



# Technical Information Sheet

## Plantroom Heat Pumps

### Features and Benefits

- **Low Running Costs**
- **Low Carbon Emissions**
- **Modular Design**
- **UK Manufacture**
- **Heating and cooling options**



### Product Description

The Kensa plantroom heat pump is designed to provide a low cost renewable heat source for a building's heating system and will generate significantly lower carbon emissions and running costs compared with traditional fossil fuels.

Kensa plantrooms are available in a range of sizes from 20kW to 75kW and are of a modular design meaning by combining them much higher loads can be achieved.

The modular design also enables the system to closely match the required heating load and offers a degree of redundancy in the unlikely event of a problem with one of the units.

Kensa heat pumps can work equally as well with horizontal, vertical or lake arrays as the energy source.

Due to the size of the compressors, plant room models are only available in three phase and can interface easily with a buildings heating distribution system , such as fan coils, underfloor, air handling units, etc.

They are not supplied with water pumps as these are dependant on the application and site.

Plantroom models can be modified to provide cooling as well as heating hence a single system can satisfy the buildings heating and cooling requirements.

As a UK manufacturer, Kensa offer a high quality product which is supported by industry leading technical support to ensure the application engineering is preformed to the highest standard.

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Heat Pumps

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Certificate No: MCS BBA 0055  
Technology : MCS007 Heat Pumps

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## Plantroom Heat Pumps

	Three Phase						
Nominal thermal kW rating	20	25	30	40	45 <sup>^</sup>	60	75
MCS approved	No	Heating - BBA0055/16 Reverse Cycle - BBA0055/24	Heating - BBA0055/17 Reverse Cycle - BBA0055/25	Heating - BBA0055/18 Reverse Cycle - BBA0055/26	Heating - BBA0055/10 Reverse Cycle - BBA0055/27	No	No
Product Code X— H Heating only R Reverse Cycle C Cooling only +	P200X	P250X	P300X	P400X	P500X	P600X	P750X
<b>Performance data—rated heating output at B0/W35 BS EN14511</b>							
Power consumption kW	5.5	6.5	8.0	9.7	12.8	15.9	19.0
Coefficient of performance*	4.07	4.08	4.19	4.17	4.17	3.98	4.05
Immersion heater output	Kensa heat pumps do not feature back-up electric immersion heaters**						
<b>Brine (primary) based on 0°C in, -4°C out</b>							
Design flow rate l/min	59.3	68.5	87.4	105.6	135.2	167.8	207.4
Pressure drop kPa at design flow rate	8.62	11.1	17.0	23.6	25.2	21.8	31.7
Max inlet temperature °C	15						
Min temperature °C (Outlet)	-5 (at standard settings)						
<b>Heating water (secondary) based on 30°C in, 35°C out</b>							
Design flow rate l/min	64.62	74.7	95.0	112.0	147.6	183.5	224.9
Pressure drop kPa at design flow rate	9.73	13	12.2	16.9	19.5	17.0	25.5
Max flow temperature °C***	50						
<b>Electrical Values @B0/W35</b>							
Rated Voltage	400V / 50 Hz						
Power supply rating amps	32	32	32	40	50	63	70
Rated current (max) amps	17	22	25	32	41	52	63
Typical running current @ B0/W35 amps	12	13	14	18	23	29	36
Starting current amps****	100	114	150	178	202	224	279

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	Three Phase						
Nominal thermal kW rating	20	25	30	40	45 <sup>^</sup>	60	75
<b>Refrigerant circuit</b>							
Process medium	R407C						
Fill volume kg	2.0	2.25	2.5	3.0	3.75	3.75	5.5
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	scroll
<b>Dimensions (nominal)</b>							
Height (mm)	1750						
Width (mm)	800						
Depth (mm)	900						
Dry weight kg	180	200	250	280	300	350	380
<b>Operating pressure</b>							
Brine circuit min (primary) bar g	0.3						
Heating water circuit min (secondary) bar g	0.3						
Low pressure reset bar g	1.8						
<b>Connection sizes</b>							
Primary IN and OUT PN10/16	DN40						
Heating flow and return PN10/16	DN40						

<sup>^</sup>The 45kW plantroom produces above 50kW at a ground temperature of 0°C and load temperature of 35°C

+ Cooling only units are not MCS approved

\* The COP figure quoted excludes the water pump electrical input and is calculated according to EN14511.

\*\* In-built immersion heaters will increase running costs and CO2 emissions as they use direct electricity, because of this Kensa heat pumps do not include them.

\*\*\* By increasing the flow temperature from the heat pump the efficiency of the unit will drop and the COP decreases.

\*\*\*\* The starting currents are per phase. For full details on how the starting currents are calculated please contact Kensa.

Note: Design flowrates and pressure drops are based on a ground temperature of 0 and -4°C and a load temperature of 30 and 35°C

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#### Sizing Example

SPACE HEATING: Assumes 40 watts per square metre peak heating requirement. Precise sizing can be established by referring to the SAP report or heat loss calculations. In every instance reviewed in 2007/8, heat losses are between 30 - 40 watts per square metre for properties built to Part L 2006 (England and Wales). As a result, it may be possible to offer a smaller, less expensive heat pump and accessories. In every instance, Kensa heat pumps are sized to handle the peak heating load; Kensa appliances do not feature integral immersion heaters.

Building floor area—1000 square metres

Estimated peak heating load = 40 watts x 1000  
= 40 kW

To allow for part load conditions without short cycling and redundancy, it is advisable to select a number of units as opposed to one unit.

Heat pump requirement = 2 x 20kW plantroom modules.

For antifreeze quantities and ground array design please contact Kensa.

The values used above are a guide only and Kensa would require a copy of the buildings SAP or heat loss calculations to provide a more accurate sizing before ordering.

Kensa plantroom heat pumps can work equally as well with horizontal, vertical or lake arrays as the energy source. In large commercial projects it can be more usual to use a borehole field design due to space considerations. Kensa can offer a thermal response test on a trial borehole to provide data to enable an accurate borefield design to be produced. For any loads above 100kW this is highly recommended. Please contact Kensa for further details.