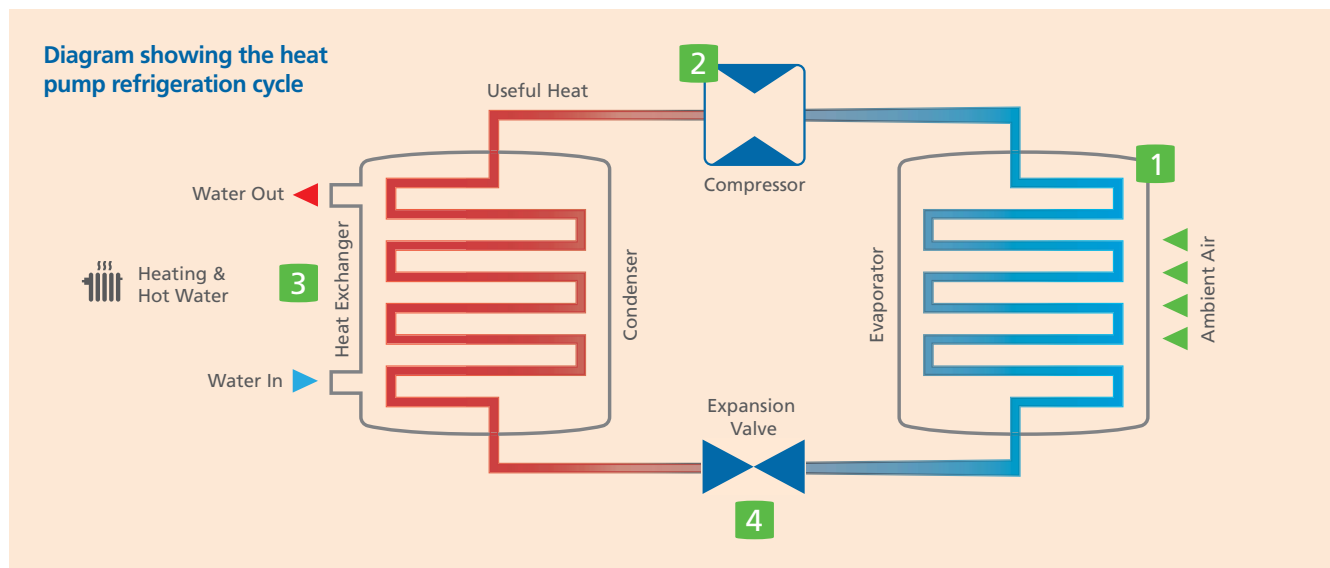
Refrigerant vs. Natural Gas

- The refrigerant in the heat pump is maintained within the unit and constantly recycled for the lifetime of the appliance.

# How a heat pump works

## Air source heat pumps

Heat pumps are a highly efficient, eco-friendly way of producing heat for commercial buildings. By taking 'free energy' from the air via a refrigerant cycle they generate heat without releasing any carbon emissions.



### 01 CAPTURE

The fan passes ambient air over extremely cold liquid refrigerant. The refrigerant captures the heat from the ambient air and becomes a warm vapour.

### 02 COMPRESS

The warm refrigerant vapour passes through a compressor which produces hot refrigerant and usable heat.

### 03 EXCHANGE

The heat in the hot refrigerant is then transferred to the heating and hot water cylinder through a heat exchanger.

### 04 EXPAND

Once the heat has been transferred to the building, the refrigerant passes through an expansion valve which reduces its temperature, making it really cold again and enabling it to capture heat from the ambient air, continuing the cycle.

## The role of the refrigerant

Air source heat pumps gather heat energy from the surrounding air, which, via a heat exchanger, is transferred into the heat pump refrigerant and turned into vapour. This vapour is then passed through

a compressor and turned into a high-pressure, high-temperature refrigerant, raising the temperature to a point that can deliver heat throughout a building's heating system. The refrigerant is the working

liquid used within the heat pump and refrigerant types are now broadly split into two categories: HFCs (Hydrofluorocarbon) such as R32 and natural refrigerants, which include R290 and CO<sub>2</sub>.

# Natural refrigerant heat pumps

Heat pumps are based on tried and tested technology, but the refrigerant used in many older models – and even some still being marketed today – have a high Global Warming Potential (GWP). Refrigerants with a

high GWP contain extremely potent greenhouse gases, that warm the planet.

The new Tyneham heat pumps use natural refrigerant with an ultra-low GWP:

Moving to natural refrigerants which have a low GWP is not only good for the planet, but also makes commercial sense as high GWP refrigerants become increasingly scarce and therefore more expensive. Use of natural refrigerant helps future proof your investment.

Models	Refrigerant	GWP	Outputs
Tyneham 290HT	R290 (propane)	3	15 – 50kW
Tyneham CO2 and CO2Q	R744 (CO2)	1	65 – 130kW

## How does the refrigerant affect the heat pump system performance?

When designing a heat pump system you need to balance the performance of the heating system with the performance of the refrigerant.

There are key areas to consider when choosing the right heat pump for the system:

### Max flow temperature

Not all refrigerants can generate sufficient domestic hot water temperatures or heating outputs.

### Global Warming Potential

Different refrigerants have a different Global Warming Potential (GWP). The lower the GWP, the more eco-friendly it is and therefore better for the environment.

### Coefficient of Performance

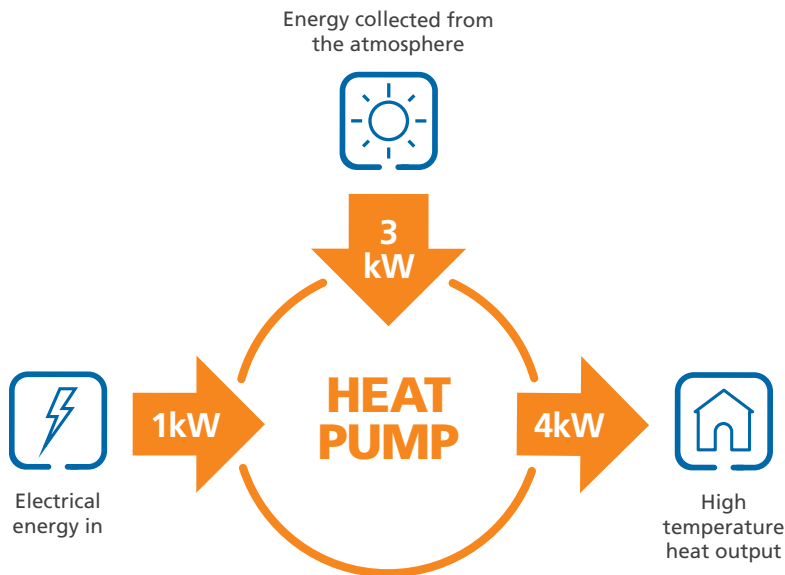
The heat output affects the coefficient of performance (COP) of the heat pump

### Ambient Air Temperature

The heat pump performance will be affected also by the ambient air temperature. The air has heat (energy) in it which is extracted by the heat pump and raising with the help of the refrigerant within. The warmer the air at the start of the cycle, the more energy that can be extracted. If the air temperature drops, then the heat pump has to work harder to extract more energy using more electricity.



# Coefficient of performance (COP)



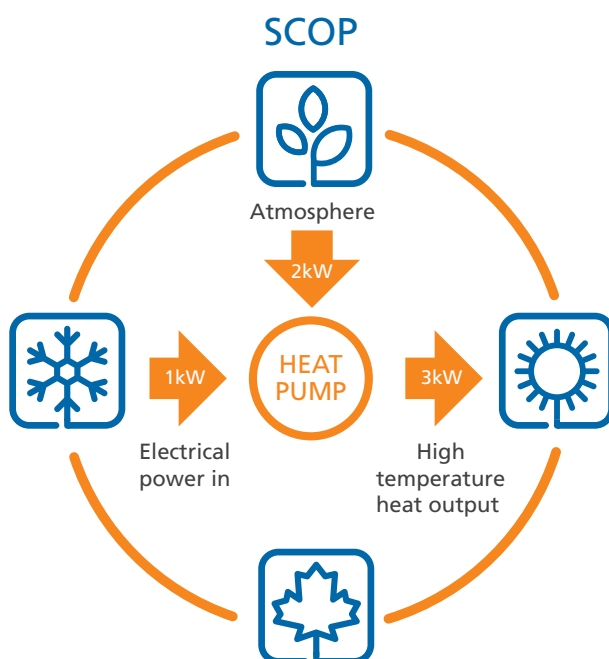
## COP – Coefficient of performance

The Coefficient of Performance (COP) refers to the efficiency of a heat pump and directly relates to the energy the output from a heat pump. It is the ratio of heat produced, relative to each unit of electricity consumed in the heat pump.

$$\text{COP} = \frac{\text{Heat output}}{\text{Electrical input}}$$

See product range sections for COP graphs

# Seasonal Coefficient of performance (SCOP)



## SCOP – Seasonal coefficient of performance

The seasonal coefficient of performance (SCOP) is the average COP carried over the annual heating season (the full year).



# Sound power and sound pressure

The levels of noise that a heat pump emits is represented as a sound power and sound pressure level.

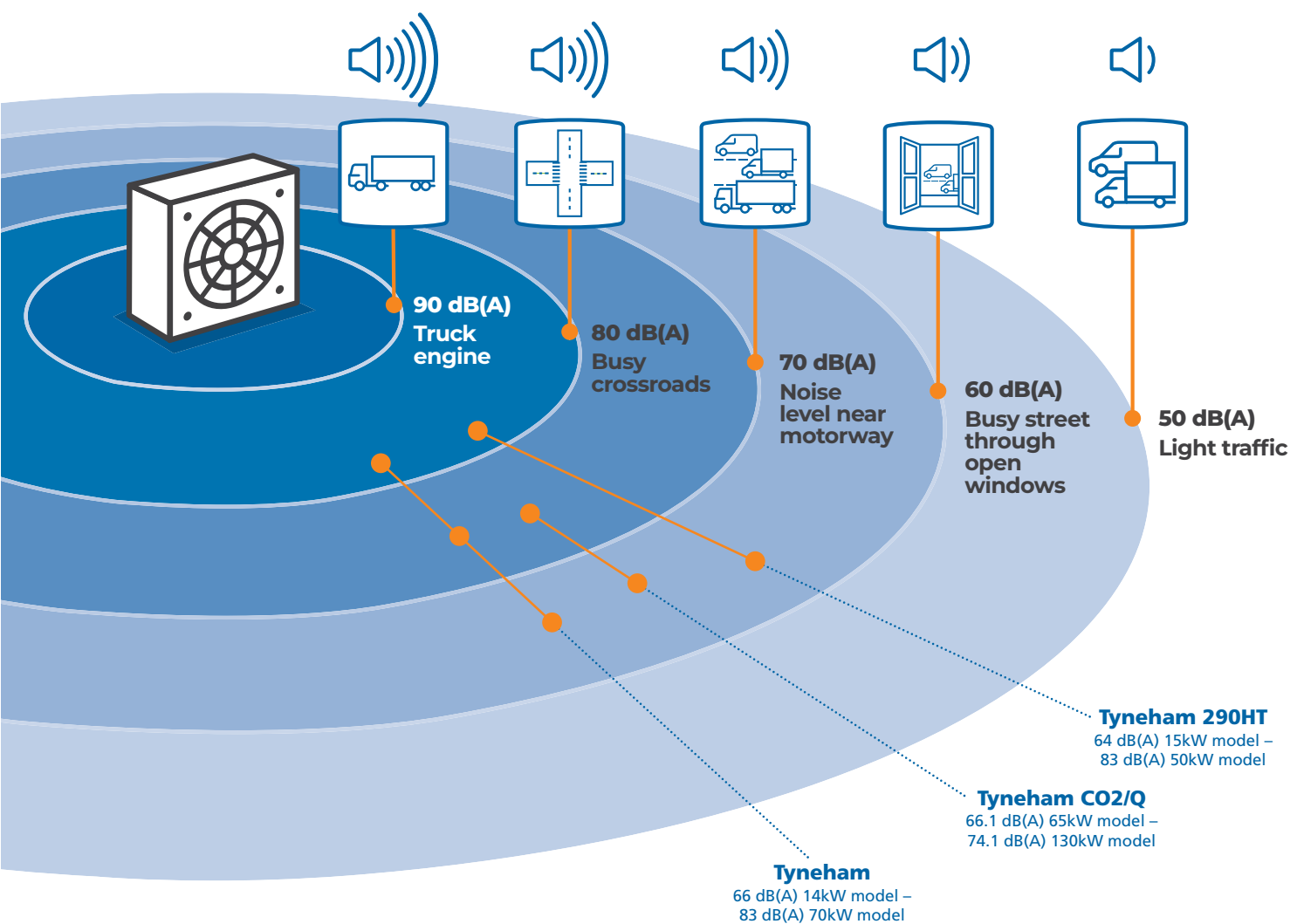
## Sound power

Sound power is a property of the product components under laboratory testing.

The sound power is the sound waves emitted from a source (heat pump is the source in this case), it is measured in decibels (dB). The sound power is the total sound emitted from the source.

## Sound pressure

The sound pressure is sometimes referred to as the 'noise level'. This describes the disturbance of sound and what we realistically hear.



# Tyneham 290HT

Using R290 natural refrigerant, the Tyneham 290HT achieves higher flow temperatures, improved efficiencies and low carbon heating.

## Key features

- Monobloc air source heat pumps
- Single unit with the refrigeration cycle contained within the outdoor unit
- Inverter controlled compressor to accurately match the heat demand
- Ultra-low global warming potential due to the use of R290 natural refrigerant
- Able to achieve high temperatures up to 75°C
- Highly efficient coefficient of performance (COP)\*
- Quiet noise level as low as 64 dB(A)\*\*
- Suited to larger installations – cascade systems to achieve higher output
- Combine with Hamworthy's boilers for a hybrid heating system
- 2 year warranty (extended to a 5-year if commissioned by Hamworthy Heating)
- Back up and long-term support from our team of experienced UK based engineers

A<sup>++</sup>



**Able to achieve max flow  
temperatures up to 75°C**

**R290**  
Refrigerant

15 & 18kW

A+++

A++

40 & 50kW

27kW



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# Tyneham 290HT

## technical specification

	Tyneham model	Units	15kW	18kW	27kW	40kW	50kW
ENERGY	Heat Pump Space Heating [35°C]	ErP rating	A+++	A+++	A++	A++	A++
	Heat Pump Space Heating [35°C]	SCOP	5.02	4.99	4.46	4.09	4.2
	Heat Pump Space Heating [55°C]	ErP rating	A++	A++	A++	A++	A++
	Heat Pump Space Heating [55°C]	SCOP	4.85	4.76	4	3.83	3.91
	Refrigerant		R290	R290	R290	R290	R290
	Refrigerant Charge	(kg)	1.27	1.27	2.1	3.15	3.5
	Global Warming Potential	GWP	3	3	3	3	3
HEATING	Heating (A7/W35)	Capacity (kW)	15.84	18.77	28.6	40.1	50
	Heating (A7/W35)	Power Input (kW)	3.36	4.03	7.6	13.1	16.5
	Heating (A7/W35)	COP*	4.94	4.62	4.54	4.1	4.2
	Max Flow Temperature	Max [°C]	75	75	75	75	75
	Air Temperature Range	Min/Max [°C]	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)
SOUND	Sound Data Outdoor unit	Power Level dB(A)**	64	64	65	82	83
	Sound Data Outdoor unit	Pressure Level at 1m dB (A)***	47	47	45	64	65
CONNECTIONS & WATER	Pipework Connection Sizes	Heating Flow (inch)	1	1	1 1/4	1 1/2	1 1/2
	Pipework Connection Sizes	Heating Return (inch)	1	1	1 1/4	1 1/2	1 1/2
	Minimum Water Volume	Litres (l)	230	230	225	365	415
ELECTRICS	Electrical Supply	(v)	400	400	400	400	400
	Phase		Three	Three	Three	Three	Three
	Max Running Current	(amp)	15.8	16.5	21	38	45
	Fuse Rating	(amp)	25	25	25	50	63
DIMENSIONS	Width	(mm)	1100	1100	1610	1895	1895
	Depth	(mm)	510	510	710	1110	1110
	Height	(mm)	1447	1447	1270	1980	1980
	Weight	(kg)	174	174	285	535	550

### Minimum installation clearances:

15, 18 & 27kW models

**Front:** 1500mm

**Rear:** 1500mm

**Left:** 1200mm

**Right:** 1000mm

**Top:** 1500mm.

**Bottom:** 50mm

**Side clearance** of 1000mm when used in cascade.

**The outdoor unit** must be raised by at least 50mm from the ground

### Minimum installation clearances:

40 & 50kW models

**Front:** 1500mm

**Rear:** 1500mm

**Left:** 1200mm

**Right:** 1000mm

**Top:** 1500mm.

**Bottom:** 50mm

**Side clearance** of 2200mm when used in cascade.

**The outdoor unit** must be raised by at least 50mm from the ground.

### Accessories and options:

	Included	Optional
Control unit	•	
Flexible hose		•
Anti-vibration rubber feet		•
Exogel antifreeze kit		•

### Terms and conditions apply:

Tyneham 290HT models all represent the output at Air 7°C & Water 35°C.

