ENERG
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10053802

alpha innotec LW 310

| | 55 °C | 35 °C |
|---|---|---|
| A+++ | | |
| A++ | | A++ |
| A+ | A+ | |
| A | | |
| B | | |
| C | | |
| D | | |

68 dB

55 dB

| | 55 °C | 35 °C |
|---|---|---|
| | 28 | 30 |
| | **27** | **28** |
| | 30 | 31 |
| | kW | kW |

2019

811/2013

# ENERGY

10053802

alpha innotec LW 310

| | 55 °C | 35 °C |
|---|---|---|
| A+++ | | |
| A++ | | A++ |
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2019 811/2013

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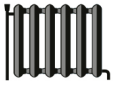
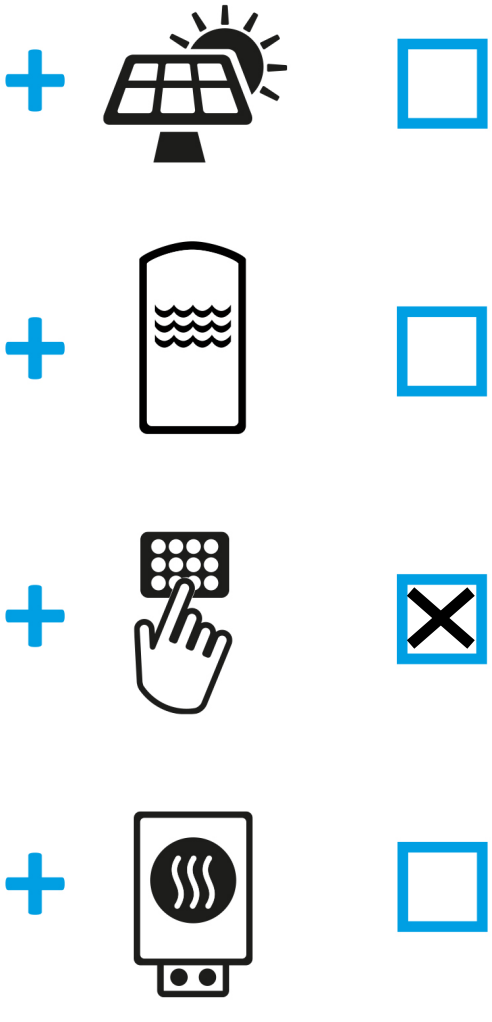
LW 310 + Luxtronik 2.0



A+



A+++
A++
A+
A
B
C
D
E
F
G

A+

2015

811/2013

## package (heat pumps and combination heater with heat pump) - LW 310 + Luxtronik 2.0

Seasonal space heating energy efficiency of heat pump (ηs) ❶ 122 %

***Rated heat output of the heat pump (Prated kW)*** 27

Temperature control — Class III ***(Table 1)*** + ❷ 1,5 %

Supplementary boiler

package with hot water storage tank: no — *Psup kW (rated heat output of supplementary heater)*

ησ % (συπ)

( ηs % ***(sup)*** - ❶ ) x ($\alpha_{WP}$) = - ❸ %

(αWE: see Table 3) — ***($\alpha_{WE}$)***

solar contribution — ***($A_{Koll}$ $m^2$)*** — ***(ηKoll %)***

***($V_{Sp}$ $m^3$)*** — ***(standstill heat loss of the hot water storage tank in W)***

***(ηSp: Table 2)***

((294/$P_{rated}$ x11) x **($A_{Koll}$ $m^2$)** + (115/$P_{rated}$ x11) x **($V_{Sp}$ $m^3$)**) x 0,45 x (**(ηKoll %)** /100) x **(ηSp)** = + ❹ %

Seasonal space heating energy efficiency of package ❺ 123 %

***rounded to the nearest integer***

Seasonal space heating energy efficiency class of package

| G | F | E | D | C | B | A | A⁺ | A⁺⁺ | A⁺⁺⁺ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | X | | |
| < 30 % | ≥ 30 % | ≥ 34 % | ≥ 36 % | ≥ 75 % | ≥ 82 % | ≥ 90 % | ≥ 98 % | ≥ 125 % | ≥ 150 % |

