

# flexoTHERM 400V

## Heat pump technical specification



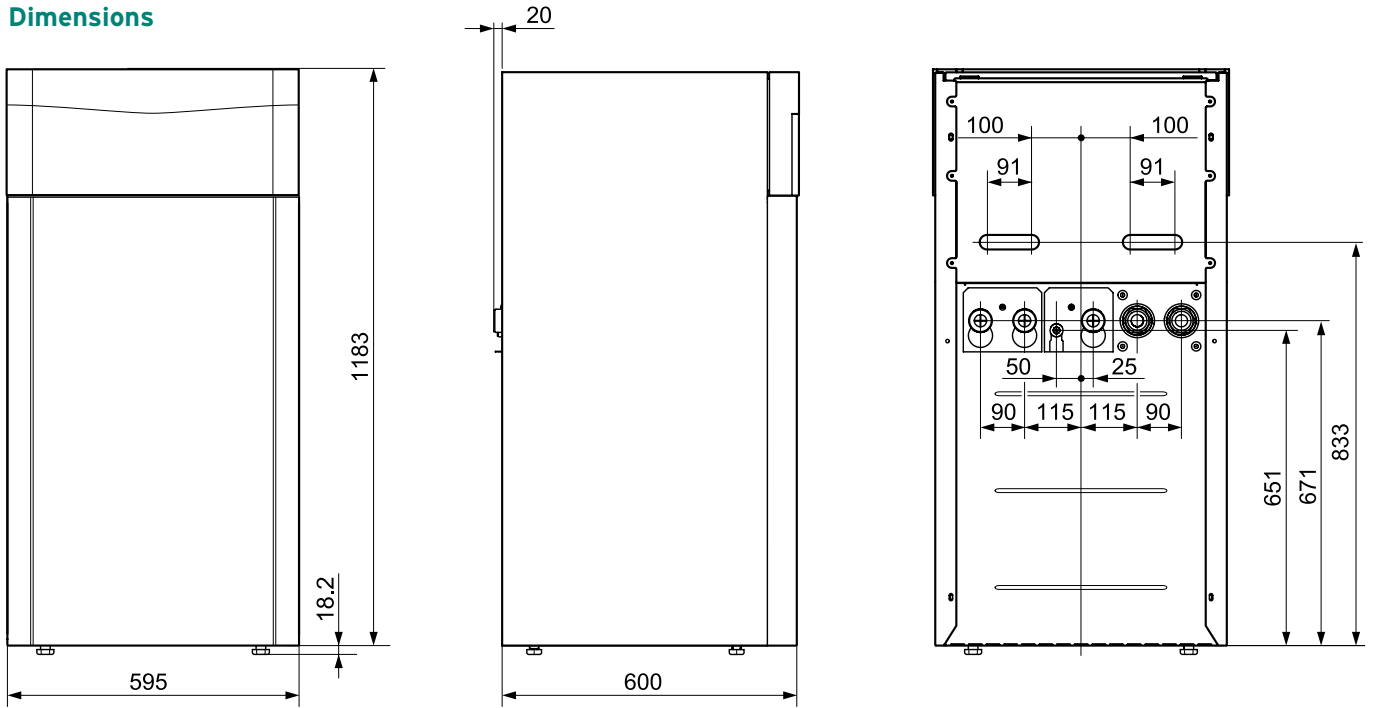
- The flexoTHERM 400V heat pump is available in 5, 8, 11, 15 and 19kW models
- Connects to three different sources - ground, water or air
- One of the quietest heat pump ranges in the UK with Sound Safe System
- Green iQ for the highest energy efficiency



