



Heating



Hot water



Renewables

geoTHERM 22 - 46kW Heat pump



Vaillant

Comfort for your home

Introducing the geoTHERM 22 - 46kW



geoTHERM ground source heat pumps are designed to provide comfortable, efficient and sustainable heating from thermal energy drawn from the ground. In a well insulated building, heat pumps provide an ideal sustainable energy source.

The geoTHERM is available in a range of higher capacity outputs making it an ideal renewable heating solution for larger homes and commercial properties. It can be cascaded to provide much larger outputs and can be fitted as part of a hybrid system. This floor standing heat pump can be fitted in buildings where there is three phase electricity.

As the geoTHERM has been certified by the Microgeneration Certification Scheme (MCS), installations could benefit from Renewable Heat Incentive (RHI) payments from the Government.

geoTHERM was the first of Vaillant's heat pumps to be awarded the Quiet Mark, the international approval award program from the UK Noise Abatement Society that recognises products with low sound levels.

The geoTHERM comes with a two year guarantee out of the box which can be extended to five years. The heat pump compressor has a 10 year guarantee; one of the longest on the UK market, providing peace of mind for years.





Heating



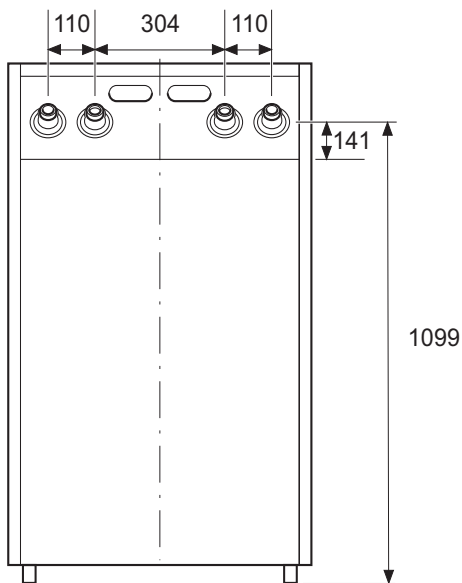
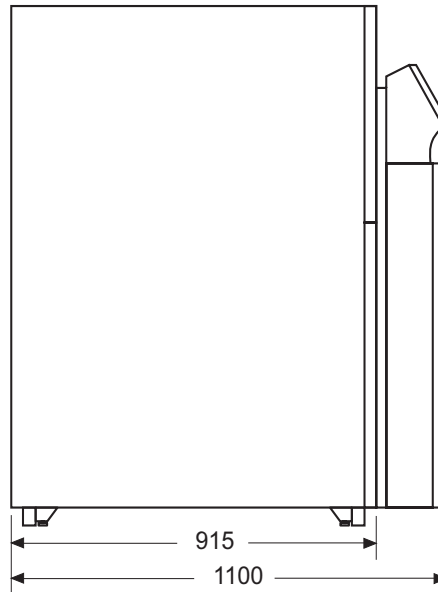
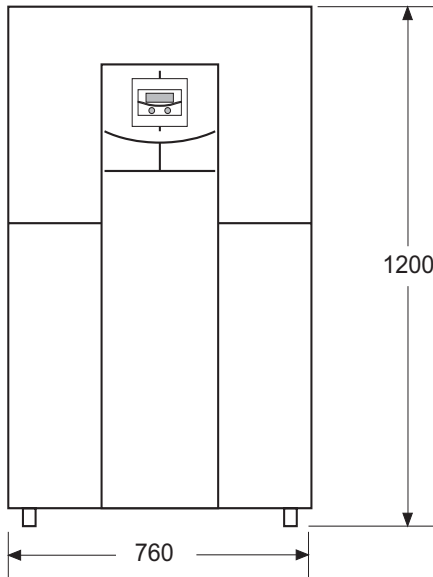
Hot water



