

Warm climate and Medium temperature

341 26 Ljungby

Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	147 %
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 (*)	<i>Prated</i>	12	kW	Seasonal space heating energy efficiency	η_s	143	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	11,2	kW	T _j = +2 °C	<i>COP_d</i>	2,54	-
T _j = +7 °C	<i>P_{dh}</i>	14,7	kW	T _j = +7 °C	<i>COP_d</i>	3,39	-
T _j = +12 °C	<i>P_{dh}</i>	17,6	kW	T _j = +12 °C	<i>COP_d</i>	4,50	-
T _j = bivalent temperature	<i>P_{dh}</i>	11,4	kW	T _j = bivalent temperature	<i>COP_d</i>	2,65	-
T _j = operation limit temperature	<i>P_{dh}</i>	11,9	kW	T _j = operation limit temperature	<i>COP_d</i>	2,72	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,1	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	4509	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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

Warm climate and Low temperature

Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	183 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
Heat pump combination heater:	No		

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

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	13	kW	Seasonal space heating energy efficiency	η_s	179	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	12,1	kW	T _j = +2 °C	<i>COP_d</i>	3,57	-
T _j = +7 °C	<i>P_{dh}</i>	16,1	kW	T _j = +7 °C	<i>COP_d</i>	4,66	-
T _j = +12 °C	<i>P_{dh}</i>	18,7	kW	T _j = +12 °C	<i>COP_d</i>	5,57	-
T _j = bivalent temperature	<i>P_{dh}</i>	12,4	kW	T _j = bivalent temperature	<i>COP_d</i>	3,68	-
T _j = operation limit temperature	<i>P_{dh}</i>	12,6	kW	T _j = operation limit temperature	<i>COP_d</i>	3,63	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,2	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	3911	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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

Average climate and Medium temperature

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Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	123 %
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	119	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,5	kW	T _j = -7 °C	<i>COP_d</i>	2,32	-
T _j = +2 °C	<i>P_{dh}</i>	11,5	kW	T _j = +2 °C	<i>COP_d</i>	2,96	-
T _j = +7 °C	<i>P_{dh}</i>	15,2	kW	T _j = +7 °C	<i>COP_d</i>	3,91	-
T _j = +12 °C	<i>P_{dh}</i>	17,9	kW	T _j = +12 °C	<i>COP_d</i>	4,78	-
T _j = bivalent temperature	<i>P_{dh}</i>	9,9	kW	T _j = bivalent temperature	<i>COP_d</i>	2,48	-
T _j = operation limit temperature	<i>P_{dh}</i>	8,6	kW	T _j = operation limit temperature	<i>COP_d</i>	2,06	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-5	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	3,7	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	8314	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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

Average climate and Low temperature

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Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	151 %
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>	13	kW	Seasonal space heating energy efficiency	η_s	147	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	10,1	kW	T _j = -7 °C	<i>COP_d</i>	3,08	-
T _j = +2 °C	<i>P_{dh}</i>	12,3	kW	T _j = +2 °C	<i>COP_d</i>	3,78	-
T _j = +7 °C	<i>P_{dh}</i>	16,3	kW	T _j = +7 °C	<i>COP_d</i>	4,89	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,70	-
T _j = bivalent temperature	<i>P_{dh}</i>	10,6	kW	T _j = bivalent temperature	<i>COP_d</i>	3,25	-
T _j = operation limit temperature	<i>P_{dh}</i>	9,2	kW	T _j = operation limit temperature	<i>COP_d</i>	2,83	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-5	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	3,9	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	7193	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	111 %
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 (*)	<i>Prated</i>	10	kW	Seasonal space heating energy efficiency	η_s	107	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,6	kW	T _j = -7 °C	<i>COP_d</i>	2,52	-
T _j = +2 °C	<i>P_{dh}</i>	11,7	kW	T _j = +2 °C	<i>COP_d</i>	3,16	-
T _j = +7 °C	<i>P_{dh}</i>	15,5	kW	T _j = +7 °C	<i>COP_d</i>	4,14	-
T _j = +12 °C	<i>P_{dh}</i>	18,0	kW	T _j = +12 °C	<i>COP_d</i>	4,92	-
T _j = bivalent temperature	<i>P_{dh}</i>	7,6	kW	T _j = bivalent temperature	<i>COP_d</i>	2,17	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,2	kW	T _j = operation limit temperature	<i>COP_d</i>	1,40	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,3	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	1,95	-
Bivalent temperature	<i>T_{biv}</i>	-14	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	4,4	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	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	-	4100	m ³ /h
Sound power level, indoors/ outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	8576	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

