

Main features	
Application	space heating and hot water heating
Description	heat pumps extract energy from ground; this energy gained from deep bores or ground collectors is then "pumped" to a higher temperature and transferred into heating water; the flow temp. may reach up to 65 °C
Installation	installation shall be done with Pump Station Kit w. Smart Controller (codes 17357 or 17358), see Accessories
Working fluid	R407C (refrigerant), antifreeze fluid (brine circuit), water (heating circuit)
Certification	HP Keymark - European Committee for Standardization quality label
Code	12650

* 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	11,75 kW
Nominal power input	2,55 kW
Nominal current	9,6 A
Steady current	4,1 A
Starting current	23,5 A
Power supply	3/N/PE ~ 400/230V 50Hz
Recommended circuit breaker	B16A 3f
IP rating	IPX1
Compressor	Scroll
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	2,3 kg
CO2 equivalent *	4,080 t
Compressor oil	Polyoester (POE)
Refrigerant max. working pressure	31 bar
Brine system min./max. temp.	-5 °C / 20 °C
Brine system min./max. pressure	0,2 bar / 3,0 bar
Antifreeze fluid volume in HP	3,4 l
Brine system min. flow (Δt = 5 K)	1585 l/h
Brine system nom. flow (Δt = 3 K)	2630 l/h
Brine pump	UPMXL GEO 25-125 180 PWM
Brine circuit connection	2 x Cu 28x1,5
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	3,4 l
Min. surface area of heat exchanger in tank	3 m²
Min. flow rate through HP (Δt = 10 K at 0/35 °C)	1010 l/h
Nom. flow rate through HP (Δt = 5 K at 0/35 °C)	2020 l/h
Heating circuit connection	2 x Cu 22x1
Weight	164 kg

* 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	182%
Energy Efficiency Class	A++
SCOP	4,8

Sound data	
Sound power level by EN 12 102	50,0 dB(A)

Accessories

CSE TC W Pump Station & IR 12 CTC Controller	code17357
CSE TC W Pump Station & IR 12 FV3F Controller	code 17358
CSE TC W PWM Pump Station *	code 15874
In Line Heater	code 16169

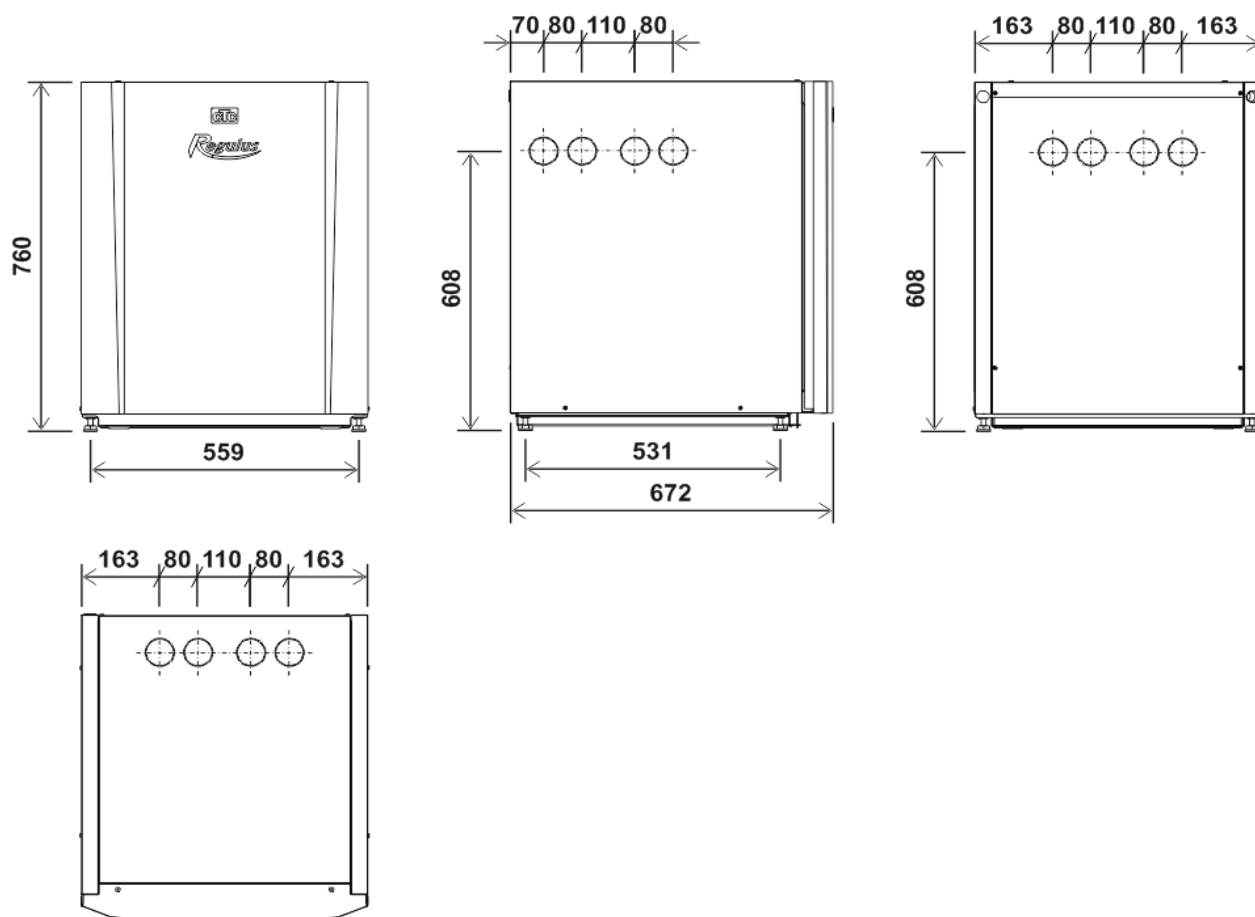
*applies only to installation in series, for heat pumps on the second and all following positions in the cascade (see Installation on Page 1)

