ENERGY
енергия · ενεργεια

100699HSDV12101

alpha innotec LWDV 91-1/3-HSDV 12.1M3

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

A++


A+
A
B
C
D
E
F

A

46 dB

54 dB

7 kW
**9 kW**
10 kW

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

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alpha innotec LWDV 91-1/3-HSDV 12.1M3

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

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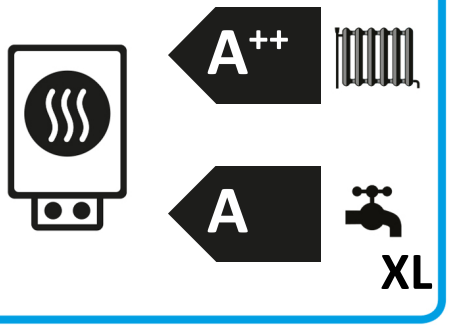
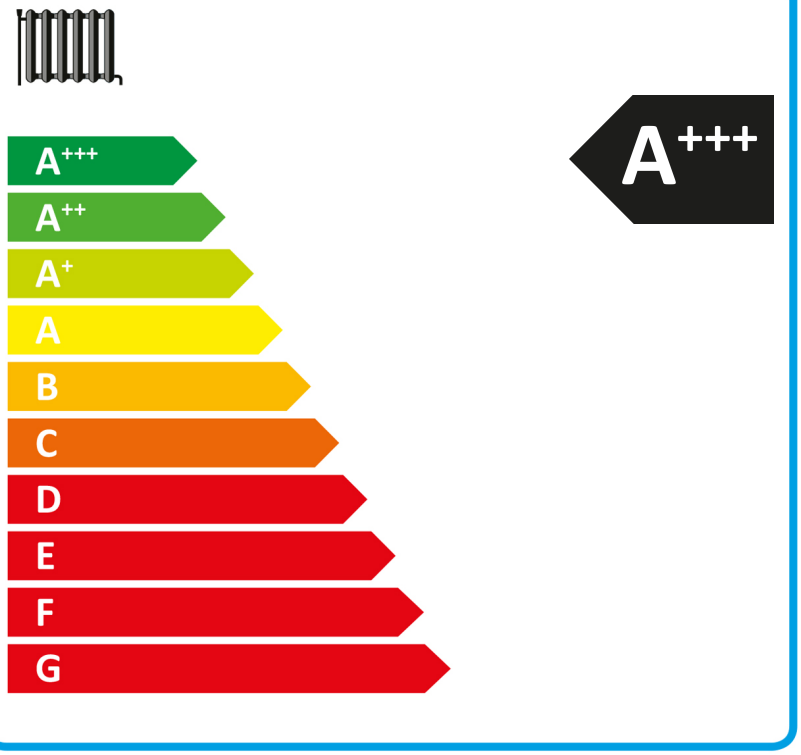
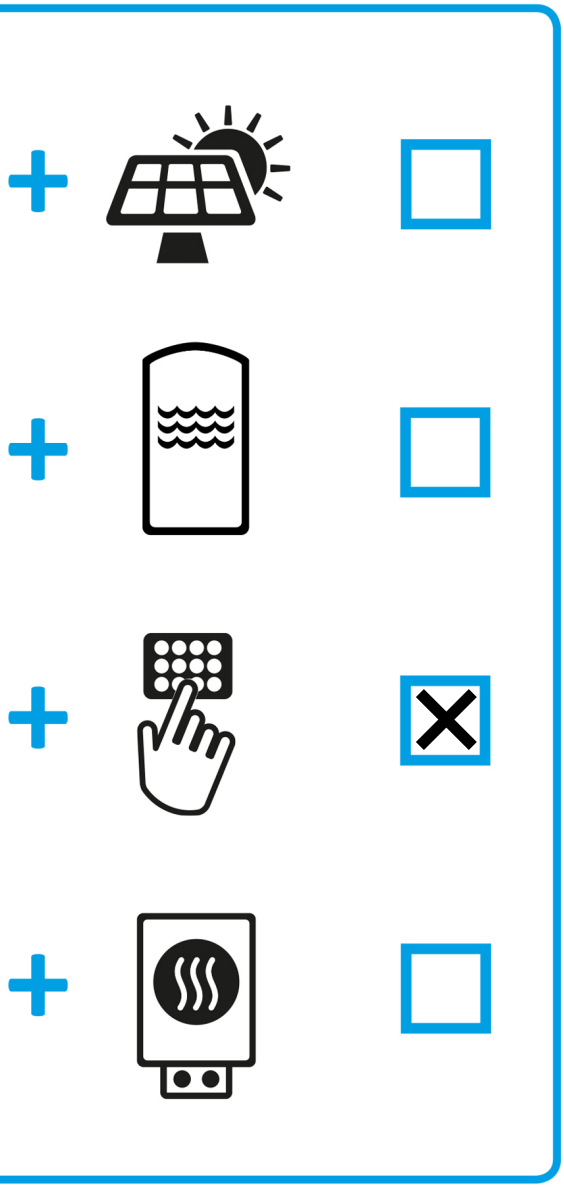
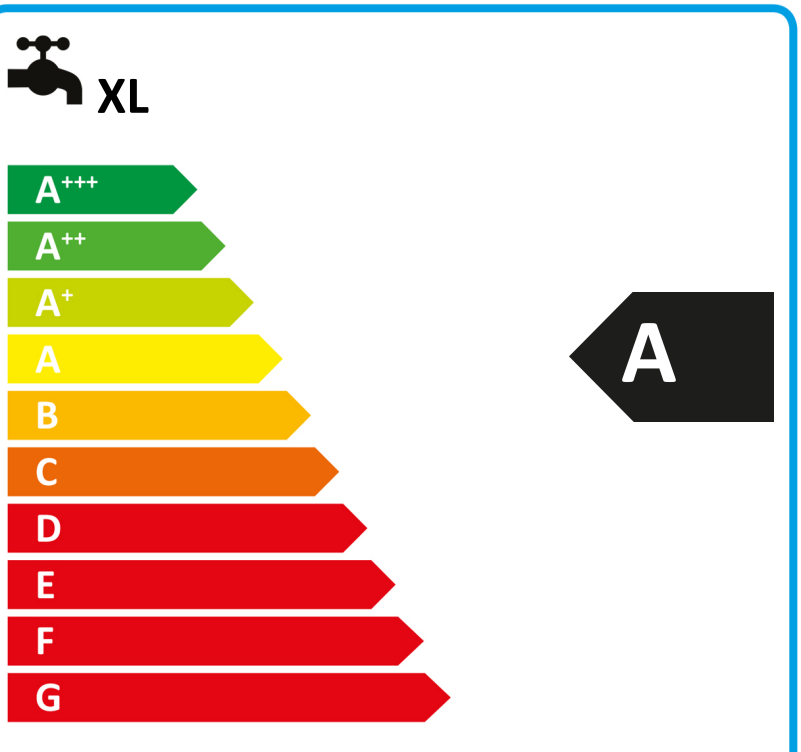
LWDV 91-1/3-HSDV 12.1M3 + Luxtronik 2.1






