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	**12652**

** 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	16,76 kW
Nominal power input	3,71 kW
Nominal current	13,9 A
Steady current	6 A
Starting current	32 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)	2270 l/h
Brine system nom. flow (Δt = 3 K)	3780 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	5 m²
Min. flow rate through HP (Δt = 10 K at 0/35 °C)	1440 l/h
Nom. flow rate through HP (Δt = 5 K at 0/35 °C)	2920 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	181%
Energy Efficiency Class	A+++
SCOP	4,7

Sound data	
Sound power level by EN 12 102	55,5 dB(A)

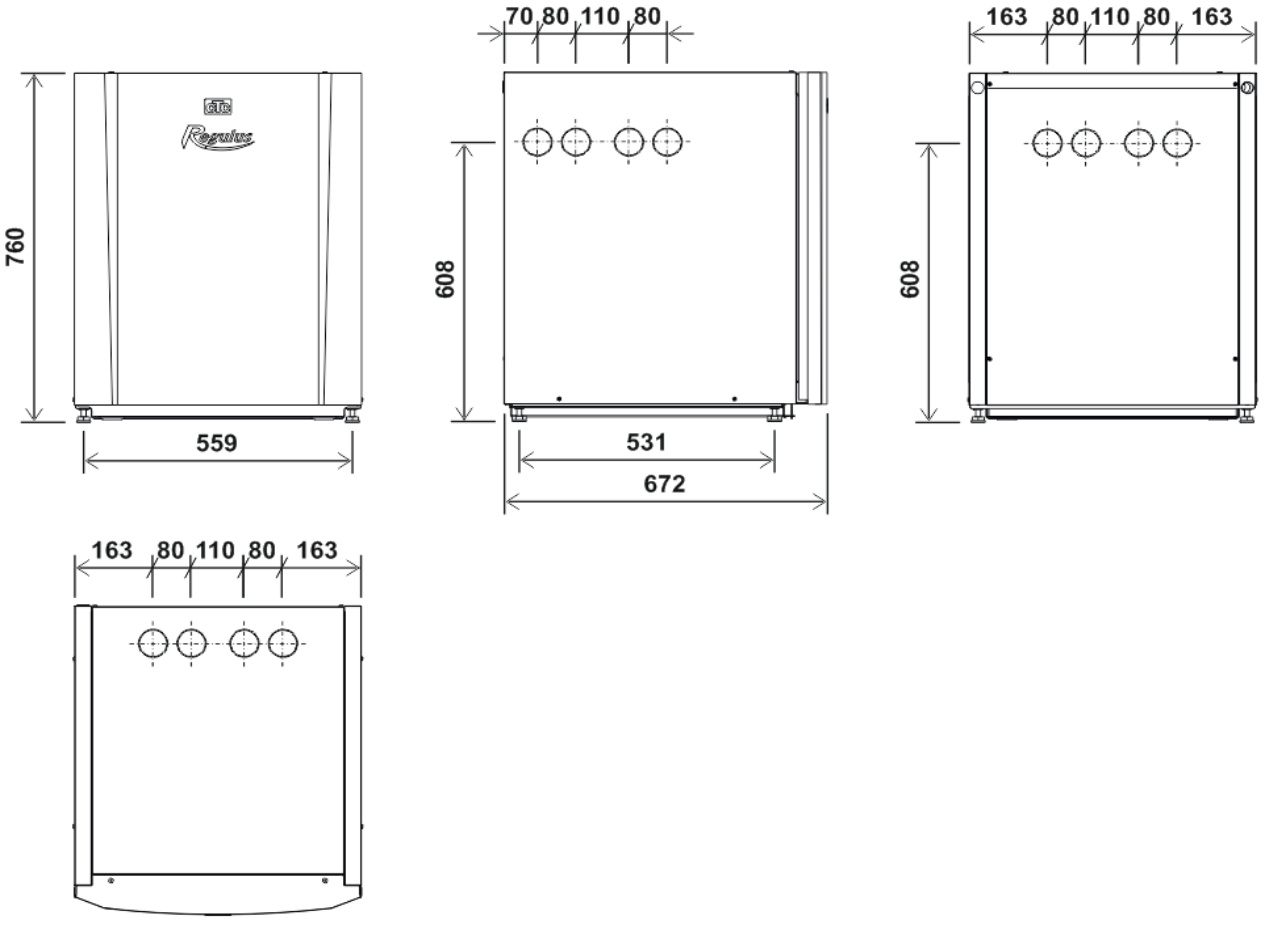
Accessories	
IR 12 Smart Controller	code 13196
In Line Heater	code 16166

Output parameters **

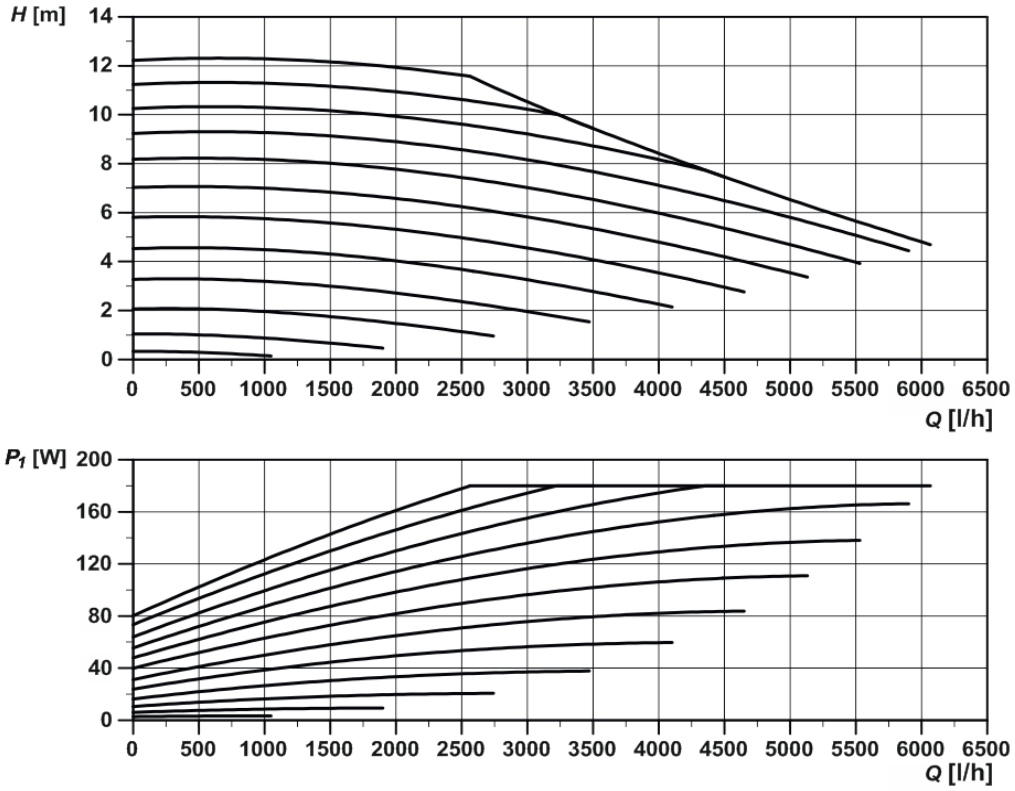
Brine system temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
5 °C	35 °C	19,25	3,83	5,02
	45 °C	18,42	4,55	4,05
	55 °C	18,16	5,37	3,38
0 °C	25 °C	-	-	-
	35 °C	16,76	3,71	4,52
	45 °C	16,14	4,47	3,61
	55 °C	15,87	5,17	3,07
-5 °C	45 °C	14,05	4,40	3,19

