



# ENERG

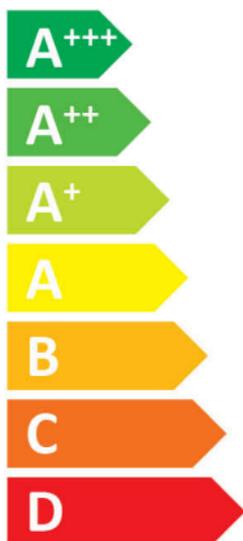
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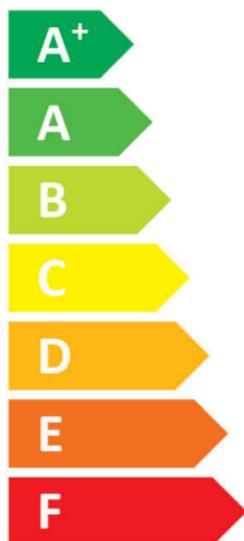
100776HSV12141

alpha innotec

LWAV 82R1/3-HSV 12.1M3



**A++**



**A**

Two icons showing sound power level. The top icon shows a speaker inside a house with the text **44 dB**. The bottom icon shows a speaker outside a house with the text **50 dB**.



Legend for power consumption: a dark blue square for 5 kW, a medium blue square for 6 kW, and a light blue square for 6 kW.

Icon showing a clock and a stack of coins with an arrow pointing down, symbolizing energy savings.



# ENERGY

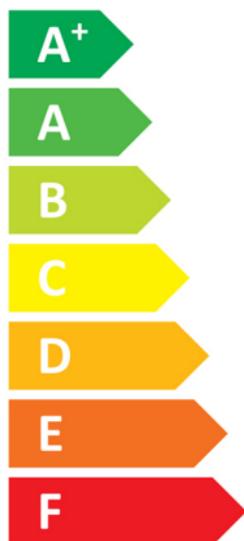
100776HSV12141

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LWAV 82R1/3-HSV 12.1M3



A++



A



44 dB



50 dB



5 kW

6 kW

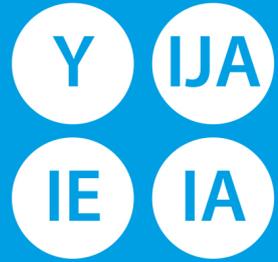
6 kW





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100776HSV12141

alpha innotec

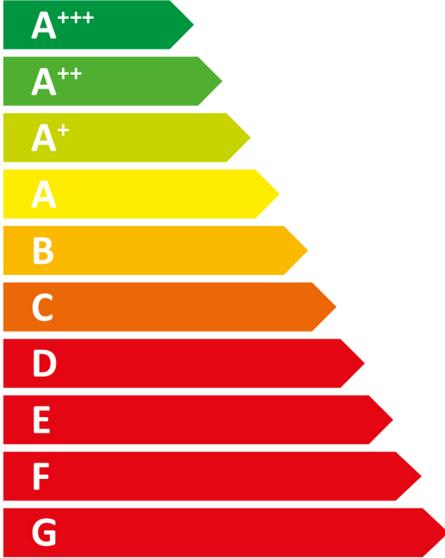
LWAV 82R1/3-HSV 12.1M3 + Luxtronik 2.1

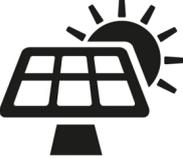






XL


+ 

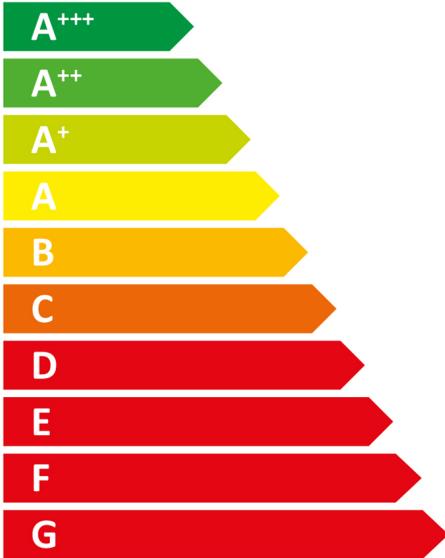
+ 

+ 

+ 



XL




**package (heat pumps and combination heater with heat pump) LWAV 82R1/3-HSV 12.1M3 + Luxtronik 2.1**

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

① 135 %

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

6

Temperature control

Class

VII (Table 1)

