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alpha innotec Paros 4-1

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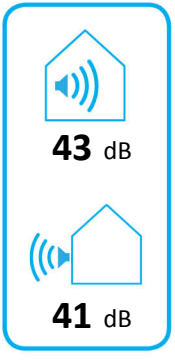

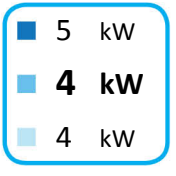

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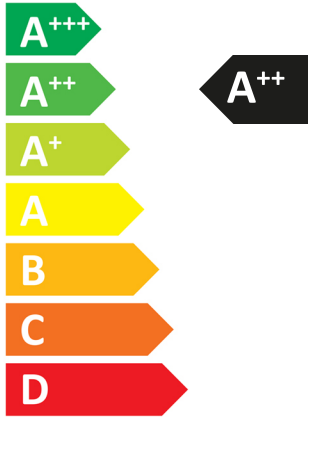

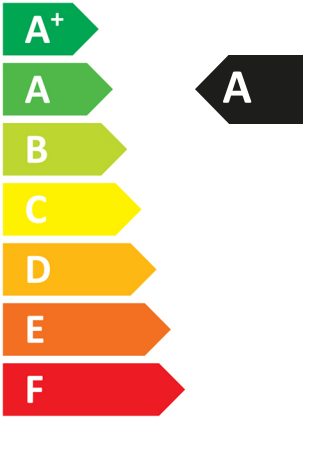