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

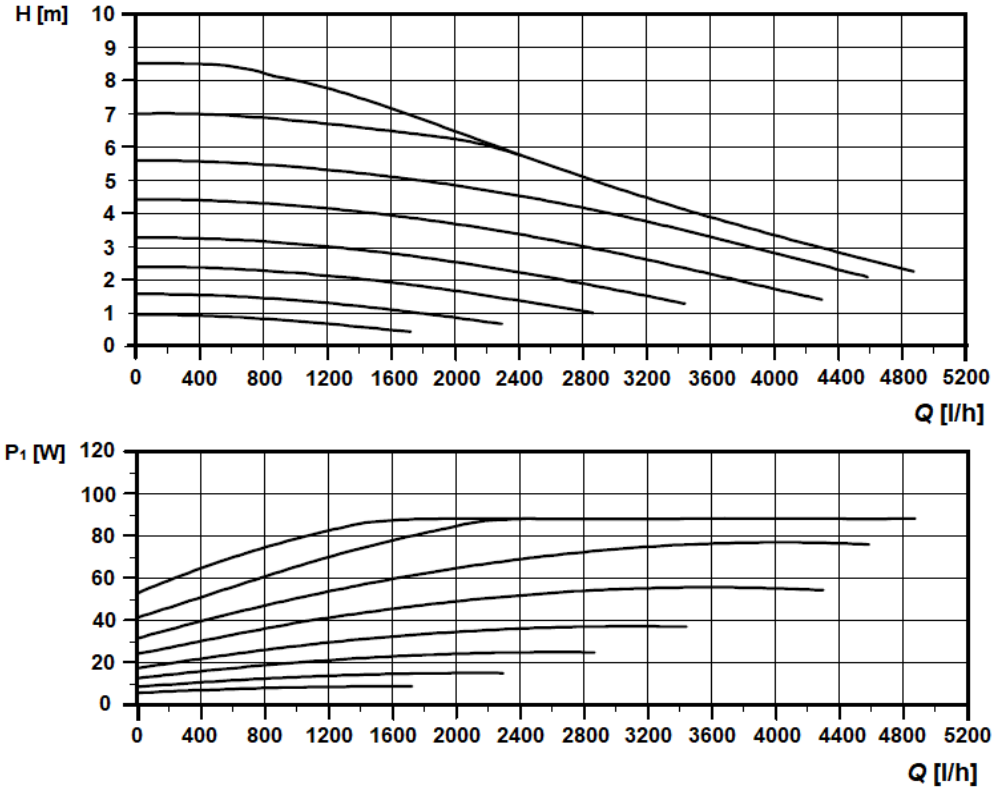
Dimensions



Brine pump performance curves

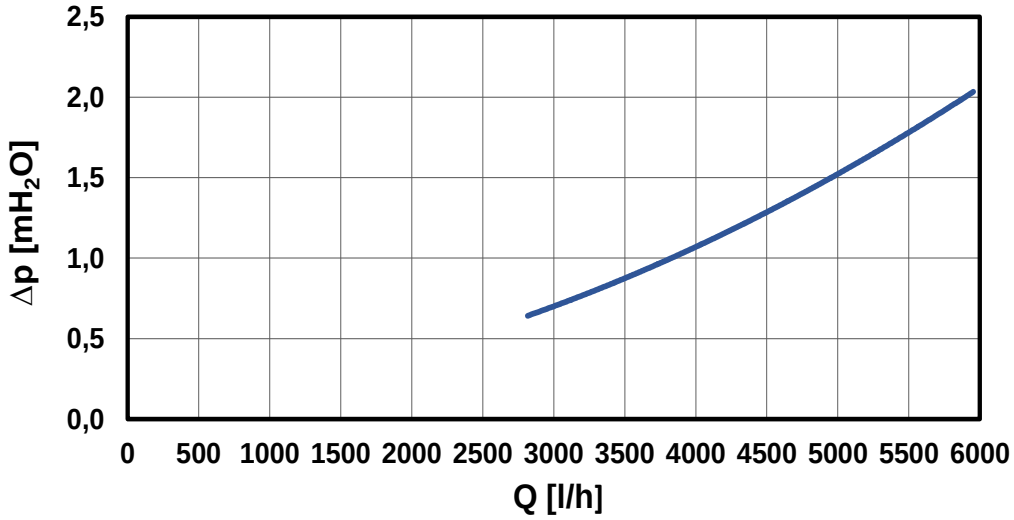


Performance curves of heating circuit pump

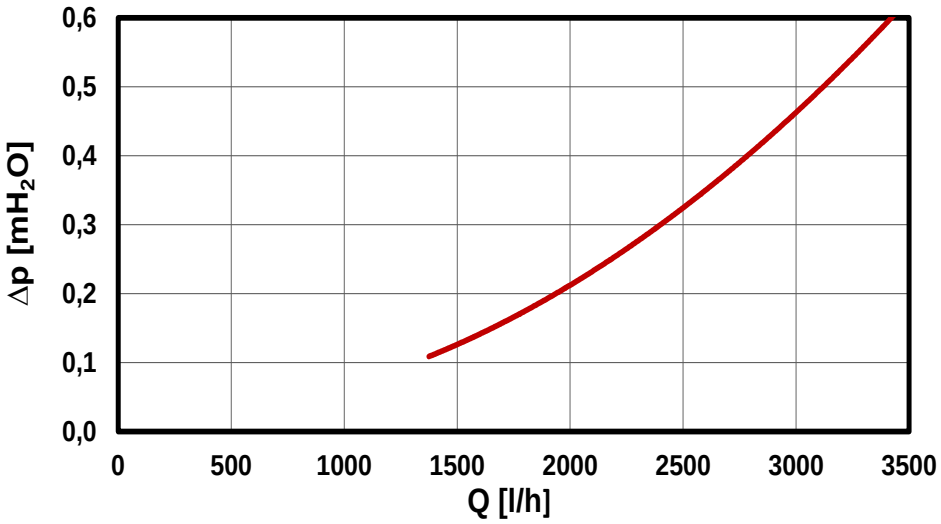


Evaporator + condenser pressure drop

Evaporator pressure drop



Condenser pressure drop



Product fiche

EcoPart 417 Ground-to-water Heat Pump

Dodavatel *R E G U L U S spol. s.r.o.*
Model *CTC EcoPart 417*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	**A+++**	**A++**
Average climate		
The rated heat output including any suplementary heaters	**19 kW**	**18 kW**
The seasonal space heating energy efficiency	**181 %**	**137%**
The annual energy consumption	**8 362 kWh**	**10 284 kWh**
Cold climate		
The rated heat output including any suplementary heaters	**18 kW**	**17 kW**
The seasonal space heating energy efficiency	**184 %**	**140 %**
The annual energy consumption	**9 166 kWh**	**11 554 kWh**
Warm climate		
The rated heat output including any suplementary heaters	**18 kW**	**17 kW**
The seasonal space heating energy efficiency	**180 %**	**137 %**
The annual energy consumption	**5 180 kWh**	**6 315 kWh**
The sound power level LWA, outdoors	**56 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 EcoPart 417**
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
Rated heat output (*)	P_{rated}	**18**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj.			
