



# ENERG

енергия · ενεργεια



10053702

alpha innotec

LW 251L



55 °C

35 °C



A+

A++



63 dB



55 dB

■ 23  
■ **25**  
■ 24  
kW

■ 23  
■ **25**  
■ 24  
kW





# ENERGY

10053702

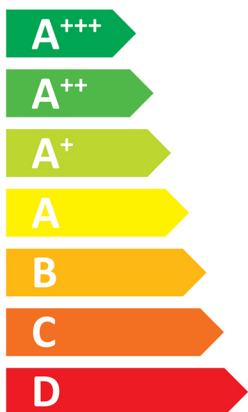
alpha innotec

LW 251L



55 °C

35 °C



A<sup>+</sup>

A<sup>++</sup>



63 dB



55 dB

■ 23  
■ 25  
■ 24  
kW

■ 23  
■ 25  
■ 24  
kW





# ENERG

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Y

IJA

IE

IA

10053702

alpha innotec

LW 251L + Luxtronik 2.0



A<sup>+</sup>

A<sup>+++</sup>

A<sup>++</sup>

A<sup>+</sup>

A

B

C

D

E

F

G

A<sup>+</sup>

+



+



+



+



**package (heat pumps and combination heater with heat pump) - LW 251L + Luxtronik 2.0**

Seasonal space heating energy efficiency of heat pump ( $\eta_s$ )

① 122 %

**Rated heat output of the heat pump ( $P_{rated}$  kW)**

25

Temperature control

Class

III (Table 1)

+

② 1,5 %

Supplementary boiler

package with hot water storage tank

no

$P_{sup}$  kW (rated heat output of supplementary heater)

$\eta_s$  % ( $\sigma_{\pi}$ )

$$(\eta_s \% (sup) - ①) \times (\alpha_{WP}) = -$$

③ %

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

( $\alpha_{WE}$ )

solar contribution

( $A_{Koll}$  m<sup>2</sup>)

( $\eta_{Koll}$  %)

( $V_{Sp}$  m<sup>3</sup>)

(standstill heat loss of the hot water storage tank in W)

( $\eta_{Sp}$ : Table 2)

$$\left( \frac{294}{P_{rated}} \times 11 \right) \times (A_{Koll} \text{ m}^2) + \left( \frac{115}{P_{rated}} \times 11 \right) \times (V_{Sp} \text{ m}^3) \times 0,45 \times \left( \frac{\eta_{Koll} \%}{100} \right) \times (\eta_{Sp}) = +$$

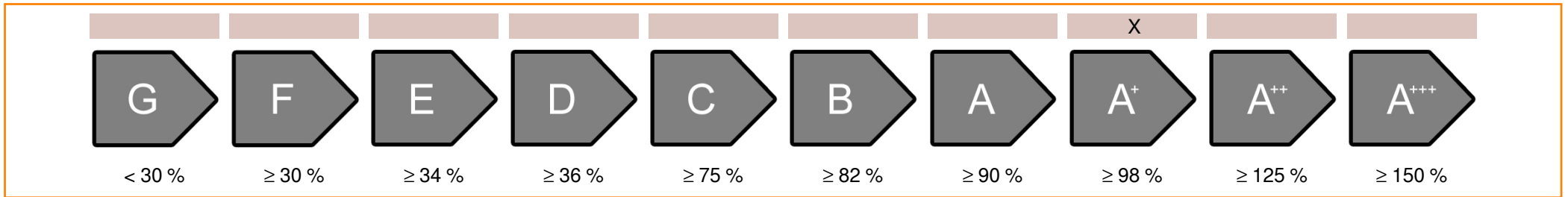
④ %

Seasonal space heating energy efficiency of package

⑤ 124 %

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 ( $\eta_s$ ) under colder climate conditions**

