



Plantroom Heat Pumps

Features and Benefits

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



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.

Due to the size of the compressors Plantroom models are only available in three phase and come fitted with three phase inverters as standard.

Plantroom heat pumps can interface easily with a buildings heating distribution system, such as fan coils, underfloor, and air handling units etc.

The Plantroom models 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.



Plantroom Heat Pumps

	Three Phase					
Nominal thermal kW rating	25	30	40	45 [^]	60	75
MCS approved	Reverse Cycle - BBA0055/24	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 +	P250X	P300X	P400X	P500X	P600X	P750X
Performance data—rated heating output at B0/W35 BS EN14511						
Power consumption kW	6.5	8.0	9.7	12.8	15.9	19.0
Coefficient of performance*	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**					
Brine (primary) based on 0°C in, -4°C out						
Design flow rate l/min	68.5	87.4	105.6	135.2	167.8	207.4
Pressure drop kPa at design flow rate	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)					
Heating water (secondary) based on 30°C in, 35°C out						
Design flow rate l/min	74.7	95.0	112.0	147.6	183.5	224.9
Pressure drop kPa at design flow rate	13	12.2	16.9	19.5	17.0	25.5
Max flow temperature °C***	50					
Electrical Values @B0/W35						
Rated Voltage	400V / 50 Hz					
Power supply rating amps	32	32	40	50	63	70
Rated current (max) amps	22	25	32	41	52	63
Typical running current @ B0/W35 amps	13	14	18	23	29	36
Starting current amps****	57	75	89	101	112	140



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	Three Phase					
Nominal thermal kW rating	25	30	40	45 [^]	60	75
Refrigerant circuit						
Process medium	R407C					
Fill volume kg	2.25	2.5	3.0	3.75	3.75	5.5
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll
Dimensions (nominal)						
Height (mm)	1750					
Width (mm)	800					
Depth (mm)	900					
Dry weight kg	200	250	280	300	350	380
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+	A+	A+	A+	†	†
SCOP	3.75	3.85	3.82	3.75	†	†
Seasonal space heating energy efficiency	142%	142%	145%	142%	†	†
Performance (based on Average Climate) @55°C						
ErP rating	A+	A+	A+	N/A	†	†
SCOP	3.04	3.13	3.16	N/A	†	†
Seasonal space heating energy efficiency	114%	117%	118%	N/A	†	†
Sound Power Level						
Sound Power Level (dB)	68	68	71	71	†	†

† Units are currently being ErP tested and will be available when complete.

[^]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°C and 35°C.

The P500X model is designed as a low temperature space heater as defined by ErP with a maximum application temperature of 50°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—2000 square metres

Estimated peak heating load = 40 watts x 2000
= 80 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 40kW 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 well with horizontal, vertical or lake arrays as the energy source. In large commercial projects a borehole field design may be specified 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.