\* Coefficient of Performance (COP) rated at EN14825 test conditions Water 35°C / Air 7°C.

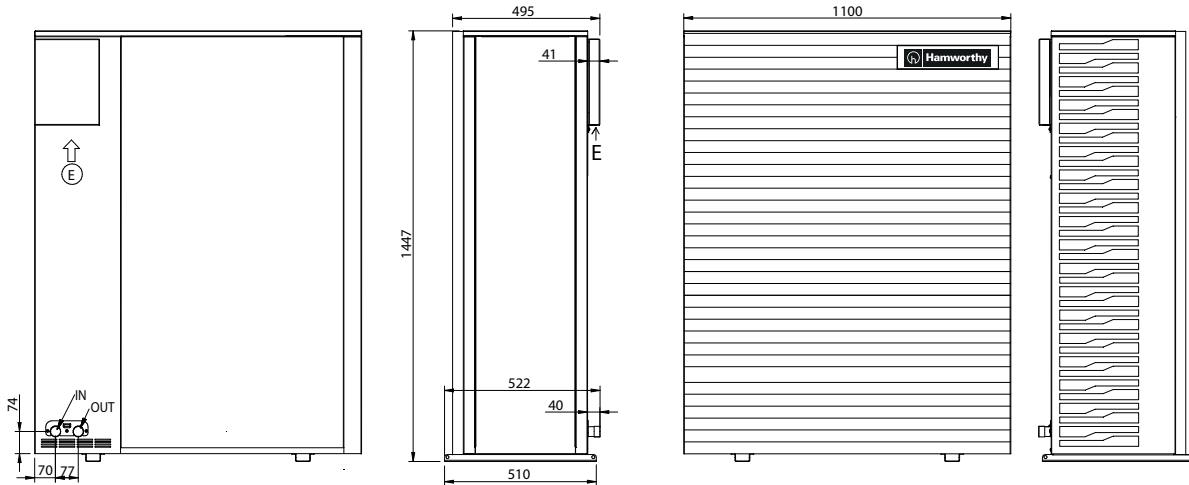
\*\* The sound levels refer to a fully loaded unit at standard nominal conditions according to EN12102:2022.

\*\*\* Sound pressure value calculated from the sound power level in condition (9) using the standard UNI EN ISO 3744:2010.

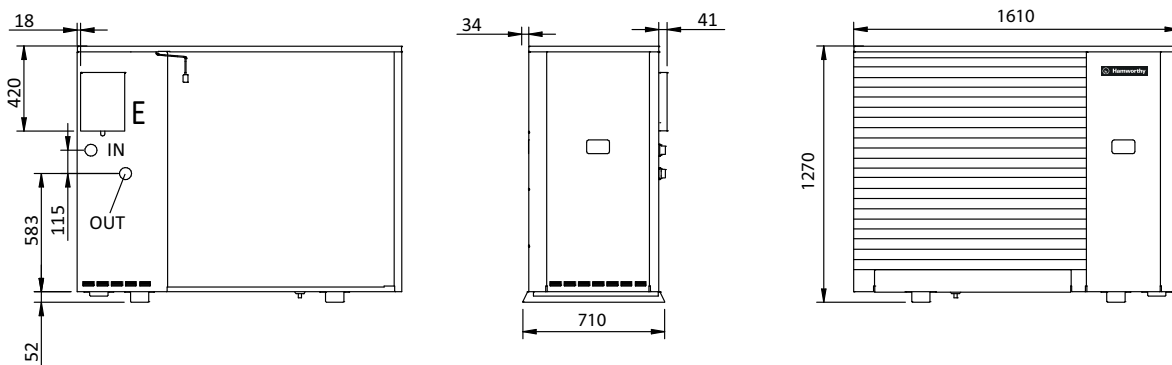
# Tyneham 290HT dimensions



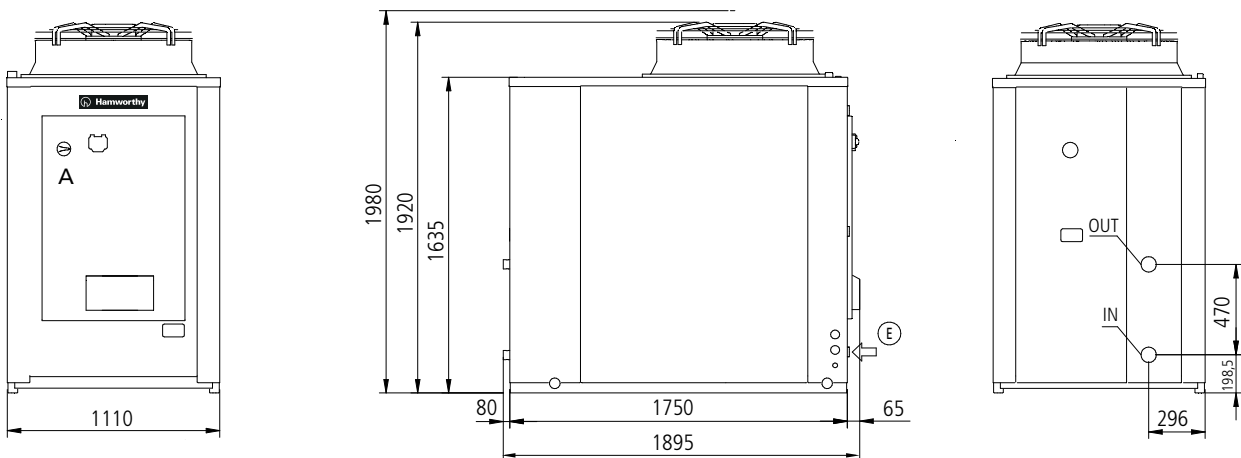
## 15 & 18 kW models



## 27 kW model



## 40 & 50 kW models

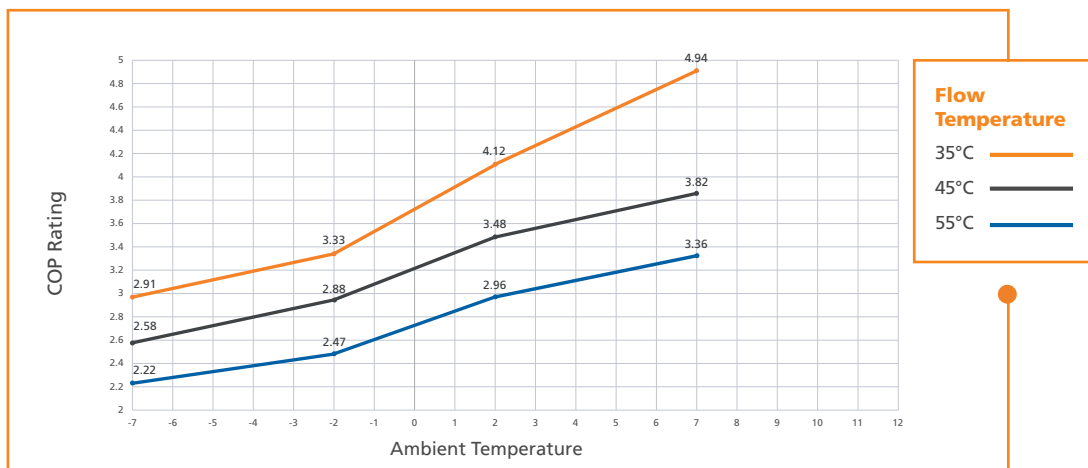


E = electrical

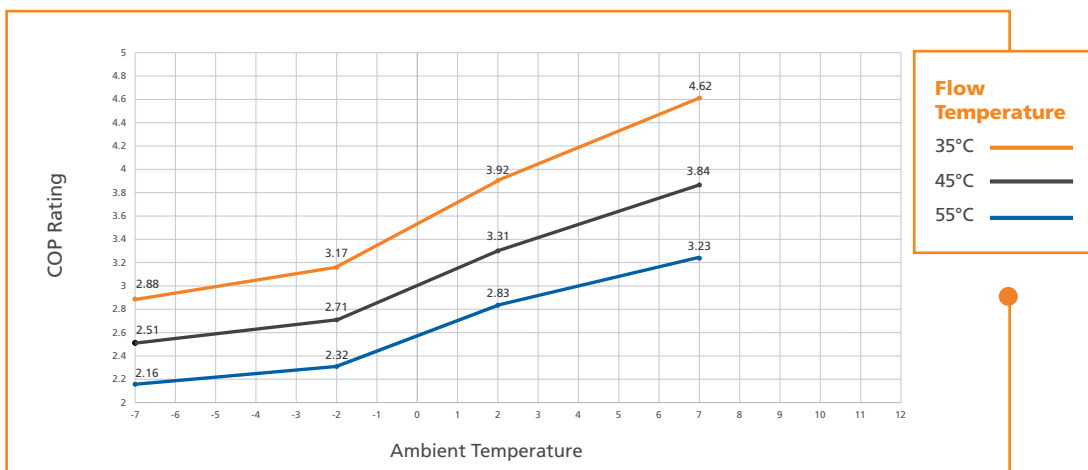
**Note:** All dimensions in mm unless otherwise stated.

# Tyneham 290HT coefficient of performance (COP) graphs

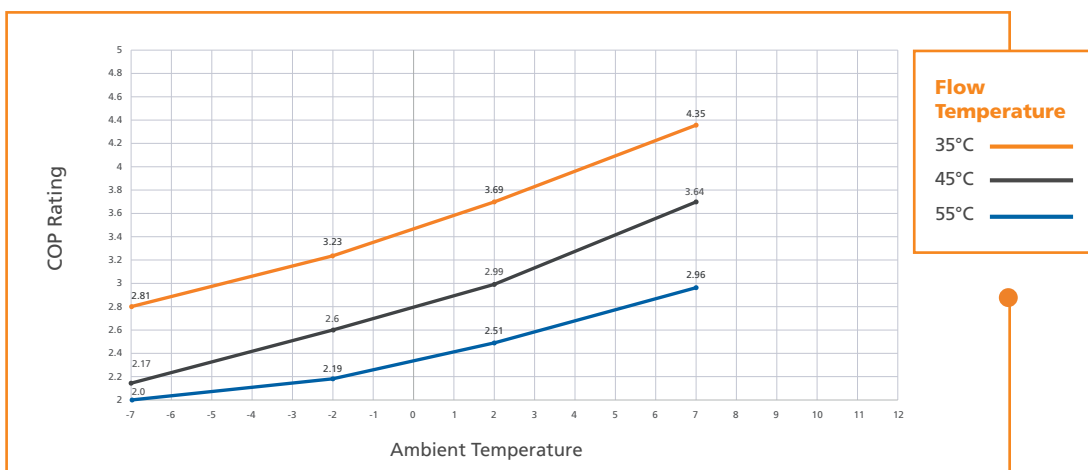
## 290HT 15kW



## 290HT 18kW

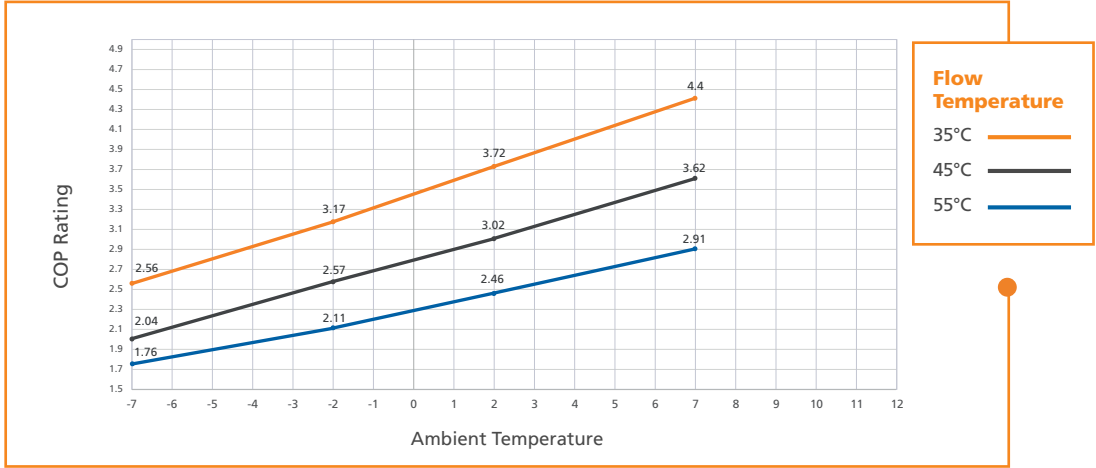


## 290HT 27kW

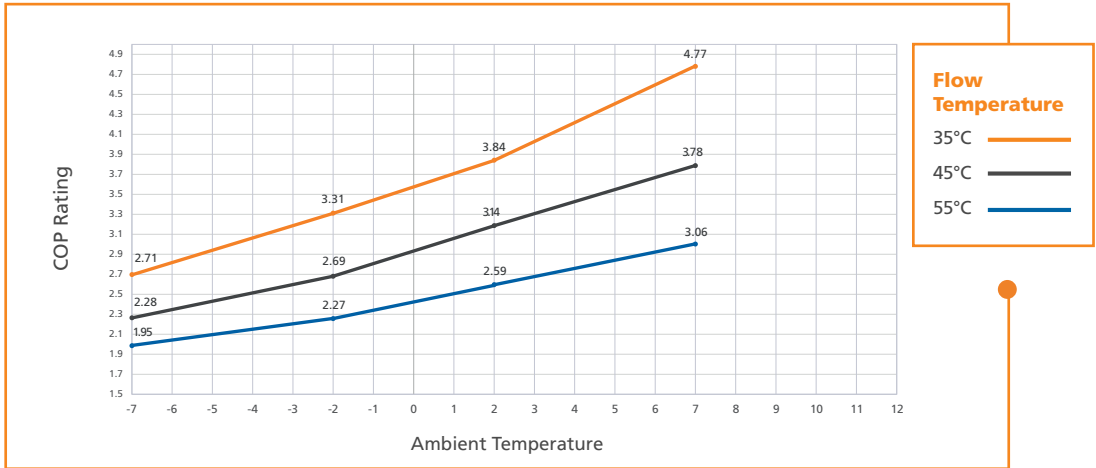




### 290HT 40kW



### 290HT 50kW





# Tyneham 290HT specification

The Tyneham 290HT heat pump has a fully automatic, integrated controller, utilising a highly efficient inverter controlled compressor, integral circulating pump and is suitable for connection to a correctly sized buffer cylinder.

## Controls

The Tyneham 290HT heat pump has connectivity for all common types of BMS integration including 0-10v, volt free and BACnet. Where no BMS is present a controller must be integral to the heat pump, which can adjust and monitor both DHW and heating temperatures, with the ability to control back up or emergency heaters.

The Tyneham 290HT heat pump is of inverter type with an inverter controlled circulating pump built in.

The controls must have safety lock out parameters including fault diagnosis for the heat pump.

The Tyneham 290HT heat pump can be used with external components such as frost protection and weather compensation.

## Hydraulics

Hydraulic connections are common to each chasis type to ensure ease of installation and maintenance in mixed output cascades. The Tyneham R290HT heat pump has a maximum operating pressure of 6 bar and is suitable for heating and indirect hot water systems. Pressure relief valves are integral.

## Dimensions

The Tyneham 290HT heat pump range has a common chasis sizes within the range to enable uniform cascade specification..

## Efficiency

COP of the heat pump must be inline with site application.

The Tyneham 290HT heat pump utilises refrigerant R290 with a GWP of 3.

The Tyneham 290HT features an inverter controlled compressor, integral modulating pump and DC fan motor.

## Approvals

The Tyneham 290HT heat pump holds the following approvals EN 14276-1:2020, EN 14276-2:2020, EN 12735-1:2020, EN 12735-2:2016, EN378:2017, EN 13134:2002

Components directive 2014/68/UE conformity evaluation modules:

Compressors A2  
Heat exchangers H +H1  
Receivers D1  
Valves A  
Safety valve

## Specification

The Tyneham 290HT heat pump is capable of flow temperatures of up to 75°C with a 5°C Delta T.

To ensure the most efficient operation and conform to minimum water quantities for defrost cycles, the Tyneham 290HT heat pump will be connected directly to a correctly sized buffer.

## Sourcing

The Tyneham 290HT heat pump has been manufactured or finally assembled in Europe.

## Cascade

The Tyneham 290HT heat pump can be configured in a cascade of up to 7 units (max 350kW) using one central controller.

The controller must be able to sequence the heat pumps to give equal running time per unit.

## Warranty

The Tyneham 290HT heat pump is available with a 5 year parts and labour warranty\* (5 year warranty available if commissioned by Hamworthy Heating Engineer, 2 year warranty as standard).

Please note that the above information is correct at time of publication. Hamworthy has a policy of continuous development and therefore reserves the right to alter product specifications or any other details without prior notification.