+

② 3,5 %

Supplementary boiler

package with hot water storage tank

no

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

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

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

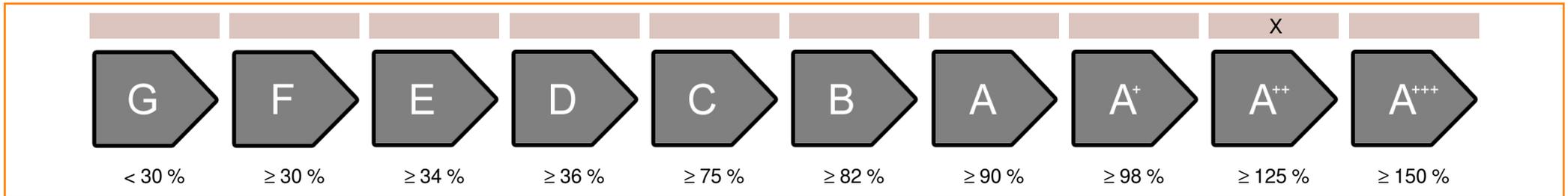
$((294/P_{rated} \times 11) \times (A_{Koll} \text{ m}^2) + (115/P_{rated} \times 11) \times (V_{Sp} \text{ m}^3)) \times 0,45 \times ((\eta_{Koll} \%)/100) \times (\eta_{Sp}) = +$  ④ %

Seasonal space heating energy efficiency of package

⑤ 138 %

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**

127 %

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

156 %

colder ⑤ 138 -V 7 = 131 warmer ⑤ 138 +VI 22 = 160

<b>heatpump datasheet:</b>			
<b>manufacturer:</b>	alpha innotec		
<b>model:</b>	LWAV 82R1/3-HSV 12.1M3		
<b>Information concerning energy efficiency class and rated heat output:</b>			
load profile water heating	XL		-
	average / low	average / medium	
energy efficiency class space heater:	A+++	A++	-
energy efficiency class waterheating	A		-
rated heat output:	7	6	kW
annual final energy consumption space heater	3029	3390	kWh
annual electricity consumption waterheating	1417		kWh
energy efficiency space heater:	180	135	%
energy efficiency waterheating	118		%
sound power level indoors	44		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	7	5	kW
rated heat output warmer climate	4	6	kW
annual energy consumption space heater colder climate	4339	3781	kWh
annual energy consumption space heater warmer climate	1009	1844	kWh
ann. Electricity consumption waterheating colder climate	1557		kWh
ann. Electricity consumption waterheating warmer climate	1221		kWh
energy efficiency space heater colder climate	145	127	%
energy efficiency space heater warmer climate	214	156	%
energy efficiency waterheating colder climate	108		%
energy efficiency DHWarmer climate	137		%
sound power level outdoors	50		dB

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

<b>Model</b>				<b>LWAV 82R1/3-HSV 12.1M3</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)				yes			
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	6	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	134,7	%
<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	5,0	kW	Tj = -7°C	COPd	2,31	-
Tj = +2°C	Pdh	3,5	kW	Tj = +2°C	COPd	3,43	-
Tj = +7°C	Pdh	3,0	kW	Tj = +7°C	COPd	4,86	-
Tj = +12°C	Pdh	3,4	kW	Tj = +12°C	COPd	6,56	-
Tj = bivalent temperature	Pdh	5,0	kW	Tj = bivalent temperature	COPd	2,31	-
Tj = operation limit temperature	Pdh	4,2	kW	Tj = operation limit temperature	COPd	2,12	-
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>	-7	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcyc	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	1,0	-	Heating water operating limit temperature	WTOL	60	°C
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>			
Off mode	P <sub>OFF</sub>	0,031	kW	Rated heat output	P <sub>sup</sub>	1,4	kW
Thermostat-off mode	P <sub>TO</sub>	-	kW	Type of energy input	electrical		
Standby mode	P <sub>SB</sub>	0,031	kW				
Crankcase heater mode	P <sub>CK</sub>	-	kW				
<b>Other items</b>							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	2.500	m <sup>3</sup> /h
sound power level, indoors/outdoors	L <sub>WA</sub>	44 / 50	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	XL			Water heating energy efficiency	$\eta_{wh}$	118	%
Daily electricity consumption	Q <sub>elec</sub>	6,762	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>LWAV 82R1/3-HSV 12.1M3</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)				yes			
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	7	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	179,8	%
<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	5,9	kW	Tj = -7°C	COPd	3,26	-
Tj = +2°C	Pdh	3,8	kW	Tj = +2°C	COPd	4,70	-
Tj = +7°C	Pdh	3,3	kW	Tj = +7°C	COPd	5,97	-
Tj = +12°C	Pdh	3,4	kW	Tj = +12°C	COPd	7,92	-
Tj = bivalent temperature	Pdh	5,9	kW	Tj = bivalent temperature	COPd	3,26	-
Tj = operation limit temperature	Pdh	5,1	kW	Tj = operation limit temperature	COPd	3,18	-
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>	-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	60	°C
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>			
Off mode	P <sub>OFF</sub>	0,031	kW	Rated heat output	Psup	1,6	kW
Thermostat-off mode	P <sub>TO</sub>	-	kW	Type of energy input	electrical		
Standby mode	P <sub>SB</sub>	0,031	kW				
Crankcase heater mode	P <sub>CK</sub>	-	kW				
<b>Other items</b>							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	2.500	m <sup>3</sup> /h
sound power level, indoors/outdoors	L <sub>WA</sub>	44 / 50	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.							