

**Warm climate and Medium temperature**

Model(s):	<b>CTC EcoAir 420 + 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>VII</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>3,5</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>144</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>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>140</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	<i>Pdh</i>	<b>na</b>	kW	T j = - 7 °C	<i>COPd</i>	<b>na</b>	-
T j = + 2 °C	<i>Pdh</i>	<b>13,0</b>	kW	T j = + 2 °C	<i>COPd</i>	<b>2,56</b>	-
T j = + 7 °C	<i>Pdh</i>	<b>16,6</b>	kW	T j = + 7 °C	<i>COPd</i>	<b>3,29</b>	-
T j = + 12 °C	<i>Pdh</i>	<b>20,0</b>	kW	T j = + 12 °C	<i>COPd</i>	<b>4,33</b>	-
T j = bivalent temperature	<i>Pdh</i>	<b>13,4</b>	kW	T j = bivalent temperature	<i>COPd</i>	<b>2,67</b>	-
T j = operation limit temperature	<i>Pdh</i>	<b>13,8</b>	kW	T j = operation limit temperature	<i>COPd</i>	<b>2,76</b>	-
For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C)	<i>Pdh</i>	<b>na</b>	kW	For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C)	<i>COPd</i>	<b>na</b>	-
Bivalent temperature	<i>T biv</i>	<b>3</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>2</b>	°C
Cycling interval capacity for heating	<i>P cyc</i>	<b>na</b>	kW	Cycling interval efficiency	<i>COPcyc</i>	<b>na</b>	-
Degradation co-efficient (**)	<i>Cdh</i>	<b>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P OFF</i>	<b>0,018</b>	kW	Rated heat output (*)	<i>Psup</i>	<b>1,3</b>	kW
Thermostat-off mode	<i>P TO</i>	<b>0,020</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P SB</i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P CK</i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m3/h
Sound power level, indoors/ outdoors	<i>L WA</i>	<b>na/66</b>	dB	-	<b>na</b>		m3/h
Annual energy consumption	<i>Q HE</i>	<b>5390</b>	kWh				

For heat pump combination heater:

Declared load profile	Symbol	Value	Unit	Water heating energy efficiency	Symbol	Value	Unit
Daily electricity consumption	<i>Qelec</i>	<b>na</b>	kWh	Daily fuel consumption	$\eta_{wh}$	<b>na</b>	%
Annual electricity consumption	<i>AEC</i>	<b>na</b>	kWh	Annual fuel consumption	<i>Qfuel</i>	<b>na</b>	kWh
					<i>AFC</i>	<b>na</b>	GJ

Contact details

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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.

**Warm climate and Low temperature**

Model(s):	CTC EcoAir 420 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	179 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
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>Prated</i>	<b>15</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>175</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	<i>Pdh</i>	na	kW	T j = - 7 °C	<i>COPd</i>	na	-
T j = + 2 °C	<i>Pdh</i>	13,9	kW	T j = + 2 °C	<i>COPd</i>	3,54	-
T j = + 7 °C	<i>Pdh</i>	17,6	kW	T j = + 7 °C	<i>COPd</i>	4,46	-
T j = + 12 °C	<i>Pdh</i>	21,2	kW	T j = + 12 °C	<i>COPd</i>	5,43	-
T j = bivalent temperature	<i>Pdh</i>	14,2	kW	T j = bivalent temperature	<i>COPd</i>	3,65	-
T j = operation limit temperature	<i>Pdh</i>	14,2	kW	T j = operation limit temperature	<i>COPd</i>	3,60	-
For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C)	<i>Pdh</i>	na	kW	For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C)	<i>COPd</i>	na	-
Bivalent temperature	<i>T biv</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P cyc</i>	na	kW	Cycling interval efficiency	<i>COPcyc</i>	na	-
Degradation co-efficient (**)	<i>Cdh</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P OFF</i>	0,018	kW	Rated heat output (*)	<i>Psup</i>	1,4	kW
Thermostat-off mode	<i>P TO</i>	0,068	kW	Type of energy input	Electric		
Standby mode	<i>P SB</i>	0,018	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P CK</i>	0,000	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	Fixed			-	4100	m3/h	
Sound power level, indoors/ outdoors	<i>L WA</i>	na/66	dB	-	na	m3/h	
Annual energy consumption	<i>Q HE</i>	4574	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class		Water heating energy efficiency	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Qelec</i>	na	kWh	Daily fuel consumption	<i>Qfuel</i>	na	kWh
Annual electricity consumption	<i>AEC</i>	na	kWh	Annual fuel consumption	<i>AFC</i>	na	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 420 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	123 %
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>Prated</i>	<b>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>119</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>10,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,35</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>13,4</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,97</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,3</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,81</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>20,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,62</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>11,5</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,49</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>10,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,10</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>-5</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>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>4,3</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,020</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>9646</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</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 *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.