# Building Information Modelling (BIM)

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

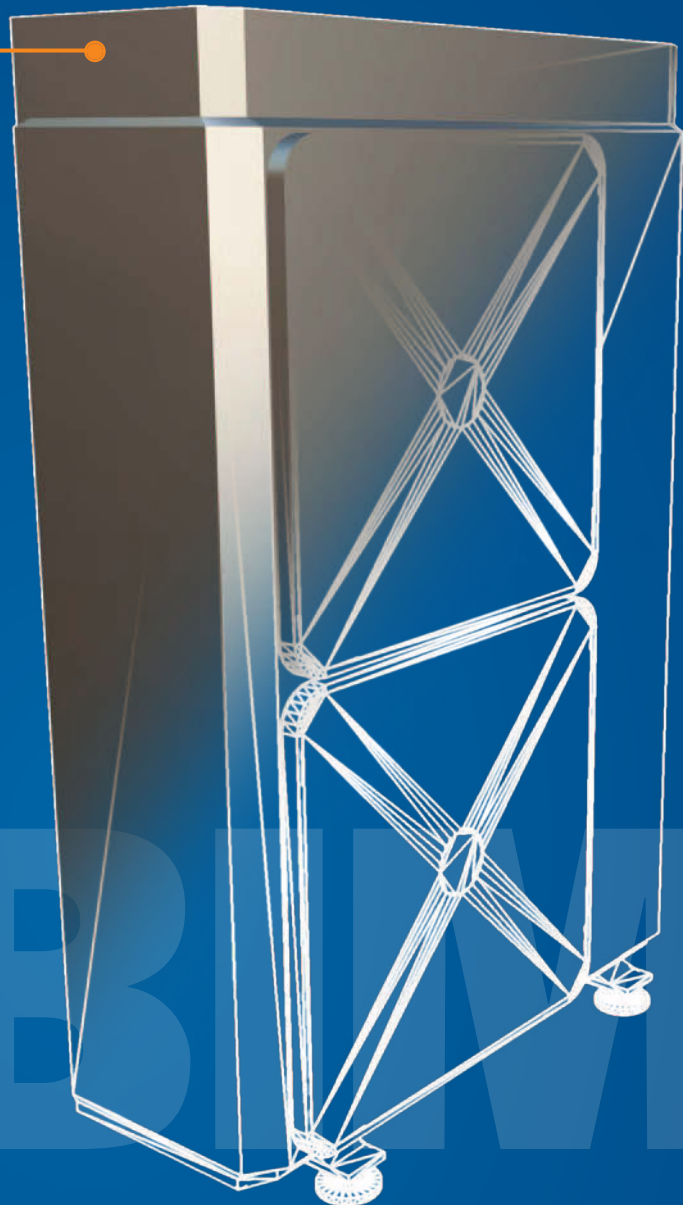
Our range of BIM objects offer a host of configurable options built in for you. They are loaded with extensive metadata including size, outputs, efficiencies, dimensions, clearance zones and pipe kit options.

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.

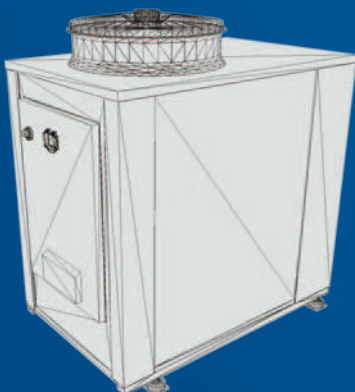
Visit our website to download the latest BIM drawings for your project.



SCAN ME



Wireframe



Vertex Normals



Matcap



# Tyneham CO2 and CO2Q

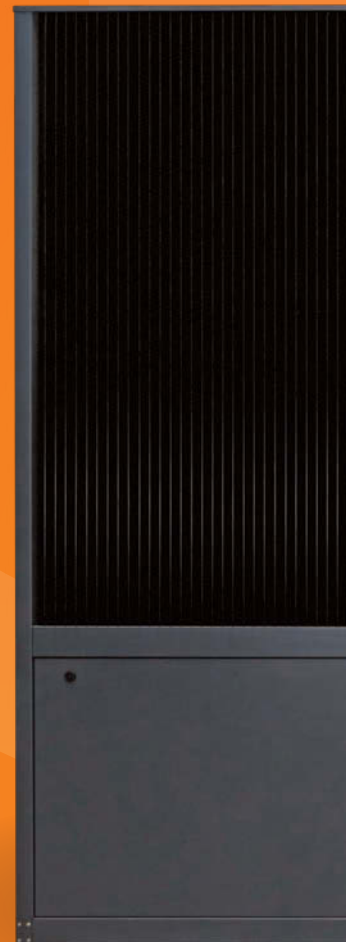
Future proof your investment with our range of CO2 natural refrigerant commercial heat pumps. Ideal for when space is limited, this range can be installed flush against a wall or back to back with another unit, and benefits from a low dB(A) rating for minimal background noise.

## Key features

- Made in the UK
- Ultra-low GWP due to the use of R744 (CO2) natural refrigerant
- Highly efficient coefficient of performance (COP)\*
- Quiet noise levels as standard with low noise models available (CO2Q)
- Can be installed against a wall or back to back with another unit with no installation clearances required at the rear of the unit
- Inverter controlled compressor to accurately match the heat demand
- Single unit with the refrigeration cycle contained within the outdoor unit
- Suited to larger installations – cascade systems to achieve higher output
- Combine with Hamworthy's boilers for a hybrid heating system
- 2-year warranty on parts only
- Back up and long-term support from our team of experienced UK based engineers



**Ultra low GWP with the  
use of CO2 refrigerant**





Tyneham CO2Q  
65 – 130 kW

Tyneham CO2 65 – 130 kW



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# Tyneham CO2 technical specification

	Tyneham model	Units	65kW	95kW	130kW
ENERGY	Heat Pump Space Heating [55°C]	ErP rating	A+++	-	-
	Heat Pump Space Heating [55°C]	COP	3	3	3
	Heat Pump Space Heating [65°C]	ErP rating	A+++	-	-
	Heat Pump Space Heating [65°C]	COP*	3.4	3.4	3.4
	Refrigerant		R744	R744	R744
	Refrigerant Charge	(kg)	4.8	6.5	10
	Global Warming Potential	GWP	1	1	1
HEATING	Heating (A7/W65)	Capacity (kW)	65	95	130
	Heating (A7/W65)	Power Input (kW)	17	25	34
	Heating (A7/W65)	SCOP	3.5	3.5	3.5
	Max Flow Temperature	Max [°C]	70	70	70
	Air Temperature Range	Min/Max [°C]	(-15 no max)	(-15 no max)	(-15 no max)
SOUND	Sound Data Outdoor unit	Power Level dB(A)**	74	75	75
	Sound Data Outdoor unit	Pressure Level at 10m dB (A)***	43	44	44
CONNECTIONS	Pipework Connection Sizes	Heating Flow (mm)	28	35	42
	Pipework Connection Sizes	Heating Return (mm)	28	35	42
ELECTRICS	Electrical Supply	(v)	400	400	400
	Phase		Three	Three	Three
	Max Running Current	(amp)	45.07	67.55	82.19
	Fuse Rating	(amp)	63	80	100
DIMENSIONS	Width	(mm)	2190	3051	3101
	Depth	(mm)	1160	1160	1457
	Height	(mm)	1853	1853	1853
	Weight	(kg)	935	1260	1300

## Accessories and options:

	Included	Optional
Master controller		•
DHW controller		•
Flexible hoses		•
Burst disc pressure relief kit		•
Exogel antifreeze kit		•
Anti-corrosion coating for installations close to the sea (special order)		•

## Minimum installation clearances:

**Front:** 1000mm

**Rear:** 0mm (Designed to back up to a wall)

**Left/Right:** 1000mm

## Terms and conditions apply:

Tyneham CO2 & CO2Q models all represent the output at Air 7°C & Water 65°C.

\* Coefficient of Performance (COP) rated at EN14825 test conditions Water 65°C / Air 7°C.

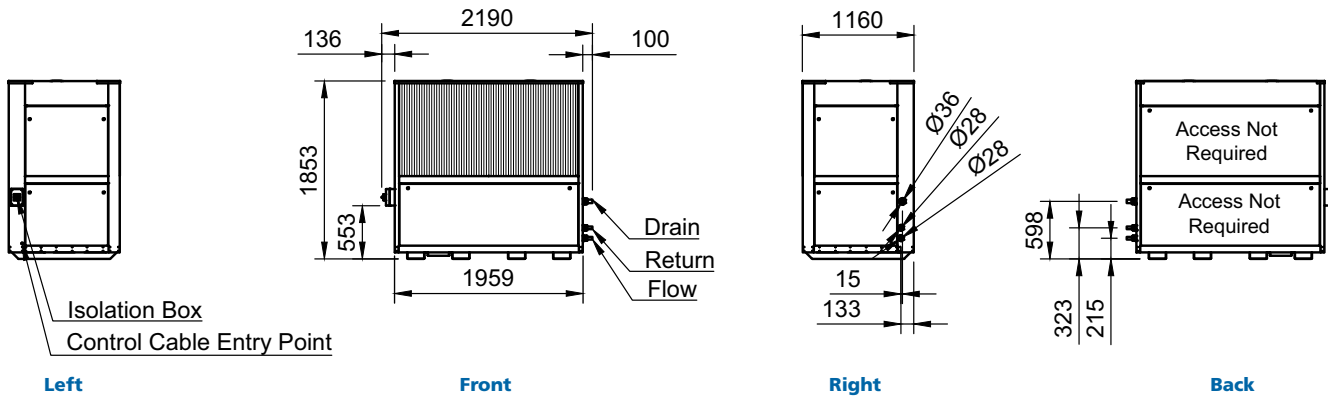
\*\* The sound power has been established in general accordance with BS EN ISO 3740: 2019 with a survey grade accuracy (sR0) = 4 dB.

\*\*\* Sound pressure level at 10m determined in accordance with Annex D of BS EN ISO 13487(TC): 2019.

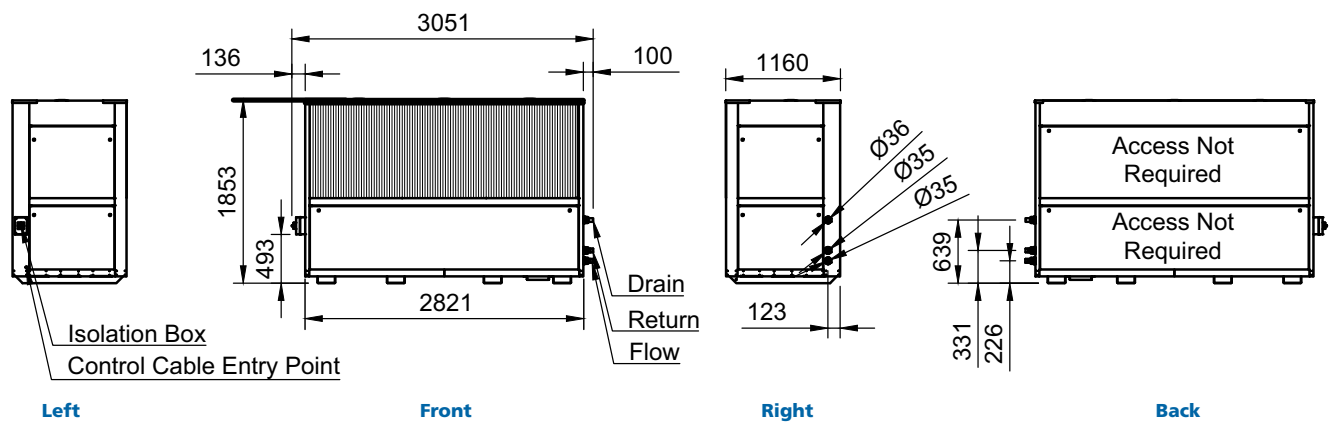
# Tyneham CO2 dimensional drawings



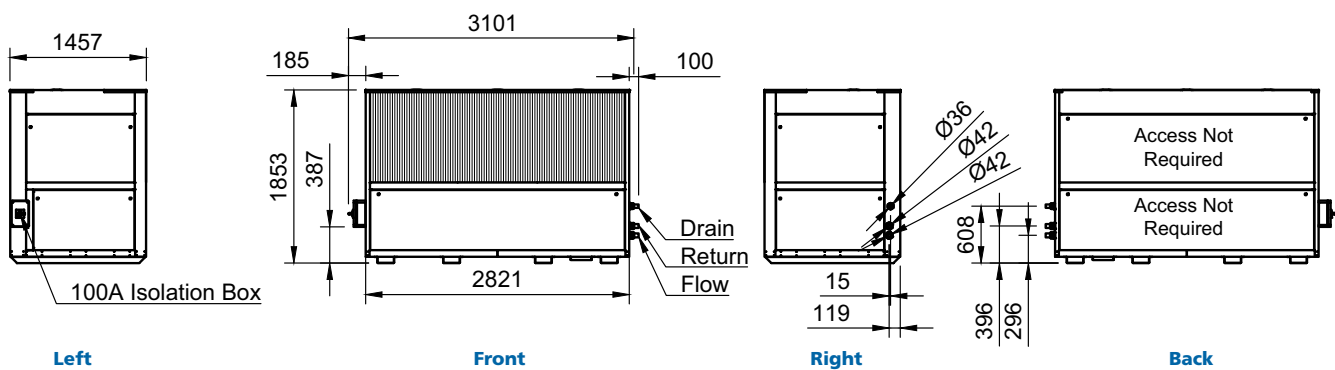
## 65kW



## 95kW

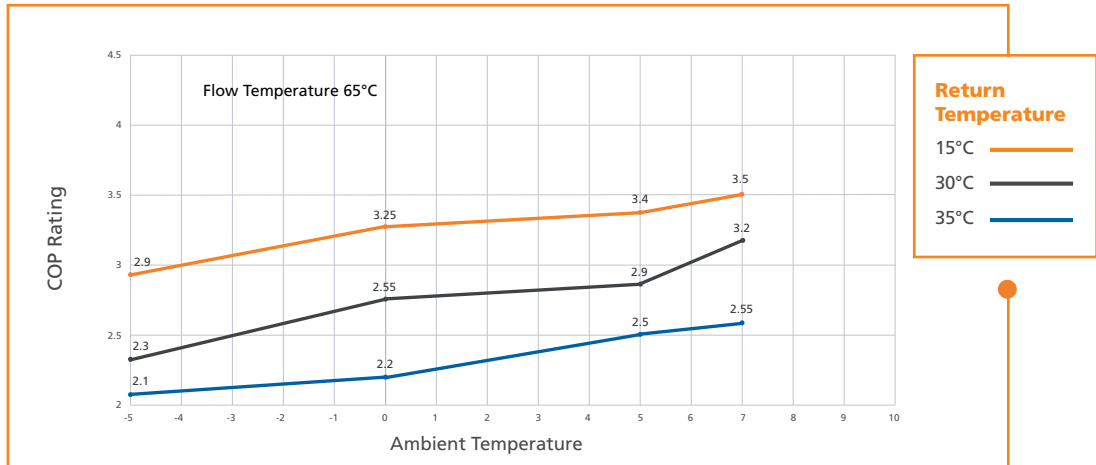


## 130kW

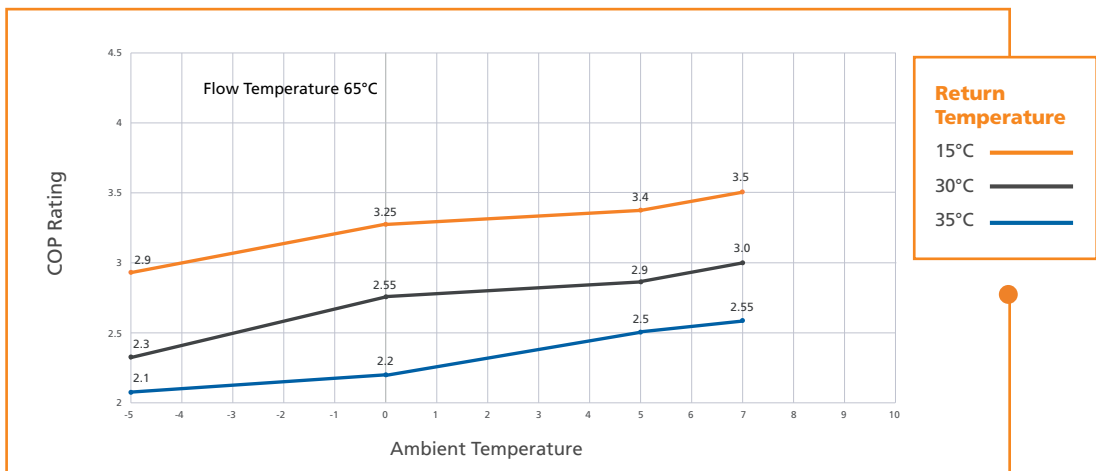


# Tyneham CO2 coefficient of performance (COP) graphs

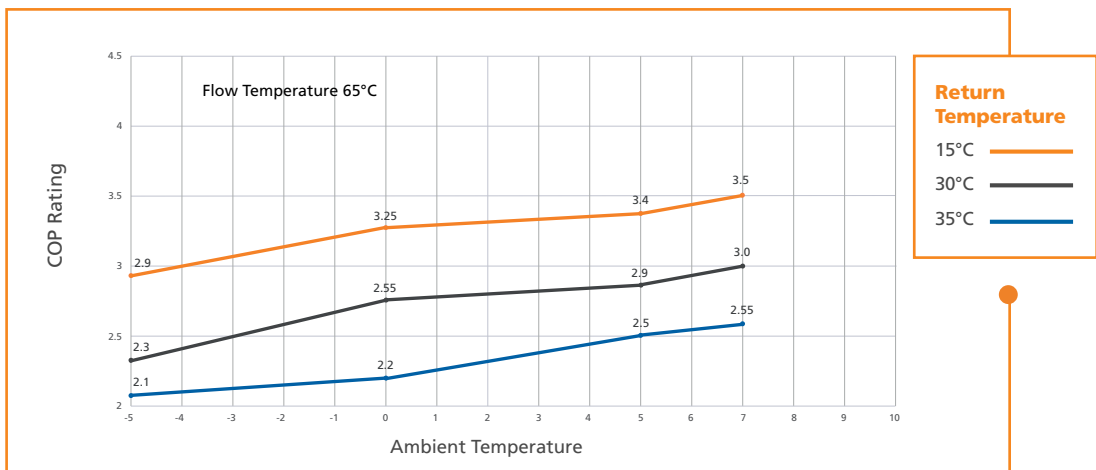
## CO2 65kW



## CO2 95kW



## CO2 130kW





# Tyneham CO2Q technical specification



	Tyneham model	Units	65kW	95kW	130kW
ENERGY	Heat Pump Space Heating [55°C]	ErP rating	A+++	-	-
	Heat Pump Space Heating [55°C]	COP	3	3	3
	Heat Pump Space Heating [65°C]	ErP rating	A+++	-	-
	Heat Pump Space Heating [65°C]	COP*	3.4	3.4	3.4
	Refrigerant		R744	R744	R744
	Refrigerant Charge	(kg)	4.8	6.5	10
	Global Warming Potential	GWP	1	1	1
HEATING	Heating (A7/W65)	Capacity (kW)	65	95	130
	Heating (A7/W65)	Power Input (kW)	17	25	34
	Heating (A7/W65)	SCOP	3.5	3.5	3.5
	Max Flow Temperature	Max [°C]	70	70	70
	Air Temperature Range	Min/Max [°C]	(-15 no max)	(-15 no max)	(-15 no max)
SOUND	Sound Data Outdoor unit	Power Level dB(A)**	71	72	72
	Sound Data Outdoor unit	Pressure Level at 10m dB (A)***	40	40	40
CONNECTIONS	Pipework Connection Sizes	Heating Flow (mm)	28	35	42
	Pipework Connection Sizes	Heating Return (mm)	28	35	42
ELECTRICS	Electrical Supply	(v)	400	400	400
	Phase		Three	Three	Three
	Max Running Current	(amp)	45.07	67.55	82.19
	Fuse Rating	(amp)	63	80	100
DIMENSIONS	Width	(mm)	2190	3051	3101
	Depth	(mm)	1160	1160	1457
	Height	(mm)	2401	2401	2401
	Weight	(kg)	1000	1365	1590

## Accessories and options:

	Included	Optional
Master controller		•
DHW controller		•
Flexible hoses		•
Burst disc pressure relief kit		•
Exogel antifreeze kit		•
Anti-corrosion coating for installations close to the sea (special order)		•

## Minimum installation clearances:

**Front:** 1000mm

**Rear:** 0mm (Designed to back up to a wall)

**Left/Right:** 1000mm

## Terms and conditions apply:

Tyneham CO2 & CO2Q models all represent the output at Air 7°C & Water 65°C.

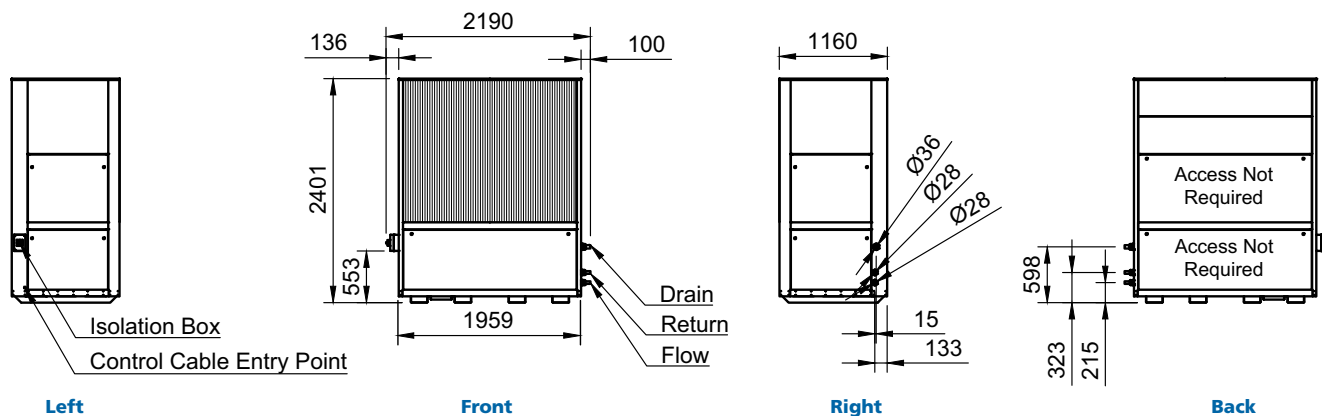
\* Coefficient of Performance (COP) rated at EN14825 test conditions Water 65°C / Air 7°C.

\*\* The sound power has been established in general accordance with BS EN ISO 3740: 2019 with a survey grade accuracy (sR0) = 4 dB.

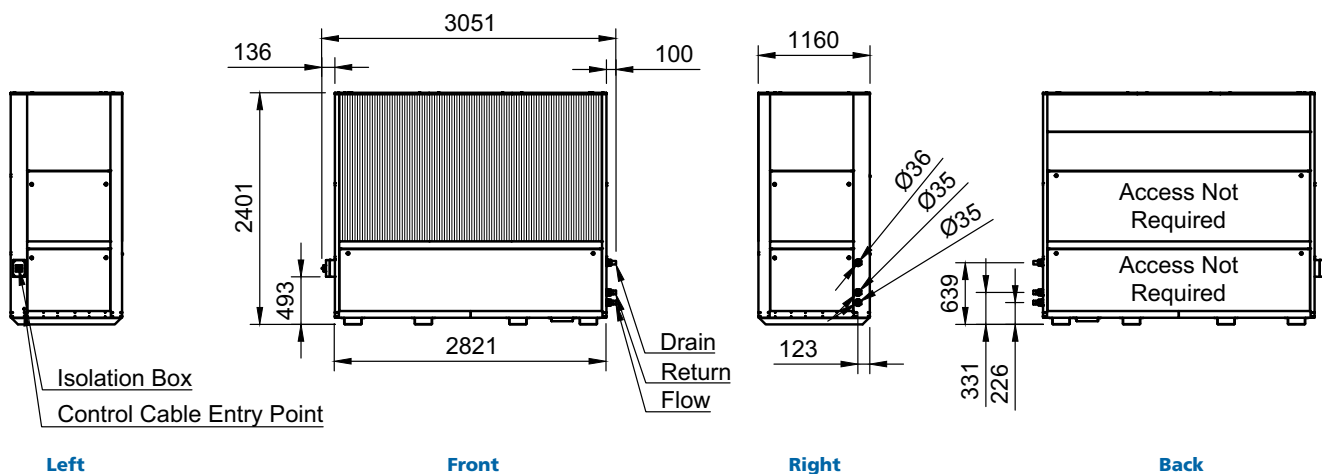
\*\*\* Sound pressure level at 10m determined in accordance with Annex D of BS EN ISO 13487(TC): 2019.

# Tyneham CO2Q dimensional drawings

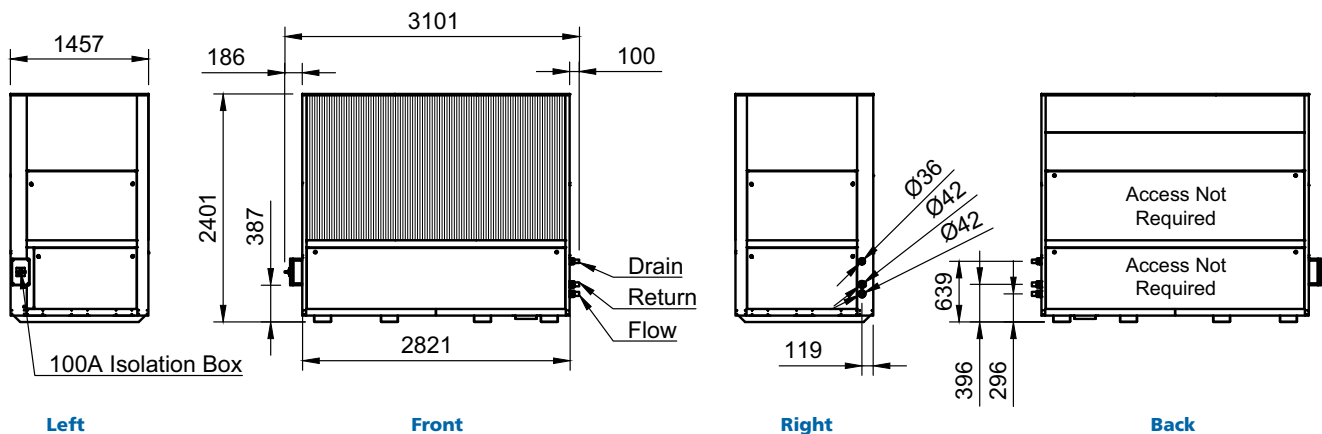
## 65kW



## 95kW



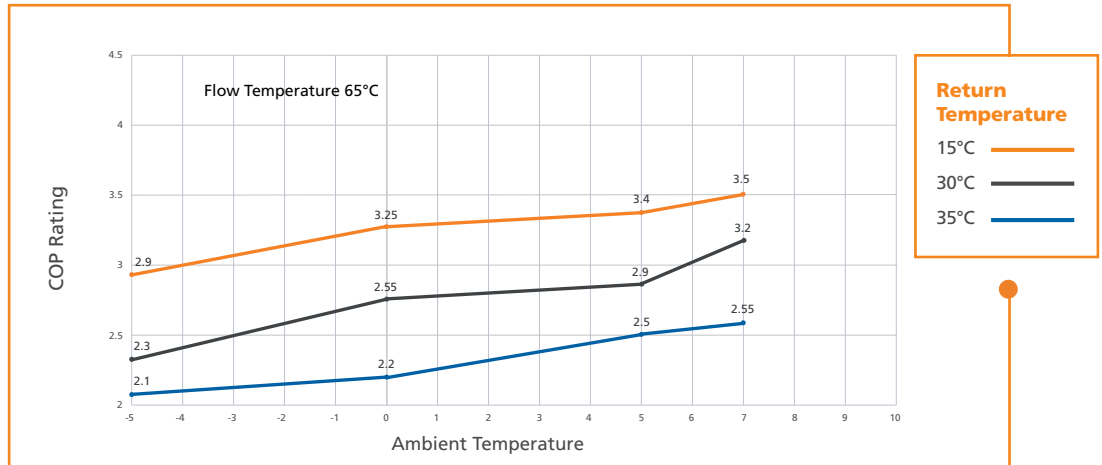
## 130kW



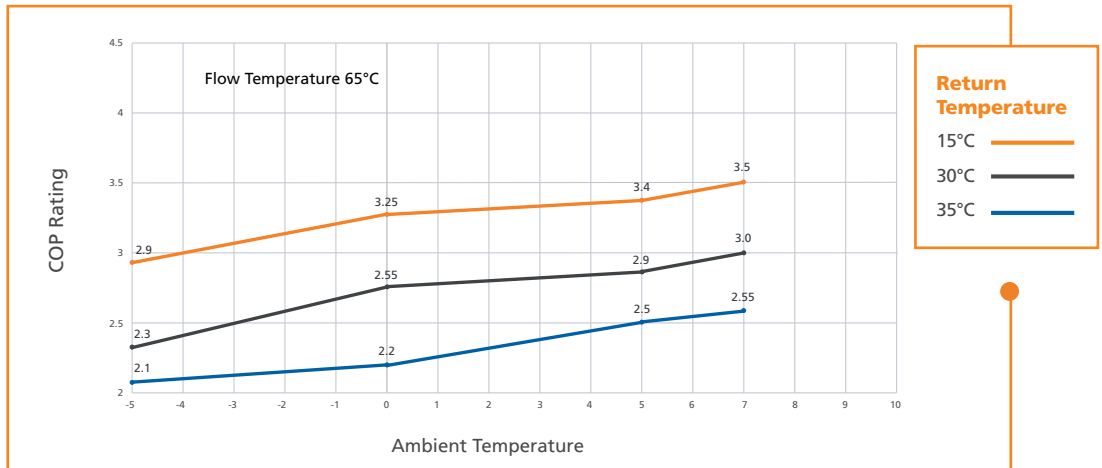
# Tyneham CO2Q coefficient of performance (COP) graphs



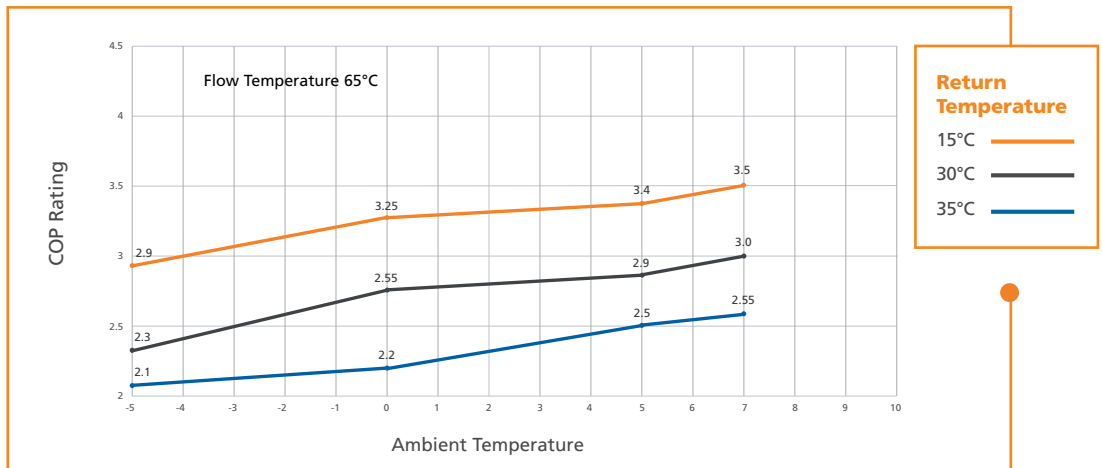
## CO2Q 65kW



## CO2Q 95kW



## CO2Q 130kW



# Tyneham CO2 & CO2Q specification

The Tyneham heat pump has a fully automatic integrated controller, using a highly efficient inverter controlled compressor, integral circulating pump and is suitable for connection to a correctly sized buffer cylinder.

## Controls

The Tyneham heat pump has connectivity for all common types of BMS integration including 0-10v, volt free and BACnet. Where no BMS is present a controller must be integral to the heat pump, which can adjust and monitor both DHW and heating temperatures, with the ability to control back up or emergency heaters.

The Tyneham heat pump is of inverter type with an inverter controlled circulating pump built in.

The controls have safety lock out parameters including fault diagnosis for the heat pump.

The Tyneham heat pump can be paired with external components for front protection and weather compensation.

## Hydraulics

Hydraulic connections are uniform across each chassis type to ensure ease of installation and maintenance in mixed output cascades. The Tyneham CO2 and CO2Q heat pump has a maximum operating pressure of 6 bar and is suitable for heating and indirect hot water systems. Pressure relief valves are integral.

## Dimensions

The Tyneham CO2 and CO2Q has a universal height across their respective range to ensure mixed output cascades maintain the same universal configuration.

## Efficiency

COP of the heat pump must be in line with site application.

The Tyneham CO2 and CO2Q heat pump uses refrigerant R744 (CO2) with a GWP of 1.

The Tyneham CO2 and CO2Q heat pump features an inverter controlled compressor, integral modulating pump and DC fan motor.

## Specification

The Tyneham CO2 and CO2Q heat pump is capable of flow temperatures of up to 70°C with a return of 35°C.

To ensure the most efficient operation and conform to minimum water quantities for defrost cycles, the Tyneham CO2 and CO2Q heat pump can be connected directly to a correctly sized buffer.

## Sourcing

The Tyneham CO2 and CO2Q heat pump is manufactured or finally assembled in the UK.

## Cascade

Tyneham CO2 and CO2Q heat pump is configurable up to 6 units (max 780kW) in cascade using one central controller. The controller must be able to sequence the heat pumps to give equal running time per unit.

## Warranty

The Tyneham CO2 and CO2Q heat pump is available with a 2 year parts only warranty.

Please note that the above information is correct at time of publication. Hamworthy Heating has a policy of continuous development and therefore reserves the right to alter product specifications or any other details without prior notification.

CHOOSE

## Tyneham CO2 heat pump

Ideal for when space is limited - install flush against a wall or back to back with another unit in cascade. Low dB(A) rating for minimal background noise.



