Information for heat pump space heaters and heat pump combination heaters **Warm climate and Medium temperature**

CTC AB Ljungby



| Model(s): | CTC EcoHeat 406 | | | | |
|---------------------------------------|-----------------|---------------------------|-----|---|--|
| 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: | 123 | % | |
| Equipped with a supplementary heater: | Yes | Package efficiency class: | | - | |
| Heat numn combination heater: | Ves | | | | |

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 |
|--|--------------------|----------------|--------------|---|----------------------|---------------|----------------|
| Rated heat output (*) | Prated | 6 | kW | Seasonal space heating energy efficiency | $\eta_{\mathcal{S}}$ | 119 | % |
| Declared capacity for heating for | or part load at in | door temperatu | re 20 °C and | Declared coefficient of performar | nce or prima | ry energy rat | io for |
| outdoor temperature T j | | | | part load at indoor temperature 2 | 20 °C and ou | tdoor tempe | rature T |
| T j = -7 °C | Pdh | na | kW | T j = - 7 °C | COPd | na |] - |
| T j = + 2 °C | Pdh | 5,2 | kW | T j = +2 °C | COPd | 2,72 | 1 - |
| T j = + 7 °C | Pdh | 5,4 | kW | T j = +7 °C | COPd | 3,11 |] - |
| T j = + 12 °C | Pdh | 5,7 | kW | T j = +12 °C | COPd | 3,76 | - |
| T j = bivalent temperature | Pdh | 5,3 | kW | T j = bivalent temperature | COPd | 2,83 | - |
| T j = operation limit | Pdh | F 2 | kW | T j = operation limit | COPd | 2.72 | 1 |
| temperature | Pull | 5,2 | KVV | temperature | СОРИ | 2,72 | ļ ⁻ |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: $T j = -15 ^{\circ}C \text{ (if TOL } < -20 ^{\circ}C \text{)}$ | COPd | na | - |
| Bivalent temperature | T _{biv} | 3 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P _{cych} | na | kW | Cycling interval efficiency | СОРсус | na | _ |
| Degradation co-efficient | Cdh | 0,98 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes o | ther than active | mode | - | Supplementary heater | | | - |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 0,4 | kW |
| Thermostat-off mode | P _{TO} | 0,010 | kW | | | | |
| Standby mode | P_{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | | | _ | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 2382 | kWh | flow rate, outdoor heat exchanger | - | 1 | m3/h |
| For heat pump combination hea | ater: | | | | | | |
| Declared load profile / Energy efficiency class | | L/A | | Water heating energy efficiency | η_{wh} | 78 | % |
| Daily electricity consumption | Qelec | 5,985 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity | 20,00 | | - | | Qiuei | | |
| consumption | AEC | 1317 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information:

CTC AB Ljungby



| Warm climate and Low temperature | | | Ljungby | | CIC |
|---------------------------------------|-----------------|---------------------------|---------|---|-----|
| Model(s): | CTC EcoHeat 406 | | | | |
| 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: | 161 | % | |
| Equipped with a supplementary heater: | Yes | Package efficiency class: | | - | |
| Heat numn combination heater: | Ves | _ | | | |

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 |
|--|--------------------|----------------|--------------|---|----------------------|----------|------|
| Rated heat output (*) | Prated | 6 | kW | Seasonal space heating energy efficiency | $\eta_{\mathcal{S}}$ | 157 | % |
| Declared capacity for heating for outdoor temperature T j | or part load at in | door temperatu | re 20 °C and | Declared coefficient of performar part load at indoor temperature 2 | | | |
| T j = -7 °C | Pdh | na | kW | T j = - 7 °C | COPd | na |] - |
| T j = + 2 °C | Pdh | 5,9 | kW | T j = +2 °C | COPd | 4,23 | - |
| T j = + 7 °C | Pdh | 6,0 | kW | T j = +7 °C | COPd | 4,45 | - |
| T j = + 12 °C | Pdh | 6,2 | kW | T j = +12 °C | COPd | 4,71 | _ |
| T j = bivalent temperature | Pdh | 5,9 | kW | T j = bivalent temperature | COPd | 4,30 | - |
| T j = operation limit temperature | Pdh | 5,9 | kW | T j = operation limit temperature | COPd | 4,23 |] - |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C) | COPd | na | - |
| Bivalent temperature | T _{biv} | 3 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P _{cych} | na | kW | Cycling interval efficiency | СОРсус | na | _ |
| Degradation co-efficient | Cdh | 0,97 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes of | other than active | mode | _ | Supplementary heater | | | |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 0,5 | kW |
| Thermostat-off mode | P _{TO} | 0,027 | kW | [] | | • | • |
| Standby mode | P _{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | <u> </u> | | | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 2073 | kWh | flow rate, outdoor heat exchanger | - | 1,4 | m3/h |
| For heat pump combination he | ater: | | | | | | |
| Declared load profile / | | L/A | | Water heating energy | $\eta_{\sf wh}$ | 78 | % |
| Energy efficiency class | | -, | <u> </u> | efficiency | IWII | | · |
| Daily electricity consumption | Qelec | 5,977 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity consumption | AEC | 1315 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information:

CTC AB Ljungby



| Average climate and Medium temperature | | | Ljungby | | CIC |
|--|-----------------|---------------------------|---------|---|-----|
| Model(s): | CTC EcoHeat 406 | | | | |
| 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: | 130 | % | |
| Equipped with a supplementary heater: | Yes | Package efficiency class: | A++ | - | |
| Heat numn combination heater: | Vos | _ | - | | |

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 |
|--|--------------------|----------------|--------------|---|----------------------|----------|------|
| Rated heat output (*) | Prated | 6 | kW | Seasonal space heating energy efficiency | $\eta_{\mathcal{S}}$ | 126 | % |
| Declared capacity for heating for outdoor temperature T j | or part load at in | door temperatu | re 20 °C and | Declared coefficient of performar part load at indoor temperature 2 | | | |
| T j = - 7 °C | Pdh | 5,2 | kW | T j = - 7 °C | COPd | 2,84 |] - |
| T j = + 2 °C | Pdh | 5,5 | kW | T j = +2 °C | COPd | 3,56 |] - |
| T j = + 7 °C | Pdh | 5,4 | kW | T j = +7 °C | COPd | 3,75 |] - |
| T j = + 12 °C | Pdh | 5,2 | kW | T j = +12 °C | COPd | 3,66 | - |
| T j = bivalent temperature | Pdh | 5,2 | kW | T j = bivalent temperature | COPd | 2,84 | - |
| T j = operation limit temperature | Pdh | 5,2 | kW | T j = operation limit temperature | COPd | 2,78 | _ |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C) | COPd | na | - |
| Bivalent temperature | T _{biv} | -6 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P _{cych} | na | kW | Cycling interval efficiency | СОРсус | na | - |
| Degradation co-efficient | Cdh | 0,98 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes of | other than active | mode | _ | Supplementary heater | | | |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 1,1 | kW |
| Thermostat-off mode | P _{TO} | 0,018 | kW | [] | | • | - |
| Standby mode | P _{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | <u> </u> | | | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 3882 | kWh | flow rate, outdoor heat exchanger | - | 1 | m3/h |
| For heat pump combination he | ater: | | | | | | |
| Declared load profile / | | L/A | | Water heating energy | $\eta_{\sf wh}$ | 78 | % |
| Energy efficiency class | | <u> </u> | Ι | efficiency | | | - |
| Daily electricity consumption | Qelec | 5,985 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity consumption | AEC | 1317 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information:

CTC AB Ljungby



| Average climate and Low temperature | | | Ljungby | 1 | CIC |
|---------------------------------------|-----------------|---------------------------|---------|---|-----|
| Model(s): | CTC EcoHeat 406 | | | | |
| 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: | 166 | % | |
| Equipped with a supplementary heater: | Yes | Package efficiency class: | A++ | - | |
| Heat nump combination heater: | Ves | _ | | | |

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 |
|--|--------------------|----------------|--------------|---|----------------------|----------|------|
| Rated heat output (*) | Prated | 7 | kW | Seasonal space heating energy efficiency | $\eta_{\mathcal{S}}$ | 162 | % |
| Declared capacity for heating for outdoor temperature T j | or part load at in | door temperatu | re 20 °C and | Declared coefficient of performal part load at indoor temperature 2 | • | | |
| T j = -7 °C | Pdh | 6,0 | kW | T j = - 7 °C | COPd | 4,32 |] - |
| T j = + 2 °C | Pdh | 6,0 | kW | T j = +2 °C | COPd | 4,50 |] - |
| T j = + 7 °C | Pdh | 6,1 | kW | T j = +7 °C | COPd | 4,66 | - |
| T j = + 12 °C | Pdh | 6,2 | kW | T j = +12 °C | COPd | 4,83 | - |
| T j = bivalent temperature | Pdh | 6,0 | kW | T j = bivalent temperature | COPd | 4,32 | - |
| T j = operation limit temperature | Pdh | 5,9 | kW | T j = operation limit temperature | COPd | 4,23 | - |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C) | COPd | na | - |
| Bivalent temperature | T _{biv} | -7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P _{cych} | na | kW | Cycling interval efficiency | СОРсус | na | - |
| Degradation co-efficient | Cdh | 0,97 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes of | ther than active | mode | _ | Supplementary heater | | | |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 0,8 | kW |
| Thermostat-off mode | P _{TO} | 0,027 | kW | | | | |
| Standby mode | P _{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | | • | • | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 3281 | kWh | flow rate, outdoor heat exchanger | - | 1,4 | m3/h |
| For heat pump combination hea | ater: | | | | | | |
| Declared load profile / | | L/A | | Water heating energy | η_{wh} | 78 | % |
| Energy efficiency class | | 1 | Ī | efficiency | | ,,, | |
| Daily electricity consumption | Qelec | 5,985 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity consumption | AEC | 1317 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information:

Information for heat pump space heaters and heat pump combination heaters **Cold climate and Medium temperature**

CTC AB Ljungby



| Model(s): | CTC EcoHeat 406 | | | |
|---------------------------------------|-----------------|---------------------------|-----|---|
| 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 numn combination heater: | Ves | | | |

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 |
|--|--------------------|----------------|---------------|--|----------------------|---------------|----------------|
| Rated heat output (*) | Prated | 6 | kW | Seasonal space heating energy efficiency | $\eta_{\mathcal{S}}$ | 124 | % |
| Declared capacity for heating for | or part load at in | door temperatu | ire 20 °C and | Declared coefficient of performar | nce or prima | ry energy rat | io for |
| outdoor temperature T j | | | | part load at indoor temperature 2 | 20 °C and ou | tdoor tempe | rature T |
| T j = -7 °C | Pdh | 5,4 | kW | T j = - 7 °C | COPd | 3,23 |] - |
| T j = + 2 °C | Pdh | 5,6 | kW | T j = +2 °C | COPd | 3,59 | 1 - |
| T j = + 7 °C | Pdh | 5,7 | kW | T j = +7 °C | COPd | 3,91 |] - |
| T j = + 12 °C | Pdh | 5,9 | kW | T j = +12 °C | COPd | 4,14 | - |
| T j = bivalent temperature | Pdh | 5,3 | kW | T j = bivalent temperature | COPd | 2,94 | - |
| T j = operation limit | Ddh | F 2 | kW | T j = operation limit | CODA | 2.72 | 1 |
| temperature | Pdh | 5,2 | KVV | temperature | COPd | 2,72 | ļ ⁻ |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | COPd | na | - |
| Bivalent temperature | T _{biv} | -17 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P _{cych} | na | kW | Cycling interval efficiency | СОРсус | na | _ |
| Degradation co-efficient | Cdh | 0,98 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes o | ther than active | mode | _ | Supplementary heater | | | - |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 0,9 | kW |
| Thermostat-off mode | P _{TO} | 0,010 | kW | | | | |
| Standby mode | P_{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 4560 | kWh | flow rate, outdoor heat exchanger | - | 1 | m3/h |
| For heat pump combination hea | ater: | | | | | | |
| Declared load profile / Energy efficiency class | | L/A | | Water heating energy | η_{wh} | 78 | % |
| Daily electricity consumption | Qelec | 5,985 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity | QCICC | 3,303 | - | 2 sily raci consumption | Qiuei | | - ````' |
| consumption | AEC | 1317 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information:

CTC AB Ljungby



| Cold climate and Low temperature | | | Ljungby | | CIC |
|---------------------------------------|-----------------|---------------------------|---------|----|-----|
| Model(s): | CTC EcoHeat 406 | | | | |
| 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: | 168 | % | |
| Equipped with a supplementary heater: | Yes | Package efficiency class: | | -1 | |
| Heat numn combination heater: | Ves | | | | |

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 |
|--|--------------------|----------------|---------------|--|--------------|-------------|------------|
| Rated heat output (*) | Prated | 7 | kW | Seasonal space heating energy efficiency | η_{s} | 164 | % |
| Declared capacity for heating for | or part load at in | door temperatu | ure 20 °C and | Declared coefficient of performar | | | |
| outdoor temperature T j | | | | part load at indoor temperature 2 | 20 °C and ou | tdoor tempe | rature T j |
| Tj=-7°C | Pdh | 6,1 | kW | T j = - 7 °C | COPd | 4,52 |] - |
| T j = + 2 °C | Pdh | 6,1 | kW | T j = +2 °C | COPd | 4,66 |] - |
| T j = + 7 °C | Pdh | 6,2 | kW | T j = +7 °C | COPd | 4,78 | - |
| T j = + 12 °C | Pdh | 6,2 | kW | T j = +12 °C | COPd | 4,80 | - |
| T j = bivalent temperature | Pdh | 6,0 | kW | T j = bivalent temperature | COPd | 4,32 | - |
| T j = operation limit | Pdh | 5,9 | kW | T j = operation limit | COPd | 4,23 | 1 _ |
| temperature | | -,- | 4 | temperature | | , | - |
| For air-to-water heat pumps: T j = -15 °C (if TOL < -20 °C) | Pdh | na | kW | For air-to-water heat pumps: T j = - 15 °C (if TOL < - 20 °C) | COPd | na | - |
| Bivalent temperature | T _{biv} | -19 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | na | °C |
| Cycling interval capacity for heating | P cych | na | kW | Cycling interval efficiency | СОРсус | na | _ |
| Degradation co-efficient | Cdh | 0,97 | - | Heating water operating limit temperature | WTOL | 65 | °C |
| Power consumption in modes of | other than active | mode | | Supplementary heater | | | |
| Off mode | P OFF | 0,018 | kW | Rated heat output (*) | Psup | 0,6 | kW |
| Thermostat-off mode | P _{TO} | 0,027 | kW | [] | | | |
| Standby mode | P_{SB} | 0,018 | kW | Type of energy input | | Electric | |
| Crankcase heater mode | P _{CK} | 0,000 | kW | | | | |
| Other items | | ! | | | | | |
| Capacity control | | Fixed | | For air-to-water heat pumps: Rated air flow rate, outdoors | - | na | m3/h |
| Sound power level, indoors/ outdoors | L _{WA} | 43/na | dB | For water-/brine-to-water heat pumps: Rated brine or water | | | |
| Annual energy consumption | Q _{HE} | 3709 | kWh | flow rate, outdoor heat exchanger | - | 1,4 | m3/h |
| For heat pump combination he | ater: | - | | | | - | |
| Declared load profile / | | L/A | | Water heating energy | η_{wh} | 78 | % |
| Energy efficiency class | | -/ ^ | 1 | efficiency | ' Iwh | 70 | /° |
| Daily electricity consumption | Qelec | 5,985 | kWh | Daily fuel consumption | Qfuel | na | kWh |
| Annual electricity consumption | AEC | 1317 | kWh | Annual fuel consumption | AFC | na | GJ |

Specific precautions and end of life information: