Information for heat pump space heaters and heat pump combination heaters

Warm climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	140	%
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
Rated heat output (*)	*Prated*	15	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	na	kW
T j = + 2 °C	*Pdh*	13,5	kW
T j = + 7 °C	*Pdh*	13,8	kW
T j = + 12 °C	*Pdh*	14,2	kW
T j = bivalent temperature	*Pdh*	13,5	kW
T j = operation limit temperature	*Pdh*	na	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	3	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,99	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,018	*kW*
Thermostat-off mode	P_{TO}	0,032	*kW*
Standby mode	P_{SB}	0,018	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	5396	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	136	%
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	*COPd*	na	-
T j = +2 °C	*COPd*	3,11	-
T j = +7 °C	*COPd*	3,48	-
T j = +12 °C	*COPd*	4,12	-
T j = bivalent temperature	*COPd*	3,21	-
T j = operation limit temperature	*COPd*	na	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	1,1	*kW*
Type of energy input		*Electric*	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	3,0	*m3/h*

For heat pump combination heater:

Declared load profile		na	
Daily electricity consumption	Qelec	na	kWh
Annual electricity consumption	AEC	na	kWh

Water heating energy efficiency	η_{wh}	na	%
Daily fuel consumption	Q_{fuel}	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.

Information for heat pump space heaters and heat pump combination heaters

Warm climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	174	%
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
Rated heat output (*)	*Prated*	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	na	kW
T j = + 2 °C	*Pdh*	14,5	kW
T j = + 7 °C	*Pdh*	14,7	kW
T j = + 12 °C	*Pdh*	14,8	kW
T j = bivalent temperature	*Pdh*	14,6	kW
T j = operation limit temperature	*Pdh*	na	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	3	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,96	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,018	*kW*
Thermostat-off mode	P_{TO}	0,097	*kW*
Standby mode	P_{SB}	0,018	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	4702	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	170	%
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	*COPd*	na	-
T j = +2 °C	*COPd*	4,55	-
T j = +7 °C	*COPd*	4,76	-
T j = +12 °C	*COPd*	5,02	-
T j = bivalent temperature	*COPd*	4,62	-
T j = operation limit temperature	*COPd*	na	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	1,2	*kW*
Type of energy input		*Electric*	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	3,6	*m3/h*

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	Q_{fuel}	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	na	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Average climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	141	%
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
Rated heat output (*)	*Prated*	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	13,6	kW
T j = + 2 °C	*Pdh*	13,9	kW
T j = + 7 °C	*Pdh*	14,2	kW
T j = + 12 °C	*Pdh*	14,4	kW
T j = bivalent temperature	*Pdh*	13,6	kW
T j = operation limit temperature	*Pdh*	na	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	-6	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,99	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,018	*kW*
Thermostat-off mode	P_{TO}	0,032	*kW*
Standby mode	P_{SB}	0,018	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	9158	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	137	%
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	*COPd*	3,29	-
T j = +2 °C	*COPd*	3,68	-
T j = +7 °C	*COPd*	4,03	-
T j = +12 °C	*COPd*	4,37	-
T j = bivalent temperature	*COPd*	3,34	-
T j = operation limit temperature	*COPd*	na	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	2,7	*kW*
Type of energy input		*Electric*	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	3,0	*m3/h*

For heat pump combination heater:

Declared load profile		na	
Daily electricity consumption	Qelec	na	kWh
Annual electricity consumption	AEC	na	kWh

Water heating energy efficiency	η_{wh}	na	%
Daily fuel consumption	Q_{fuel}	na	kWh
Annual fuel consumption	AFC	na	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Average climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	178	%
Equipped with a supplementary heater:	No	Package efficiency class:	A+++	-
Heat pump combination heater:	No			

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

Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	14,6	kW
T j = + 2 °C	*Pdh*	14,7	kW
T j = + 7 °C	*Pdh*	14,8	kW
T j = + 12 °C	*Pdh*	14,9	kW
T j = bivalent temperature	*Pdh*	14,6	kW
T j = operation limit temperature	*Pdh*	na	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	-7	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,96	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,018	*kW*
Thermostat-off mode	P_{TO}	0,097	*kW*
Standby mode	P_{SB}	0,018	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	7467	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	174	%
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	*COPd*	4,64	-
T j = +2 °C	*COPd*	4,81	-
T j = +7 °C	*COPd*	4,97	-
T j = +12 °C	*COPd*	5,13	-
T j = bivalent temperature	*COPd*	4,64	-
T j = operation limit temperature	*COPd*	na	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	2,0	*kW*
Type of energy input		*Electric*	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	3,6	*m3/h*

For heat pump combination heater:

Declared load profile		na	
Daily electricity consumption	Qelec	na	kWh
Annual electricity consumption	AEC	na	kWh

Water heating energy efficiency	η_{wh}	na	%
Daily fuel consumption	Q_{fuel}	na	kWh
Annual fuel consumption	AFC	na	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Cold climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	144	%
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
Rated heat output (*)	*Prated*	**15**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**13,8**	kW
T j = + 2 °C	*Pdh*	**14,1**	kW
T j = + 7 °C	*Pdh*	**14,3**	kW
T j = + 12 °C	*Pdh*	**14,5**	kW
T j = bivalent temperature	*Pdh*	**13,6**	kW
T j = operation limit temperature	*Pdh*	**na**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-18**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,032**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**10139**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**140**	%
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	*COPd*	**3,59**	-
T j = +2 °C	*COPd*	**3,94**	-
T j = +7 °C	*COPd*	**4,26**	-
T j = +12 °C	*COPd*	**4,49**	-
T j = bivalent temperature	*COPd*	**3,28**	-
T j = operation limit temperature	*COPd*	**na**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,7**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,0**	*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Cold climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + 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:	180	%
Equipped with a supplementary heater:	No	Package efficiency class:		-
Heat pump combination heater:	No			

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

Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	14,7	kW
T j = + 2 °C	*Pdh*	14,8	kW
T j = + 7 °C	*Pdh*	14,9	kW
T j = + 12 °C	*Pdh*	14,9	kW
T j = bivalent temperature	*Pdh*	14,6	kW
T j = operation limit temperature	*Pdh*	na	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	-18	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,96	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,018	*kW*
Thermostat-off mode	P_{TO}	0,097	*kW*
Standby mode	P_{SB}	0,018	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	8758	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	176	%
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	*COPd*	4,84	-
T j = +2 °C	*COPd*	4,98	-
T j = +7 °C	*COPd*	5,08	-
T j = +12 °C	*COPd*	5,11	-
T j = bivalent temperature	*COPd*	4,67	-
T j = operation limit temperature	*COPd*	na	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	1,8	*kW*
Type of energy input		*Electric*	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	3,6	*m3/h*

For heat pump combination heater:

Declared load profile		na	
Daily electricity consumption	Qelec	na	kWh
Annual electricity consumption	AEC	na	kWh

Water heating energy efficiency	η_{wh}	na	%
Daily fuel consumption	Q_{fuel}	na	kWh
Annual fuel consumption	AFC	na	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Warm climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + 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:	**125**	%
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
Rated heat output (*)	*Prated*	**15**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**na**	kW
T j = + 2 °C	*Pdh*	**13,5**	kW
T j = + 7 °C	*Pdh*	**13,8**	kW
T j = + 12 °C	*Pdh*	**14,2**	kW
T j = bivalent temperature	*Pdh*	**13,5**	kW
T j = operation limit temperature	*Pdh*	**13,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**3**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,039**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**6019**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**121**	%
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	*COPd*	**na**	-
T j = +2 °C	*COPd*	**2,81**	-
T j = +7 °C	*COPd*	**3,14**	-
T j = +12 °C	*COPd*	**3,67**	-
T j = bivalent temperature	*COPd*	**2,90**	-
T j = operation limit temperature	*COPd*	**2,81**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,1**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,0**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**		**Water heating energy efficiency**	η_{wh}	**102**	%
Daily electricity consumption	Qelec	**7,515**	kWh	Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual electricity consumption	AEC	**1653**	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.

Information for heat pump space heaters and heat pump combination heaters

Warm climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + 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:	**153**	%
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
Rated heat output (*)	*Prated*	**16**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**na**	kW
T j = + 2 °C	*Pdh*	**14,5**	kW
T j = + 7 °C	*Pdh*	**14,7**	kW
T j = + 12 °C	*Pdh*	**14,8**	kW
T j = bivalent temperature	*Pdh*	**14,6**	kW
T j = operation limit temperature	*Pdh*	**14,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**3**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,96**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,107**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**5335**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**149**	%
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	*COPd*	**na**	-
T j = +2 °C	*COPd*	**4,01**	-
T j = +7 °C	*COPd*	**4,18**	-
T j = +12 °C	*COPd*	**4,39**	-
T j = bivalent temperature	*COPd*	**4,01**	-
T j = operation limit temperature	*COPd*	**4,07**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,2**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,6**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**	
Daily electricity consumption	Qelec	**7,515**	kWh
Annual electricity consumption	AEC	**1653**	kWh