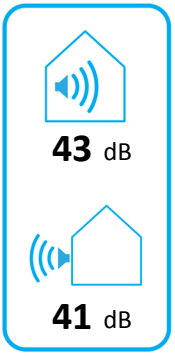

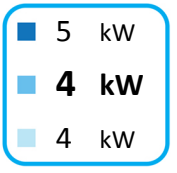

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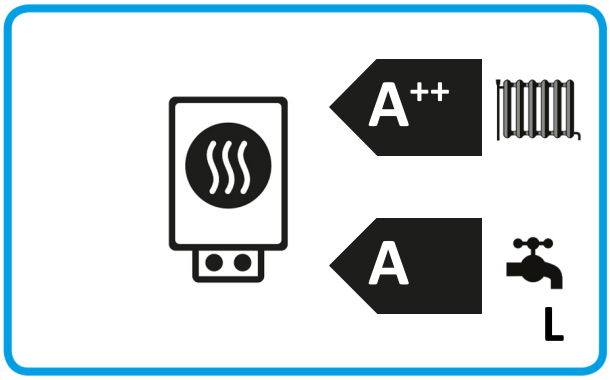
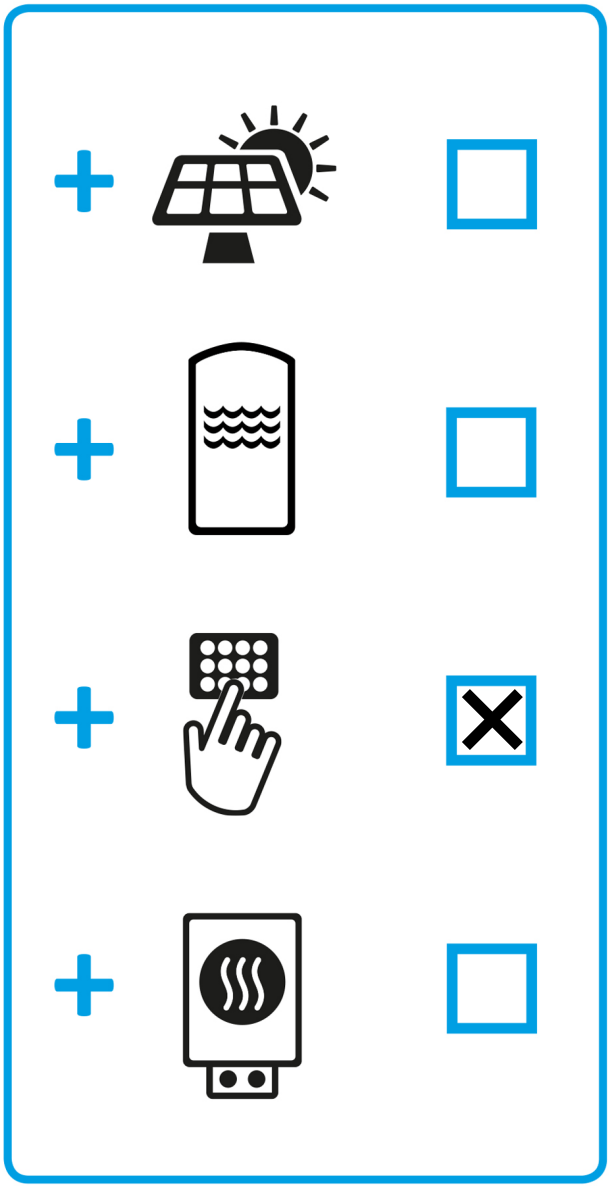
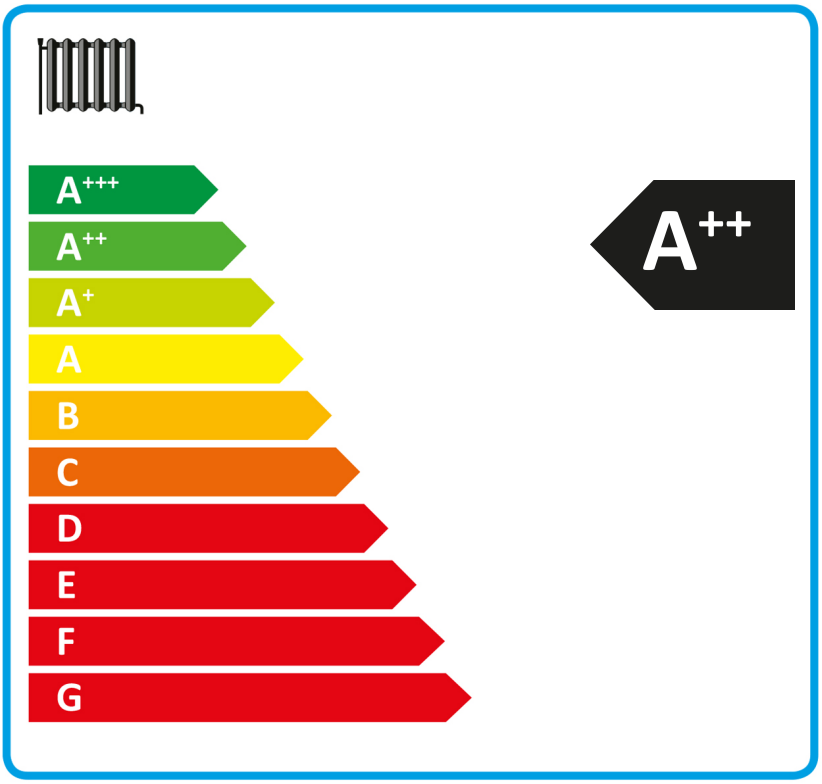
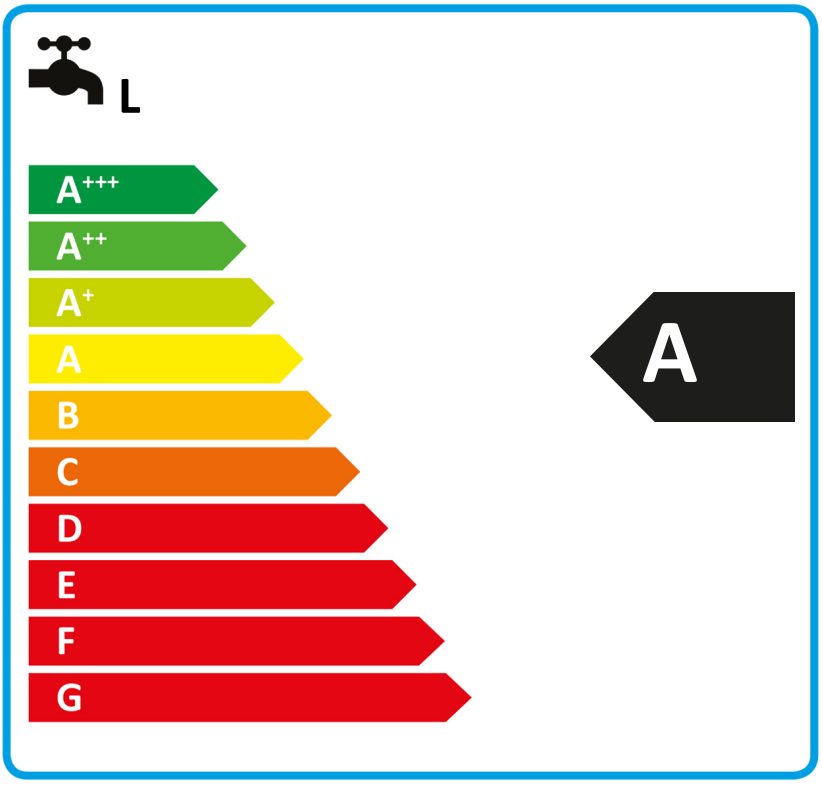
Paros 4-1 + Lux 2.1