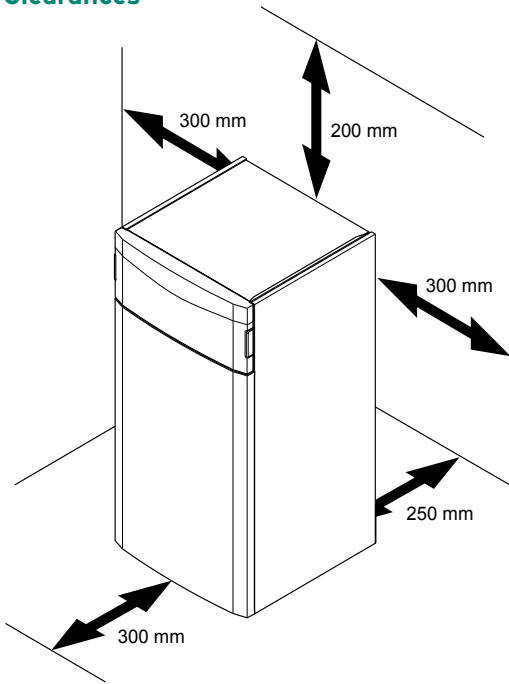
■ Heating ■ Hot water ■ Renewables

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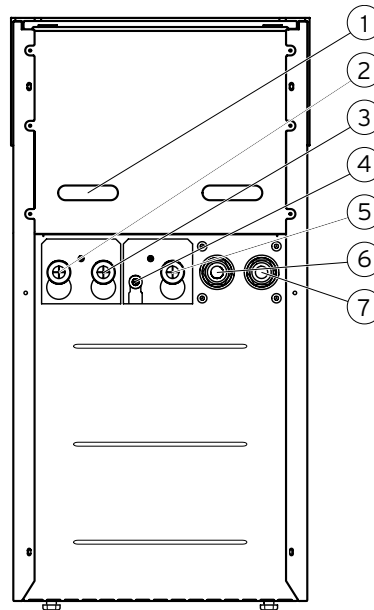
Dimensions



Clearances



Connections



Connections	
1	Recessed handles and cable duct
2	Heating flow
3	Heating return
4	Heating circuit diaphragm expansion tank connection
5	Hot water return
6	Connection: From the heat source to the heat pump (hot brine, A)
7	Connection: From the heat pump to the heat source (cold brine, B)

Dimensions		5kW 400 V	8kW 400 V	11kW 400 V	15kW 400 V	19kW 400 V
Product dimensions, height (without adjustable feet)	mm	1183				
Product dimensions, width	mm	595				
Product dimensions, depth	mm	600				
Weight, with packaging	kg	155	170	178	185	197
Weight, without packaging	kg	145	160	168	176	187
Weight, ready for operation	kg	151	167	175	187	200

Electrical data		5kW 400 V	8kW 400 V	11kW 400 V	15kW 400 V	19kW 400 V
Heating circuit / compressor	V/Hz	3~/N/PE 400 / 50				
Control circuit rated voltage	V/Hz	1~/N/PE 230 / 50				
Auxiliary heating	V/Hz	3~/N/PE 400 / 50				
Power factor		cos $\varphi$ = 0.9				
Required network impedance Z <sub>max</sub> with inrush current limiter	$\Omega$	$\leq 0.472$				
Fuse characteristic, type C	A	25	25	25	32	32
Optional building earth leakage 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)				
Inrush current (with inrush current limiter)	A	$\leq 15$	$\leq 19$	$\leq 22$	$\leq 26$	$\leq 30$
Rated current (compressor and auxiliary heater)	A	11.9	19.1	24.9	26.1	31.2
Measuring current, maximum	A	19.8	21.2	23.4	25.2	30.4
Output levels for the auxiliary heater	kW	2 / 3.5 / 5.5 / 7 / 9				
Minimum electrical power consumption of compressor	kW	1.40	2.00	2.50	3.30	4.70
Maximum electrical power consumption of compressor and auxiliary heater	kW	11.5	12.8	14.1	15.6	17.8
IP rating		IP 10B				
Energy-related Products at 35°C	band	A+++*				
Energy-related Products at 55°C	band	A+++*				
<b>Hydraulic connection</b>						
Heating flow / return	BSP male	G 1½"				
Heat source flow / return	BSP male	G 1½"				
Central heating water expansion vessel	BSP male	G ¾"				
Heating and brine right angle connections	mm	35				
<b>Heat source circuit / brine circuit</b>						
Volume of the brine circuit in the heat pump	l	2.5	3.1	3.6	4.5	5.3
Minimum pressure of brine fluid	bar	$\geq 0.7$				
Maximum pressure of brine fluid	bar	$\leq 3.0$				
<b>Heating circuit / building circuit</b>						
Water volume of the heating circuit in the heat pump	l	3.2	3.9	4.4	5.8	6.5
Minimum pressure	bar	$\geq 0.7$				
Maximum pressure	bar	$\leq 3.0$				
Minimum flow temperature heating	°C	25				
Maximum flow temperature heating with compressor	°C	65				
Maximum electrical power heating circuit pump	W	63			140	
<b>Refrigerant circuit</b>						
Refrigerant type		R 410 A				
Volume of refrigerant circuit in the heat pump	kg	1.50	2.40	2.50	3.05	3.95
Global warming potential (GWP) in accordance with EU No. 517/2014		2088				
CO <sub>2</sub> equivalent	t	3132	5011	5220	6368	8248
Global warming potential 100 (GWP <sub>100</sub> ) in accordance with EC No. 842/2006		1975				
Expansion valve type		Electronic				
Permissible pressure (relative)	bar	$\leq 46.0$				
Compressor type		EVI Scroll				
Oil type		Ester (EMKARATE RL32-3 MAF)				
Oil filling quantity	l	0.75	1.25	1.25	1.24	1.89

