



**Warm climate and Medium temperature**

|                                       |                                |                           |       |
|---------------------------------------|--------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoLogic |                           |       |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                             | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 % |
| 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>P<sub>rated</sub></i>                                  | <b>10</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>137</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>   | 3,10       | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>                                     | 9,5       | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 3,47       | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>                                     | 9,8       | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 4,15       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>                                     | 9,3       | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 3,21       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | na        | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | na         | -                 |
| 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>               | na         | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | na        | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | na         | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | 0,99      | -    | Heating water operating limit temperature  | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode  |   |           |      | Supplementary heater   |                          |            |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | 0,018     | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | 0,8        | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | 0,003     | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>                                     | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 1,9        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | 3701      | kWh  |  |                          |            |                   |
| For heat pump combination heater:  |   |           |      |  |                          |            |                   |
| <b>Declared load profile</b>   | na  |           |      | <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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |      | www.ctc.se   |                          |            |                   |

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

**Warm climate and Low temperature**

|                                       |                                |                           |       |
|---------------------------------------|--------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoLogic |                           |       |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                             | Controller class:         | VII   |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                             | Package efficiency:       | 183 % |
| 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>11</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>179</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>                                     | 10,0      | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | 4,60       | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | 10,1      | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 4,82       | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | 10,2      | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 5,10       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>                                     | 10        | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 4,67       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | na        | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | na         | -                 |
| 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>               | na         | °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>              | 65         | °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>   | 0,8        | 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>                                     | 0,018     | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 2,3        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | 3079      | kWh  |  |                          |            |                   |
| For heat pump combination heater:  |   |           |      |  |                          |            |                   |
| <b>Declared load profile</b>   | na  |           |      | <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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |      | www.ctc.se   |                          |            |                   |

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

**Average climate and Medium temperature**

|                                       |                                |                           |       |
|---------------------------------------|--------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoLogic |                           |       |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                             | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                             | Package efficiency:       | 142 % |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>138</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |   |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,4</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,28</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,5</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,66</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,7</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,03</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>9,9</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,41</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>3,28</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>5999</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      |  |                          |             |                   |
| <b>Declared load profile</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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                          |             |                   |

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

**Average climate and Low temperature**

|                                       |                                |                           |        |
|---------------------------------------|--------------------------------|---------------------------|--------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoLogic |                           |        |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | A++ -  |
| Water-to-water heat pump:             | No                             | Controller class:         | VII -  |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 %  |
| Low-temperature heat pump:            | No                             | Package efficiency:       | 185 %  |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>181</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |   |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>                                     | <b>10,0</b>  | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>4,69</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>10,1</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>4,88</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>5,05</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>10,3</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>5,22</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>                                     | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | <b>4,69</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</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>0,018</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>4944</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      |  |                          |             |                   |
| <b>Declared load profile</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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                          |             |                   |

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

**Cold climate and Medium temperature**

|                                       |                                |                           |       |
|---------------------------------------|--------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoLogic |                           |       |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                             | Controller class:         | VII   |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                             | Package efficiency:       | 145 % |
| 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>10</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>141</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>9,5</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,58</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,7</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,96</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,8</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,29</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>10,0</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,54</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>3,27</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>-18</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,2</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>6939</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      | <b>Water heating energy efficiency</b>   |                          |             |                   |
| <b>Declared load profile</b>   | <b>na</b>   |              |      | Daily fuel consumption   | <i>Q<sub>fuel</sub></i>  | <b>na</b>   | kWh               |
| Daily electricity consumption  | <i>Q<sub>elec</sub></i>                                   | <b>na</b>    | kWh  | Annual fuel consumption  | <i>AFC</i>               | <b>na</b>   | GJ                |
| Annual electricity consumption   | <i>AEC</i>  | <b>na</b>    | kWh  |  |                          |             |                   |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                          |             |                   |

(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>design,h</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 EcoPart 410 + CTC EcoLogic |                           |       |
| Air-to-water heat pump:               | No                             | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                             | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                            | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                             | Package efficiency:       | 188 % |
| 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>   | $P_{rated}$  | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$        | <b>184</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |              |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                 |             |                   |
| T <sub>j</sub> = -7 °C   | $P_{dh}$     | <b>10,1</b>  | kW   | T <sub>j</sub> = -7 °C   | $COP_d$         | <b>4,89</b> | -                 |
| T <sub>j</sub> = +2 °C   | $P_{dh}$     | <b>10,2</b>  | kW   | T <sub>j</sub> = +2 °C   | $COP_d$         | <b>5,05</b> | -                 |
| T <sub>j</sub> = +7 °C   | $P_{dh}$     | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | $COP_d$         | <b>5,16</b> | -                 |
| T <sub>j</sub> = +12 °C  | $P_{dh}$     | <b>10,2</b>  | kW   | T <sub>j</sub> = +12 °C  | $COP_d$         | <b>5,19</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | $P_{dh}$     | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | $COP_d$         | <b>4,66</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | $P_{dh}$     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | $COP_d$         | <b>na</b>   | -                 |
| For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)   | $P_{dh}$     | <b>na</b>    | kW   | For air-to-water heat pumps: T <sub>j</sub> = -15 °C (if TOL < -20 °C)   | $COP_d$         | <b>na</b>   | -                 |
| Bivalent temperature   | $T_{biv}$    | <b>-20</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | TOL             | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | $P_{cych}$   | <b>na</b>    | kW   | Cycling interval efficiency  | $COP_{cyc}$     | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | $C_{dh}$     | <b>0,98</b>  | -    | Heating water operating limit temperature  | WTOL            | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |              |              |      | Supplementary heater   |                 |             |                   |
| Off mode   | $P_{OFF}$    | <b>0,018</b> | kW   | Rated heat output (*)  | $P_{sup}$       | <b>0,6</b>  | kW                |
| Thermostat-off mode  | $P_{TO}$     | <b>0,014</b> | kW   | Type of energy input   | <b>Electric</b> |             |                   |
| Standby mode   | $P_{SB}$     | <b>0,018</b> | kW   |  |                 |             |                   |
| Crankcase heater mode  | $P_{CK}$     | <b>0,000</b> | kW   |  |                 |             |                   |
| Other items  |              |              |      |  |                 |             |                   |
| Capacity control   | <b>Fixed</b> |              |      | For air-to-water heat pumps: Rated air flow rate, outdoors   | -               | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | $L_{WA}$     | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -               | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | $Q_{HE}$     | <b>5414</b>  | kWh  |  |                 |             |                   |

