

DATA SHEET

Inverter ground-to-water Heat Pump EcoPart 616M



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 ¹⁾	Brine circuit surge tank and brine circuit filler kit are included in the delivery, installation shall be done with Pump Station Kit w. Smart Controller (for codes see Catalogue).
Working fluid	R407C (refrigerant), antifreeze fluid (brine circuit), water (heating circuit).
Certification	HP Keymark – European Committee for Standardization quality label.
Code	18290

1) In case of more heat pumps connected in a cascade, only the first heat pump shall be installed with a smart controller.

Technical data	
Output ²⁾	15.6 kW
Power input ²⁾	4.19 kW
COP ²⁾	3.72
Nominal current	11.7 A
Power supply	3/N/PE ~ 400 V 50 Hz
Recommended circuit breaker	B16A 3f
IP rating	IPX1
Compressor	Scroll
Refrigerant	R 407C (GWP 1774)
Refrigerant quantity	2.2 kg
CO ₂ equivalent ³⁾	3.903 t
Compressor oil	PVE FV50S
Refrigerant max. working pressure	31 bar
Brine system min./max. temperature	-5 °C / 20 °C
Brine system min./max. pressure	0.2 bar / 3.0 bar
Antifreeze fluid volume in HP	4.2 l
Brine system min. flow ($\Delta t = 5$ K)	1044 l/h
Brine system nom. flow ($\Delta t = 3$ K)	1404 l/h
Brine pump	UPML – XL GEO 25-125 180 PWM
Brine circuit connection	2 x Cu 28 x 1.5
Space heating pump	UPML – XL GEO 25-125 130 PWM
Max. heat pump flow temperature	65 °C
Max. heating water temperature in system	110 °C
Max. working pressure of temperature water	3 bar
Heating water volume in heat pump	2.9 l
Min. surface area of heat exchanger in tank	1.5 m ²
Min. flow rate through HP ($\Delta t = 10$ K at B0/W35 °C)	1440 l/h
Nom. flow rate through HP ($\Delta t = 5$ K at B0/W35 °C)	2916 l/h
Heating circuit connection	2 x Cu 22 x 1
Weight	172 kg

2) At B0/W35 temperatures. 3) Is not covered by the annual check for leaking refrigerant (EU No 517/2014).

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Parameters for distribution tariff change	
Nominal power input (required input)	5.95 kW
Heat output ⁴⁾	15.6 kW
Steady current ⁴⁾	5.5 A
Starting current	4.9 A
Nominal voltage / number of phases	400 V 3f

