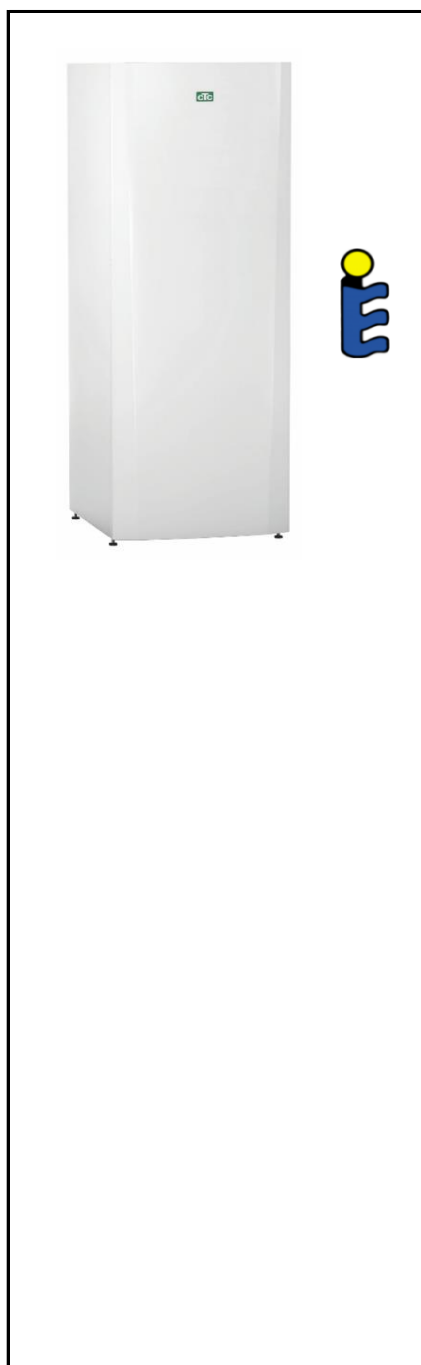


Main features	
Application	space heating and hot water heating
Description	consists of two heat pumps KM417EP (output 2x17 kW)
Function	heat pumps extract energy from ground; this energy gained from deep bores or ground collectors is then "pumped" to a higher temperature and transferred into heating water; the flow temperature may reach up to 65 °C
Working fluid	R407C (refrigerant), antifreeze fluid (brine circuit), water (heating circuit)
Certification	HP Keymark - European Committee for Standardization quality label
Code	15903





Technical data	EcoPart 435	
	KM417EP	KM417EP
Nominal output	14,8 kW	
Nominal current	27,8 A	
Max. compressor operating current (total)	23,0 A	
Max. compressor operating current (partial)	11,5 A	11,5 A
Starting current	32,0 A	32,0 A
Power supply	400 V 3N ~ 50 Hz	
IP rating	IPX1	
Compressor	scroll	
Refrigerant (GWP)	R407C (1774)	
Refrigerant quantity	2,7 kg	2,7 kg
CO2 equivalent*	4,790 t	4,790 t
Compressor oil	polyoester (POE)	
Refrigerant max.working pressure	31 bar	31 bar
Min./max. brine temperature in brine circuit	- 5°C / 20°C	
Min./max. brine pressure in brine circuit	0,2 bar / 3 bar	
Brine volume in HP	4,07 l	4,07 l
Min. brine flow through HP ($\Delta t=5K$)	2270 l/h	2270 l/h
Nom. brine flow through HP ($\Delta t=3 K$)	3780 l/h	3780 l/h
Brine pumps	2 x UPMXL GEO 25-125 180	
Brine circuit connections	2x Cu 28x1,5	2x Cu 28x1,5
Max. flow temperature	65 °C	
Max. heating water temperature in system	110 °C	
Max. heating water operating pressure	3 bar	
Heating water flow rate in HP ($\Delta t = 10K$ at 0/35 °C)	2920 l/h	2920 l/h
Nom. flow rate of heating water in HP ($\Delta t = 5K$ at 0/35 °C)	1440 l/h	1440 l/h
Heating system circulation pumps	2 x UPM GEO 25-85 130	
Heating circuit connections	2 x Cu 28x1,5	2 x Cu 28x1,5
Weight	359 kg	

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

Energy efficiency data	EcoPart 435
<i>(for low-temperature applications under average climatic conditions, others see the Product Fiche)</i>	
Seasonal Energy Efficiency	181%
Energy Efficiency Class	A++
SCOP	4,7

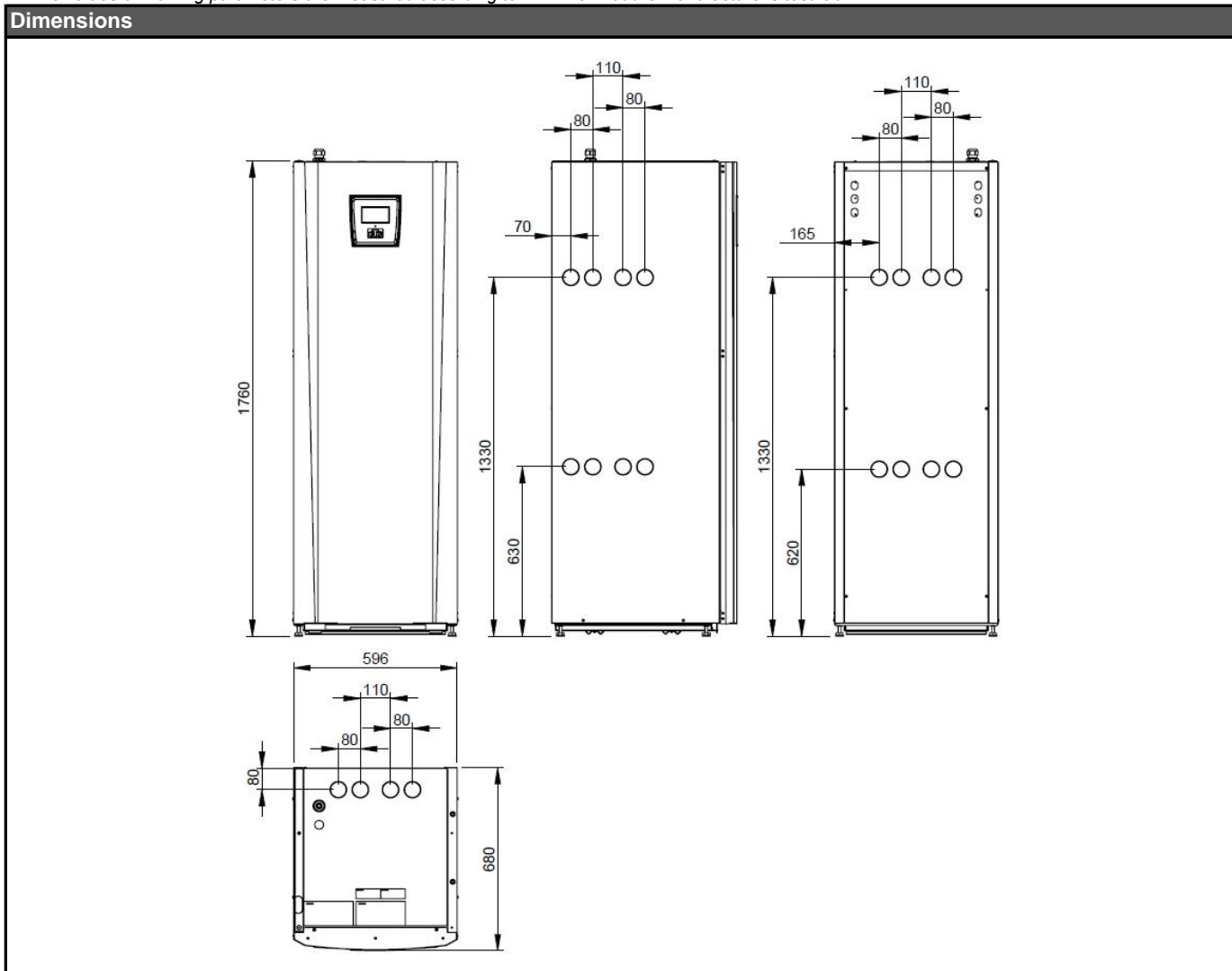
Sound data according to EN 12 102	
Sound power level L_{WA}	45,6 dB(A)