For heat pump combination heater:

| Item                           | Symbol  | Value     | Unit | Item                                   | Symbol      | Value     | Unit |
|--------------------------------|---|-----------|------|--|-------------|-----------|------|
| <b>Declared load profile</b>   |   | <b>na</b> |      | <b>Water heating energy efficiency</b> | $\eta_{wh}$ | <b>na</b> | %    |
| Daily electricity consumption  | $Q_{elec}$  | <b>na</b> | kWh  | Daily fuel consumption                 | $Q_{fuel}$  | <b>na</b> | kWh  |
| Annual electricity consumption | AEC   | <b>na</b> | kWh  | Annual fuel consumption                | AFC         | <b>na</b> | GJ   |
| Contact details                | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |      | www.ctc.se                             |             |           |      |

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

**Warm climate and Medium temperature**

|                                       |   |                           |       |
|---------------------------------------|---|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith i350/ i350F |                           |       |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No  | Package efficiency:       | 141 % |
| 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>10</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>137</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>   | 3,10       | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | 9,5       | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 3,47       | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | 9,8       | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 4,15       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | 9,3       | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 3,21       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | na        | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | na         | -                 |
| 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>               | na         | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | na        | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | na         | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | 0,99      | -    | Heating water operating limit temperature  | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode  |                          |           |      | Supplementary heater   |                          |            |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | 0,018     | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | 0,8        | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | 0,003     | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 1,9        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | 3701      | kWh  |  |                          |            |                   |

For heat pump combination heater:

|   |   |       |     |  |                         |     |     |
|---|---|-------|-----|--|-------------------------|-----|-----|
| <b>Declared load profile/ Energy efficiency class</b> | XL / A  |       |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | 102 | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | 7,508 | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | na  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | 1652  | kWh | Annual fuel consumption                | <i>AFC</i>              | na  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |       |     | www.ctc.se                             | 170710                  |     |     |

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



**Warm climate and Low temperature**

|                                       |   |                           |       |
|---------------------------------------|---|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith i350/ i350F |                           |       |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No  | Package efficiency:       | 183 % |
| 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>11</b> | kW   | <b>Seasonal space heating energy efficiency</b>   | $\eta_s$                 | <b>179</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>              | 10,0      | kW   | T j = +2 °C   | <i>COPd</i>              | 4,60       | -                 |
| T j = + 7 °C  | <i>Pdh</i>              | 10,1      | kW   | T j = +7 °C   | <i>COPd</i>              | 4,82       | -                 |
| T j = + 12 °C   | <i>Pdh</i>              | 10,2      | kW   | T j = +12 °C  | <i>COPd</i>              | 5,10       | -                 |
| T j = bivalent temperature  | <i>Pdh</i>              | 10        | kW   | T j = bivalent temperature  | <i>COPd</i>              | 4,67       | -                 |
| T j = operation limit temperature   | <i>Pdh</i>              | na        | kW   | T j = operation limit temperature   | <i>COPd</i>              | na         | -                 |
| 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<sub>biv</sub></i>  | 3         | °C   | For air-to-water heat pumps: Operation limit temperature  | <i>TOL</i>               | na         | °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>Cdh</i>              | 0,98      | -    | Heating water operating limit temperature   | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode   |                         |           |      | Supplementary heater  |                          |            |                   |
| Off mode  | <i>P<sub>OFF</sub></i>  | 0,018     | kW   | Rated heat output (*)   | <i>P<sub>sup</sub></i>   | 0,8        | 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>   | 0,018     | 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  | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors  | <i>L<sub>WA</sub></i>   | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger                                      | -                        | 2,3        | m <sup>3</sup> /h |
| Annual energy consumption   | <i>Q<sub>HE</sub></i>   | 3079      | kWh  |   |                          |            |                   |

For heat pump combination heater:

|   |   |       |     |  |                         |     |     |
|---|---|-------|-----|--|-------------------------|-----|-----|
| <b>Declared load profile/ Energy efficiency class</b> | XL / A  |       |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | 102 | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | 7,508 | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | na  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | 1652  | kWh | Annual fuel consumption                | <i>AFC</i>              | na  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |       |     | www.ctc.se                             | 170710                  |     |     |

(\*) 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 EcoPart 410 + CTC EcoZenith i350/ i350F |                           |       |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No  | Package efficiency:       | 142 % |
| Equipped with a supplementary heater: | Yes   | Package efficiency class: | A++ - |
| Heat pump combination heater:         | Yes   |                           |       |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>138</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = - 7 °C  | <i>P<sub>dh</sub></i>    | <b>9,4</b>   | kW   | T <sub>j</sub> = - 7 °C  | <i>COP<sub>d</sub></i>   | <b>3,28</b> | -                 |
| T <sub>j</sub> = + 2 °C  | <i>P<sub>dh</sub></i>    | <b>9,5</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,66</b> | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | <b>9,7</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,03</b> | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | <b>9,9</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,41</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>3,28</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>5999</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>102</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,508</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>na</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1652</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>na</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             | 170710                  |            |     |

