Package (heat pumps and combination heater with heat pump)

Seasonal space heating energy efficiency of heat pump (ηS)						❶ 144	%
Rated output of the heat pump (Prated kW)		5.90					
Temperature control	Class	VI	***(Table 1)***	+	❷ 4	%	
Supplementary boiler							
Package with hot water storage tank	no			*Psup kW (rated output of supplementary heater)*			
		ηs % (sup)					
		(ηs % ***(sup)*** - ❶) x (α_{WE})		=	-	❸	%
		(α_{WE})					
Solar contribution		***(A Koll m²)***	***(η Koll %)***				
		(V Sp m³)	***(standstill heat loss of the storage tank in W)***				
			(η Sp)				
((294/(P_{rated} x 11)) x **(A_{Koll} m²)** + (115/(P_{rated} x 11)) x **(V_{Sp} m³)**) x 0.45 x ((**η_{Koll} %**) /100) x **(η_{Sp})**				=	+	❹	%
Seasonal space heating energy efficiency of package under average climate						❺ 148	%
						rounded to the nearest integer	

Seasonal space heating energy efficiency class of package under average climate

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

Seasonal space heating energy efficiency under colder and warmer climate conditions

colder	149	%	colder ❺	148	-V	-5	=	153	%
warmer	147	%	warmer ❺	148	+VI	3	=	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.

CTA AC Cooling Heating

Product fiche

Manufacturer	**CTA AG**
Model	**OH I 4esr TWW B/W**

Information on energy efficiency class and rated output

	Average / Low temperature	Average / Medium temperature	
Load profile water heating	XL		-
Space heating energy efficiency class	A+++	A++	-
Water heating energy efficiency class	A		-
Rated heat output	7.00	5.90	kW
Annual final energy consumption space heating	2592.00	3172.00	kWh
Annual electricity consumption water heating	1446		kWh
Seasonal space heating energy efficiency	212	144	%
Water heating energy efficiency	116		%
Sound power level indoors		44	dB

Special precautions during assembly, installation or maintenance

see installation and maintenance instructions

Additional information	Low temperature	Medium temperature	
Rated heat output colder climate	7.00	5.90	kW
Rated heat output warmer climate	7.00	5.90	kW
Annual energy consumption space heating colder climate	2999	3682	kWh
Annual energy consumption space heating warmer climate	1619	2004	kWh
Annual electricity consumption water heating colder climate	1446		kWh
Annual electricity consumption water heating warmer climate	1446		kWh
Seasonal space heating energy efficiency colder climate	221	149	%
Seasonal space heating energy efficiency warmer climate	218	147	%
Water heating energy efficiency colder climate	116		%
Water heating energy efficiency warmer climate	116		%
Sound power level outdoors		-	dB

Technical data of the temperature controller

Manufacturer	**Carel**
Model	**c.pCOMini**

Class of the controller	VI	-
Contribution of the controller to seasonal space heating energy efficiency	4	%

Contact	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen

Model				**OH I 4esr TWW B/W**			
Brine-to-water heat pump: (Yes/No)				Yes			
Water-to-water heat pump: (Yes/No)				No			
Air-to-water heat pump: (Yes/No)				No			
Low temperature heat pump: (Yes/No)				No			
Equipped with supplementary heater: (Yes/No)				Yes			
Heat pump combination heater: (Yes/No)				Yes			
Application: (Low temperature/Medium temperature)				Medium temperature			
Climate: (Colder/Average/Warmer)				Average			
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Rated heat output	Prated	5.90	kW	**Seasonal space heating energy efficiency**	ηS	144	%
Declared capacity for heating 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	5.22	kW	Tj = -7°C	COPd	2.88	-
Tj = +2°C	Pdh	3.18	kW	Tj = +2°C	COPd	3.74	-
Tj = +7°C	Pdh	2.04	kW	Tj = +7°C	COPd	4.50	-
Tj = +12°C	Pdh	1.60	kW	Tj = +12°C	COPd	5.51	-
Tj = biv	Pdh	5.90	kW	Tj = biv	COPd	2.68	-
Tj = TOL	Pdh	5.90	kW	Tj = TOL	COPd	2.68	-
Tj = -15°C (if TOL < -20°C)	Pdh	-	kW	Tj = -15°C if TOL < -20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	62	°C
Power consumption in modes other than active mode				**Supplementary heater**			
Off mode	P_{OFF}	0.003	kW	Rated heat output	Psup	-	kW
Thermostat-off mode	P_{TO}	0.012	kW	Type of energy input	-		
Standby mode	P_{SB}	0.003	kW				
Crankcase heater mode	P_{CK}	0.003	kW				
Other items							
Capacity control	variable			Rated air flow rate, outdoors	-	-	m^3/h
Sound power level, indoors/outdoors	L_{WA}	44 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	0.9	m^3/h
Emissions of nitrogen oxides	NO_X	-	mg/kWh				
For heat pump combination heater							
Declared load profile	XL			Water heating energy efficiency	η_{wh}	116	%
Daily electricity consumption	Q_{elec}	6.59	kWh	Daily fuel consumption	Qfuel	-	kWh
Contact	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen						

Model				**OH I 4esr TWW B/W**			
Brine-to-water heat pump: (Yes/No)				Yes			
Water-to-water heat pump: (Yes/No)				No			
Air-to-water heat pump: (Yes/No)				No			
Low temperature heat pump: (Yes/No)				No			
Equipped with supplementary heater: (Yes/No)				Yes			
Heat pump combination heater: (Yes/No)				Yes			
Application: (Low temperature/Medium temperature)				Low temperature			
Climate: (Colder/Average/Warmer)				Average			
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Rated heat output	Prated	7.00	kW	**Seasonal space heating energy efficiency**	ηS	212	%
Declared capacity for heating 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	6.19	kW	Tj = -7°C	COPd	4.81	-
Tj = +2°C	Pdh	3.77	kW	Tj = +2°C	COPd	5.50	-
Tj = +7°C	Pdh	2.42	kW	Tj = +7°C	COPd	6.16	-
Tj = +12°C	Pdh	1.88	kW	Tj = +12°C	COPd	6.65	-
Tj = biv	Pdh	7.00	kW	Tj = biv	COPd	3.80	-
Tj = TOL	Pdh	7.00	kW	Tj = TOL	COPd	3.80	-
Tj = -15°C (if TOL < -20°C)	Pdh	-	kW	Tj = -15°C if TOL < -20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	62	°C
Power consumption in modes other than active mode				**Supplementary heater**			
Off mode	P_{OFF}	0.003	kW	Rated heat output	Psup	-	kW
Thermostat-off mode	P_{TO}	0.012	kW	Type of energy input	-		
Standby mode	P_{SB}	0.003	kW				
Crankcase heater mode	P_{CK}	0.003	kW				
Other items							
Capacity control	variable			Rated air flow rate, outdoors	-	-	m^3/h
Sound power level, indoors/outdoors	L_{WA}	44 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	0.9	m^3/h
Emissions of nitrogen oxides	NO_X	-	mg/kWh				
For heat pump combination heater							
Declared load profile	XL			Water heating energy efficiency	η_{wh}	116	%
Daily electricity consumption	Q_{elec}	6.59	kWh	Daily fuel consumption	Qfuel	-	kWh
Contact	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen						