

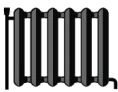


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10081501

ALPHA INNOTEC Hybrox SE 14 1P



55°C

35°C



A+++

A+++



40 dB



51 dB

■ 13
■ 13
■ 12
kW

■ 13
■ 14
■ 13
kW



2019

811/2013



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10081501

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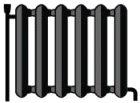


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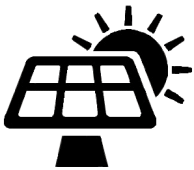
10081501

alpha innotec Hybrox SE 14 1P + HPC



A+++

+



+



+



+



A+++

A++

A+

A

B

C

D

E

F

G

A+++

package (heat pumps and combination heater with heat pump) - Hybrox SE 14 1P + HPC

Seasonal space heating energy efficiency of heat pump (η_s)	156	%
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Rated heat output of the heat pump (Prated kW)	13
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Temperature control	Class	II	(Table 1)	2	2	%
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Supplementary boiler

package with hot water storage tank	no	Psup kW (rated heat output of supplementary heater)
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ηs % (sup)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00

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

(α_{WF} : see Table 3)

	(Δ_{max} , m ²)	(n_{max} , %)
1	100	10
2	200	20
3	300	30
4	400	40
5	500	50
6	600	60
7	700	70
8	800	80
9	900	90
10	1000	100

solar contribution	$(\text{W} \cdot \text{m}^{-2})$	$(\text{W} \cdot \text{m}^{-2})$
	$(\text{W} \cdot \text{m}^{-3})$	(standstill heat loss of the hot water storage tank in W)

	(V_{sp}^{in})	(standstill heat loss of the hot water storage tank in W)
		(nSp: Table 3)

Year	Area (m ²)	Volume (m ³)	Area (m ²)	Volume (m ³)	Area (m ²)	Volume (m ³)	Area (m ²)	Volume (m ³)	Area (m ²)	Volume (m ³)	Area (m ²)	Volume (m ³)
1994/95	111	115	111	115	111	115	111	115	111	115	111	115
1995/96	111	115	111	115	111	115	111	115	111	115	111	115
1996/97	111	115	111	115	111	115	111	115	111	115	111	115
1997/98	111	115	111	115	111	115	111	115	111	115	111	115
1998/99	111	115	111	115	111	115	111	115	111	115	111	115
1999/00	111	115	111	115	111	115	111	115	111	115	111	115
2000/01	111	115	111	115	111	115	111	115	111	115	111	115
2001/02	111	115	111	115	111	115	111	115	111	115	111	115
2002/03	111	115	111	115	111	115	111	115	111	115	111	115
2003/04	111	115	111	115	111	115	111	115	111	115	111	115
2004/05	111	115	111	115	111	115	111	115	111	115	111	115
2005/06	111	115	111	115	111	115	111	115	111	115	111	115
2006/07	111	115	111	115	111	115	111	115	111	115	111	115
2007/08	111	115	111	115	111	115	111	115	111	115	111	115
2008/09	111	115	111	115	111	115	111	115	111	115	111	115
2009/10	111	115	111	115	111	115	111	115	111	115	111	115
2010/11	111	115	111	115	111	115	111	115	111	115	111	115
2011/12	111	115	111	115	111	115	111	115	111	115	111	115
2012/13	111	115	111	115	111	115	111	115	111	115	111	115
2013/14	111	115	111	115	111	115	111	115	111	115	111	115
2014/15	111	115	111	115	111	115	111	115	111	115	111	115
2015/16	111	115	111	115	111	115	111	115	111	115	111	115
2016/17	111	115	111	115	111	115	111	115	111	115	111	115
2017/18	111	115	111	115	111	115	111	115	111	115	111	115
2018/19	111	115	111	115	111	115	111	115	111	115	111	115
2019/20	111	115	111	115	111	115	111	115	111	115	111	115
2020/21	111	115	111	115	111	115	111	115	111	115	111	115
2021/22	111	115	111	115	111	115	111	115	111	115	111	115
2022/23	111	115	111	115	111	115	111	115	111	115	111	115
2023/24	111	115	111	115	111	115	111	115	111	115	111	115
2024/25	111	115										

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

Seasonal space heating energy efficiency of package	5	157	%
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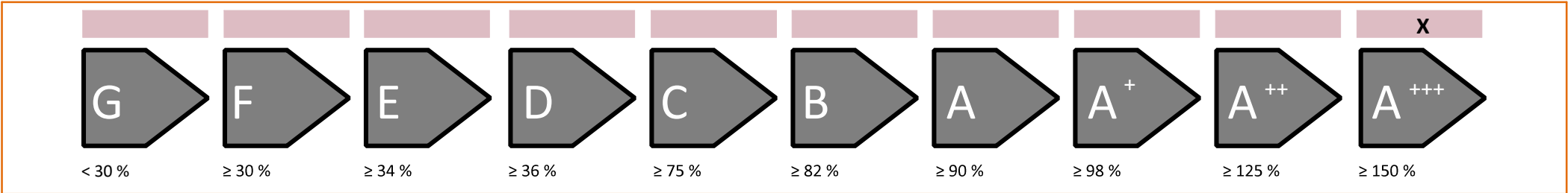
rounded to the nearest integer

