

THERMA V AIR-TO-WATER HEAT PUMP

Please find below the required data for the SEAI Heat Pump Tool for DEAP 2016:

*Where information is blank, please enter project specific information.

LG declares compliance to the following EU Directives:

811/2013/EU

813/2013/EU

Section 4 – Heat Pump Data

Manufacturer of the installed heat pump(s)	LG Electronics
Model of the installed heat pump(s)	HU121MRB.U30
Type of Heat Pump	Air to water
Temperature control	Variable Outlet
Does the installation provide	Space Heating & Domestic Hot water
Space Heating Test Standard	I.S. EN 14825
Water Heating Test Standard	I.S. EN 16147
Operation Limit Temperature	-15.00
Heating water operating Limit Temperature	65°C

Section 5 – Heating

Annual space heating requirement taken from DEAP	
Is there a fixed secondary heater present?	
Is there a CHP present?	
Fraction of main space and water from CHP	
Annual space heating provided by Heat Pump	
Design Outdoor Temperature	-3
Indoor Design Temperature (Mean internal Temperature)	
Heat emission type served by Heat Pump within the dwelling	Select all that apply:
1 or more Radiators	
1 or more Fan Coil Units	
Underfloor Heating	
Air used as Emitter (to Air Units)	No
Design Flow Temperature	
Use "Default Supply Temperature" unless other evidence available	
Exponent n, characterising type of emission system	1.2
Emitter Temperature Drop	10
No of hours per day Heat Pump in operation	24
Cut-out hours	8
Return Temperature at design conditions	
Electricity Primary Energy Factor	2.08
Is a Back Up Space Heater Present within Dwelling	No
Back Up Space Heater Fuel	
Primary Energy Factor for Back Up Space Heater	
Efficiency of Back Up Space Heater	
Adjusted efficiency of Back Up Space Heater relative to Direct Electric Heating	
Is there a water heater installed as back up for the Heat Pump?	No
Back up Water Heater Fuel	
Primary Energy Factor for Back Up Water Heater	
Efficiency of Back up Water Heater	
Adjusted efficiency of Back Up Water Heater relative to Direct Electric Heating	

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Section 6 – Domestic Hot Water

Output from Main Water Heater	
Type of DHW	Integral
Annual water heating provided by main water heating system	
Cold Water Inlet Temperature	10
Required Flow Temperature from Heat Pump to Hot Water Storage	60
Volume of DHW Storage	300

Section 6 – Product Performance Data

Test Condition EN 14825:2013						
Additional Test Points available at:					Low Temperature	Yes
					Medium Temperature	No
					Very High Temperature	No
Maximum Test Temperature allowed for in EN14825 testing						55
Low Temperature Application (35°C)	Test Conditions EN 14825:2013	A (88%)	B (54%)	C (35%)	D (15%)	E (100%)
	Source	A-7	A2	A7	A12	A-15
EN 14825:2013 – Table 12 (ASHP) or Table 24 (GSHP)	Sink	W34	W30	W27	W24	W35
	Heating Capacity (kW)	10.2	6.2	4.5	5.0	11.5
	Coefficient of Performance (kW/kW)	3.01	4.42	6.04	8.44	2.65
High Temperature Application (55°C)	Source	A-7	A2	A7	A12	A-15
	Sink	W52	W42	W36	W30	W55
EN 14825:2013 – Table 18 (ASHP) or Table 30 (GSHP)	Heating Capacity (kW)	10.2	6.3	4.6	4.6	10.8
	Coefficient of Performance (kW/kW)	2.2	3.38	4.67	6.66	1.92

Test Condition EN 16147:2017

Source of data	Water heating energy efficiency, nwh
Water heating energy efficiency, nwh	105.3%
Equivalent Coefficient of Performance	
Reference Hot Water Temperature	52°C
Required Source Temperature	N/A
Capacity of Heat Pump	12
Declared Load Profile	XL
Standby Heat Loss (kW)	2.09
Volume of DHW accounted for in test	300

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Technical parameters for heat pump space heaters and heat pump combination heaters

Model(s):	HU121MRB U30 / HN1600MB NK0	
Air-to-water heat pump:	YES	NØ
Water-to-water heat pump:	YES	NO
Brine-to-water heat pump:	YES	NO
Low-temperature heat pump:	YES	NO
Equipped with a supplementary heater:	YES	NØ
Heat pump combination heater:	YES	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps.
For low-temperature heat pumps, parameters shall be declared for low-temperature application.
Parameters shall be declared for average climate conditions.

