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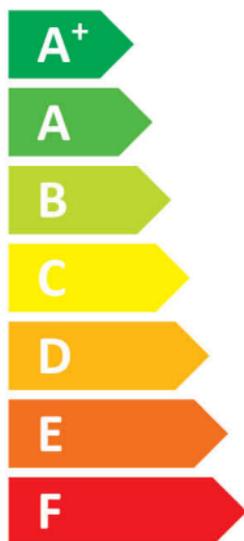
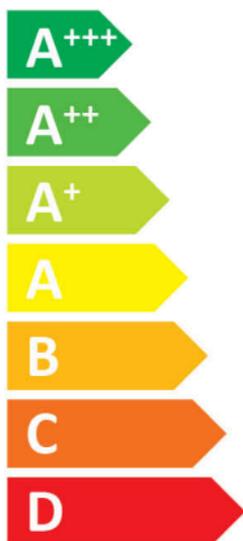
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100609HTD02

alpha innotec

LWD 90A-HTD



Two icons showing sound power levels. 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 "62 dB".



A legend for power consumption with three colored squares: dark blue for "7 kW", medium blue for "10kW", and light blue for "11 kW".

An icon showing a clock face with a dashed line and a coin with an arrow pointing to it, symbolizing energy saving or cost reduction.

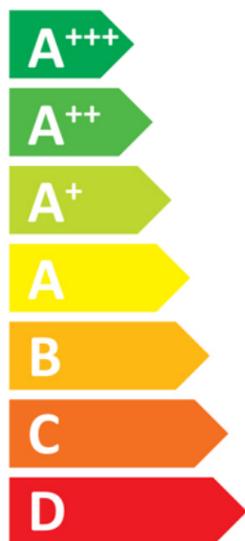


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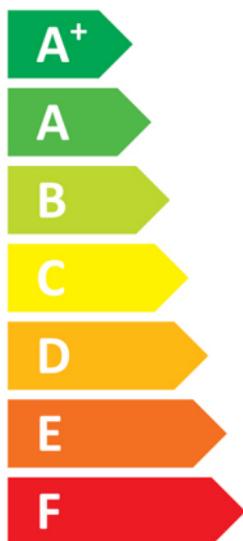
100609HTD02

alpha innotec

LWD 90A-HTD



A++



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44 dB



62 dB



7 kW

10kW

11 kW





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100609HTD02

alpha innotec

LWD 90A-HTD + Luxtronik 2.1



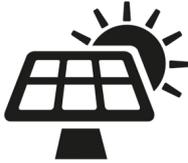




XL





+ 

+ 

+ 

+ 



XL




package (heat pumps and combination heater with heat pump) LWD 90A-HTD + Luxtronik 2.1

Seasonal space heating energy efficiency of heat pump (η_s)

① 126 %

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

10

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)

η_s % (σ_{sup})

$(\eta_s \% (sup) - ①) \times (\alpha_{WP}) = -$ ③ %

(α_{WE} : see Table 3)

(α_{WE})

solar contribution

(A_{Koll} m²)

(η_{Koll} %)

(V_{Sp} m³)

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

(η_{Sp} : Table 2)

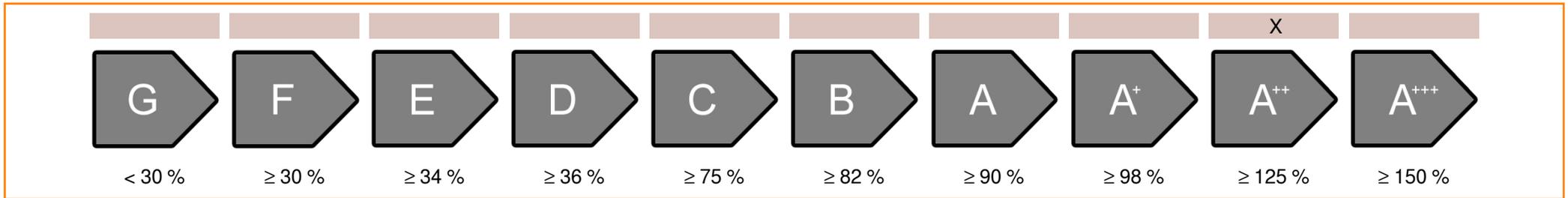
$((294/P_{rated} \times 11) \times (A_{Koll} \text{ m}^2) + (115/P_{rated} \times 11) \times (V_{Sp} \text{ m}^3)) \times 0,45 \times ((\eta_{Koll} \%)/100) \times (\eta_{Sp}) = +$ ④ %

