

Warm climate and High temperature

Model(s):	CTC EcoPart 412 + 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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	137	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	13,6	kW	T j = +2 °C	COPd	3,08	-
T j = + 7 °C	Pdh	11,1	kW	T j = +7 °C	COPd	3,45	-
T j = + 12 °C	Pdh	11,5	kW	T j = +12 °C	COPd	4,14	-
T j = bivalent temperature	Pdh	11	kW	T j = bivalent temperature	COPd	3,18	-
T j = operation limit temperature	Pdh	na	kW	T j = operation limit temperature	COPd	na	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes 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	0,005	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	4364	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and Low temperature

Model(s):	CTC EcoPart 412 + 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:	184 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	180	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	11,8	kW	T j = +2 °C	COPd	4,60	-
T j = + 7 °C	Pdh	11,9	kW	T j = +7 °C	COPd	4,83	-
T j = + 12 °C	Pdh	12,0	kW	T j = +12 °C	COPd	5,11	-
T j = bivalent temperature	Pdh	11,8	kW	T j = bivalent temperature	COPd	4,68	-
T j = operation limit temperature	Pdh	na	kW	T j = operation limit temperature	COPd	na	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,98	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	0,9	kW
Thermostat-off mode	P TO	0,022	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	Q HE	3618	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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
Rated heat output (*)	<i>Prated</i>	12	kW	Seasonal space heating energy efficiency	η_s	138	%
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>	11	kW	T j = − 7 °C	<i>COPd</i>	3,25	-
T j = + 2 °C	<i>Pdh</i>	11,2	kW	T j = +2 °C	<i>COPd</i>	3,64	-
T j = + 7 °C	<i>Pdh</i>	11,4	kW	T j = +7 °C	<i>COPd</i>	4,02	-
T j = + 12 °C	<i>Pdh</i>	11,6	kW	T j = +12 °C	<i>COPd</i>	4,40	-
T j = bivalent temperature	<i>Pdh</i>	11	kW	T j = bivalent temperature	<i>COPd</i>	3,25	-
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 biv</i>	-7	°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>COPcyc</i>	na	-
Degradation co-efficient (**)	<i>Cdh</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>Psup</i>	1,5	kW
Thermostat-off mode	<i>P TO</i>	0,005	kW	Type of energy input	Electric		
Standby mode	<i>P SB</i>	0,018	kW				
Crankcase heater mode	<i>P CK</i>	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	<i>L WA</i>	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	<i>Q HE</i>	7084	kWh				
For heat pump combination heater:							
Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	Qelec	na	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	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 *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 Low temperature

Model(s):	CTC EcoPart 412 + 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:	186 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	182	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = − 7 °C	Pdh	11,8	kW	Tj = − 7 °C	COPd	4,69	-
Tj = + 2 °C	Pdh	11,9	kW	Tj = +2 °C	COPd	4,88	-
Tj = + 7 °C	Pdh	12,0	kW	Tj = +7 °C	COPd	5,06	-
Tj = + 12 °C	Pdh	12,1	kW	Tj = +12 °C	COPd	5,23	-
Tj = bivalent temperature	Pdh	11,8	kW	Tj = bivalent temperature	COPd	4,69	-
Tj = operation limit temperature	Pdh	na	kW	Tj = operation limit temperature	COPd	na	-
For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	Pdh	na	kW	For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	COPd	na	-
Bivalent temperature	Tbiv	-7	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcych	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,98	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,018	kW	Rated heat output (*)	Psup	1,6	kW
Thermostat-off mode	Pto	0,022	kW	Type of energy input	Electric		
Standby mode	PSB	0,018	kW				
Crankcase heater mode	PCK	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	5814	kWh				
For heat pump combination heater:							
Declared load profile	na			Water heating energy efficiency	ηwh	na	%
Daily electricity consumption	Qelec	na	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	141	%
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	Pdh	11,2	kW	T j = − 7 °C	COPd	3,56	-
T j = + 2 °C	Pdh	11,4	kW	T j = +2 °C	COPd	3,94	-
T j = + 7 °C	Pdh	11,6	kW	T j = +7 °C	COPd	4,29	-
T j = + 12 °C	Pdh	11,7	kW	T j = +12 °C	COPd	4,54	-
T j = bivalent temperature	Pdh	11	kW	T j = bivalent temperature	COPd	3,25	-
T j = operation limit temperature	Pdh	na	kW	T j = operation limit temperature	COPd	na	-
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	-18	°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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	1,4	kW
Thermostat-off mode	P TO	0,005	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	8195	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *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 412 + 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:	189 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
Heat pump combination heater:	No		

