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ALPHA INNOTEC Hybrox 21

	55°C	35°C
	A+++	A+++

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

40 dB

53 dB

■	18	18
■	**21**	**21**
■	19	19
	kW	kW

2019 811/2013

ENERGY

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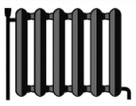
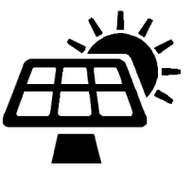
alpha innotec Hybrox 21 + Lux 2.1



A+++



A+++

A++

A+

A

B

C

D

E

F

G

A+++

2015

811/2013

package (heat pumps and combination heater with heat pump) - Hybrox 21 + Lux 2.1

Seasonal space heating energy efficiency of heat pump (ηs) — 1 — 150 %

Rated heat output of the heat pump (Prated kW) — 21

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

Supplementary boiler

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

ηs % (sup)

(ηs % **(sup)** - 1) x (α_{WP}) = - — 3 — %

(αWE: 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)**

(ηSp: Table 2)

((294/P_{rated} x11) x (A_{Koll} m²) + (115/P_{rated} x11) x (V_{Sp} m³)) x 0,45 x ((η_{Koll} %) /100) x (η_{Sp}) = + — 4 — %

Seasonal space heating energy efficiency of package — 5 — 152 % — 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 — 132 %

Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions — 176 %

colder 5 — 152 — -V — 18 — = — 134

warmer 5 — 152 — +VI — 26 — = — 178

heatpump datasheet:			
manufacturer:	**alpha innotec**		
model:	**Hybrox 21**		
Information concerning energy efficiency class and rated heat output:			
	average / low	average / medium	
energy efficiency class space heater:	A+++	A+++	
rated heat output:	21	21	kW
energy efficiency space heater:	184	150	%
annual final energy consumption space heater	9305	11137	kWh
sound power level indoors		40	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 under colder climate conditions	18	18	kW
rated heat output under warmer climate conditions	19	19	kW
energy effiency space heater under colder climate conditions	170	132	%
energy effiency space heater under warmer climate conditions	242	176	%
annual energy consumption space heater under colder climate conditions	10234	13168	kWh
annual energy consumption space heater under warmer climate conditions	4150	5665	kWh
sound power level outdoors		53	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	Hybrox 21
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)	no
combination heater with	no
application: (low/medium)	medium
climate: (colder/average/warmer)	average

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output	Prated	21	kW	Seasonal space heating energy efficiency	ηS	150,2	%
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	18,3	kW	Tj = -7°C	COPd	2,38	-
Tj = +2°C	Pdh	10,4	kW	Tj = +2°C	COPd	3,70	-
Tj = +7°C	Pdh	7,2	kW	Tj = +7°C	COPd	5,26	-
Tj = +12°C	Pdh	8,2	kW	Tj = +12°C	COPd	6,27	-
Tj = bivalent temperature	Pdh	18,3	kW	Tj = bivalent temperature	COPd	2,38	-
Tj = operation limit temperature	Pdh	16,9	kW	Tj = operation limit temperature	COPd	2,17	-
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	-7,0	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10,00	°C
Cycling interval capacity for heating	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation co-efficient (**)	Cdh	1,0	-	Heating water operating limit temperature	WTOL	78,00	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,013	kW	Rated heat output	Psup	3,8	kW
Thermostat-off mode	P TO	0,014	kW				
Standby mode	P SB	0,013	kW	Type of energy input		electrical	
Crankcase heater mode	P CK	0,000	kW				
Other items							
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors		9000	m³/h
sound power level, indoors/outdoors	L WA	40/53	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m³/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	0	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 s

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Model	Hybrox 21
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)	no
combination heater with	no
application: (low/medium)	low
climate: (colder/average/warmer)	average

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output	Prated	21	kW	Seasonal space heating energy efficiency	ηS	183,5	%
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	18,8	kW	Tj = -7°C	COPd	3,00	-
Tj = +2°C	Pdh	10,2	kW	Tj = +2°C	COPd	4,47	-
Tj = +7°C	Pdh	7,2	kW	Tj = +7°C	COPd	6,40	-
Tj = +12°C	Pdh	8,2	kW	Tj = +12°C	COPd	7,43	-
Tj = bivalent temperature	Pdh	18,8	kW	Tj = bivalent temperature	COPd	3,00	-
Tj = operation limit temperature	Pdh	17,2	kW	Tj = operation limit temperature	COPd	2,78	-
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}	-7,0	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10,00	°C
Cycling interval capacity for heating	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation co-efficient (**)	Cdh	1,0	-	Heating water operating limit temperature	WTOL	78,00	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,013	kW	Rated heat output	Psup	3,8	kW
Thermostat-off mode	P_{TO}	0,014	kW				
Standby mode	P_{SB}	0,013	kW	Type of energy input		electrical	
Crankcase heater mode	P_{CK}	0,000	kW				
Other items							
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors		9000	m³/h
sound power level, indoors/outdoors	L_{WA}	40/53	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m³/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 s

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.