Cold climate and Low temperature

Model(s):	CTC EcoAir 415 + CTC EcoLogic		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	134 %
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 (*)	<i>Prated</i>	10	kW	Seasonal space heating energy efficiency	η_s	130	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	10,2	kW	T _j = -7 °C	<i>COP_d</i>	3,21	-
T _j = +2 °C	<i>P_{dh}</i>	12,4	kW	T _j = +2 °C	<i>COP_d</i>	3,90	-
T _j = +7 °C	<i>P_{dh}</i>	16,5	kW	T _j = +7 °C	<i>COP_d</i>	5,01	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,67	-
T _j = bivalent temperature	<i>P_{dh}</i>	8,2	kW	T _j = bivalent temperature	<i>COP_d</i>	2,72	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,8	kW	T _j = operation limit temperature	<i>COP_d</i>	2,04	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,9	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	2,63	-
Bivalent temperature	<i>T_{biv}</i>	-14	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	4,5	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	7695	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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Warm climate and Medium temperature

Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	131 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

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

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	13	kW	Seasonal space heating energy efficiency	η_s	127	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	11,2	kW	T _j = +2 °C	<i>COP_d</i>	2,23	-
T _j = +7 °C	<i>P_{dh}</i>	14,7	kW	T _j = +7 °C	<i>COP_d</i>	3,05	-
T _j = +12 °C	<i>P_{dh}</i>	17,6	kW	T _j = +12 °C	<i>COP_d</i>	4,06	-
T _j = bivalent temperature	<i>P_{dh}</i>	11,9	kW	T _j = bivalent temperature	<i>COP_d</i>	2,32	-
T _j = operation limit temperature	<i>P_{dh}</i>	11,9	kW	T _j = operation limit temperature	<i>COP_d</i>	2,41	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,6	kW
Thermostat-off mode	<i>P_{TO}</i>	0,043	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	5262	kWh				
For heat pump combination heater:							
Declared load profile	XL	Efficiency class	na	Water heating energy efficiency	η_{wh}	88	%
Daily electricity consumption	<i>Q_{elec}</i>	8,698	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1914	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
						160204	

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

Warm climate and Low temperature

Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	156 %
Equipped with a supplementary heater:	Yes	Package efficiency class:	-
Heat pump combination heater:	Yes		

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

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	14	kW	Seasonal space heating energy efficiency	η_s	152	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	12,1	kW	T _j = +2 °C	<i>COP_d</i>	3,01	-
T _j = +7 °C	<i>P_{dh}</i>	16,1	kW	T _j = +7 °C	<i>COP_d</i>	4,08	-
T _j = +12 °C	<i>P_{dh}</i>	18,7	kW	T _j = +12 °C	<i>COP_d</i>	4,94	-
T _j = bivalent temperature	<i>P_{dh}</i>	12,9	kW	T _j = bivalent temperature	<i>COP_d</i>	3,11	-
T _j = operation limit temperature	<i>P_{dh}</i>	12,6	kW	T _j = operation limit temperature	<i>COP_d</i>	3,07	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,95	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,8	kW
Thermostat-off mode	<i>P_{TO}</i>	0,133	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	4793	kWh				
For heat pump combination heater:							
Declared load profile	XL	Efficiency class	na	Water heating energy efficiency	η_{wh}	88	%
Daily electricity consumption	<i>Q_{elec}</i>	8,698	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	1914	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
						160204	

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

Average climate and Medium temperature

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Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	117 %
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>	13	kW	Seasonal space heating energy efficiency	η_s	114	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,4	kW	T _j = -7 °C	<i>COP_d</i>	2,19	-
T _j = +2 °C	<i>P_{dh}</i>	12,4	kW	T _j = +2 °C	<i>COP_d</i>	3,04	-
T _j = +7 °C	<i>P_{dh}</i>	15,0	kW	T _j = +7 °C	<i>COP_d</i>	3,68	-
T _j = +12 °C	<i>P_{dh}</i>	16,9	kW	T _j = +12 °C	<i>COP_d</i>	4,32	-
T _j = bivalent temperature	<i>P_{dh}</i>	10,0	kW	T _j = bivalent temperature	<i>COP_d</i>	2,38	-
T _j = operation limit temperature	<i>P_{dh}</i>	8,2	kW	T _j = operation limit temperature	<i>COP_d</i>	1,87	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-4	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	5,0	kW
Thermostat-off mode	<i>P_{TO}</i>	0,018	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	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	9318	kWh				

