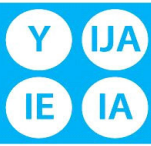




# ENERG

енергия · ενεργεια



10753502

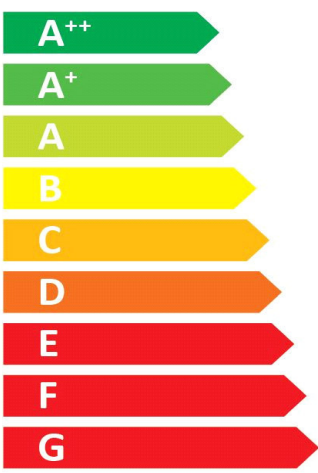
CTA

121352 Aeroheat CS 1-18i-L



55 °C

35 °C



A+

A++

**59 dB**

**54 dB**

■ 15	■ 17
■ 19	■ 20
■ 16	■ 17
kW	kW

2015

811/2013



# ENERG

енергия · ενέργεια

Y

IJA

IE

IA

55°C

10753502

121352 Aeroheat CS 1-18i-L

CTA



A+

A+++

A++

A+

A

B

C

D

E

F

G

A+

+



+



+





+




Package (heat pumps and combination heater with heat pump)																																							
Seasonal space heating energy efficiency of heat pump ( $\eta_S$ )								1	118	%																													
Rated output of the heat pump ( $P_{rated}$ kW)									18.50																														
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)																																					
		$(\eta_S \text{ % (sup)} - 1) \times (\alpha_{WE})$				=	-	3	%																														
		$(\alpha_{WE})$																																					
Solar contribution		$(A_{Koll} \text{ m}^2)$			$(\eta_{Koll} \text{ %})$																																		
		$(V_{Sp} \text{ m}^3)$			(standstill heat loss of the storage tank in W)																																		
					$(\eta_{Sp})$																																		
		$((294/(P_{rated} \times 11)) \times (A_{Koll} \text{ m}^2) + (115/(P_{rated} \times 11)) \times (V_{Sp} \text{ m}^3)) \times 0.45 \times ((\eta_{Koll} \text{ %}) / 100) \times (\eta_{Sp})$				=	+	4	%																														
Seasonal space heating energy efficiency of package under average climate								5	120	%																													
									rounded to the nearest integer																														
Seasonal space heating energy efficiency class of package under average climate																																							
<table border="1"> <thead> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>X</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td><b>G</b></td> <td><b>F</b></td> <td><b>E</b></td> <td><b>D</b></td> <td><b>C</b></td> <td><b>B</b></td> <td><b>A</b></td> <td><b>A+</b></td> <td><b>A++</b></td> <td><b>A+++</b></td> </tr> <tr> <td>&lt; 30 %</td> <td>≥ 30 %</td> <td>≥ 34 %</td> <td>≥ 36 %</td> <td>≥ 75 %</td> <td>≥ 82 %</td> <td>≥ 90 %</td> <td>≥ 98 %</td> <td>≥ 125 %</td> <td>≥ 150 %</td> </tr> </tbody> </table>																	X			<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>A</b>	<b>A+</b>	<b>A++</b>	<b>A+++</b>	< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %
							X																																
<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>A</b>	<b>A+</b>	<b>A++</b>	<b>A+++</b>																														
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %																														
Seasonal space heating energy efficiency under colder and warmer climate conditions																																							
colder	106	%		colder	5	120	-V	12	=	108	%																												
warmer	149	%		warmer	5	120	+VI	31	=	151	%																												

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 1-18i-L		
<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	20.03	18.50	kW
Seasonal space heating energy efficiency	159	118	%
Annual final energy consumption space heating	10900	12821	kWh
Sound power level indoors	59		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	17.39	15.21	kW
Rated heat output warmer climate	16.88	16.20	kW
Seasonal space heating energy efficiency colder climate	139	106	%
Seasonal space heating energy efficiency warmer climate	194	149	%
Annual final energy consumption colder climate	5332	13413	kWh
Annual final energy consumption warmer climate	5332	6417	kWh
Sound power level outdoors	54		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 1-18i-L</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	18.50	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	118	%			
<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	12.80	kW	Tj = -7°C	COPd	1.94	-			
Tj = +2°C	Pdh	16.90	kW	Tj = +2°C	COPd	2.93	-			
Tj = +7°C	Pdh	10.10	kW	Tj = +7°C	COPd	4.21	-			
Tj = +12°C	Pdh	12.90	kW	Tj = +12°C	COPd	5.39	-			
Tj = biv	Pdh	14.20	kW	Tj = biv	COPd	2.23	-			
Tj = TOL	Pdh	11.30	kW	Tj = TOL	COPd	1.68	-			
Tj = -15°C (if TOL < -20°C)	Pdh	8.70	kW	Tj = -15°C if TOL < -20°C)	COPd	1.29	-			
Bivalent temperature	T <sub>biv</sub>	-4	°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	60	°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>	7.2	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>	59/54	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 1-18i-L</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>			
Rated heat output	Prated	20.03	kW	Seasonal space heating energy efficiency	$\eta_S$	159	%			
<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	14.30	kW	Tj = -7°C	COPd	2.94	-			
Tj = +2°C	Pdh	17.50	kW	Tj = +2°C	COPd	3.94	-			
Tj = +7°C	Pdh	10.10	kW	Tj = +7°C	COPd	5.38	-			
Tj = +12°C	Pdh	12.90	kW	Tj = +12°C	COPd	5.96	-			
Tj = biv	Pdh	15.40	kW	Tj = biv	COPd	3.30	-			
Tj = TOL	Pdh	13.20	kW	Tj = TOL	COPd	2.65	-			
Tj = -15°C (if TOL < -20°C)	Pdh	11.30	kW	Tj = -15°C if TOL < -20°C)	COPd	2.19	-			
Bivalent temperature	T <sub>biv</sub>	-4	°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	60	°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>	6.9	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>	59/54	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									