2015

811/2013

package (heat pumps and combination heater with heat pump) Paros 4-1 + Lux 2.1

Seasonal space heating energy efficiency of heat pump (ηs) ❶ 138 %

Rated heat output of the heat pump (Prated kW) 4

Temperature control — Class II ***(Table 1)*** + ❷ 2 %

Supplementary boiler

package with hot water storage tank: no — *Psup kW (rated heat output of supplementary heater)*

ησ % (συπ)

(ηs % ***(sup)*** - ❶) x (α_{WP}) = - ❸ %

(αWE: see Table 3) — ***(α_{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 (**ηKoll %** /100) x **(ηSp)** = + ❹ %

Seasonal space heating energy efficiency of package ❺ 140 %

rounded to the nearest integer

Seasonal space heating energy efficiency class of package

G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
								X	
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %

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 111 %

Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions 164 %

colder ❺ 140 -V 27 = 113 warmer ❺ 140 +VI 26 = 166

heatpump datasheet:			
manufacturer:	**alpha innotec**		
model:	**Paros 4-1**		
Information concerning energy efficiency class and rated heat output:			
load profile water heating	L		-
	average / low	average / medium	
energy efficiency class space heater:	A+++	A++	-
energy efficiency class waterheating	A		-
rated heat output:	5	4	kW
annual final energy consumption space heater	2257	2347	kWh
annual electricity consumption waterheating	977		kWh
energy efficiency space heater:	180	138	%
energy efficiency waterheating	96		%
sound power level indoors		43	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	5	5	kW
rated heat output warmer climate	4	4	kW
annual energy consumption space heater colder climate	3520	3899	kWh
annual energy consumption space heater warmer climate	947	1257	kWh
ann. Electricity consumption waterheating colder climate	1069		kWh
ann. Electricity consumption waterheating warmer climate	848		kWh
energy effiency space heater colder climate	137	111	%
energy effiency space heater warmer climate	215	164	%
energy efficiency waterheating colder climate	105		%
energy efficiency DHWwarmer climate	121		%
sound power level outdoors		41	dB

technical data of the temperature controller		
manufacturer:	**alpha innotec**	
model:	**Lux 2.1**	
controller class	II	-
contribution of the controller to the energy efficiency space heater	2	%

Model				**Paros 4-1**			
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	4	kW	**Seasonal space heating energy efficiency**	ηS	137,8	%
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	3,8	kW	Tj = -7°C	COPd	2,01	-
Tj = +2°C	Pdh	2,3	kW	Tj = +2°C	COPd	3,64	-
Tj = +7°C	Pdh	2,2	kW	Tj = +7°C	COPd	4,56	-
Tj = +12°C	Pdh	2,3	kW	Tj = +12°C	COPd	5,24	-
Tj = bivalent temperature	Pdh	3,8	kW	Tj = bivalent temperature	COPd	2,01	-
Tj = operation limit temperature	Pdh	2,9	kW	Tj = operation limit temperature	COPd	2,04	-
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}	-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	65	°C
Power consumption in modes other than active mode				**Supplementary heater**			
Off mode	P_{OFF}	0,011	kW	Rated heat output	Psup	1,1	kW
Thermostat-off mode	P_{TO}	-	kW	Type of energy input	electrical		
Standby mode	P_{SB}	0,011	kW				
Crankcase heater mode	P_{CK}	-	kW				
Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	1.200	m^3/h
sound power level, indoors/outdoors	L_{WA}	43 / 41	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	L			Water heating energy efficiency	η_{wh}	96	%
Daily electricity consumption	Q_{elec}	4,690	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				**Paros 4-1**			
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	5	kW	**Seasonal space heating energy efficiency**	ηS	180,1	%
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	4,1	kW	Tj = -7°C	COPd	2,47	-
Tj = +2°C	Pdh	2,8	kW	Tj = +2°C	COPd	4,80	-
Tj = +7°C	Pdh	2,4	kW	Tj = +7°C	COPd	6,07	-
Tj = +12°C	Pdh	2,4	kW	Tj = +12°C	COPd	6,79	-
Tj = bivalent temperature	Pdh	4,1	kW	Tj = bivalent temperature	COPd	2,47	-
Tj = operation limit temperature	Pdh	4,1	kW	Tj = operation limit temperature	COPd	2,27	-
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}	-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	65	°C
Power consumption in modes other than active mode				**Supplementary heater**			
Off mode	P_{OFF}	0,011	kW	Rated heat output	Psup	0,9	kW
Thermostat-off mode	P_{TO}	-	kW	Type of energy input	electrical		
Standby mode	P_{SB}	0,011	kW				
Crankcase heater mode	P_{CK}	-	kW				
Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	1.200	m^3/h
sound power level, indoors/outdoors	L_{WA}	43 / 41	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	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.