

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	the heat pump shall be installed with EcoZenith multi-energy thermal store (code 13241), or with a Pump Station Kit w. Smart Controller (code 17357 or 17358); see Accessories
Certification	HP Keymark - European Committee for Standardization quality label
Code	12994

* 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	8,8 kW
Nominal power input	2,30 kW
Nominal current ¹	7,5 A
Steady current	3,7 A
Starting current	21,6 A
Power supply	3/N/PE ~ 400/230V 50Hz
Recommended circuit breaker	B16A 3phase
Max. heat pump flow temp.	65 °C
Max. heating water temp. in system	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 tar	2,5 m ²
Air operating temp.	-22/35 °C
Max. air volume	4100 m ³ /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 ₂ equivalent ²	4,789 t
Refrigerant max. working pressure	31 bar
Connections	2 x Cu 28x1,5 mm
Weight	180 kg

1) incl. secondary circulation pump

2) is not covered by the annual check for leaking refrigerant (EU No 517/2014)

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

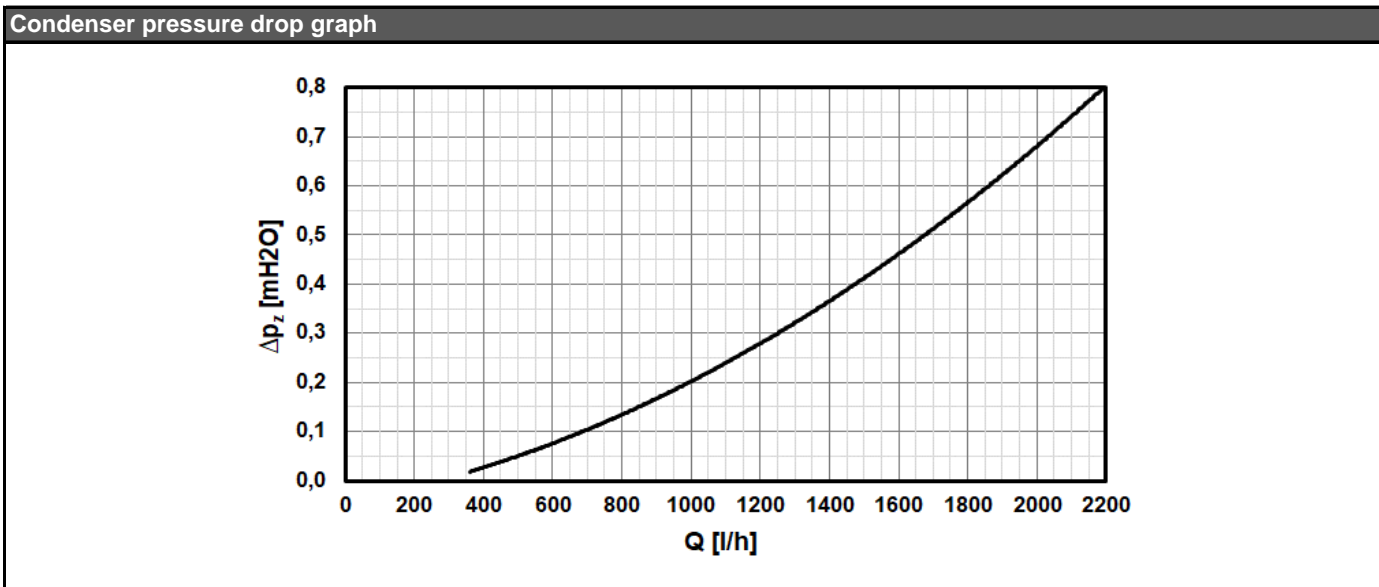
Sound data according to EN 12 102	
Sound power level LwA	58 dB(A)
Sound pressure level at	36 dB(A) ... 5 m
	30 dB(A) ... 10 m

Accessories	
Compensator for heat pumps	code16757
EcoZenith i250L Multi-Energy Thermal Store	code 13241
CSE TC W Pump Station & IR 12 CTC Controller	code 17357
CSE TC W Pump Station & IR 12 FV3F Controller	code 17358
CSE TC W PWM Pump Station *	code 15874
Heating cable for EcoAir	code 16168
In Line Heater	code 16166
Straight coupler	for available variants with codes see the Catalogue
Elbow	for available variants with codes see the Catalogue
Braided hose	for available variants with codes see the Catalogue

