

EcoAir 420 Air-to-water Heat Pump



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 a Pump Station Kit w. Smart Controller (code 17357 or 17358); see Accessories
Certification	HP Keymark - European Committee for Standardization quality label
Code	12848

** 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	13,87 kW
Nominal power input ²	3,92 kW
COP ²	3,54
Nominal current ^{2 a 3}	11,8 A
Power supply	3/N/PE ~ 400/230V 50Hz
Recommended circuit breaker	B16A 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	4,5 l
Min. flow rate through heat pump	2300 l/h
Min. surface area of heat exchanger in tank	5 m ²
Air operating temp.	-22/35 °C
Air volume (low / high speed)	5400 / 6200 m ³ /h
Fan speed (low / high speed)	650 / 715 rpm
Fan max. input power	170 W
Compressor / oil type	Scroll / PVE FV50S
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	3,5 kg
CO ₂ equivalent ⁴	6,209 t
Refrigerant max. working pressure	31 bar
Connections	2 x Cu 28x1,5 mm
Weight	190 kg

Parameters for distribution tariff change	
Nominal power input (required input)	6,38 kW
Heat output ²	13,87 kW
Steady current ²	6,3 A
Starting current	24,4 A
Starting current with softstarter ^{2 and 5}	6,3 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 5) the electronic softstarter is used to reduce the value of the starting current, it is not included in the HP supply and when needed, it shall be ordered separately, for its code see the Accessories table

Energy efficiency data	
<i>(for low-temperature applications under average climatic conditions, others see the Product Fiche)</i>	
Seasonal Energy Efficiency	145%
Energy Efficiency Class	A+
SCOP	3,71

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v2.1_02/2021

Sound data according to EN 12 102

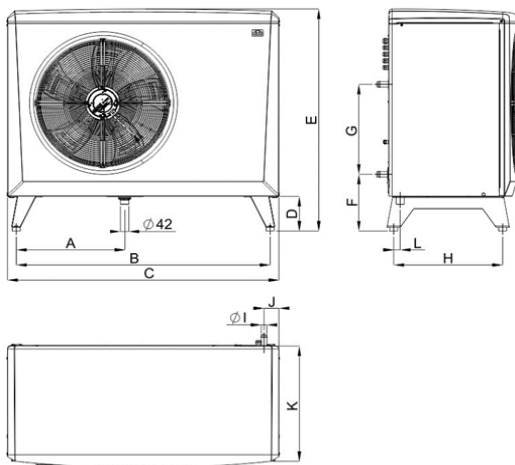
Sound power level LWA	66 dB
Sound pressure level LpA at	44 dB... 5 m
	39 dB ... 10 m

Output parameters ⁸

Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
12 °C	35 °C	20,78	4,14	5,02
	45 °C	19,70	4,88	4,04
	55 °C	18,34	5,55	3,31
	65 °C	17,30	6,38	2,71
7 °C	35 °C	17,55	4,06	4,33
	45 °C	17,19	4,76	3,61
	55 °C	15,94	5,45	2,92
	65 °C	14,85	6,24	2,38
2 °C	35 °C	13,87	3,92	3,54
	45 °C	13,43	4,54	2,96
	55 °C	13,05	5,10	2,56
	65 °C	12,02	5,86	2,06
-7 °C	35 °C	11,42	3,78	3,02
	45 °C	11,02	4,32	2,55
	55 °C	10,91	4,83	2,26
-15 °C	35 °C	8,96	3,59	2,50
	45 °C	8,54	4,10	2,08
	55 °C	8,36	4,61	1,82