Seasonal space heating energy efficiency class of package

[illegible]

G F E D C B A A A A

Country	Share of GDP
China	33%
USA	33%
Germany	34%
France	36%
UK	55%
Japan	33%
Italy	33%
Spain	33%
India	135%
Brazil	153%



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	139	%
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Seasonal space heating energy efficiency of the heat pump (η_s) under warmer climate conditions	197	%
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colder $\ominus$ 157 -V 17 = 140 warmer $\ominus$ 157 +VI 41 = 198

ErP-Rechenverfahren-RHG

heatpump datasheet:			
manufacturer:		alpha innotec	
model:		Hybrox SE 14 1P	
Information concerning energy efficiency class and rated heat output:			
	average / low	average / medium	
energy efficiency class space heater:	A+++	A+++	
rated heat output:	14	13	kW
energy efficiency space heater:	203	156	%
annual final energy consumption space heater	5421	6507	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	13	13	kW
rated heat output under warmer climate conditions	13	12	kW
energy efficiency space heater under colder climate conditions	177	139	%
energy efficiency space heater under warmer climate conditions	264	197	%
annual energy consumption space heater under colder climate conditions	7024	8689	kWh
annual energy consumption space heater under warmer climate conditions	2564	3210	kWh
sound power level outdoors		51	dB

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

Model				Hybrox SE 14 1P			
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	13	kW	Seasonal space heating energy efficiency	η_s	156	%
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	10,5	kW	Tj = -7°C	COPd	2,14	-
Tj = +2°C	Pdh	7,3	kW	Tj = +2°C	COPd	3,83	-
Tj = +7°C	Pdh	4,7	kW	Tj = +7°C	COPd	5,74	-
Tj = +12°C	Pdh	3,9	kW	Tj = +12°C	COPd	8,47	-
Tj = bivalent temperature	Pdh	10,5	kW	Tj = bivalent temperature	COPd	2,14	-
Tj = operation limit temperature	Pdh	9,9	kW	Tj = operation limit temperature	COPd	1,98	-
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	P _{cyh}		kW	Cycling interval efficiency	COP _{cyh}		-
Degradation co-efficient (**)	Cdh	0,9	-	Heating water operating limit temperature	WTOL	75,00	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P _{OFF}	0,006	kW	Rated heat output	P _{sup}	2,6	kW
Thermostat-off mode	P _{TO}	0,006	kW	Type of energy input	electrical		
Standby mode	P _{SB}	0,006	kW				
Crankcase heater mode	P _{CK}	0,000	kW				
Other items				For air-to-water heat pumps: Rated air flow rate, outdoors			
Capacity control	variable			For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	7100	m³/h	m³/h
sound power level, indoors/outdoors	L _{WA}	40/51	dB				
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 SE 14 1P			
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	14	kW	Seasonal space heating energy efficiency	η_s	203	%
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	11,2	kW	Tj = -7°C	COPd	2,92	-
Tj = +2°C	Pdh	7,1	kW	Tj = +2°C	COPd	5,00	-
Tj = +7°C	Pdh	4,4	kW	Tj = +7°C	COPd	7,21	-
Tj = +12°C	Pdh	3,9	kW	Tj = +12°C	COPd	10,43	-
Tj = bivalent temperature	Pdh	11,2	kW	Tj = bivalent temperature	COPd	2,92	-
Tj = operation limit temperature	Pdh	10,6	kW	Tj = operation limit temperature	COPd	2,60	-
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	Tbiv	-7,0	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10,00	°C
Cycling interval capacity for heating	Pcyc		kW	Cycling interval efficiency	COPcyc		-
Degradation co-efficient (**)	Cdh	0,9	-	Heating water operating limit temperature	WTOL	75,00	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P _{OFF}	0,006	kW	Rated heat output	Psup	2,9	kW
Thermostat-off mode	P _{TO}	0,006	kW	Type of energy input	electrical		
Standby mode	P _{SB}	0,006	kW				
Crankcase heater mode	P _{CK}	0,000	kW				
Other items				For air-to-water heat pumps: Rated air flow rate, outdoors			
Capacity control	variable			For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		7100	m³/h
sound power level, indoors/outdoors	L _{WA}	40/51	dB				
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.							