Output parameters **

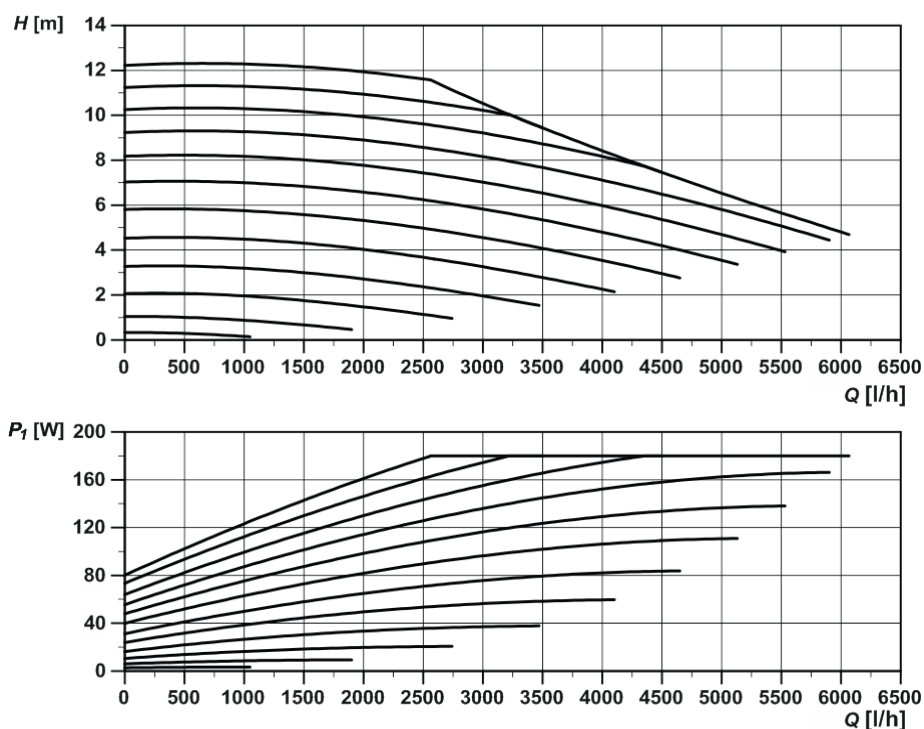
Brine system temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
5 °C	35 °C	13,53	2,65	5,11
	45 °C	12,95	3,15	4,11
	55 °C	12,57	3,75	3,35
0 °C	25 °C	12,30	2,23	5,51
	35 °C	11,75	2,55	4,60
	45 °C	11,24	3,07	3,66
	55 °C	10,97	3,71	2,96
-5 °C	45 °C	9,88	2,99	3,30

