

How to calculate the approximate size of Air Source Heat Pump required for a property in four few easy steps:

Step 1

To calculate the correct size of ASHP you must first know the following '4 Vital Factors':

- **Property Type** (new build, refurbished or no insulation).
- **Location** in the UK (Scotland/Highlands, Midlands/North or South).
- **Footprint** (the total sq metre of the property).
- The type of **Heat Emitter** to be used (radiators or underfloor).

Step 2

The '4 Vital Factors' then apply to the 'Approximate Calculations' below;

- For **Property Type** the approximate heat loss in Watts is;
New Build = 50W, Refurbished = 70W and No Insulation = 100W.
- For **Location** the approximate temperatures are;
-5°C (Scotland/Highlands), -3°C (Midlands/North) and 0°C (South).
- For **Heat Emitter** the approximate flow temperatures are;
50°C for radiators and 40°C for underfloor.

Step 3

Using the information you have for the '4 Vital Factors' and the 'Approximate Calculations' given opposite, you then apply the following equation:

$$\text{Watts (based on Property Type)} \times \text{Footprint (in Sqm)} / 1000 = \text{Heat Loss (kW)}$$

The heat loss figure in kW is then cross referenced in our Heat Loss Duty Tables (on pg. 5 and 6) against Location temperature and the Flow Temperature (based on the Heat Emitter used) as taken from the 'Approximate Calculations'.

Step 4

Referring to the Heat Loss Duty Tables given (on pg. 5 and 6) select a unit that gives the required output.

N.B. All figures are approximate and can be used as a guide only. A full and accurate heat loss calculation must be made prior to final selection.

It's not as complicated as it sounds! Here's an example:

To calculate the size of ASHP required for a new build property in Manchester with a footprint of 120 Sq m which will use oversized radiators:

$$\text{Watts (50W - new build)} \times \text{Footprint (120sqm)} / 1000 = 6\text{kW}$$

The 6kW Heat Loss figure is then referenced on the Heat Loss Duty Table for radiators against a Location Temperature of -3°C (Midlands/North) and an Output Temperature of 50°C (temperature for over-sized radiators).

The 6kW heat loss (in Watts) calculates the suitable unit to be exactly the figure given for an 8kW model.

This enables approximate costs to be calculated however it is essential that a full and accurate heat loss calculation be made prior to installation.

Heat Loss Duty Table at 50°C for Radiators

HeatKing ASHP Unit

Location (Ambient temp in °C)	6kW	8kW	9kW	12kW	13kW
-5°C	3.9	5.8	7.1	8.5	11.3
-3°C	4.1	6.0	7.4	8.9	11.6
0°C	4.3	6.4	7.7	9.4	12.1

N.B. Max. flow temp for 6, 8 and 12 kW units is 55°C, figures based on 50°C. Max. flow temp for 9 and 13kW units is 65°C, figures based on 60°C. All figures are approximate and should only be used as a guide. A full heat loss calculation is essential.

Heat Loss Duty Table at 40°C for Underfloor

HeatKing ASHP Unit

Location (Ambient temp in °C)	6kW	8kW	9kW	12kW	13kW
-5°C	4.0	6.0	7.1	8.8	10.5
-3°C	4.2	6.3	7.4	9.2	11.0
0°C	4.5	6.7	7.8	9.8	11.5

N.B. Max. flow temp for 6, 8 and 12 kW units is 55°C, figures based on 40°C. Max. flow temp for 9 and 13kW units is 65°C, figures based on 40°C. All figures are approximate and should only be used as a guide. A full heat loss calculation is essential.

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Heat Loss Guide

A simple guide to calculating the approximate size of Air Source Heat Pump required for a property

