

## Product datasheet on energy consumption

Greenstore

9 Combi LECP

8738203190

The following product data complies with the requirements of EU Regulations 811/2013, 812/2013, 813/2013 and 814/2013 as supplement to the Directive 2010/30/EU.

Productdata	Symbol	Unit	8738203190
Brine-to-water heat pump			Yes
Equipped with a supplementary heater?			Yes
Heat pump combination heater			Yes
Rated heat output (average climate conditions)	Prated	kW	9
Rated heat output (colder climate conditions)	Prated	kW	9
Rated heat output (warmer climate conditions)	Prated	kW	8
Rated heat output (low temperature application, average climate conditions)	Prated	kW	9
Rated heat output (low temperature application, colder climate conditions)	Prated	kW	9
Rated heat output (low temperature application, warmer climate conditions)	Prated	kW	9
Seasonal space heating energy efficiency (average climate conditions)	$\eta_s$	%	110
Seasonal space heating energy efficiency (colder climate conditions)	$\eta_s$	%	113
Seasonal space heating energy efficiency (warmer climate conditions)	$\eta_s$	%	110
Seasonal space heating energy efficiency (low temperature application, average climate conditions)	$\eta_s$	%	155
Seasonal space heating energy efficiency (low temperature application, colder climate conditions)	$\eta_s$	%	158
Seasonal space heating energy efficiency (low temperature application, warmer climate conditions)	$\eta_s$	%	154
Energy Efficiency Class			A+
Energy efficiency class (low temperature application)			A++
<b>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj</b>			
Tj = - 7 °C (average climate conditions)	Pdh	kW	7,2
Tj = - 7 °C (colder climate conditions)	Pdh	kW	7,3
Tj = - 7 °C (low temperature application, average climate conditions)	Pdh	kW	7,9
Tj = - 7 °C (low temperature application, colder climate conditions)	Pdh	kW	8,0
Tj = + 2 °C (average climate conditions)	Pdh	kW	7,4
Tj = + 2 °C (colder climate conditions)	Pdh	kW	7,5
Tj = + 2 °C (warmer climate conditions)	Pdh	kW	7,1
Tj = + 2 °C (low temperature application, average climate conditions)	Pdh	kW	8,0
Tj = + 2 °C (low temperature application, colder climate conditions)	Pdh	kW	8,1
Tj = + 2 °C (low temperature application, warmer climate conditions)	Pdh	kW	7,9
Tj = + 7 °C (average climate conditions)	Pdh	kW	7,6
Tj = + 7 °C (colder climate conditions)	Pdh	kW	7,7
Tj = + 7 °C (warmer climate conditions)	Pdh	kW	7,3
Tj = + 7 °C (low temperature application, average climate conditions)	Pdh	kW	8,1
Tj = + 7 °C (low temperature application, colder climate conditions)	Pdh	kW	8,2
Tj = + 7 °C (low temperature application, warmer climate conditions)	Pdh	kW	8,0
Tj = + 12 °C (average climate conditions)	Pdh	kW	7,8
Tj = + 12 °C (colder climate conditions)	Pdh	kW	7,8
Tj = + 12 °C (warmer climate conditions)	Pdh	kW	7,6
Tj = + 12 °C (low temperature application, average climate conditions)	Pdh	kW	8,2
Tj = + 12 °C (low temperature application, colder climate conditions)	Pdh	kW	8,2
Tj = + 12 °C (low temperature application, warmer climate conditions)	Pdh	kW	8,1



