

Heat pump task and system performance

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Heat pump task

Heat Pump Load

In the Heat Pump task you can see the results of the heat loss calculation as well as information on the heat pump you have chosen. You can alter the flow temperature and see the impact of this on SCOP and output power. This is also given for each heat emitter as shown in the example below.

For more information on [Heat Emitters](#) see our guide on the topic.

Riello NXHM 8kW



Model	20191942
Nominal capacity	8.00 kW
Sound power level	59.0
SCOP at 45 °C	4.11
Output Power at 45 °C	7000 W

Flow temperature

45 °C

Heat pump load

Heat Loss

The Outside Design Temperature for postcode CB4 1AF is -2.5°C

→

The expected heat loss at the Outside Design Temperature is 6586 W.

÷

The total area of the building is 49.72 m².

=

The average heat loss is 132 W/m².

Does the heat pump meet the demand?

If the flow temperature is 45 °C...

Output power of heat pump is 7000 W

Total heat loss is 6586 W

✓

Maximum demand met
The heat pump is sufficiently large to meet the maximum anticipated space heating demand.

Sound Check (UK)

This guide applies to the heatpunk.co.uk version of Heatpunk. The information provided here does not apply to heatpunk.ie.

The sound check is part of the [Heat Pump task](#) and helps determine whether the planned installation position will generate excessive noise that could disturb neighbouring properties. The results of the sound check will be displayed in the customer proposal and technical reports.

Completing the sound assessment

When you create a new project you will be prompted to complete the sound check when you navigate to the heat pump task.

- Choose the **assessment method** suitable for your project. See below for guidance on which method to choose.
- Input the details about the **heat pump position** and **assessment points**.
- After selecting the kit you would like to use on the project, the **results** of the sound check will display on the left hand side of the page below the heat pump and cylinder details.

To edit the details of the sound check click the **pencil icon** to the top right of the results.

Choosing a method

There are currently two sound assessment calculation methods published by MCS. England's Permitted Development Rights now require you to use the 2025 calculation method which is based on **MCS 020 a)**. Other UK nations, where they have not changed their Permitted Development Rights, may still require you to use the legacy calculation method based on **MCS 020**. Please contact your local planning authority if you are unsure which method to use.

When you start the sound check for your project you can choose between the 2025 calculation method or the legacy calculation method.

Sound check ⓘ

Assessment method

2025 calculation method



This is based on the new MCS 020 a) standards referenced in England's Permitted Development Rights legislation.

Legacy calculation method



This is based on the previous MCS 020 and can only be used for nations which haven't adopted MCS 020 a) standards.


Using the 2025 calculation method - MCS 020 a)

To comply with MCS 020 a), the calculated noise level at each assessment position must be below 37 dB. Under MCS 020 a), it is vital to include **multiple assessment positions**, as more distant locations without a barrier may experience higher noise levels than closer positions that are shielded.


- In order to comply with MCS 020 a) standard, start by selecting the 2025 calculation method.
- Select the number of reflective surfaces next to the heat pump.
- Add details for the first assessment position, including the description, distance and details of any barriers.
- Add additional assessment positions by clicking + *Add position*.
- Delete any positions you no longer need using the dustbin icon.
- Click *Confirm* to view the sound check results.

See [MCS guidelines](#) for further information on the calculation.


Number of reflective surfaces next to heat pump ⓘ



One



Two




Three

Position A Position B + Add position


Position description ⓘ

Bedroom window 2


Barriers between heatpump and position ⓘ



Full view



Partial view



No view

Distance from heat pump ⓘ Barrier material ⓘ

3 m No barrier

Using the legacy calculation method - MCS 020

To comply with the legacy MCS 020 standard, the noise level at a single assessment position must be below 42 dB.

- In order to comply with the previous MCS 020 standards, select the legacy calculation method.
- Add details for the assessment position, including the description, distance, number of reflective surfaces and details of any barriers.
- Click *Confirm* to view the sound check results.

See [MCS guidelines](#) for further information on the calculation.

Position description ⓘ

Bedroom window

Distance from heat pump ⓘ

5

m

Number of reflective surfaces next to heat pump ⓘ



One



Two



Three

Barriers between heatpump and position ⓘ



Full view



Partial view

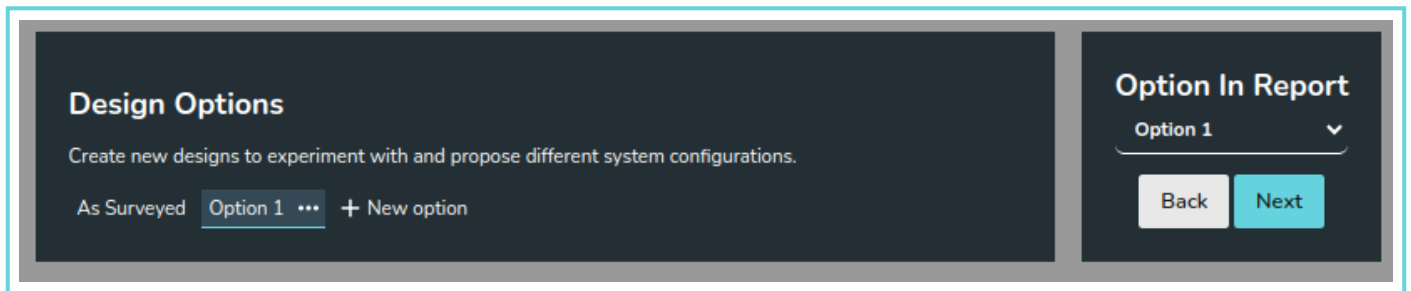


No view

Heat pump task

Design Options

You can add multiple design options to your project allowing you to review a range of solutions. Use the drop down in the top right to choose which option you wish to produce a report for. With this tool you can easily produce several proposals for your customer to review before choosing their preferred option.



Pro: Create and manage your own components

In this guide, we will detail how to upload custom components on Heatpunk.

For most components you will need to add, there is a set of technical information that needs to be entered so that Heatpunk can conduct necessary performance calculations. This information is available from the manufacturer's technical datasheet for that specific product.

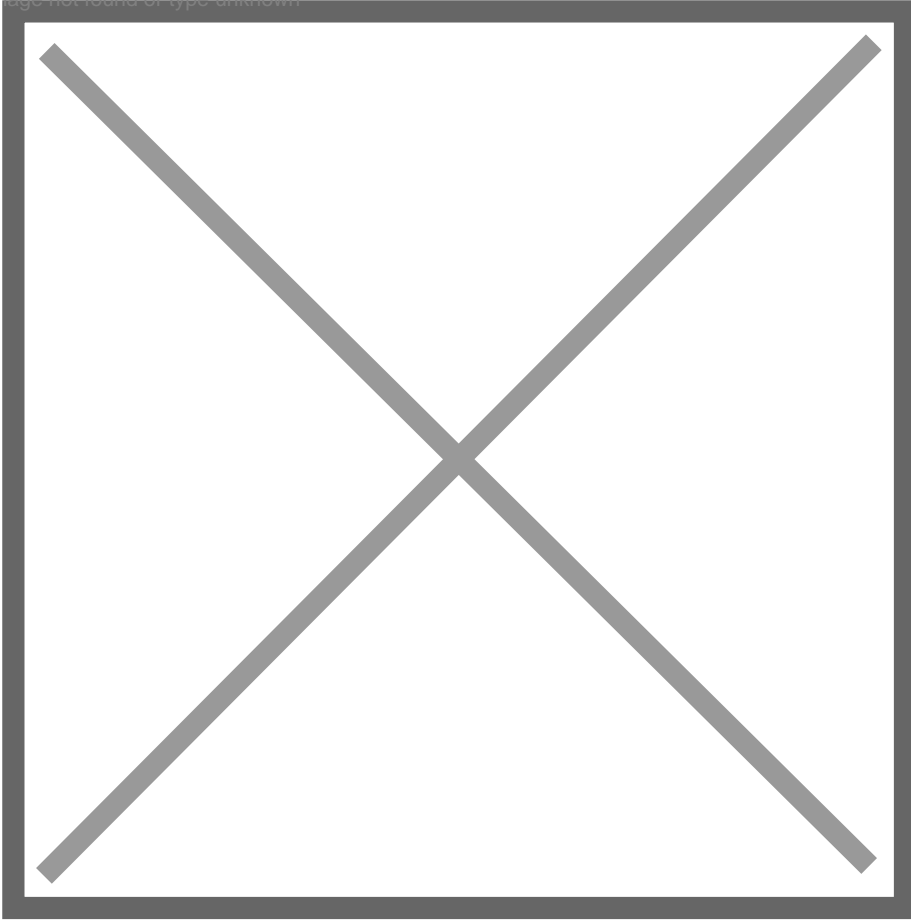
If you require assistance reading technical information from a datasheet, please contact the manufacturer directly. This is not something we can provide significant support with since these will not be products Midsummer sells.

