



# ENERG

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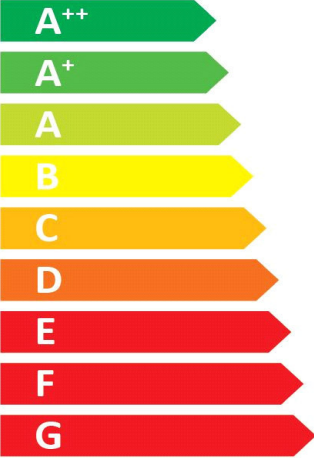
CTA

121359 Aeroheat CS 1-14a



55 °C

35 °C



A<sup>++</sup>

A<sup>++</sup>

- dB

58 dB

■ 13	■ 13
■ 14	■ 14
■ 16	■ 16
kW	kW

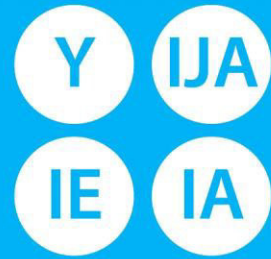
2015

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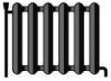




55°C





CTA

107544P02

121359 Aeroheat CS 1-14a



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**Package (heat pumps and combination heater with heat pump)**

Seasonal space heating energy efficiency of heat pump ( $\eta_S$ ) ① 126 %

Rated output of the heat pump ( $P_{rated}$  kW) 13.71

Temperature control Class III (Table 1) + ② 1.5 %

Supplementary boiler

Package with hot water storage tank no  $P_{sup}$  kW (rated output of supplementary heater)

$\eta_S$  % (sup) = - ③ %

$(\eta_S \% (sup) - ①) \times (\alpha_{WE})$

$(\alpha_{WE})$

Solar contribution  $(A_{Koll} m^2)$   $(\eta_{Koll} \%)$

$(V_{Sp} m^3)$  **(standstill heat loss of the storage tank in W)**

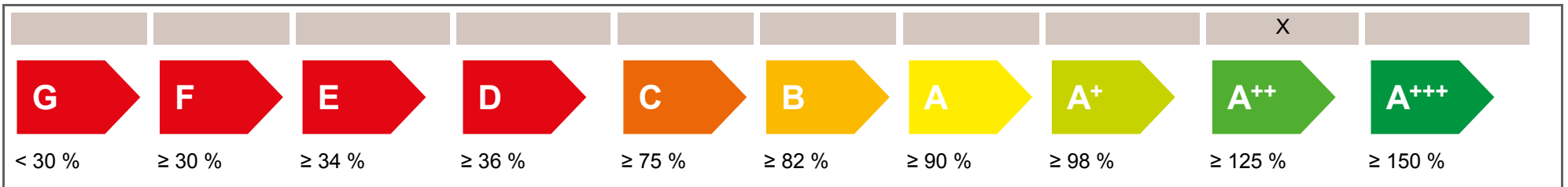
$(\eta_{Sp})$

$((294/(P_{rated} \times 11)) \times (A_{Koll} m^2) + (115/(P_{rated} \times 11)) \times (V_{Sp} m^3)) \times 0.45 \times ((\eta_{Koll} \%) / 100) \times (\eta_{Sp})$  = + ④ %

Seasonal space heating energy efficiency of package under average climate ⑤ 128 %

*rounded to the nearest integer*


Seasonal space heating energy efficiency class of package under average climate





Seasonal space heating energy efficiency under colder and warmer climate conditions

colder	114 %		colder	⑤	128	-V	12	=	116 %
warmer	154 %		warmer	⑤	128	+VI	28	=	156 %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as the efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

<b>Product fiche</b>		 <b>AC Cooling Heating</b>	
<b>Manufacturer</b>	CTA AG		
<b>Model</b>	AH CS 1-14a		
<b>Information on energy efficiency class and rated output</b>			
	Average / Low temperature	Average / Medium temperature	
Space heating energy efficiency class	A++	A++	-
Rated heat output	14.43	13.71	kW
Seasonal space heating energy efficiency	158	126	%
Annual final energy consumption space heating	7586	9031	kWh
Sound power level indoors	-		dB
<b>Special precautions during assembly, installation or maintenance</b>			
see installation and maintenance instructions			
<b>Additional information</b>			
	Low temperature	Medium temperature	
Rated heat output colder climate	13.15	12.60	kW
Rated heat output warmer climate	16.43	15.64	kW
Seasonal space heating energy efficiency colder climate	141	114	%
Seasonal space heating energy efficiency warmer climate	192	154	%
Annual final energy consumption colder climate	9232	10883	kWh
Annual final energy consumption warmer climate	4643	5579	kWh
Sound power level outdoors		58	dB
<b>Technical data of the temperature controller</b>			
<b>Manufacturer</b>	ait		
<b>Model</b>	Aeroplus 2.0		
Class of the controller		III	-
Contribution of the controller to seasonal space heating energy efficiency		1.5	%
<b>Contact</b>	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen		

