

Datasheet

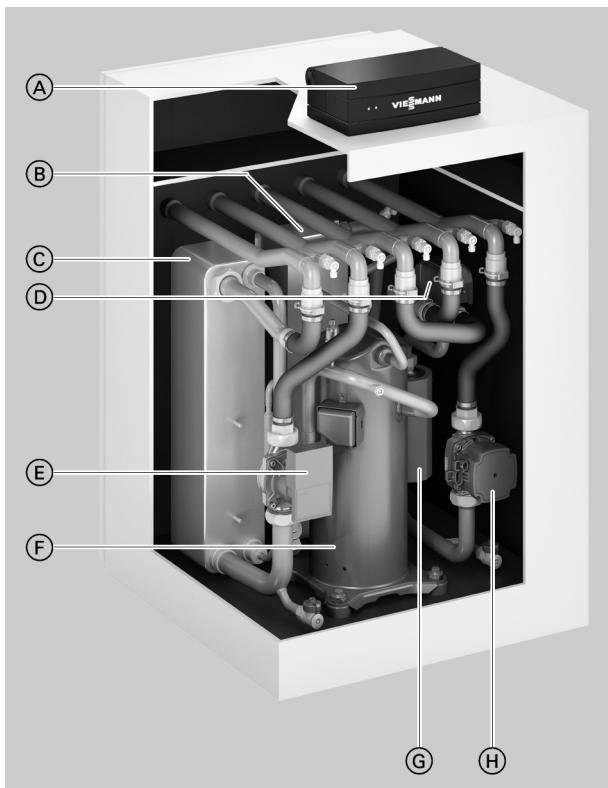
For part no. and prices: see pricelist



VITOCAL 200-G Type BWC(-M) 201.B

Single-stage brine/water or water/water heat pump,
230 V~/400 V~

Benefits



- (A) Vitotronic 200 weather-compensated, digital heat pump control unit
- (B) Condenser
- (C) Evaporator
- (D) 3-way diverter valve
- (E) Primary pump (brine), high efficiency circulation pump
- (F) Compressor
- (G) Instantaneous heating water heater
- (H) Secondary pump (heating water), high efficiency circulation pump

- Low running costs thanks to high SCOP (seasonal coefficient of performance) to EN 14825: Up to 5.3 for average climatic conditions and low temperature application (W35)
- Especially quiet thanks to new sound insulation concept: Up to 49 dB(A) at B0/W55
- Mono mode operation for central heating and DHW heating
- Low running costs with high efficiency due to RCD (refrigerant cycle diagnostic) system with electronic expansion valve (EEV)

- Integral instantaneous heating water heater, e.g. for screed drying
- Easy handling as the heat pump module can be quickly removed thanks to push-fit connections
- Optimised utilisation of power generated on-site by photovoltaic systems
- Web-enabled through Vitoconnect (accessories) for operation and service via Viessmann apps

Delivered condition

- Brine/water heat pump in a compact casing
- Integral 3-way diverter valve "central heating/DHW heating"
- Integral high efficiency circulation pump for primary circuit (brine)
- Integral high efficiency circulation pump for secondary circuit (heating water)
- Integral instantaneous heating water heater
- Safety assembly for the heating circuit

- Vitotronic 200 weather-compensated heat pump control unit with outside temperature sensor
- Electronic starting current limiter and integral phase monitor
- Connection lines for flow and return of primary circuit (brine) flow, heating circuit and DHW flow (secondary circuit) for connection at the top

