

Average climate and High temperature

Model(s):	CTC EcoHeat 412
Air-to-water heat pump:	No
Water-to-water heat pump:	No
Brine-to-water heat pump:	Yes
Low-temperature heat pump:	No
Equipped with a supplementary heater:	No
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
Rated heat output (*)	<i>Prated</i>	13	kW	Seasonal space heating energy efficiency	η_s	123	%
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>P_{dh}</i>	11,1	kW	T _j = -7 °C	<i>COP_d</i>	2,97	-
T _j = +2 °C	<i>P_{dh}</i>	11,5	kW	T _j = +2 °C	<i>COP_d</i>	3,32	-
T _j = +7 °C	<i>P_{dh}</i>	11,6	kW	T _j = +7 °C	<i>COP_d</i>	3,63	-
T _j = +12 °C	<i>P_{dh}</i>	11,8	kW	T _j = +12 °C	<i>COP_d</i>	3,94	-
T _j = bivalent temperature	<i>P_{dh}</i>	11,2	kW	T _j = bivalent temperature	<i>COP_d</i>	3,02	-
T _j = operation limit temperature	<i>P_{dh}</i>	10,9	kW	T _j = operation limit temperature	<i>COP_d</i>	2,81	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-6	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	na	°C
Cycling interval capacity for heating	<i>P_{cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</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_{OFF}</i>	0,018	kW	Rated heat output (*)	<i>P_{sup}</i>	2,2	kW
Thermostat-off mode	<i>P_{TO}</i>	0,034	kW	Type of energy input	Electric		
Standby mode	<i>P_{SB}</i>	0,018	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P_{CK}</i>	0,000	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	Fixed			-	na	2,1	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	50/na	dB	-			
Annual energy consumption	<i>Q_{HE}</i>	8476	kWh				
For heat pump combination heater:				For heat pump combination heater:			
Declared load profile	L			Water heating energy efficiency	η_{wh}	86	%
Daily electricity consumption	<i>Q_{elec}</i>	5,434	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	na	kWh
Annual electricity consumption	<i>AEC</i>	1195	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 *Prated* is equal to the design load for heating *P_{designh}*, and the rated heat output of a supplementary heater *P_{sup}* is equal to the supplementary capacity for heating *sup(T_j)*. (***) If *C_{dh}* is not determined by measurement then the default degradation coefficient is *C_{dh}* = 0,9.

Average climate and Low temperature

Model(s):	CTC EcoHeat 412
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Brine-to-water heat pump:	Yes
Low-temperature heat pump:	No
Equipped with a supplementary heater:	No
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
Rated heat output (*)	<i>Prated</i>	14	kW	Seasonal space heating energy efficiency	η_s	155	%
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>P_{dh}</i>	11,9	kW	T _j = -7 °C	<i>COP_d</i>	4,19	-
T _j = +2 °C	<i>P_{dh}</i>	12,0	kW	T _j = +2 °C	<i>COP_d</i>	4,36	-
T _j = +7 °C	<i>P_{dh}</i>	12,1	kW	T _j = +7 °C	<i>COP_d</i>	4,50	-
T _j = +12 °C	<i>P_{dh}</i>	12,2	kW	T _j = +12 °C	<i>COP_d</i>	4,64	-
T _j = bivalent temperature	<i>P_{dh}</i>	11,9	kW	T _j = bivalent temperature	<i>COP_d</i>	4,21	-
T _j = operation limit temperature	<i>P_{dh}</i>	11,9	kW	T _j = operation limit temperature	<i>COP_d</i>	4,11	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-6	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	na	°C
Cycling interval capacity for heating	<i>P_{cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,95	-	Heating water operating limit temperature	<i>WTOL</i>	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	<i>P_{OFF}</i>	0,018	kW	Rated heat output (*)	<i>P_{sup}</i>	2,2	kW
Thermostat-off mode	<i>P_{TO}</i>	0,110	kW	Type of energy input	Electric		
Standby mode	<i>P_{SB}</i>	0,018	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P_{CK}</i>	0,000	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	Fixed			-	na	na	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	50/na	dB	-	2,6	2,6	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	7153	kWh	For heat pump combination heater:			
Declared load profile				L			
Daily electricity consumption	<i>Q_{elec}</i>	5,434	kWh	Water heating energy efficiency	η_{wh}	86	%
Annual electricity consumption	<i>AEC</i>	1195	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	na	kWh
Contact details				Annual fuel consumption			
Enertech AB, Box 309, SE-341 26 Ljungby Tel +46 372 88000				<i>AFC</i>			
www.ctc.se				na			
				GJ			

(**) For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* 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.