** The values of working parameters are measured according to EN 14 511 at the manufacturer's test lab.

Dimensions

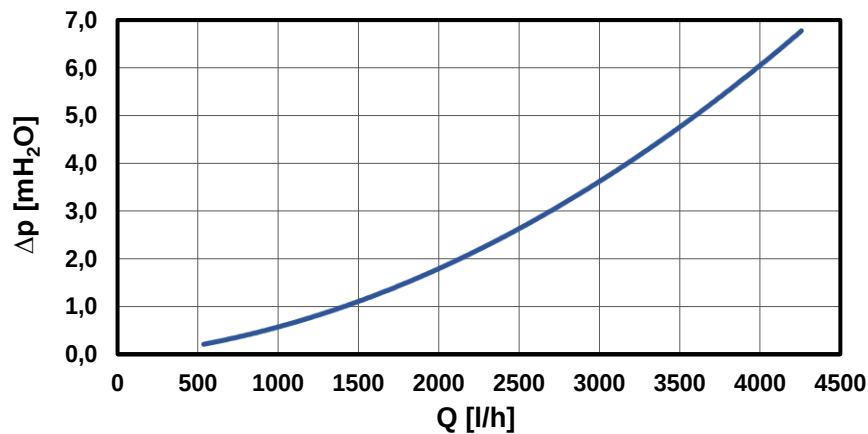


Brine pump performance curves

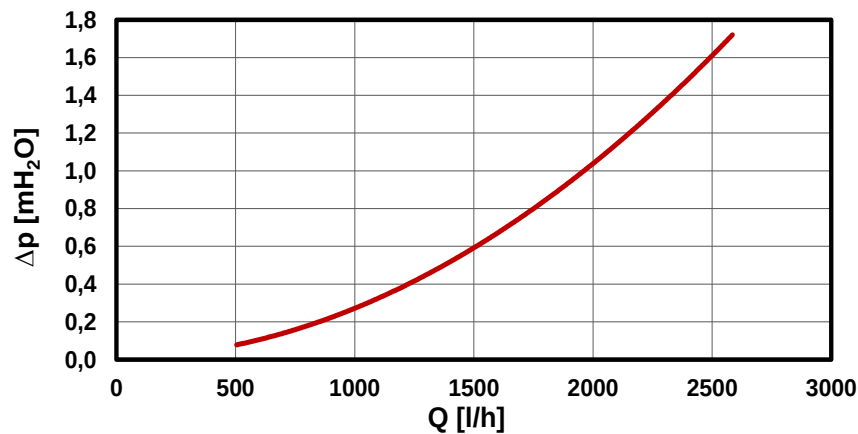


Evaporator + condenser pressure drop

Evaporator pressure drop



Condenser pressure drop



EcoPart 412 Ground-to-water Heat Pump

v1.0_02/2018

Dodavatel REGULUS spol. s.r.o.
Model CTC EcoPart 412

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A++	A++
Average climate		
The rated heat output including any supplementary heaters	13 kW	12 kW
The seasonal space heating energy efficiency	182 %	138 %
The annual energy consumption	5 814 kWh	7 084 kWh
Cold climate		
The rated heat output including any supplementary heaters	12 kW	12 kW
The seasonal space heating energy efficiency	185 %	141 %
The annual energy consumption	6 373 kWh	8 195 kWh
Warm climate		
The rated heat output including any supplementary heaters	13 kW	12 kW
The seasonal space heating energy efficiency	180 %	137 %
The annual energy consumption	3 618 kWh	4 364 kWh
The sound power level LWA, outdoors	50 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 EcoPart 412
Air-to-water heat pump:	no
Water-to-water heat pump:	no
Brine-to-water heat pump:	yes
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}	12	kW	Seasonal space heat. ener. efficiency	η _s	138	%
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}	11,00	kW	T _j = - 7 °C	COP _d	3,25	-
T _j = + 2 °C	P _{dh}	11,20	kW	T _j = + 2 °C	COP _d	3,64	-
T _j = + 7 °C	P _{dh}	11,40	kW	T _j = + 7 °C	COP _d	4,02	-
T _j = + 12 °C	P _{dh}	11,60	kW	T _j = + 12 °C	COP _d	4,4	-
T _j = bivalent temperature	P _{dh}	11,00	kW	T _j = bivalent temperature	COP _d	3,25	-
T _j = operation limit temperature	P _{dh}	-	kW	T _j = operation limit temperature	COP _d	-	-
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}	-7	°C	For air-to-water heat pumps:	T _{OL}	-	°C
Cycling interval capacity for heating	P _{cyc}	-	kW	operation limit temperature			
Degradation co-efficient (**)	C _{dh}	0,99	-	Cycling interval efficiency	COP _{cyc}	-	-
Power consumption in modes other than active mode				Heating water operating limit temp.	W _{TOL}	65	°C
Off mode	P _{OFF}	0,018	kW	Supplementary heater			
Thermostat-off mode	P _{TO}	0,005	kW				
Standby mode	P _{SB}	0,018	kW	Rated heat output (*)	P _{sup}	1,50	kW
Crankcase heater mode	P _{CK}	0,000	kW	Type of energy input	electric		
Other items				For air-to-water heat pumps:		-	m ³ /h
capacity control		fixed		rated air flow rate, outdoors			
Sound power level, indoors / outdoors	L _{WA}	50 / -	db	For water/brine-to-water heat pumps:			
				Rated brine or water flow rate,	2,10	m ³ /h	
				outdoor heat exchanger			

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 $C_{dh} = 0,9$.