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

**Average climate and Low temperature**

|                                       |   |                           |        |
|---------------------------------------|---|---------------------------|--------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith i350/ i350F |                           |        |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | A++ -  |
| Water-to-water heat pump:             | No  | Controller class:         | VII -  |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 %  |
| Low-temperature heat pump:            | No  | Package efficiency:       | 185 %  |
| Equipped with a supplementary heater: | Yes   | Package efficiency class: | A+++ - |
| Heat pump combination heater:         | Yes   |                           |        |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>181</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>4,69</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>10,1</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>4,88</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>5,05</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>10,3</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>5,22</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | <b>4,69</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</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>0,018</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>4944</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

| Declared load profile/<br>Energy efficiency class | <b>XL / A</b>   |              |     | Water heating energy efficiency | $\eta_{wh}$             | <b>102</b> | %   |
|---|---|--------------|-----|---------------------------------|-------------------------|------------|-----|
| Daily electricity consumption                     | <i>Q<sub>elec</sub></i>                                   | <b>7,508</b> | kWh | Daily fuel consumption          | <i>Q<sub>fuel</sub></i> | <b>na</b>  | kWh |
| Annual electricity consumption                    | <i>AEC</i>  | <b>1652</b>  | kWh | Annual fuel consumption         | <i>AFC</i>              | <b>na</b>  | GJ  |
| Contact details                                   | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                      | 170710                  |            |     |

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

**Cold climate and Medium temperature**

|                                       |   |                           |       |
|---------------------------------------|---|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith i350/ i350F |                           |       |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No  | Package efficiency:       | 145 % |
| 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>10</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>141</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>9,5</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,58</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>9,7</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,96</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>9,8</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,29</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,54</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>3,27</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>-18</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,2</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>6939</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>102</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,508</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>na</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1652</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>na</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             | 170710                  |            |     |

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



**Cold climate and Low temperature**

|                                       |   |                           |       |
|---------------------------------------|---|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith i350/ i350F |                           |       |
| Air-to-water heat pump:               | No  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes   | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No  | Package efficiency:       | 188 % |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                | <b>184</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>10,1</b>  | kW   | T <sub>j</sub> = - 7 °C  | <i>COP<sub>d</sub></i>  | <b>4,89</b> | -                 |
| T <sub>j</sub> = + 2 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>  | <b>5,05</b> | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>  | <b>5,16</b> | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>  | <b>5,19</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>  | <b>4,66</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>  | <b>na</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>-20</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>              | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cy</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>             | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                         |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>  | <b>0,6</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>0,018</b> | kW   |  |                         |             |                   |
| Crankcase heater mode  | <i>P<sub>CK</sub></i>    | <b>0,000</b> | kW   | For air-to-water heat pumps: Rated air flow rate, outdoors   |                         |             |                   |
| Other items  |                          |              |      | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   |                         |             |                   |
| Capacity control   | <b>Fixed</b>             |              |      | -  | <b>na</b>               | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | -  | <b>2,3</b>              | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>5414</b>  | kWh  |  |                         |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>102</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,508</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>na</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1652</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>na</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             | 170710                  |            |     |

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

**Warm climate and Medium temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII   |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 128 % |
| 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>10</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>124</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>   | 2,86       | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | 9,5       | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 3,20       | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | 9,8       | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 3,78       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | 9,3       | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 2,96       | -                 |
| 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>   | 2,86       | -                 |
| For air-to-water heat pumps:<br>T <sub>j</sub> = -15 °C (if TOL < -20 °C)                                      | <i>P<sub>dh</sub></i>    | na        | kW   | For air-to-water heat pumps:<br>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:<br>Operation limit temperature  | <i>TOL</i>               | na         | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | na        | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | na         | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | 0,99      | -    | Heating water operating limit temperature  | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode  |                          |           |      | Supplementary heater   |                          |            |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | 0,018     | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | 0,8        | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | 0,026     | 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:<br>Rated air flow rate, outdoors  | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>    | 49/na     | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                        | 1,9        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | 4090      | kWh  |  |                          |            |                   |

For heat pump combination heater:

| Declared load profile/<br>Energy efficiency class | L / A   |       |     | Water heating energy efficiency | $\eta_{wh}$             | 87 | %   |
|---|---|-------|-----|---------------------------------|-------------------------|----|-----|
| Daily electricity consumption                     | <i>Q<sub>elec</sub></i>                                   | 5,377 | kWh | Daily fuel consumption          | <i>Q<sub>fuel</sub></i> | na | kWh |
| Annual electricity consumption                    | <i>AEC</i>  | 1183  | kWh | Annual fuel consumption         | <i>AFC</i>              | na | GJ  |
| Contact details                                   | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |       |     | www.ctc.se                      |                         |    |     |

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

**Warm climate and Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII   |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 156 % |
| 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>11</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>152</b> | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |   |           |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |            |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>                                     | 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>                                     | 10,0      | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | 4,16       | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | 10,1      | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 4,35       | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | 10,2      | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 4,58       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>                                     | 10,0      | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 4,22       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | 10,0      | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | 4,16       | -                 |
| For air-to-water heat pumps:<br>T <sub>j</sub> = -15 °C (if TOL < -20 °C)                                      | <i>P<sub>dh</sub></i>                                     | na        | kW   | For air-to-water heat pumps:<br>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:<br>Operation limit temperature  | <i>TOL</i>               | na         | °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>                                     | 0,96      | -    | Heating water operating limit temperature  | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode  |   |           |      | Supplementary heater   |                          |            |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | 0,018     | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | 0,8        | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | 0,082     | 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:<br>Rated air flow rate, outdoors  | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>                                     | 49/na     | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                        | 2,3        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | 3592      | kWh  |  |                          |            |                   |
| For heat pump combination heater:  |   |           |      |  |                          |            |                   |
| <b>Declared load profile/<br/>Energy efficiency class</b>  | L / A   |           |      | <b>Water heating energy<br/>efficiency</b>   | $\eta_{wh}$              | 87         | %                 |
| Daily electricity consumption  | <i>Q<sub>elec</sub></i>                                   | 5,377     | kWh  | Daily fuel consumption   | <i>Q<sub>fuel</sub></i>  | na         | kWh               |
| Annual electricity<br>consumption  | <i>AEC</i>  | 1183      | kWh  | Annual fuel consumption  | <i>AFC</i>               | na         | GJ                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |      | www.ctc.se   |                          |            |                   |

(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>design,h</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):                             | CTC EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 129 % |
| Equipped with a supplementary heater: | yes                                 | Package efficiency class: | A++ - |
| Heat pump combination heater:         | Yes                                 |                           |       |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>125</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>    | <b>9,4</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,02</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>9,6</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,39</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>9,7</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>3,69</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>9,9</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,00</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>3,08</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>2,86</b> | -                 |
| For air-to-water heat pumps:<br>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:<br>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:<br>Operation limit temperature  | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,8</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,026</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:<br>Rated air flow rate, outdoors  | -                        | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>6900</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

| Declared load profile/<br>Energy efficiency class | L / A   |          |     | Water heating energy efficiency | $\eta_{wh}$             | x         | %   |
|---|---|----------|-----|---------------------------------|-------------------------|-----------|-----|
| Daily electricity consumption                     | <i>Q<sub>elec</sub></i>                                   | <b>x</b> | kWh | Daily fuel consumption          | <i>Q<sub>fuel</sub></i> | <b>NA</b> | kWh |
| Annual electricity consumption                    | <i>AEC</i>  | <b>x</b> | kWh | Annual fuel consumption         | <i>AFC</i>              | <b>NA</b> | GJ  |
| Contact details                                   | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |          |     | www.ctc.se                      |                         |           |     |

(\*) For heat pump space heaters and heat pump combination heaters, the rated heat output *P<sub>rated</sub>* is equal to the design load for heating *P<sub>design,h</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 EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 161 % |
| Equipped with a supplementary heater: | yes                                 | Package efficiency class: | A++ - |
| Heat pump combination heater:         | Yes                                 |                           |       |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>12</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>157</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>10,0</b>  | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>4,24</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>10,1</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>4,40</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,54</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>10,3</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,68</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | <b>4,27</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>4,16</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>na</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>65</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>1,9</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,082</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>5938</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

| Declared load profile/<br>Energy efficiency class | L / A   |              |     | Water heating energy efficiency | $\eta_{wh}$             | 87        | %   |
|---|---|--------------|-----|---------------------------------|-------------------------|-----------|-----|
| Daily electricity consumption                     | <i>Q<sub>elec</sub></i>                                   | <b>5,377</b> | kWh | Daily fuel consumption          | <i>Q<sub>fuel</sub></i> | <b>na</b> | kWh |
| Annual electricity consumption                    | <i>AEC</i>  | <b>1183</b>  | kWh | Annual fuel consumption         | <i>AFC</i>              | <b>na</b> | GJ  |
| Contact details                                   | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                      | 161107                  |           |     |

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



**Cold climate and Medium temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 131 % |
| 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>10</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>127</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>9,5</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,30</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,7</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,62</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,8</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>3,90</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>10,0</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,11</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>3,02</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>2,86</b> | -                 |
| For air-to-water heat pumps:<br>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:<br>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>-18</b>   | °C   | For air-to-water heat pumps:<br>Operation limit temperature  | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,2</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | <b>0,026</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:<br>Rated air flow rate, outdoors  | -                        | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>7647</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      |  |                          |             |                   |
| <b>Declared load profile/<br/>Energy efficiency class</b>  | <b>L / A</b>  |              |      | <b>Water heating energy efficiency</b>   | $\eta_{wh}$              | <b>87</b>   | %                 |
| Daily electricity consumption  | <i>Q<sub>elec</sub></i>                                   | <b>5,377</b> | kWh  | Daily fuel consumption   | <i>Q<sub>fuel</sub></i>  | <b>na</b>   | kWh               |
| Annual electricity consumption   | <i>AEC</i>  | <b>1183</b>  | kWh  | Annual fuel consumption  | <i>AFC</i>               | <b>na</b>   | GJ                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                          |             |                   |

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

**Cold climate and Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 250 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 162 % |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                | <b>158</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>10,1</b>  | kW   | T <sub>j</sub> = - 7 °C  | <i>COP<sub>d</sub></i>  | <b>4,42</b> | -                 |
| T <sub>j</sub> = + 2 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = + 2 °C  | <i>COP<sub>d</sub></i>  | <b>4,54</b> | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</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>10,2</b>  | kW   | T <sub>j</sub> = + 12 °C   | <i>COP<sub>d</sub></i>  | <b>4,66</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>  | <b>4,26</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>4,16</b> | -                 |
| For air-to-water heat pumps:<br>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:<br>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>-18</b>   | °C   | For air-to-water heat pumps:<br>Operation limit temperature  | <i>TOL</i>              | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cy</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>65</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>1,2</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,082</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:<br>Rated air flow rate, outdoors  | -                       | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                       | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>6656</b>  | kWh  |  |                         |             |                   |

For heat pump combination heater:

| Declared load profile/<br>Energy efficiency class | L / A   |          |     | Water heating energy efficiency | $\eta_{wh}$             | x         | %   |
|---|---|----------|-----|---------------------------------|-------------------------|-----------|-----|
| Daily electricity consumption                     | <i>Q<sub>elec</sub></i>                                   | <b>x</b> | kWh | Daily fuel consumption          | <i>Q<sub>fuel</sub></i> | <b>NA</b> | kWh |
| Annual electricity consumption                    | <i>AEC</i>  | <b>x</b> | kWh | Annual fuel consumption         | <i>AFC</i>              | <b>NA</b> | GJ  |
| Contact details                                   | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |          |     | www.ctc.se                      |                         |           |     |

