Data sheet

EcoAir 415 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	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	**12995**

** 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)*

Optional accessories

Heating Cable for EcoAir

In Line Heater

Braided hose

Technical data	
Nominal output	11,42 kW
Nominal power input	3,24 kW
Nominal current [1]	10,0 A
Steady current	5,5 A
Starting current	29,6 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	3,9 l
Min. flow rate through heat pump	1980 l/h
Min. surface area of heat exchanger in tar	3 m²
Air operating temp.	-22/35 °C
Air volume (low / high speed)	4000 / 5400 m³/h
Fan speed (low / high speed)	480 / 650 rpm
Fan max. input power	140 W
Compressor / oil type	Scroll / PVE FV50S
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	3,4 kg
CO_2 equivalent [2]	6,031 t
Refrigerant max. working pressure	31 bar
Connections	2 x Cu 28x1,5 mm
Weight	187 kg

1) incl. secondary circulation pump 2) hermetically sealed equipment; 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	147%
Energy Efficiency Class	A++
SCOP	3,76

Sound data according to EN 12 102	
Sound power level LwA	64 dB(A)
Sound pressure level at	42 dB(A) … 5 m 36 dB(A) … 10 m

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Accessories	
Compensator for heat pumps	code 16757
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

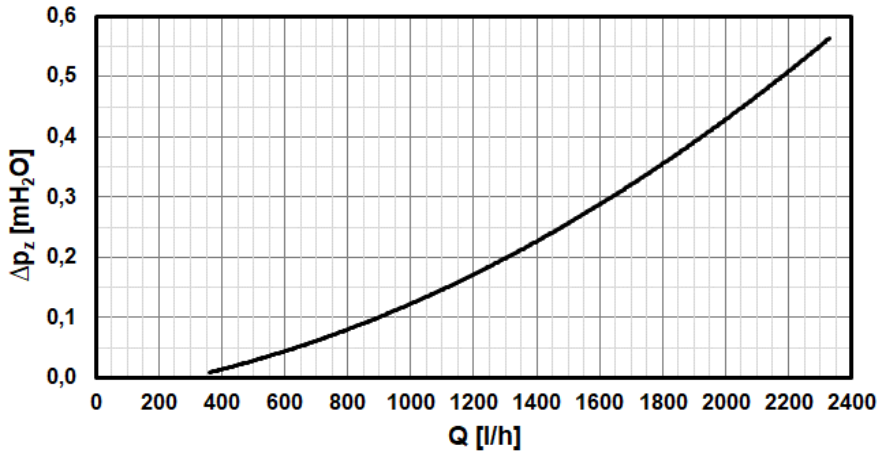
** applies only to installation in series, for heat pumps on the second and all following positions in the cascade (see Installation on Page 1)*

Output parameters [3]

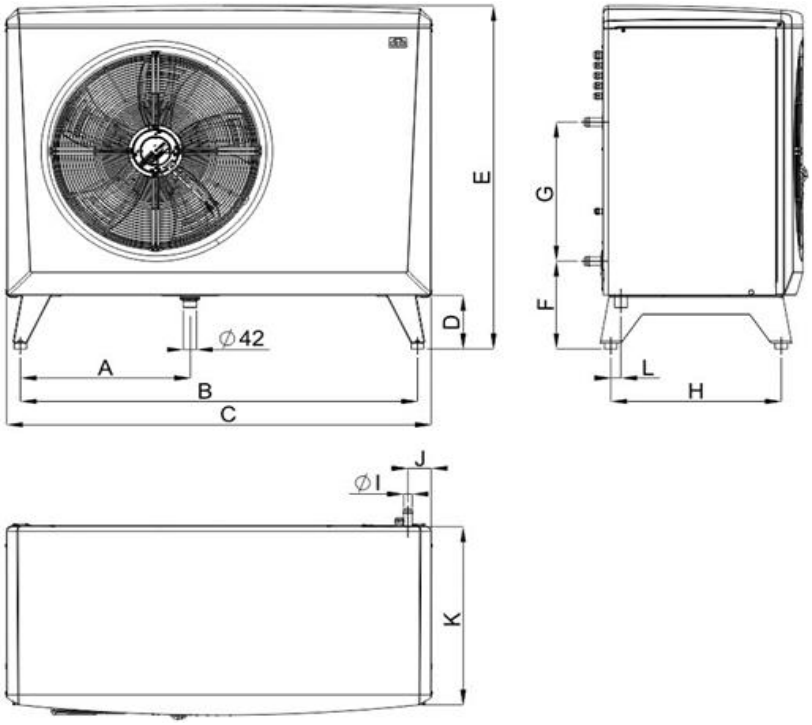
Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
12 °C	35 °C	18,26	3,55	5,15
	45 °C	17,34	4,14	4,19
	55 °C	16,81	4,76	3,53
	65 °C	16,08	5,53	2,91
7 °C	35 °C	15,92	3,52	4,52
	45 °C	14,92	4,09	3,65
	55 °C	14,46	4,66	3,11
	65 °C	13,90	5,34	2,58
2 °C	35 °C	12,08	3,39	3,57
	45 °C	11,53	3,92	2,94
	55 °C	11,17	4,41	2,54
	65 °C	10,66	5,00	2,11
-7 °C	35 °C	10,03	3,30	3,03
	45 °C	9,58	3,75	2,56
	55 °C	9,40	4,24	2,22
-15 °C	35 °C	7,77	3,10	2,50
	45 °C	7,36	3,56	2,07
	55 °C	7,15	4,02	1,78

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

Condenser pressure drop graph



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

Product Fiche

EcoAir 415 Air-to-water Heat Pump

Supplier's name *R E G U L U S spol. s.r.o.*
Supplier's model identifier *CTC EcoAir 415*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	**A++**	**A+**
Average climate		
The rated heat output including any suplementary heaters	**13 kW**	**12 kW**
The seasonal space heating energy efficiency	**147 %**	**119 %**
The annual energy consumption	**7 193 kWh**	**8 314 kWh**
Cold climate		
The rated heat output including any suplementary heaters	**10 kW**	**10 kW**
The seasonal space heating energy efficiency	**130 %**	**107 %**
The annual energy consumption	**7 695 kWh**	**8 576 kWh**
Warm climate		
The rated heat output including any suplementary heaters	**13 kW**	**12 kW**
The seasonal space heating energy efficiency	**179 %**	**143 %**
The annual energy consumption	**3 911 kWh**	**4 509 kWh**
The sound power level LWA, outdoors	**64 dB**	

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

Model:	**CTC EcoAir 415**
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
Rated heat output (*)	P_{rated}	**12**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj.			
Tj = - 7 °C	P_{dh}	**9,50**	kW
Tj = + 2 °C	P_{dh}	**11,50**	kW
Tj = + 7 °C	P_{dh}	**15,20**	kW
Tj = + 12 °C	P_{dh}	**17,90**	kW
Tj = bivalent temperature	P_{dh}	**9,90**	kW
Tj = operation limit temperature	P_{dh}	**8,60**	kW
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	P_{dh}	**-**	kW
Bivalent temperature	T_{biv}	**-5,00**	°C
Cycling interval capacity for heating	P_{cvc}	**-**	kW
Degradation co-efficient (**)	C_{dh}	**0,99**	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	**0,018**	kW
Thermostat-off mode	P_{TO}	**0,020**	kW
Standby mode	P_{SB}	**0,018**	kW
Crankcase heater mode	P_{CK}	**0,000**	kW
Other items capacity control		**fixed**	
Sound power level, indoors / outdoors	L_{WA}	**-/64**	db

Item	Symbol	Value	Unit
Seasonal space heating energy efficie	η_s	**119**	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj.			
Tj = - 7 °C	COP_d	**2,32**	-
Tj = + 2 °C	COP_d	**2,96**	-
Tj = + 7 °C	COP_d	**3,91**	-
Tj = + 12 °C	COP_d	**4,78**	-
Tj = bivalent temperature	COP_d	**2,48**	-
Tj = operation limit temperature	COP_d	**2,06**	-
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	COP_d	**-**	-
For air-to-water heat pumps: operation limit temperature	T_{OL}	**-10,00**	°C
Cycling interval efficiency	COP_{cvc}	**-**	-
Heating water operating limt temp.	W_{TOL}	**55,00**	°C
Supplementary heater			
Rated heat output (*)	P_{sup}	**3,70**	kW
Type of energy input		**electric**	
For air-to-water heat pumps: rated air flow rate, outdoors		**4100**	m^3/h
For water/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		**-**	m^3/h

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the capacity for heating sup(Tj).

(**) If Cdh is not determined by measurement then the default degradation is Cdh = 0,9.