



**Warm climate and Medium temperature**

Model(s):	CTC CombiAir 12M + CTC EcoLogic		
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:	189 %
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>P<sub>rated</sub></i>	<b>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>185</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>	9,3	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	2,47	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	7,8	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	3,77	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	5,1	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	6,70	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	10,4	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	2,92	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	9,3	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	2,47	-
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>	4	°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>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	58	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,002	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	2,7	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,014	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>	0,035	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4380	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	-/57	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>	3445	kWh				

For heat pump combination heater:

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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.



**Warm climate and Low temperature**

Model(s):	CTC CombiAir 12M + CTC EcoLogic		
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:	233 %
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>P<sub>rated</sub></i>	<b>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>229</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>	3,76	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	7,8	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	5,13	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	4,8	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	7,48	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	10,3	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	4,17	-
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>	3,76	-
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>	4	°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>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	58	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,002	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	2,8	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,020	kW	Type of energy input: <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	0,015	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,035	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4380	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	-57	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>	2765	kWh				

For heat pump combination heater:

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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

**Average climate and Medium temperature**

Model(s):	CTC CombiAir 12M + 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:	136 %
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>10</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>132</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>8,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,99</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>5,5</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>3,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,61</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>5,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,25</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>1,90</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>8,1</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,92</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>-7,9</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>58</b>	°C
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</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>0,014</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>0,035</b>	kW				
<b>Other items</b>							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>6137</b>	kWh				

For heat pump combination heater:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

[www.ctc.se](http://www.ctc.se)

200331

**Average climate and Low temperature**

Model(s):	CTC CombiAir 12M + 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:	178 %
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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>174</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>10,3</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,93</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>6,3</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,37</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>4,1</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,53</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,8</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>10,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,93</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,3</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,68</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>-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>0,96</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>2,2</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>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,035</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>-/57</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>5361</b>	kWh				

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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

[www.ctc.se](http://www.ctc.se)

200331



**Cold climate and Medium temperature**

Model(s):	CTC CombiAir 12M + CTC EcoLogic		
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:	115 %
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>P<sub>rated</sub></i>	<b>13</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>7,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,36</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,48</b>	-
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>4,93</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,12</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,9</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,07</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>5,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,63</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>1,7</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>3,01</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>-20</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>-/57</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient	<i>C<sub>dh</sub></i>	<b>0,96</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>13,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,014</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>0,035</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>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>11639</b>	kWh				

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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.



**Cold climate and Low temperature**

Model(s):	CTC CombiAir 12M + CTC EcoLogic		
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:	146 %
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>P<sub>rated</sub></i>	<b>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>142</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>7,1</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>4,3</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>3,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,59</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,56</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,70</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,0</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>1,7</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>4,02</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-12</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>0,95</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>11,5</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>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,035</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>4380</b>	<i>m<sup>3</sup>/h</i>	
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>-/57</b>	<i>dB</i>	-	<b>na</b>	<i>m<sup>3</sup>/h</i>	
Annual energy consumption	<i>Q<sub>HE</sub></i>	<b>8302</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

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

**Warm climate and Medium temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	189 %
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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>185</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>	9,3	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	2,47	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	7,8	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	3,77	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	5,1	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	6,70	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	10,4	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	2,92	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	9,3	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	2,47	-
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>	4	°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>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	58	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,002	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	2,7	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,014	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>	0,035	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4380	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	-/57	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>	3445	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>104</b>	%
Daily electricity consumption	Q <sub>elec</sub>	7,890	kWh	Daily fuel consumption	Q <sub>fuel</sub>	NA	kWh
Annual electricity consumption	AEC	1617	kWh	Annual fuel consumption	AFC	NA	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

www.ctc.se

201209

**Warm climate and Low temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	233 %
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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>229</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>	3,76	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	7,8	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	5,13	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	4,8	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	7,48	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	10,3	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	4,17	-
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>	3,76	-
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>	4	°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>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	58	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	0,002	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	2,8	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	0,020	kW	Type of energy input <b>Electric</b>			
Standby mode	<i>P<sub>SB</sub></i>	0,015	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	0,035	kW				
Other items							
Capacity control	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4380	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	-57	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>	2765	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>104</b>	%
Daily electricity consumption	Q <sub>elec</sub>	7,890	kWh	Daily fuel consumption	Q <sub>fuel</sub>	NA	kWh
Annual electricity consumption	AEC	1617	kWh	Annual fuel consumption	AFC	NA	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

www.ctc.se

201209



**Average climate and Medium temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	136 %
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>10</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>132</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>8,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>1,99</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>5,5</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>3,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>4,61</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>5,0</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>6,25</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>1,90</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>8,1</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,92</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>-7,9</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>58</b>	°C
<b>Power consumption in modes other than active mode</b>				<b>Supplementary heater</b>			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</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>0,014</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>0,035</b>	kW				
<b>Other items</b>							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>6137</b>	kWh				

For heat pump combination heater:

Declared load profile	XL	Efficiency class	A	Water heating energy efficiency	$\eta_{wh}$	87	%
Daily electricity consumption	Qelec	<b>9,250</b>	kWh	Daily fuel consumption	Q <sub>fuel</sub>	<b>NA</b>	kWh
Annual electricity consumption	AEC	<b>1919</b>	kWh	Annual fuel consumption	AFC	<b>NA</b>	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

[www.ctc.se](http://www.ctc.se)

201209

**Average climate and Low temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	178 %
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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>174</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>10,3</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,93</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>6,3</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>4,37</b>	-
T <sub>j</sub> = +7 °C	<i>P<sub>dh</sub></i>	<b>4,1</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,53</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,8</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>10,2</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,93</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>9,3</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>2,68</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>-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>0,96</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>2,2</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>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,035</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>5361</b>	kWh				

For heat pump combination heater:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>A</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>87</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>9,250</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>1919</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

[www.ctc.se](http://www.ctc.se)

201209

**Cold climate and Medium temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	115 %
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>13</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>7,9</b>	kW	T <sub>j</sub> = -7 °C	<i>COP<sub>d</sub></i>	<b>2,36</b>	-
T <sub>j</sub> = +2 °C	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = +2 °C	<i>COP<sub>d</sub></i>	<b>3,48</b>	-
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>4,93</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,9</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,12</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,9</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,07</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>5,0</b>	kW	T <sub>j</sub> = operation limit temperature	<i>COP<sub>d</sub></i>	<b>1,63</b>	-
For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)	<i>P<sub>dh</sub></i>	<b>1,7</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>3,01</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>-20</b>	°C
Cycling interval capacity for heating	<i>P<sub>cych</sub></i>	<b>-/57</b>	kW	Cycling interval efficiency	<i>COP<sub>cyc</sub></i>	<b>na</b>	-
Degradation co-efficient	<i>C<sub>dh</sub></i>	<b>0,96</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>13,0</b>	kW
Thermostat-off mode	<i>P<sub>TO</sub></i>	<b>0,014</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>0,035</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>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/ outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>11639</b>	kWh				

For heat pump combination heater:

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Declared load profile</b>	<b>XL</b>	<b>Efficiency class</b>	<b>na</b>	<b>Water heating energy efficiency</b>	$\eta_{wh}$	<b>73</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>11,110</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2302</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.

Contact details

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

[www.ctc.se](http://www.ctc.se)

201209



**Cold climate and Low temperature**

Model(s):	CTC CombiAir 12M + CTC EcoZenith i360/EcoVent i360F		
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:	146 %
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>12</b>	kW	<b>Seasonal space heating energy efficiency</b>	$\eta_s$	<b>142</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>7,1</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>4,3</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>3,5</b>	kW	T <sub>j</sub> = +7 °C	<i>COP<sub>d</sub></i>	<b>5,59</b>	-
T <sub>j</sub> = +12 °C	<i>P<sub>dh</sub></i>	<b>4,8</b>	kW	T <sub>j</sub> = +12 °C	<i>COP<sub>d</sub></i>	<b>7,56</b>	-
T <sub>j</sub> = bivalent temperature	<i>P<sub>dh</sub></i>	<b>8,4</b>	kW	T <sub>j</sub> = bivalent temperature	<i>COP<sub>d</sub></i>	<b>2,70</b>	-
T <sub>j</sub> = operation limit temperature	<i>P<sub>dh</sub></i>	<b>6,0</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>1,7</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>4,02</b>	-
Bivalent temperature	<i>T<sub>biv</sub></i>	<b>-12</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>0,95</b>	-	Heating water operating limit temperature	<i>WTOL</i>	<b>58</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P<sub>OFF</sub></i>	<b>0,002</b>	kW	Rated heat output (*)	<i>P<sub>sup</sub></i>	<b>11,5</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>0,015</b>	kW				
Crankcase heater mode	<i>P<sub>CK</sub></i>	<b>0,035</b>	kW				
Other items							
Capacity control	<b>Variable</b>			For air-to-water heat pumps: Rated air flow rate, outdoors	-	<b>4380</b>	m <sup>3</sup> /h
Sound power level, indoors/outdoors	<i>L<sub>WA</sub></i>	<b>-/57</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>8302</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>73</b>	%
Daily electricity consumption	<i>Q<sub>elec</sub></i>	<b>11,110</b>	kWh	Daily fuel consumption	<i>Q<sub>fuel</sub></i>	<b>NA</b>	kWh
Annual electricity consumption	<i>AEC</i>	<b>2302</b>	kWh	Annual fuel consumption	<i>AFC</i>	<b>NA</b>	GJ

Specific precautions and end of life information:

The packaging must be deposited at a recycling station or with the installation engineer for correct waste management. At the end of the product's life cycle, it must be sent correctly to a waste station or reseller offering a service of that type. It is of great importance that the product's refrigerant, compressor oil and electrical/electronic equipment are properly disposed of. Disposing of the product as household waste is not permitted.