110 %

**Seasonal space heating energy efficiency of the heat pump ( $\eta_s$ ) under warmer climate conditions**

152 %

colder ⑤ 124 -V 12 = 112 warmer ⑤ 124 +VI 30 = 154

|   |               |                  |     |
|---|---------------|------------------|-----|
| <b>heatpump datasheet:</b>  |               |                  |     |
|   |               |                  |     |
| <b>manufacturer:</b>  | alpha innotec |                  |     |
| <b>model:</b>   | LW 251L       |                  |     |
|   |               |                  |     |
| <b>Information concerning energy efficiency class and rated heat output:</b>  |               |                  |     |
|   |               |                  |     |
|   | average / low | average / medium |     |
| energy efficiency class space heater:   | A++           | A+               | -   |
| rated heat output:  | 25            | 25               | kW  |
| energy efficiency space heater:   | 155           | 122              | %   |
| annual final energy consumption space heater  | 13252         | 16517            | kWh |
|   |               |                  |     |
| sound power level indoors   |               | 63               | dB  |
|   |               |                  |     |
| <b>special precautions concerning assembly, installation or maintenance</b>   |               |                  |     |
| All instructional work in this manual may only be carried out by qualified specialist personnel in compliance with local regulations. |               |                  |     |
|   |               |                  |     |
| <b>additional information</b>   | low           | medium           |     |
| rated heat output colder climate  | 23            | 23               | kW  |
| rated heat output warmer climate  | 24            | 24               | kW  |
| energy efficiency space heater colder climate   | 134           | 110              | %   |
| energy efficiency space heater warmer climate   | 198           | 152              | %   |
| annual energy consumption space heater colder climate   | 16286         | 19754            | kWh |
| annual energy consumption space heater warmer climate   | 6424          | 8123             | kWh |
|   |               |                  |     |
| sound power level outdoors  |               | 55               | dB  |

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

|  |  |              |             |  |                    |              |                   |
|--|--|--------------|-------------|--|--------------------|--------------|-------------------|
| <b>Model</b>   |  |              |             | <b>LW 251L</b>   |                    |              |                   |
| 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  |                    |              |                   |
| <b>Item</b>  | <b>Symbol</b>  | <b>Value</b> | <b>Unit</b> | <b>Item</b>  | <b>Symbol</b>      | <b>Value</b> | <b>Unit</b>       |
| <b>Rated heat output</b>   | Prated   | 25           | kW          | <b>Seasonal space heating energy efficiency</b>  | $\eta_S$           | 122,1        | %                 |
| <b>Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj</b>   |  |              |             | <b>Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj</b> |                    |              |                   |
| Tj = -7°C  | Pdh  | 19,2         | kW          | Tj = -7°C  | COPd               | 2,07         | -                 |
| Tj = +2°C  | Pdh  | 23,9         | kW          | Tj = +2°C  | COPd               | 3,02         | -                 |
| Tj = +7°C  | Pdh  | 14,3         | kW          | Tj = +7°C  | COPd               | 4,13         | -                 |
| Tj = +12°C   | Pdh  | 16,8         | kW          | Tj = +12°C   | COPd               | 5,44         | -                 |
| Tj = bivalent temperature  | Pdh  | 20,2         | kW          | Tj = bivalent temperature  | COPd               | 2,24         | -                 |
| Tj = operation limit temperature   | Pdh  | 17,7         | kW          | Tj = operation limit temperature   | COPd               | 1,83         | -                 |
| 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 <sub>biv</sub>   | -5           | °C          | For air-to-water heat pumps: Operation limit temperature   | TOL                | -10          | °C                |
| Cycling interval capacity for heating  | P <sub>cyh</sub>   | -            | kW          | Cycling interval efficiency  | COP <sub>cyh</sub> | -            | -                 |
| Degradation co-efficient (**)  | Cdh  | 1,0          | -           | Heating water operating limit temperature  | WTOL               | 70           | °C                |
| <b>Power consumption in modes other than active mode</b>   |  |              |             | <b>Supplementary heater</b>  |                    |              |                   |
| Off mode   | P <sub>OFF</sub>   | 0,010        | kW          | Rated heat output  | P <sub>sup</sub>   | 7,3          | kW                |
| Thermostat-off mode  | P <sub>TO</sub>  | 0,010        | kW          | Type of energy input   | electrical         |              |                   |
| Standby mode   | P <sub>SB</sub>  | 0,010        | kW          |  |                    |              |                   |
| Crankcase heater mode  | P <sub>CK</sub>  | -            | kW          |  |                    |              |                   |
| <b>Other items</b>   |  |              |             |  |                    |              |                   |
| Capacity control   | fixed  |              |             | For air-to-water heat pumps: Rated air flow rate, outdoors   | -                  | 5.000        | m <sup>3</sup> /h |
| sound power level, indoors/outdoors  | L <sub>WA</sub>  | 63 / 55      | dB          | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger                   | -                  | -            | m <sup>3</sup> /h |
| Emissions of nitrogen oxides   | NO <sub>x</sub>  | -            | mg/kWh      |  |                    |              |                   |
| <b>For heat pump combination heater:</b>   |  |              |             |  |                    |              |                   |
| Declared load profile  | -  |              |             | Water heating energy efficiency  | $\eta_{wh}$        | -            | %                 |
| Daily electricity consumption  | Q <sub>elec</sub>  | -            | kWh         | Daily fuel consumption   | Q <sub>fuel</sub>  | -            | kWh               |
| <b>Contact details</b>   | 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.  |  |              |             |  |                    |              |                   |

