EcoPart 400

Ground Source Heat Pump

Enertech Group

Heat pump for Borehole, Ground and Water collectors

CTC's EcoPart 400 range of ground source heat pumps offer an extremely efficient solution for space heating and hot water generation. Absorbing energy from the ground, boreholes or water the CTC EcoPart 400 raises the collected energy temperature by means of a refrigeration circuit providing higher temperatures to the heating system.

Thanks to a newly developed refrigeration circuit with an electronically controlled expansion valve and highly efficient compressor the EcoPart 400 boasts excellent efficiency with COP's in excess of 5 (see data table). The compressor and refrigeration components are housed in a separate sound insulated unit. This provides exceptionally low noise levels (below 56dB(A)) making it one of the quietest heat pumps ever developed.

Connections for both brine and heating circuits at the rear, top and left and right sides of the heat pump offer the installer a highly flexible solution for new or existing installations.

The cooling module can be removed from the EcoPart 400 making maintenance of the refrigeration components much easier as well as aiding installation.

The CTC EcoPart 400 range of heat pumps has been developed over a 20 year period and is widely used in Northern Europe.

With a CTC EcoLogic controller or CTC EcoZenith intelligent thermal store the EcoPart can be integrated into a heating system with various heat inputs and numerous heat outputs. Alternatively using a CTC Basic Controller the EcoPart 400 can be controlled either on a fixed return temperature (also called fixed condensing) or thermostatic control.

Key features

- High efficiency with a COP in excess of 5.0
- Significantly reduced heating costs
- Available in 5 sizes: 6, 8, 10, 12 and 14 kW in single and three phase and 17 kW in three phase only
- Quiet scroll compressor for low noise production
- Built-in Smart Start to reduce peak currents
- Removable cooling module for ease of maintenance and installation
- Low energy pumps for both brine and charge circuits
- Flexible connection

ENERGY FLEX

EcoPart 400

TECHNICAL DATA						
Electrical Data		EcoPart 406	EcoPart 408	EcoPart 410	EcoPart 412	EcoPart 414
Voltage				230V 1Ph		
Rated Power	kW	2.7	3.4	4.4	5.2	6.3
Rated Current	A	14.0	19.5	21.6	27.1	33.2
Max. starting current	A	30	30	30	30	30
IP Class				IPX1		
ErP data for heat pump[1)]						
Energy class heating 35/55°C (in package with control)		A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++
Energy class heating 35/55°C (without control)		A++/A++	A++/A++	A++/A++	A++/A++	A++/A++
Nominal heat output (Pdesignh) 35/55°C	kW	7/6	9/9	11/11	13/12	16/16
Operational data for heat pump						
Output from compressor[2)] @ -5/45	kW	4.68	6.84	8.33	9.88	12.09
COP[1)] @ -5/45		3.09	3.34	3.30	3.30	3.24
Output from compressor[2)] @ 0/35 / 0/45 / 0/55	kW	5.9 / 5.48 / 5.17	8.19 / 7.87 / 7.55	9.97 / 9.55 / 9.28	11.75 / 11.24 / 10.97	14.47 / 13.93 / 13.40
COP[1)] @ 0/35 / 0/45 / 0/55		4.57 / 3.54 / 2.76	4.58 / 3.64 / 2.99	4.60 / 3.68 / 2.98	4.60 / 3.66 / 2.96	4.54 / 3.64 / 2.95
Output from compressor[2)] @ 5/35 / 5/45 / 5/55	kW	6.81 / 6.49 / 6.08	9.44 / 9.05 / 8.65	11.42 / 10.99 / 10.58	13.53 / 12.95 / 12.57	16.48 / 15.98 / 15.28
COP[1)] @ 5/35 / 5/45 / 5/55		5.24 / 4.15 / 3.18	5.02 / 4.04 / 3.30	5.20 / 4.16 / 3.28	5.11 / 4.11 / 3.35	5.13 / 4.11 / 3.28
Max. operating current of Compressor	A	13.0	18.5	20.6	25.0	27.1
Sound effect according to EN12102	dB(A)	43.0	42.5	48.5	50.3	53.0
Heating System						
Max. temperature heating medium (TS)	°C			110		
Heating medium system min. flow[3)]	l/s	0.14	0.20	0.24	0.28	0.34
Heating medium system min. flow[4)]	l/s	0.28	0.39	0.48	0.56	0.68
Brine System						
Water volume (V)	L	2.3	2.9	2.9	3.4	4.07
Brine system min/max temp (TS)	°C			-5/20		
Brine system min/max pressure (PS)	bar			0.2/3.0		
Brine system min. flow Δt = 5°K	l/s	0.27	0.31	0.38	0.44	0.53
Brine system nominal flow Δt = 3°K	l/s	0.37	0.51	0.64	0.73	0.88
Other Data						
Refrigerant quantity (R407C)	kg	1.9	1.9	1.9	2.3	2.7
High pressure switch rating	MPA/bar			3.3/31		
Weight	kg	138	143	148	164	164
Width x Height x Depth	mm			600 x 760 x 672		

1) Further Eco Design and Eco Labelling information is available on the CTC website
2) EN14511:2007 including heating medium pump and brine pump
3) At Δt = 10°K and 0/35 °C heat pump operation
4) At Δt = 5°K and 0/35 °C heat pump operation

ENERGY FLEX

TECHNICAL DATA							
Electrical Data		**EcoPart 406**	**EcoPart 408**	**EcoPart 410**	**EcoPart 412**	**EcoPart 414**	**EcoPart 417**
Voltage		400V 3Ph					
Rated Power	kW	2.7	3.5	4.2	5.1	6.0	7.4
Rated Current	A	5.8	6.5	8.1	9.6	12.2	13.9
Max. starting current	A	16.6	17.7	19.8	23.5	29.1	32.0
IP Class		IPX1					
ErP data for heat pump[1)]							
Energy class heating 35/55°C (in package with control)		A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++
Energy class heating 35/55°C (without control)		A++/A++	A++/A++	A++/A++	A++/A++	A++/A++	A++/A++
Nominal heat output (Pdesignh) 35/55°C	kW	7/6	9/9	11/11	13/12	16/16	19/18
Operational data for heat pump							
Output from compressor[2)] @ -5/45	kW	4.68	6.84	8.33	9.88	12.09	14.05
COP[1)] @ -5/45		3.09	3.34	3.30	3.30	3.24	3.19
Output from compressor[2)] @ 0/35 / 0/45 / 0/55	kW	5.9 / 5.48 / 5.17	8.19 / 7.87 / 7.55	9.97 / 9.55 / 9.28	11.75 / 11.24 / 10.97	14.47 / 13.93 / 13.40	16.24 / 16.14 / 15.87
COP[1)] @ 0/35 / 0/45 / 0/55		4.57 / 3.54 / 2.76	4.58 / 3.64 / 2.99	4.60 / 3.68 / 2.98	4.60 / 3.66 / 2.96	4.54 / 3.64 / 2.95	4.36 / 3.61 / 3.07
Output from compressor[2)] @ 5/35 / 5/45 / 5/55	kW	6.81 / 6.49 / 6.08	9.44 / 9.05 / 8.65	11.42 / 10.99 / 10.58	13.53 / 12.95 / 12.57	16.48 / 15.98 / 15.28	19.25 / 18.42 / 18.16
COP[1)] @ 5/35 / 5/45 / 5/55		5.24 / 4.15 / 3.18	5.02 / 4.04 / 3.30	5.20 / 4.16 / 3.28	5.11 / 4.11 / 3.35	5.13 / 4.11 / 3.28	5.02 / 4.05 / 3.38
Max. operating current of Compressor	A	4.5	5.2	6.8	8.2	9.14	11.5
Sound effect according to EN12102	dB(A)	43.0	42.5	48.5	48.5	53.0	55.5
Heating System							
Max. temperature heating medium (TS)	°C	110					
Heating medium system min. flow[3)]	l/s	0.14	0.20	0.24	0.28	0.34	0.40
Heating medium system min. flow[4)]	l/s	0.28	0.39	0.48	0.56	0.68	0.81
Brine System							
Water volume (V)	L	2.3	2.9	2.9	3.4	4.07	4.07
Brine system min/max temp (TS)	°C	-5/20					
Brine system min/max pressure (PS)	bar	0.2/3.0					
Brine system min. flow Δt = 5°K	l/s	0.22	0.31	0.38	0.44	0.53	0.63
Brine system nominal flow Δt = 3°K	l/s	0.37	0.51	0.64	0.73	0.88	1.05
Other Data							
Refrigerant quantity (R407C)	kg	1.9	1.9	1.9	2.3	2.7	2.7
High pressure switch rating	MPA/bar	3.3/31					
Weight	kg	138	143	148	164	168	168
Width x Height x Depth	mm	600 x 760 x 672					

1) Further Eco Design and Eco Labelling information is available on the CTC website
2) EN14511:2007 including heating medium pump and brine pump
3) At Δt = 10°K and 0/35 °C heat pump operation
4) At Δt = 5°K and 0/35 °C heat pump operation

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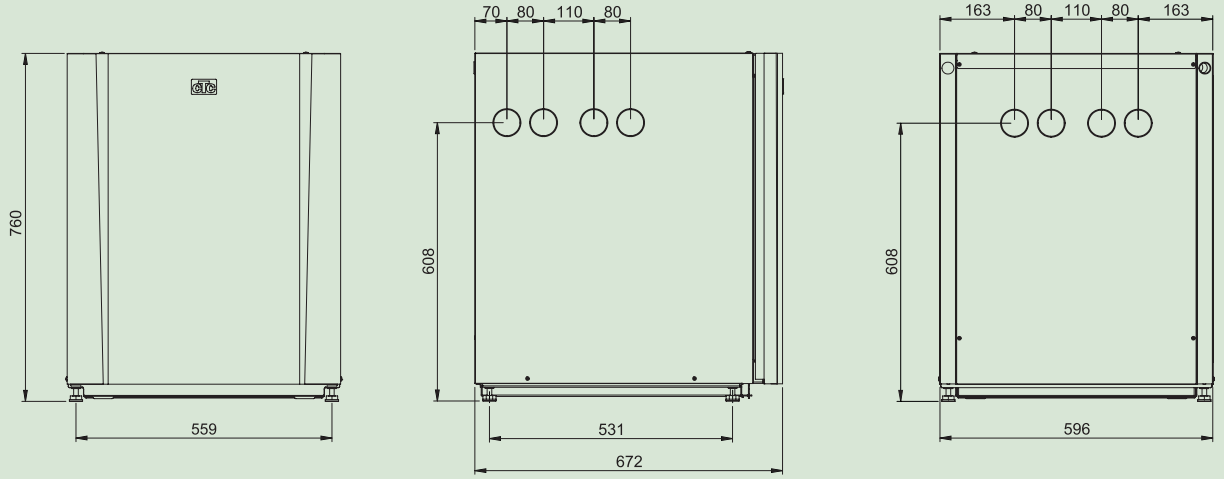
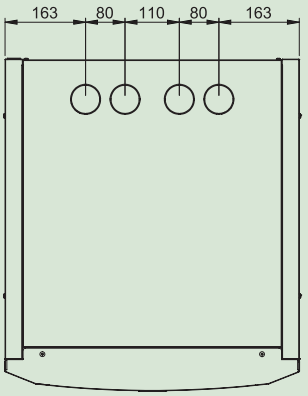
Dimensional drawing of the CTC EcoPart 400 heat pump





The hoses may be connected to the right, left or top or rear of the heat pump.
Brine connection Ø28 mm.
Connection Heat medium Ø22 mm (EcoPart 402-412)
Ø28 mm (EcoPart 414-417)

Delivery includes:

Safety valve 1/2" 3 bar
Brine filling manifold 520-G25
Brine vessel
Rubber grommets
2 x Edge mouldings
LiYCY Communications cable 5m

Accessories:

Part Number:

EcoZenith i250 (1 x 230V)*	586621001
EcoZenith i550 (1 x 230V)*	586401001
EcoLogic Pro controller	585888301
CTC Basic Display	586043401

Enertech Group

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APPROVED PRODUCT

ENERGY FLEX