For heat pump combination heater:

Declared load profile	XL	Efficiency class	B	Water heating energy efficiency	η_{wh}	75	%
Daily electricity consumption	<i>Q_{elec}</i>	10,117	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	2226	kWh	Annual fuel consumption	<i>AFC</i>	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 *P_{designh}*, and the rated heat output of a supplementary heater *P_{sup}* is equal to the supplementary capacity for heating *sup(T_j)*. (**) If *C_{dh}* is not determined by measurement then the default degradation coefficient is *C_{dh}* = 0,9.

Average climate and Low temperature

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Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	A -
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	126 %
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	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	<i>P_{dh}</i>	10,1	kW	T _j = -7 °C	<i>COP_d</i>	2,50	-
T _j = +2 °C	<i>P_{dh}</i>	12,3	kW	T _j = +2 °C	<i>COP_d</i>	3,17	-
T _j = +7 °C	<i>P_{dh}</i>	16,4	kW	T _j = +7 °C	<i>COP_d</i>	4,27	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,05	-
T _j = bivalent temperature	<i>P_{dh}</i>	10,8	kW	T _j = bivalent temperature	<i>COP_d</i>	2,27	-
T _j = operation limit temperature	<i>P_{dh}</i>	9,2	kW	T _j = operation limit temperature	<i>COP_d</i>	2,73	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-4	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,95	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	4,9	kW
Thermostat-off mode	<i>P_{TO}</i>	0,133	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	9335	kWh				
For heat pump combination heater:							
Declared load profile	XL	Efficiency class	B	Water heating energy efficiency	η_{wh}	75	%
Daily electricity consumption	<i>Q_{elec}</i>	10,117	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	2226	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
							160406

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

Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	95 %
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>	14	kW	Seasonal space heating energy efficiency	η_s	91	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,6	kW	T _j = -7 °C	<i>COP_d</i>	2,18	-
T _j = +2 °C	<i>P_{dh}</i>	11,8	kW	T _j = +2 °C	<i>COP_d</i>	2,75	-
T _j = +7 °C	<i>P_{dh}</i>	15,5	kW	T _j = +7 °C	<i>COP_d</i>	3,69	-
T _j = +12 °C	<i>P_{dh}</i>	18,1	kW	T _j = +12 °C	<i>COP_d</i>	4,42	-
T _j = bivalent temperature	<i>P_{dh}</i>	9,0	kW	T _j = bivalent temperature	<i>COP_d</i>	2,08	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,2	kW	T _j = operation limit temperature	<i>COP_d</i>	1,09	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,3	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	1,60	-
Bivalent temperature	<i>T_{biv}</i>	-9	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	8,5	kW
Thermostat-off mode	<i>P_{TO}</i>	0,043	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	14414	kWh				
For heat pump combination heater:							
Declared load profile	XL	Efficiency class	na	Water heating energy efficiency	η_{wh}	64	%
Daily electricity consumption	<i>Q_{elec}</i>	11,937	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	2626	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
						160204	

Cold climate and Low temperature

Model(s):	CTC EcoAir 415 + CTC EcoZenith 550		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	VII -
Brine-to-water heat pump:	No	Controller contribution:	3,5 %
Low-temperature heat pump:	No	Package efficiency:	108 %
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>	15	kW	Seasonal space heating energy efficiency	η_s	104	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	10,2	kW	T _j = -7 °C	<i>COP_d</i>	2,61	-
T _j = +2 °C	<i>P_{dh}</i>	12,4	kW	T _j = +2 °C	<i>COP_d</i>	3,28	-
T _j = +7 °C	<i>P_{dh}</i>	16,5	kW	T _j = +7 °C	<i>COP_d</i>	4,37	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,03	-
T _j = bivalent temperature	<i>P_{dh}</i>	9,7	kW	T _j = bivalent temperature	<i>COP_d</i>	2,47	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,8	kW	T _j = operation limit temperature	<i>COP_d</i>	1,48	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,9	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	2,02	-
Bivalent temperature	<i>T_{biv}</i>	-9	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,95	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	8,9	kW
Thermostat-off mode	<i>P_{TO}</i>	0,133	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	13566	kWh				
For heat pump combination heater:							
Declared load profile	XL	Efficiency class	na	Water heating energy efficiency	η_{wh}	64	%
Daily electricity consumption	<i>Q_{elec}</i>	11,937	kWh	Daily fuel consumption	<i>Q_{fuel}</i>	NA	kWh
Annual electricity consumption	<i>AEC</i>	2626	kWh	Annual fuel consumption	<i>AFC</i>	NA	GJ
							160204