NOTE: Custom components are located in a separate database to standard Heatpunk. As a Pro customer, you and your team are responsible for uploading and maintaining your own components.

Manage components

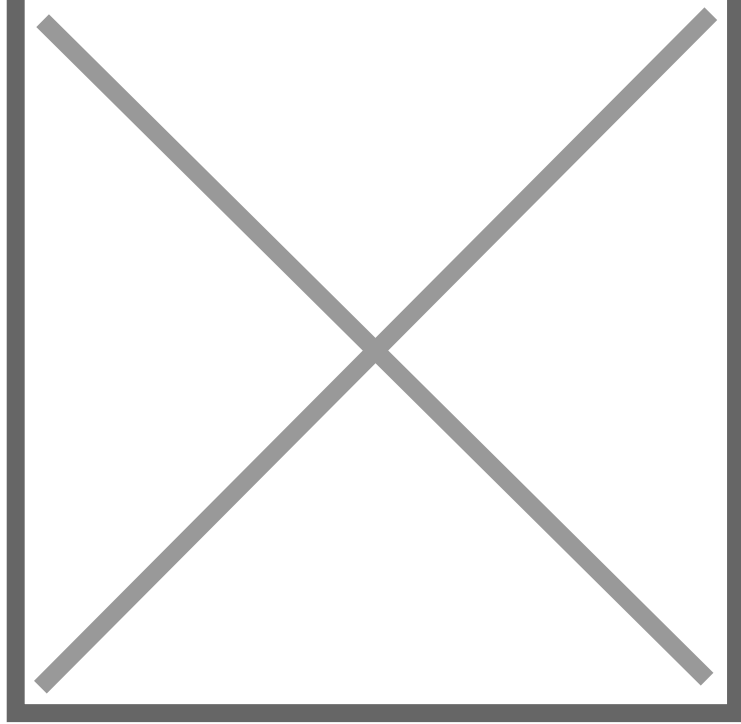
You can access the Component Menu from the Heatpunk home page or from the navigation bar at the top of the site.

Image not found or type unknown



Select from the menu on the left which component you would like to add from the available options.

Image not found or type unknown



Below, you'll find full instructions on how to add/manage each type of component.

Heat pumps

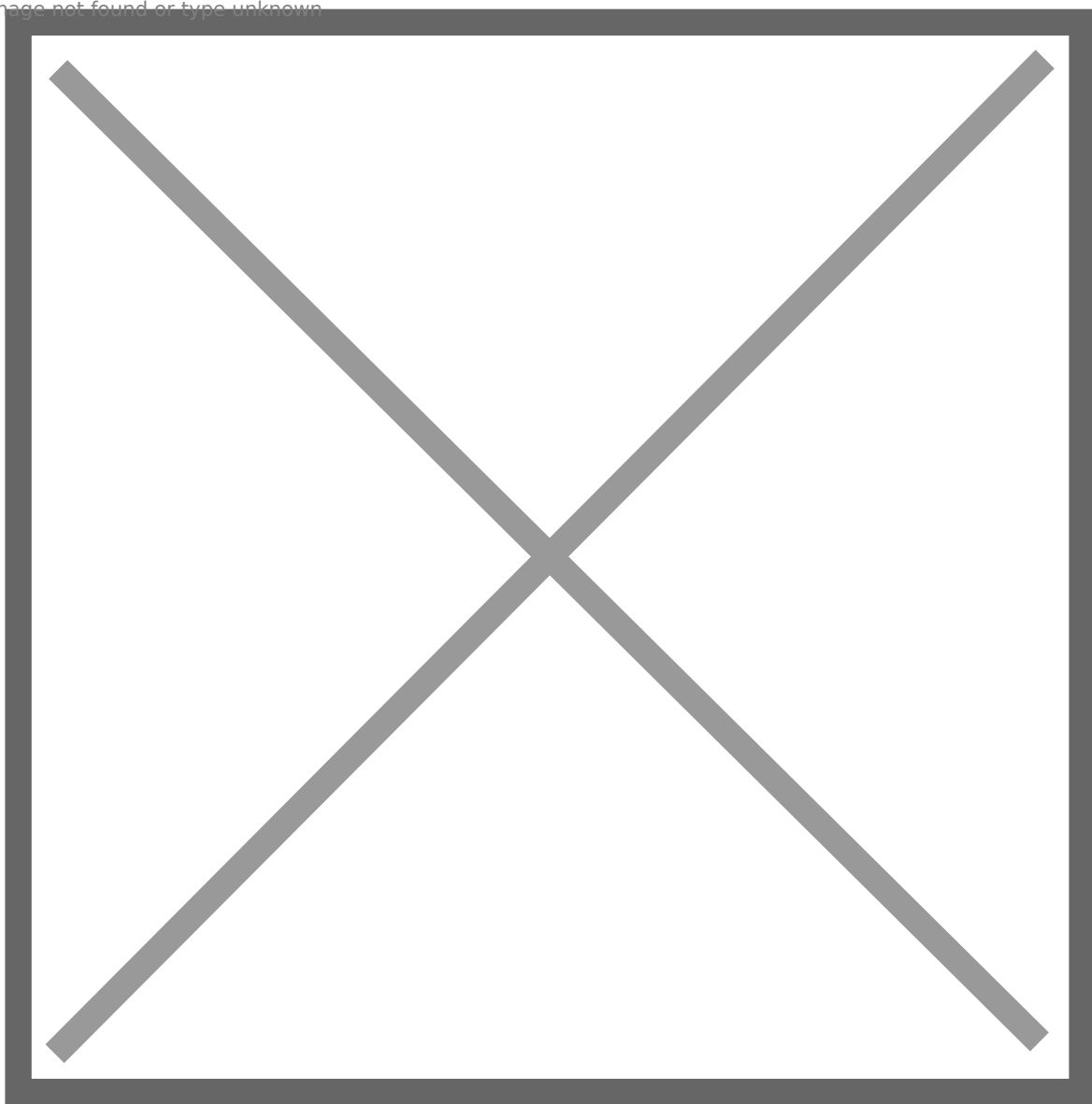
Creating manufacturer

When adding any custom heat pump in Heatpunk you first need to add a custom manufacturer category which allows you to organise your custom components. The components added will be categorised by their manufacturer when it comes to select them in a project.