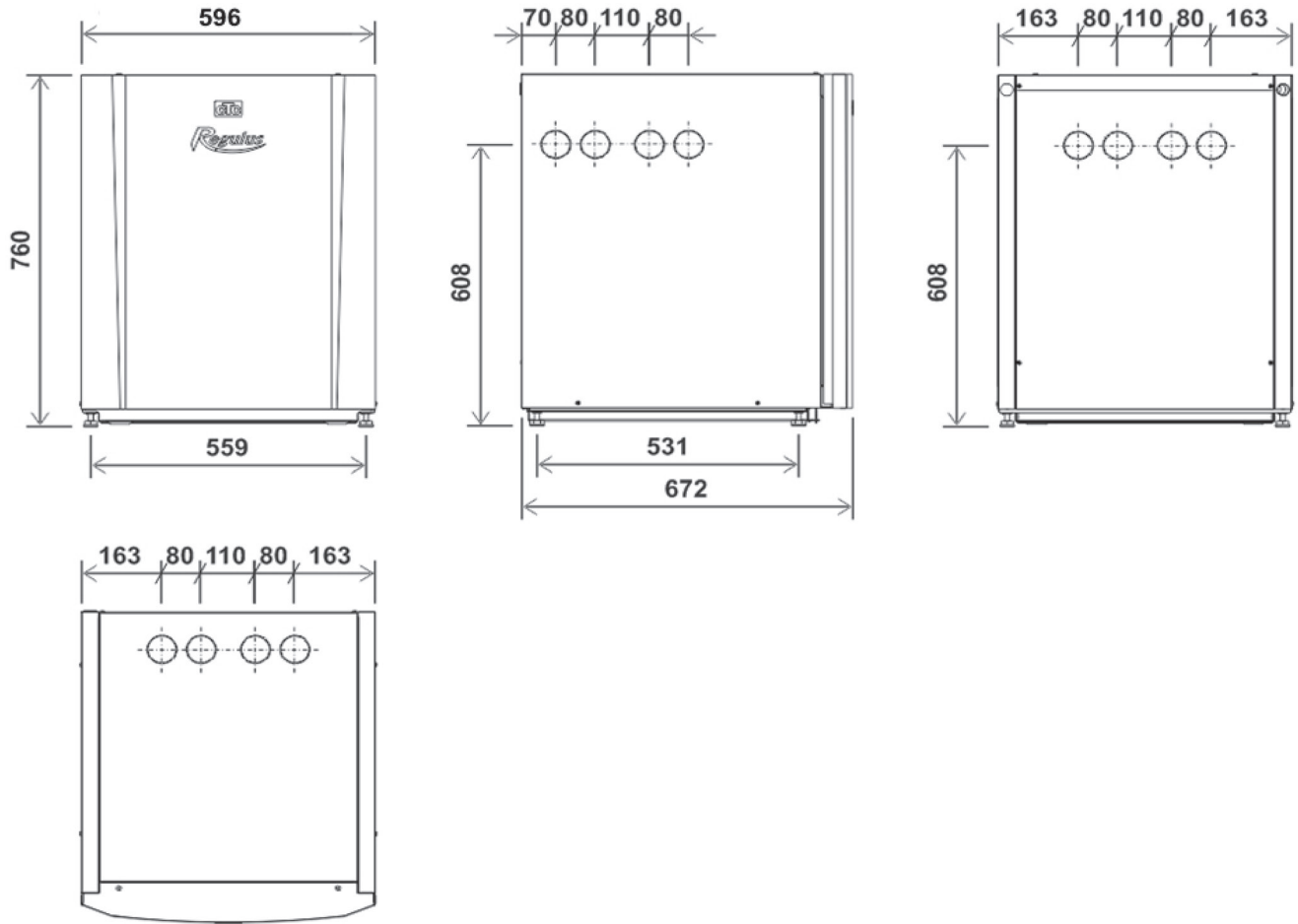
4) At B0/W35 temperatures.

Energy efficiency data	
<i>(for low-temperature applications under average climatic conditions, others see the Product Fiche)</i>	
Seasonal Energy Efficiency	201%
Energy Efficiency Class	A+++
SCOP	5.2

Sound data	
Sound power level by EN 12 102	42 dB(A)

Output parameters ⁵⁾					
	Brine system temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
RPM 20 Hz	5 °C	35 °C	4.90	0.91	5.41
		45 °C	4.64	1.16	3.99
		55 °C	5.17	1.72	3.01
	0 °C	35 °C	4.20	0.90	4.66
		45 °C	3.79	1.18	3.21
		55 °C	4.34	1.70	2.55
RPM 50 Hz	5 °C	35 °C	12.26	2.42	5.07
		45 °C	11.22	2.90	3.87
		55 °C	10.55	3.36	3.14
	0 °C	35 °C	10.52	2.34	4.50
		45 °C	9.58	2.80	3.43
		55 °C	8.90	3.27	2.72
RPM 80 Hz	5 °C	35 °C	16.52	4.37	3.78
		45 °C	17.18	5.26	3.26
		55 °C	17.13	5.95	2.88
	0 °C	35 °C	15.60	4.19	3.72
		45 °C	15.44	5.08	3.04
		55 °C	14.77	5.73	2.58

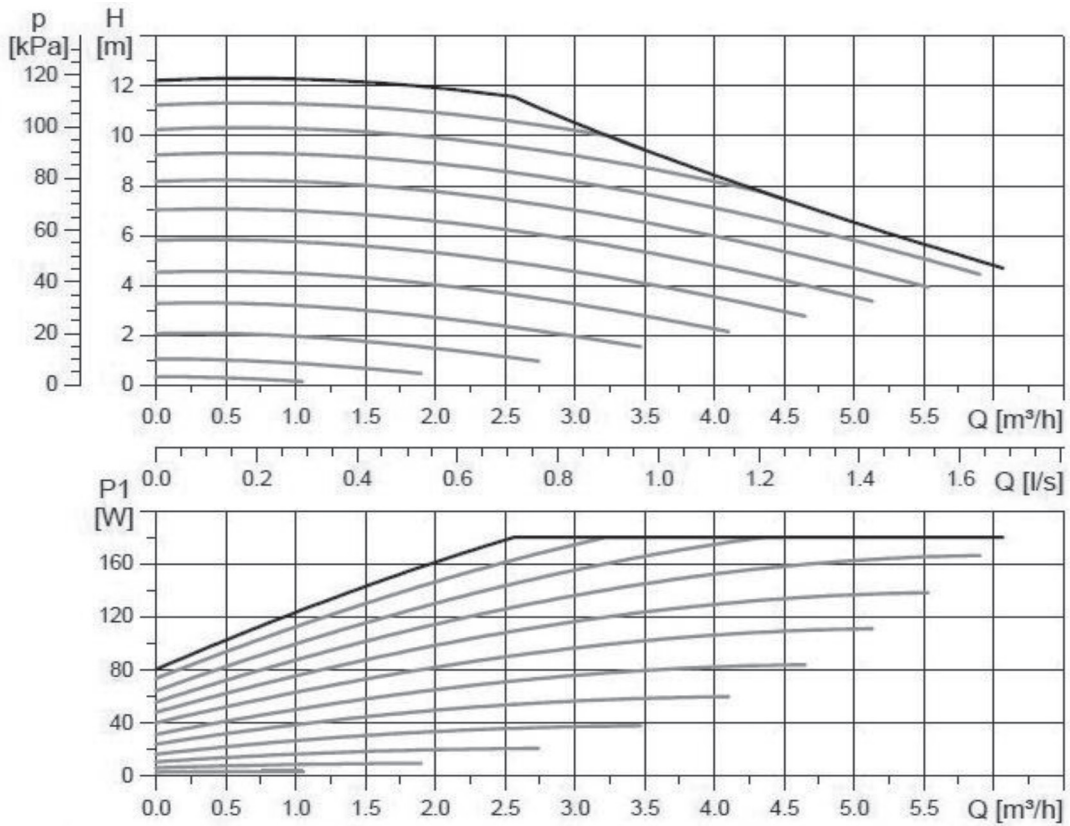
5) The values of operating parameters are measured according to EN 14 511 at the manufacturer's test facility.

DATA SHEET**Inverter ground-to-water Heat Pump EcoPart 616M****Dimensions**

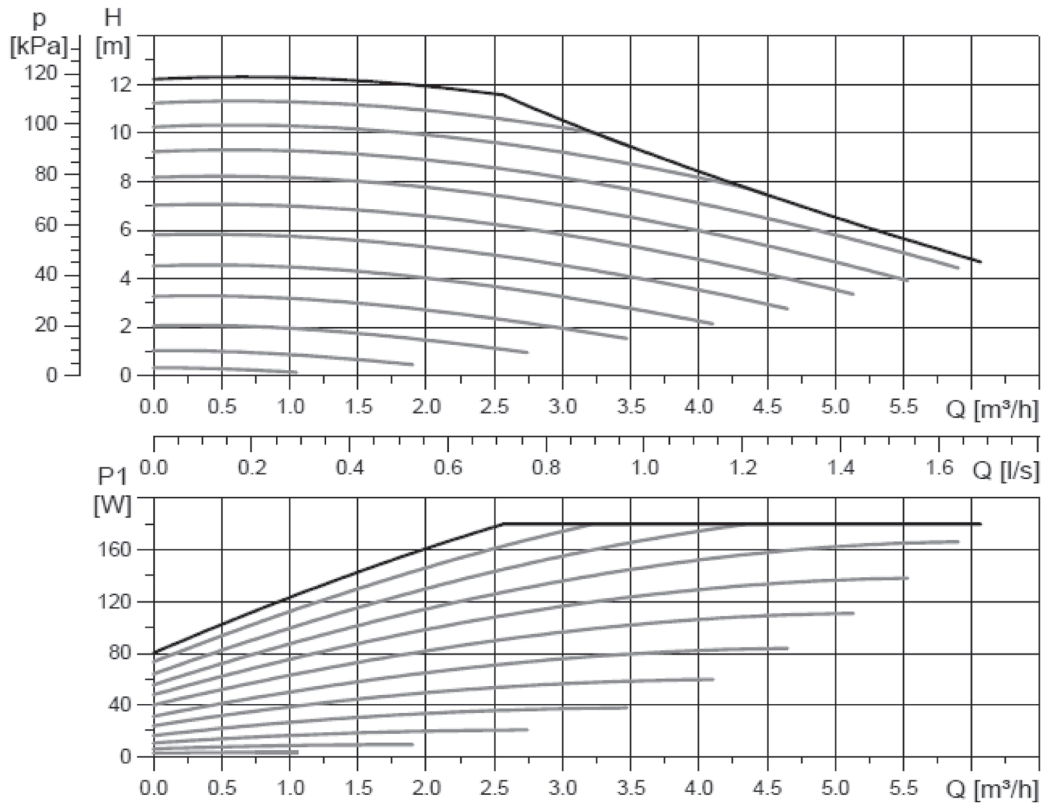
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Inverter ground-to-water Heat Pump EcoPart 616M

Heating circuit pump performance curves



Brine pump performance curves



PRODUCT FICHE

Inverter ground-to-water Heat Pump EcoPart 616M

Supplier's name *REGULUS spol. s r. o.*
 Supplier's model identifier *CTC EcoPart 616M*

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	201%	154%
The annual energy consumption	6 321 kWh	8 176 kWh
Cold climate		
The rated heat output including any supplementary heaters	16 kW	16 kW
The seasonal space heating energy efficiency	210%	161%
The annual energy consumption	7 239 kWh	9 352 kWh
Warm climate		
The rated heat output including any supplementary heaters	16 kW	16 kW
The seasonal space heating energy efficiency	202%	153%
The annual energy consumption	4 080 kWh	5 300 kWh
The sound power level LWA, outdoors	40 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 616M
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	154	%
<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 temperature 20 °C and outdoor temperature Tj.</i>			
Tj = -7 °C	P_{dh}	14.20	kW	Tj = -7 °C	COP_d	2.79	-
Tj = +2 °C	P_{dh}	8.80	kW	Tj = +2 °C	COP_d	4.13	-
Tj = +7 °C	P_{dh}	5.50	kW	Tj = +7 °C	COP_d	4.89	-
Tj = +12 °C	P_{dh}	4.40	kW	Tj = +12 °C	COP_d	5.14	-
Tj = bivalent temperature	P_{dh}	14.60	kW	Tj = bivalent temperature	COP_d	2.70	-
Tj = operation limit temperature	P_{dh}	14.34	kW	Tj = operation limit temperature	COP_d	2.57	-
For air-to-water heat pumps:	P_{dh}	-	kW	For air-to-water heat pumps:	COP_d	-	-
Tj = -15 °C, pokud TOL < -20 °C				Tj = -15 °C, pokud TOL < -20 °C			
Bivalent temperature	T_{biv}	-8	°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}	-	-
<i>Power consumption in modes other than active mode:</i>				Heating water operating limit temperature	W_{TOL}	65	°C
Off mode	P_{OFF}	0.020	kW	<i>Supplementary heater:</i>			
Thermostat-off mode	P_{TO}	0.020	kW	Rated heat output (*)	P_{sup}	1.70	kW
Standby mode	P_{SB}	0.020	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		Variable		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	40 / -	dB	Rated brine or water flow rate, outdoor heat exchanger		1.60	m ³ /h

Contact details **Enertech AB, Box 309, SE-341 26 Ljungby, Sweden**

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(*) 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 $sup(Tj)$.

(**) If C_{dh} is not determined by measurement then the default degradation is $C_{dh} = 0.9$.