Seasonal space heating energy efficiency under colder or warmer climate conditions

***Seasonal space heating energy efficiency of the heat pump (ηs) under colder climate conditions*** 107 %

***Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions*** 145 %

colder ❺ 123 -V 14 = 109 warmer ❺ 123 +VI 23 = 146

| **heatpump datasheet:** | | | |
|---|---|---|---|
| | | | |
| **manufacturer:** | **alpha innotec** | | |
| **model:** | **LW 310** | | |
| | | | |
| **Information concerning energy efficiency class and rated heat output:** | | | |
| | | | |
| | average / low | average / medium | |
| energy efficiency class space heater: | A++ | A+ | - |
| rated heat output: | 28 | 27 | kW |
| energy efficiency space heater: | 151 | 122 | % |
| annual final energy consumption space heater | 15151 | 17816 | kWh |
| | | | |
| sound power level indoors | | 68 | dB |
| | | | |
| **special precautions concerning assembly, installation or maintenance** | | | |
| All instructional work in this manual may only be carried out by qualified specialist personnel in compliance with local regulations. | | | |
| | | | |
| **additional information** | low | medium | |
| rated heat output colder climate | 30 | 28 | kW |
| rated heat output warmer climate | 31 | 30 | kW |
| energy effiency space heater colder climate | 131 | 107 | % |
| energy effiency space heater warmer climate | 186 | 145 | % |
| annual energy consumption space heater colder climate | 21723 | 25057 | kWh |
| annual energy consumption space heater warmer climate | 8750 | 10714 | kWh |
| | | | |
| sound power level outdoors | | 55 | dB |

| technical data of the temperature controller | | | |
|---|---|---|---|
| | | | |
| **manufacturer:** | **alpha innotec** | | |
| **model:** | **Luxtronik 2.0** | | |
| | | | |
| controller class | | III | - |
| contribution of the controller to the energy efficiency space heater | | 1,5 | % |

| **Model** | | | | **LW 310** | | | |
|---|---|---|---|---|---|---|---|
| Air-to-water heat pump: (yes/no) | | | | yes | | | |
| Brine-to-water heat pump: (yes/no) | | | | no | | | |
| Water-to-water heat pump: (yes/no) | | | | no | | | |
| Low-temperature heat pump: (yes/no) | | | | no | | | |
| Equipped with supplementary heater: (yes/no) | | | | yes | | | |
| combination heater with: (yes/no) | | | | no | | | |
| application: (low/medium) | | | | medium | | | |
| climate: (colder/average/warmer) | | | | average | | | |
| **Item** | **Symbol** | **Value** | **Unit** | **Item** | **Symbol** | **Value** | **Unit** |
| **Rated heat output** | Prated | 27 | kW | **Seasonal space heating energy efficiency** | ηS | 121,6 | % |
| **Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj** | | | | **Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj** | | | |
| Tj = -7°C | Pdh | 23,8 | kW | Tj = -7°C | COPd | 2,03 | - |
| Tj = +2°C | Pdh | 30,5 | kW | Tj = +2°C | COPd | 3,02 | - |
| Tj = +7°C | Pdh | 19,1 | kW | Tj = +7°C | COPd | 4,05 | - |
| Tj = +12°C | Pdh | 21,1 | kW | Tj = +12°C | COPd | 4,92 | - |
| Tj = bivalent temperature | Pdh | 23,8 | kW | Tj = bivalent temperature | COPd | 2,03 | - |
| Tj = operation limit temperature | Pdh | 21,5 | kW | Tj = operation limit temperature | COPd | 1,76 | - |
| For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) | Pdh | - | kW | For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) | COPd | - | - |
| Bivalent temperature | $T_{biv}$ | -7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | Pcych | - | kW | Cycling interval efficiency | COPcyc | - | - |
| Degradation co-efficient (**) | Cdh | 1,0 | - | Heating water operating limit temperature | WTOL | 58 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,010 | kW | Rated heat output | Psup | 5,4 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,010 | kW | Type of energy input | electrical | | |
| Standby mode | $P_{SB}$ | 0,010 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | - | kW | | | | |
| **Other items** | | | | | | | |
| Capacity control | fixed | | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 6.000 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 68 / 55 | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | - | $m^3/h$ |
| Emissions of nitrogen oxides | $NO_X$ | - | mg/kWh | | | | |
| **For heat pump combination heater:** | | | | | | | |
| Declared load profile | - | | | Water heating energy efficiency | $\eta_{wh}$ | - | % |
| Daily electricity consumption | $Q_{elec}$ | - | kWh | Daily fuel consumption | Qfuel | - | kWh |
| **Contact details** | ait deutschland GmbH Industriestr. 3 95359 Kasendorf Germany | | | | | | |

