ENERG
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Y IJA IE IA

10053202

alpha innotec LW 140

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

A+++
A++
A+
A
B
C
D

58 dB

56 dB

| | 55 °C | 35 °C |
|---|---|---|
| | 13 | 13 |
| | **14** | **14** |
| | 16 | 16 |
| | kW | kW |

2019

811/2013

# ENERGY

10053202

alpha innotec LW 140

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

A+++
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**58** dB

**56** dB

| 55 °C | 35 °C |
|---|---|
| 13 | 13 |
| **14** | **14** |
| 16 | 16 |
| kW | kW |

**2019** **811/2013**

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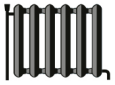
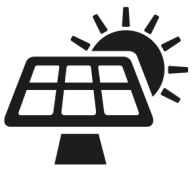
alpha innotec

LW 140 + Luxtronik 2.0



A++

+  ☐

+  ☐

+  ☒

+  ☐


2015

811/2013

## package (heat pumps and combination heater with heat pump) - LW 140 + Luxtronik 2.0

Seasonal space heating energy efficiency of heat pump (ηs) ❶ 125 %

***Rated heat output of the heat pump (Prated kW)*** 14

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)***

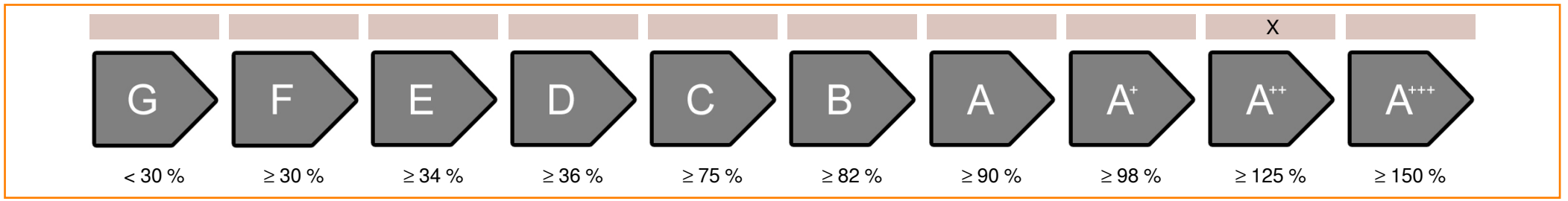
***(ηSp: Table 2)***

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

Seasonal space heating energy efficiency of package ❺ 127 %

***rounded to the nearest integer***

Seasonal space heating energy efficiency class of package




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*** 115 %

***Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions*** 152 %

colder ❺ 127 -V 10 = 117 warmer ❺ 127 +VI 27 = 154

| **heatpump datasheet:** | | | |
|---|---|---|---|
| | | | |
| **manufacturer:** | **alpha innotec** | | |
| **model:** | **LW 140** | | |
| | | | |
| **Information concerning energy efficiency class and rated heat output:** | | | |
| | | | |
| | average / low | average / medium | |
| energy efficiency class space heater: | A++ | A++ | - |
| rated heat output: | 14 | 14 | kW |
| energy efficiency space heater: | 157 | 125 | % |
| annual final energy consumption space heater | 7447 | 8842 | kWh |
| | | | |
| sound power level indoors | | 58 | 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 | 13 | 13 | kW |
| rated heat output warmer climate | 16 | 16 | kW |
| energy effiency space heater colder climate | 140 | 115 | % |
| energy effiency space heater warmer climate | 190 | 152 | % |
| annual energy consumption space heater colder climate | 9044 | 10533 | kWh |
| annual energy consumption space heater warmer climate | 4553 | 5391 | kWh |
| | | | |
| sound power level outdoors | | 56 | 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 140** | | | |
|---|---|---|---|---|---|---|---|
| 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 | 14 | kW | **Seasonal space heating energy efficiency** | ηS | 125,1 | % |
| **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 | 10,4 | kW | Tj = -7°C | COPd | 2,16 | - |
| Tj = +2°C | Pdh | 13,5 | kW | Tj = +2°C | COPd | 3,10 | - |
| Tj = +7°C | Pdh | 14,4 | kW | Tj = +7°C | COPd | 4,28 | - |
| Tj = +12°C | Pdh | 16,3 | kW | Tj = +12°C | COPd | 5,27 | - |
| Tj = bivalent temperature | Pdh | 11,1 | kW | Tj = bivalent temperature | COPd | 2,34 | - |
| Tj = operation limit temperature | Pdh | 9,6 | kW | Tj = operation limit temperature | COPd | 1,96 | - |
| 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 | $T_{biv}$ | -5 | °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 | 50 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,010 | kW | Rated heat output | Psup | 4,1 | 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 | - | 5.600 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 58 / 56 | 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 140** | | | |
|---|---|---|---|---|---|---|---|
| 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 | 14 | kW | **Seasonal space heating energy efficiency** | ηS | 157,1 | % |
| **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 | 11,0 | kW | Tj = -7°C | COPd | 3,13 | - |
| Tj = +2°C | Pdh | 13,9 | kW | Tj = +2°C | COPd | 3,94 | - |
| Tj = +7°C | Pdh | 14,5 | kW | Tj = +7°C | COPd | 4,94 | - |
| Tj = +12°C | Pdh | 16,4 | kW | Tj = +12°C | COPd | 5,43 | - |
| Tj = bivalent temperature | Pdh | 11,7 | kW | Tj = bivalent temperature | COPd | 3,34 | - |
| Tj = operation limit temperature | Pdh | 10,2 | kW | Tj = operation limit temperature | COPd | 2,87 | - |
| 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 | $T_{biv}$ | -5 | °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 | 50 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,010 | kW | Rated heat output | Psup | 4,3 | 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 | - | 5.600 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 58 / 56 | 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.