

Main features	
Application	space and DHW heating
Description	the heat pump exploits the energy potential of the ground, pumps the energy obtained through deep boreholes or ground collectors to a higher temperature and transfers it to the heating water; the flow temperature can reach as much as 65°C
Installation *	the heat pump shall be installed with a Smart Controller (code 13196, see Accessories); circulation pumps for brine and heating circuits are integrated in the heat pump
Working fluid	R407C (refrigerant c.), antifreeze fluid (brine c.), water (heating circ.)
Certification	HP Keymark - quality label by the European Committee for Standardization (CEN)
Code	12651

* in case of installation in series, it is necessary to order Smart Controller code 13196 that shall be installed with the first heat pump in series – circulation pumps for both brine and heating circuits are already included in the heat pumps



Technical data	
Nominal output	14,47 kW
Nominal power input	3,19 kW
Nominal current	12,2 A
Steady current	5,1 A
Starting current	29,1 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	2,7 kg
CO2 equivalent *	4,790 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	4,1 l
Brine system min. flow (Δt = 5 K)	1910 l/h
Brine system nom. flow (Δt = 3 K)	3170 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)	1220 l/h
Nom. flow rate through HP (Δt = 5 K at 0/35 °C)	2450 l/h
Heating circuit pump	UPM GEO 25-85 130
Heating circuit connection	2 x Cu 28x1,5
Weight	168 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	174%
Energy Efficiency Class	A++
SCOP	4,6

Sound data	
Sound power level by EN 12 102	53,0 dB(A)

EcoPart 414 Ground-to-water Heat Pump

v1.6_08/2019

Accessories

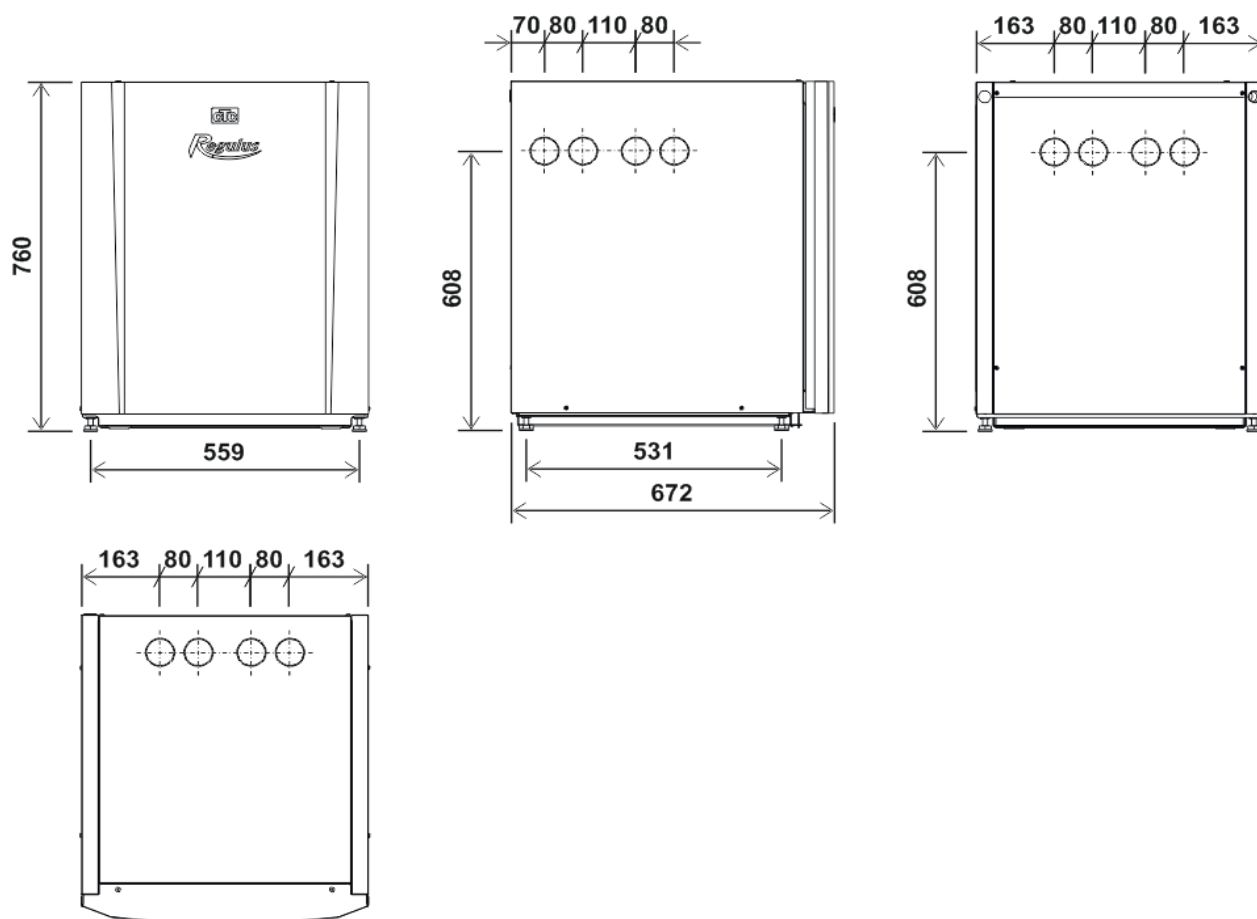
IR 12 Smart Controller	code 13196
In Line Heater	code 16166

Output parameters **

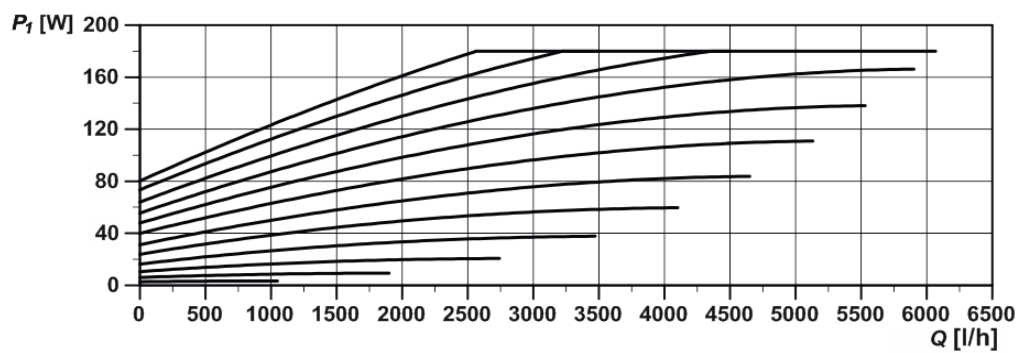
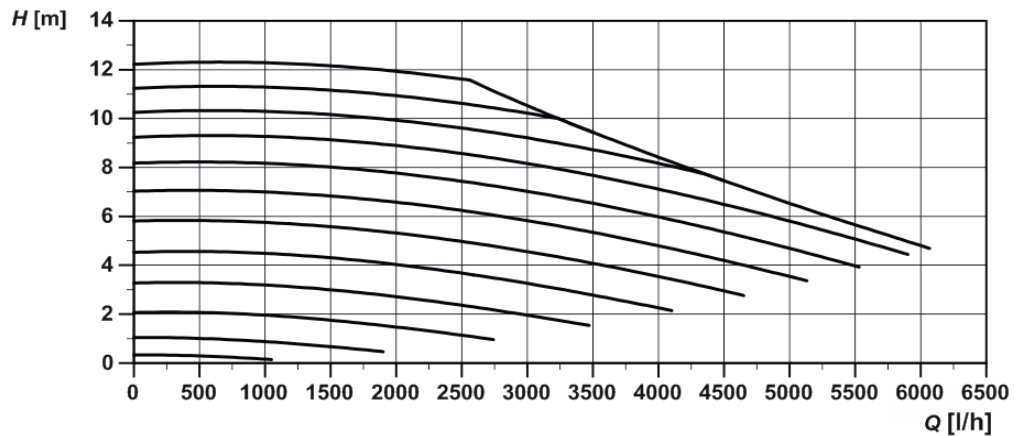
Brine system temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
5 °C	35 °C	16,48	3,21	5,13
	45 °C	15,98	3,89	4,11
	55 °C	15,28	4,66	3,28
0 °C	25 °C	14,63	2,79	5,25
	35 °C	14,47	3,19	4,54
	45 °C	13,93	3,83	3,64
	55 °C	13,40	4,54	2,95
-5 °C	45 °C	12,09	3,73	3,24

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

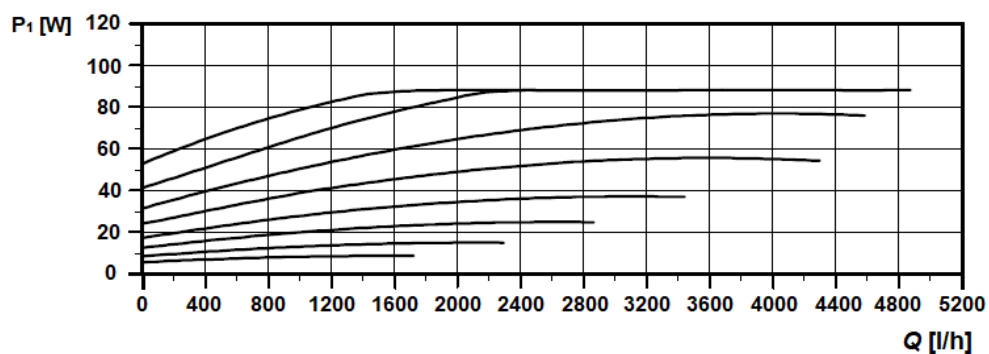
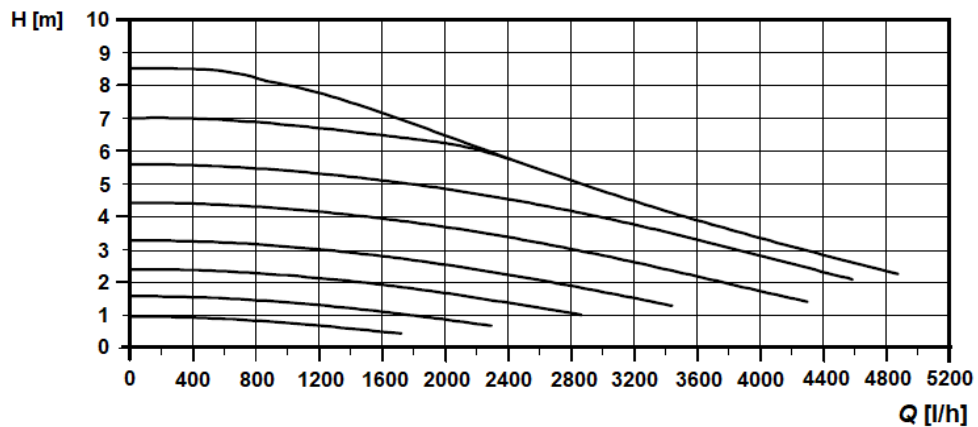
Dimensions



