



High Temperature Plantroom Heat Pumps

Features and Benefits

- **Low running costs.**
- **Low carbon emissions.**
- **Modular design.**
- **UK manufactured.**
- **Heating and cooling options.**



Product Description

The [Kensa high temperature 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 of a modular design meaning by combining them much higher loads can be achieved. They are designed to provide a higher outlet temperature of up to 65°C than standard plantroom systems.

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.

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](#), and 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 offers a high quality product which is supported by industry leading technical support to ensure the application engineering is performed to the highest standard.



High Temperature Plantroom Heat Pumps

	Three Phase
Nominal thermal kW rating	25
MCS approved	Heating -BBA0055/34
Product Code X— H Heating only R Reverse Cycle C Cooling only +	PH250X
Performance data—rated heating output at B0/W35 BS EN14511	
Power consumption kW	6.44
Coefficient of performance*	4.17
Immersion heater output	Kensa heat pumps do not feature back-up electric immersion heaters**
Brine (primary) based on 0°C in, -4°C out	
Design flow rate kg/min	82.4
Pressure drop kPa at design flow rate	12.6
Max inlet temperature °C	15
Min temperature °C (Outlet)	-5 (at standard settings)
Heating water (secondary) based on 30°C in, 35°C out	
Design flow rate l/min	120
Pressure drop kPa at design flow rate	7.27
Max flow temperature °C***	Up to 65C depending on application
Electrical Values @B0/W35	
Rated Voltage	400V / 50 Hz
Power supply rating amps	40
Rated current (max) amps	32
Typical running current @ B0/W35 amps	15.3
Starting current amps****	54



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	Three Phase
Nominal thermal kW rating	25
Refrigerant circuit	
Process medium	R134a
Fill volume kg	3.0
Compressor type	scroll
Dimensions (nominal)	
Height (mm)	1750
Width (mm)	800
Depth (mm)	900
Dry weight kg	280
Operating pressure	
Brine circuit min (primary) bar g	0.3
Heating water circuit min (secondary) bar g	0.3
Low pressure reset bar g	1.8
Connection sizes	
Primary IN and OUT PN10/16	DN40
Heating flow and return PN10/16	DN40
Performance (based on Average Climate) @35°C	
ErP rating	A+
SCOP	3.91
Seasonal space heating energy efficiency	148%
Performance (based on Average Climate) @55°C	
ErP rating	A+
SCOP	3.3
Seasonal space heating energy efficiency	124%
Sound Power Level	
Sound Power Level (dB)	68

^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.

Please note the above methodology is not compliant with MCS which requires a full heat loss calculation to be carried out. 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.