

**Warm climate and Medium temperature**

Model(s):	CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VI
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	185 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>181</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	na	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	na	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	9,2	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	2,09	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	6,0	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	3,98	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	3,0	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	6,43	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	9,2	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	2,10	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	9,2	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	2,09	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	na	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	na	-
Bivalent temperature	<i>T<sub>biv</sub></i>	2	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	0	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	na	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	na	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,015	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	0,2	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,005	kW	Type of energy input	Electric		
Standby mode	<i>P<sub>SB</sub></i>	0,015	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,000	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	6200	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	na/60	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	2722	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>122</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	6,232	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1371	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
							<b>170904</b>

Contact details

Eneritech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Warm climate and Low temperature**

Model(s):	CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	247 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	$P_{rated}$	<b>8</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>243</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	$P_{dh}$	na	kW	T <sub>j</sub> = -7 °C	$COP_d$	na	-
T <sub>j</sub> = +2 °C	$P_{dh}$	7,5	kW	T <sub>j</sub> = +2 °C	$COP_d$	3,34	-
T <sub>j</sub> = +7 °C	$P_{dh}$	4,8	kW	T <sub>j</sub> = +7 °C	$COP_d$	5,93	-
T <sub>j</sub> = +12 °C	$P_{dh}$	2,9	kW	T <sub>j</sub> = +12 °C	$COP_d$	7,72	-
T <sub>j</sub> = bivalent temperature	$P_{dh}$	7,5	kW	T <sub>j</sub> = bivalent temperature	$COP_d$	3,34	-
T <sub>j</sub> = operation limit temperature	$P_{dh}$	7,5	kW	T <sub>j</sub> = operation limit temperature	$COP_d$	3,34	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	$P_{dh}$	na	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	$COP_d$	na	-
Bivalent temperature	$T_{biv}$	2	°C	For air-to-water heat pumps: Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	$P_{cych}$	na	kW	Cycling interval efficiency	$COP_{cyc}$	na	-
Degradation co-efficient (**)	$C_{dh}$	0,98	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	$P_{OFF}$	0,015	kW	Rated heat output (*)	$P_{sup}$	0,0	kW
Thermostat-off mode	$P_{TO}$	0,009	kW	Type of energy input: <b>Electric</b>			
Standby mode	$P_{SB}$	0,015	kW				
Crankcase heater mode	$P_{CK}$	0,023	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	6200	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	$L_{WA}$	na/60	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m <sup>3</sup> /h
Annual energy consumption	$Q_{HE}$	1631	kWh				

For heat pump combination heater:

<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>122</b>	%
Daily electricity consumption	$Q_{elec}$	<b>6,232</b>	kWh	Daily fuel consumption	$Q_{fuel}$	NA	kWh
Annual electricity consumption	AEC	<b>1371</b>	kWh	Annual fuel consumption	AFC	NA	GJ

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Contact details: Eneritech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 [www.ctc.se](http://www.ctc.se)

(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .

**Average climate and Medium temperature**

Model(s):	CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F		
Air-to-water heat pump:	Yes	Energy efficiency class:	A++ -
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	138 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	A++ -
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>7</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>134</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>6,1</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,90</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>4,0</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,35</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,08</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,68</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>6,5</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,55</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,5</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,55</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-10</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>-10</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,5</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>4221</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>97</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>7,880</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1734</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
				<b>170904</b>			

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Low temperature**

Model(s):	CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F		
Air-to-water heat pump:	Yes	Energy efficiency class:	A++ -
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	186 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	A+++ -
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>182</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>5,7</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,75</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,53</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,7</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>6,84</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,1</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>8,50</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>6,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-10</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>-10</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,2</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2854</b>	kWh				

For heat pump combination heater:

<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>97</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>7,880</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1734</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

170904

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**Cold climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>115</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>8</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>111</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>4,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,33</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,83</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,47</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,99</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>5,7</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,48</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,4</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,13</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>1,50</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-14</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>-20</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>7,8</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>6754</b>	<i>kWh</i>				

For heat pump combination heater:

Declared load profile	<b>XL</b>	Efficiency class	<b>A</b>	Water heating energy efficiency	$\eta_{wh}$	<b>82</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,257</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2037</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**170904**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Cold climate and Low temperature**

Model(s):	CTC EcoAir 510M 400V + CTC EcoZenith i350/ i350F		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VI
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	142 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>5</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>138</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,2</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>3,20</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,0</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,48</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>6,66</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,81</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,73</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>3,5</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,77</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,4</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>2,26</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-19</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>-22</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,4</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3766</b>	kWh				

For heat pump combination heater:

Declared load profile	XL	Efficiency class	A	Water heating energy efficiency	$\eta_{wh}$	82	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,257</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	AEC	<b>2037</b>	kWh	Annual fuel consumption	AFC	<b>NA</b>	GJ

170904

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .

**Warm climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 230V + CTC EcoZenith i350</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>165</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>161</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,65</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,8</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,71</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3003</b>	kWh				

For heat pump combination heater:

Declared load profile	<b>XL</b>	Efficiency class	<b>A</b>	Water heating energy efficiency	$\eta_{wh}$	<b>122</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>6,232</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1371</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160901**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Warm climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V + CTC EcoZenith i350</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>222</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>218</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>6,1</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,27</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,65</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>7,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors			
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2250</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>122</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>6,232</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1371</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
						<b>160901</b>	

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.



**Average climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 230V + CTC EcoZenith i350</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	<b>A++</b> -
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>129</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	<b>A++</b> -
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>8</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>125</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>7,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,95</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>4,4</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,14</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,63</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,17</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>7,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,84</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,1</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,71</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-8</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>1,9</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>5155</b>	<i>kWh</i>	<b>160901</b>			
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>97</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>7,880</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1734</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .

**Average climate and Low temperature**

Model(s):	CTC EcoAir 510M 230V + CTC EcoZenith i350		
Air-to-water heat pump:	Yes	Energy efficiency class:	A++ -
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	175 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	A+++ -
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>4</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>171</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,92</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,70</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,93</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>1,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,59</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,62</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,3</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,62</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-10</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>-10</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2005</b>	<i>kWh</i>	<b>160901</b>			
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>97</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>7,880</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1734</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Cold climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 230V + CTC EcoZenith i350</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>120</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>116</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,45</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,80</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,95</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,44</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,61</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,56</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,7</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>1,80</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-17</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,8</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>4791</b>	kWh				

For heat pump combination heater:

Declared load profile	XL	Efficiency class	A	Water heating energy efficiency	$\eta_{wh}$	82	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,257</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2037</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160901**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Cold climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V + CTC EcoZenith i350</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>158</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>154</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,7</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>3,16</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>5,08</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>6,27</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,59</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>5,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,24</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,91</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>5,1</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>2,49</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-17</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>3,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3780</b>	<i>kWh</i>	<b>160901</b>			

For heat pump combination heater:

Declared load profile	<b>XL</b>	Efficiency class	<b>A</b>	Water heating energy efficiency	$\eta_{wh}$	<b>82</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,257</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2037</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.



Model(s):	<b>CTC EcoAir 510M 230V+ CTC EcoLogic</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>165</b> %
Equipped with a supplementary heater:	<b>No</b>	Package efficiency class:	-
Heat pump combination heater:	<b>No</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>161</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,65</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,8</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,71</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,28</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3003</b>	<i>kWh</i>				

For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>na</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160825**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Warm climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ CTC EcoLogic</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>222</b> %
Equipped with a supplementary heater:	<b>No</b>	Package efficiency class:	-
Heat pump combination heater:	<b>No</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>Prated</i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>218</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>6,1</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,27</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,65</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>7,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>3,01</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2250</b>	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class	na	Water heating energy efficiency	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (\*\*) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

**Average climate and Medium temperature**

Model(s):	CTC EcoAir 510M 230V+ CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	A++ -
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	129 %
Equipped with a supplementary heater:	No	Package efficiency class:	A++ -
Heat pump combination heater:	No		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>8</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>125</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>7,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,95</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>4,4</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,14</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,63</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,17</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>7,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,84</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,1</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,71</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-8</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>1,9</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>5155</b>	<i>kWh</i>				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>na</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
						<b>160825</b>	

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ CTC EcoLogic</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	<b>A++</b> -
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>175</b> %
Equipped with a supplementary heater:	<b>No</b>	Package efficiency class:	<b>A+++</b> -
Heat pump combination heater:	<b>No</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>4</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>171</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,92</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,70</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,93</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>1,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,59</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,62</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,3</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,62</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-10</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	<b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	Type of energy input			
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2005</b>	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class	na	Water heating energy efficiency	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .





Model(s):	<b>CTC EcoAir 510M 230V+ CTC EcoLogic</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>120</b> %
Equipped with a supplementary heater:	<b>No</b>	Package efficiency class:	-
Heat pump combination heater:	<b>No</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>116</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,45</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,80</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,95</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,44</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,61</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,56</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,7</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>1,80</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-17</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,8</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>4791</b>	<i>kWh</i>				

For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>na</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Cold climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ CTC EcoLogic</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>158</b> %
Equipped with a supplementary heater:	<b>No</b>	Package efficiency class:	-
Heat pump combination heater:	<b>No</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>154</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,7</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>3,16</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,2</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>5,08</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>6,27</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,59</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>5,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,24</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,91</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>5,1</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>2,49</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-17</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>3,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,023</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3780</b>	<i>kWh</i>				

For heat pump combination heater:

Declared load profile	na	Efficiency class	na	Water heating energy efficiency	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>na</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160825**

Contact details

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Warm climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 400V + EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>156</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>152</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>8,7</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>1,58</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>5,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,34</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,66</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,7</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,58</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>8,7</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,58</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,026</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors			
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3027</b>	kWh				

For heat pump combination heater:

<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>67</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>6,958</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1531</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160203**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .

**Warm climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 400V + EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>204</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>7</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>200</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>7,3</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,55</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>4,7</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,97</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,58</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>7,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,55</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>7,3</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,55</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,003</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>1922</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>67</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>6,958</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1531</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
						<b>160203</b>	

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 400V + EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	<b>A+</b> -
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>118</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	<b>A+</b> -
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>114</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>5,7</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,64</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>3,5</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,93</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,3</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,20</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,04</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>5,7</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,64</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,34</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-7</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>1,6</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,026</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>4506</b>	<i>kWh</i>				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>B</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>53</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>8,570</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1885</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
				<b>160203</b>			

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>design</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Low temperature**

Model(s):	CTC EcoAir 510M 400V + EcoZenith i250		
Air-to-water heat pump:	Yes	Energy efficiency class:	A++ -
Water-to-water heat pump:	No	Controller class:	VI -
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	155 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	A++ -
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>151</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>5,5</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,27</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>3,5</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,74</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,88</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,36</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>5,5</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,27</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,91</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-7</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,2</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,026</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3276</b>	<i>kWh</i>				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>B</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>53</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>8,570</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1885</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
				<b>160406</b>			

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.



Model(s):	<b>CTC EcoAir 510M 400V + EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>102</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>Prated</i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>98</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,05</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,4</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,32</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,3</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,83</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,22</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,1</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,64</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>2,7</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,03</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,5</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>0,76</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-11</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>6,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,026</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	dB	-			m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>5844</b>	kWh				

For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>47</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,856</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2168</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160203**

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Cold climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 400V + EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>132</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>5</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>128</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,88</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,0</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,34</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>6,37</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,30</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,1</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,64</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,15</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,0</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>1,77</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-16</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,026</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>4,9</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,005</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,026</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors			
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/58</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3686</b>	kWh				

For heat pump combination heater:

Declared load profile	L	Efficiency class	na	Water heating energy efficiency	$\eta_{wh}$	47	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,856</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	AEC	<b>2168</b>	kWh	Annual fuel consumption	AFC	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{design}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .



**Warm climate and Medium temperature**

Model(s):	CTC EcoAir 510M 230V+ EcoZenith i250		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VI
Brine-to-water heat pump:	No	Controller contribution:	4 %
Low-temperature heat pump:	No	Package efficiency:	143 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	$P_{rated}$	<b>8</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>139</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	$P_{dh}$	na	kW	T <sub>j</sub> = -7 °C	$COP_d$	na	-
T <sub>j</sub> = +2 °C	$P_{dh}$	8,2	kW	T <sub>j</sub> = +2 °C	$COP_d$	1,72	-
T <sub>j</sub> = +7 °C	$P_{dh}$	5,7	kW	T <sub>j</sub> = +7 °C	$COP_d$	3,01	-
T <sub>j</sub> = +12 °C	$P_{dh}$	2,8	kW	T <sub>j</sub> = +12 °C	$COP_d$	4,94	-
T <sub>j</sub> = bivalent temperature	$P_{dh}$	8,2	kW	T <sub>j</sub> = bivalent temperature	$COP_d$	1,72	-
T <sub>j</sub> = operation limit temperature	$P_{dh}$	8,2	kW	T <sub>j</sub> = operation limit temperature	$COP_d$	1,72	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	$P_{dh}$	na	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	$COP_d$	na	-
Bivalent temperature	$T_{biv}$	2	°C	For air-to-water heat pumps: Operation limit temperature	TOL	0	°C
Cycling interval capacity for heating	$P_{cych}$	na	kW	Cycling interval efficiency	$COP_{cyc}$	na	-
Degradation co-efficient (**)	$C_{dh}$	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	$P_{OFF}$	0,015	kW	Rated heat output (*)	$P_{sup}$	0,0	kW
Thermostat-off mode	$P_{TO}$	0,009	kW	Type of energy input: <b>Electric</b>			
Standby mode	$P_{SB}$	0,015	kW				
Crankcase heater mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	6200	m <sup>3</sup> /h
Sound power level, indoors/outdoors	$L_{WA}$	na/60	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m <sup>3</sup> /h
Annual energy consumption	$Q_{HE}$	3078	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>68</b>	%
Daily electricity consumption	$Q_{elec}$	6,856	kWh	Daily fuel consumption	$Q_{fuel}$	NA	kWh
Annual electricity consumption	AEC	1508	kWh	Annual fuel consumption	AFC	NA	GJ
							<b>171005</b>

