



Air Source Heat Pump Noise Level Calculation Form

Step	Instructions	MCS Contractors Results
1.	From manufacturers data, obtain the A-weighted sound power level of the heat pump. See "Note 1: Sound Power Level" below. The highest sound power level specified should be used (the power in "low noise mode" should not be used).	55
2.	Use "Note 2: Sound Pressure level" and "Note 3: Determination of directivity" below to establish the directivity "Q" of the heat pump noise.	Q8 - "Three Reflective Surfaces"
3.	Measure the distance from the heat pump to the assessment position in metres.	2
4.	Use table in "Note 4: dB distance reduction" below to obtain a dB reduction.	-8
5.	Establish whether there is a solid barrier between the heat pump and the assessment position using "Note 5: Barriers between the heat pump and the assessment position" and note any dB reduction.	Barrier (no view)
6.	Calculate the sound pressure level (see Note 2: Sound pressure level") from the heat pump at the assessment position using the following calculation: (STEP 1) + (STEP 4) + (STEP 5)	37
7.	Background noise level. For the purposes of the MCS Planning Standard for air source heat pumps the background noise level is assumed to be 40 dB (A)Lp. For information see "Note 6: MCS Planning Standard for air source heat pumps background noise level"	40



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8.	Determine the difference between STEP 7 background noise level and the heat pump noise level using the following calculation: (STEP 7) – (STEP 6)	3
9.	Using the table in "Note 7: Decibel correction" obtain an adjustment figure and then add this to whichever is higher dB figure from STEP 6 and STEP 7. Round this number up to the nearest whole number.	42
10.	Is the FINAL RESULT in STEP 9 lower than the permitted development noise limit of 42 dB (A)? If YES – the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of the MCS 020 standard.) NOTE – other assessment positions may also need to be tested. If NO – the air source heat pump will not be permitted development. This installation may still go ahead if planning permission is granted by the local planning authority.	YES

Product Information (in accordance with EU regulation no. 813/2013)

1	Brand name		Vaillant	
2	Models		I	VWL 55/6 A 230V S2 (55°C)
			II	VWL 75/6 A 230V S2 (55°C)
			III	VWL 125/6 A 230V S2 (55°C)
			IV	VWL 125/6 A S2 (55°C)
			V	-
			VI	-

				I	II	III	IV	V	VI
17	Air/water heat pump			✓	✓	✓	✓	-	-
18	Water/water heat pump			-	-	-	-	-	-
19	Brine/water heat pump			-	-	-	-	-	-
20	Low temperature heat pump			-	-	-	-	-	-
21	Equipped with a supplementary heater			-	-	-	-	-	-
22	Combination heater			-	-	-	-	-	-
23	Room heating: Nominal heat output(*11)	P_{rated}	kW	5	6	12	12	-	-
24	Room heating: Seasonal energy efficiency	η_s	%	129	133	146	146	-	-
25	TJ = -7 °C(*6)	$P_{dth -7^{\circ}}$	kW	4,3	5,4	10,5	10,5	-	-
26	TJ = +2 °C(*6)	$P_{dth +2^{\circ}}$	kW	2,5	3,5	6,4	6,4	-	-
27	TJ = +7 °C(*6)	$P_{dth +7^{\circ}}$	kW	2,1	3,0	5,7	5,7	-	-
28	TJ = +12 °C(*6)	$P_{dth +12^{\circ}}$	kW	2,5	3,6	6,6	6,6	-	-
29	TJ = Bivalence temperature(*6)	P_{dth}	kW	4,6	5,4	10,5	10,5	-	-
30	TJ = Operating limit value temperature(*6)	P_{dth}	kW	4,6	4,9	9,8	9,8	-	-
31	TJ = -15 °C(*6)	$P_{dth -15^{\circ}}$	kW	-	-	-	-	-	-
32	Bivalence temperature	T_{bv}	°C	-10	-7	-7	-7	-	-
33	Output for cyclical interval heating mode	P_{cyc}	kW	-	-	-	-	-	-
34	Degradation coefficient	C_{dh}		0,96	0,95	0,96	0,95	-	-
35	TJ = -7 °C(*7)	COP_d		2,11	2,13	2,10	2,10	-	-
36	TJ = +2 °C(*7)	COP_d		3,19	3,36	3,73	3,73	-	-
37	TJ = +7 °C(*7)	COP_d		4,40	4,60	5,26	5,26	-	-
38	TJ = +12 °C(*7)	COP_d		6,03	6,18	6,64	6,64	-	-
39	TJ = Bivalence temperature(*7)	COP_d		1,86	2,13	2,10	2,10	-	-
40	TJ = Operating limit value temperature(*7)	COP_d		1,86	1,88	1,87	1,87	-	-
41	TJ = -15 °C(*7)	COP_d		-	-	-	-	-	-
42	Operating limit temperature	TOL	°C	-10	-10	-10	-10	-	-
43	Cycling interval efficiency(*7)	COP_{sc}	%	-	-	-	-	-	-
44	Limit value for the heating water's operating temperature	$WTOL$	°C	70	70	70	70	-	-
45	Power consumption: Off-mode	P_{off}	kW	0,008	0,008	0,008	0,014	-	-
46	Power consumption: "Temperature controller off"	P_{to}	kW	0,017	0,029	0,045	0,051	-	-
47	Power consumption: Standby-mode	P_{sa}	kW	0,017	0,029	0,045	0,051	-	-
48	Power consumption: Operating status with crankcase heating	P_{ox}	kW	0,000	0,000	0,000	0,000	-	-
49	Nominal heat output for auxiliary heating	P_{sup}	kW	0,3	1,3	2,0	2,0	-	-
50	Type of energy input for the auxiliary boiler			electric	electric	electric	electric	-	-
51	Controlling output under average climate conditions			variable	variable	variable	variable	-	-
52	Sound power level, Indoor	$L_{wa, indoor}$	dB(A)	-	-	-	-	-	-
53	Sound power level, outdoor	$L_{wa, outdoor}$	dB(A)	54	55	60	51	-	-
54	Nitrogen oxide emissions	NO_x	mg/kWh	-	-	-	-	-	-
55	For air-to-water heat pumps: Rated air flow rate, outdoors		m³/h	2.220	2.120	4.460	4.460	-	-
56	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		m³/h	-	-	-	-	-	-
57	Manufacturer's address			Vaillant GmbH Berghauser Str. 40 42859 Remscheid Germany					
58	Manufacturer			Vaillant					

(*6) Specified output in heating mode for partial load at room-air temperature and outside-air temperature Tj

(*7) Specified coefficient of performance or primary energy ratio for partial load at room-air temperature and outside-air temperature Tj

(*11) For boilers and combination boilers with a heat pump, the nominal heat output "Prated" is the same as the design load in heating mode "Pdesignh", and the nominal heat output for an auxiliary boiler "Psup" is the same as the additional heating output "sup(Tj)"



Product data sheet (in accordance with EU regulation no. 811/2013)

1	Brand name		Vaillant
2	Models	I	VWL 55/6 A 230V S2 (55°C)
		II	VWL 75/6 A 230V S2 (55°C)
		III	VWL 125/6 A 230V S2 (55°C)
		IV	VWL 125/6 A S2 (55°C)
		V	-
		VI	-

				I	II	III	IV	V	VI
3	Room heating: Seasonal energy-efficiency class			A++	A++	A++	A++	-	-
4	Room heating: Nominal heat output(*8) (*11)	P_{rated}	kW	5	6	12	12	-	-
5	Room heating: Seasonal energy efficiency(*8)	η_s	%	129	133	146	146	-	-
6	Qhe average(*8)	Q_{he}	kWh	3059	3718	6531	6563	-	-
7	Sound power level, indoor	$L_{wa, indoor}$	$dB(A)$	-	-	-	-	-	-
8	 All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.								
9	Nominal heat output(*9)	P_{rated}	kW	5	5	11	11	-	-
10	Nominal heat output(*10)	P_{rated}	kW	5	7	11	11	-	-
11	Room heating: Seasonal energy efficiency(*9)	η_s	%	116	118	128	128	-	-
12	Room heating: Seasonal energy efficiency(*10)	η_s	%	153	160	172	170	-	-
13	Annual energy consumption(*9)	Q_{IE}	kWh	3948	4398	8339	8365	-	-
14	Annual energy consumption(*10)	Q_{IE}	kWh	1733	2164	3378	3417	-	-
15	Sound power level, outdoor	$L_{wa, outdoor}$	$dB(A)$	54	55	60	51	-	-
16	 All of the data that is included in the product information was determined by applying the specifications of the relevant European directives. Differences to product information listed elsewhere may result in different test conditions. Only the data that is contained in this product information is applicable and valid.								

(*8) For average climatic conditions

(*9) For colder climatic conditions

(*10) For warmer climatic conditions

(*11) For boilers and combination boilers with a heat pump, the nominal heat output "Prated" is the same as the design load in heating mode "Pdesignh", and the nominal heat output for an auxiliary boiler "Psup" is the same as the additional heating output "sup(Tj)"