Brine pump performance curves

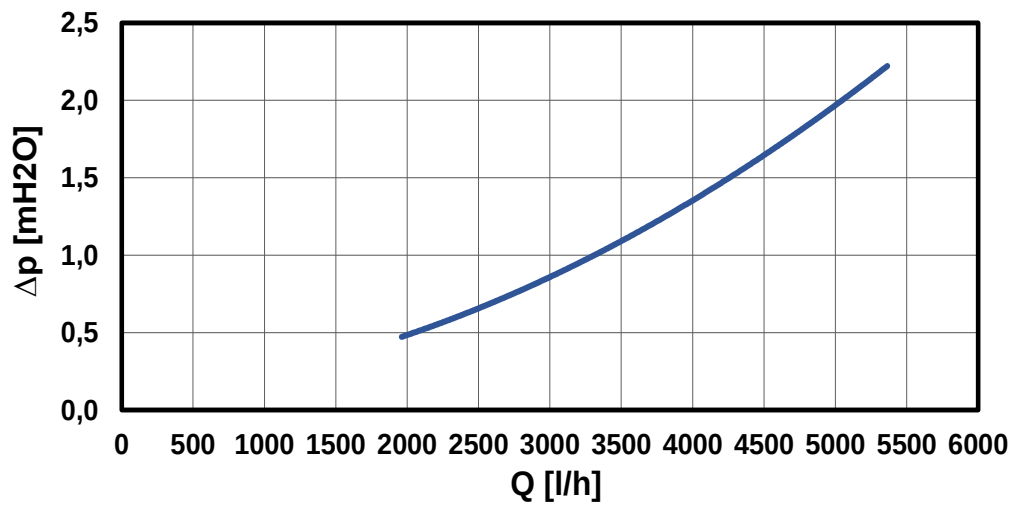


Performance curves of heating circuit pump

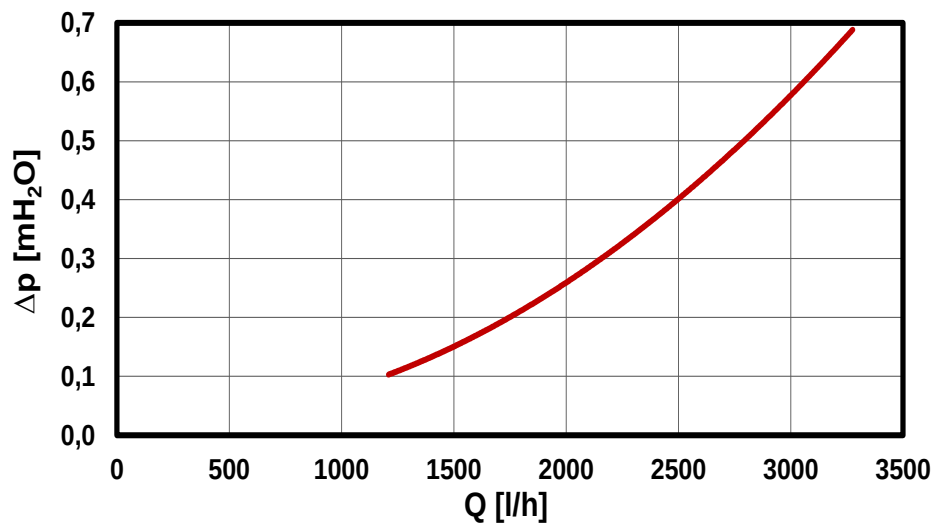


Evaporator + condenser pressure drop

Evaporator pressure drop



Condenser pressure drop



Dodavatel REGULUS spol. s.r.o.
Model CTC EcoPart 414

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A++	A++
Average climate		
The rated heat output including any supplementary heaters	16 kW	16 kW
The seasonal space heating energy efficiency	174 %	137 %
The annual energy consumption	7 467 kWh	9 128 kWh
Cold climate		
The rated heat output including any supplementary heaters	16 kW	15 kW
The seasonal space heating energy efficiency	176 %	140 %
The annual energy consumption	8 758 kWh	10 139 kWh
Warm climate		
The rated heat output including any supplementary heaters	16 kW	15 kW
The seasonal space heating energy efficiency	170 %	136 %
The annual energy consumption	4 702 kWh	5 390 kWh
The sound power level LWA, outdoors	53 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 414
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}	16	kW	Seasonal space heat. ener. efficiency	η _s	137	%
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}	13,60	kW	T _j = - 7 °C	COP _d	3,29	-
T _j = + 2 °C	P _{dh}	13,90	kW	T _j = + 2 °C	COP _d	3,68	-
T _j = + 7 °C	P _{dh}	14,20	kW	T _j = + 7 °C	COP _d	4,03	-
T _j = + 12 °C	P _{dh}	14,40	kW	T _j = + 12 °C	COP _d	4,37	-
T _j = bivalent temperature	P _{dh}	13,60	kW	T _j = bivalent temperature	COP _d	3,34	-
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}	-6	°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 limt temp.	W _{TOL}	65,00	°C
Off mode	P _{OFF}	0,018	kW	Supplementary heater			
Thermostat-off mode	P _{TO}	0,032	kW	Rated heat output (*)	P _{sup}	2,70	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:			
Other items				rated air flow rate, outdoors			
capacity control		fixed		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L _{WA}	53 / -	db	Rated brine or water flow rate,			
				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 $C_{dh} = 0,9$.