

DEAP 4.2 INPUTS

Add New Item To Library

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BASIC PROPERTIES

HEAT PUMP TEST DATA

Item Type *

Heat Source

Item Name *

LG R32 9kW 210L

Keywords *

LG Therma V R32

Manufacturer *

LG

Model *

HM091M.U43

Heating Source Type *

Heat Pumps

Heat Pump Type *

Air to Water

Space Heating Standard *

I.S. EN 14825

Water Heating Standard *

I.S. EN 16147

Season Space Heating Efficiency, η_s [%] *

122

Water Heating Efficiency, η_{wh} [%] *

116

Temperature Control (Capacity Control) *

Variable Outlet

Integrated Immersion

Flow Temperature \geq [60/65°C]

TOL *

-15

WTOL *

65

CANCEL

SAVE

Create Library Item

BASIC PROPERTIES

HEAT PUMP TEST DATA

 Heating System Test Data: I.S. EN14825

 Test Condition Low (35°C)

	A(88%)	B(54%)	C(35%)	D(15%)	E*(100%)
	-7°C	2°C	7°C	12°C	TOL
Source	A-7	A2	A7	A12	A-10
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	<u>5.30</u>	<u>3.20</u>	<u>2.50</u>	<u>3.10</u>	<u>5.60</u>
Coefficient of Performance (KW/KW)	<u>2.70</u>	<u>4.21</u>	<u>6.57</u>	<u>9.40</u>	<u>1.90</u>

 Test Condition High (55°C) *

	A(88%)	B(54%)	C(35%)	D(15%)	E*(100%)
	-7°C	2°C	7°C	12°C	TOL
Source	A-7	A2	A7	A12	A-10
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	<u>4.90</u>	<u>3.00</u>	<u>3.10</u>	<u>3.80</u>	<u>5.00</u>
Coefficient of Performance (KW/KW)	<u>1.76</u>	<u>3.09</u>	<u>4.60</u>	<u>6.72</u>	<u>1.50</u>

 Heating System Test Data: I.S. EN16147

Source of Data *	Coefficient of Performance (KW/KW)	Water Heating Efficiency, η_{wh} [%]
Water Heating Efficiency		<u>116</u>
Reference Hot Water Temperature (°C) *		Capacity of Heat Pump (kW) *
<u>52</u>		<u>9</u>
Declared Load Profile *	Standby Heat Loss [kWh/day] *	Volume of DHW accounted for in test (Litre) *
<u>L</u>	<u>1.76</u>	<u>210</u>

CANCEL

SAVE

Edit Primary Heat Source

Product Details		Survey Details	
Type	Heat Pumps	Heat % *	100
Heat Pump Type	Air to Water	Fuel Type	Electricity
Manufacturer	LG	<input checked="" type="checkbox"/> Heats Water	
Model	HM091M.U43	Design Flow Temperature (°C) *	As Required
Seasonal Space Heating Efficiency, η_s	122	Daily Operation (h) *	24
<p>This is the Ecodesign Seasonal Space Heating Efficiency, η_s. When the survey is completed, the efficiency will be updated to reflect the performance of the heat pump in this dwelling.</p>		Backup Space Heater Fuel	Electricity
Eff. Adj. Factor	1	Back Up Space Heater Efficiency (%) *	100
<p>VIEW DETAILS IN LIBRARY</p>		Backup Water Heater Fuel	Electricity
		Back Up Water Heater Efficiency (%) *	100



Hot Water Tab

Options & Storage

Solar

Heat Source



Options



Distribution Losses



Storage Losses



Is supplementary electric water heating used in summer



Is there a combi boiler



Storage



Is hot water storage indoors or in group heating scheme?

Storage Type

Cylinder, indirect

Storage Volume (l)

210

Heat Pump Type of DHW *

Integral Hot Water Storage



Is manufacturers declared loss available

Kingspan HP210L

1.76

Insulation Type

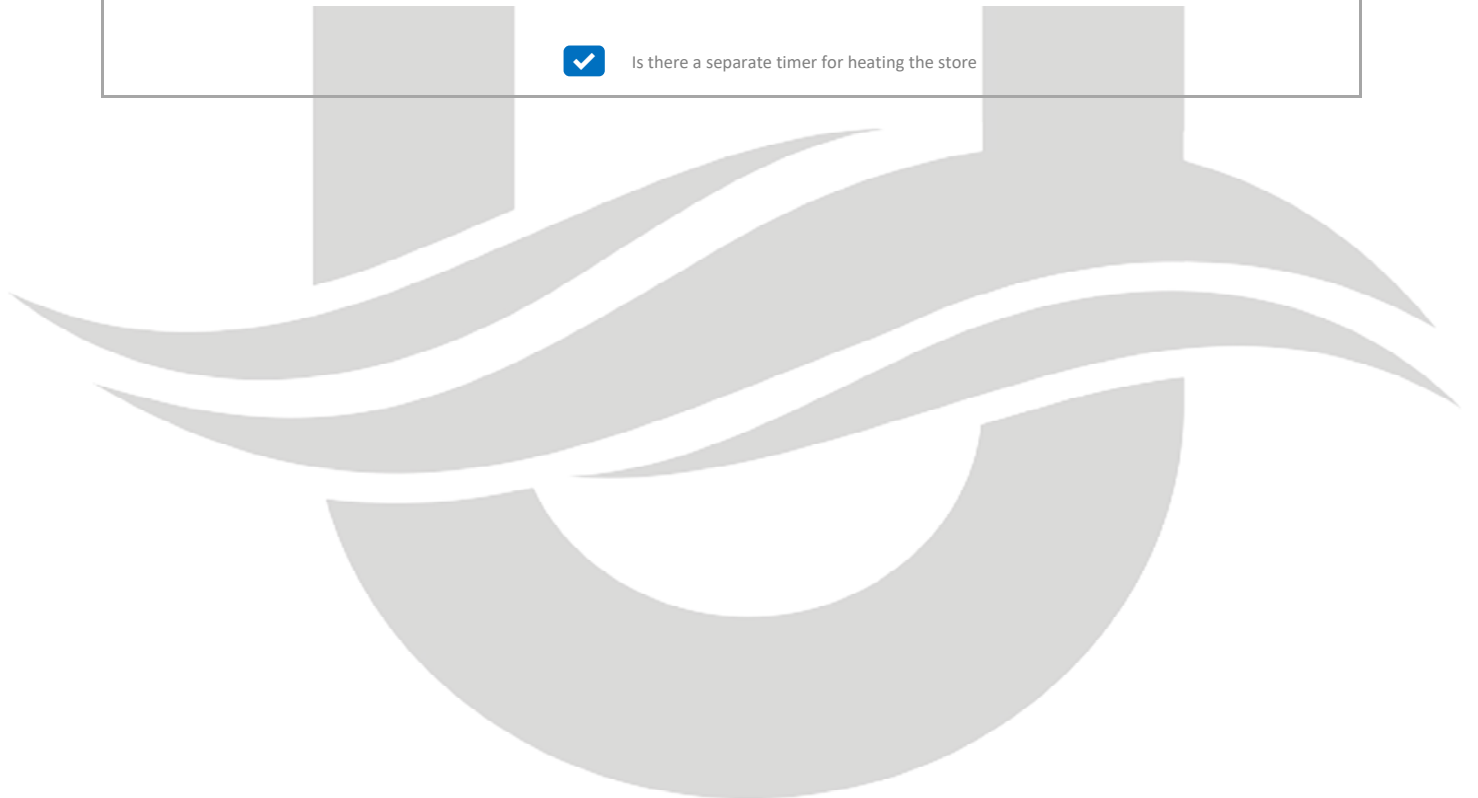
Insulation Thickness (mm)

Primary Circuit Loss Type

Boiler with insulated primary pipework and with cylinder thermostat



Is there a separate timer for heating the store



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

812/2013/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)	HM091M.U43
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	
Cut-out hours	
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?	
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	

THERMA V AIR-TO-WATER HEAT PUMP

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	210

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)	5.3	3.2	2.5	3.1	5.6
	Coefficient of Performance (kW/kW)	2.7	4.21	6.57	9.4	1.9
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)	4.9	3.0	3.1	3.8	5.0
	Coefficient of Performance (kW/kW)	1.76	3.09	4.6	6.72	1.5

Test Condition EN 16147:2017

Source of data	Water heating energy efficiency, nwh
Water heating energy efficiency, nwh	116.3%
Equivalent Coefficient of Performance	
Reference Hot Water Temperature	52°C
Required Source Temperature	N/A
Capacity of Heat Pump	9
Declared Load Profile	L
Standby Heat Loss (kW)	1.76
Volume of DHW accounted for in test	210

THERMA V AIR-TO-WATER HEAT PUMP

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

Model(s):	HM091M U43	
Air-to-water heat pump:	YES	NO
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	NO
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}	6	kW	Seasonal space heating energy efficiency	η _s	175	%
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 indoor temperature 20 °C and outdoor temperature T _j			
T _j = - 7 °C	P _{dh}	5.3	kW	T _j = - 7 °C	COP _d or PER _d	2.70	- or %
T _j = + 2 °C	P _{dh}	3.2	kW	T _j = + 2 °C	COP _d or PER _d	4.21	- or %
T _j = + 7 °C	P _{dh}	2.5	kW	T _j = + 7 °C	COP _d or PER _d	6.57	- or %
T _j = + 12 °C	P _{dh}	3.1	kW	T _j = + 12 °C	COP _d or PER _d	9.40	- or %
T _j = bivalent temperature	P _{dh}	5.3	kW	T _j = bivalent temperature	COP _d or PER _d	2.70	- or %
T _{OL} = operation limit	P _{dh}	5.6	kW	T _{OL} = operation limit	COP _d or PER _d	1.90	- or %
For air-to-water heat pumps: T _j = - 15 °C (if T _{OL} < - 20 °C)	P _{dh}	x,x	kW	For water-to-air heat pumps: T _j = - 15 °C (if T _{OL} < - 20 °C)	COP _d or PER _d	x,xx	- or %
Bivalent temperature	T _{biv}	-7	°C	For water-to-air heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	P _{cych}	x,x	kW	Cycling interval efficiency	COP _{cy} or PER _{cy}	x,xx	- or %
Degradation co-efficient heat pumps(**)	C _{dh}	0.9		Heating water operating limit temperature	WTOL	65	°C

Medium temperature application

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P _{rated}	5	kW	Seasonal space heating energy efficiency	η _s	122	%
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 indoor temperature 20 °C and outdoor temperature T _j			
T _j = - 7 °C	P _{dh}	4.9	kW	T _j = - 7 °C	COP _d or PER _d	1.76	- or %
T _j = + 2 °C	P _{dh}	3.0	kW	T _j = + 2 °C	COP _d or PER _d	3.09	- or %
T _j = + 7 °C	P _{dh}	3.1	kW	T _j = + 7 °C	COP _d or PER _d	4.60	- or %
T _j = + 12 °C	P _{dh}	3.8	kW	T _j = + 12 °C	COP _d or PER _d	6.72	- or %
T _j = bivalent temperature	P _{dh}	4.9	kW	T _j = bivalent temperature	COP _d or PER _d	1.76	- or %
T _{OL} = operation limit	P _{dh}	5.0	kW	T _{OL} = operation limit	COP _d or PER _d	1.50	- or %
For air-to-water heat pumps: T _j = - 15 °C (if T _{OL} < - 20 °C)	P _{dh}	x,x	kW	For water-to-air heat pumps: T _j = - 15 °C (if T _{OL} < - 20 °C)	COP _d or PER _d	x,xx	- or %
Bivalent temperature	T _{biv}	-7	°C	For water-to-air heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	P _{cych}	x,x	kW	Cycling interval efficiency	COP _{cy} or PER _{cy}	x,xx	- or %
Degradation co-efficient heat pumps(**)	C _{dh}	0.9		Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than 'active mode'

Off mode	P _{OFF}	0.030	kW
Thermostat-off mode	P _{TO}	0.030	kW
Standby mode	P _{SB}	0.030	kW
Crankcase heater mode	P _{CK}	0.020	kW

Other items

Capacity control	Variable		
Sound power level, indoors/outdoors	L _{WA,Indoor}		- dB
	L _{WA,Outdoor}		60 dB
Emissions of nitrogen oxides (if applicable)	NO _x (***)		x mg/kWh
Declared load profile	x		
Daily electricity consumption	Q _{elec}	x,xxx	kWh
Supplementary heater			
Rated heat output (*)	P _{sup}	x	kW
Type of energy input			
For air-to-air heat pumps:			
air flow rate, outdoor measured (Low Temp)		2388	m ³ /h
For air-to-air heat pumps:			
air flow rate, outdoor measured (Mid. Temp)		3690	m ³ /h
For water/brine-to-air heat pumps:			
Rated brine or water flow rate, outdoor side heat exchanger		x	m ³ /h
Water heating energy efficiency	η _{wh}	116.3	%
Daily fuel consumption	Q _{fuel}	x,xxx	kWh

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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.

THERMA V AIR-TO-WATER HEAT PUMP

