

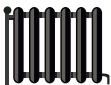


# ENERG

енергия · ενεργεια



I - Klima - Kälte - Wärme || OP 210ed - W/W Art.Nr.: B10876



55 °C

35 °C



**81** dB



--- dB

■ 246  
■ **246**  
■ 246  
kW

■ 276  
■ **276**  
■ 276  
kW



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

Seasonal space heating energy efficiency of heat pump ( $\eta_S$ ) ① 164 %

Rated output of the heat pump ( $P_{rated}$  kW) 245.60

Temperature control Class VII (Table 1) + ② 3.5 %

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

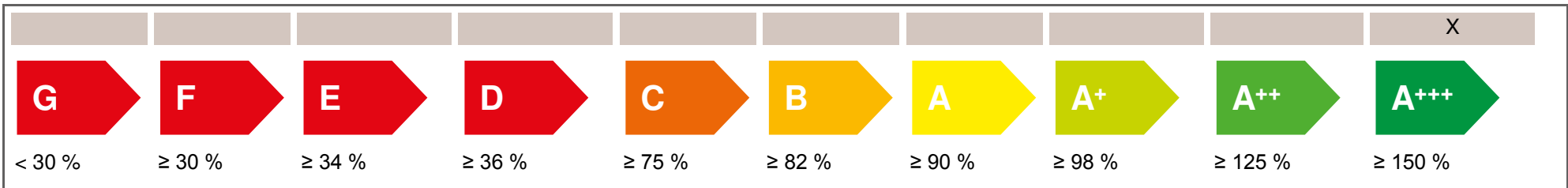
$(V_{Sp} m^3)$   $(standstill\ heat\ loss\ of\ the\ storage\ tank\ in\ W)$

$(\eta_{Sp})$

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

Seasonal space heating energy efficiency of package under average climate ⑤ 168 %  
*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	165 %		colder	⑤	168	-V	-1	=	169 %
warmer	165 %		warmer	⑤	168	+VI	1	=	169 %

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>Manufacturer</b>	CTA AG			
<b>Model</b>	Optipro 210ed W/W			
<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	275.50	245.60	kW	
Seasonal space heating energy efficiency	227	164	%	
Annual final energy consumption space heating	96866	117975	kWh	
Sound power level indoors		81	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	275.50	245.60	kW	
Rated heat output warmer climate	275.50	245.60	kW	
Seasonal space heating energy efficiency colder climate	229	165	%	
Seasonal space heating energy efficiency warmer climate	230	165	%	
Annual final energy consumption colder climate	114444	139716	kWh	
Annual final energy consumption warmer climate	61880	75999	kWh	
Sound power level outdoors		-	dB	
<b>Technical data of the temperature controller</b>				
<b>Manufacturer</b>	Carel			
<b>Model</b>	pCO5+			
Class of the controller		VII	-	
Contribution of the controller to seasonal space heating energy efficiency		3.5	%	
<b>Contact</b>	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen			

<b>Model</b>				<b>Optipro 210ed W/W</b>						
Brine-to-water heat pump: (Yes/No)				No						
Water-to-water heat pump: (Yes/No)				Yes						
Air-to-water heat pump: (Yes/No)				No						
Low temperature heat pump: (Yes/No)				No						
Equipped with supplementary heater: (Yes/No)				No						
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	245.60	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	164	%			
<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	250.10	kW	Tj = -7°C	COPd	3.86	-			
Tj = +2°C	Pdh	265.10	kW	Tj = +2°C	COPd	4.84	-			
Tj = +7°C	Pdh	274.00	kW	Tj = +7°C	COPd	5.62	-			
Tj = +12°C	Pdh	283.00	kW	Tj = +12°C	COPd	6.61	-			
Tj = biv	Pdh	245.60	kW	Tj = biv	COPd	3.62	-			
Tj = TOL	Pdh	245.60	kW	Tj = TOL	COPd	3.62	-			
Tj = -15°C (if TOL < -20°C)	Pdh	-	kW	Tj = -15°C if TOL < -20°C)	COPd	-	-			
Bivalent temperature	T <sub>biv</sub>	-10	°C	Operation limit temperature	TOL	-10	°C			
Cycling interval capacity for heating	P <sub>cy</sub>	-	kW	Cycling interval efficiency	COP <sub>cy</sub>	-	-			
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	63	°C			
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>						
Off mode	P <sub>OFF</sub>	0.003	kW	Rated heat output	P <sub>sup</sub>	-	kW			
Thermostat-off mode	P <sub>TO</sub>	0.012	kW	Type of energy input	-					
Standby mode	P <sub>SB</sub>	0.003	kW							
Crankcase heater mode	P <sub>CK</sub>	0.003	kW							
<b>Other items</b>										
Capacity control	staged			Rated air flow rate, outdoors	-	-	m <sup>3</sup> /h			
Sound power level, indoors/outdoors	L <sub>WA</sub>	81 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	56.1	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>Optipro 210ed W/W</b>						
Brine-to-water heat pump: (Yes/No)				No						
Water-to-water heat pump: (Yes/No)				Yes						
Air-to-water heat pump: (Yes/No)				No						
Low temperature heat pump: (Yes/No)				No						
Equipped with supplementary heater: (Yes/No)				No						
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	275.50	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_S$	227	%			
<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	277.00	kW	Tj = -7°C	COPd	5.92	-			
Tj = +2°C	Pdh	283.00	kW	Tj = +2°C	COPd	6.61	-			
Tj = +7°C	Pdh	287.50	kW	Tj = +7°C	COPd	7.22	-			
Tj = +12°C	Pdh	290.50	kW	Tj = +12°C	COPd	7.68	-			
Tj = biv	Pdh	275.50	kW	Tj = biv	COPd	5.76	-			
Tj = TOL	Pdh	275.50	kW	Tj = TOL	COPd	5.76	-			
Tj = -15°C (if TOL < -20°C)	Pdh	-	kW	Tj = -15°C if TOL < -20°C)	COPd	-	-			
Bivalent temperature	T <sub>biv</sub>	-10	°C	Operation limit temperature	TOL	-10	°C			
Cycling interval capacity for heating	P <sub>cy</sub>	-	kW	Cycling interval efficiency	COP <sub>cy</sub>	-	-			
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	63	°C			
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>						
Off mode	P <sub>OFF</sub>	0.003	kW	Rated heat output	P <sub>sup</sub>	-	kW			
Thermostat-off mode	P <sub>TO</sub>	0.012	kW	Type of energy input	-					
Standby mode	P <sub>SB</sub>	0.003	kW							
Crankcase heater mode	P <sub>CK</sub>	0.003	kW							
<b>Other items</b>										
Capacity control	staged			Rated air flow rate, outdoors	-	-	m <sup>3</sup> /h			
Sound power level, indoors/outdoors	L <sub>WA</sub>	81 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	56.1	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									