6 MODELS  
65 – 130kW OUTPUT

15 MODELS  
97 - 762kW  
OUTPUT



COMBINE

## Wessex ModuMax mk3

Up to 15:1 turndown ratio, 40°C delta T and 90°C output for top up and back up heat demands.

CREATE

**your low carbon  
hybrid heating system**



Contact your Hamworthy Area Sales Manager for more information, a site survey or a quote:  
<https://hamworthy-heating.com/Contact/>  
Contact-your-local-sales-manager

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# Tyneham

With a coefficient of performance (COP) rating up to 4.85 and a low global warming potential our Tyneham R32 range provides efficient low carbon heating.

## Key features

- Monobloc air source heat pump single unit with the refrigeration cycle contained within the outdoor unit
- Inverter controlled compressor to accurately match the heat demand
- Low global warming potential due to the use of R32 refrigerant
- Highly efficient coefficient of performance (COP)\*
- Light and compact unit for ease of installation and delivery
- Suited to larger installations – cascade systems to achieve higher output
- 2 year warranty (extended to 5 years if commissioned by Hamworthy)
- Gold Fin anti-corrosion coating as standard on the 14 & 18 kW models and Blue Fin anti-corrosion coating on the 26, 32, 50 & 70 kW models
- Back up and long-term support from our team of experienced UK based engineers
- Combine with Hamworthy modular boiler for a hybrid heating system

A green arrow-shaped badge containing the text 'A++', indicating the energy efficiency class of the product.

A<sup>++</sup>



**R32**  
Refrigerant

50 & 70kW

14 & 18kW



26 & 32kW



Contact your Hamworthy Area Sales Manager  
for more information, a site survey or a quote:  
<https://hamworthy-heating.com/Contact/>  
Contact your local sales manager

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# Tyneham technical specification

Technical Specification		14kW 1PH	14kW 3PH	18kW	26kW	32kW	50kW	70kW
Heat Pump Space Heating [35°C]	ErP rating	A+++	A+++	A+++	A++	A++	A++	A++
	SCOP	4.48	4.48	4.46	4.55	4.81	4.16	3.94
Heat Pump Space Heating [55°C]	ErP rating	A++	A++	A++	A+	A+	A+	A+
	SCOP	3.31	3.31	3.36	3.14	3.14	3.08	3.04
Heating (A7/W35)	Capacity (kW)	14.1	14.1	17.9	26	32.1	50.2	66.8
	Power Input (kW)	2.91	2.91	4.07	6.44	7.84	12.2	16.3
	COP*	4.85	4.85	4.4	4.04	4.09	4.11	4.1
Max Flow Temperature	Max [°C]	55	55	55	55	55	55	55
Air Temperature Range	Min/Max [°C]	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)	(-20 +40)
Sound Data Outdoor Unit	Power Level dB(A)**	68	68	68	74	76	82	83
	Sound pressure level at 1m	53	53	53	58	60	65	66
Pipework Connection Sizes	Heating Flow (inch)	1	1	1	1	1¼	1½	1½
	Heating Return (inch)	1	1	1	1	1¼	1½	1½
Dimensions Outdoor Unit	Width (mm)	1044	1044	1044	1600	1600	1920	1920
	Depth (mm)	455	455	455	680	680	1110	1110
	Height (mm)	1409	1409	1409	1315	1315	1920	1920
Weight	kg	121	136	141	240	255	535	595
Electrical Data	Electrical Supply (v)	240	400	400	400	400	400	400
	Phase	Single	Three	Three	Three	Three	Three	Three
	Max Running Current (Amp)	29.2	9.7	12.2	23.3	27.1	54	70
	Fuse Rating (Amp)	32	25	25	25	32	63	100
Refrigerant Charge	R32 (kg)	3.2	3.2	3.5	4.3	5.1	8.5	12

## Accessories and options:

	Included	Optional
Flexible hoses		•
Anti-vibration rubber feet		•
Anti-corrosion coating for installations close to the sea (special order)		•

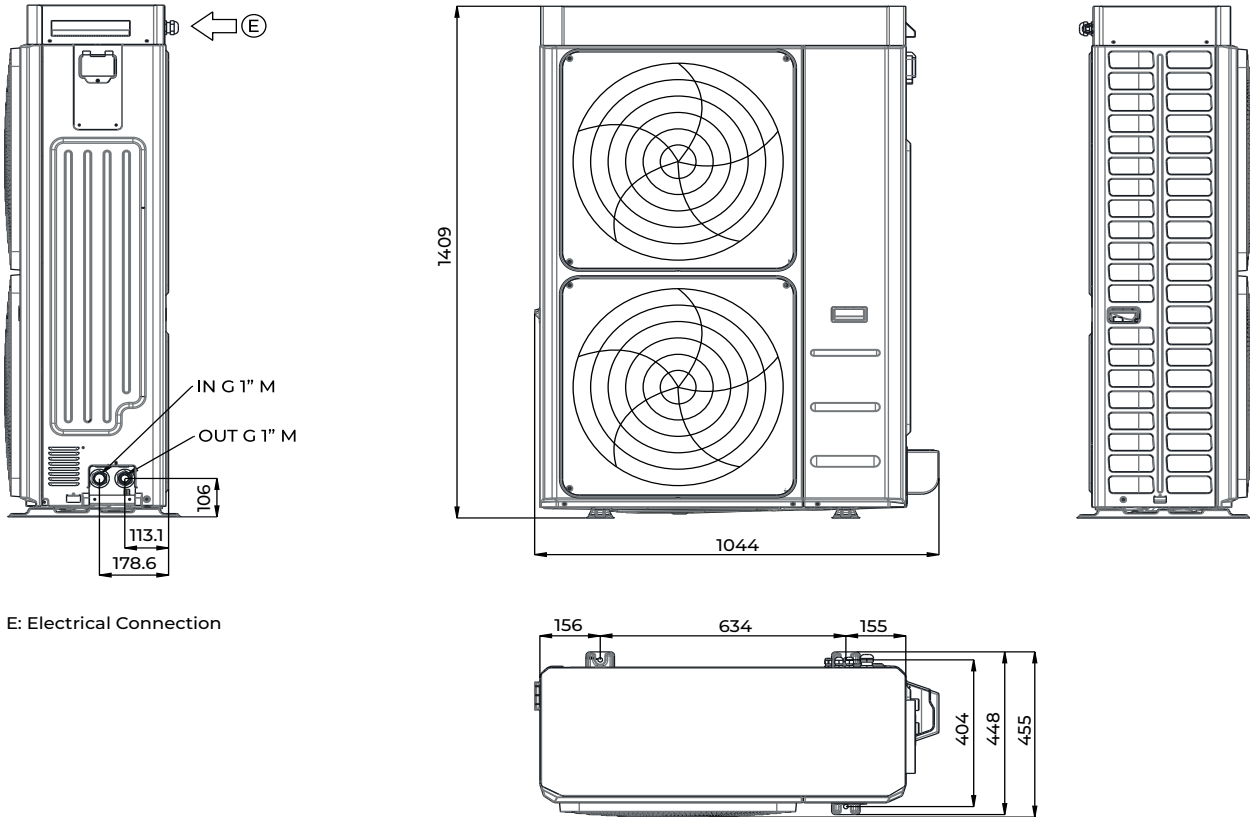
\* Coefficient of performance (COP) rated at EN14825 test conditions Water 35°C/ Air 7°C.

\*\* The sound levels refer to a fully loaded unit at standard nominal conditions according to EN 12102-1: 2013.

# Tyneham dimensional drawings



## Dimensions – 14 & 18kW models



E: Electrical Connection

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

## Minimum installation clearances:

**Front:** 1500

**Rear:** 400

**Left:** 400

**Right:** 500

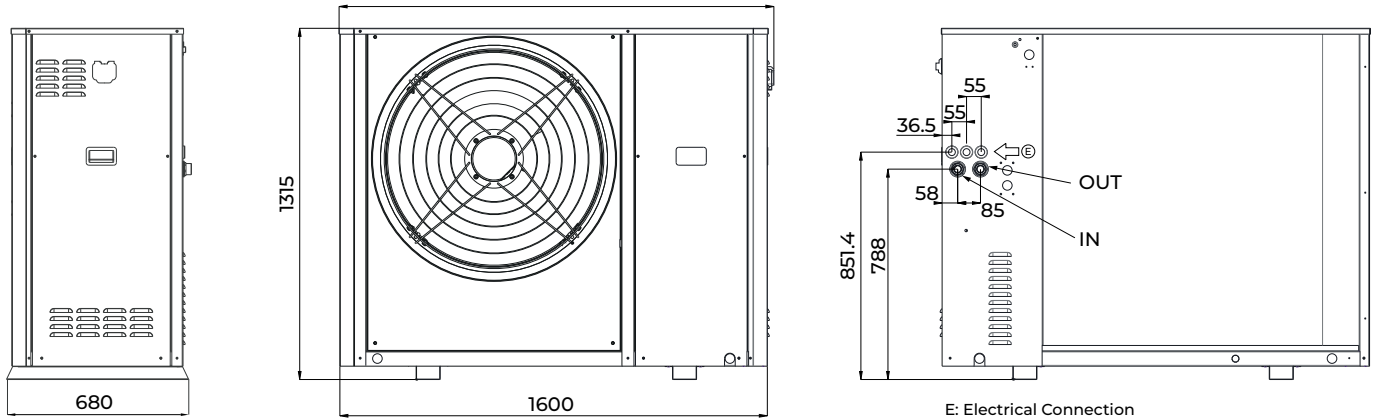
**Top:** 500

**Bottom:** 50

Side clearance of 1000mm when used in cascade

# Tyneham dimensional drawings

## Dimensions – 26 & 32kW models

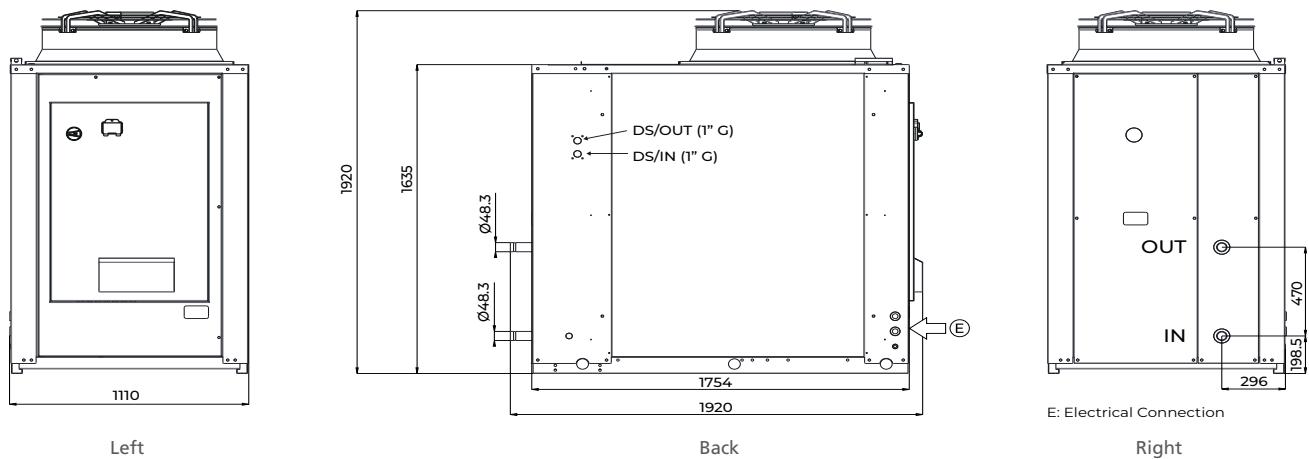


**Note:** All dimensions in mm unless otherwise stated.

### Minimum installation clearances:

- Front:** 1500
- Rear:** 400
- Left:** 400
- Right:** 700
- Bottom:** 50
- Side clearance of 700mm when used in cascade

## Dimensions – 50 & 70kW models



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

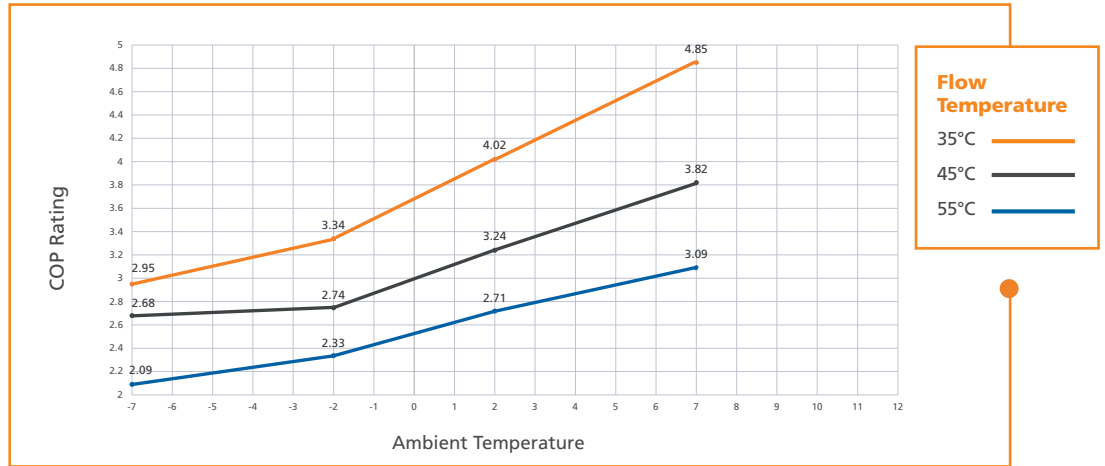
### Minimum installation clearances:

- Front:** 1500
- Rear:** 1500
- Left:** 1200
- Right:** 1000
- Top:** 1500
- Bottom:** 50
- Side clearance of 2200mm when used in cascade

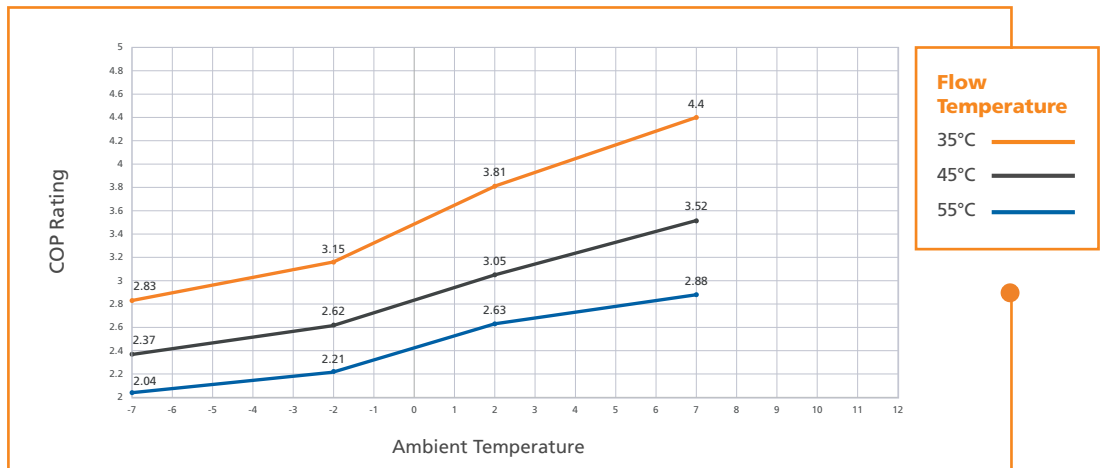
# Tyneham coefficient of performance (COP) graphs



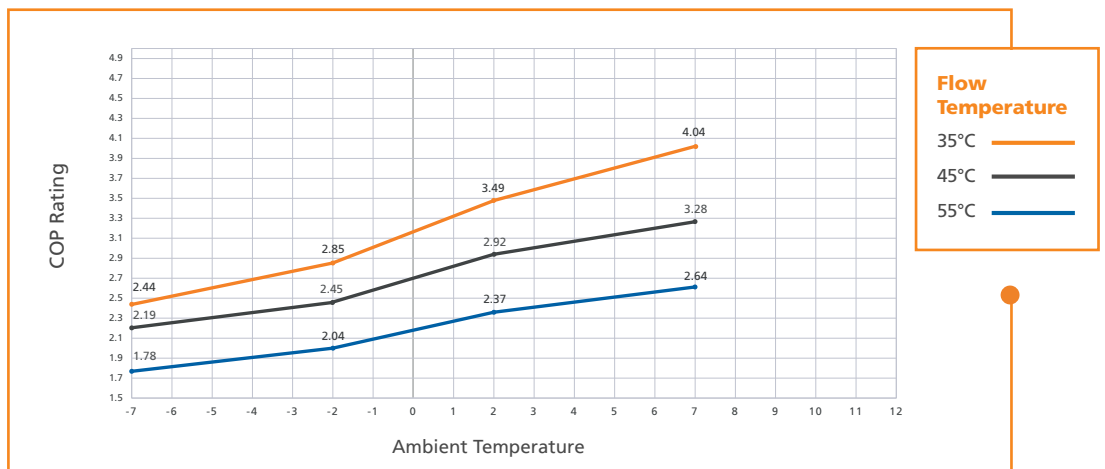
## 14kW



## 18kW



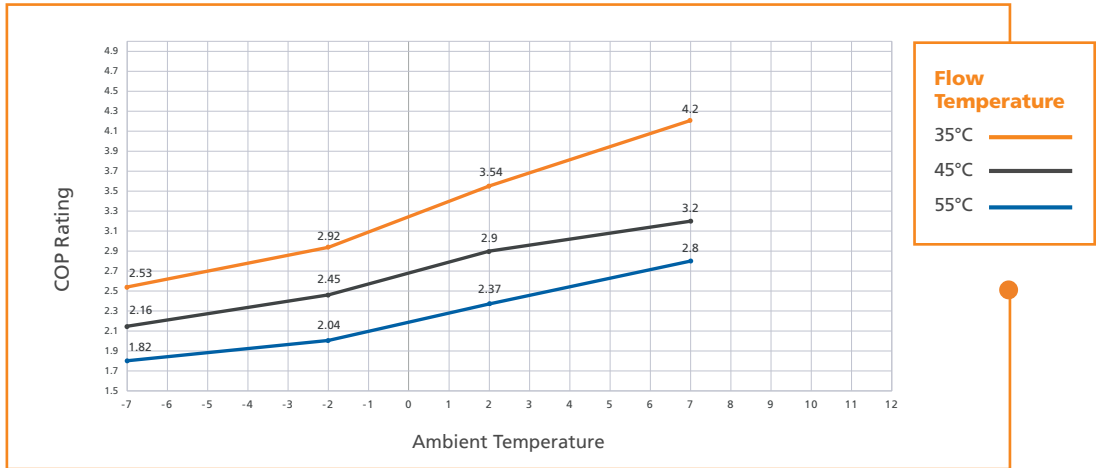
## 26kW



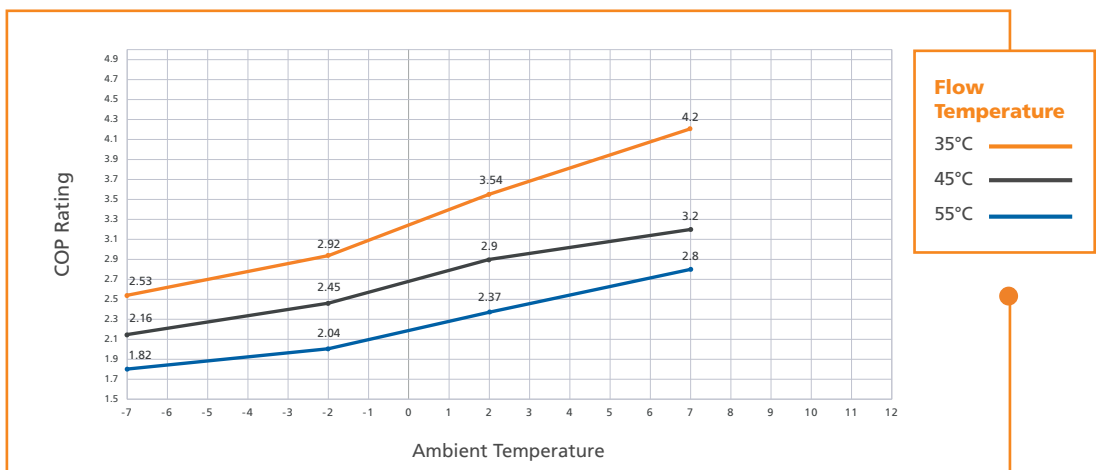
# Tyneham coefficient of performance (COP) graphs



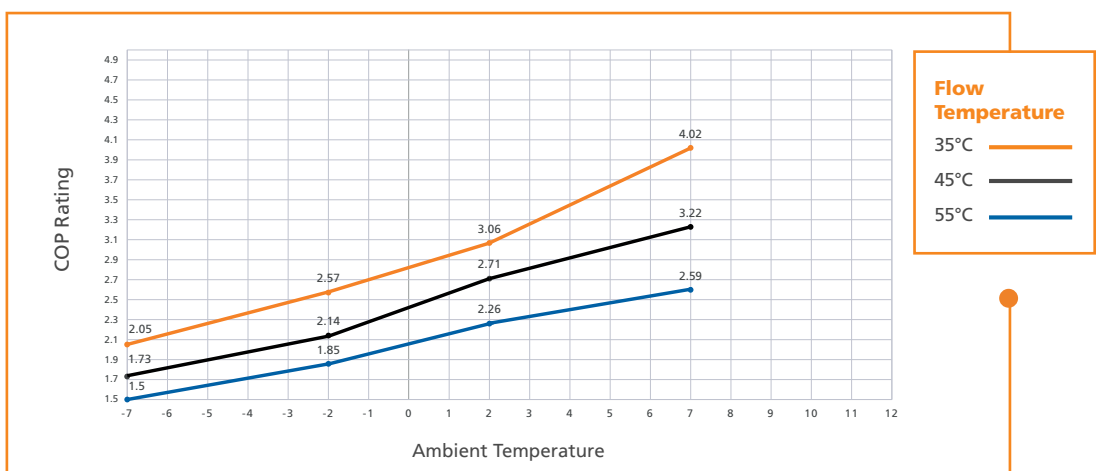
## 32kW



## 50kW



## 70kW



# Tyneham specification



## Overview

The Tyneham heat pump has an integrated controller, utilising an inverter controlled compressor, integral circulating pump and suitable for connection to a correctly sized buffer cylinder.

## Controls

The Tyneham heat pump has connectivity for all common types of BMS integration including 0-10v, volt free and BACnet. Where no BMS is present a controller must be integral to the heat pump, which can adjust and monitor both DHW and heating temperatures, with the ability to control back-up or emergency heaters.

The Tyneham heat pump is an inverter type with an inverter controlled circulating pump built in. The controls have safety lock out parameters including fault diagnosis for the heat pump. With the use of external components the Tyneham heat pump is capable of frost protection, weather compensation.

## Hydraulic

Hydraulic connections are uniform across the outputs available in the Tyneham range common to each chassis type to ensure ease of installation and maintenance in mixed output cascades. The Tyneham heat pump has a maximum operating pressure of 6 bar and is suitable for heating and indirect hot water systems. Pressure Relief valves are integral.

## Dimensions

The Tyneham heat pump range has common chassis sizes within the range to enable uniform cascade specification..

## Efficiency

COP (Coefficient of Performance) measurement of the Tyneham heat pump must be in line with the site application.

The Tyneham heat pump utilises refrigerant R32 with a GWP (Global Warming Potential) of 675. The Tyneham has an inverter controlled compressor, modulating integral pump and DC Fan Motor.

## Approvals

The Tyneham heat pump has approvals EN 14276-1:2020, EN 14276-2:2020, EN 12735-1:2020, EN 12735-2:2016, EN 378:2017, EN 13134:2002 Components directive 2014/68/UE conformity evaluation modules: Compressors A2  
Heat exchangers H +H1  
Receivers D1  
Valves A  
Safety valve.

The manufacturer must be ISO 9001 accredited.

## Specification

The Tyneham is capable of flow temperatures of up to 55°C with a 5°C Delta T and must be connected directly to a correctly sized buffer, to ensure most efficient operation and conform to minimum water quantities for defrost cycles.

## Sourcing

The Tyneham heat pump is manufactured or finally assembled in Europe.

## Cascade

The Tyneham heat pump is configurable up to 7 units (max 490kW) in cascade using one central controller. The controller must be able to sequence the heat pumps to give equal running time per unit.

## Warranty

The Tyneham heat pump is available with a 5 year parts and labour warranty (5 year warranty available if commissioned by Hamworthy Heating Engineer, 2 year warranty as standard).



## Joining forces for a quick and efficient solution



When Shastid Energy was faced with a faulty heat pump and up to five months without heating at its commercial premises in Cambridgeshire, Hamworthy Heating was on hand to arrange the swift delivery of a Tyneham heat pump – in three days!

*"After many futile attempts to both repair and replace our existing heat pump system, the solution Hamworthy provided us with was a true breath of fresh air."*

John Atkinson,  
Shastid Energy

Familiar with delivering quick solutions to its own customers daily, Shastid Energy was confronted with an unusual dilemma when it came to maintaining its own commercial heating system. Faced with a fault on the existing heat source pump and unable to source a company willing to provide a quote to repair it, Shastid Energy decided to replace its entire heat pump system. However, with only one local company on hand to deliver a reasonable quote, expected delivery times would leave the Shastid team without a working system for up to five months.

### The solution

With the prospect of five long and cold winter months ahead, John Atkinson from Shastid Energy turned

Sector:	Offices
Building:	Commercial premises
Products:	Tyneham heat pump

to Hamworthy Heating for advice. Following a long and solid working relationship, John explained the logistical issues and the delivery problems Shastid Energy were experiencing over a weekly catch up with Hamworthy. Quick to resolve the issue, a new 14kW air source heat pump was delivered to the Shastid offices within three days, ready for installation straight out of the box. "After many futile attempts to both repair and replace our existing heat pump system, the solution Hamworthy provided us with was a true breath of fresh air," comments John Atkinson from Shastid Energy.

Quickly and expertly installed by Shastid Energy's very own Engineering Managers, Peter Millgate and Daniel Martin, the new system was successfully up and running within two short days, restoring the building with heat once more.

"We've been dealing with Hamworthy on a weekly basis for years on quotations for replacement boilers and spares and we've always received excellent service. Based on our personal experience of the Tyneham, we wouldn't hesitate to use Hamworthy again for heat pumps," concludes John.



# Buffer tanks

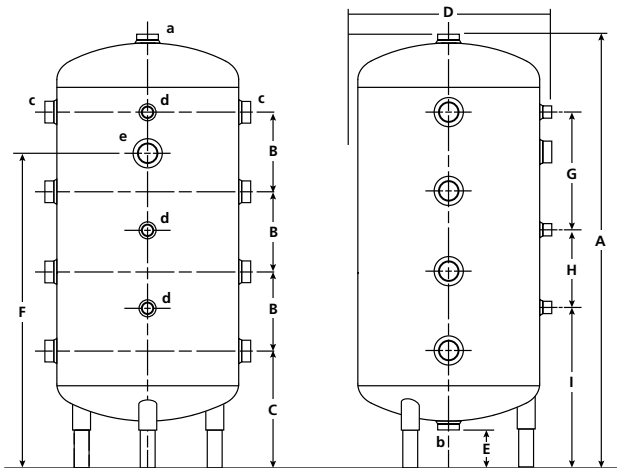
A buffer tank is typically just an insulated vessel of water; it doesn't usually contain any coils or heat exchangers; most will have top and bottom connections, and some will have a baffle plate internally. The primary role of a buffer tank is to keep a minimum volume of water 'in circuit' at times when the heating load is very low. This prevents the heat pump from short cycling and provides a bypass route to maintain the minimum flow rate through the heat pump if most of

the heating zones have shut down. Both the minimum flow rate and the minimum volume of water in circuit are necessary to keep the heat pump happy. Short cycling can cause several issues: loss of energy efficiency, reduced compressor life, power network disruption and, very rarely, sudden compressor failure due to lubrication starvation. Secondary to that, the ASHP needs to defrost. To do this it has to have a volume of warm water to utilise for this function.



## Dimensions

### 100 L & 200 L

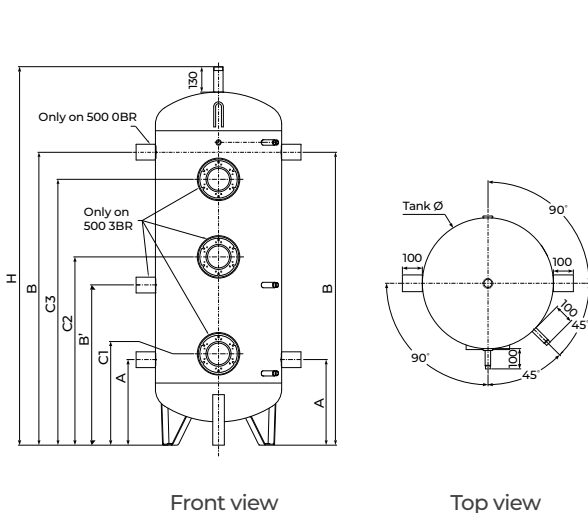


For advice or more information on specifying buffer contact your Hamworthy Area Sales Manager.

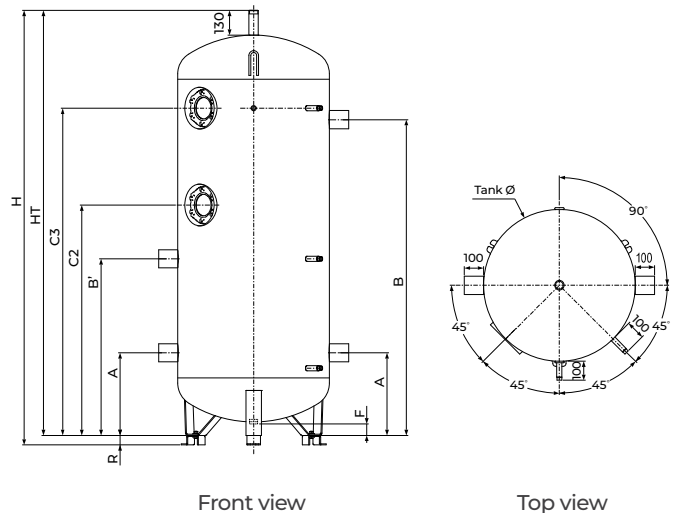


SCAN ME

### 500 L



### 900 - 1500 L



# Buffer tanks

## technical information

### Technical features and performance capabilities

Features	Tank Models					
	100	200	500 0F*	500 3F*	900 2F*	1500 2F*
Useful capacity (L)	95	195	517	517	904	1425
Passage width (mm)	N/A	N/A	680	680	795	1015
Min. room height for installation (mm)	N/A	N/A		2100	2100	2415
Tilting dimension (mm)(1)	N/A	N/A	1980	1980	2240	2270
Empty tank weight (kg)	23	34	72	72	140	180
Thermal losses(2) Ua (W/K). Flexible M1	0.384	0.232	1.38	1.657	2.231	2.778

(1) Risers not mounted.

(2) Storage at 65°C – Ambient temperature at 20°C. Values supported per RT2012.

### Dimensions

#### 100 & 200 L models

Refs	100L	200L
A	950	1435
B	170	330
C	255	265
D	460	510
E	80	80
F	690	1070
G	255	485
H	170	325
I	345	440
a	1½" F	1¼" F
b	1¼" F	1¼" F
c	1¼" F	1¼" F
d	1½" F	1½" F
e	1½" F	1½" F
Weight (kg)	23	34

#### 500 0F, 500 3F, 900 2F, 1500 models

Refs	Designation	Units	Tank Models			
			500 0F*	500 3F*	900 2F*	1500
Tank Ø	Tank diameter without insulation	mm	650	650	790	1000
HT	Tank overall height (height without riser)	mm	1950	1950	2215	2215
H	Height with risers	mm	1950	1950	2265	2265
A	Lower connection	mm	440	440	430	500
B	Upper connection	mm	1510	1510	1645	1460
B'	Intermediate connection	mm	-	825	920	915
C1	Lower flange height	mm	-	470	-	-
C2	Intermediate flange height	mm	-	970	1200	1077
C3	Upper flange height	mm	-	1370	1705	1630
F	Drainage height	mm	110	110	60	60
R	Riser height	mm	-	-	50	50
1	Temperature probe branch pipe		F15/21 Through type			
2	Thermometer branch pipe		F15/21 Through type			
3	Branch pipe connection		F 66/76		F 80/90	
4	Purge		M 40/49			M 50/60
5	Drain		F 33/42			

