

**EcoAir 410 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 <sup>1</sup>	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
<b>Code</b>	<b>12994</b>

*\* 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 <sup>2</sup>	8,80 kW
Nominal power input <sup>2</sup>	2,30 kW
COP <sup>2</sup>	3,83
Nominal current <sup>2</sup> and <sup>3</sup>	7,5 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	2,8 l
Min. flow rate through heat pump	1400 l/h
Min. surface area of heat exchanger in tank	2,5 m <sup>2</sup>
Air operating temp.	-22/35 °C
Max. air volume	4100 m <sup>3</sup> /h
Fan max. speed	489 rpm
Fan max. input power	60 W
Compressor / oil type	Scroll / PVE FV50S
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	2,7 kg
CO <sub>2</sub> equivalent <sup>4</sup>	4,789 t
Refrigerant max. working pressure	31 bar
Connections	2 x Cu 28x1,5 mm
Weight	180 kg

Parameters for distribution tariff change	
Nominal power input (required input)	3,87 kW
Heat output <sup>2</sup>	8,8 kW
Steady current <sup>2</sup>	3,7 A
Starting current	14,3 A
Starting current with softstarter <sup>2</sup> and <sup>5</sup>	3,7 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 Catalogue*

Energy efficiency data (for low-temperature applications under average climatic conditions, others see the Product Fiche)	
Seasonal Energy Efficiency	154%
Energy Efficiency Class	A++
SCOP	3,92

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### Sound data according to EN 12 102

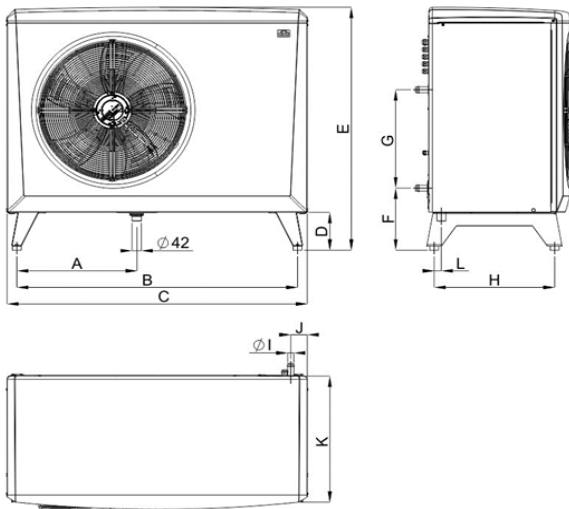
Sound power level LwA	58 dB
Sound pressure level LpA at	36 dB ... 5 m
	30 dB ... 10 m

### Output parameters <sup>8</sup>

Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
12 °C	35 °C	13,60	2,44	5,57
	45 °C	12,91	2,95	4,38
	55 °C	12,06	3,31	3,64
	65 °C	11,35	3,87	2,93
7 °C	35 °C	11,45	2,36	4,86
	45 °C	10,89	2,86	3,81
	55 °C	10,48	3,30	3,18
	65 °C	9,71	3,77	2,57
2 °C	35 °C	8,80	2,30	3,83
	45 °C	8,58	2,79	3,07
	55 °C	8,01	3,06	2,62
	65 °C	8,22	3,69	2,23
-7 °C	35 °C	7,07	2,24	3,16
	45 °C	6,72	2,64	2,55
	55 °C	6,63	3,04	2,18
-15 °C	35 °C	5,63	2,13	2,65
	45 °C	5,22	2,51	2,08
	55 °C	4,93	2,81	1,76

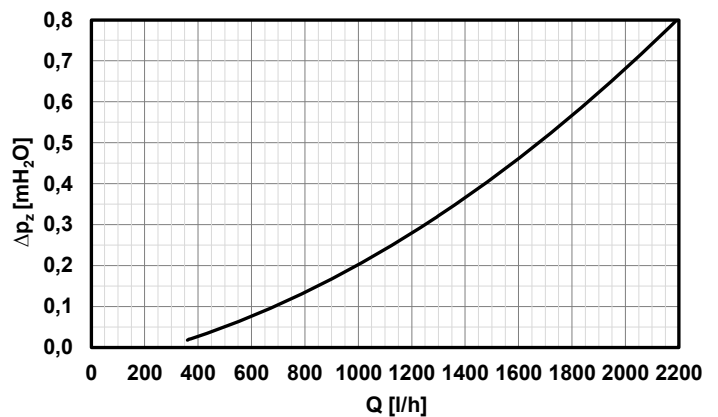
8) The values of working parameters are measured according to EN 14 511 including defrost cycle at the manufacturer's test lab.