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



**Warm climate and Medium temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 550 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 128 % |
| 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>10</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>124</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>   | 2,86       | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | 9,5       | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 3,20       | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | 9,8       | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 3,78       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | 9,3       | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 2,96       | -                 |
| 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>   | 2,86       | -                 |
| 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>               | na         | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | na        | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | na         | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | 0,99      | -    | Heating water operating limit temperature  | <i>WTOL</i>              | 65         | °C                |
| Power consumption in modes other than active mode  |                          |           |      | Supplementary heater   |                          |            |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | 0,018     | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | 0,8        | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | 0,019     | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 1,9        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | 4070      | kWh  |  |                          |            |                   |

For heat pump combination heater:

|   |   |       |     |  |                         |     |     |
|---|---|-------|-----|--|-------------------------|-----|-----|
| <b>Declared load profile/ Energy efficiency class</b> | XL / A  |       |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | 101 | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | 7,552 | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | NA  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | 1661  | kWh | Annual fuel consumption                | <i>AFC</i>              | NA  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |       |     | www.ctc.se                             |                         |     |     |

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



**Warm climate and Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 550 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 160 % |
| 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>11</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>156</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>    | 10,0      | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | 4,16       | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | 10,1      | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 4,35       | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | 10,2      | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 4,58       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | 10,0      | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 4,22       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | 10,0      | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | 4,16       | -                 |
| 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>               | na         | °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>              | 65         | °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>   | 0,8        | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 2,3        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | 3506      | kWh  |  |                          |            |                   |

For heat pump combination heater:

|   |   |       |     |  |                         |     |     |
|---|---|-------|-----|--|-------------------------|-----|-----|
| <b>Declared load profile/ Energy efficiency class</b> | XL / A  |       |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | 101 | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | 7,552 | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | NA  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | 1661  | kWh | Annual fuel consumption                | <i>AFC</i>              | NA  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |       |     | www.ctc.se                             |                         |     |     |

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

**Average climate and Medium temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 550 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 141 % |
| Equipped with a supplementary heater: | yes                                 | Package efficiency class: | A++ - |
| Heat pump combination heater:         | Yes                                 |                           |       |

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

| Item   | Symbol  | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|---|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i>                                  | <b>9</b>     | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>137</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>9,4</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,02</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,6</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,39</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,7</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>3,69</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>9,9</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,00</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>3,08</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>2,86</b> | -                 |
| For air-to-water heat pumps:<br>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:<br>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:<br>Operation limit temperature  | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,8</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | <b>0,019</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:<br>Rated air flow rate, outdoors  | -                        | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/<br>outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat<br>pumps: Rated brine or water<br>flow rate, outdoor heat<br>exchanger  | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>6880</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      |  |                          |             |                   |
| <b>Declared load profile/<br/>Energy efficiency class</b>  | <b>XL / A</b>   |              |      | <b>Water heating energy efficiency</b>   | $\eta_{wh}$              | <b>101</b>  | %                 |
| Daily electricity consumption  | <i>Q<sub>elec</sub></i>                                   | <b>7,552</b> | kWh  | Daily fuel consumption   | <i>Q<sub>fuel</sub></i>  | <b>NA</b>   | kWh               |
| Annual electricity consumption   | <i>AEC</i>  | <b>1661</b>  | kWh  | Annual fuel consumption  | <i>AFC</i>               | <b>NA</b>   | GJ                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                          |             |                   |

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



**Average climate and Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 550 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 164 % |
| Equipped with a supplementary heater: | yes                                 | Package efficiency class: | A++ - |
| Heat pump combination heater:         | Yes                                 |                           |       |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>160</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>10,0</b>  | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>4,24</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>10,1</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>4,39</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,53</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>10,3</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,68</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | <b>4,24</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>4,16</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,97</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>5582</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>101</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,552</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>NA</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1661</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>NA</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             | 161107                  |            |     |

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



|                                       |  |                           |              |
|---------------------------------------|--|---------------------------|--------------|
| Model(s):                             | <b>CTC EcoPart 410 + CTC EcoZenith 550</b> |                           |              |
| Air-to-water heat pump:               | <b>No</b>                                  | Energy efficiency class:  | -            |
| Water-to-water heat pump:             | <b>No</b>                                  | Controller class:         | <b>VII</b> - |
| Brine-to-water heat pump:             | <b>Yes</b>                                 | Controller contribution:  | <b>3,5</b> % |
| Low-temperature heat pump:            | <b>No</b>                                  | Package efficiency:       | <b>132</b> % |
| Equipped with a supplementary heater: | <b>yes</b>                                 | Package efficiency class: | -            |
| Heat pump combination heater:         | <b>Yes</b>                                 |                           |              |

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

| Item  | Symbol                  | Value        | Unit | Item  | Symbol                   | Value       | Unit              |
|---|-------------------------|--------------|------|---|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>  | <i>Prated</i>           | <b>10</b>    | kW   | <b>Seasonal space heating energy efficiency</b>   | $\eta_s$                 | <b>128</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T 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>9,5</b>   | kW   | T j = - 7 °C  | <i>COPd</i>              | <b>3,30</b> | -                 |
| T j = + 2 °C  | <i>Pdh</i>              | <b>9,7</b>   | kW   | T j = +2 °C   | <i>COPd</i>              | <b>3,62</b> | -                 |
| T j = + 7 °C  | <i>Pdh</i>              | <b>9,8</b>   | kW   | T j = +7 °C   | <i>COPd</i>              | <b>3,90</b> | -                 |
| T j = + 12 °C   | <i>Pdh</i>              | <b>10,0</b>  | kW   | T j = +12 °C  | <i>COPd</i>              | <b>4,11</b> | -                 |
| T j = bivalent temperature  | <i>Pdh</i>              | <b>9,4</b>   | kW   | T j = bivalent temperature  | <i>COPd</i>              | <b>3,02</b> | -                 |
| T j = operation limit temperature   | <i>Pdh</i>              | <b>9,3</b>   | kW   | T j = operation limit temperature   | <i>COPd</i>              | <b>2,86</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<sub>biv</sub></i>  | <b>-18</b>   | °C   | For air-to-water heat pumps: Operation limit temperature  | <i>TOL</i>               | <b>na</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>Cdh</i>              | <b>0,99</b>  | -    | Heating water operating limit temperature   | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode   |                         |              |      | Supplementary heater  |                          |             |                   |
| Off mode  | <i>P<sub>OFF</sub></i>  | <b>0,018</b> | kW   | Rated heat output (*)   | <i>P<sub>sup</sub></i>   | <b>1,2</b>  | kW                |
| Thermostat-off mode   | <i>P<sub>TO</sub></i>   | <b>0,019</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors  | <i>L<sub>WA</sub></i>   | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger                                      | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption   | <i>Q<sub>HE</sub></i>   | <b>7618</b>  | kWh  |   |                          |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>101</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,552</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>NA</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1661</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>NA</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             |                         |            |     |