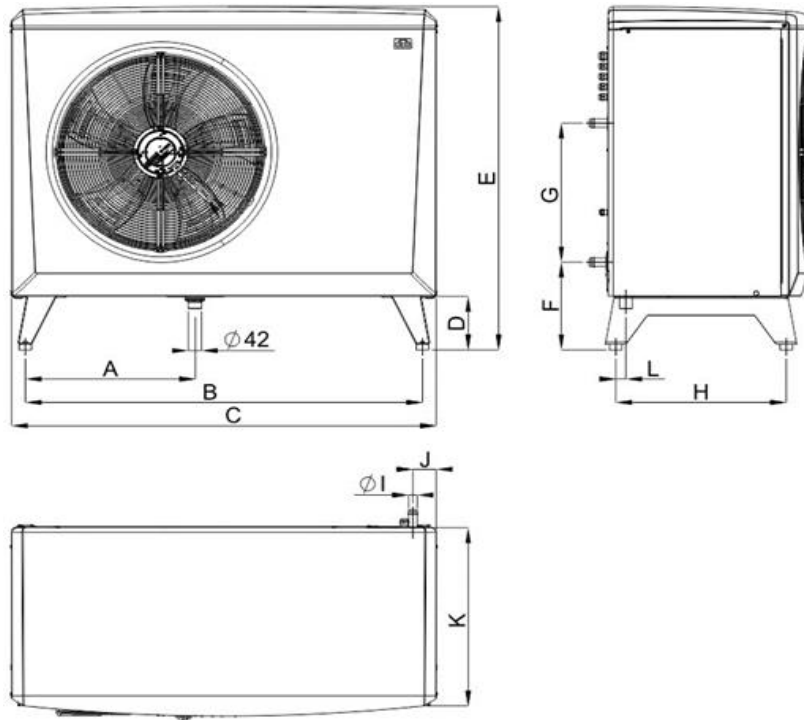
* applies only to installation in series, for heat pumps on the second and all following positions in the cascade (see Installation on Page 1)

Output parameters ³				
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

3) 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	551	G	476
B	1285	H	551
C	1375	I	Ø28
D	188	J	80
E	1180	K	610
F	301	L	33

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	A++	A+
Average climate		
The rated heat output including any supplementary heaters	10 kW	9 kW
The seasonal space heating energy efficiency	154 %	121 %
The annual energy consumption	5 063 kWh	5 826 kWh
Cold climate		
The rated heat output including any supplementary heaters	7 kW	7 kW
The seasonal space heating energy efficiency	136 %	109 %
The annual energy consumption	5 337 kWh	6 381 kWh
Warm climate		
The rated heat output including any supplementary heaters	10 kW	9 kW
The seasonal space heating energy efficiency	189 %	145 %
The annual energy consumption	2 734 kWh	3 227 kWh
The sound power level LWA, outdoors	58 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 410
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}	9	kW	Seasonal space heating energy efficie	η_s	121	%
<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>			
$T_j = -7\text{ °C}$	P_{dh}	6,60	kW	$T_j = -7\text{ °C}$	COP_d	2,22	-
$T_j = +2\text{ °C}$	P_{dh}	8,60	kW	$T_j = +2\text{ °C}$	COP_d	3,07	-
$T_j = +7\text{ °C}$	P_{dh}	11,10	kW	$T_j = +7\text{ °C}$	COP_d	3,99	-
$T_j = +12\text{ °C}$	P_{dh}	13,30	kW	$T_j = +12\text{ °C}$	COP_d	5,04	-
$T_j = \text{bivalent temperature}$	P_{dh}	7,00	kW	$T_j = \text{bivalent temperature}$	COP_d	2,46	-
$T_j = \text{operation limit temperature}$	P_{dh}	5,90	kW	$T_j = \text{operation limit temperature}$	COP_d	1,95	-
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}	-5,00	°C	For air-to-water heat pumps:	T_{OL}	-10,00	°C
Cycling interval capacity for heating	P_{cvc}	-	kW	operation limit temperature			
Degradation co-efficient (**)	C_{dh}	0,99	-	Cycling interval efficiency	COP_{cvc}	-	-
<i>Power consumption in modes other than active mode</i>				Heating water operating limit temp.	W_{TOL}	55,00	°C
Off mode	P_{OFF}	0,018	kW	<i>Supplementary heater</i>			
Thermostat-off mode	P_{TO}	0,013	kW	Rated heat output (*)	P_{sup}	2,80	kW
Standby mode	P_{SB}	0,018	kW	Type of energy input	electric		
Crankcase heater mode	P_{CK}	0,000	kW	For air-to-water heat pumps:			
<i>Other items</i>				rated air flow rate, outdoors		4100	m ³ /h
capacity control		fixed		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	-/58	db	Rated brine or water flow rate, outdoor heat exchanger		-	m ³ /h

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 $C_{dh} = 0,9$.