### 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 410 Air-to-water Heat Pump**

Supplier's name *REGULUS spol. s.r.o.*  
 Supplier's model identifier *CTC EcoAir 410*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	<b>A++</b>	<b>A+</b>
<b>Average climate</b>		
The rated heat output including any supplementary heaters	<b>10 kW</b>	<b>9 kW</b>
The seasonal space heating energy efficiency	<b>154 %</b>	<b>121 %</b>
The annual energy consumption	<b>5 063 kWh</b>	<b>5 826 kWh</b>
<b>Cold climate</b>		
The rated heat output including any supplementary heaters	<b>7 kW</b>	<b>7 kW</b>
The seasonal space heating energy efficiency	<b>136 %</b>	<b>109 %</b>
The annual energy consumption	<b>5 337 kWh</b>	<b>6 381 kWh</b>
<b>Warm climate</b>		
The rated heat output including any supplementary heaters	<b>10 kW</b>	<b>9 kW</b>
The seasonal space heating energy efficiency	<b>189 %</b>	<b>145 %</b>
The annual energy consumption	<b>2 734 kWh</b>	<b>3 227 kWh</b>
<b>The sound power level <math>L_{WA}</math>, outdoors</b>	<b>58 dB</b>	

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.

<b>Model:</b>	<b>CTC EcoAir 410</b>
<b>Air-to-water heat pump:</b>	<b>yes</b>
<b>Water-to-water heat pump:</b>	<b>no</b>
<b>Brine-to-water heat pump:</b>	<b>no</b>
<b>Low-temperature heat pump:</b>	<b>no</b>
<b>Equipped with supplementary heater:</b>	<b>no</b>
<b>Heat pump combination heater:</b>	<b>no</b>

**Parameters declared for medium-temperature application and average climate.**

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	<b>9</b>	kW	Seasonal space heating energy efficiency	$\eta_s$	<b>121</b>	%
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	$P_{dh}$	<b>6,60</b>	kW	$T_j = -7$ °C	$COP_d$	<b>2,22</b>	-
$T_j = +2$ °C	$P_{dh}$	<b>8,60</b>	kW	$T_j = +2$ °C	$COP_d$	<b>3,07</b>	-
$T_j = +7$ °C	$P_{dh}$	<b>11,10</b>	kW	$T_j = +7$ °C	$COP_d$	<b>3,99</b>	-
$T_j = +12$ °C	$P_{dh}$	<b>13,30</b>	kW	$T_j = +12$ °C	$COP_d$	<b>5,04</b>	-
$T_j =$ bivalent temperature	$P_{dh}$	<b>7,00</b>	kW	$T_j =$ bivalent temperature	$COP_d$	<b>2,46</b>	-
$T_j =$ operation limit temperature	$P_{dh}$	<b>5,90</b>	kW	$T_j =$ operation limit temperature	$COP_d$	<b>1,95</b>	-
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	$T_{biv}$	<b>-5,00</b>	°C	For air-to-water heat pumps:	$T_{OL}$	<b>-10,00</b>	°C
				operation limit temperature			
Cycling interval capacity for heating	$P_{cvc}$	-	kW	Cycling interval efficiency	$COP_{cvc}$	-	-
Degradation co-efficient (**)	$C_{dh}$	<b>0,99</b>	-	Heating water operating limit temp.	$W_{TOL}$	<b>55,00</b>	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	$P_{OFF}$	<b>0,018</b>	kW	Rated heat output (*)	$P_{sup}$	<b>2,80</b>	kW
Thermostat-off mode	$P_{TO}$	<b>0,013</b>	kW	Type of energy input	<b>electric</b>		
Standby mode	$P_{SB}$	<b>0,018</b>	kW				
Crankcase heater mode	$P_{CK}$	<b>0,000</b>	kW				
Other items				For air-to-water heat pumps:			
capacity control		<b>fixed</b>		rated air flow rate, outdoors	<b>4100</b>	<b>m<sup>3</sup>/h</b>	
Sound power level, indoors / outdoors	$L_{WA}$	<b>-58</b>	dB	For water/brine-to-water heat pumps:			
				Rated brine or water flow rate, outdoor heat exchanger	-	<b>m<sup>3</sup>/h</b>	

Contact details **Erntech AB, Box 309, SE-341 26 Ljungby, Sweden** [www.ctc.se](http://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  $P_{design}$ , 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  $C_{dh} = 0,9$ .