Compact Twin Compressor Heat Pumps

Features and Benefits

- Available up to 24kW in single phase
- Single and three phase models
- Low running costs
- Low carbon emissions
- Ease of installation
- Complete kit available
- UK manufactured
- Access to industry grants

Product Description

The Kensa Twin compressor range of Compact heat pumps are designed to provide space heating and domestic hot water production (optional extra) for well insulated buildings.

Available in single and three phase models.

Kensa heat pumps use low grade renewable energy from the ground and concentrates this to a higher temperature to provide heat into a buildings heating system.

Heat pumps are ideally suited to underfloor heating distribution systems mounted in screed as the large heat emitting surface area means a low flow temperature from the heat pump can be used increasing its efficiency.

Radiators can also be used within the heating distribution system however due to the higher flow temperatures required from the heat pump, its efficiency will be decreased and hence it is important to assess the viability of installing a unit against the alternative fuels available.

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.

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	Single Phase			Three Phase		
Nominal thermal kW rating	**16**	**20**	**24**	**20**	**24**	**30**
Part Number	**C160-T1H**	**C200-T1H**	**C240-T1H**	**C200-T3H**	**C240-T3H**	**C300-T3H**
MCS Approved	**BBA0055/07**	**BBA0055/08**	**BBA0055/09**	**BBA0055/13**	**BBA0055/14**	**BBA0055/15**
Performance data—rated heating output at B0/W35 BS EN14511						
Power consumption	5.2	5.8	7.2	5.7	6.9	8.1
Coefficient of performance*	4.15	4.16	4.14	4.15	4.18	4.15
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	52.7	61.2	75.4	61.5	76.2	91.6
Pressure drop kPa at design flow rate	11.2	15.3	22.2	15.4	22.6	31.5
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	50.6	58.4	72.0	58.2	71.8	85.9
Pressure drop kPa at design flow rate	9.3	12.3	18.7	12.3	18.6	26.5
Max flow temperature °C***	55					
Electrical Values @B0/W35						
Rated Voltage	220 – 240 V / 50 Hz			400V / 50Hz		
Power supply rating amps	63	63	63	25	32	32
Rated current (max) amps	43.7	52.5	65.4	18.9	23.6	27.0
Typical running current @ B0/W35 amps	27.4	28.0	35.4	12.2	15.2	17.5
Typical starting current amps****	44	44	48	55	68	63

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	Single Phase			Three Phase		
Nominal thermal kW rating	**16**	**20**	**24**	**20**	**24**	**30**
Refrigerant circuit						
Process medium	R407C					
Fill volume kg	2.2	2.4	2.6	2.4	2.6	2.4
Compressor type	Scroll					
Dimensions						
H x W x L (mm)	900 x 900 x 570					
Dry weight kg	167	170	180	170	180	185
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 mm	50			50		
Heating flow and return mm	28					
Performance (based on Average Climate) @35°C						
ErP rating	A++	A+	A+	A++	A+	A+
SCOP	3.99	3.82	3.87	4.15	3.83	3.69
Seasonal space heating energy efficiency	152%	145%	147%	158%	145%	140%
Performance (based on Average Climate) @55°C						
ErP rating	A+	A+	A+	A+	A+	A+
SCOP	3.18	3.14	2.94	3.30	3.13	3.11
Seasonal space heating energy efficiency	119%	118%	110%	124%	117%	116%
Sound Power Level						
Sound Power Level (dB)	58	59	61	59	59	59

* The COP figure quoted is calculated as per EN14511 , SCOP is calculated using EN14511 and EN14825
** 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.
**** Kensa single phase compact heat pumps incorporate smart starts as standard to limit the starting current of the compressors. For full details on how the starting currents are calculated please contact Kensa.
Note: Design flowrates are for a ground temperature of 0 and –4°C and a load temperature of 30°C and 35°C

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Sizing

SPACE HEATING: Assumes 40 watts per square metre peak heating requirement. Precise sizing can be established by referring to the SAP report. 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.

DOMESTIC HOT WATER - SLINKY REQUIREMENT: Sizing a heat pump and its ground arrays for domestic hot water is more complex. Whereas occupancy levels and lifestyle habits will not greatly affect the space heating load, they will impact on domestic hot water requirements. Clearly, an additional burden is imposed on the ground arrays; in addition, the year round requirement for domestic hot water means there is a lesser opportunity for the ground to recover temperature. As a consequence, extra pipework must be buried. The Slinky requirement outlined in the table below reflects typical water usage; please contact Kensa if requirements are considered exceptional.

DOMESTIC HOT WATER - METHOD OF OPERATION: The heat pump can be in space heating OR domestic hot water mode. When in DHW mode, the heat pump will achieve the highest possible stored water temperature which means its performance will be enhanced in the summer months (when ground conditions are warmest). After completing its DHW duty, the heat pump will return to space heating mode, if required. The heat pump will not be able to return to DHW model for two hours. For this reason, a suitably -sized storage cylinder should be specified. Any cylinder should be equipped with integral immersion heaters to provide a boost, if required. These immersion heaters should be run during the low cost periods provided with an Economy Ten tariff. Contact Kensa for further information. Kensa supplies a special three way valve to divert between modes. The installer would need to provide a time clock to control DHW periods.

Nominal thermal kW rating	**16**	**20**	**24**	**30**
Building size				
Building size m^2	400	500	600	750
Space heating				
Slinkies	4 x 40m	4 x 50m	5 x 50m	6 x 50m
Manifold	4 way	4 way	5 way	6 way
Antifreeze* litres	150	150	200	225
Space heating and domestic hot water production				
Slinkies	4 x 50m	5 x 50m	6 x 50m	7 x 50m
Manifold	4 way	5 way	6 way	7 way
Antifreeze* litres	150	200	225	275
Recommended minimum heat transfer area in DHW tank (not supplied)	3.2m^2	4.0m^2	4.8m^2	5.6m^2

* Antifreeze quantities quoted are a minimum and may need to be increased depending on the distance between the heat pump and ground array manifold. The concentration should be a minimum of 20% and offer a protection to -10 °C.

Please note the above methodology is not compliant with MCS which requires a full heat loss calculation to be carried out. The values in the table are a guide only and Kensa would require a copy of the buildings SAP or heat loss report to provide a more accurate sizing before ordering.