

EcoAir 406 Air-to-water Heat Pump

v1.9_02/2021



Main features	
Application	space heating and hot water heating
Description	heat pumps extract energy from the ambient air (at outdoor temperature 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
Working fluid	R407C (refrigerant), water (heating circuit)
Installation ¹	the heat pump shall be installed with EcoZenith multi-energy thermal store, or with a Pump Station Kit w. Smart Controller; see Catalogue
Certification	HP Keymark - European Committee for Standardization quality label
Code	13243

** 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 Catalogue)*

Technical data	
Nominal output ²	4,69 kW
Nominal power input ²	1,28 kW
COP ²	3,66
Nominal current ^{2 and 3}	4,0 A
Power supply	3/N/PE ~ 400/230V 50Hz
Recommended circuit breaker	B10A 3phase
Max. heat pump flow temp.	65 °C
Max. heating water temperature at HP inlet	110 °C
Max. working pressure of heat. water	3 bar
Heating water volume in heat pump	1,9 l
Min. flow rate through heat pump	760 l/h
Min. surface area of heat exchanger in tank	2 m ²
Air operating temp.	-22/35 °C
Max. air volume	2500 m ³ /h
Fan max. speed	463 rpm
Fan max. input power	25 W
Compressor / oil type	Scroll / PVE FV50S
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	2,2 kg
CO ₂ equivalent ⁴	3,902 t
Refrigerant max. working pressure	31 bar
Connections	2 x Cu 28x1,5 mm
Weight	120 kg

Parameters for distribution tariff change	
Nominal power input (required input)	1,83 kW
Heat output ²	4,69 kW
Steady current ²	2,1 A
Starting current	11,9 A
Nominal voltage / number of phases	400 V 3f

2) for temperatures A2/W35 3) incl. circulation pump 4) hermetically sealed equipment, not subject to mandatory tightness control following EU Regulation No. 517/2014

Energy efficiency data <i>(for low-temperature applications under average climatic conditions, others see the Product Fiche)</i>	
Seasonal Energy Efficiency	151%
Energy Efficiency Class	A++
SCOP	3,85

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Sound data according to EN 12 102

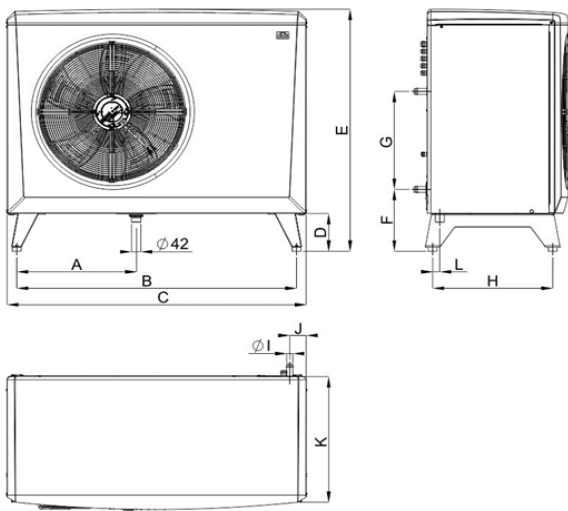
Sound power level LWA	56 dB
Sound pressure level LpA at	34 dB ... 5 m
	28 dB ... 10 m

Output parameters ⁸

Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
12 °C	35 °C	-	-	-
	45 °C	-	-	-
	55 °C	-	-	-
	65 °C	-	-	-
7 °C	35 °C	6,22	1,30	4,78
	45 °C	5,89	1,60	3,68
	55 °C	5,56	1,83	3,03
	65 °C	-	-	-
2 °C	35 °C	4,69	1,28	3,66
	45 °C	4,34	1,50	2,89
	55 °C	4,25	1,75	2,43
	65 °C	-	-	-
-7 °C	35 °C	3,87	1,25	3,10
	45 °C	3,63	1,47	2,47
	55 °C	3,43	1,73	1,99
-15 °C	35 °C	2,84	1,17	2,42
	45 °C	2,65	1,40	1,90
	55 °C	2,49	1,62	1,54