|  |  |              |             |  |                    |              |                   |
|--|--|--------------|-------------|--|--------------------|--------------|-------------------|
| <b>Model</b>   |  |              |             | <b>LW 251L</b>   |                    |              |                   |
| 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  |                    |              |                   |
| <b>Item</b>  | <b>Symbol</b>  | <b>Value</b> | <b>Unit</b> | <b>Item</b>  | <b>Symbol</b>      | <b>Value</b> | <b>Unit</b>       |
| <b>Rated heat output</b>   | Prated   | 25           | kW          | <b>Seasonal space heating energy efficiency</b>  | $\eta_S$           | 154,8        | %                 |
| <b>Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj</b>   |  |              |             | <b>Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj</b> |                    |              |                   |
| Tj = -7°C  | Pdh  | 19,4         | kW          | Tj = -7°C  | COPd               | 2,96         | -                 |
| Tj = +2°C  | Pdh  | 24,2         | kW          | Tj = +2°C  | COPd               | 3,77         | -                 |
| Tj = +7°C  | Pdh  | 14,3         | kW          | Tj = +7°C  | COPd               | 5,06         | -                 |
| Tj = +12°C   | Pdh  | 16,9         | kW          | Tj = +12°C   | COPd               | 5,90         | -                 |
| Tj = bivalent temperature  | Pdh  | 20,4         | kW          | Tj = bivalent temperature  | COPd               | 3,18         | -                 |
| Tj = operation limit temperature   | Pdh  | 17,8         | kW          | Tj = operation limit temperature   | COPd               | 2,66         | -                 |
| 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 <sub>biv</sub>   | -5           | °C          | For air-to-water heat pumps: Operation limit temperature   | TOL                | -10          | °C                |
| Cycling interval capacity for heating  | P <sub>cyh</sub>   | -            | kW          | Cycling interval efficiency  | COP <sub>cyh</sub> | -            | -                 |
| Degradation co-efficient (**)  | Cdh  | 1,0          | -           | Heating water operating limit temperature  | WTOL               | 70           | °C                |
| <b>Power consumption in modes other than active mode</b>   |  |              |             | <b>Supplementary heater</b>  |                    |              |                   |
| Off mode   | P <sub>OFF</sub>   | 0,010        | kW          | Rated heat output  | P <sub>sup</sub>   | 7,6          | kW                |
| Thermostat-off mode  | P <sub>TO</sub>  | 0,010        | kW          | Type of energy input   | electrical         |              |                   |
| Standby mode   | P <sub>SB</sub>  | 0,010        | kW          |  |                    |              |                   |
| Crankcase heater mode  | P <sub>CK</sub>  | -            | kW          |  |                    |              |                   |
| <b>Other items</b>   |  |              |             |  |                    |              |                   |
| Capacity control   | fixed  |              |             | For air-to-water heat pumps: Rated air flow rate, outdoors   | -                  | 5.000        | m <sup>3</sup> /h |
| sound power level, indoors/outdoors  | L <sub>WA</sub>  | 63 / 55      | dB          | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger                   | -                  | -            | m <sup>3</sup> /h |
| Emissions of nitrogen oxides   | NO <sub>x</sub>  | -            | mg/kWh      |  |                    |              |                   |
| <b>For heat pump combination heater:</b>   |  |              |             |  |                    |              |                   |
| Declared load profile  | -  |              |             | Water heating energy efficiency  | $\eta_{wh}$        | -            | %                 |
| Daily electricity consumption  | Q <sub>elec</sub>  | -            | kWh         | Daily fuel consumption   | Q <sub>fuel</sub>  | -            | kWh               |
| <b>Contact details</b>   | 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.  |  |              |             |  |                    |              |                   |