EcoPart 435 Ground-to-water Heat Pump

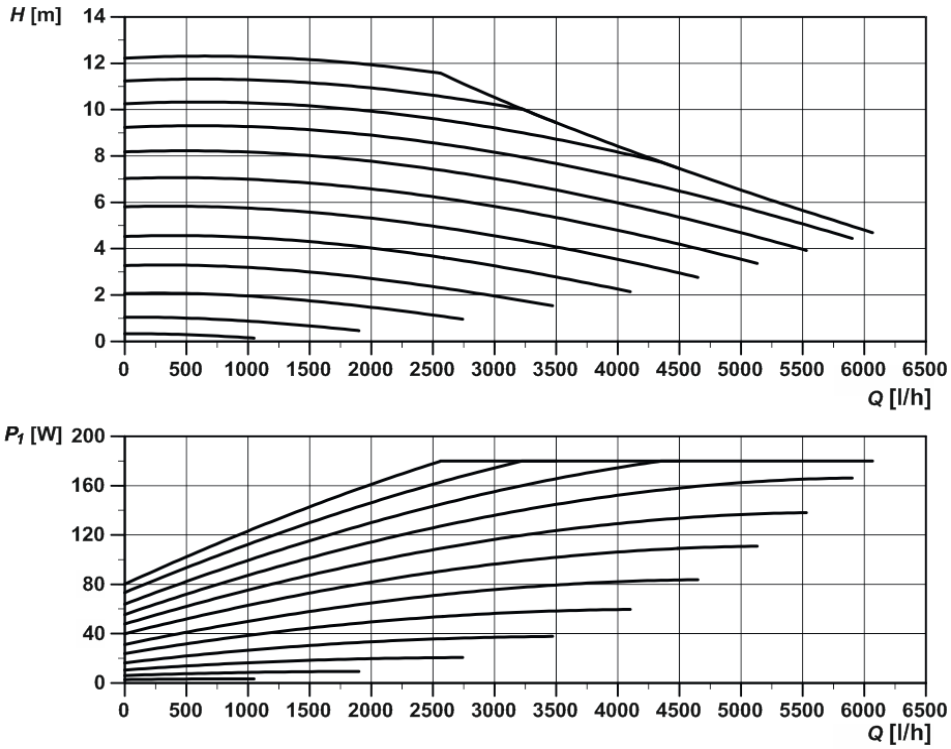
Heating water circuit pumps		Total power		
	2 x Grundfos UPM GEO 25-85 130	Brine system temperature	Flow temperature	Total power [kW]
	2x Grundfos UPMXL GEO 25-125			
		5 °C	35 °C	38,50
			45 °C	36,84
			55 °C	36,32
		0 °C	35 °C	32,48
			45 °C	32,28
			55 °C	31,74
		-5 °C	45 °C	28,10

Output parameters							
Brine system temperature	Flow temperature	Output [kW]		Power input [kW]		COP [-]	
		KM417EP	KM417EP	KM417EP	KM417EP	KM417EP	KM417EP
5 °C	35 °C	19,25	19,25	3,83	3,83	5,02	5,02
	45 °C	18,42	18,42	4,55	4,55	4,05	4,05
	55 °C	18,16	18,16	5,37	5,37	3,38	3,38
0 °C	35 °C	16,24	16,24	3,72	3,72	4,36	4,36
	45 °C	16,14	16,14	4,47	4,47	3,61	3,61
	55 °C	15,87	15,87	5,17	5,17	3,07	3,07
-5 °C	45 °C	14,05	14,05	4,40	4,40	3,19	3,19