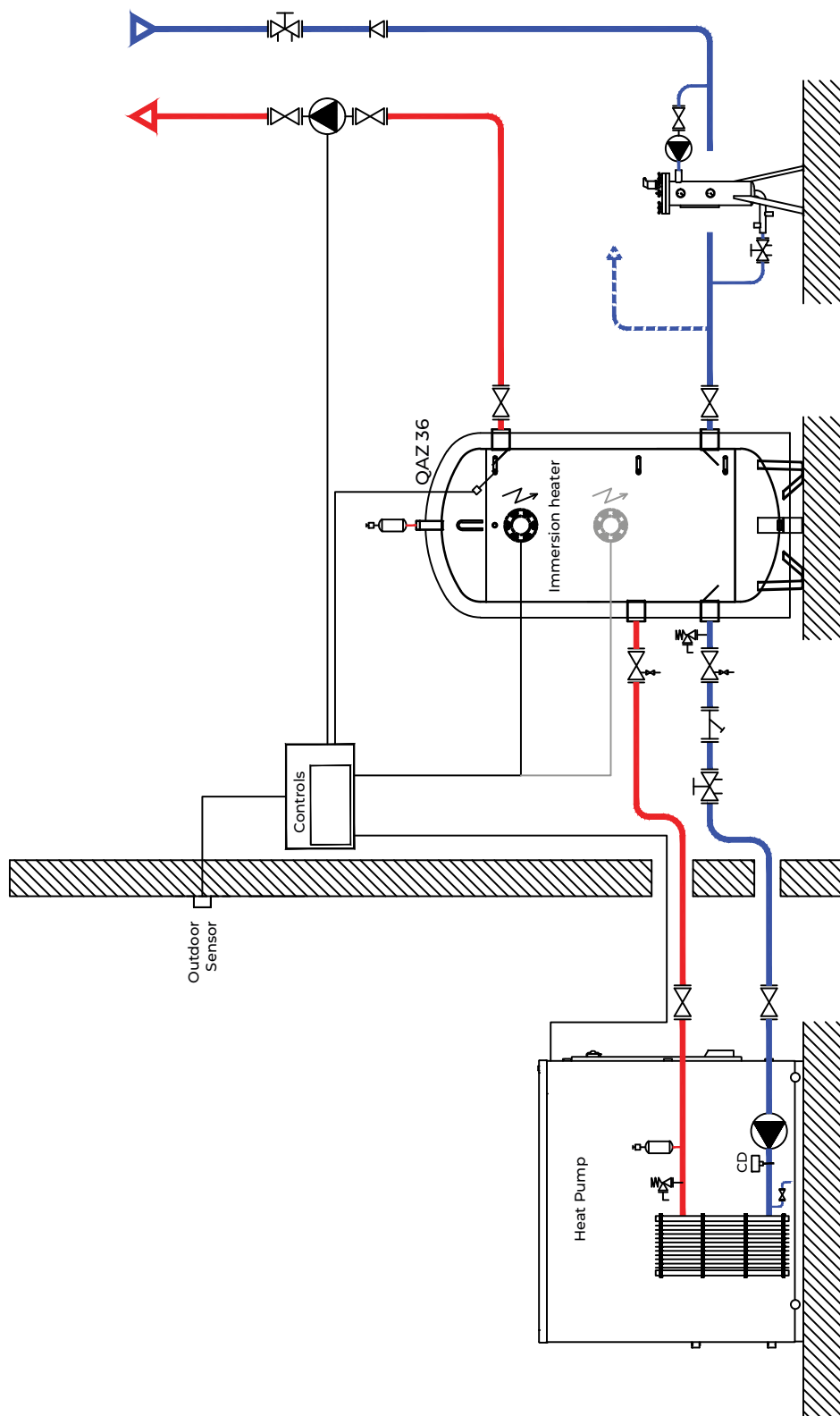
\* 0F = 0 Flanges

2F = 2 Flanges

3F = 3 Flanges

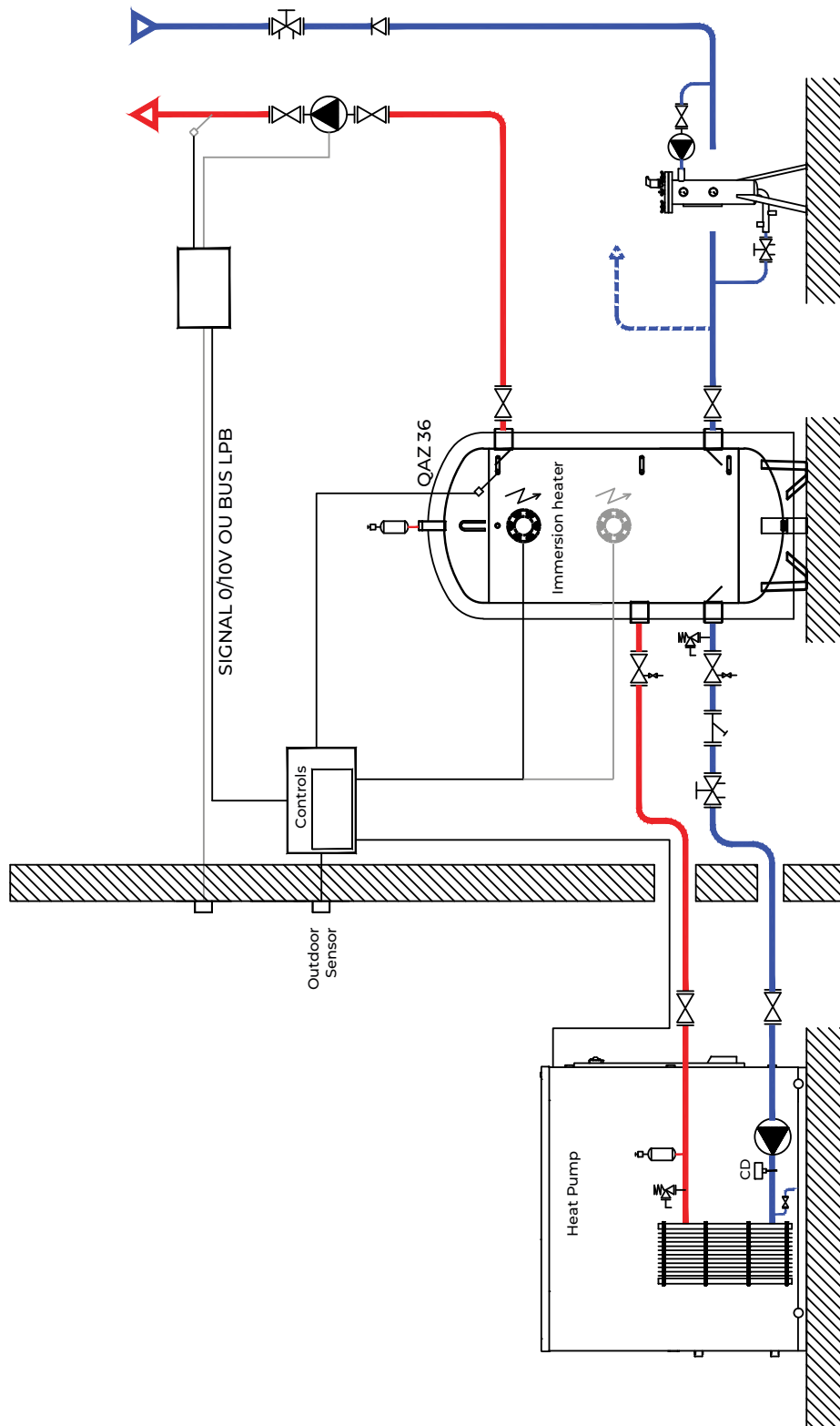
# Example system schematics based on R32 and R290 refrigerant Tyneham air source heat pumps

A: Heat pump - one buffer tank & one central heating circuit (constant temperature)

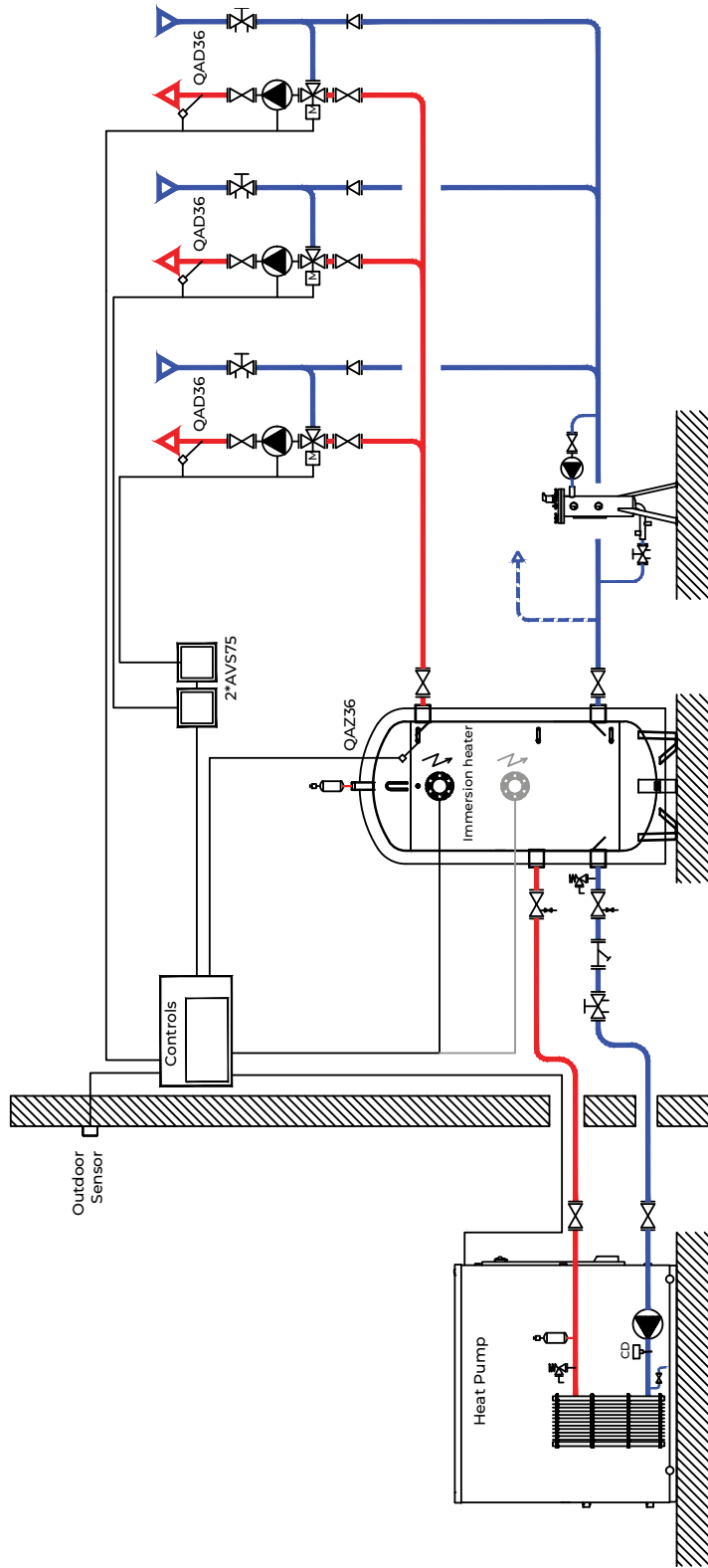


# Example system schematics based on R32 and R290 refrigerant Tyneham air source heat pumps

B: Heat pump - one buffer tank & one central heating circuit (constant temperature), managed by LPB bus or 0-10v signal

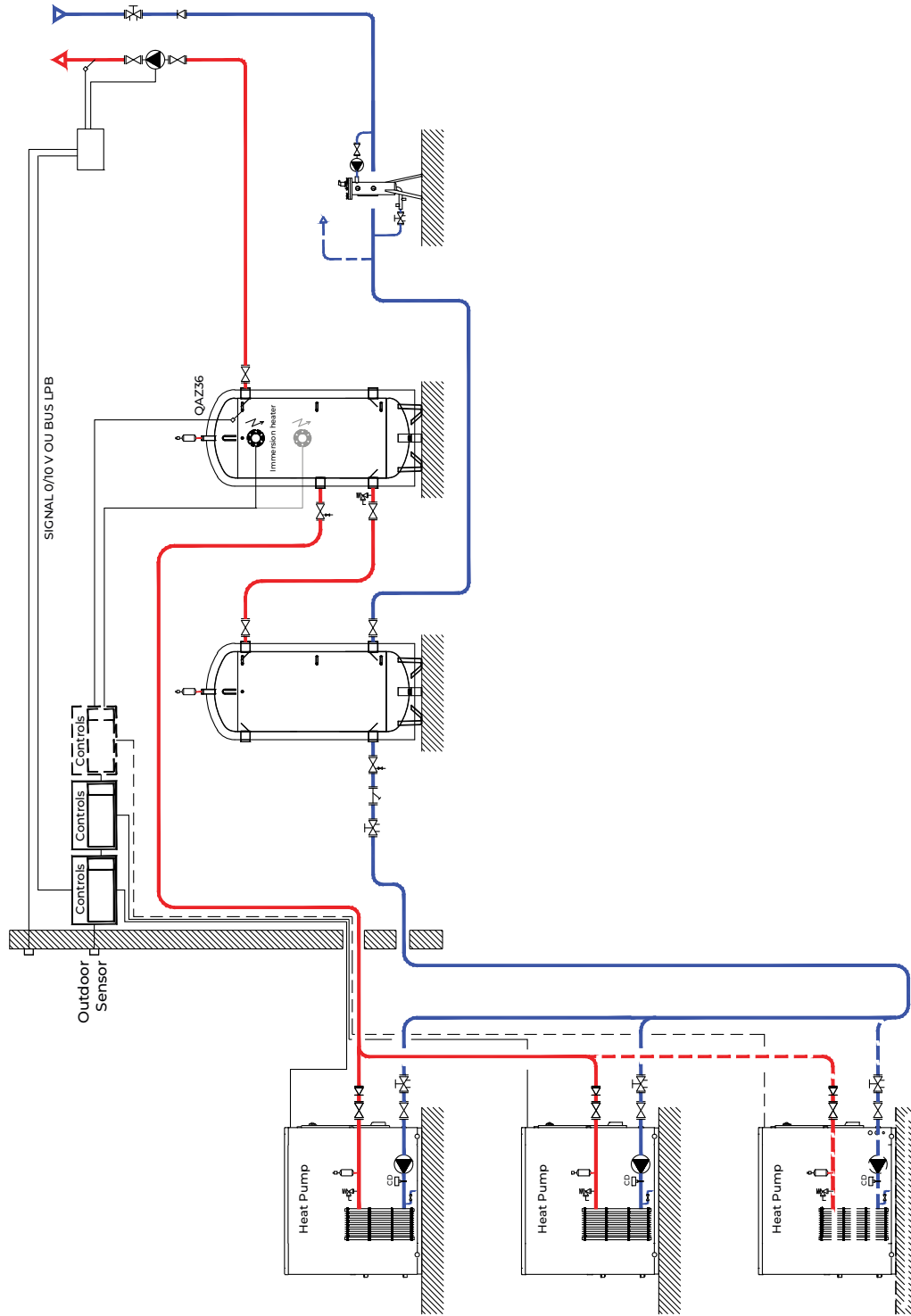


C: Heat pump - one buffer tank & up to 3 central heating circuits with mixer valve & circuit sensor (variable temperature)

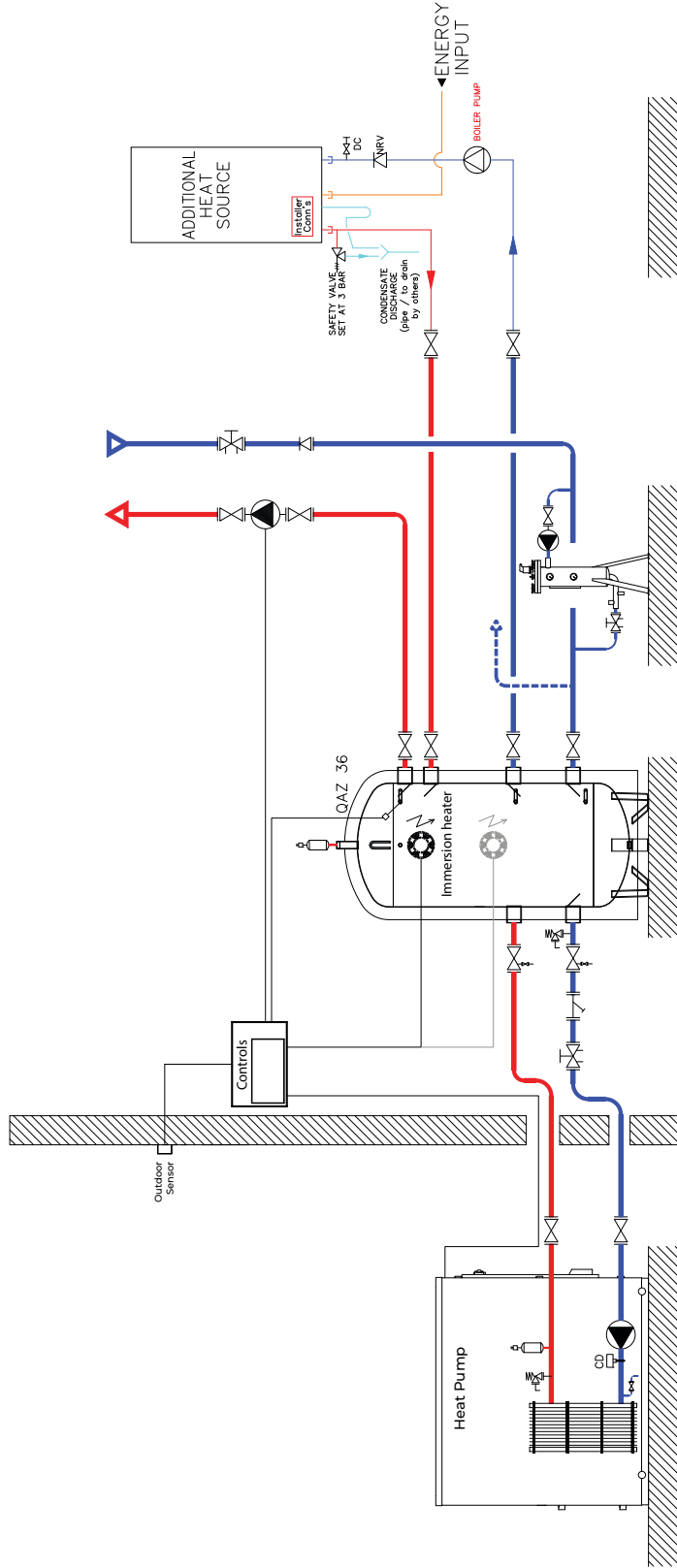


# Example system schematics based on R32 and R290 refrigerant Tyneham air source heat pumps

D: Heat pump - cascade one buffer tank & 1 central heating circuit with mixer valve & circuit sensor (regulated temperature)



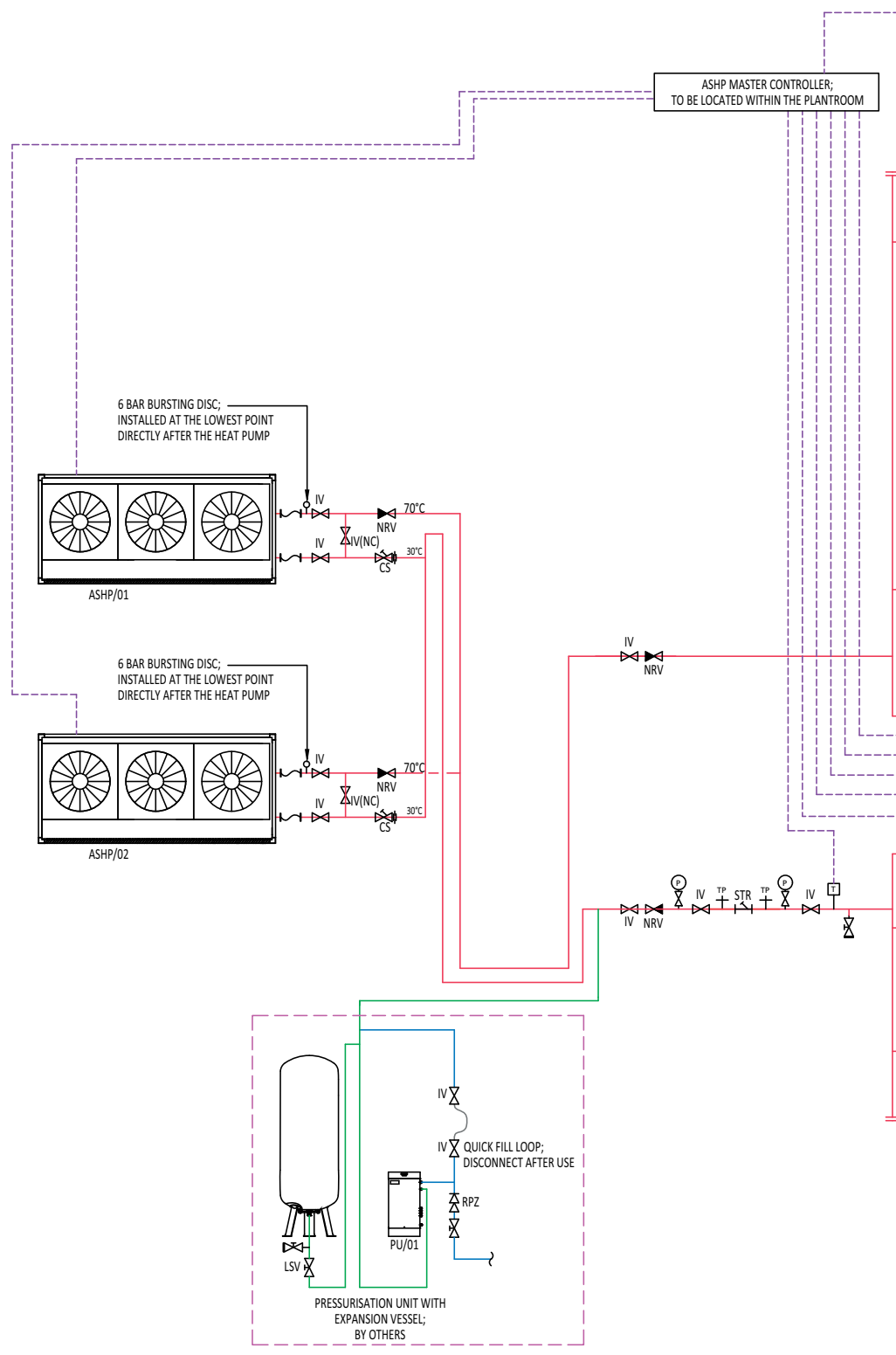
**E: Heat Pump - one buffer tank & one central heating circuit with One boiler in Hybrid Set Up**

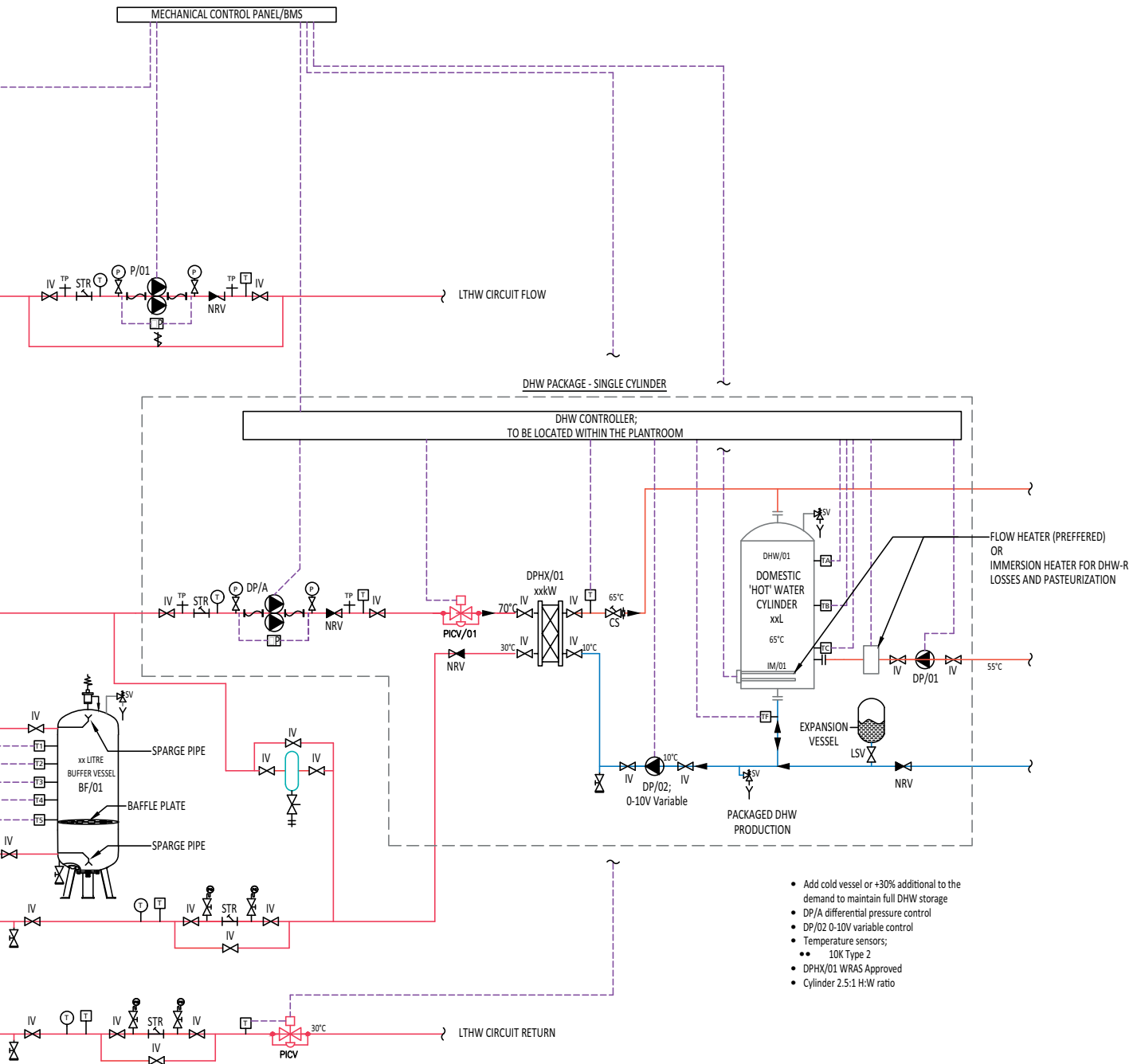




# Example schematic based on a Tyneham CO2 refrigerant air source heat pump for heating and DHW

LV FEEDS; BY OTHERS





# Case study

## Hybrid heating for a low carbon solution at council offices

### Sunderland Council specify heat pump system for Stansfield Business Centre

Stansfield Business Centre is located to the south of the River Wear within the Hendon area of Sunderland in a predominantly industrial and commercial area. Built in 2002, the building was originally fitted with two gas-fired boilers and pressurisation units, and two circulating pumps which had reached the end of life and needed to be replaced.

**Sector:** Council offices  
**Building:** Stansfield Business Centre  
**Products:** 32kW Tyneham air source heat pump, Stratton mk3 wall hung boiler  
**Application:** Space heating

### Reducing carbon emissions

Alan Cowgill, Mechanical Building Services Engineer at Sunderland City Council, who is part of a team responsible for reducing energy use across council-run buildings in Sunderland was tasked with finding a system that would meet year-round heating demands whilst reducing operational environmental impact: He explained:

*“Sunderland City Council is committed to playing its part in tackling the global climate change emergency and has taken steps to reduce its carbon emissions from operational activities so as to be carbon neutral by 2030. As part of this commitment, when the existing LTHW heating system at Stansfield Business Centre, which was served by two wall-hung gas boilers, was due for replacement, Sunderland City Council saw this as an excellent opportunity to install a hybrid system that would help to both reduce carbon emissions and save on energy.”*

Following an evaluation of the building's heating requirements, Alan Cowgill from Sunderland City Council found:

*“As the existing gas boilers were operating at elevated temperatures and the heating system was designed to operate with high-grade heat at peak loads at Stansfield Business Centre, air source heat pump (ASHP) low-grade heat was deemed unsuitable to replace the current*



*system alone. To meet the requirement, it was established that a hybrid system was therefore required with the ASHP being the lead source of heating, and a gas boiler providing a top-up when the temperatures were required."*

## The solution

Combining traditional heating systems such as gas boilers with low and zero carbon technologies – such as heat pumps – is an alternative that helps reduce the carbon impact of the heat generators used in a building. To accurately meet the heating demands of the building, the new Hamworthy Heating system at Sunderland Business Centre consists of a 32kW Tyneham air source monobloc heat pump which is connected to a 500L buffer cylinder. Offering superb operational reliability, excellent quality, and outstanding performance, Tyneham heat pumps feature a coefficient of performance (COP) rating of up to 4.85, to provide efficient, low carbon heating.

Serving as the primary heat source within the new hybrid set up, the Tyneham heat pump efficiently increases the heat up to 55° to a buffer tank. As and when additional temperature is required, the system, which also includes a Stratton mk3 condensing wall-hung boiler as a secondary heat source, will switch over to the boiler to meet the required load. Not only does this ensure year-round reliability, as the boiler supports the heat pump, but it will also ensure that the building is supplied with the most energy-efficient system, at any given time. Offering outstanding efficiency, the Stratton mk3 features a 5:1 turndown ratio, excellent low-class 6 NOx emission across all models, and up to 97% gross seasonal efficiency.

Controlled by a BMS system, designed by WS Controls, which can be accessed on site or remotely, Sunderland Council is now able to conveniently and simply manage the system and monitor set points, as and when required. Installed by one of Hamworthy's

approved installers, John Paul Malpass of Compac Services N.E Ltd comments:

*"We've worked with Hamworthy since we first started the company in 1988 and have always felt extremely well supported. The Hamworthy sales team is a pleasure to work with and the products are great, with an excellent aftercare service to match."*

Following the successful upgrade, Stansfield Business Centre now benefits from a reliable and energy-efficient hybrid heating system, which has enabled Sunderland Council to continue to further reduce its carbon impact. Alan Cowgill concludes: Thanks to the Hamworthy team and their technical staff for assisting with this project.

For more information on the products used in this hybrid set up, visit our website or contact your Hamworthy Area Sales Manager





# Hands on product training with the Expert Academy

## An introduction to heat pumps and the Tyneham product range

**The course is run over 1-day that begins with introductory explanations to heat pump technology.**

Starting with the basics we begin with what different types of heat pumps there are available and how the technology works.

We also explain the key differences to gas boilers and what must be considered when specifying or operating an ASHP. Once the basic method of operation is covered, we move on to positioning and installation considerations, operating

principles, and integration with existing systems. Following this general overview, we explore the Tyneham range of ASHP and control options.

This course is open to a range of attendees including specifiers, system designers, heating engineers and more. The day is intended to provide an open environment for you to build some foundation knowledge to help inform you in next steps, such as going on to complete a ASHP qualification or more specific product or controls training.

### What's included:

- > Types of heat pumps and basic operating principles
- > Location and installation considerations
- > Options for application of use
- > Tyneham product range overview
- > Site requirements
- > Commissioning and a basic introduction to controls and configuration op-
- > Service and maintenance requirements

EXPERT  
**ACADEMY**





## Who can attend

This course is designed for anyone wanting a comprehensive introduction to heat pumps and the Hamworthy Tyneham range.

## What you need to bring

All tools and equipment are provided along with lunch and refreshments throughout the day.

## Book now



Visit our website to see available course dates and locations.

## How to book

Visit our website to see available course dates and locations. Please speak to your Area Sales Manager to discuss options.

**Price:** Free

**Duration:** 1-day typically 9.30am – 4pm with lunch included

**Locations:** Hull, Leeds, Poole or Luton

[enquiries@expertacademy.co.uk](mailto:enquiries@expertacademy.co.uk)



# CIBSE approved Continued Professional Development

**We can offer our CIBSE approved CPD seminars online, or in person – at our site or yours.**

Our flexible approach means that we are able to tailor our training to suit your business. Each CPD seminar typically lasts 45 minutes to 1 hour. A lot of our customers choose to run these at lunchtime so that there is minimal disruption to the working day.

Our latest CIBSE approved CPD **Introduction to heat pumps – technology and principles**, covers the technology and principles behind heat pumps to help you with your system design and specification.



**Book now**

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



[enquiries@expertacademy.co.uk](mailto:enquiries@expertacademy.co.uk)



# Service and warranty

## Commissioning

We strongly recommend that all products are commissioned by our service department. As well as ensuring your product is set up correctly for maximum efficiencies you will receive extra benefits on warranty (see below). On completion, you will get a report with details of the initial operating settings.

## Service

All our products have been designed with ease of service in mind.

To maintain your products, we have a range of servicing options that can be tailored to your requirements. For more information on commissioning and service please contact the Hamworthy Heating service department.

## Warranty

All our products come with a contracted warranty period as standard. Terms and conditions will apply and the warranty period may vary per product.

We offer tailored packages to suit the individual customer requirements, many of which include extended warranty benefits. Full details of warranty terms and conditions are available on request.

● **Speak to our service team today to find out more about commissioning and service offering or ask us to add it to your project quote.**

Telephone:  
**01202 662555**

Email:  
**service@hamworthy-heating.com**

Website:  
**hamworthy-heating.com/commissioning**

## Spares

**Essential to any maintenance and service regime is the availability of quality spare parts.**

By coming to us, the Original Equipment Manufacturer (OEM), you can be assured of genuine spare parts and may also benefit from technological improvements. We have a long-term commitment to spare parts for our products.

# The Hamworthy difference

## Delivery

Each heat pump is dispatched fully assembled and factory tested. Tyneham heat pumps are delivered to site secured to a pallet to ensure safe maneuverability.

Deliveries are closely co-ordinated with the customer, to suit the site construction programme. Products are delivered to ground level and it is the responsibility of the customer to arrange movement of products from here to the required location on site.

Delivery charges may alter across the range of products. To enquire about charges or special delivery services including FORS and time critical deliveries (additional charges apply), please contact our customer services team.

## British engineering excellence

Here in the UK, we design, test, manufacture and source market-leading products. We know our products inside out, back to front and from start to finish. You can trust that we know what we're talking about.

## Everyone's got history, we've got heritage

Our roots date back to 1914 when two brothers in Poole set up Hamworthy Engineering. Decades of experience go in to every nut, screw and bolt, and every phone call, text and email.

Since 2008, we've been part of Groupe Atlantic, a company with a similar ethos to us. Groupe Atlantic was founded in 1968 by two engineers and is now one of the market leaders in the European heating and hot water industry. We're part of their growing UK, ROI and North America Divisions.



## Lifetime support

From specification, through to commissioning, training and maintenance, as well as commitment to spares availability, we support businesses through their lifetime of commercial heating and hot water needs.









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



**SUPPORT BRITISH  
MANUFACTURING**



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Wessex House,  
New Fields Business Park,  
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**Tel: 01202 662500**

**Email: [sales@hamworthy-heating.com](mailto:sales@hamworthy-heating.com)  
[hamworthy-heating.com](http://hamworthy-heating.com)**

**Hamworthy Heating Accreditations**

ISO 9001 Quality Management System  
ISO 14001 Environmental Management System  
ISO 45001 Health & Safety Management System

Every effort has been taken to ensure the details in this guide are accurate. Hamworthy Heating does not, however, guarantee the accuracy or completeness of any information nor does it accept liability for any errors or omissions in the information.

Hamworthy Heating reserves the right to make changes and improvements which may necessitate alteration to product specification without prior notice.