Specification

Brine/water heat pump specification

400 V appliances

Type BWC		201.B06	201.B08	201.B10	201.B13	201.B17
Heating performance data to EN 14511						
(B0/W35, 5 K spread)						
Rated heating output	kW	5.76	7.54	10.36	12.97	17.35
Cooling capacity	kW	4.44	6.06	8.32	10.52	13.79
Power consumption	kW	1.25	1.62	2.16	2.63	3.84
Coefficient of performance ε (COP)		4.60	4.64	4.81	4.93	4.51
Brine (primary circuit)						
Capacity	l	3.3	3.3	3.9	4.5	5.9
Minimum flow rate	l/h	860	1160	1470	1900	2500
Nominal flow rate	l/h	1100	1300	1720	—	—
Residual head						
– At minimum flow rate	mbar	635	570	650	869	745
	kPa	63.5	57.0	65.0	86.9	74.5
– At nominal flow rate	mbar	612	545	580	—	—
	kPa	61.2	54.5	58.0	—	—
Max. flow temperature (brine inlet)	°C	25	25	25	25	25
Min. flow temperature (brine inlet)	°C	-10	-10	-10	-10	-10
Heating water (secondary circuit)						
Capacity	l	3.3	3.5	3.8	4.6	5.7
Minimum flow rate	l/h	600	710	920	1115	1500
Nominal flow rate	l/h	990	1250	1710	—	—
Residual head						
– At minimum flow rate	mbar	610	690	670	910	838
	kPa	61.0	69.0	67.0	91.0	83.8
– At nominal flow rate	mbar	576	620	430	—	—
	kPa	57.6	62.0	43.0	—	—
Max. flow temperature	°C	65	65	65	65	65
Instantaneous heating water heater						
Heating output	kW	9.0	9.0	9.0	9.0	9.0
Rated voltage				3/N/PE 400 V/50 Hz		
Fuse protection				3 x B16A 1-pole		
Heat pump electrical values						
Rated voltage, compressor				3/N/PE 400 V/50 Hz		
Rated current, compressor	A	4.8	6.2	7.4	9.7	13
Cos φ		0.9	0.9	0.9	0.9	0.9
Starting current, compressor with starting current limiter	A	11	14	20	22	25
Starting current, compressor with stalled armature	A	28	43	51.5	62	75
Compressor fuse rating	A	1 x B16A 3-pole	1 x B16A 3-pole	1 x B16A 3-pole	1 x B16A 3-pole	1 x C20A 3-pole
Protection class						
Electrical values, heat pump control unit						
Rated voltage				1/N/PE 230 V/50 Hz		
Fuse protection		B16A	B16A	B16A	B16A	B16A
Fuses				2.0 A (slow, H) / 250 V		
IP rating		IP 20	IP 20	IP 20	IP 20	IP 20
				6.3 A (slow, H) / 250 V		
Power consumption						
Primary pump (high efficiency circulation pump)	W	5 to 70 ≤ 0.21	5 to 70 ≤ 0.21	5 to 70 ≤ 0.21	5 to 145 ≤ 0.21	5 to 145 ≤ 0.21
– Energy efficiency index EEI						
Secondary pump (high efficiency circulation pump)	W	5.7 to 87	5.7 to 87	5.7 to 87	4 to 131	4 to 131
– Energy efficiency index EEI						
Max. power consumption, control unit	W	1000	1000	1000	1000	1000
Rated output, control unit/PCB	W	12	12	12	12	12



Specification (cont.)

Type BWC		201.B06	201.B08	201.B10	201.B13	201.B17
Refrigerant circuit						
Refrigerant		R410A	R410A	R410A	R410A	R410A
– Safety group		A1	A1	A1	A1	A1
– Refrigerant charge	kg	1.40	1.95	1.95	2.15	2.40
– Global warming potential (GWP)* ¹		1924	1924	1924	1924	1924
– CO ₂ equivalent	t	2.7	3.8	4.6	4.1	4.6
Permiss. operating pressure						
– High pressure side	bar	45	45	45	45	45
	MPa	4.5	4.5	4.5	4.5	4.5
– Low pressure side	bar	28	28	28	28	28
	MPa	2.8	2.8	2.8	2.8	2.8
Compressor	Type	Hermetically sealed scroll compressor				
Oil in compressor	Type	Emkarate RL32 3MAF				
Oil volume in compressor	l	0.74	1.24	1.24	1.24	1.89
Dimensions						
Total length	mm	680	680	680	680	680
Total width	mm	600	600	600	600	600
Total height (programming unit pivoted up)	mm	1081	1081	1081	1081	1081
Weight						
Total weight	kg	145	148	152	158	165
Heat pump module	kg	74	77	81	87	94
Permiss. operating pressure						
Primary circuit (brine)	bar	3.0	3.0	3.0	3.0	3.0
	MPa	0.3	0.3	0.3	0.3	0.3
Secondary circuit, heating water	bar	3.0	3.0	3.0	3.0	3.0
	MPa	0.3	0.3	0.3	0.3	0.3
Connections						
Primary circuit flow/return	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit flow (heating circuits)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit flow (DHW cylinder)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit return (heating circuits and DHW cylinder)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Sound power (tested with reference to EN 12102/EN ISO 9614-2) – weighted total sound power level at B0 ^{±3} K/W35 ^{±5} K						
– At rated heating output	dB(A)	40	42	44	44	47
Energy efficiency class to Commission Regulation (EU) No 813/2013						
Heating, average climatic conditions						
– Low temperature application (W35)		A+++	A+++	A+++	A+++	A+++
– Medium temperature application (W55)		A++	A++	A++	A++	A++
Heating performance data to Commission Regulation (EU) No 813/2013 (average climatic conditions)						
Low temperature application (W35)						
– Energy efficiency η _S	%	186	201	204	204	185
– Rated heating output P _{rated}	kW	7	9	12	13	17
– Seasonal coefficient of performance (SCOP)		4.86	5.23	5.32	5.31	4.82
Medium temperature application (W55)						
– Energy efficiency η _S	%	134	143	150	148	140
– Rated heating output P _{rated}	kW	6	8	11	12	16
– Seasonal coefficient of performance (SCOP)		3.56	3.79	3.97	3.90	3.71
Sound power level to ErP (B0/W55)	dB(A)	40	44	46	49	48
230 V appliances						
Type BWC-M		201.B06	201.B08	201.B10		
Heating performance data to EN 14511 (B0/W35, 5 K spread)						
Rated heating output	kW		5.71	7.47		10.29
Cooling capacity	kW		4.32	5.94		8.20
Power consumption	kW		1.36	1.78		2.32
Coefficient of performance ε (COP)			4.20	4.20		4.60