Water heating energy efficiency	η_{wh}	**102**	%
Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual fuel consumption	AFC	**NA**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Average climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + 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
Rated heat output (*)	*Prated*	**16**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**13,6**	kW
T j = + 2 °C	*Pdh*	**13,9**	kW
T j = + 7 °C	*Pdh*	**14,2**	kW
T j = + 12 °C	*Pdh*	**14,4**	kW
T j = bivalent temperature	*Pdh*	**13,6**	kW
T j = operation limit temperature	*Pdh*	**13,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-6**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,039**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**10197**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**123**	%
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	*COPd*	**2,96**	-
T j = +2 °C	*COPd*	**3,31**	-
T j = +7 °C	*COPd*	**3,59**	-
T j = +12 °C	*COPd*	**3,87**	-
T j = bivalent temperature	*COPd*	**3,02**	-
T j = operation limit temperature	*COPd*	**2,81**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**2,7**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,0**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**		**Water heating energy efficiency**	η_{wh}	**102**	%
Daily electricity consumption	Qelec	**7,515**	kWh	Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual electricity consumption	AEC	**1653**	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.

Information for heat pump space heaters and heat pump combination heaters

Average climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + 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:	**157**	%
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
Rated heat output (*)	*Prated*	**17**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**14,6**	kW
T j = + 2 °C	*Pdh*	**14,7**	kW
T j = + 7 °C	*Pdh*	**14,8**	kW
T j = + 12 °C	*Pdh*	**14,9**	kW
T j = bivalent temperature	*Pdh*	**14,6**	kW
T j = operation limit temperature	*Pdh*	**14,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-6**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,96**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,107**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**8881**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**153**	%
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	*COPd*	**4,08**	-
T j = +2 °C	*COPd*	**4,23**	-
T j = +7 °C	*COPd*	**4,35**	-
T j = +12 °C	*COPd*	**4,48**	-
T j = bivalent temperature	*COPd*	**4,11**	-
T j = operation limit temperature	*COPd*	**4,01**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**2,7**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,6**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**		**Water heating energy efficiency**	η_{wh}	**102**	%
Daily electricity consumption	Qelec	**7,515**	kWh	Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual electricity consumption	AEC	**1653**	kWh	Annual fuel consumption	AFC	**NA**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Cold climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + CTC EcoZenith 550**			
Air-to-water heat pump:	**No**	Energy efficiency class:		-
Water-to-water heat pump:	**No**	Controller class:	**VII**	-
Brine-to-water heat pump:	**Yes**	Controller contribution:	**3,5**	%
Low-temperature heat pump:	**No**	Package efficiency:	**128**	%
Equipped with a supplementary heater:	**Yes**	Package efficiency class:		-
Heat pump combination heater:	**Yes**			

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

Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	**15**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**13,8**	kW
T j = + 2 °C	*Pdh*	**14,1**	kW
T j = + 7 °C	*Pdh*	**14,3**	kW
T j = + 12 °C	*Pdh*	**14,5**	kW
T j = bivalent temperature	*Pdh*	**13,6**	kW
T j = operation limit temperature	*Pdh*	**13,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-18**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,039**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**11314**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**124**	%
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	*COPd*	**3,23**	-
T j = +2 °C	*COPd*	**3,52**	-
T j = +7 °C	*COPd*	**3,78**	-
T j = +12 °C	*COPd*	**3,97**	-
T j = bivalent temperature	*COPd*	**2,96**	-
T j = operation limit temperature	*COPd*	**2,81**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,7**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,0**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**		**Water heating energy efficiency**	η_{wh}	**102**	%
Daily electricity consumption	Qelec	**7,515**	kWh	Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual electricity consumption	AEC	**1653**	kWh	Annual fuel consumption	AFC	**NA**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Cold climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + 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:	**157**	%
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
Rated heat output (*)	*Prated*	**16**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**14,7**	kW
T j = + 2 °C	*Pdh*	**14,8**	kW
T j = + 7 °C	*Pdh*	**14,9**	kW
T j = + 12 °C	*Pdh*	**14,9**	kW
T j = bivalent temperature	*Pdh*	**14,6**	kW
T j = operation limit temperature	*Pdh*	**14,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-18**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,96**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	*kW*
Thermostat-off mode	P_{TO}	**0,107**	*kW*
Standby mode	P_{SB}	**0,018**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**9957**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**153**	%
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	*COPd*	**4,24**	-
T j = +2 °C	*COPd*	**4,35**	-
T j = +7 °C	*COPd*	**4,44**	-
T j = +12 °C	*COPd*	**4,46**	-
T j = bivalent temperature	*COPd*	**4,10**	-
T j = operation limit temperature	*COPd*	**4,01**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,8**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,6**	*m3/h*

For heat pump combination heater:

Declared load profile		**XL**	
Daily electricity consumption	Qelec	**7,515**	kWh
Annual electricity consumption	AEC	**1653**	kWh

Water heating energy efficiency	η_{wh}	**102**	%
Daily fuel consumption	Q_{fuel}	**NA**	kWh
Annual fuel consumption	AFC	**NA**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Warm climate and High temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + CTC EcoBasic			
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
Rated heat output (*)	*Prated*	**14**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**16,6**	kW
T j = + 2 °C	*Pdh*	**13,4**	kW
T j = + 7 °C	*Pdh*	**13,3**	kW
T j = + 12 °C	*Pdh*	**13,2**	kW
T j = bivalent temperature	*Pdh*	**13,4**	kW
T j = operation limit temperature	*Pdh*	**13,4**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**3**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,007**	*kW*
Thermostat-off mode	P_{TO}	**0,032**	*kW*
Standby mode	P_{SB}	**0,007**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**6821**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**105**	%
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	*COPd*	**7,56**	-
T j = +2 °C	*COPd*	**3,11**	-
T j = +7 °C	*COPd*	**2,98**	-
T j = +12 °C	*COPd*	**2,81**	-
T j = bivalent temperature	*COPd*	**3,11**	-
T j = operation limit temperature	*COPd*	**3,11**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Warm climate and Low temperature

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + CTC EcoBasic			
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:	156	%
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
Rated heat output (*)	*Prated*	16	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	NA	kW
T j = + 2 °C	*Pdh*	14,5	kW
T j = + 7 °C	*Pdh*	14,4	kW
T j = + 12 °C	*Pdh*	14,3	kW
T j = bivalent temperature	*Pdh*	14,5	kW
T j = operation limit temperature	*Pdh*	14,5	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	na	kW
Bivalent temperature	T_{biv}	3	°C
Cycling interval capacity for heating	P_{cych}	na	kW
Degradation co-efficient (**)	*Cdh*	0,97	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,007	*kW*
Thermostat-off mode	P_{TO}	0,097	*kW*
Standby mode	P_{SB}	0,007	*kW*
Crankcase heater mode	P_{CK}	0,000	*kW*
Other items			
Capacity control		Fixed	
Sound power level, indoors/ outdoors	L_{WA}	53/na	*dB*
Annual energy consumption	Q_{HE}	5128	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	155	%
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	*COPd*	NA	-
T j = +2 °C	*COPd*	4,55	-
T j = +7 °C	*COPd*	4,42	-
T j = +12 °C	*COPd*	4,26	-
T j = bivalent temperature	*COPd*	4,55	-
T j = operation limit temperature	*COPd*	4,55	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	na	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	na	°C
Cycling interval efficiency	*COPcyc*	na	-
Heating water operating limit temperature	*WTOL*	65	°C
Supplementary heater			
Rated heat output (*)	*Psup*	1,1	*kW*
Type of energy input		Electric	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	na	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		*m3/h*

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	Q_{fuel}	na	kWh
Annual electricity consumption	AEC	na	kWh	Annual fuel consumption	AFC	na	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Average **climate and High temperature**

ENERTECH GROUP

Enertech AB, 341 26 Ljungby

Model(s):	CTC EcoPart 414 + CTC EcoBasic			
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:	108	%
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
Rated heat output (*)	*Prated*	**16**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**13,5**	kW
T j = + 2 °C	*Pdh*	**13,3**	kW
T j = + 7 °C	*Pdh*	**13,2**	kW
T j = + 12 °C	*Pdh*	**13,2**	kW
T j = bivalent temperature	*Pdh*	**13,5**	kW
T j = operation limit temperature	*Pdh*	**13,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-6**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,007**	*kW*
Thermostat-off mode	P_{TO}	**0,032**	*kW*
Standby mode	P_{SB}	**0,007**	*kW*
Crankcase heater mode	P_{CK}	**0**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**11389**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**107**	%
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	*COPd*	**3,11**	-
T j = +2 °C	*COPd*	**2,95**	-
T j = +7 °C	*COPd*	**2,86**	-
T j = +12 °C	*COPd*	**2,76**	-
T j = bivalent temperature	*COPd*	**3,11**	-
T j = operation limit temperature	*COPd*	**3,11**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**2,4**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	**3,0**	*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Average **climate and Low temperature**

ENERTECH GROUP
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Model(s):	CTC EcoPart 414 + CTC EcoBasic			
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:	160	%
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
Rated heat output (*)	*Prated*	**16**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**NA**	kW
T j = + 2 °C	*Pdh*	**14,4**	kW
T j = + 7 °C	*Pdh*	**14,3**	kW
T j = + 12 °C	*Pdh*	**14,3**	kW
T j = bivalent temperature	*Pdh*	**14,5**	kW
T j = operation limit temperature	*Pdh*	**14,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-7**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,97**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,007**	*kW*
Thermostat-off mode	P_{TO}	**0,097**	*kW*
Standby mode	P_{SB}	**0,007**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**8113**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**159**	%
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	*COPd*	**NA**	-
T j = +2 °C	*COPd*	**4,38**	-
T j = +7 °C	*COPd*	**4,29**	-
T j = +12 °C	*COPd*	**4,20**	-
T j = bivalent temperature	*COPd*	**4,55**	-
T j = operation limit temperature	*COPd*	**4,55**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,9**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.

Information for heat pump space heaters and heat pump combination heaters

Cold climate and High temperature

ENERTECH GROUP
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Model(s):	CTC EcoPart 414 + CTC EcoBasic			
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:	107	%
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
Rated heat output (*)	*Prated*	**15**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**13,3**	kW
T j = + 2 °C	*Pdh*	**13,2**	kW
T j = + 7 °C	*Pdh*	**13,2**	kW
T j = + 12 °C	*Pdh*	**13,1**	kW
T j = bivalent temperature	*Pdh*	**13,5**	kW
T j = operation limit temperature	*Pdh*	**13,4**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-18**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,007**	*kW*
Thermostat-off mode	P_{TO}	**0,032**	*kW*
Standby mode	P_{SB}	**0,007**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**12997**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**106**	%
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	*COPd*	**2,97**	-
T j = +2 °C	*COPd*	**2,86**	-
T j = +7 °C	*COPd*	**2,79**	-
T j = +12 °C	*COPd*	**2,73**	-
T j = bivalent temperature	*COPd*	**3,11**	-
T j = operation limit temperature	*COPd*	**3,11**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**1,6**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.

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

ENERTECH GROUP
Enertech AB, 341 26 Ljungby

Model(s):	**CTC EcoPart 414 + CTC EcoBasic**			
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:	**158**	%
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
Rated heat output (*)	*Prated*	**15**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = – 7 °C	*Pdh*	**14,4**	kW
T j = + 2 °C	*Pdh*	**14,3**	kW
T j = + 7 °C	*Pdh*	**14,3**	kW
T j = + 12 °C	*Pdh*	**14,3**	kW
T j = bivalent temperature	*Pdh*	**14,5**	kW
T j = operation limit temperature	*Pdh*	**14,5**	kW
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*Pdh*	**na**	kW
Bivalent temperature	T_{biv}	**-20**	°C
Cycling interval capacity for heating	P_{cych}	**na**	kW
Degradation co-efficient (**)	*Cdh*	**0,97**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,007**	*kW*
Thermostat-off mode	P_{TO}	**0,097**	*kW*
Standby mode	P_{SB}	**0,007**	*kW*
Crankcase heater mode	P_{CK}	**0,000**	*kW*
Other items			
Capacity control		**Fixed**	
Sound power level, indoors/ outdoors	L_{WA}	**53/na**	*dB*
Annual energy consumption	Q_{HE}	**9162**	*kWh*

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**157**	%
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	*COPd*	**4,40**	-
T j = +2 °C	*COPd*	**4,29**	-
T j = +7 °C	*COPd*	**4,23**	-
T j = +12 °C	*COPd*	**4,17**	-
T j = bivalent temperature	*COPd*	**4,55**	-
T j = operation limit temperature	*COPd*	**4,55**	-
For air-to-water heat pumps: T j = – 15 °C (if TOL < – 20 °C)	*COPd*	**na**	-
For air-to-water heat pumps: Operation limit temperature	*TOL*	**na**	°C
Cycling interval efficiency	*COPcyc*	**na**	-
Heating water operating limit temperature	*WTOL*	**65**	°C
Supplementary heater			
Rated heat output (*)	*Psup*	**0,8**	*kW*
Type of energy input		***Electric***	
For air-to-water heat pumps: Rated air flow rate, outdoors	-	**na**	*m3/h*
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-		*m3/h*

For heat pump combination heater:

Declared load profile		**na**	
Daily electricity consumption	Qelec	**na**	kWh
Annual electricity consumption	AEC	**na**	kWh

Water heating energy efficiency	η_{wh}	**na**	%
Daily fuel consumption	Q_{fuel}	**na**	kWh
Annual fuel consumption	AFC	**na**	GJ

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(*) 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.