Seasonal space heating energy efficiency of package

⑤ 129 %

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 (η_s) under colder climate conditions

117 %

Seasonal space heating energy efficiency of the heat pump (η_s) under warmer climate conditions

146 %

colder ⑤ 129 -V 9 = 120 warmer ⑤ 129 +VI 20 = 149

heatpump datasheet:			
manufacturer:	alpha innotec		
model:	LWD 90A-HTD		
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	10	kW
annual final energy consumption space heater	5628	6557	kWh
annual electricity consumption waterheating	1861		kWh
energy efficiency space heater:	150	126	%
energy efficiency waterheating	90		%
sound power level indoors	44		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	11	11	kW
annual energy consumption space heater colder climate	5325	5770	kWh
annual energy consumption space heater warmer climate	3237	3852	kWh
ann. Electricity consumption waterheating colder climate	2043		kWh
ann. Electricity consumption waterheating warmer climate	1626		kWh
energy efficiency space heater colder climate	139	117	%
energy efficiency space heater warmer climate	179	146	%
energy efficiency waterheating colder climate	82		%
energy efficiency DHWarmer climate	103		%
sound power level outdoors	62		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				LWD 90A-HTD			
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	10	kW	Seasonal space heating energy efficiency	η_S	125,7	%
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	7,2	kW	Tj = -7°C	COPd	2,35	-
Tj = +2°C	Pdh	9,0	kW	Tj = +2°C	COPd	3,21	-
Tj = +7°C	Pdh	10,1	kW	Tj = +7°C	COPd	4,03	-
Tj = +12°C	Pdh	12,0	kW	Tj = +12°C	COPd	5,30	-
Tj = bivalent temperature	Pdh	7,8	kW	Tj = bivalent temperature	COPd	2,63	-
Tj = operation limit temperature	Pdh	6,6	kW	Tj = operation limit temperature	COPd	2,11	-
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}	-4	°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	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P _{OFF}	0,015	kW	Rated heat output	P _{sup}	3,6	kW
Thermostat-off mode	P _{TO}	0,015	kW	Type of energy input	electrical		
Standby mode	P _{SB}	0,015	kW				
Crankcase heater mode	P _{CK}	-	kW				
Other items							
Capacity control	fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	3.500	m ³ /h
sound power level, indoors/outdoors	L _{WA}	44 / 62	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	η_{wh}	90	%
Daily electricity consumption	Q _{elec}	8,476	kWh	Daily fuel consumption	Q _{fuel}	-	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				LWD 90A-HTD			
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	η_S	150,4	%
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	7,5	kW	Tj = -7°C	COPd	3,18	-
Tj = +2°C	Pdh	9,0	kW	Tj = +2°C	COPd	3,83	-
Tj = +7°C	Pdh	10,3	kW	Tj = +7°C	COPd	4,69	-
Tj = +12°C	Pdh	12,0	kW	Tj = +12°C	COPd	5,42	-
Tj = bivalent temperature	Pdh	8,1	kW	Tj = bivalent temperature	COPd	3,43	-
Tj = operation limit temperature	Pdh	7,0	kW	Tj = operation limit temperature	COPd	2,93	-
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}	-4	°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	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P _{OFF}	0,015	kW	Rated heat output	P _{sup}	3,5	kW
Thermostat-off mode	P _{TO}	0,015	kW	Type of energy input	electrical		
Standby mode	P _{SB}	0,015	kW				
Crankcase heater mode	P _{CK}	-	kW				
Other items							
Capacity control	fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	3.500	m ³ /h
sound power level, indoors/outdoors	L _{WA}	44 / 62	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	η_{wh}	-	%
Daily electricity consumption	Q _{elec}	-	kWh	Daily fuel consumption	Q _{fuel}	-	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.							