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

Warm climate and Medium temperature

Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
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	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	12	kW	Seasonal space heating energy efficiency	η_s	143	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	11,2	kW	T _j = +2 °C	<i>COP_d</i>	2,54	-
T _j = +7 °C	<i>P_{dh}</i>	14,7	kW	T _j = +7 °C	<i>COP_d</i>	3,39	-
T _j = +12 °C	<i>P_{dh}</i>	17,6	kW	T _j = +12 °C	<i>COP_d</i>	4,50	-
T _j = bivalent temperature	<i>P_{dh}</i>	11,4	kW	T _j = bivalent temperature	<i>COP_d</i>	2,65	-
T _j = operation limit temperature	<i>P_{dh}</i>	11,9	kW	T _j = operation limit temperature	<i>COP_d</i>	2,72	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,1	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	4509	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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

Warm climate and Low temperature

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Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	180 %
Equipped with a supplementary heater:	No	Package efficiency class:	-
Heat pump combination heater:	No		

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

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	<i>Prated</i>	13	kW	Seasonal space heating energy efficiency	η_s	179	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	na	kW	T _j = -7 °C	<i>COP_d</i>	na	-
T _j = +2 °C	<i>P_{dh}</i>	12,1	kW	T _j = +2 °C	<i>COP_d</i>	3,57	-
T _j = +7 °C	<i>P_{dh}</i>	16,1	kW	T _j = +7 °C	<i>COP_d</i>	4,66	-
T _j = +12 °C	<i>P_{dh}</i>	18,7	kW	T _j = +12 °C	<i>COP_d</i>	5,57	-
T _j = bivalent temperature	<i>P_{dh}</i>	12,4	kW	T _j = bivalent temperature	<i>COP_d</i>	3,68	-
T _j = operation limit temperature	<i>P_{dh}</i>	12,6	kW	T _j = operation limit temperature	<i>COP_d</i>	3,63	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	3	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	2	°C
Cycling interval capacity for heating	<i>P_{cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,98	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	1,2	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	3911	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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

Average climate and Medium temperature

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Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	120 %
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	119	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,5	kW	T _j = -7 °C	<i>COP_d</i>	2,32	-
T _j = +2 °C	<i>P_{dh}</i>	11,5	kW	T _j = +2 °C	<i>COP_d</i>	2,96	-
T _j = +7 °C	<i>P_{dh}</i>	15,2	kW	T _j = +7 °C	<i>COP_d</i>	3,91	-
T _j = +12 °C	<i>P_{dh}</i>	17,9	kW	T _j = +12 °C	<i>COP_d</i>	4,78	-
T _j = bivalent temperature	<i>P_{dh}</i>	9,9	kW	T _j = bivalent temperature	<i>COP_d</i>	2,48	-
T _j = operation limit temperature	<i>P_{dh}</i>	8,6	kW	T _j = operation limit temperature	<i>COP_d</i>	2,06	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-5	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	3,7	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	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						
Sound power level, indoors/ outdoors	<i>L_{WA}</i>	na/64	dB	For air-to-water heat pumps: Rated air flow rate, outdoors	-	4100	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	8314	kWh	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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Average climate and Low temperature

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Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	A+ -
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	148 %
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>	13	kW	Seasonal space heating energy efficiency	η_s	147	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	10,1	kW	T _j = -7 °C	<i>COP_d</i>	3,08	-
T _j = +2 °C	<i>P_{dh}</i>	12,3	kW	T _j = +2 °C	<i>COP_d</i>	3,78	-
T _j = +7 °C	<i>P_{dh}</i>	16,3	kW	T _j = +7 °C	<i>COP_d</i>	4,89	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,70	-
T _j = bivalent temperature	<i>P_{dh}</i>	10,6	kW	T _j = bivalent temperature	<i>COP_d</i>	3,25	-
T _j = operation limit temperature	<i>P_{dh}</i>	9,2	kW	T _j = operation limit temperature	<i>COP_d</i>	2,83	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	na	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	na	-
Bivalent temperature	<i>T_{biv}</i>	-5	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-10	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	3,9	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	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	-	4100	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	na	m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	7193	kWh				