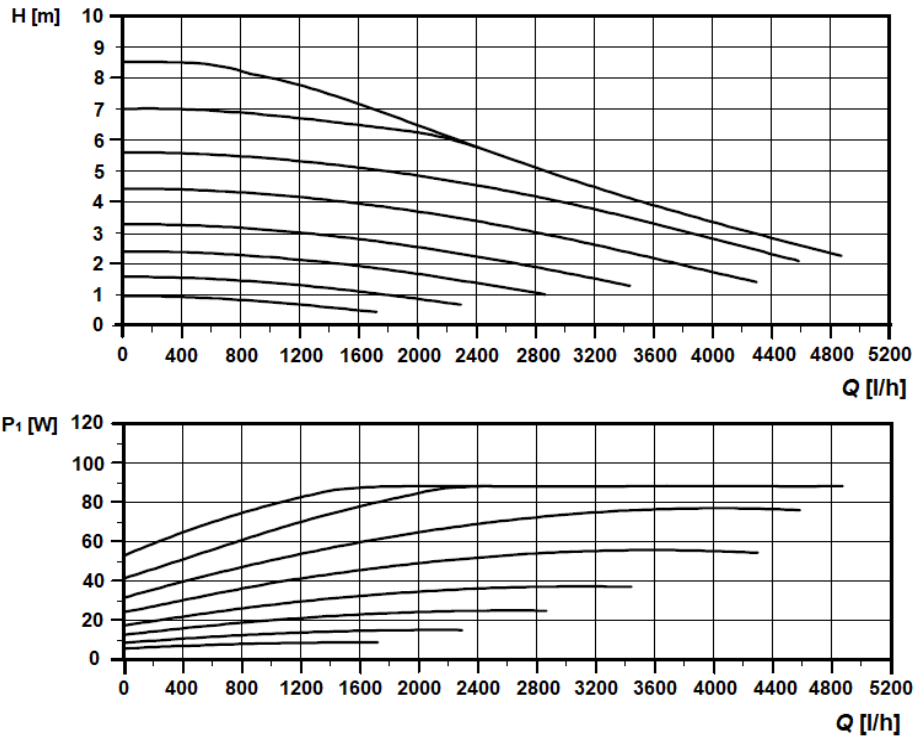
** The values of working parameters are measured according to EN 14 511 at the manufacturer's test lab.