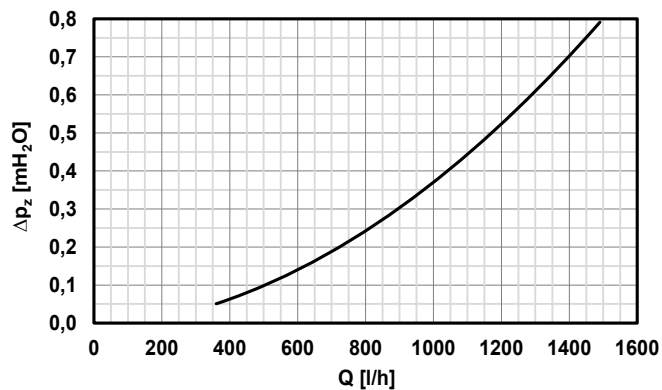
8) The values of working parameters are measured according to EN 14 511 including defrost cycle at the manufacturer's test lab.

Dimensions



	[mm]		[mm]
A	486	G	476
B	1155	H	450
C	1245	I	Ø28
D	188	J	85
E	1080	K	545
F	308	L	10

Condenser pressure drop graph



EcoAir 406 Air-to-water Heat Pump

Supplier's name *REGULUS spol. s.r.o.*
 Supplier's model identifier *CTC EcoAir 406*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A++	A+
Average climate		
The rated heat output including any supplementary heaters	5 kW	5 kW
The seasonal space heating energy efficiency	151 %	115 %
The annual energy consumption	2 722 kWh	3 470 kWh
Cold climate		
The rated heat output including any supplementary heaters	4 kW	5 kW
The seasonal space heating energy efficiency	131 %	103 %
The annual energy consumption	3 045 kWh	4 785 kWh
Warm climate		
The rated heat output including any supplementary heaters	5 kW	5 kW
The seasonal space heating energy efficiency	188 %	140 %
The annual energy consumption	1 451 kWh	1 947 kWh
The sound power level L_{WA}, outdoors	56 dB	

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

Model:	CTC EcoAir 406
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 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}	5	kW	Seasonal space heating energy efficiency	η_s	115	%
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	P_{dh}	3,50	kW	$T_j = -7$ °C	COP_d	2,13	-
$T_j = +2$ °C	P_{dh}	4,40	kW	$T_j = +2$ °C	COP_d	2,93	-
$T_j = +7$ °C	P_{dh}	6,00	kW	$T_j = +7$ °C	COP_d	3,99	-
$T_j = +12$ °C	P_{dh}	7,60	kW	$T_j = +12$ °C	COP_d	5,21	-
$T_j =$ bivalent temperature	P_{dh}	3,80	kW	$T_j =$ bivalent temperature	COP_d	2,44	-
$T_j =$ operation limit temperature	P_{dh}	3,10	kW	$T_j =$ operation limit temperature	COP_d	1,82	-
For air-to-water heat pumps:	P_{dh}	-	kW	For air-to-water heat pumps:	COP_d	-	-
$T_j = -15$ °C (if TOL < -20 °C)				$T_j = -15$ °C (if TOL < -20 °C)			
Bivalent temperature	T_{biv}	-5,00	°C	For air-to-water heat pumps:	T_{OL}	-10,00	°C
				operation limit temperature			
Cycling interval capacity for heating	P_{cvc}	-	kW	Cycling interval efficiency	COP_{cvc}	-	-
Degradation co-efficient (**)	C_{dh}	0,98	-	Heating water operating limit temp.	W_{TOL}	55,00	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,018	kW	Rated heat output (*)	P_{sup}	1,90	kW
Thermostat-off mode	P_{TO}	0,006	kW	Type of energy input	electric		
Standby mode	P_{SB}	0,018	kW				
Crankcase heater mode	P_{CK}	0,000	kW				
Other items				For air-to-water heat pumps:			
capacity control		fixed		rated air flow rate, outdoors	4100	m³/h	
Sound power level, indoors / outdoors	L_{WA}	- / 56	dB	For water/brine-to-water heat pumps:			
				Rated brine or water flow rate, outdoor heat exchanger	-	m³/h	

Contact 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 heat output P_{rated} 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 capacity for heating $sup(T_j)$.

(**) If C_{dh} is not determined by measurement then the default degradation is $C_{dh} = 0,9$.