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

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	185	%
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	Pdh	11,9	kW	T j = − 7 °C	COPd	4,89	-
T j = + 2 °C	Pdh	12,0	kW	T j = +2 °C	COPd	5,06	-
T j = + 7 °C	Pdh	12,1	kW	T j = +7 °C	COPd	5,18	-
T j = + 12 °C	Pdh	12,1	kW	T j = +12 °C	COPd	5,20	-
T j = bivalent temperature	Pdh	11,8	kW	T j = bivalent temperature	COPd	4,66	-
T j = operation limit temperature	Pdh	na	kW	T j = operation limit temperature	COPd	na	-
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	Tbiv	-20	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcych	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,98	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,018	kW	Rated heat output (*)	Psup	0,7	kW
Thermostat-off mode	Pto	0,022	kW	Type of energy input	Electric		
Standby mode	Psb	0,018	kW				
Crankcase heater mode	Pck	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	6373	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	na	kWh
Annual electricity consumption	<i>AEC</i>	na	kWh	Annual fuel consumption	<i>AFC</i>	na	GJ
Contact details	Eneritech 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(Tj)*. (**) If *C_{dh}* is not determined by measurement then the default degradation coefficient is *C_{dh}* = 0,9.

Warm climate and High temperature

Model(s):	CTC EcoPart 412 + 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:	126 %
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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	122	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	10,9	kW	T j = +2 °C	COPd	2,81	-
T j = + 7 °C	Pdh	11,3	kW	T j = +7 °C	COPd	3,14	-
T j = + 12 °C	Pdh	11,7	kW	T j = +12 °C	COPd	3,72	-
T j = bivalent temperature	Pdh	11,0	kW	T j = bivalent temperature	COPd	2,90	-
T j = operation limit temperature	Pdh	10,9	kW	T j = operation limit temperature	COPd	2,81	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	1,3	kW
Thermostat-off mode	P TO	0,034	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	4905	kWh				

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 *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and Low temperature

Model(s):	CTC EcoPart 412 + 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:	154 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	150	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	11,9	kW	T j = +2 °C	COPd	4,11	-
T j = + 7 °C	Pdh	12,0	kW	T j = +7 °C	COPd	4,30	-
T j = + 12 °C	Pdh	12,1	kW	T j = +12 °C	COPd	4,54	-
T j = bivalent temperature	Pdh	11,9	kW	T j = bivalent temperature	COPd	4,17	-
T j = operation limit temperature	Pdh	11,9	kW	T j = operation limit temperature	COPd	4,11	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,95	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	0,9	kW
Thermostat-off mode	P TO	0,110	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	Q HE	4331	kWh				

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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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:	127 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	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	Pdh	11,1	kW	T j = − 7 °C	COPd	2,97	-
T j = + 2 °C	Pdh	11,5	kW	T j = +2 °C	COPd	3,32	-
T j = + 7 °C	Pdh	11,6	kW	T j = +7 °C	COPd	3,63	-
T j = + 12 °C	Pdh	11,8	kW	T j = +12 °C	COPd	3,94	-
T j = bivalent temperature	Pdh	11,2	kW	T j = bivalent temperature	COPd	3,02	-
T j = operation limit temperature	Pdh	10,9	kW	T j = operation limit temperature	COPd	2,81	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	2,2	kW
Thermostat-off mode	P TO	0,034	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	8476	kWh				

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 *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 Low temperature

Model(s):	CTC EcoPart 412 + 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:	159 %
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
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>Pdh</i>	11,9	kW	T j = − 7 °C	<i>COPd</i>	4,19	-
T j = + 2 °C	<i>Pdh</i>	12,0	kW	T j = +2 °C	<i>COPd</i>	4,36	-
T j = + 7 °C	<i>Pdh</i>	12,1	kW	T j = +7 °C	<i>COPd</i>	4,50	-
T j = + 12 °C	<i>Pdh</i>	12,2	kW	T j = +12 °C	<i>COPd</i>	4,64	-
T j = bivalent temperature	<i>Pdh</i>	11,9	kW	T j = bivalent temperature	<i>COPd</i>	4,21	-
T j = operation limit temperature	<i>Pdh</i>	11,9	kW	T j = operation limit temperature	<i>COPd</i>	4,11	-
For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>Pdh</i>	na	kW	For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>COPd</i>	na	-
Bivalent temperature	<i>T biv</i>	-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>COPcyc</i>	na	-
Degradation co-efficient (**)	<i>Cdh</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	<i>kW</i>	Rated heat output (*)	<i>Psup</i>	2,2	kW
Thermostat-off mode	<i>P TO</i>	0,110	<i>kW</i>	Type of energy input	Electric		
Standby mode	<i>P SB</i>	0,018	<i>kW</i>				
Crankcase heater mode	<i>P CK</i>	0,000	<i>kW</i>				
Other items							
Capacity control	Fixed			For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	<i>m3/h</i>
Sound power level, indoors/ outdoors	<i>L WA</i>	50/na	<i>dB</i>	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	<i>m3/h</i>
Annual energy consumption	<i>Q HE</i>	7153	<i>kWh</i>				
For heat pump combination heater:							
Declared load profile	L			Water heating energy efficiency	η_{wh}	86	%
Daily electricity consumption	Qelec	5,434	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	1195	kWh	Annual fuel consumption	AFC	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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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:	129 %
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
Rated heat output (*)	<i>Prated</i>	13	kW	Seasonal space heating energy efficiency	η_s	125	%
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>	11,4	kW	T j = − 7 °C	<i>COPd</i>	3,24	-
T j = + 2 °C	<i>Pdh</i>	11,6	kW	T j = +2 °C	<i>COPd</i>	3,56	-
T j = + 7 °C	<i>Pdh</i>	11,8	kW	T j = +7 °C	<i>COPd</i>	3,85	-
T j = + 12 °C	<i>Pdh</i>	11,9	kW	T j = +12 °C	<i>COPd</i>	4,06	-
T j = bivalent temperature	<i>Pdh</i>	11,1	kW	T j = bivalent temperature	<i>COPd</i>	3,00	-
T j = operation limit temperature	<i>Pdh</i>	10,9	kW	T j = operation limit temperature	<i>COPd</i>	2,81	-
For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>Pdh</i>	na	kW	For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>COPd</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-17	°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>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_{OFF}</i>	0,018	kW	Rated heat output (*)	<i>P_{sup}</i>	1,9	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				
Crankcase heater mode	<i>P_{CK}</i>	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	<i>L_{WA}</i>	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	<i>Q_{HE}</i>	9526	kWh				

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 *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 412 + 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:	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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	156	%
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	Pdh	12,0	kW	T j = − 7 °C	COPd	4,37	-
T j = + 2 °C	Pdh	12,1	kW	T j = +2 °C	COPd	4,50	-
T j = + 7 °C	Pdh	12,1	kW	T j = +7 °C	COPd	4,60	-
T j = + 12 °C	Pdh	12,2	kW	T j = +12 °C	COPd	4,62	-
T j = bivalent temperature	Pdh	11,9	kW	T j = bivalent temperature	COPd	4,21	-
T j = operation limit temperature	Pdh	11,9	kW	T j = operation limit temperature	COPd	4,11	-
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	Tbiv	-18	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcych	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,95	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,018	kW	Rated heat output (*)	Psup	1,5	kW
Thermostat-off mode	Pto	0,110	kW	Type of energy input	Electric		
Standby mode	PSB	0,018	kW				
Crankcase heater mode	PCK	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	8028	kWh				

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 *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and High temperature

Model(s):	CTC EcoPart 412 + 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:	126 %
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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	122	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	10,9	kW	T j = +2 °C	COPd	2,81	-
T j = + 7 °C	Pdh	11,3	kW	T j = +7 °C	COPd	3,14	-
T j = + 12 °C	Pdh	11,7	kW	T j = +12 °C	COPd	3,72	-
T j = bivalent temperature	Pdh	11,0	kW	T j = bivalent temperature	COPd	2,90	-
T j = operation limit temperature	Pdh	10,9	kW	T j = operation limit temperature	COPd	2,81	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	0,9	kW
Thermostat-off mode	P TO	0,025	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	4879	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and Low temperature

Model(s):	CTC EcoPart 412 + 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:	158 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	154	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	11,9	kW	T j = +2 °C	COPd	4,11	-
T j = + 7 °C	Pdh	12,0	kW	T j = +7 °C	COPd	4,30	-
T j = + 12 °C	Pdh	12,1	kW	T j = +12 °C	COPd	4,54	-
T j = bivalent temperature	Pdh	11,9	kW	T j = bivalent temperature	COPd	4,17	-
T j = operation limit temperature	Pdh	11,9	kW	T j = operation limit temperature	COPd	4,11	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,97	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	0,9	kW
Thermostat-off mode	P TO	0,073	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	Q HE	4228	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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:	127	%
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	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	Pdh	11,1	kW	T j = − 7 °C	COPd	2,97	-
T j = + 2 °C	Pdh	11,5	kW	T j = +2 °C	COPd	3,32	-
T j = + 7 °C	Pdh	11,6	kW	T j = +7 °C	COPd	3,63	-
T j = + 12 °C	Pdh	11,8	kW	T j = +12 °C	COPd	3,94	-
T j = bivalent temperature	Pdh	11,2	kW	T j = bivalent temperature	COPd	3,02	-
T j = operation limit temperature	Pdh	10,9	kW	T j = operation limit temperature	COPd	2,81	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,018	kW	Rated heat output (*)	Psup	2,3	kW
Thermostat-off mode	P TO	0,025	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	Q HE	7388	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *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 Low temperature

Model(s):	CTC EcoPart 412 + 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:	162 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	158	%
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	Pdh	11,9	kW	T j = − 7 °C	COPd	4,19	-
T j = + 2 °C	Pdh	12,0	kW	T j = +2 °C	COPd	4,34	-
T j = + 7 °C	Pdh	12,1	kW	T j = +7 °C	COPd	4,49	-
T j = + 12 °C	Pdh	12,2	kW	T j = +12 °C	COPd	4,64	-
T j = bivalent temperature	Pdh	11,9	kW	T j = bivalent temperature	COPd	4,19	-
T j = operation limit temperature	Pdh	11,9	kW	T j = operation limit temperature	COPd	4,11	-
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	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,97	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P OFF	0,002	kW	Rated heat output (*)	Psup	1,6	kW
Thermostat-off mode	P TO	0,073	kW	Type of energy input	Electric		
Standby mode	P SB	0,018	kW				
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	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	Q HE	6728	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *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 High temperature

Model(s):	CTC EcoPart 412 + 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:	129 %
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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	125	%
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	Pdh	11,4	kW	T j = − 7 °C	COPd	3,23	-
T j = + 2 °C	Pdh	11,6	kW	T j = +2 °C	COPd	3,55	-
T j = + 7 °C	Pdh	11,7	kW	T j = +7 °C	COPd	3,84	-
T j = + 12 °C	Pdh	11,9	kW	T j = +12 °C	COPd	4,05	-
T j = bivalent temperature	Pdh	11,1	kW	T j = bivalent temperature	COPd	2,96	-
T j = operation limit temperature	Pdh	10,9	kW	T j = operation limit temperature	COPd	2,81	-
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	Tbiv	-18	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcyh	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,018	kW	Rated heat output (*)	Psup	1,5	kW
Thermostat-off mode	Pto	0,025	kW	Type of energy input	Electric		
Standby mode	Psb	0,018	kW				
Crankcase heater mode	Pck	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,1	m3/h
Annual energy consumption	QHE	9177	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *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 412 + 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:	163 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	159	%
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	Pdh	12,0	kW	T j = − 7 °C	COPd	4,37	-
T j = + 2 °C	Pdh	12,1	kW	T j = +2 °C	COPd	4,50	-
T j = + 7 °C	Pdh	12,1	kW	T j = +7 °C	COPd	4,60	-
T j = + 12 °C	Pdh	12,2	kW	T j = +12 °C	COPd	4,62	-
T j = bivalent temperature	Pdh	11,9	kW	T j = bivalent temperature	COPd	4,21	-
T j = operation limit temperature	Pdh	11,9	kW	T j = operation limit temperature	COPd	4,11	-
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	Tbiv	-18	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcyh	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,97	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,018	kW	Rated heat output (*)	Psup	1,5	kW
Thermostat-off mode	Pto	0,073	kW	Type of energy input	Electric		
Standby mode	PSB	0,018	kW				
Crankcase heater mode	PCK	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	7875	kWh				

For heat pump combination heater:

Declared load profile	XL			Water heating energy efficiency	η_{wh}	100	%
Daily electricity consumption	<i>Q_{elec}</i>	7,620	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1676	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 *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and High temperature

Model(s):	CTC EcoPart 412 + CTC Eco Basic		
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:	106 %
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
Rated heat output (*)				Seasonal space heating energy efficiency			
	<i>Prated</i>	12	kW		η_s	105	%
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>	11,0	kW	T j = +2 °C	<i>COPd</i>	3,08	-
T j = + 7 °C	<i>Pdh</i>	10,9	kW	T j = +7 °C	<i>COPd</i>	2,94	-
T j = + 12 °C	<i>Pdh</i>	10,8	kW	T j = +12 °C	<i>COPd</i>	2,77	-
T j = bivalent temperature	<i>Pdh</i>	11	kW	T j = bivalent temperature	<i>COPd</i>	3,08	-
T j = operation limit temperature	<i>Pdh</i>	11	kW	T j = operation limit temperature	<i>COPd</i>	3,08	-
For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>Pdh</i>	na	kW	For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>COPd</i>	na	-
Bivalent temperature	<i>T biv</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	na	°C
Cycling interval capacity for heating	<i>P cych</i>	na	kW	Cycling interval efficiency	<i>COPcyc</i>	na	-
Degradation co-efficient (**)	<i>Cdh</i>	1	-	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>	0,007	kW	Rated heat output (*)	<i>Psup</i>	0,8	kW
Thermostat-off mode	<i>P TO</i>	0,005	kW	Type of energy input	Electric		
Standby mode	<i>P SB</i>	0,007	kW				
Crankcase heater mode	<i>P CK</i>	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	<i>L WA</i>	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,2	m3/h
Annual energy consumption	<i>Q HE</i>	5597	kWh				
For heat pump combination heater:							
Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	Qelec	na	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	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 *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*. (**) If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Warm climate and Low temperature

Model(s):	CTC EcoPart 412 + CTC Eco Basic		
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:	163 %
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	162	%
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	Pdh	na	kW	T j = − 7 °C	COPd	na	-
T j = + 2 °C	Pdh	11,8	kW	T j = +2 °C	COPd	4,60	-
T j = + 7 °C	Pdh	11,7	kW	T j = +7 °C	COPd	4,46	-
T j = + 12 °C	Pdh	11,6	kW	T j = +12 °C	COPd	4,28	-
T j = bivalent temperature	Pdh	11,8	kW	T j = bivalent temperature	COPd	4,60	-
T j = operation limit temperature	Pdh	11,8	kW	T j = operation limit temperature	COPd	4,60	-
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	Tbiv	4,6	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcyh	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,007	kW	Rated heat output (*)	Psup	0,9	kW
Thermostat-off mode	Pto	0,022	kW	Type of energy input	Electric		
Standby mode	Psb	0,007	kW				
Crankcase heater mode	Pck	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	3984	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *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 High temperature

Model(s):	CTC EcoPart 412 + CTC Eco Basic		
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:	107 %
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
Rated heat output (*)				Seasonal space heating energy efficiency			
	<i>Prated</i>	13	kW		η_s	106	%
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>	11,0	kW	T j = − 7 °C	<i>COPd</i>	3,08	-
T j = + 2 °C	<i>Pdh</i>	10,9	kW	T j = +2 °C	<i>COPd</i>	2,91	-
T j = + 7 °C	<i>Pdh</i>	10,8	kW	T j = +7 °C	<i>COPd</i>	2,81	-
T j = + 12 °C	<i>Pdh</i>	10,8	kW	T j = +12 °C	<i>COPd</i>	2,71	-
T j = bivalent temperature	<i>Pdh</i>	11,0	kW	T j = bivalent temperature	<i>COPd</i>	3,08	-
T j = operation limit temperature	<i>Pdh</i>	11,0	kW	T j = operation limit temperature	<i>COPd</i>	3,08	-
For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>Pdh</i>	na	kW	For air-to-water heat pumps: T j = − 15 °C (if TOL < − 20 °C)	<i>COPd</i>	na	-
Bivalent temperature	<i>T biv</i>	-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>COPcyc</i>	na	-
Degradation co-efficient (**)	<i>Cdh</i>	1	-	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>	0,007	kW	Rated heat output (*)	<i>Psup</i>	2	kW
Thermostat-off mode	<i>P TO</i>	0,005	kW	Type of energy input	Electric		
Standby mode	<i>P SB</i>	0,007	kW				
Crankcase heater mode	<i>P CK</i>	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	<i>L WA</i>	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,2	m3/h
Annual energy consumption	<i>Q HE</i>	9368	kWh				
For heat pump combination heater:							
Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	Qelec	na	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	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 *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 Low temperature

Model(s):	CTC EcoPart 412 + CTC Eco Basic			
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:	165	%
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
Rated heat output (*)	Prated	13	kW	Seasonal space heating energy efficiency	ηs	164	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = − 7 °C	Pdh	11,8	kW	Tj = − 7 °C	COPd	4,60	-
Tj = + 2 °C	Pdh	11,7	kW	Tj = +2 °C	COPd	4,42	-
Tj = + 7 °C	Pdh	11,6	kW	Tj = +7 °C	COPd	4,32	-
Tj = + 12 °C	Pdh	11,5	kW	Tj = +12 °C	COPd	4,22	-
Tj = bivalent temperature	Pdh	11,8	kW	Tj = bivalent temperature	COPd	4,60	-
Tj = operation limit temperature	Pdh	11,8	kW	Tj = operation limit temperature	COPd	4,60	-
For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	Pdh	na	kW	For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	COPd	na	-
Bivalent temperature	Tbiv	-7	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcych	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,007	kW	Rated heat output (*)	Psup	1,5	kW
Thermostat-off mode	Pto	0,022	kW	Type of energy input	Electric		
Standby mode	Psb	0,007	kW				
Crankcase heater mode	Pck	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	6373	kWh				
For heat pump combination heater:							
Declared load profile	na			Water heating energy efficiency	ηwh	na	%
Daily electricity consumption	Qelec	na	kWh	Daily fuel consumption	Qfuel	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	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 *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 High temperature

Model(s):	CTC EcoPart 412 + CTC Eco Basic		
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:	106 %
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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	105	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = − 7 °C	Pdh	10,9	kW	Tj = − 7 °C	COPd	2,93	-
Tj = + 2 °C	Pdh	10,8	kW	Tj = +2 °C	COPd	2,81	-
Tj = + 7 °C	Pdh	10,8	kW	Tj = +7 °C	COPd	2,75	-
Tj = + 12 °C	Pdh	10,8	kW	Tj = +12 °C	COPd	2,68	-
Tj = bivalent temperature	Pdh	11,0	kW	Tj = bivalent temperature	COPd	3,08	-
Tj = operation limit temperature	Pdh	11,0	kW	Tj = operation limit temperature	COPd	3,08	-
For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	Pdh	na	kW	For air-to-water heat pumps: Tj = − 15 °C (if TOL < − 20 °C)	COPd	na	-
Bivalent temperature	Tbiv	-18	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcyh	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	1	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	Poff	0,007	kW	Rated heat output (*)	Psup	1,3	kW
Thermostat-off mode	Pto	0,005	kW	Type of energy input	Electric		
Standby mode	Psb	0,007	kW				
Crankcase heater mode	Pck	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	Lwa	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,2	m3/h
Annual energy consumption	QHE	10682	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *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 412 + CTC Eco Basic		
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:	164 %
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
Rated heat output (*)	Prated	12	kW	Seasonal space heating energy efficiency	ηs	163	%
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	Pdh	11,7	kW	T j = − 7 °C	COPd	11,70	-
T j = + 2 °C	Pdh	11,6	kW	T j = +2 °C	COPd	11,60	-
T j = + 7 °C	Pdh	11,6	kW	T j = +7 °C	COPd	11,60	-
T j = + 12 °C	Pdh	11,5	kW	T j = +12 °C	COPd	11,50	-
T j = bivalent temperature	Pdh	11,8	kW	T j = bivalent temperature	COPd	11,80	-
T j = operation limit temperature	Pdh	11,8	kW	T j = operation limit temperature	COPd	11,80	-
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	Tbiv	-20	°C	For air-to-water heat pumps: Operation limit temperature	TOL	na	°C
Cycling interval capacity for heating	Pcyh	na	kW	Cycling interval efficiency	COPcyc	na	-
Degradation co-efficient (**)	Cdh	0,99	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	POFF	0,007	kW	Rated heat output (*)	Psup	0,7	kW
Thermostat-off mode	Pto	0,022	kW	Type of energy input	Electric		
Standby mode	Psb	0,007	kW				
Crankcase heater mode	Pck	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	LWA	50/na	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	2,6	m3/h
Annual energy consumption	QHE	7152	kWh				

For heat pump combination heater:

Declared load profile	na			Water heating energy efficiency	η_{wh}	na	%
Daily electricity consumption	<i>Q_{elec}</i>	na	kWh	Daily fuel consumption	<i>Q_{fuel}</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 *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.