Image not found or type unknown



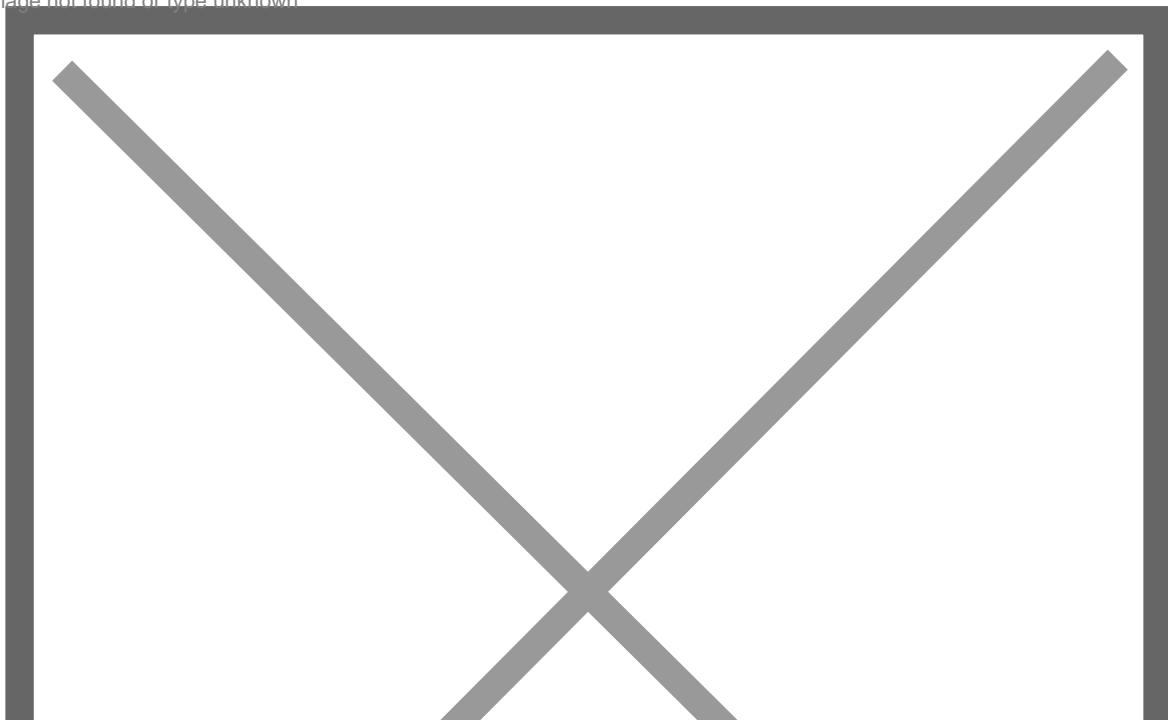
Image not found or type unknown



Inputting information from datasheet

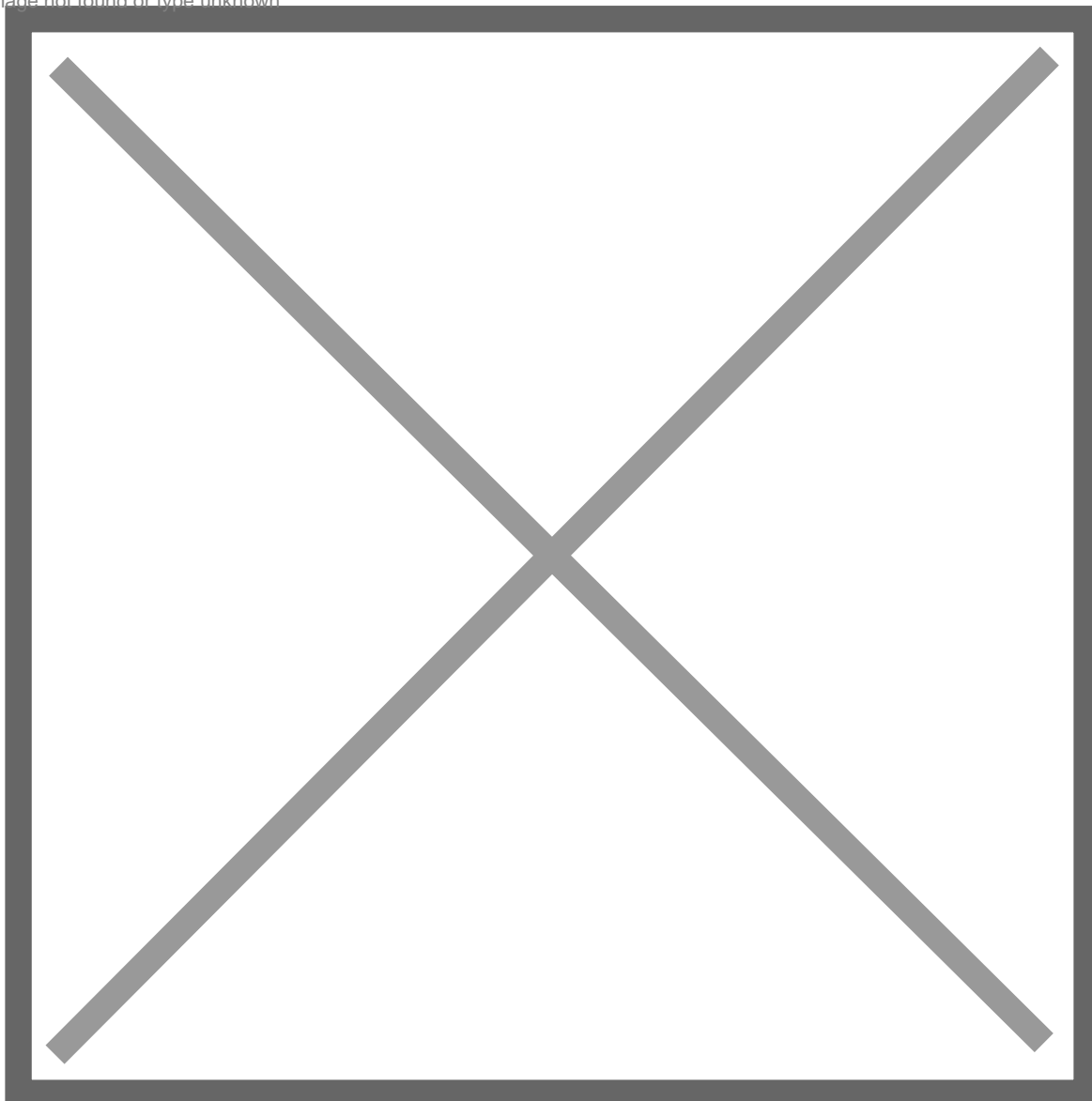
After inputting the name for the manufacturer, re-open your custom manufacturer and you will see additional options to add a heat pump.