*1 Based on the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

Specification (cont.)

Type BWC-M		201.B06	201.B08	201.B10
Brine (primary circuit)				
Capacity	l	3.3	3.3	3.9
Minimum flow rate	l/h	860	1160	1470
Nominal flow rate	l/h	1100	1300	1720
Residual head				
– At minimum flow rate	mbar	635	570	650
	kPa	63.5	57.0	65.0
– At nominal flow rate	mbar	612	545	580
	kPa	61.2	54.5	58.0
Max. flow temperature (brine inlet)	°C	25	25	25
Min. flow temperature (brine inlet)	°C	-10	-10	-10
Heating water (secondary circuit)				
Capacity, heat pump	l	3.3	3.5	3.8
Capacity, total	l	226	227	228
Minimum flow rate	l/h	600	710	920
Nominal flow rate	l/h	990	1250	1710
Residual head				
– At minimum flow rate	mbar	610	690	670
	kPa	61.0	69.0	67.0
– At nominal flow rate	mbar	576	620	430
	kPa	57.6	62.0	43.0
Max. flow temperature	°C	65	65	65
Instantaneous heating water heater				
Heating output	kW	9.0	9.0	9.0
Rated voltage		1/N/PE 230 V/50 Hz		
Fuse protection		3 x B16A 1-pole	3 x B16A 1-pole	3 x B16A 1-pole
Heat pump electrical values				
Rated voltage, compressor			1/N/PE 230 V/50 Hz	
Rated current, compressor	A	12.8	17.1	22.8
Cos φ		0.9	0.9	0.9
Starting current, compressor with starting current limiter	A	23.9	25.6	38.7
Starting current, compressor with stalled armature	A	60	83	108
Compressor fuse rating	A	B16A	B20A	B25A
Rated voltage, heat pump control unit/PCB			1/N/PE 230 V/50 Hz	
Fuse rating, heat pump control unit/PCB (internal)			6.3 A (slow) / 250 V	
Protection class		I	I	I
Power consumption				
Primary pump (high efficiency circulation pump)	W	5 to 70	5 to 70	5 to 70
– Energy efficiency index EEI		≤ 0.21	≤ 0.21	≤ 0.21
Secondary pump (high efficiency circulation pump)	W	5.7 to 87	5.7 to 87	5.7 to 87
– Energy efficiency index EEI		≤ 0.21	≤ 0.21	≤ 0.21
Max. power consumption, control unit	W	1000	1000	1000
Rated output, control unit/PCB	W	5	5	5
Refrigerant circuit				
Refrigerant		R410A	R410A	R410A
– Safety group		A1	A1	A1
– Refrigerant charge	kg	1.4	1.95	1.95
– Global warming potential (GWP)*2		1924	1924	1924
– CO ₂ equivalent	t	2.7	3.8	4.6
Permiss. operating pressure				
– High pressure side	bar	45	45	45
	MPa	4.5	4.5	4.5
– Low pressure side	bar	28	28	28
	MPa	2.8	2.8	2.8
Compressor	Type		Hermetically sealed scroll compressor	
Oil in compressor	Type		Emkarate RL32 3MAF	
Oil volume in compressor	l	0.74	1.24	1.24
Dimensions				
Total length	mm	680	680	680
Total width	mm	600	600	600
Total height	mm	1081	1081	1081
Weight				
Total weight	kg	145	148	152
Heat pump module	kg	74	77	81

Specification (cont.)