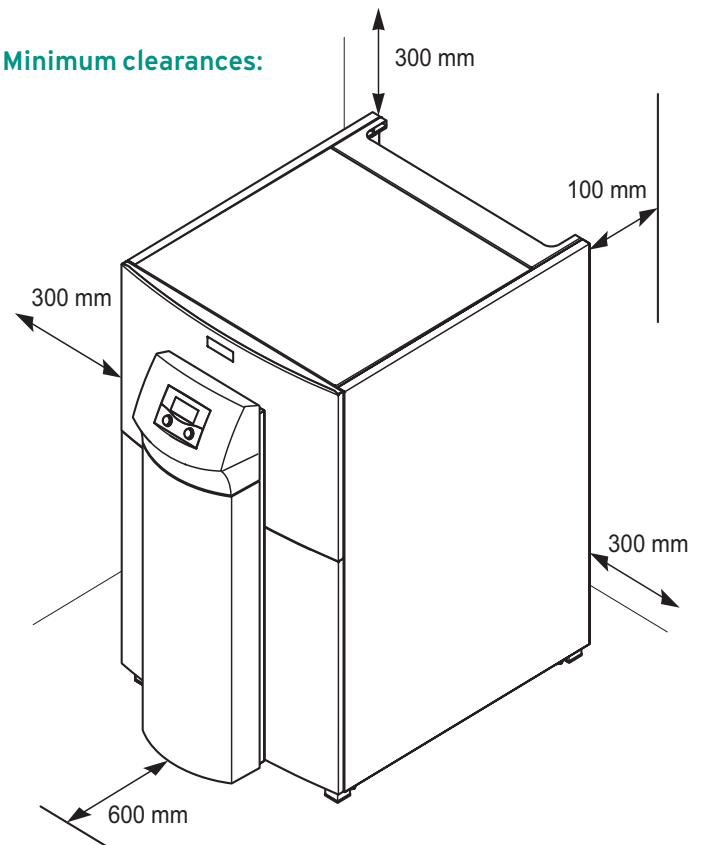
Renewables

Technical data

Dimensions:



Minimum clearances:



Key features & benefits

- Works efficiently with low flow temperature heating systems, either underfloor or radiators sized to suit
- Maximum flow temperature 62°C achievable for DHW
- Commissioning Service available through Vaillant
- Multi-stage Sound Insulation (MSI) offers 'whisper quiet' operation
- MCS accredited (may qualify for government incentives)

General technical data	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Heat pump type		Brine/water heat pump			
Product-side flow/return heating connections	in	G 1½"			
Product-side flow/return heat source connections	in	G 1½"			
Product dimensions, height without connection	mm	1,200			
Product dimensions, width	mm	760			
Product dimensions, depth without column	mm	900			
Product dimensions, depth with column	mm	1,100			
Weight, with packaging	kg	356	370	394	417
Weight, without packaging	kg	326	340	364	387
Weight, ready for operation	kg	341	359	386	414
Permissible ambient temperature	°C	7 ... 25			
Performance data	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Heat exchanger performance data		The following performance data is applicable to new products with clean heat exchangers.			
Heating output B0/W35 ΔΔT 5 K	kW	21.5	30.9	37.7	45.5
Power consumption B0/W35 ΔΔT 5 K without pumps	kW	4.8	6.7	8.4	10.0
Output figure B0/W35 ΔΔT 5 K/coefficient of performance EN 14511		4.4			
Heating output B0/W55 ΔΔT 8 K	kW	20.1	28.3	34.6	41.4
Power consumption B0/W55 ΔT 8 K without pumps	kW	6.2	8.9	11	13
Output figure B0/W55 ΔT 8 K/coefficient of performance EN 14511		3.2			
Sound power level B0/W35 EN 12102/EN 14511 LWI in heating mode	dB(A)	54	55	56	61
Application limits: At the same volume flow rates as for the nominal output test under standard nominal conditions with nominal flows and brine circuit ΔT 3 K/heating circuit ΔT 5 K. Operation of the pump outside the application limits results in the heat pump being switched off by the internal control and safety devices.		<ul style="list-style-type: none"> - B-10/W25 - B-10/W50 - B-5/W62 - B20/W62 - B20/W25 			
Brine circuit	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Brine fluid: ethylene glycol/water ratio		3/7			
Max. brine fluid operating pressure	MPa (bar)	≤ 0.3 (≤ 3.0)			
Min. source inlet temperature (hot brine) in heating mode	°C	-10			
Max. source inlet temperature (hot brine) in heating mode	°C	20			
Volume of the heat source circuit in the heat pump		6.21	8.61	10.01	12.41
Nominal flow at ΔT 3 K	m³/h	5.1	7.6	8.5	10.7
Min. permissible volume flow	m³/h	3.8	5.3	7.0	8.4
Max. permissible volume flow	m³/h	5.5	8.3	9.3	11.8
Pressure loss with nominal flow at ΔT 3 K	kPa	22.0	32.0	36.0	50.0
Materials		<ul style="list-style-type: none"> - Cu - CuZn alloy - Stainless steel - Fe - EPDM 			
Heating circuit	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Max. heating circuit operating pressure	MPa (bar)	≤ 0.3 (≤ 3.0)			
Min. heating mode flow temperature	°C	25			
Max. heating mode flow temperature	°C	62°C			