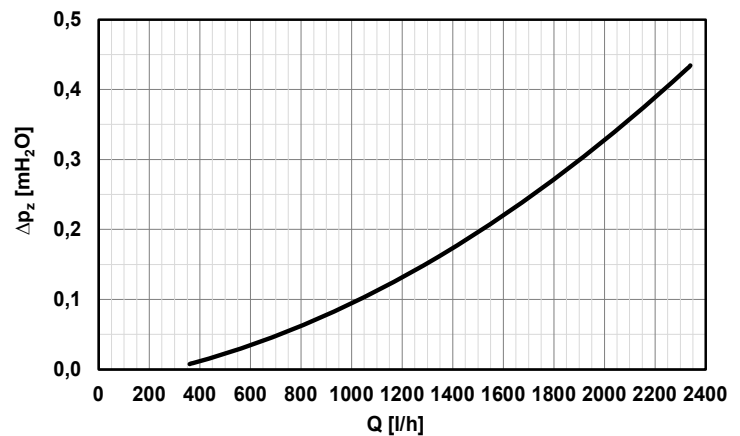
8) The values of working parameters are measured according to EN 14 511 including defrost cycle at the manufacturer's test lab.

Dimensions



	[mm]		[mm]
A	550	G	476
B	1285	H	550
C	1375	I	Ø28
D	188	J	83
E	1180	K	645
F	308	L	33

Condenser pressure drop graph



EcoAir 420 Air-to-water Heat Pump

Supplier's name REGULUS spol. s.r.o.
Supplier's model identifier CTC EcoAir 420

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A+	A+
Average climate		
The rated heat output including any supplementary heaters	14 kW	14 kW
The seasonal space heating energy efficiency	145 %	119 %
The annual energy consumption	7 739 kWh	9 646 kWh
Cold climate		
The rated heat output including any supplementary heaters	12 kW	11 kW
The seasonal space heating energy efficiency	129 %	107 %
The annual energy consumption	8 876 kWh	9 970 kWh
Warm climate		
The rated heat output including any supplementary heaters	15 kW	14 kW
The seasonal space heating energy efficiency	175 %	140 %
The annual energy consumption	4 574 kWh	5 390 kWh
The sound power level L_{WA}, outdoors	66 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 420
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}	14	kW	Seasonal space heating energy efficiency	η_s	119	%
<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 temperature T_j.</i>			
$T_j = -7$ °C	P_{dh}	10,90	kW	$T_j = -7$ °C	COP_d	2,35	-
$T_j = +2$ °C	P_{dh}	13,40	kW	$T_j = +2$ °C	COP_d	2,97	-
$T_j = +7$ °C	P_{dh}	17,30	kW	$T_j = +7$ °C	COP_d	3,81	-
$T_j = +12$ °C	P_{dh}	20,30	kW	$T_j = +12$ °C	COP_d	4,62	-
$T_j =$ bivalent temperature	P_{dh}	11,50	kW	$T_j =$ bivalent temperature	COP_d	2,49	-
$T_j =$ operation limit temperature	P_{dh}	10,00	kW	$T_j =$ operation limit temperature	COP_d	2,1	-
For air-to-water heat pumps: $T_j = -15$ °C (if TOL < -20 °C)	P_{dh}	-	kW	For air-to-water heat pumps: $T_j = -15$ °C (if TOL < -20 °C)	COP_d	-	-
Bivalent temperature	T_{biv}	-5,00	°C	For air-to-water heat pumps: operation limit temperature	T_{OL}	-10,00	°C
Cycling interval capacity for heating	P_{cvc}	-	kW	Cycling interval efficiency	COP_{cvc}	-	-
Degradation co-efficient (**)	C_{dh}	0,99	-	Heating water operating limit temp.	W_{TOL}	55,00	°C
<i>Power consumption in modes other than active mode</i>				<i>Supplementary heater</i>			
Off mode	P_{OFF}	0,018	kW	Rated heat output (*)	P_{sup}	4,30	kW
Thermostat-off mode	P_{TO}	0,020	kW	Type of energy input	electric		
Standby mode	P_{SB}	0,018	kW	For air-to-water heat pumps: rated air flow rate, outdoors		4100	m ³ /h
Crankcase heater mode	P_{CK}	0,000	kW	For water/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		-	m ³ /h
<i>Other items</i>							
capacity control		fixed					
Sound power level, indoors / outdoors	L_{WA}	-/66	dB				

Contact details **Enertech 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 $C_{dh} = 0,9$.