

Basic guide to heat pump system sizing

Naturally, a unit that uses air as its source for heat, will perform better as the temperature of that air increases. The industry standard for quoting the output of heat pumps is Air 7/ Water 35. So, a 14kW heat pump will deliver 14kW at an air temperature of 7°C when generating a flow temperature of 35°C. Below are the outputs at various other temperatures. The lower the flow temperature, and the higher the ambient temperature, the more efficient they become: the system should therefore be designed for as low flow temperature as possible.

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Outdoor temp	Units	5kW	7kW	12kW	14kW
35° Flow					
-5	kW	3.1	4.55	7.40	8.31
	COP	2.45	2.71	2.75	2.62
2	kW	4	5.41	8.72	10.2
	COP	3.1	2.99	3.11	3.2
7	kW	4.8	7.2	11.82	14.5
	COP	3.8	3.9	3.9	4.06
45° Flow					
-5	kW	2.6	4.45	6.96	7.9
	COP	1.8	2.28	2.24	2.1
2	kW	3.9	5.38	8.45	10.2
	COP	2.6	2.55	2.61	2.6
7	kW	4.5	7.4	11.38	14
	COP	3.1	3.16	3.03	3.21
55° Flow					
-5	kW	2.02	4.24	7.06	7.6
	COP	1.38	2.02	1.92	1.8
2	kW	3.7	5.14	8.47	10.2
	COP	2.15	2.34	2.2	2.6
7	kW	4.35	6.71	11.04	13.9
	COP	2.5	2.68	2.5	2.82

For a design with a 45 degree flow temperature, such as underfloor heating, or correctly sized radiators, the table below shows the maximum size of a property each output is suitable for based on build year. Please note this does not take into account DHW.

Year	5kW	7kW	12kW	14kW
New build (to 2010 regs)	up to 65m ²	up to 100m ²	up to 185m ²	up to 200m ²
2006 - 2010	up to 50m ²	up to 90m ²	up to 135m ²	up to 155m ²
1995 - 2005		up to 55m ²	up to 85m ²	up to 100m ²
1975 - 1995			up to 70m ²	up to 80m ²