Heating circuit	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Heating circuit water contents in the heat pump	l	8.3	10.3	12.0	14.1
Nominal flow at ΔT 5 K	m ³ /h	3.8	5.4	6.5	7.8
Min. permissible volume flow	m ³ /h	2.1	2.8	4.0	4.2
Max. permissible volume flow	m ³ /h	4.2	5.7	7.1	8.5
Pressure loss with nominal flow at ΔT 5 K	kPa	7.2	9.3	11.0	20.0
Materials		<ul style="list-style-type: none"> - Cu - CuZn alloy - Stainless steel - Fe - EPDM 			
Refrigerant circuit	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Refrigerant type		R 407 C			
Refrigerant content of the refrigerant circuit in the heat pump	kg	4.10	5.99	6.70	8.60
Max. operating pressure: refrigerant	MPa (bar)	≤ 2.9 (≤ 29.0)			
Compressor type		Scroll		Scroll	
Oil type		Ester (EMKARATE RL32-3MAF)			
Oil filling quantity	l	4.0		4.14	
Electrics	Unit of measure	VWS 220/3	VWS 300/3	VWS 380/3	VWS 460/3
Rated voltage of the compressor/heating circuit		3/N/PE 400 V 50 Hz			
Control circuit rated voltage		1~/N/PE 230 V 50 Hz			
Rated voltage of the auxiliary heater (on-site)		3/N/PE 400 V 50 Hz			
Phase shifting		cos φ = 0.7 to 0.84	cos φ = 0.7 to 0.83	cos φ = 0.7 to 0.86	
Required network impedance Z _{max} . with in-rush current limiter	Ω	≤ 0.472	≤ 0.450	≤ 0.270	≤ 0.100
Fuse type, characteristic C, slow-blow, three-pole switching (disconnection of the three mains connection lines in one switching operation)	A	≤ 20	≤ 25	≤ 32	≤ 40
Optional on-site residual-current circuit breaker		RCCB type A (type A pulse-current- sensitive residual- current circuit breakers) or RCCB type B (type B universal-current- sensitive residual- current circuit breakers)			
In-rush current without in-rush current limiter	A	≤ 99	≤ 127	≤ 167	≤ 198
In-rush current with in-rush current limiter		≤ 44 A	≤ 65 A	≤ 85 A	≤ 110 A
Min. electrical power consumption for B5/W35		5.0kW	6.4kW	8.5kW	10.1kW
Max. electrical power consumption for B20/W60		10.0kW	12.0kW	16.0kW	18.0kW
Max. electrical power consumption for auxiliary heater		3 x 2.3 kW			
EN 60529 level of protection		IP 10B			
Brine pump	Unit of measure	22-30kW ErP brine pump	22-38kW ErP brine pump	30-46kW ErP brine pump	38-46kW ErP brine pump
Max. volume flow		21 Q _{max} m ³ /h	19 Q _{max} m ³ /h	41 Q _{max} m ³ /h	23 Q _{max} m ³ /h
Max. delivery head		10 ^h max/m	12 ^h max/m		17 ^h max/m
Nominal flange diameter		32 DN	40 DN	50 DN	40 DN
Overall length		220mm	250mm	280mm	250mm
EEL		≤ 0.27			≤ 0.20
Protection class		IP X4D			
Power consumption		12-310W	22-550W	25-590W	35-730W
Current consumption		0.22-1.37 A	0.20-2.40 A	0.20-2.60 A	0.30-3.20 A
Mains connection		1~230V, 50-60Hz			

Unit designation	Unit of measure	Space heating energy efficiency class at 35°C/55°C	Article number
geoTHERM 22kW	A+++ - D	A++	0020219382
geoTHERM 30kW	A+++ - D	A++	0020219383
geoTHERM 38kW	A+++ - D	A++	0020219384
geoTHERM 46kW	A+++ - D	A++	0020219385

Ground array	Unit of measure	geoTHERM 22kW	geoTHERM 30kW	geoTHERM 38kW	geoTHERM 46kW
Horizontal* Total loop length	M	1300	1800	2300	2700
Bore hole depth* Total drill depth	M	470	660	850	1000
Suggested brine pump	kW	22-30kW ErP brine pump	22-38kW ErP brine pump	30-46kW ErP brine pump	38-46kW ErP brine pump
Brine pump part number		0020227825	0020227826	0020227827	0020227828

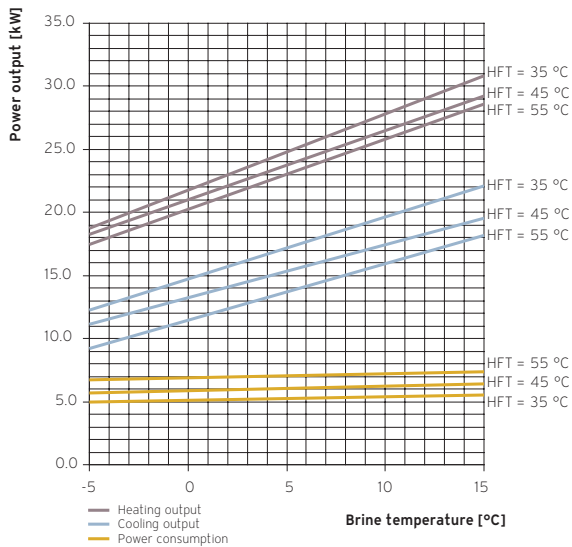
* Ground array based on average conditions: the ground array should be designed on site conditions

MCS SCoP performance table

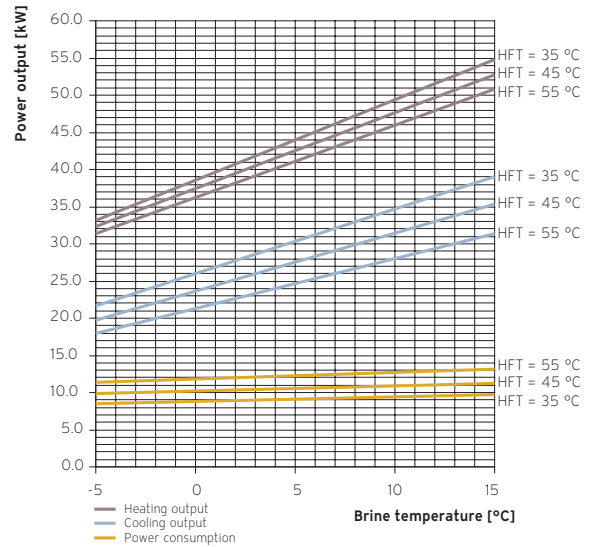
geoTHERM Ground Source Heat Pump	35°C	40°C	45°C	50°C
geoTHERM 22kW	4.40	3.96	3.52	3.50
geoTHERM 30kW	4.45	3.99	3.53	3.50
geoTHERM 38kW	4.42	3.96	3.50	3.46
geoTHERM 46kW	4.41	3.96	3.50	3.48

Power output graphs:

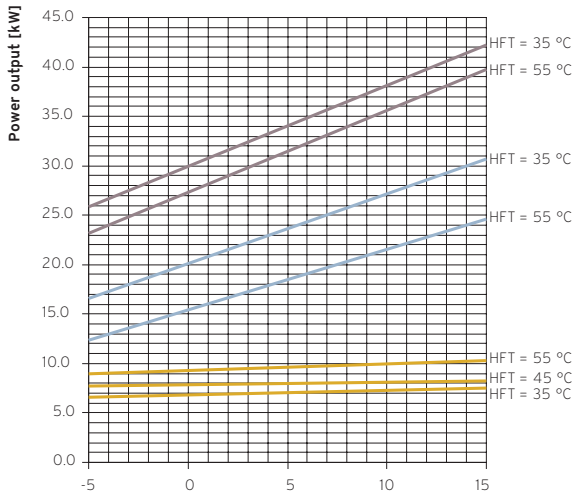
geoTHERM 22kW



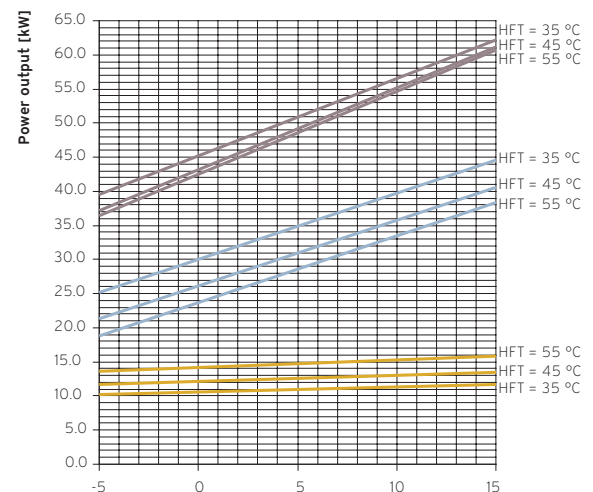
geoTHERM 38kW



geoTHERM 30kW



geoTHERM 46kW





uniSTOR cylinders

The uniSTOR heat pump cylinder range has been designed to work in perfect harmony with our heat pumps to provide highly efficient heating and hot water systems. Their large surface area and smooth coil design maximises heat transfer for ultimate efficiency and performance.

geoTHERM	uniSTOR 500 litre cylinder	uniSTOR 800 litre cylinder
22kW	✓	✓
30kW		✓
38kW		✓
46kW	For advice on cylinders that are compatible with geoTHERM 46kW, please contact our technical department	

Description	Article number
geoTHERM 22 - 30kW ErP brine pump	0020227825
geoTHERM 22 - 30kW ErP brine pump	0020227826
geoTHERM 22 - 30kW ErP brine pump	0020227827
geoTHERM 22 - 30kW ErP brine pump	0020227828
35 litre brine floor standing expansion vessel (22kW)	302428
50 litre brine floor standing expansion vessel (30-38kW)	302496
80 litre brine floor standing expansion vessel (46kW)	302497
100 litre brine floor standing expansion vessel (22kW)	0020020655
Connection kit 5 - 100 litre expansion vessel	0020077250
geoTHERM 22-38kW ErP system pump (also for use with ecoCRAFT)	0020180027
geoTHERM 46kW ErP system pump (also for use with ecoCRAFT)	0020180028
VR 60 mixer module	306782
VR 90 room control (advanced)	0020040079

Contacts

Sales support

Vaillant products are available to purchase from reputable heating merchants in the UK. To find contact details of your nearest Vaillant representative:

Telephone: 0345 602 0262

Technical enquiries

For technical assistance:

Telephone: 0344 693 3133

Email: aftersales@vaillant.co.uk

General enquiries

If you have a general enquiry, our friendly reception staff will happily point you in the right direction:

Telephone: 0345 602 2922

Training enquiries

Vaillant provides many different training courses. For more information:

Telephone: 0345 601 8885

Email: training@vaillant.co.uk

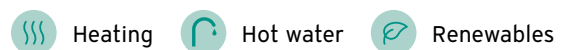
Service and support

Vaillant's dedicated team of renewable service engineers is the largest in the UK. We have experts that can help you on the phone or on-site, throughout the specification, design, installation and commissioning processes.

We will deliver your renewable system to wherever required: whether that's directly to site or to the merchant trade counter where the order was placed. On-site deliveries* will arrive with the correct lifting equipment to ensure the goods can be unloaded safely: it couldn't be easier.

If you use our commissioning service*, we'll visit the installation and guide you through the first system commissioning, helping with the final stages and the handover of the installation as required.

*A charge may apply for this service



Vaillant Group UK Ltd.
Nottingham Road, Belper, Derbyshire DE56 1JT
Telephone 0345 602 2922
www.vaillant.co.uk/renewables
info@vaillant.co.uk