Tj = - 7 °C	P_{dh}	**16,00**	kW
Tj = + 2 °C	P_{dh}	**16,10**	kW
Tj = + 7 °C	P_{dh}	**16,40**	kW
Tj = + 12 °C	P_{dh}	**16,70**	kW
Tj = bivalent temperature	P_{dh}	**16,00**	kW
Tj = operation limit temperature	P_{dh}	**-**	kW
For air-to-water heat pumps: Tj = - 15 °C (if TOL < - 20 °C)	P_{dh}	**-**	kW
Bivalent temperature	T_{biv}	**-7**	°C
Cycling interval capacity for heating	P_{cyc}	**-**	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}	**0,008**	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}	**56 / -**	db

Item	Symbol	Value	Unit
Seasonal space heat. ener. efficiency	η_s	**137**	%
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	**3,23**	-
Tj = + 2 °C	COP_d	**3,6**	-
Tj = + 7 °C	COP_d	**3,97**	-
Tj = + 12 °C	COP_d	**4,36**	-
Tj = bivalent temperature	COP_d	**3,23**	-
Tj = operation limit temperature	COP_d	**-**	-
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}	**-**	°C
Cycling interval efficiency	COP_{cyc}	**-**	-
Heating water operating limt temp.	W_{TOL}	**65,00**	°C
Supplementary heater			
Rated heat output (*)	P_{sup}	**2,20**	kW
Type of energy input		**electric**	
For air-to-water heat pumps: rated air flow rate, outdoors		**-**	m^3/h
For water/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		**3,10**	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 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.