Type BWC-M		201.B06	201.B08	201.B10
Permiss. operating pressure				
Primary circuit (brine)	bar	3.0	3.0	3.0
	MPa	0.3	0.3	0.3
Secondary circuit, heating water	bar	3.0	3.0	3.0
	MPa	0.3	0.3	0.3
Connections				
Primary circuit flow/return	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit flow (heating circuits)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit flow (DHW cylinder)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Secondary circuit return (heating circuits and DHW cylinder)	mm	Cu 28x1.5	Cu 28x1.5	Cu 28x1.5
Sound power (tested with reference to EN 12102/ EN ISO 9614-2) – weighted total sound power level at B0 ^{±3} K/ W35 ^{±5} K				
– At rated heating output	dB(A)	40	42	44
Energy efficiency class to Commission Regulation (EU) No 813/2013				
Heating, average climatic conditions		A+++	A+++	A+++
– Low temperature application (W35)		A++	A++	A++
– Medium temperature application (W55)				
Heating performance data to Commission Regulation (EU) No 813/2013 (average climatic conditions)				
Low temperature application (W35)				
– Energy efficiency η _S	%	201	214	194
– Rated heating output P _{rated}	kW	6	9	12
– Seasonal coefficient of performance (SCOP)		5.23	5.54	5.06
Medium temperature application (W55)				
– Energy efficiency η _S	%	133	151	143
– Rated heating output P _{rated}	kW	6	8	11
– Seasonal coefficient of performance (SCOP)		3.52	3.98	3.76
Sound power level to ErP (B0/W55)	dB(A)	40	44	46

Water/water heat pump specification

400 V appliances

Type BWC in conjunction with "conversion kit for water/water heat pump"	201.B06	201.B08	201.B10	201.B13	201.B17
Heating performance data to EN 14511 (W10/W35, 5 K spread)					
Rated heating output	kW	7.53	9.80	13.41	16.89
Cooling capacity	kW	5.80	8.52	11.61	14.46
Power consumption	kW	1.23	1.57	2.11	2.61
Coefficient of performance ε (COP)		6.11	6.24	6.37	6.46
Brine (primary intermediate circuit)					
Capacity	l	3.3	3.3	3.9	4.5
Minimum flow rate	l/h	1440	2120	2880	3300
Residual head at minimum flow rate	mbar	570	300	770	624
	kPa	57.0	30.0	77.0	62.4
Max. flow temperature (brine inlet)	°C	25	25	25	25
Min. flow temperature (brine inlet)	°C	7.5	7.5	7.5	7.5
Heating water (secondary circuit)					
Capacity	l	3.3	3.5	3.8	4.6
Minimum flow rate	l/h	650	850	1160	1450
Residual head at minimum flow rate	mbar	610	680	625	660
	kPa	61.0	68.0	62.5	66.0
Max. flow temperature	°C	65	65	65	65

230 V appliances

Type BWC-M in conjunction with "conversion kit for water/water heat pump"	201.B06	201.B08	201.B10
Heating performance data to EN 14511 (W10/W35, 5 K spread)			
Rated heating output	kW	7.62	9.95
Cooling capacity	kW	6.48	8.60
Power consumption	kW	1.36	1.64
Coefficient of performance ε (COP)		5.61	6.07

Specification (cont.)

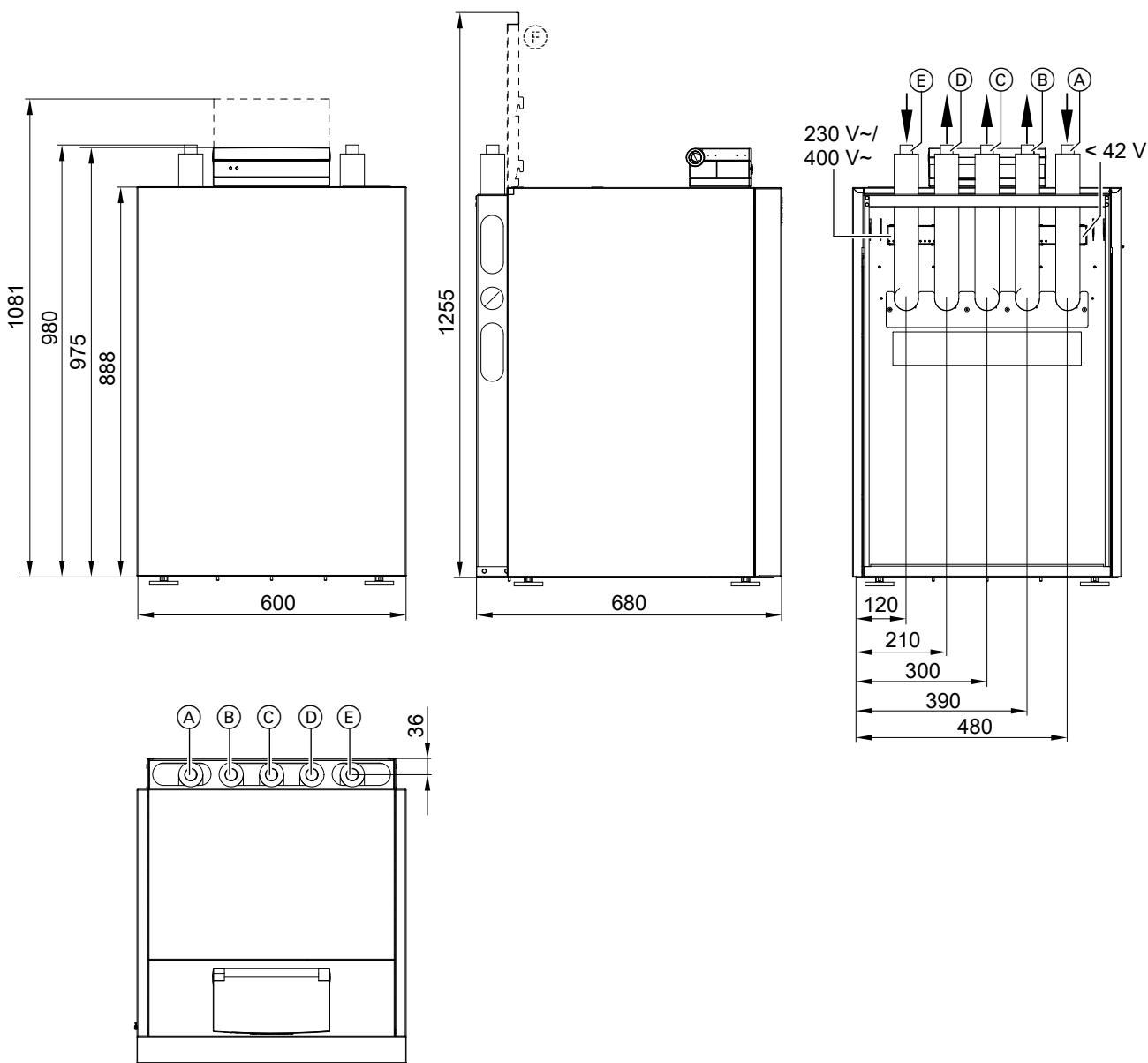
Type BWC-M in conjunction with "conversion kit for water/water heat pump"		201.B06	201.B08	201.B10
Brine (primary intermediate circuit)				
Capacity	l	3.3	3.3	3.8
Minimum flow rate	l/h	1600	2130	2890
Residual head at minimum flow rate	mbar	535	295	770
	kPa	53.5	29.5	77.0
Max. flow temperature (brine inlet)	°C	25	25	25
Min. flow temperature (brine inlet)	°C	7.5	7.5	7.5
Heating water (secondary circuit)				
Capacity	l	3.3	3.5	3.8
Minimum flow rate	l/h	660	860	1160
Residual head at minimum flow rate	mbar	608	675	625
	kPa	60.8	67.5	62.5
Max. flow temperature	°C	65	65	65

Note

Further specifications: See "Specification – brine/water heat pumps".

Specification (cont.)

Dimensions



- (A) Primary circuit flow (heat pump brine inlet), connection Cu 28 x 1.5 mm
- (B) Primary circuit return (heat pump brine outlet), connection Cu 28 x 1.5 mm
- (C) Secondary circuit flow (DHW cylinder), connection Cu 28 x 1.5 mm

- (D) Secondary circuit flow (heating circuits), connection Cu 28 x 1.5 mm
- (E) Secondary circuit return (heating circuits DHW cylinder), connection Cu 28 x 1.5 mm
- (F) Rear top panel, pivoted open

Subject to technical modifications.

Viessmann Werke GmbH & Co. KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

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