\*Reported efficiency when used with VRC 700 / VRC 700f controller

## Ground source technical specification

Heat source circuit / brine circuit		5kW 400 V	8kW 400 V	11kW 400 V	15kW 400 V	19kW 400 V
Minimum brine input temperature when heating	°C	-10				
Maximum brine input temperature when heating	°C	25				
Nominal flow rate $\Delta T$ 3K at B0/W35	l/h	1290	2320	3000	3590	4780
Minimum flow rate during continuous operation at the application limits	l/h	1110	2140	2460	3380	3840
Maximum flow rate during continuous operation at the application limits	l/h	1290	2320	3000	3590	4780
Maximum remaining feed head with $\Delta T$ 3K for B0/W35	bar	0.62	0.39	0.51	0.98	0.82
Electrical power for brine pump at B0/W35 $\Delta T$ 3K at 250 mbar	W	44	62	64	83	121
Brine fluid type		Ethylene glycol 30% volume				
Building circuit / heating circuit						
Nominal flow rate $\Delta T$ 5K	l/h	920	1530	1920	2450	3320
Maximum remaining feed head with $\Delta T$ 5K	bar	0.65	0.45	0.35	0.73	0.45
Nominal flow rate $\Delta T$ 8K	l/h	570	980	1240	1600	2180
Maximum remaining feed head with $\Delta T$ 8K	bar	0.68	0.65	0.57	0.86	0.80
Minimum flow rate at continuous working on the limitation of use	l/h	570	980	1240	1600	2180
Maximum flow rate at continuous working on the limitation of use	l/h	920	1530	1920	2450	3320
Electrical power heating circuit pump for B0/W35 $\Delta T$ 5K at 250 mbar pressure drop in the heating circuit	W	25	30	45	60	74
Heating output B0/W35 $\Delta T$ 5K	kW	5.22	8.76	11.12	14.28	19.52
Power consumption B0/W35 $\Delta T$ 5K	kW	1.12	1.74	2.24	2.93	4.18
Output figure B0/W35 $\Delta T$ 5K / coefficient of performance EN 14511		4.66	5.03	4.96	4.87	4.67
Heating output B0/W45 $\Delta T$ 5K	kW	5.21	8.71	11.08	13.85	19.46
Power consumption B0/W45 $\Delta T$ 5K	kW	1.48	2.31	2.93	3.69	5.24
Output figure B0/W45 $\Delta T$ 5K / coefficient of performance EN 14511		3.52	3.77	3.78	3.75	3.71
Heating output B0/W55 $\Delta T$ 8K	kW	5.31	8.89	11.27	14.55	19.83
Power consumption B0/W55 $\Delta T$ 8K	kW	1.78	2.70	3.56	4.53	6.12
Output figure B0/W55 $\Delta T$ 8K / coefficient of performance EN 14511		2.98	3.29	3.17	3.21	3.24
Sound power level B0/W35 EN 12102/EN 14511 $L_{w1}$ in heating mode	db(A)	39.8	42.4	45.2	49.9	48.4

## Water source technical specification

Water source circuit / brine circuit		5kW 400 V	8kW 400 V	11kW 400 V	15kW 400 V	19kW 400 V
Heat source module		VWW 11/4 SI			VWW 19/4 SI	
Nominal flow of groundwater at $\Delta T$ 3K with W10/W35	l/h	1450	2240	3520	4540	5480
Brine fluid type		Ethylene glycol 30% volume				
<b>Building circuit/ heating circuit</b>						
Nominal flow at $\Delta T$ 5K	l/h	1100	1720	2170	2920	3990
Maximum remaining feed head with $\Delta T$ 5K	bar	0.65	0.42	0.23	0.56	0.21
Nominal flow at $\Delta T$ 8K	l/h	680	1130	1420	1870	2610
Maximum remaining feed head with $\Delta T$ 8K	bar	0.68	0.56	0.47	0.82	0.69
Minimum flow rate during continuous operation at the application limits	l/h	680	1130	1420	1870	2610
Maximum flow rate during continuous operation at the application limits	l/h	1100	1720	2170	2920	3990
Heating pump electrical power consumption for W10/W35 $\Delta T$ 5K with an external pressure loss of 250 mbar in the heating circuit	W	35	45	55	100	110
Heating output W10/W35 $\Delta T$ 5K	kW	6.40	9.88	12.84	16.57	22.93
Power consumption W10/W35 $\Delta T$ 5K	kW	1.40	1.91	2.50	3.09	4.44
Output figure W10/W35 $\Delta T$ 5K / coefficient of performance EN 14511		4.80	5.17	5.14	5.36	5.16
Heating output W10/W45 $\Delta T$ 5K	kW	6.15	9.97	12.79	16.36	23.47
Power consumption W10/W45 $\Delta T$ 5K	kW	1.67	2.45	3.23	3.92	5.70
Output figure W10/W45 $\Delta T$ 5K / coefficient of performance EN 14511		3.68	4.07	3.96	4.17	4.12
Heating output W10/W55 $\Delta T$ 8K	kW	6.19	10.22	13.16	16.92	23.59
Power consumption W10/W55 $\Delta T$ 8K	kW	2.10	2.96	3.95	4.77	6.73
Output figure W10/W55 $\Delta T$ 8K / coefficient of performance EN 14511		2.95	3.45	3.33	3.55	3.51
Sound power level W10/W35 EN 12102/EN 14511 $L_{w_i}$ in heating mode	dB(A)	41.2	47.9	45.0	49.9	50.6

**Air source technical specification**

Heat source circuit/brine circuit		5kW 400 V	8kW 400 V	11kW 400 V	15kW 400 V	19kW 400 V
Heat source module		1 x VWL 11/4 SA			2 x VWL 11/4 SA	
Brine fluid type		Ethylene glycol 44% volume				
Building circuit/heating circuit						
Nominal flow at $\Delta T$ 5K	l/h	1070	1510	1990	2650	3440
Maximum remaining feed head with $\Delta T$ 5K	bar	0.61	0.42	0.31	0.64	0.38
Nominal flow at $\Delta T$ 8K	l/h	660	1020	1350	1720	2300
Maximum remaining feed head with $\Delta T$ 8K	bar	0.69	0.56	0.53	0.84	0.75
Minimum flow rate during continuous operation at the application limits	l/h	660	1020	1350	1720	2300
Maximum flow rate during continuous operation at the application limits	l/h	1070	1510	1990	2650	3440
Heating pump electrical power consumption for A7/W35 $\Delta T$ 5K with an external pressure loss of 250 mbar in the heating circuit	W	28	36	50	70	78
Heating output A7/W35 $\Delta T$ 5K	kW	6.11	8.69	11.40	15.08	19.68
Power consumption A7/W35 $\Delta T$ 5K	kW	1.27	1.87	2.46	3.15	4.44
Output figure A7/W35 $\Delta T$ 5K / coefficient of performance EN 14511		4.78	4.64	4.63	4.79	4.43
Heating output A7/W45 $\Delta T$ 5K	kW	5.98	8.95	11.93	15.37	20.46
Power consumption A7/W45 $\Delta T$ 5K	kW	1.62	2.40	3.13	3.99	5.54
Output figure A7/W45 $\Delta T$ 5K / coefficient of performance EN 14511		3.69	3.73	3.80	3.85	3.69
Heating output A7/W55 $\Delta T$ 8K	kW	6.05	9.40	12.14	15.78	20.72
Power consumption A7/W55 $\Delta T$ 8K	kW	1.94	2.91	3.80	4.81	6.55
Output figure A7/W55 $\Delta T$ 8K / coefficient of performance EN 14511		3.12	3.23	3.19	3.27	3.16
Sound power level A7/W35 EN 12102/EN 14511 $L_{wi}$ in heating mode	db(A)	40.3	45.8	44.4	48.7	48.1

**MCS SCoP performance table**

flexoTHERM ground source heat pump	35°C	40°C	45°C	50°C	55°C
flexoTHERM 5kW 400V	4.97	4.40	3.83	3.66	3.49
flexoTHERM 8kW 400V	5.34	4.74	4.14	3.99	3.83
flexoTHERM 11kW 400V	5.30	4.68	4.07	3.89	3.72
flexoTHERM 15kW 400V	5.18	4.60	4.02	3.88	3.74
flexoTHERM 19kW 400V	4.87	4.36	3.85	3.76	3.68

flexoTHERM with fluoCOLLECT water source heat pump	35°C	40°C	45°C	50°C	55°C
flexoTHERM 5kW 400V	5.19	4.59	4.00	3.82	3.64
flexoTHERM 8kW 400V	5.62	5.01	4.40	4.26	4.13
flexoTHERM 11kW 400V	5.58	4.96	4.35	4.18	4.02
flexoTHERM 15kW 400V	5.82	5.19	4.56	4.41	4.26
flexoTHERM 19kW 400V	5.55	4.97	4.38	4.27	4.15

flexoTHERM with aroCOLLECT air source heat pump	35°C	40°C	45°C	50°C	55°C
flexoTHERM 5kW 400V	4.34	3.83	3.32	3.29	3.26
flexoTHERM 8kW 400V	4.20	3.75	3.29	3.28	3.28
flexoTHERM 11kW 400V	4.10	3.63	3.16	3.14	3.12
flexoTHERM 15kW 400V	4.43	3.90	3.38	3.36	3.38
flexoTHERM 19kW 400V	4.00	3.56	3.13	3.16	3.19

## flexoTHERM heat pumps

Description	Article number
flexoTHERM 5kW 400V (special order only)	0020221337
flexoTHERM 8kW 400V (special order only)	0020221338
flexoTHERM 11kW 400V (special order only)	0020221339
flexoTHERM 15kW 400V	0020221333
flexoTHERM 19kW 400V	0020221334

NOTE: Article numbers include flexoTHERM, VR10 sensor, right angle connection set, schematic and installation guide

## Accessories

Description	Article number
aroCOLLECT up to 11kW (air source)	0020221335
aroCOLLECT up to 19kW (air source)	0020221336
fluoCOLLECT up to 11kW (water source)	0010016719
fluoCOLLECT up to 19kW (water source)	0010016720
Passive cooling module up to 11kW	0010016721
Passive cooling module up to 19kW	0010016722
Brine filling station	0020106265
Glycol discharge vessel	0020145563
18 litre brine expansion vessel (5-11kW)	302097
25 litre brine expansion vessel (15-19kW)	302098
Expansion vessel bracket	0020173592

## Controls

Description	Article number
Wired VRC 700 control unit	0020236291
Wired VRC 700 underfloor heating control pack	0020236292
Wired VRC 700 two zone pack and DHW	0020236293
Wired VRC 700 three zone pack and DHW	0020236294
Wired VRC 700 one zone pack and solar DHW	0020236295
Wired VRC 700 two zone pack and solar DHW	0020259834
Wireless VRC 700f control unit	0020259829
Wireless VRC 700f underfloor heating control pack	0020259830
Wireless VRC 700f two zone pack and DHW	0020259831
Wireless VRC 700f three zone pack and DHW	0020259832
Wireless VRC 700f one zone pack and solar DHW	0020259833
Wireless VRC 700f two zone pack and solar DHW	0020259835
VR 70 wiring centre	0020184844
VR 71 wiring centre	0020184847
Wired VR 91 programmable room thermostat	0020171334
Wireless VR 91f programmable room thermostat	0020231566
VR 40 multifunctional module 2-in-7	0020017744
VR 32 eBUS coupler	0020139895

### Sales Support

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

**Telephone: 0345 602 0262**

### Technical Enquiries

For technical assistance:

**Telephone: 0330 100 3540**

**Email: [aftersales@vaillant.co.uk](mailto:aftersales@vaillant.co.uk)**

### General Enquiries

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**Email: [aftersales@vaillant.co.uk](mailto:aftersales@vaillant.co.uk)**

### Training Enquiries

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**Email: [training.enquiriesuk@vaillant-group.com](mailto:training.enquiriesuk@vaillant-group.com)**

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