For heat pump combination heater:

Declared load profile	na	Efficiency class	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

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

Cold climate and Medium temperature

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Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	108 %
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 (*)	<i>Prated</i>	10	kW	Seasonal space heating energy efficiency	η_s	107	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	9,6	kW	T _j = -7 °C	<i>COP_d</i>	2,52	-
T _j = +2 °C	<i>P_{dh}</i>	11,7	kW	T _j = +2 °C	<i>COP_d</i>	3,16	-
T _j = +7 °C	<i>P_{dh}</i>	15,5	kW	T _j = +7 °C	<i>COP_d</i>	4,14	-
T _j = +12 °C	<i>P_{dh}</i>	18,0	kW	T _j = +12 °C	<i>COP_d</i>	4,92	-
T _j = bivalent temperature	<i>P_{dh}</i>	7,6	kW	T _j = bivalent temperature	<i>COP_d</i>	2,17	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,2	kW	T _j = operation limit temperature	<i>COP_d</i>	1,40	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,3	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	1,95	-
Bivalent temperature	<i>T_{biv}</i>	-14	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,99	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	4,4	kW
Thermostat-off mode	<i>P_{TO}</i>	0,020	kW	Type of energy input	Electric		
Standby mode	<i>P_{SB}</i>	0,018	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P_{CK}</i>	0,000	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	Fixed			-	4100	<i>m³/h</i>	
Sound power level, indoors/ outdoors	<i>L_{WA}</i>	na/64	<i>dB</i>	-	na	<i>m³/h</i>	
Annual energy consumption	<i>Q_{HE}</i>	8576	<i>kWh</i>				

For heat pump combination heater:

Declared load profile	na	Efficiency class	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

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Cold climate and Low temperature

Model(s):	CTC EcoAir 415 + CTC Basicstyrning		
Air-to-water heat pump:	Yes	Energy efficiency class:	-
Water-to-water heat pump:	No	Controller class:	I -
Brine-to-water heat pump:	No	Controller contribution:	1 %
Low-temperature heat pump:	No	Package efficiency:	131 %
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 (*)	<i>Prated</i>	10	kW	Seasonal space heating energy efficiency	η_s	130	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7 °C	<i>P_{dh}</i>	10,2	kW	T _j = -7 °C	<i>COP_d</i>	3,21	-
T _j = +2 °C	<i>P_{dh}</i>	12,4	kW	T _j = +2 °C	<i>COP_d</i>	3,90	-
T _j = +7 °C	<i>P_{dh}</i>	16,5	kW	T _j = +7 °C	<i>COP_d</i>	5,01	-
T _j = +12 °C	<i>P_{dh}</i>	18,8	kW	T _j = +12 °C	<i>COP_d</i>	5,67	-
T _j = bivalent temperature	<i>P_{dh}</i>	8,2	kW	T _j = bivalent temperature	<i>COP_d</i>	2,72	-
T _j = operation limit temperature	<i>P_{dh}</i>	5,8	kW	T _j = operation limit temperature	<i>COP_d</i>	2,04	-
For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>P_{dh}</i>	7,9	kW	For air-to-water heat pumps: T _j = -15 °C (if TOL < -20 °C)	<i>COP_d</i>	2,63	-
Bivalent temperature	<i>T_{biv}</i>	-14	°C	For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	-22	°C
Cycling interval capacity for heating	<i>P_{Cych}</i>	na	kW	Cycling interval efficiency	<i>COP_{Cyc}</i>	na	-
Degradation co-efficient (**)	<i>C_{dh}</i>	0,97	-	Heating water operating limit temperature	<i>WTOL</i>	55	°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>	4,5	kW
Thermostat-off mode	<i>P_{TO}</i>	0,067	kW	Type of energy input	Electric		
Standby mode	<i>P_{SB}</i>	0,018	kW	For air-to-water heat pumps: Rated air flow rate, outdoors			
Crankcase heater mode	<i>P_{CK}</i>	0,000	kW				
Other items				For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			
Capacity control	Fixed			-	4100	na	m ³ /h
Sound power level, indoors/outdoors	<i>L_{WA}</i>	na/64	dB	-	na		m ³ /h
Annual energy consumption	<i>Q_{HE}</i>	7695	kWh				
For heat pump combination heater:							
Declared load profile	na	Efficiency class	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

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