Low temperature application

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	12	kW	Seasonal space heating energy efficiency	η_s		
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	P_{dh}	10.2	kW	T _j = -7 °C		COPd or PERd	
T _j = +2 °C	P_{dh}	6.2	kW	T _j = +2 °C		COPd or PERd	
T _j = +7 °C	P_{dh}	4.5	kW	T _j = +7 °C		COPd or PERd	
T _j = +12 °C	P_{dh}	5.0	kW	T _j = +12 °C		COPd or PERd	
T _j = bivalent temperature	P_{dh}	11.5	kW	T _j = bivalent temperature		COPd or PERd	
T _j = operation limit temperature	P_{dh}	11.5	kW	T _j = operation limit temperature		COPd or PERd	
For air-to-water heat pumps: T _j = -15°C (if TOL < -20°C)	P_{dh}	x,x	kW	For air-to-water heat pumps: T _j = -15°C (if TOL < -20°C)		COPd or PERd	
Bivalent temperature	T_{biv}	-10	°C				
Cycling interval capacity for heating	P_{cyc}	x,x	kW	Cycling interval efficiency		COP _{cyc} or PER _{cyc}	
Degradation co-efficient(**)	C_{dh}	0.9		Heating water operating limit temperature		WTOL	

Medium temperature application

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	12	kW	Seasonal space heating energy efficiency	η_s		
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	P_{dh}	10.2	kW	T _j = -7 °C		COPd or PERd	
T _j = +2 °C	P_{dh}	6.3	kW	T _j = +2 °C		COPd or PERd	
T _j = +7 °C	P_{dh}	4.6	kW	T _j = +7 °C		COPd or PERd	
T _j = +12 °C	P_{dh}	4.6	kW	T _j = +12 °C		COPd or PERd	
T _j = bivalent temperature	P_{dh}	10.2	kW	T _j = bivalent temperature		COPd or PERd	
T _j = operation limit temperature	P_{dh}	10.8	kW	T _j = operation limit temperature		COPd or PERd	
For air-to-water heat pumps: T _j = -15°C (if TOL < -20°C)	P_{dh}	x,x	kW	For air-to-water heat pumps: T _j = -15°C (if TOL < -20°C)		COPd or PERd	
Bivalent temperature	T_{biv}	-7	°C	For air-to-water heat pumps: Operation limit temperature		TOL	
Cycling interval capacity for heating	P_{cyc}	x,x	kW	Cycling interval efficiency		COP _{cyc} or PER _{cyc}	
Degradation co-efficient(**)	C_{dh}	0.9		Heating water operating limit temperature		WTOL	

Power consumption in modes other than active mode

Off mode	P_{OFF}	0.060	kW
Thermostat-off mode	P_{TO}	0.060	kW
Standby mode	P_{SB}	0.060	kW
Crankcase heater mode	P_{CK}	0.000	kW

Supplementary heater

Rated heat output (*)	P_{sup}	
Type of energy input		

Other items

Capacity control	Variable		
Sound power level, indoors/outdoors	$L_{WA,indoor}$	44	dB
	$L_{WA,outdoor}$	61	dB
Annual electricity consumption (Low Temp)	Q HE, (Low Temp)	5165	kWh
Annual electricity consumption (Mid Temp)	Q HE (Mid Temp)	6788	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors (Low Temp)	
For air-to-water heat pumps: Rated air flow rate, outdoors (Mid. Temp)	
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	
Water Pump EEI	≤
The benchmark for the most efficient circulators is EEI ≤ 0,20.;	

For heat pump combination heater

Declared load profile	x		
Daily electricity consumption	Q_{elec}	x.xxx	kWh
Annual electricity consumption	AEC	x	kWh
Water heating energy efficiency	η_{wh}		
Daily fuel consumption	Q_{fuel}		
Annual fuel consumption	AFC		

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.

(**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$.

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