Image not found or type unknown



You will then need to input the technical information found in the datasheet for the heat pump.

Image not found or type unknown



Below is a list of each value required to add a custom heat pump alongside some details for each.

Technical info	Details
Nominal output	<ul style="list-style-type: none">• Units: kW
Sound power level	<ul style="list-style-type: none">• Units: dB• This should be measured in accordance with EN12102

ENA system reference	<ul style="list-style-type: none"> This can be found on the ENA Heat Pump Register
Power factor	<ul style="list-style-type: none"> This will autopopulate as 1. You should edit as necessary

The panel will auto-save once all the required fields are completed. It will not save before this.

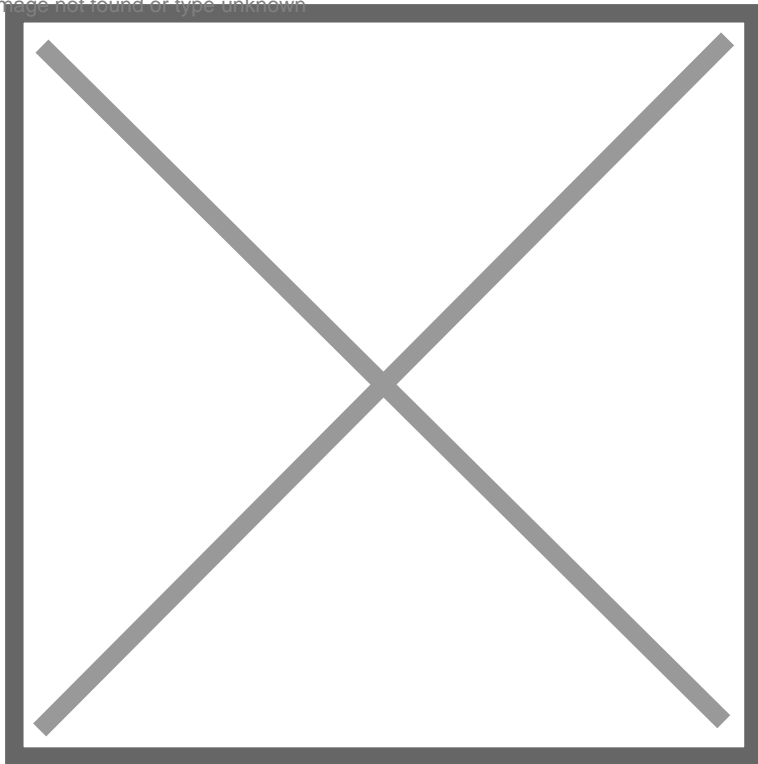
You should also add SCOPs and Output Powers. Without this information Heatpunk can not perform the required calculations.

SCOPs:

You should input the MCS SCOP at a range of flow temperatures (usually 35-55°C). This information can be found on the [MCS Product Directory](#).

You should add each SCOP at a given temperature individually. Once you have added one, the input box will appear to add the next. A completed example is shown below.

Image not found or type unknown



Output Powers:

You should add the output power (kW) at a range of outside design temperatures (ODTs) and flow temperatures. You should be able to get this information from the manufacturer.

The more information the better but you should aim for at least -10°C to 2°C ODT and 35 to 55°C flow temperature. A minimum of three data points is needed on each axis of the graph. You can add and remove rows and columns as necessary using the buttons below the table.

Outputs including the defrost cycle are preferred.

A completed example is shown below, however, please note not every manufacturer is able to provide the level of data shown here.

Additional details

You can add a number of additional details as necessary:

- You can name the heat pump you have created and add a short description. Both the name and description will show when choosing the heat pump as well as in your final customer proposal.
- You can add a photo of the heat pump. As with the name and description, this will show when choosing the heat pump as well as in the final customer proposal. To edit the image of the custom manufacturer or component, click on the default image and either upload from your files or paste a copied image.
- You can add a make and model of the heat pump.
- You can add a price for the heat pump. This will be the price that is used in your Heatpunk project.

Once you have added a heat pump successfully - you'll be able to select it in the list of heat pumps when creating a new project.

Hot water storage

Creating manufacturer

When adding any custom hot water storage unit in Heatpunk you first need to add a custom manufacturer category which allows you to organise your custom components. You should specify the type of storage unit you are adding from the drop-down menu. If you would like to add additional storage units that are of a different type, then you must create a new manufacturer category.