(\*) 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 Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC EcoZenith 550 |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | VII - |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 3,5 % |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 165 % |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                | <b>161</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                         |             |                   |
| T <sub>j</sub> = - 7 °C  | <i>P<sub>dh</sub></i>    | <b>10,1</b>  | kW   | T <sub>j</sub> = - 7 °C  | <i>COP<sub>d</sub></i>  | <b>4,42</b> | -                 |
| T <sub>j</sub> = + 2 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</b>  | kW   | T <sub>j</sub> = + 2 °C  | <i>COP<sub>d</sub></i>  | <b>4,54</b> | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | <b>10,2</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>10,2</b>  | kW   | T <sub>j</sub> = + 12 °C   | <i>COP<sub>d</sub></i>  | <b>4,66</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>  | <b>4,26</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>4,16</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>-18</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>              | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cy</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,97</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>             | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                         |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>  | <b>1,2</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                       | <b>2,3</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>6528</b>  | kWh  |  |                         |             |                   |

For heat pump combination heater:

|   |   |              |     |  |                         |            |     |
|---|---|--------------|-----|--|-------------------------|------------|-----|
| <b>Declared load profile/ Energy efficiency class</b> | <b>XL / A</b>   |              |     | <b>Water heating energy efficiency</b> | $\eta_{wh}$             | <b>101</b> | %   |
| Daily electricity consumption                         | <i>Q<sub>elec</sub></i>                                   | <b>7,552</b> | kWh | Daily fuel consumption                 | <i>Q<sub>fuel</sub></i> | <b>NA</b>  | kWh |
| Annual electricity consumption                        | <i>AEC</i>  | <b>1661</b>  | kWh | Annual fuel consumption                | <i>AFC</i>              | <b>NA</b>  | GJ  |
| Contact details                                       | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |     | www.ctc.se                             |                         |            |     |

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





**Warm climate and Medium temperature**

|                                       |  |                           |              |
|---------------------------------------|--|---------------------------|--------------|
| Model(s):                             | <b>CTC EcoPart 410 + CTC Basicstyrning</b> |                           |              |
| Air-to-water heat pump:               | <b>No</b>                                  | Energy efficiency class:  | -            |
| Water-to-water heat pump:             | <b>No</b>                                  | Controller class:         | <b>I</b> -   |
| Brine-to-water heat pump:             | <b>Yes</b>                                 | Controller contribution:  | <b>1</b> %   |
| Low-temperature heat pump:            | <b>No</b>                                  | Package efficiency:       | <b>138</b> % |
| Equipped with a supplementary heater: | <b>No</b>                                  | Package efficiency class: | -            |
| Heat pump combination heater:         | <b>No</b>                                  |                           |              |

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

| Item   | Symbol                   | Value        | Unit | Item   | Symbol                   | Value       | Unit              |
|--|--------------------------|--------------|------|--|--------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>10</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>137</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = - 7 °C  | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = - 7 °C  | <i>COP<sub>d</sub></i>   | <b>na</b>   | -                 |
| T <sub>j</sub> = + 2 °C  | <i>P<sub>dh</sub></i>    | <b>9,3</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,10</b> | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | <b>9,5</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>3,47</b> | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | <b>9,8</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,15</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | <b>9,3</b>   | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | <b>3,21</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>3</b>     | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>               | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |                          |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>0,8</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>3701</b>  | kWh  |  |                          |             |                   |

For heat pump combination heater:

|                                |   |           |     |  |                         |           |     |
|--------------------------------|---|-----------|-----|--|-------------------------|-----------|-----|
| <b>Declared load profile</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  |
| Contact details                | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |     | www.ctc.se                             | 170410                  |           |     |

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



**Warm climate and Low temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC Basicstyrning |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | -     |
| Water-to-water heat pump:             | No                                  | Controller class:         | I -   |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 1 %   |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 180 % |
| 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>11</b> | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>179</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>    | 10,0      | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | 4,60       | -                 |
| T <sub>j</sub> = + 7 °C  | <i>P<sub>dh</sub></i>    | 10,1      | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | 4,82       | -                 |
| T <sub>j</sub> = + 12 °C   | <i>P<sub>dh</sub></i>    | 10,2      | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | 5,10       | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>    | 10        | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>   | 4,67       | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | na        | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | na         | -                 |
| 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>               | na         | °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>              | 65         | °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>   | 0,8        | 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>    | 0,018     | 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   | -                        | na         | m <sup>3</sup> /h |
| Sound power level, indoors/ outdoors   | <i>L<sub>WA</sub></i>    | 49/na     | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | 2,3        | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | 3079      | kWh  |  |                          |            |                   |

For heat pump combination heater:

|                                |   |    |     |  |                         |    |     |
|--------------------------------|---|----|-----|--|-------------------------|----|-----|
| <b>Declared load profile</b>   | na  |    |     | <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  |
| Contact details                | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |    |     | www.ctc.se                             | 170410                  |    |     |