2015

811/2013

**package (heat pumps and combination heater with heat pump) LWDV 91-1/3-HSDV 12.1M3 + Luxtronik 2.1**

Seasonal space heating energy efficiency of heat pump (ηs) ❶ 147 %

***Rated heat output of the heat pump (Prated kW)*** 9

Temperature control — Class VII ***(Table 1)*** + ❷ 3,5 %

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)***

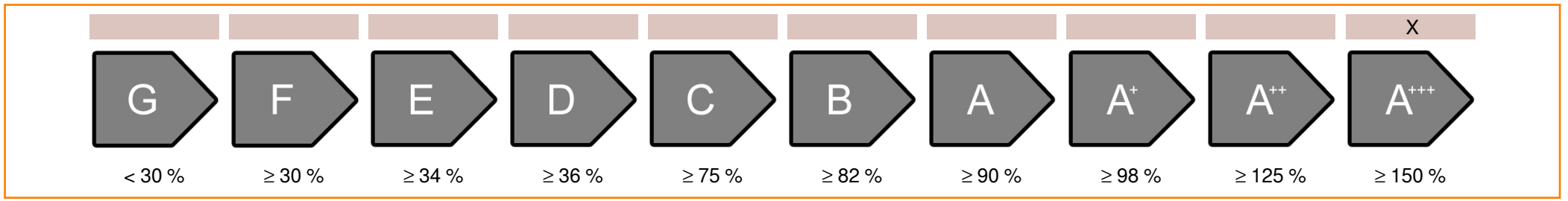
***(ηSp: Table 2)***

((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 150 %

***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*** 118 %

***Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions*** 171 %

colder ❺ 150 -V 29 = 121 warmer ❺ 150 +VI 24 = 174

| **heatpump datasheet:** | | | |
|---|---|---|---|
| | | | |
| **manufacturer:** | **alpha innotec** | | |
| **model:** | **LWDV 91-1/3-HSDV 12.1M3** | | |
| | | | |
| **Information concerning energy efficiency class and rated heat output:** | | | |
| load profile water heating | XL | | - |
| | | | |
| | average / low | average / medium | |
| energy efficiency class space heater: | A+++ | A++ | - |
| energy efficiency class waterheating | A | | - |
| rated heat output: | 10 | 9 | kW |
| annual final energy consumption space heater | 4135 | 4904 | kWh |
| annual electricity consumption waterheating | 1629 | | kWh |
| energy efficiency space heater: | 187 | 147 | % |
| energy efficiency waterheating | 103 | | % |
| | | | |
| sound power level indoors | | 46 | 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 | 8 | 7 | kW |
| rated heat output warmer climate | 10 | 10 | kW |
| annual energy consumption space heater colder climate | 4541 | 5277 | kWh |
| annual energy consumption space heater warmer climate | 2295 | 2910 | kWh |
| ann. Electricity consumption waterheating colder climate | 1790 | | kWh |
| ann. Electricity consumption waterheating warmer climate | 1403 | | kWh |
| energy effiency space heater colder climate | 160 | 118 | % |
| energy effiency space heater warmer climate | 218 | 171 | % |
| energy efficiency waterheating colder climate | 94 | | % |
| energy efficiency DHWwarmer climate | 119 | | % |
| | | | |
| sound power level outdoors | | 54 | dB |

| technical data of the temperature controller | | | |
|---|---|---|---|
| | | | |
| **manufacturer:** | **alpha innotec** | | |
| **model:** | **Luxtronik 2.1** | | |
| | | | |
| controller class | | VII | - |
| contribution of the controller to the energy efficiency space heater | | 3,5 | % |

| **Model** | | | | **LWDV 91-1/3-HSDV 12.1M3** | | | |
|---|---|---|---|---|---|---|---|
| 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) | | | | yes | | | |
| application: (low/medium) | | | | medium | | | |
| climate: (colder/average/warmer) | | | | average | | | |
| **Item** | **Symbol** | **Value** | **Unit** | **Item** | **Symbol** | **Value** | **Unit** |
| **Rated heat output** | Prated | 9 | kW | **Seasonal space heating energy efficiency** | ηS | 147,0 | % |
| **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 | 7,1 | kW | Tj = -7°C | COPd | 2,19 | - |
| Tj = +2°C | Pdh | 4,9 | kW | Tj = +2°C | COPd | 3,93 | - |
| Tj = +7°C | Pdh | 3,2 | kW | Tj = +7°C | COPd | 5,36 | - |
| Tj = +12°C | Pdh | 3,2 | kW | Tj = +12°C | COPd | 6,77 | - |
| Tj = bivalent temperature | Pdh | 7,5 | kW | Tj = bivalent temperature | COPd | 2,35 | - |
| Tj = operation limit temperature | Pdh | 6,8 | kW | Tj = operation limit temperature | COPd | 2,07 | - |
| 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 | $T_{biv}$ | -6 | °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 | 70 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,022 | kW | Rated heat output | Psup | 2,1 | kW |
| Thermostat-off mode | $P_{TO}$ | - | kW | Type of energy input | electrical | | |
| Standby mode | $P_{SB}$ | 0,022 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,030 | kW | | | | |
| **Other items** | | | | | | | |
| Capacity control | variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 3.500 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 46 / 54 | 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 | XL | | | Water heating energy efficiency | $\eta_{wh}$ | 103 | % |
| Daily electricity consumption | $Q_{elec}$ | 7,800 | 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** | | | | **LWDV 91-1/3-HSDV 12.1M3** | | | |
|---|---|---|---|---|---|---|---|
| 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) | | | | yes | | | |
| application: (low/medium) | | | | low | | | |
| climate: (colder/average/warmer) | | | | average | | | |
| **Item** | **Symbol** | **Value** | **Unit** | **Item** | **Symbol** | **Value** | **Unit** |
| **Rated heat output** | Prated | 10 | kW | **Seasonal space heating energy efficiency** | ηS | 186,9 | % |
| **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 | 7,3 | kW | Tj = -7°C | COPd | 2,96 | - |
| Tj = +2°C | Pdh | 5,4 | kW | Tj = +2°C | COPd | 5,17 | - |
| Tj = +7°C | Pdh | 3,4 | kW | Tj = +7°C | COPd | 6,90 | - |
| Tj = +12°C | Pdh | 3,3 | kW | Tj = +12°C | COPd | 8,22 | - |
| Tj = bivalent temperature | Pdh | 7,7 | kW | Tj = bivalent temperature | COPd | 3,11 | - |
| Tj = operation limit temperature | Pdh | 7,6 | kW | Tj = operation limit temperature | COPd | 3,05 | - |
| 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 | 70 | °C |
| **Power consumption in modes other than active mode** | | | | **Supplementary heater** | | | |
| Off mode | $P_{OFF}$ | 0,022 | kW | Rated heat output | Psup | 1,9 | kW |
| Thermostat-off mode | $P_{TO}$ | - | kW | Type of energy input | electrical | | |
| Standby mode | $P_{SB}$ | 0,022 | kW | | | | |
| Crankcase heater mode | $P_{CK}$ | 0,030 | kW | | | | |
| **Other items** | | | | | | | |
| Capacity control | variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | 3.500 | $m^3/h$ |
| sound power level, indoors/outdoors | $L_{WA}$ | 46 / 54 | 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.