

EcoAir 510M Air-to-water Heat Pump, single phase, 230 V

Main features	
Application	space heating and hot water heating
Description	Heat pumps extract energy from the ambient air (at outdoor temp. of down to -22°C). This energy is then “pumped” to a higher temp. and transferred into heating water. The flow temp. may reach up to 65 °C. It is equipped with modulating compressor control which enables efficient operation adjustment to current working conditions.
Working fluid	R410A (refrigerant), water (heating circuit)
Installation ¹	the heat pump shall be installed together with either EcoZenit Multi-Energy Thermal Store (code 17192) or a pump station with controller (codes 17357 or 17358), see the Accessories table
Certification	HP Keymark - European Committee for Standardization quality label
Code	15676

1) in case of installation in series, the first heat pump in series shall be installed with Pump Station Kit w. Smart Controller, all the heat pumps following in series shall be installed with CSE TC W PWM pump station (for codes see Accessories)



Technical data	
Nominal output ²	3,0 kW / 6,5 kW
Nominal power input ²	0,45 kW / 3,0 kW
COP ²	4,29 / 2,21
Nominal current ³	20,8 A
Power supply	1/N/PE ~ 230 V 50Hz
Recommended circuit breaker	B20A 1f
Ingress protection (IP)	IPX4
Max. heat pump flow temp.	65 °C
Max. heating water temperature at HP inlet	100 °C
Max. working pressure of heat. water	3 bar
Heating water volume in heat pump	1,9 l
Min. volume of heating system that cannot be shut off	80 l
Min. flow rate through heat pump	760 l/h
Min. surface area of heat exch. in tank	1 m ²
Air operating temp.	-22/35 °C
Air volume	3800 m ³ /h
Fan speed	variable
Fan input power	73 W
Compressor / oil type	twin rotary / PVE FV50S
Refrigerant	R410 A (GWP 2088)
Refrigerant quantity	2,2 kg
CO ₂ equivalent ⁴	4,594 t
Refrigerant max. working pressure	45 bar
Connections	2 x Cu 28x1,5 mm
Weight	119 kg

2) for temperatures A+7/W35 at min. speed and A-7/W35 at max. speed following EN 14511 3) at max. speed incl. circulation pump 4) not subject to mandatory tightness control following EU Regulation No. 517/2014

Parameters for distribution tariff change	
Nominal power input (required input)	3,8 kW
Heat output ⁵	9 kW
Steady current ⁵	6,6 A
Starting current	2,8 A
Nominal voltage / number of phases	230 v 1f

5) for temperatures A2/W35 and max. compressor rpm

Energy efficiency data (for low-temperature applications under average climatic conditions, others see the Product Fiche)	
Seasonal Energy Efficiency	171 %
Energy Efficiency Class	A++
SCOP	4,40

EcoAir 510M Air-to-water Heat Pump, single phase, 230 V

Sound data according to EN 12 102	
Sound power level	59,7 dB(A)
Sound pressure level at	37 dB(A)..... 5 m
	30 dB(A).... 10 m

Accessories	
Compensator for heat pump	part of delivery (code 16757)
EcoZenith i350 L Multi-Energy Thermal Store	code 17192
CSE TC W Pump Station & IR 12 CTC Controller	code 17357
CSE TC W Pump Station & IR 12 FV3F Controller	code 17358
Communication cable for heat pump, LIYCY 3x2x0.75 DGR pair, shielded ⁶	code 18262
Heating cable for EcoAir, 3.5m long	code 16168
Heating cable for EcoAir, 5m long	code 18104
In Line Heater	code 16166
Braided hose	for available variants with codes see the Catalogue
Coupler	for available variants with codes see the Catalogue
Elbow	for available variants with codes see the Catalogue

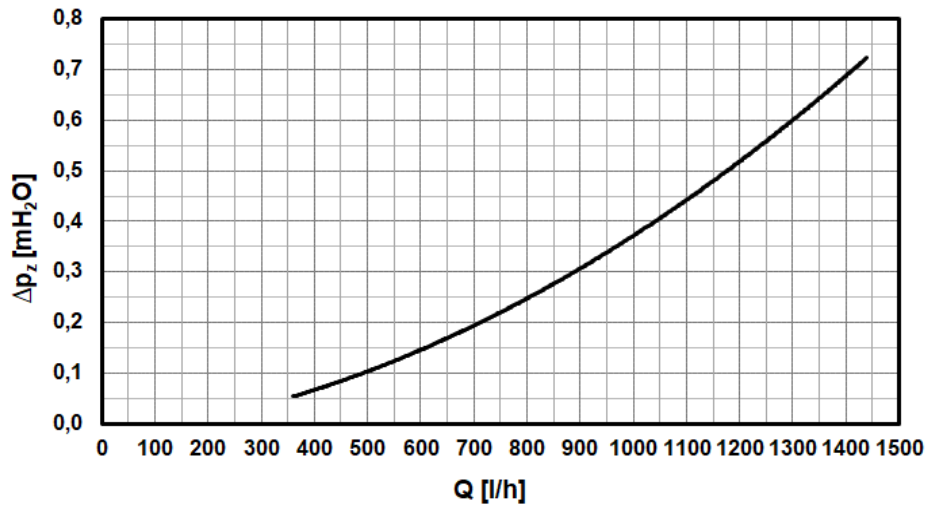
6) if the enclosed cable length (15m) is not suitable

Output parameters ⁷					
	Air temperature	temperature	Output [kW]	Power input [kW]	COP [-]
RPS 100 Hz	7 °C	35 °C	11,00	3,20	3,44
		45 °C	11,00	3,55	3,10
		55 °C	9,50	3,80	2,50
	2 °C	35 °C	9,00	3,10	2,90
		45 °C	9,00	3,45	2,61
		55 °C	8,00	3,80	2,11
	-7 °C	35 °C	6,50	3,00	2,17
		45 °C	7,50	3,40	2,21
		55 °C	6,50	3,70	1,76
	-15 °C	35 °C	5,50	2,80	1,96
		45 °C	6,00	3,30	1,82
		55 °C	5,00	3,00	1,67
RPS 50 Hz	7 °C	35 °C	6,20	1,15	5,39
		45 °C	6,50	1,70	3,82
		55 °C	5,70	1,70	3,35
	2 °C	35 °C	4,50	1,20	3,75
		45 °C	5,00	1,50	3,33
		55 °C	4,30	1,80	2,39
	-7 °C	35 °C	3,50	1,25	2,80
		45 °C	3,50	1,40	2,50
		55 °C	3,40	1,50	2,27
	-15 °C	35 °C	2,50	1,15	2,17
		45 °C	3,00	1,50	2,00
		55 °C	2,50	1,60	1,56
RPS 20 Hz	7 °C	35 °C	3,00	0,45	6,67
		45 °C	3,00	0,70	4,29
		55 °C	2,80	0,63	4,44
	2 °C	35 °C	2,50	0,50	5,00
		45 °C	2,50	0,65	3,85
		55 °C	1,80	0,65	2,77
	-7 °C	35 °C	1,50	0,55	2,73
		45 °C	1,50	0,63	2,38
		55 °C	1,30	0,60	2,17

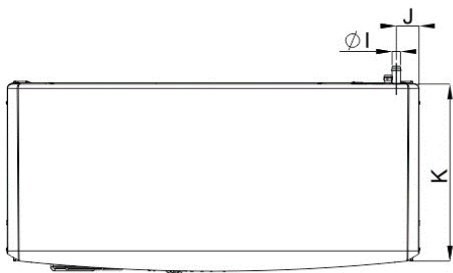
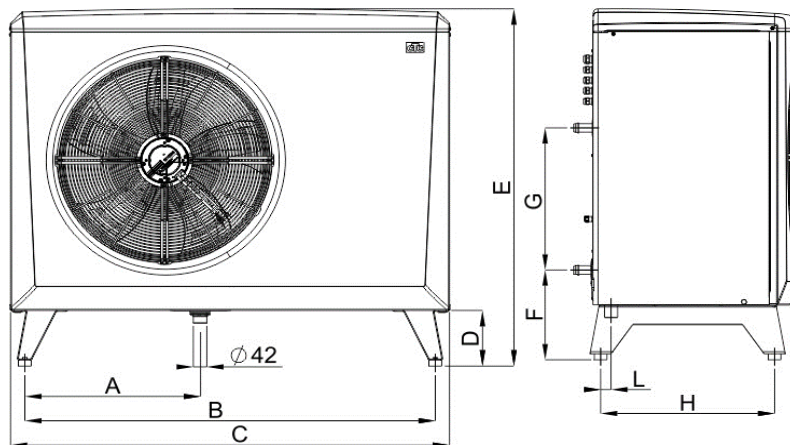
7) The values of working parameters are measured according to EN 14 511 including defrost cycle at the manufacturer's test lab.