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Productdata	Symbol	Unit	8738203190
Tj = bivalent temperature (average climate conditions)	Pdh	kW	7,3
Tj = bivalent temperature (colder climate conditions)	Pdh	kW	7,3
Tj = bivalent temperature (warmer climate conditions)	Pdh	kW	7,2
Tj = bivalent temperature (low temperature application, average climate conditions)	Pdh	kW	7,9
Tj = bivalent temperature (low temperature application, colder climate conditions)	Pdh	kW	8,0
Tj = bivalent temperature (low temperature application, warmer climate conditions)	Pdh	kW	7,9
For air-to-water heat pumps: Tj = operation limit temperature	Pdh	kW	7,1
For air-to-water heat pumps: Tj = operation limit temperature (low temperature)	Pdh	kW	7,9
Bivalent temperature (average climate conditions)	T <sub>biv</sub>	°C	-7
Bivalent temperature (colder climate conditions)	T <sub>biv</sub>	°C	-15
Bivalent temperature (warmer climate conditions)	T <sub>biv</sub>	°C	3
Bivalent temperature (low temperature application, average climate conditions)	T <sub>biv</sub>	°C	-7
Bivalent temperature (low temperature application, colder climate conditions)	T <sub>biv</sub>	°C	-17
Bivalent temperature (low temperature application, warmer climate conditions)	T <sub>biv</sub>	°C	3
Degradation co-efficient Tj = - 7 °C	Cdh		1,0
Degradation co-efficient Tj = + 2 °C	Cdh		1,0
Degradation co-efficient Tj = + 7 °C	Cdh		1,0
Degradation co-efficient Tj = + 12 °C	Cdh		1,0
Degradation co-efficient of the operating temperature limit	Cdh		1,0
Degradation co-efficient of the dual-fuel switch-over point	Cdh		1,0
Degradation co-efficient Tj = - 7 °C (low temperature application)	Cdh		1,0
Degradation co-efficient Tj = - 2 °C (low temperature application)	Cdh		1,0
Degradation co-efficient Tj = - 7 °C (low temperature application)	Cdh		1,0
Degradation co-efficient Tj = - 12 °C (low temperature application)	Cdh		1,0
Degradation co-efficient of the operating temperature limit (low temperature application)	Cdh		1,0
Degradation co-efficient of the dual-fuel switch-over point (low temperature application)	Cdh		1,0
<b>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj /</b>			
Tj = - 7 °C	COPd		2,54
Tj = - 7 °C (colder climate conditions)	COPd		2,84
Tj = - 7 °C (low temperature application, average climate conditions)	COPd		3,89
Tj = - 7 °C (low temperature application, colder climate conditions)	COPd		4,11
Tj = + 2 °C (average climate conditions)	COPd		2,91
Tj = + 2 °C (colder climate conditions)	COPd		3,19
Tj = + 2 °C (warmer climate conditions)	COPd		2,39
Tj = + 2 °C (low temperature application, average climate conditions)	COPd		4,07
Tj = + 2 °C (low temperature application, colder climate conditions)	COPd		4,25
Tj = + 2 °C (low temperature application, warmer climate conditions)	COPd		3,80
Tj = + 7 °C (average climate conditions)	COPd		3,26
Tj = + 7 °C (colder climate conditions)	COPd		3,50
Tj = + 7 °C (warmer climate conditions)	COPd		2,72
Tj = + 7 °C (low temperature application, average climate conditions)	COPd		4,23
Tj = + 7 °C (low temperature application, colder climate conditions)	COPd		4,36