**Average climate and Low temperature**

Model(s):	CTC EcoAir 420 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	149 %
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>Prated</i>	<b>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>145</b>	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = -7 °C	<i>Pdh</i>	<b>11,5</b>	kW	T j = -7 °C	<i>COPd</i>	<b>3,07</b>	-
T j = +2 °C	<i>Pdh</i>	<b>14,0</b>	kW	T j = +2 °C	<i>COPd</i>	<b>3,72</b>	-
T j = +7 °C	<i>Pdh</i>	<b>17,7</b>	kW	T j = +7 °C	<i>COPd</i>	<b>4,64</b>	-
T j = +12 °C	<i>Pdh</i>	<b>21,4</b>	kW	T j = +12 °C	<i>COPd</i>	<b>5,56</b>	-
T j = bivalent temperature	<i>Pdh</i>	<b>11,5</b>	kW	T j = bivalent temperature	<i>COPd</i>	<b>3,15</b>	-
T j = operation limit temperature	<i>Pdh</i>	<b>10,5</b>	kW	T j = operation limit temperature	<i>COPd</i>	<b>2,82</b>	-
For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C)	<i>Pdh</i>	<b>na</b>	kW	For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C)	<i>COPd</i>	<b>na</b>	-
Bivalent temperature	<i>T biv</i>	<b>-6</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 cyc</i>	<b>na</b>	kW	Cycling interval efficiency	<i>COPcyc</i>	<b>na</b>	-
Degradation co-efficient (**)	<i>Cdh</i>	<b>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P OFF</i>	<b>0,018</b>	kW	Rated heat output (*)	<i>Psup</i>	<b>3,4</b>	kW
Thermostat-off mode	<i>P TO</i>	<b>0,068</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P SB</i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P CK</i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L WA</i>	<b>na/66</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q HE</i>	<b>7739</b>	kWh				

For heat pump combination heater:

<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</b>		<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>na</b>	%
Daily electricity consumption	<i>Qelec</i>	<b>na</b>	kWh	Daily fuel consumption	<i>Qfuel</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.

**Cold climate and Medium temperature**

Model(s):	CTC EcoAir 420 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	111 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
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>Prated</i>	<b>11</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>107</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>11,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,52</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>13,6</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,15</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,4</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,01</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>20,5</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,76</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>2,16</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>1,44</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>8,5</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>1,98</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>-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>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</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>0,020</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>9970</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</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 *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):	CTC EcoAir 420 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	133 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
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>Prated</i>	<b>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>129</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>11,6</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>14,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,84</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,74</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,54</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>9,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,74</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,04</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>9,1</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>2,63</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>-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>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,068</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>8876</b>	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class		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

Contact details

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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.

**Warm climate and Medium temperature**

341 26 Ljungby

Model(s):	CTC EcoAir 420 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	127 %
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>Prated</i>	<b>15</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>123</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>	13,0	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	2,25	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	16,6	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	2,94	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	20,0	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	3,90	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	13,7	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	2,34	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	13,8	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	2,45	-
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>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°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>	55	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,018	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	1,7	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,051	kW	Type of energy input	Electric		
Standby mode	<i>P<sub>SB</sub></i>	0,018	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,000	kW				
Other items							
Capacity control	Fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4100	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	na/66	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>	6254	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>82</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	9,302	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	2047	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
						<b>160204</b>	

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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.

**Warm climate and Low temperature**

341 26 Ljungby

Model(s):	<b>CTC EcoAir 420 + CTC EcoZenith 550</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VII</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>3,5</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>151</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>18</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>147</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>13,9</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,98</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,6</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,89</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,82</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>15,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>3,17</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>14,2</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>3,04</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>4</b>	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	<b>2</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>0,92</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>4,1</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,160</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>6419</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>82</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,302</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2047</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
							<b>160204</b>

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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.



## Average climate and Medium temperature

341 26 Ljungby

Model(s):	CTC EcoAir 420 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	117 %
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>Prated</i>	<b>15</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>10,8</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,22</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>14,5</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,05</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,1</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,59</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>19,2</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,17</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>1,6</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,39</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,5</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>-4</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>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</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>0,051</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</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>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>10830</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>B</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>70</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>10,835</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2384</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 *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.

**Average climate and Low temperature**

341 26 Ljungby

Model(s):	<b>CTC EcoAir 420 + CTC EcoZenith 550</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>VII</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>3,5</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>123</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>Prated</i>	<b>16</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>119</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>11,5</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,49</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>14,0</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,12</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,7</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,02</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,4</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,91</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>12,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,71</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>10,5</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,26</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>-4</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>0,94</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,5</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,160</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>10879</b>	kWh				

For heat pump combination heater:

Declared load profile	<b>XL</b>	Efficiency class	<b>B</b>	Water heating energy efficiency	$\eta_{wh}$	<b>70</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>10,835</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2384</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

**160406**

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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 Medium temperature**

341 26 Ljungby

Model(s):	CTC EcoAir 420 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	94 %
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>Prated</i>	<b>15</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>90</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>11,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,16</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>13,6</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,73</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,4</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,55</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>20,5</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,26</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>10,1</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,01</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>1,13</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>8,5</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>1,62</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>-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>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>8,5</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,051</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>15548</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>64</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>11,937</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2626</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ
							<b>160204</b>

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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**

341 26 Ljungby

Model(s):	<b>CTC EcoAir 420 + CTC EcoZenith 550</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>VII</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>3,5</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>106</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>18</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>102</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>11,6</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,60</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>14,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,22</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,11</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,4</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,90</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>11,3</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,54</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,48</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>9,1</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>2,59</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>-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>0,93</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>11,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,160</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items							
Capacity control	<b>Fixed</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4100</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>na/66</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>16783</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>64</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>11,937</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2626</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 *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

341 26 Ljungby

Model(s):	CTC EcoAir 420 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	141 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
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>Prated</i>	<b>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>140</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>	13,0	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	2,56	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	16,6	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	3,29	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	20,0	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	4,33	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	13,4	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	2,67	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	13,8	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	2,76	-
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>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°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>	55	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,018	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	1,3	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,020	kW	Type of energy input	Electric		
Standby mode	<i>P<sub>SB</sub></i>	0,018	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,000	kW				
Other items							
Capacity control	Fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4100	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	na/66	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>	5390	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	na	<b>Efficiency class</b>		<b>Water heating energy efficiency</b>	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	na	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	na	kWh
Annual electricity consumption	<i>AEC</i>	na	kWh	Annual fuel consumption	<i>AFC</i>	na	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 *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

341 26 Ljungby

Model(s):	CTC EcoAir 420 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	176 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
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>Prated</i>	<b>15</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>175</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>	13,9	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	3,54	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	17,6	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	4,46	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	21,2	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	5,43	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	14,2	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	3,65	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	14,2	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	3,60	-
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>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°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>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,018	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	1,4	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,068	kW	Type of energy input	Electric		
Standby mode	<i>P<sub>SB</sub></i>	0,018	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,000	kW				
Other items							
Capacity control	Fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4100	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	na/66	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>	4574	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	na	<b>Efficiency class</b>		<b>Water heating energy efficiency</b>	$\eta_{wh}$	na	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	na	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	na	kWh
Annual electricity consumption	<i>AEC</i>	na	kWh	Annual fuel consumption	<i>AFC</i>	na	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 *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 420 + CTC Basicstyrning</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>I</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>1</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>120</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>Prated</i>	<b>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>119</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>10,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,35</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>13,4</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>2,97</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,3</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>3,81</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>20,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,62</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>11,5</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,49</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>10,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,10</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>-5</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>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>4,3</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,020</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>9646</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</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 *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.

**Average climate and Low temperature**

341 26 Ljungby

Model(s):	<b>CTC EcoAir 420 + CTC Basicstyrning</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>I</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>1</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>146</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>Prated</i>	<b>14</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>145</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>11,5</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>3,07</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>14,0</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,72</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,7</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,64</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,4</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,56</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>11,5</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>3,15</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>10,5</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,82</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>-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>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>3,4</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,068</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>7739</b>	kWh				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</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 *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 Medium temperature**

341 26 Ljungby

Model(s):	<b>CTC EcoAir 420 + CTC Basicstyrning</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>I</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>1</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>108</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>11</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>107</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>11,0</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,52</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>13,6</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,15</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,4</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,01</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>20,5</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>4,76</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>2,16</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>1,44</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>8,5</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>1,98</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>-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>0,99</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</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>0,020</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>9970</b>	<i>kWh</i>				
For heat pump combination heater:							
<b>Declared load profile</b>	<b>na</b>	<b>Efficiency class</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 *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 420 + CTC Basicstyrning</b>		
Air-to-water heat pump:	<b>Yes</b>	Energy efficiency class:	-
Water-to-water heat pump:	<b>No</b>	Controller class:	<b>I</b> -
Brine-to-water heat pump:	<b>No</b>	Controller contribution:	<b>1</b> %
Low-temperature heat pump:	<b>No</b>	Package efficiency:	<b>130</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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>129</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>11,6</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>14,1</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,84</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>17,8</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,74</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>21,3</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>5,54</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>9,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,74</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,8</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,04</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>9,1</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>2,63</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>-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>0,98</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>55</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,018</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>5,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,068</b>	kW	Type of energy input	<b>Electric</b>		
Standby mode	<i>P<sub>SB</sub></i>	<b>0,018</b>	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,000</b>	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	<b>Fixed</b>			-	<b>4100</b>	<b>na</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>na/66</b>	dB	-	<b>na</b>		m <sup>3</sup> /h
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>8876</b>	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class		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 *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.