EcoAir 510M Air-to-water Heat Pump, single phase, 230 V

Condenser pressure drop graph



Dimensions



	[mm]		[mm]
A	486	G	476
B	1155	H	451
C	1245	I	Ø28
D	188	J	85
E	1080	K	545
F	308	L	10

EcoAir 510M Air-to-water Heat Pump, single phase, 230 V

Supplier's name *REGULUS spol. s.r.o.*
 Supplier's model identifier *CTC EcoAir 510M 1x230 V*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A++	A++
Average climate		
The rated heat output including any supplementary heaters	4 kW	8 kW
The seasonal space heating energy efficiency	171 %	125 %
The annual energy consumption	2 005 kWh	5 155 kWh
Cold climate		
The rated heat output including any supplementary heaters	6 kW	6 kW
The seasonal space heating energy efficiency	154 %	116 %
The annual energy consumption	3 780 kWh	4 791 kWh
Warm climate		
The rated heat output including any supplementary heaters	9 kW	9 kW
The seasonal space heating energy efficiency	218 %	161 %
The annual energy consumption	2250 kWh	3003 kWh
The sound power level LWA, outdoors	60 dB	

Any specific precautions that shall be taken when the space heater is assembled, installed or maintained are stated in the manual that is part of the supply.

Model(s):	CTC EcoAir 510M 1x230 V
Air-to-water heat pump:	yes
Water-to-water heat pump:	no
Brine-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with a supplementary heater:	no
Heat pump combination heater:	no

Parameters declared for medium-temperature application and average climate.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	8	kW	Seasonal space heat. ener. efficiency	η_s	125	%
<i>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j:</i>				<i>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temp. T_j:</i>			
$T_j = -7\text{ °C}$	P_{dh}	7,00	kW	$T_j = -7\text{ °C}$	COP_d	1,95	-
$T_j = +2\text{ °C}$	P_{dh}	4,40	kW	$T_j = +2\text{ °C}$	COP_d	3,14	-
$T_j = +7\text{ °C}$	P_{dh}	2,80	kW	$T_j = +7\text{ °C}$	COP_d	4,63	-
$T_j = +12\text{ °C}$	P_{dh}	2,90	kW	$T_j = +12\text{ °C}$	COP_d	6,17	-
$T_j = \text{bivalent temperature}$	P_{dh}	7,20	kW	$T_j = \text{bivalent temperature}$	COP_d	1,84	-
$T_j = \text{operation limit temperature}$	P_{dh}	6,10	kW	$T_j = \text{operation limit temperature}$	COP_d	1,71	-
For air-to-water heat pumps:	P_{dh}	-	kW	For air-to-water heat pumps:	COP_d	-	-
$T_j = -15\text{ °C}$, if $TOL < -20\text{ °C}$				$T_j = -15\text{ °C}$, if $TOL < -20\text{ °C}$			
Bivalent temperature	T_{biv}	-8	°C	For air-to-water heat pumps:	T_{OL}	0	°C
Cycling interval capacity for heating	P_{cyc}	-	kW	operation limit temperature	COP_{cyc}	-	-
Degradation co-efficient (**)	C_{dh}	0,98	-	Cycling interval efficiency			
<i>Power consumption in modes other than active mode:</i>				Heating water operating limit temp.	W_{TOL}	65	°C
Off mode	P_{OFF}	0,015	kW	<i>Supplementary heater</i>			
Thermostat-off mode	P_{TO}	0,009	kW	Rated heat output (*)	P_{sup}	1,90	kW
Standby mode	P_{SB}	0,015	kW	Type of energy input	electric		
Crankcase heater mode	P_{CK}	0,023	kW	For air-to-water heat pumps:			
<i>Other items:</i>				rated air flow rate, outdoors		6200	m³/h
Capacity control		variable		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	-/60	db	rated brine or water flow rate, outdoor heat exchanger		-	m³/h

Contacts details **Erntech AB, Box 309, SE-341 26 Ljungby, Sweden** www.ctc.se

(*) For heat pump space heaters and heat pump combination heaters, the rated output P_{rated} is equal to the design load for heating $P_{desingh}$ and the 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 $C_{dh} = 0,9$.