[+] Add hot water storage group

Customer Manufacturer

Not used in any projects

Name: Customer Manufacturer

Description: description

Type: Standard

Admin Standard

Access: Pre-plumbed

Slimline

Slimline Pre-plumbed

Horizontal

Stacked

[+] Add hot water storage

Inputting information from datasheet

After inputting the name for the manufacturer and type of storage unit, re-open your custom manufacturer and you will see additional options to add hot water storage.

You will then need to input the technical information found in the datasheet for the storage unit.

New hot water storage details

Name:

name

Description:

description

Make:

make

Model:

model

Nominal Capacity

Nominal capacity

ℓ

Weight (empty):

weightEmpty

kg

Weight (full):

weightFull

kg

Height:

storageHeight

mm

Width:

storageWidth

mm

Length:

storageLength

mm

Standing Heat Loss:

standingHeatLoss

kWh/24h

Coil size:

coilSize

m²

Coil rating:

coilRating

kW

Immersion Heater:

3

kW

ERP Band:

B

▼

Price:

price

Admin

Wholesale ID:

wholesaleID

Component Priority:

priority

Access:

user

▼

Rules:

☐ Selected specific heat pump groups only

Below is a list of each value required to add a custom storage unit alongside some details for each.

Technical info	Details
Nominal output	<ul style="list-style-type: none"> Units: L
Weight (empty)	<ul style="list-style-type: none"> Units: kg
Weight (full)	<ul style="list-style-type: none"> Units: kg
Height	<ul style="list-style-type: none"> Units: mm
Width	<ul style="list-style-type: none"> Units: mm Enter diameter if cylindrical.
Length	<ul style="list-style-type: none"> Units: mm Enter diameter if cylindrical.
Standing heat loss	<ul style="list-style-type: none"> Units: kWh/24h

You should also add the following technical data, if available:

- Coil size (m²)
- Coil rating (kW)
- Immersion heater rating (kW)
- ERP band - this will autopopulate as B. You should edit as necessary.

Additional details

You can add a number of additional details as necessary:

- You can name the hot water storage unit you have created and add a short description. Both the name and description will show when choosing the storage unit as well as in your final customer proposal.
- You can add a photo of the storage unit. As with the name and description, this will show when choosing the storage unit as well as in the final customer proposal. To edit the image of the custom manufacturer or component, click on the default image and either upload from your files or paste a copied image.
- You can add a make and model of the storage unit.
- You can add a price for the storage unit. This will be the price that is used in your Heatpunk project.

Once you have added a hot water storage unit successfully - you'll be able to select it in the list of storage units when creating a new project.

Performance task

The Performance Task in Heatpunk was updated on 17 March 2025 to be compliant with the new version MCS calculation methods outlined in the updated **MCS 031: Heat Pump Pre-sale information and performance calculation** standards.

Full details of the MCS standard can be found here: mcscertified.com/an-update-to-mcs-031-the-heat-pump-pre-sale-information-and-performance-calculation.

Compliance with this update is mandatory from 18 March 2025.

How this update affects existing projects

Any existing Heatpunk projects with completed MCS performance estimates prior to this date will remain unchanged within Heatpunk, with the option to switch to the new version:

Performance Estimate

IMPORTANT NOTE: Due to [an update to the heat pump performance estimate by MCS](#), this performance task is deprecated and will be retired in several months time. New projects will automatically use the new performance task.

If you would like to switch to the new performance task, please [click here](#).

It's recommended that completed project reports are downloaded as PDFs and copies are kept for your records.

How the new task works:

Enter the performance task in your project:

Step 1 - Proposed system:

- Set the **purpose of the system**: Heatpunk will set the default based on your project settings. If you have added a DHW cylinder then it will assume "space heating and hot water" but this can be overridden if the estimate is being performed prior to the full design being completed.

- Set the **Emitter type(s)**: Again your design but if you are comp

Proposed System

to
design

Purpose of proposed system

Space heating and hot water



Emitter type(s)

Approx. 50% radiators and 50%...