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

**Average climate and Medium temperature**

|                                       |                                     |                           |       |
|---------------------------------------|-------------------------------------|---------------------------|-------|
| Model(s):                             | CTC EcoPart 410 + CTC Basicstyrning |                           |       |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ - |
| Water-to-water heat pump:             | No                                  | Controller class:         | I -   |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 1 %   |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 139 % |
| 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>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>138</b>  | %                 |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |   |              |      | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub> |                          |             |                   |
| T <sub>j</sub> = -7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,4</b>   | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,28</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,5</b>   | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,66</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>9,7</b>   | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,03</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>9,9</b>   | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,41</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>3,28</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,99</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                          |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,3</b>  | kW                |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>                                     | <b>0,003</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>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   | -                        | <b>1,9</b>  | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>5999</b>  | kWh  |  |                          |             |                   |
| For heat pump combination heater:  |   |              |      |  |                          |             |                   |
| <b>Declared load profile</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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   | 170410                   |             |                   |

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



**Average climate and Low temperature**

|                                       |                                     |                           |        |
|---------------------------------------|-------------------------------------|---------------------------|--------|
| Model(s):                             | CTC EcoPart 410 + CTC Basicstyrning |                           |        |
| Air-to-water heat pump:               | No                                  | Energy efficiency class:  | A++ -  |
| Water-to-water heat pump:             | No                                  | Controller class:         | I -    |
| Brine-to-water heat pump:             | Yes                                 | Controller contribution:  | 1 %    |
| Low-temperature heat pump:            | No                                  | Package efficiency:       | 182 %  |
| 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>11</b>    | kW         | <b>Seasonal space heating energy efficiency</b>   | $\eta_s$      | <b>181</b>  | %    |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T 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>10,0</b>  | kW         | T j = - 7 °C  | <i>COPd</i>   | <b>4,69</b> | -    |
| T j = + 2 °C  | <i>Pdh</i>    | <b>10,1</b>  | kW         | T j = +2 °C   | <i>COPd</i>   | <b>4,88</b> | -    |
| T j = + 7 °C  | <i>Pdh</i>    | <b>10,2</b>  | kW         | T j = +7 °C   | <i>COPd</i>   | <b>5,05</b> | -    |
| T j = + 12 °C   | <i>Pdh</i>    | <b>10,3</b>  | kW         | T j = +12 °C  | <i>COPd</i>   | <b>5,22</b> | -    |
| T j = bivalent temperature  | <i>Pdh</i>    | <b>10,0</b>  | kW         | T j = bivalent temperature  | <i>COPd</i>   | <b>4,69</b> | -    |
| T j = operation limit temperature   | <i>Pdh</i>    | <b>na</b>    | kW         | T j = operation limit temperature   | <i>COPd</i>   | <b>na</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>-7</b>    | °C         | For air-to-water heat pumps: Operation limit temperature  | <i>TOL</i>    | <b>na</b>   | °C   |
| Cycling interval capacity for heating   | <i>P cych</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>65</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>0,014</b> | kW         | Type of energy input <b>Electric</b>  |               |             |      |
| Standby mode  | <i>P SB</i>   | <b>0,018</b> | kW         |   |               |             |      |
| Crankcase heater mode   | <i>P CK</i>   | <b>0,000</b> | kW         | For air-to-water heat pumps: Rated air flow rate, outdoors  |               |             |      |
| Other items   |               |              |            | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger                                      |               |             |      |
| Capacity control  | <b>Fixed</b>  |              |            | -   | <b>na</b>     | <b>m3/h</b> |      |
| Sound power level, indoors/ outdoors  | <i>L WA</i>   | <b>49/na</b> | <b>dB</b>  | -   | <b>2,3</b>    | <b>m3/h</b> |      |
| Annual energy consumption   | <i>Q HE</i>   | <b>4944</b>  | <b>kWh</b> |   |               |             |      |

For heat pump combination heater:

|                                |   |           |     |  |              |           |     |
|--------------------------------|---|-----------|-----|--|--------------|-----------|-----|
| <b>Declared load profile</b>   | <b>na</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  |
| Contact details                | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |     | www.ctc.se                             | 170410       |           |     |

(\*) 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.



|                                       |  |                           |              |
|---------------------------------------|--|---------------------------|--------------|
| Model(s):                             | <b>CTC EcoPart 410 + CTC Basicstyrning</b> |                           |              |
| Air-to-water heat pump:               | <b>No</b>                                  | Energy efficiency class:  | -            |
| Water-to-water heat pump:             | <b>No</b>                                  | Controller class:         | <b>I</b> -   |
| Brine-to-water heat pump:             | <b>Yes</b>                                 | Controller contribution:  | <b>1</b> %   |
| Low-temperature heat pump:            | <b>No</b>                                  | Package efficiency:       | <b>142</b> % |
| Equipped with a supplementary heater: | <b>No</b>                                  | Package efficiency class: | -            |
| Heat pump combination heater:         | <b>No</b>                                  |                           |              |

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

| Item   | Symbol                   | Value        | Unit       | Item   | Symbol                   | Value                  | Unit |
|--|--------------------------|--------------|------------|--|--------------------------|------------------------|------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i> | <b>10</b>    | kW         | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                 | <b>141</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>9,5</b>   | kW         | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>   | <b>3,58</b>            | -    |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>    | <b>9,7</b>   | kW         | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>   | <b>3,96</b>            | -    |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>    | <b>9,8</b>   | kW         | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>   | <b>4,29</b>            | -    |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>    | <b>10,0</b>  | kW         | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>   | <b>4,54</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>3,27</b>            | -    |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>    | <b>na</b>    | kW         | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>   | <b>na</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>-18</b>   | °C         | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>               | <b>na</b>              | °C   |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>  | <b>na</b>    | kW         | Cycling interval efficiency  | <i>COP<sub>cyc</sub></i> | <b>na</b>              | -    |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>    | <b>0,99</b>  | -          | Heating water operating limit temperature  | <i>WTOL</i>              | <b>65</b>              | °C   |
| Power consumption in modes other than active mode  |                          |              |            | Supplementary heater   |                          |                        |      |
| Off mode   | <i>P<sub>OFF</sub></i>   | <b>0,018</b> | kW         | Rated heat output (*)  | <i>P<sub>sup</sub></i>   | <b>1,2</b>             | kW   |
| Thermostat-off mode  | <i>P<sub>TO</sub></i>    | <b>0,003</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>na</b>                | <i>m<sup>3</sup>/h</i> |      |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>    | <b>49/na</b> | <i>dB</i>  | -  | <b>1,9</b>               | <i>m<sup>3</sup>/h</i> |      |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>    | <b>6939</b>  | <i>kWh</i> |  |                          |                        |      |

For heat pump combination heater:

|                                |   |           |     |  |                         |           |     |
|--------------------------------|---|-----------|-----|--|-------------------------|-----------|-----|
| <b>Declared load profile</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  |
| Contact details                | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |           |     | www.ctc.se                             |                         | 170410    |     |

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

**Cold climate and Low temperature**

|                                       |  |                           |              |
|---------------------------------------|--|---------------------------|--------------|
| Model(s):                             | <b>CTC EcoPart 410 + CTC Basicstyrning</b> |                           |              |
| Air-to-water heat pump:               | <b>No</b>                                  | Energy efficiency class:  | -            |
| Water-to-water heat pump:             | <b>No</b>                                  | Controller class:         | <b>I</b> -   |
| Brine-to-water heat pump:             | <b>Yes</b>                                 | Controller contribution:  | <b>1</b> %   |
| Low-temperature heat pump:            | <b>No</b>                                  | Package efficiency:       | <b>185</b> % |
| Equipped with a supplementary heater: | <b>No</b>                                  | Package efficiency class: | -            |
| Heat pump combination heater:         | <b>No</b>                                  |                           |              |

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

| Item   | Symbol  | Value        | Unit | Item   | Symbol                  | Value       | Unit              |
|--|---|--------------|------|--|-------------------------|-------------|-------------------|
| <b>Rated heat output (*)</b>   | <i>P<sub>rated</sub></i>                                  | <b>11</b>    | kW   | <b>Seasonal space heating energy efficiency</b>  | $\eta_s$                | <b>184</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>10,1</b>  | kW   | T <sub>j</sub> = -7 °C   | <i>COP<sub>d</sub></i>  | <b>4,89</b> | -                 |
| T <sub>j</sub> = +2 °C   | <i>P<sub>dh</sub></i>                                     | <b>10,2</b>  | kW   | T <sub>j</sub> = +2 °C   | <i>COP<sub>d</sub></i>  | <b>5,05</b> | -                 |
| T <sub>j</sub> = +7 °C   | <i>P<sub>dh</sub></i>                                     | <b>10,2</b>  | kW   | T <sub>j</sub> = +7 °C   | <i>COP<sub>d</sub></i>  | <b>5,16</b> | -                 |
| T <sub>j</sub> = +12 °C  | <i>P<sub>dh</sub></i>                                     | <b>10,2</b>  | kW   | T <sub>j</sub> = +12 °C  | <i>COP<sub>d</sub></i>  | <b>5,19</b> | -                 |
| T <sub>j</sub> = bivalent temperature  | <i>P<sub>dh</sub></i>                                     | <b>10,0</b>  | kW   | T <sub>j</sub> = bivalent temperature  | <i>COP<sub>d</sub></i>  | <b>4,66</b> | -                 |
| T <sub>j</sub> = operation limit temperature   | <i>P<sub>dh</sub></i>                                     | <b>na</b>    | kW   | T <sub>j</sub> = operation limit temperature   | <i>COP<sub>d</sub></i>  | <b>na</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>-20</b>   | °C   | For air-to-water heat pumps: Operation limit temperature   | <i>TOL</i>              | <b>na</b>   | °C                |
| Cycling interval capacity for heating  | <i>P<sub>cych</sub></i>                                   | <b>na</b>    | kW   | Cycling interval efficiency  | <i>COP<sub>cy</sub></i> | <b>na</b>   | -                 |
| Degradation co-efficient (**)  | <i>C<sub>dh</sub></i>                                     | <b>0,98</b>  | -    | Heating water operating limit temperature  | <i>WTOL</i>             | <b>65</b>   | °C                |
| Power consumption in modes other than active mode  |   |              |      | Supplementary heater   |                         |             |                   |
| Off mode   | <i>P<sub>OFF</sub></i>                                    | <b>0,018</b> | kW   | Rated heat output (*)  | <i>P<sub>sup</sub></i>  | <b>0,6</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>0,018</b> | kW   |  |                         |             |                   |
| Crankcase heater mode  | <i>P<sub>CK</sub></i>                                     | <b>0,000</b> | kW   | For air-to-water heat pumps: Rated air flow rate, outdoors   |                         |             |                   |
| Other items  |   |              |      | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger   |                         |             |                   |
| Capacity control   | <b>Fixed</b>  |              |      | -  | <b>na</b>               | <b>na</b>   | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors  | <i>L<sub>WA</sub></i>                                     | <b>49/na</b> | dB   | -  | <b>2,3</b>              | <b>na</b>   | m <sup>3</sup> /h |
| Annual energy consumption  | <i>Q<sub>HE</sub></i>                                     | <b>5414</b>  | kWh  |  |                         |             |                   |
| For heat pump combination heater:  |   |              |      |  |                         |             |                   |
| <b>Declared load profile</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                |
| Contact details  | Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000 |              |      | www.ctc.se   |                         | 170410      |                   |

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