



ENERG

енергия · ενεργεια



I - Klima - Kälte - Wärme || OP 110ed - S/W Art.Nr.: B10871



55 °C

35 °C



75 dB



--- dB


■ 103
 ■ **103**
 ■ 103
 kW


■ 112
 ■ **112**
 ■ 112
 kW




Package (heat pumps and combination heater with heat pump)																																							
Seasonal space heating energy efficiency of heat pump (η_S)						128		%																															
Rated output of the heat pump (P_{rated} kW)						102.20																																	
Temperature control			Class		VII (Table 1)		+		3.5 %																														
Supplementary boiler						no				P_{sup} kW (rated output of supplementary heater)																													
Package with hot water storage tank						η_S % (sup)																																	
						$(\eta_S \% (sup) - 1) \times (\alpha_{WE})$		=		-																													
						(α_{WE})																																	
Solar contribution			$(A_{Koll} m^2)$		$(\eta_{Koll} \%)$																																		
			$(V_{Sp} m^3)$		(standstill heat loss of the storage tank in W)																																		
					(η_{Sp})																																		
						$((294/(P_{rated} \times 11)) \times (A_{Koll} m^2) + (115/(P_{rated} \times 11)) \times (V_{Sp} m^3)) \times 0.45 \times ((\eta_{Koll} \%) / 100) \times (\eta_{Sp})$		=		+																													
Seasonal space heating energy efficiency of package under average climate						132				%																													
										rounded to the nearest integer																													
Seasonal space heating energy efficiency class of package under average climate																																							
<table border="1"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>X</td><td></td> </tr> <tr> <td>G</td><td>F</td><td>E</td><td>D</td><td>C</td><td>B</td><td>A</td><td>A+</td><td>A++</td><td>A+++</td> </tr> <tr> <td>< 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> </table>																		X		G	F	E	D	C	B	A	A+	A++	A+++	< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %
								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	130	%		colder	5	132	-V	-2	=	134	%																												
warmer	129	%		warmer	5	132	+VI	1	=	133	%																												

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.

Product fiche		 AC Cooling Heating		
Manufacturer	CTA AG			
Model	Optipro 110ed B/W			
Information on energy efficiency class and rated output				
	Average / Low temperature	Average / Medium temperature		
Space heating energy efficiency class	A++	A++	-	
Rated heat output	111.30	102.20	kW	
Seasonal space heating energy efficiency	180	128	%	
Annual final energy consumption space heating	48910	61892	kWh	
Sound power level indoors		75	dB	
Special precautions during assembly, installation or maintenance				
see installation and maintenance instructions				
Additional information				
	Low temperature	Medium temperature		
Rated heat output colder climate	111.30	102.20	kW	
Rated heat output warmer climate	111.30	102.20	kW	
Seasonal space heating energy efficiency colder climate	182	130	%	
Seasonal space heating energy efficiency warmer climate	182	129	%	
Annual final energy consumption colder climate	57628	73156	kWh	
Annual final energy consumption warmer climate	31207	39814	kWh	
Sound power level outdoors		-	dB	
Technical data of the temperature controller				
Manufacturer	Carel			
Model	pCO5+			
Class of the controller		VII	-	
Contribution of the controller to seasonal space heating energy efficiency		3.5	%	
Contact	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen			

Model				Optipro 110ed 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)				No						
Heat pump combination heater: (Yes/No)				No						
Application: (Low temperature/Medium temperature)				Medium temperature						
Climate: (Colder/Average/Warmer)				Average						
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit			
Rated heat output	Prated	102.20	kW	Seasonal space heating energy efficiency	η_S	128	%			
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	103.60	kW	Tj = -7°C	COPd	3.04	-			
Tj = +2°C	Pdh	108.10	kW	Tj = +2°C	COPd	3.81	-			
Tj = +7°C	Pdh	110.80	kW	Tj = +7°C	COPd	4.44	-			
Tj = +12°C	Pdh	113.60	kW	Tj = +12°C	COPd	5.27	-			
Tj = biv	Pdh	102.20	kW	Tj = biv	COPd	2.86	-			
Tj = TOL	Pdh	102.20	kW	Tj = TOL	COPd	2.86	-			
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	P _{psych}	-	kW	Cycling interval efficiency	COP _{psych}	-	-			
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	60	°C			
Power consumption in modes other than active mode				Supplementary heater						
Off mode	P _{OFF}	0.003	kW	Rated heat output	P _{sup}	-	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	staged			Rated air flow rate, outdoors	-	-	m ³ /h			
Sound power level, indoors/outdoors	L _{WA}	75 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	22.9	m ³ /h			
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	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen									

Model				Optipro 110ed B/W						
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Heat pump combination heater: (Yes/No)				No						
Application: (Low temperature/Medium temperature)				Low temperature						
Climate: (Colder/Average/Warmer)				Average						
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit			
Rated heat output	Prated	111.30	kW	Seasonal space heating energy efficiency	η_S	180	%			
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	111.70	kW	Tj = -7°C	COPd	4.69	-			
Tj = +2°C	Pdh	113.60	kW	Tj = +2°C	COPd	5.27	-			
Tj = +7°C	Pdh	114.90	kW	Tj = +7°C	COPd	5.79	-			
Tj = +12°C	Pdh	115.80	kW	Tj = +12°C	COPd	6.19	-			
Tj = biv	Pdh	111.30	kW	Tj = biv	COPd	4.56	-			
Tj = TOL	Pdh	111.30	kW	Tj = TOL	COPd	4.56	-			
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	P _{psych}	-	kW	Cycling interval efficiency	COP _{psych}	-	-			
Degradation co-efficient	Cdh	0.9	-	Heating water operating limit temperature	WTOL	60	°C			
Power consumption in modes other than active mode				Supplementary heater						
Off mode	P _{OFF}	0.003	kW	Rated heat output	P _{sup}	-	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	staged			Rated air flow rate, outdoors	-	-	m ³ /h			
Sound power level, indoors/outdoors	L _{WA}	75 / -	dB	Rated brine or water flow rate, outdoor heat exchanger	-	22.9	m ³ /h			
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	CTA AG, Hunzigenstrasse 2, CH-3110 Münsingen									