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output  $P_{rated}$  is equal to the design load for heating  $P_{designh}$ , and the rated heat output of a supplementary heater  $P_{sup}$  is equal to the supplementary capacity for heating  $sup(T_j)$ . (\*\*) If  $C_{dh}$  is not determined by measurement then the default degradation coefficient is  $C_{dh} = 0,9$ .

**Warm climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>195</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>9</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>191</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>na</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>na</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>8,8</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,38</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,31</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,51</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,8</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,38</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>8,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,38</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>2</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,2</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors			
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2475</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>68</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>6,856</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1508</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
							<b>171005</b>

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>design</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Medium temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	<b>A+</b> -
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>115</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	<b>A+</b> -
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>7</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>111</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,67</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>3,9</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,63</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,99</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,40</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>6,0</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,67</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,51</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-6</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,3</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>5134</b>	<i>kWh</i>	<b>171005</b>			

For heat pump combination heater:

Declared load profile	<b>L</b>	Efficiency class	<b>B</b>	Water heating energy efficiency	$\eta_{wh}$	<b>52</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>8,897</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1957</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.

**Average climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	<b>A+</b> -
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>153</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	<b>A++</b> -
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>4</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>149</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,44</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,3</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,91</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,97</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>1,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,45</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,0</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,25</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>4,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,25</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>na</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>na</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-7</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>0,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>2229</b>	<i>kWh</i>	<b>171005</b>			

For heat pump combination heater:

Declared load profile	<b>L</b>	Efficiency class	<b>B</b>	Water heating energy efficiency	$\eta_{wh}$	<b>52</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>8,897</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1957</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>designh</sub>*, and the rated heat output of a supplementary heater *P<sub>sup</sub>* is equal to the supplementary capacity for heating *sup(T<sub>j</sub>)*. (\*\*) If *C<sub>dh</sub>* is not determined by measurement then the default degradation coefficient is *C<sub>dh</sub>* = 0,9.



Model(s):	<b>CTC EcoAir 510M 230V+ EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>107</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>4</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>103</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>2,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,17</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>1,6</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,29</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,3</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,31</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,67</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>3,6</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>1,57</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>2,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,39</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>3,3</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>1,76</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-16</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>4,2</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>6200</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	<b>na</b>	m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>3903</b>	kWh				

For heat pump combination heater:							
<b>Declared load profile</b>	<b>L</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>50</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,380</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2064</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

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**Cold climate and Low temperature**

Model(s):	<b>CTC EcoAir 510M 230V+ EcoZenith i250</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VI</b>
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>4</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>137</b> %
Equipped with a supplementary heater:	<b>Yes</b>	Package efficiency class:	-
Heat pump combination heater:	<b>Yes</b>		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Rated heat output (*)</b>	<i>P<sub>rated</sub></i>	<b>6</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>133</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>			
T <sub>j</sub> = -7 °C	<i>P<sub>dh</sub></i>	<b>3,4</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,68</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>2,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,29</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>2,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,31</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>2,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,45</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,06</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>2,4</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,91</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>4,7</b>	kW	For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>COP<sub>d</sub></i>	<b>2,29</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-16</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>0</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>na</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient (**)	<i>C<sub>dh</sub></i>	<b>0,97</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>65</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,015</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>3,2</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,009</b>	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	<b>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Variable</b>			-	<b>6200</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/60</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>4066</b>	<i>kWh</i>				

For heat pump combination heater:

Declared load profile	<b>L</b>	Efficiency class	<b>na</b>	Water heating energy efficiency	$\eta_{wh}$	<b>50</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,380</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	AEC	<b>2064</b>	kWh	Annual fuel consumption	AFC	<b>NA</b>	GJ

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