(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

| **Model** | | | | **LW 310** | | | |
|---|---|---|---|---|---|---|---|
| Air-to-water heat pump: (yes/no) | | | | yes | | | |
| Brine-to-water heat pump: (yes/no) | | | | no | | | |
| Water-to-water heat pump: (yes/no) | | | | no | | | |
| Low-temperature heat pump: (yes/no) | | | | no | | | |
| Equipped with supplementary heater: (yes/no) | | | | yes | | | |
| combination heater with: (yes/no) | | | | no | | | |
| application: (low/medium) | | | | low | | | |
| climate: (colder/average/warmer) | | | | average | | | |
| **Item** | **Symbol** | **Value** | **Unit** | **Item** | **Symbol** | **Value** | **Unit** |
| **Rated heat output** | Prated | 28 | kW | **Seasonal space heating energy efficiency** | ηS | 151,2 | % |
| **Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj** | | | | **Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj** | | | |
| Tj = -7°C | Pdh | 25,0 | kW | Tj = -7°C | COPd | 2,92 | - |
| Tj = +2°C | Pdh | 31,1 | kW | Tj = +2°C | COPd | 3,67 | - |
| Tj = +7°C | Pdh | 19,4 | kW | Tj = +7°C | COPd | 4,86 | - |
| Tj = +12°C | Pdh | 21,2 | kW | Tj = +12°C | COPd | 5,26 | - |
| Tj = bivalent temperature | Pdh | 25,0 | kW | Tj = bivalent temperature | COPd | 2,92 | - |
| Tj = operation limit temperature | Pdh | 22,9 | kW | Tj = operation limit temperature | COPd | 2,63 | - |
| For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) | Pdh | - | kW | For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) | COPd | - | - |
| Bivalent temperature | $T_{biv}$ | -7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | Pcych | - | kW | Cycling interval efficiency | COPcyc | - | - |
| Degradation co-efficient (**) | Cdh | 1,0 | - | Heating water operating limit temperature | WTOL | 58 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,010 | kW | Rated heat output | Psup | 5,4 | kW |
| Thermostat-off mode | $P_{TO}$ | 0,010 | kW | Type of energy input | electrical | | |
| Standby mode | $P_{SB}$ | 0,010 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | - | kW | | | | |
| **Other items** | | | | | | | |
| Capacity control | fixed | | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 6.000 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 68 / 55 | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | - | - | $m^3/h$ |
| Emissions of nitrogen oxides | $NO_X$ | - | mg/kWh | | | | |
| **For heat pump combination heater:** | | | | | | | |
| Declared load profile | - | | | Water heating energy efficiency | $\eta_{wh}$ | - | % |
| Daily electricity consumption | $Q_{elec}$ | - | kWh | Daily fuel consumption | Qfuel | - | kWh |
| **Contact details** | ait deutschland GmbH Industriestr. 3 95359 Kasendorf Germany | | | | | | |

(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.