Brine pump performance graph

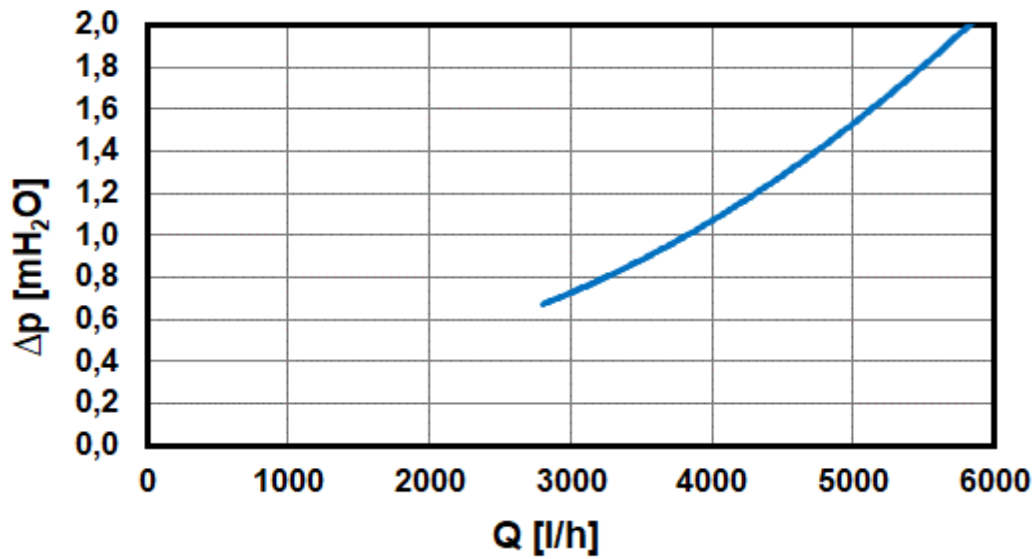


Heating water circuit pumps performance graph

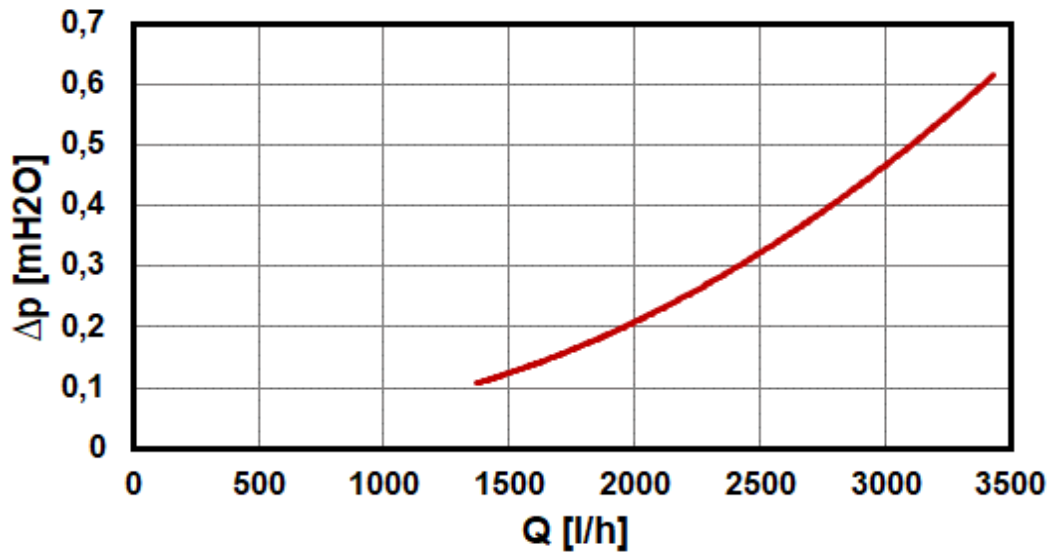


Evaporator and Condenser pressure drop

Evaporator pressure drop



Condenser pressure drop



EcoPart 435 Heat Pump is composed of 2 KM417EP heat pumps, connected in parallel. The graphs depict pressure drop of evaporator and condenser of one KM417EP heat pump.

EcoPart 435 Ground-to-water Heat Pump

v1.1_02/2018

Supplier's name *REGULUS spol. s r.o.*
 Supplier's model identifier *CTC EcoPart 435*

Parameter	low temperature	medium temperature
The seasonal space heating energy efficiency class	A++	A++
Average climate		
The rated heat output including any supplementary heaters	38 kW	36 kW
The seasonal space heating energy efficiency	181%	137%
The annual energy consumption	16 724 kWh	5826 kWh
Cold climate		
The rated heat output including any supplementary heaters	36 kW	34 kW
The seasonal space heating energy efficiency	184%	140%
The annual energy consumption	18 332 kWh	23 108 kWh
Warm climate		
The rated heat output including any supplementary heaters	36 kW	34 kW
The seasonal space heating energy efficiency	180%	137%
The annual energy consumption	10 360 kWh	12 630 kWh
The sound power level L_{WA}, indoors	56 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 435
Air-to-water heat pump:	no
Water-to-water heat pump:	yes
Brine-to-water heat pump:	no
Low-temperature heat pump:	no
Equipped with supplementary heater:	no
Heat pump combination heater	no

Parameters are declared for medium-temperature application and average climate

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	36	kW	Seasonal space heat.ener. efficiency	η_s	137	%
<i>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj.</i>				<i>Declared coefficient of performance or primary energy ratio for part load at indoor temp. 20 °C and outdoor temp. Tj.</i>			
Tj = - 7 °C	P_{dh}	32,00	kW	Tj = - 7 °C	COP_d	3,23	-
Tj = + 2 °C	P_{dh}	32,20	kW	Tj = + 2 °C	COP_d	3,60	-
Tj = + 7 °C	P_{dh}	32,80	kW	Tj = + 7 °C	COP_d	3,97	-
Tj = + 12 °C	P_{dh}	33,40	kW	Tj = + 12 °C	COP_d	4,36	-
Tj = bivalent temperature	P_{dh}	32,00	kW	Tj = bivalent temperature	COP_d	3,23	-
Tj = operation limit temperature	P_{dh}	-	kW	Tj = operation limit temperature	COP_d	-	-
For air-to-water heat pumps:	P_{dh}	-	kW	For air-to-water heat pumps:	COP_d	-	-
Tj = -15 °C, if TOL < - 20 °C				Tj = -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 coefficient	C_{dh}	0,99	-	Cycling interval efficiency	COP_{cyc}	-	-
<i>Power consumption in modes other than active mode</i>				Heating water operating limit temp.	W_{TOL}	65,00	°C
Off mode	P_{OFF}	0,018	kW	<i>Supplementary heater</i>			
Thermostat off-mode	P_{TO}	0,008	kW	Rated heat output (*)	P_{sup}	4,40	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	-		m ³ /h
capacity control		fixed		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	56 / -	db	rated brine or water flow rate,	3,10		m ³ /h
				outdoor heat exchanger			

Contact details **Erntech AB, Box 309, SE-341 26 Ljungby, Svédsko** 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.