Based on your project we would recommend "Approx. 50% radiators and 50% underfloor".

you can adjust this as needed:

- If UFH is selected you will then need to select a type:

Type of underfloor heating

Flooring on screed



No underfloor heating

Flooring on screed

Flooring on chipboard on aluminium

Flooring on high conductivity panel on aluminium

Step 2 - Property Details:

For MCS compliance this step needs to be completed using EPC data

Fill out the energy demand for space heating, hot water and total property floor-space from a valid EPC:

Property Details

☐ Use project data ⓘ

Energy demand for space heating

kWh / year

Energy demand for hot water

kWh / year

Total property floorspace (not footprint)

m²

Step 2 / 2

Back

Confirm

You may choose to switch to project data, doing this will populate the fields from Heatpunk, with a degree day calculation used to give the kWh "energy demand for space heating" figure, and the "energy demand for hot water" coming from the DHW storage selection. To comply with MCS, users must use EPC data to complete the performance calculation. You may then provide a subsequent performance estimate using project data, but you must explain the difference between the two estimates to the customer.

Step 3 - MCS Performance Results:

Heatpunk will do the rest!

Your Energy Requirements	
Energy required for space heating	21218 kWh
Demand to be supplied by the heat pump	21218 kWh
Energy required for hot water	2296 kWh
Demand to be supplied by the heat pump	2296 kWh

The MCS performance estimate uses '**Outdoor Low Temperature**' from the CIBSE guide A 99.6th percentile. This may vary from the project ODT if it has been left on the default 99th percentile temperature. The **average watts per square metre** is calculated based on the kWh data provided (as per MCS 031) and so when using EPC data this will likely vary from the "project data" values calculated by Heatpunk.

Your Property	
Your postcode prefix	CB
Degree days per year	2033
Outdoor low temperature	-3 °C
Total property floorspace (not property footprint)	170.00 m ²
Average watts per square metre	61 W / m ²

The calculated **watts per square metre** is then used to give an indicative heat pump capacity, which again may be different than the from your Heatpunk project when using EPC data. If the full heat loss calcs have been done with Heatpunk and the project data has been used to give the estimate, then this value should be closer to the output power of the heat pump being used.

"**System pasteurisation strategy**" is pulled directly from the DHW storage settings in the heat pump task, and so can be adjust there. This also applies to the **proposed flow temperature**, with it being pulled from the flow temp slider in the same task.

Proposed System	
Indicative heat pump capacity	10.44 kW
Heat pump type	Air source heat pump
System is proposed to provide	Space heat and hot water
System pasteurisation strategy will be	Provided weekly by immersion
Proposed heating system will be	Approx. 50% radiators and 50% underfloor
The proposed flow temperature will be	45 °C

Rather than using SCOPs as per the previous MCS performance calculation, the new version uses SPF (seasonal performance factor) which is pulled from *Table 2: Heat emitter guide* of MCS 031 depending on the **property specific heat loss** (W/m2) and the **flow temperature**.

This SPF will then be used give an estimate of **electricity consumption for space heating**. A set performance factor of 1.7 is used for water heating, and the method for system pasteurisation is detailed in MCS 031. The combined estimate of electricity consumption is then converted into a **high** and **low** estimate of **+/- 10%**.

Performance		
The seasonal performance factor is calculated to be:	3.4	
Estimate of electricity consumption for space heating	6241 kWh / year	
Estimate of electricity consumption for water heating	1351 kWh / year	
Estimate of electricity consumption for system pasteurisation	182 kWh / year	
Estimate of the annual energy consumption of the proposed heat pump	High estimate	Low estimate
	8550 kWh	6996 kWh

The results of this calculation will be given in the "**MCS 031 Performance Calculation**" report when using EPC data, as well as the technical report and customer proposal. If the task has been completed using project data, it will not generate the separate MCS 031 report but it will give a performance estimate in the technical report and customer proposal.

Notes

The full table (*Table 2: heat emitter guide*) is given on page 16 of MCS 031 standard (<https://mcscertified.com/wp-content/uploads/2025/01/MCS-031-Heat-Pump-Pre-Sale-Information-and-Calculations-Issue-4.0.pdf>).

On the right hand side of the performance task we will display any relevant notes about the system:

Notes:

Warning

The system can operate as designed for tiles. For wood and carpet floor coverings, additional measures to improve property energy efficiency are likely to be needed (such as improved insulation or draught proofing).

Note

Screed on floors with UFH complies with BS1264 Type A construction laid on floor insulation - default pipe spacing 200mm cc.

Info

Specialist UFH designers can provide more accurate information for heating performance with different systems.

Financial Task

You may need to adjust the proposed flow temp, heat emitters used, or the lower the watts per square metre heat loss (improve building fabric) in order to generate a viable proposal.