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Productdata	Symbol	Unit	8738203190
T <sub>j</sub> = + 7 °C (low temperature application, warmer climate conditions)	COP <sub>d</sub>		4,02
T <sub>j</sub> = + 12 °C (average climate conditions)	COP <sub>d</sub>		3,61
T <sub>j</sub> = + 12 °C (colder climate conditions)	COP <sub>d</sub>		3,73
T <sub>j</sub> = + 12 °C (warmer climate conditions)	COP <sub>d</sub>		3,34
T <sub>j</sub> = + 12 °C (low temperature application, average climate conditions)	COP <sub>d</sub>		4,40
T <sub>j</sub> = + 12 °C (low temperature application, colder climate conditions)	COP <sub>d</sub>		4,37
T <sub>j</sub> = + 12 °C (low temperature application, warmer climate conditions)	COP <sub>d</sub>		4,28
T <sub>j</sub> = bivalent temperature (average climate conditions)	COP <sub>d</sub>		2,64
T <sub>j</sub> = bivalent temperature (colder climate conditions)	COP <sub>d</sub>		2,65
T <sub>j</sub> = bivalent temperature (warmer climate conditions)	COP <sub>d</sub>		2,48
T <sub>j</sub> = bivalent temperature (low temperature application, average climate conditions)	COP <sub>d</sub>		3,89
T <sub>j</sub> = bivalent temperature (low temperature application, colder climate conditions)	COP <sub>d</sub>		3,95
T <sub>j</sub> = bivalent temperature (low temperature application, warmer climate conditions)	COP <sub>d</sub>		3,87
T <sub>j</sub> = operation limit temperature	COP <sub>d</sub>		2,39
T <sub>j</sub> = operation limit temperature (low temperature application)	COP <sub>d</sub>		3,80
Heating water operating limit temperature	WTOL	°C	65
<b>Power consumption in modes other than active mode</b>			
Off mode	P <sub>OFF</sub>	kW	0,006
Thermostat-off mode	P <sub>TO</sub>	kW	0,006
In standby mode	P <sub>SB</sub>	kW	0,006
Crankcase heater mode	P <sub>CK</sub>	kW	0,000
<b>Supplementary heater</b>			
Rated heat output	P <sub>sup</sub>	kW	1,9
Rated heat output (colder climate conditions)	P <sub>sup</sub>	kW	1,8
Rated heat output (warmer climate conditions)	P <sub>sup</sub>	kW	0,6
Rated heat output (low temperature application, average climate conditions)	P <sub>sup</sub>	kW	1,1
(low temperature application, colder climate conditions)	P <sub>sup</sub>	kW	1,3
(low temperature application, warmer climate conditions)	P <sub>sup</sub>	kW	0,7
Type of energy input			Electric
<b>Other items</b>			
Capacity control			fixed
Sound power level, indoors	L <sub>WA</sub>	dB	49
Annual energy consumption	Q <sub>HE</sub>	kWh	6285
Annual energy consumption (colder climate conditions)	Q <sub>HE</sub>	kWh	7246
Annual energy consumption (warmer climate conditions)	Q <sub>HE</sub>	kWh	3502
Annual energy consumption (low temperature application, average climate conditions)	Q <sub>HE</sub>	kWh	4545
Annual energy consumption (low temperature application, colder climate conditions)	Q <sub>HE</sub>	kWh	5432
Annual energy consumption (low temperature application, warmer climate conditions)	Q <sub>HE</sub>	kWh	2810
For brine-to-water heat pumps: Rated brine flow rate, outdoor heat exchanger		m <sup>3</sup> /h	2
For brine-to-water heat pumps: Rated brine flow rate, outdoor heat exchanger (low temperature application)		m <sup>3</sup> /h	2



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Productdata	Symbol	Unit	8738203190
<b>Additional data for heat pump combination heaters</b>			
Declared load profile			L
Daily electricity consumption (average climate conditions)	$Q_{elec}$	kWh	7,520
Daily electricity consumption (colder climate conditions)	$Q_{elec}$	kWh	7,520
Daily electricity consumption (warmer climate conditions)	$Q_{elec}$	kWh	7,520
Water heating energy efficiency	$\eta_{wh}$	%	60
Water heating energy efficiency (colder climate conditions)	$\eta_{wh}$	%	60
Water heating energy efficiency (warmer climate conditions)	$\eta_{wh}$	%	60
Water heating energy efficiency class			B
Mixed water T= 40°C	V40	l	257
Thermostat setting			Comfort

# System datasheet on energy consumption

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The following system data complies with the requirements of EU Regulations 811/2013, 812/2013, 813/2013 and 814/2013 as supplement to the Directive 2010/30/EU.

The energy efficiency given in this data sheet for the product combination may deviate from the energy efficiency after its installation in a building, since this is influenced by other factors such as heat loss in the distribution system and the dimensioning of the products in relation to the size and characteristics of the building.

Information about calculating the space heating energy efficiency			
<b>I</b>	Value for the space heating energy efficiency of the preferential space heater	110	%
<b>II</b>	Factor for the weighting of the heat output of the preferential and supplementary heaters of a package system	0,00	-
<b>III</b>	Value of the mathematical expression $294/(11 \cdot \text{Prated})$	2,97	-
<b>IV</b>	Value of the mathematical expression $115/(11 \cdot \text{Prated})$	1,16	-
<b>V</b>	Difference between the seasonal space heating energy efficiency with average and colder climate conditions	3	%
<b>VI</b>	Difference between the seasonal space heating energy efficiency with warmer and average climate conditions	0	%

**Seasonal space heating energy efficiency of the heat pump** **I** = **1** 110 %

**Temperature control (From the data sheet of the temperature control)** + **2** 1,5 %

Class: I = 1 %, II = 2 %, III = 1.5 %, IV = 2 %, V = 3 %, VI = 4 %, VII = 3.5 %, VIII = 5 %

**Supplementary boiler (From the data sheet of the boiler)** (  - I ) x II = - **3**  %

Seasonal space heating energy efficiency (in %)

**Solar contribution** ( III x  + IV x 0,185 ) x 0,45 x (  /100 ) x 0,81 = + **4**  %

(From the data sheet of the solar device)

Collector size (in m<sup>2</sup>)

Storage tank volume (in m<sup>3</sup>)

Collector efficiency (in %)

Storage tank rating: A<sup>+</sup> = 0.95, A = 0.91, B = 0.86, C = 0.83, D-G = 0.81

**Seasonal space heating energy efficiency of the package system**

- with average climate conditions: **5** 112 %

**Seasonal space heating energy efficiency class of the package system with average climate conditions**

G < 30 %, F ≥ 30 %, E ≥ 34 %, D ≥ 36 %, C ≥ 75 %, B ≥ 82 %, A ≥ 90 %, A<sup>+</sup> ≥ 98 %, A<sup>++</sup> ≥ 125 %, A<sup>+++</sup> ≥ 150 %

**A<sup>+</sup>**

**Seasonal space heating energy efficiency**

- with colder climate conditions: **5** 112 - V =  115 %

- with warmer climate conditions: **5** 112 + VI =  112 %



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Information about calculating the water heating energy efficiency		
I	Value of the water heating energy efficiency of the combination heater, expressed in %	60 %
II	Value of the mathematical expression $(220 \cdot Q_{ref})/Q_{nonsol}$	-
III	Value of the mathematical expression $(Q_{aux} \cdot 2.5)/(220 \cdot Q_{ref})$	-

**Water heating energy efficiency of the combination heater** I = **1** 60 %

Given load profile

**Solar contribution (From the data sheet of the solar device)**  $(1,1 \times I - 10\%) \times II - III - I = +$  **2** %

**Water heating energy efficiency of the package system with average climate conditions** **3** 60 %

**Water heating energy efficiency class of the package system with average climate conditions** **B**

Load profile M:	G < 27 %, F ≥ 27 %, E ≥ 30 %, D ≥ 33 %, C ≥ 36 %, B ≥ 39 %, A ≥ 65 %, A+ ≥ 100 %, A++ ≥ 130 %, A+++ ≥ 163 %
Load profile L:	G < 27 %, F ≥ 27 %, E ≥ 30 %, D ≥ 34 %, C ≥ 37 %, B ≥ 50 %, A ≥ 75 %, A+ ≥ 115 %, A++ ≥ 150 %, A+++ ≥ 188 %
Load profile XL:	G < 27 %, F ≥ 27 %, E ≥ 30 %, D ≥ 35 %, C ≥ 38 %, B ≥ 55 %, A ≥ 80 %, A+ ≥ 123 %, A++ ≥ 160 %, A+++ ≥ 200 %
Load profile XXL:	G < 28 %, F ≥ 28 %, E ≥ 32 %, D ≥ 36 %, C ≥ 40 %, B ≥ 60 %, A ≥ 85 %, A+ ≥ 131 %, A++ ≥ 170 %, A+++ ≥ 213 %

## Water heating energy efficiency

- with colder climate conditions: **3** 60 - 0,2 x **2** = **60** %

- with warmer climate conditions: **3** 60 + 0,4 x **2** = **60** %