<b>Model</b>				<b>AH CS 1-14a</b>						
Brine-to-water heat pump: (Yes/No)				No						
Water-to-water heat pump: (Yes/No)				No						
Air-to-water heat pump: (Yes/No)				Yes						
Low temperature heat pump: (Yes/No)				No						
Equipped with supplementary heater: (Yes/No)				Yes						
Heat pump combination heater: (Yes/No)				No						
Application: (Low temperature/Medium temperature)				Medium temperature						
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	13.71	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	126	%			
<b>Declared capacity for heating 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	10.40	kW	Tj = -7°C	COPd	2.16	-			
Tj = +2°C	Pdh	13.50	kW	Tj = +2°C	COPd	3.10	-			
Tj = +7°C	Pdh	14.40	kW	Tj = +7°C	COPd	4.28	-			
Tj = +12°C	Pdh	16.30	kW	Tj = +12°C	COPd	5.27	-			
Tj = biv	Pdh	11.10	kW	Tj = biv	COPd	2.34	-			
Tj = TOL	Pdh	9.60	kW	Tj = TOL	COPd	1.96	-			
Tj = -15°C (if TOL < -20°C)	Pdh	8.30	kW	Tj = -15°C if TOL < -20°C)	COPd	1.67	-			
Bivalent temperature	T <sub>biv</sub>	-5	°C	Operation limit temperature	TOL	-20	°C			
Cycling interval capacity for heating	P <sub>cy</sub>	-	kW	Cycling interval efficiency	COP <sub>cy</sub>	-	-			
Degradation co-efficient	Cdh	1	-	Heating water operating limit temperature	WTOL	50	°C			
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>						
Off mode	P <sub>OFF</sub>	0.01	kW	Rated heat output	P <sub>sup</sub>	4.1	kW			
Thermostat-off mode	P <sub>TO</sub>	0.01	kW	Type of energy input	electric					
Standby mode	P <sub>SB</sub>	0.01	kW							
Crankcase heater mode	P <sub>CK</sub>	0	kW							
<b>Other items</b>										
Capacity control	fixed			Rated air flow rate, outdoors	-	5600	m <sup>3</sup> /h			
Sound power level, indoors/outdoors	L <sub>WA</sub>	-/58	dB	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</b>	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen									

<b>Model</b>				<b>AH CS 1-14a</b>						
Brine-to-water heat pump: (Yes/No)				No						
Water-to-water heat pump: (Yes/No)				No						
Air-to-water heat pump: (Yes/No)				Yes						
Low temperature heat pump: (Yes/No)				No						
Equipped with supplementary heater: (Yes/No)				Yes						
Heat pump combination heater: (Yes/No)				No						
Application: (Low temperature/Medium temperature)				Low temperature						
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	14.43	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	158	%			
<b>Declared capacity for heating 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	11.00	kW	Tj = -7°C	COPd	3.13	-			
Tj = +2°C	Pdh	13.90	kW	Tj = +2°C	COPd	3.94	-			
Tj = +7°C	Pdh	14.50	kW	Tj = +7°C	COPd	4.94	-			
Tj = +12°C	Pdh	16.40	kW	Tj = +12°C	COPd	5.43	-			
Tj = biv	Pdh	11.70	kW	Tj = biv	COPd	3.34	-			
Tj = TOL	Pdh	10.20	kW	Tj = TOL	COPd	2.87	-			
Tj = -15°C (if TOL < -20°C)	Pdh	8.80	kW	Tj = -15°C if TOL < -20°C)	COPd	2.47	-			
Bivalent temperature	T <sub>biv</sub>	-5	°C	Operation limit temperature	TOL	-20	°C			
Cycling interval capacity for heating	P <sub>cy</sub>	-	kW	Cycling interval efficiency	COP <sub>cy</sub>	-	-			
Degradation co-efficient	Cdh	1	-	Heating water operating limit temperature	WTOL	50	°C			
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>						
Off mode	P <sub>OFF</sub>	0.01	kW	Rated heat output	P <sub>sup</sub>	4.3	kW			
Thermostat-off mode	P <sub>TO</sub>	0.01	kW	Type of energy input	electric					
Standby mode	P <sub>SB</sub>	0.01	kW							
Crankcase heater mode	P <sub>CK</sub>	0	kW							
<b>Other items</b>										
Capacity control	fixed			Rated air flow rate, outdoors	-	5600	m <sup>3</sup> /h			
Sound power level, indoors/outdoors	L <sub>WA</sub>	-/58	dB	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</b>	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen									