VIESMANN

VITODENS
Gas condensing boilers

Technical guide

Vitodens 100-W

Vitodens 111-W

VITODENS 100-W Type B1HC, B1KC

Wall mounted gas condensing boiler
4.7 to 35.0 kW
For natural gas and LPG

VITODENS 111-W Type B1LD

Gas condensing storage combi boiler
4.7 to 35.0 kW
For natural gas and LPG

5777747 GB 4/2020

Index

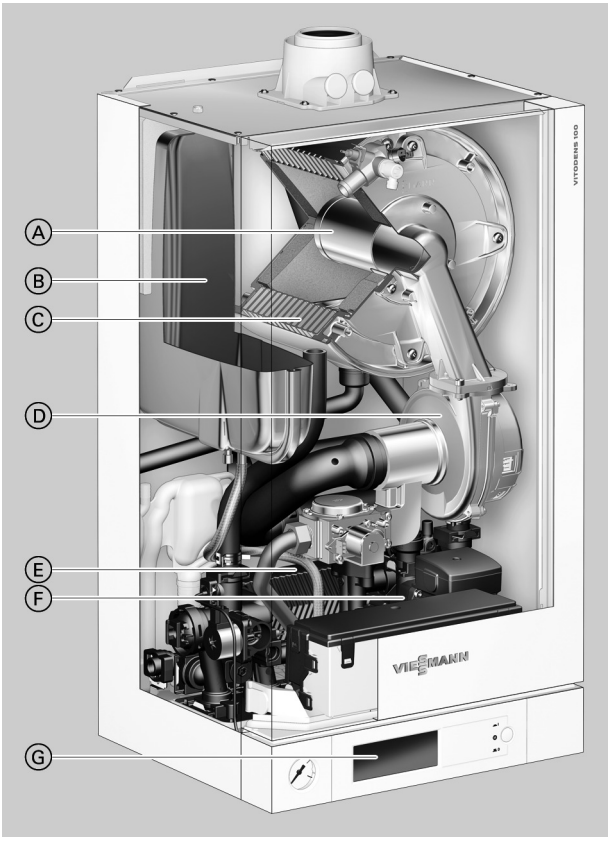
5777747

Index (cont.)

1

1.1 Product description

Benefits



Ⓐ Modulating MatriX cylinder burner
Ⓑ Integral diaphragm expansion vessel
Ⓒ Inox-Radial heat exchanger made from stainless steel – for high operational reliability, a long service life and high heating output on a very small footprint
Ⓓ Variable speed combustion air fan for quiet and economical operation
Ⓔ Plate heat exchanger (gas condensing combi boiler)
Ⓕ Integral variable speed high efficiency circulation pump
Ⓖ Digital control unit with touchscreen

- Standard seasonal efficiency [to DIN] of up to 98 % (H_s) [gross cv]
- Modulation range to 1:6
- Durable and efficient thanks to Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life
- Simple and innovative operation via control unit with touchscreen
- Constant temperature and weather-compensated control unit

Recommendation for application

Property development, either modernisation or new build (replacement of older appliances in apartment buildings or prefabricated houses)

Delivered condition

- Modulating MatriX cylinder burner
- Constant temperature and weather-compensated control unit
  Weather-compensated operation requires both an outside temperature sensor and a clock thermostat or time switch (accessories)
- Safety valves, expansion vessel (8 l)
- Circulation pump and 3-way diverter valve
- Fully plumbed and wired
- Boiler flue connection

Preset for operation with natural gas. Conversion within gas groups E/LL is possible.
Conversion to LPG requires a conversion kit (standard delivery).

Tested quality

CE designation according to current EC Directives

ÖVGW Quality Mark for gas and water equipment

5777747

1.2 Specification

Gas boiler, types B and C **Category II_{2H3P}**					
Gas condensing system boiler, type **Gas condensing combi boiler, type**		**B1HC** **—**	**B1HC** **B1KC**	**B1HC** **B1KC**	**B1HC** **B1KC**
Rated heating output range (to EN 15502-1)					
T_F/T_R = 50/30 °C	**kW**	**4.7 (6.5)*1 - 19.0**	**4.7 (6.5)*1 - 26.0**	**5.9 (8.8)*1 - 30.0**	**5.9 (8.8)*1 - 35.0**
T_F/T_R = 80/60 °C	**kW**	**4.3 (5.9)*1 - 17.4**	**4.3 (5.9)*1 - 23.8**	**5.4 (8.0)*1- 27.5**	**5.4 (8.0)*1- 32.1**
Rated heating output range for DHW heating					
– Gas condensing system boiler	kW	4.3 (5.9)*1 - 17.4	4.3 (5.9)*1 - 23.8	5.4 (8.0)*1 - 27.5	5.4 (8.0)*1 - 32.1
– Gas condensing combi boiler	kW	—	4.3 (5.9)*1 - 26.0	5.4 (8.0)*1 - 30.0	5.4 (8.0)*1 - 35.0
Rated heat input					
– Gas condensing system boiler	kW	4.4 (6.1)*1 - 17.8	4.4 (6.1)*1 - 24.3	5.5 (8.2)*1 - 28.0	5.5 (8.2)*1 - 32.7
– Gas condensing combi boiler	kW	—	4.4 (6.1)*1 - 27.1	5.5 (8.2)*1 - 31.3	5.5 (8.2)*1 - 36.5
Product ID		CE-0063CQ3356			
IP rating		IP X4 to EN 60529			
Gas supply pressure					
Natural gas	mbar	20	20	20	20
	kPa	2	2	2	2
LPG	mbar	37	37	37	37
	kPa	3.7	3.7	3.7	3.7
Max. permissible gas supply pressure					
Natural gas	mbar	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5
LPG	mbar	45.0	45.0	45.0	45.0
	kPa	4.5	4.5	4.5	4.5
Sound power level (to EN ISO 15036-1)	dB(A)	42	47	48	51
Power consumption					
– In the delivered condition	W	44.0	63.9	80.9	106.3
– Max. – gas condensing system boiler	W	82.0	87.9	95.7	106.3
– Max. – gas condensing combi boiler	W	—	93.8	103.7	119.7
Weight					
– Gas condensing system boiler	kg	35	36	37	37
– Gas condensing combi boiler	kg	—	36	38	38
Heat exchanger capacity	l	2.2	2.2	2.8	2.8
Max. flow temperature	°C	78	78	78	78
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1018	1018	1370	1370
Nominal circulating water volume at T_F/T_R = 80/60 °C	l/h	743	1018	1173	1370
Diaphragm expansion vessel					
Capacity	l	8	8	8	8
Pre-charge pressure	bar	0.75	0.75	0.75	0.75
	kPa	75	75	75	75
Permiss. operating pressure	bar	3	3	3	3
	MPa	0.3	0.3	0.3	0.3
Dimensions					
Length	mm	350	350	350	350
Width	mm	400	400	400	400
Height	mm	700	700	700	700
Standby instantaneous water heater (gas condensing combi boiler only)					
DHW and cold water connections (male thread)	G	—	½	½	½
Permiss. operating pressure (DHW side)	bar	—	10	10	10
	MPa		1	1	1
Minimum pressure, cold water connection	bar	—	1.0	1.0	1.0
	MPa		0.1	0.1	0.1
Outlet temperature, adjustable	°C	—	30-60	30-60	30-60
Continuous DHW output	kW	—	26	30	35
Specific flow rate at ΔT = 30 K (to EN 13203)	l/min	—	12.4	14.3	16.7
Gas connection (male thread)	G	¾	¾	¾	¾

**1 For operation with LPG*

1

Gas boiler, types B and C **Category II_{2H3P}**					
Gas condensing system boiler, type **Gas condensing combi boiler, type**		**B1HC** **—**	**B1HC** **B1KC**	**B1HC** **B1KC**	**B1HC** **B1KC**
Rated heating output range (to EN 15502-1)					
T_F/T_R = 50/30 °C	**kW**	**4.7 (6.5)*1 - 19.0**	**4.7 (6.5)*1 - 26.0**	**5.9 (8.8)*1 - 30.0**	**5.9 (8.8)*1 - 35.0**
T_F/T_R = 80/60 °C	**kW**	**4.3 (5.9)*1 - 17.4**	**4.3 (5.9)*1 - 23.8**	**5.4 (8.0)*1 - 27.5**	**5.4 (8.0)*1 - 32.1**
Supply values relative to the max. load					
Natural gas H	m^3/h	1.88	2.57 (B1HC) 2.87 (B1KC)	2.96 (B1HC) 3.31 (B1KC)	3.46 (B1HC) 3.86 (B1KC)
LPG P	kg/h	1.39	1.90 (B1HC) 2.12 (B1KC)	2.19 (B1HC) 2.45 (B1KC)	2.56 (B1HC) 2.85 (B1KC)
Flue gas parameters					
Calculation values for sizing the flue system to EN 13384. Flue gas temperatures as measured gross values at 20 °C combustion air temperature					
Flue gas category to G 635/G 636		G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}
Flue gas temperature at a return temperature of 30 °C (significant for the sizing of the flue system)					
– At rated heating output	°C	45	45	45	45
– At partial load	°C	35	35	35	35
Flue gas temperature at a return temperature of 60 °C (used to determine the application range of flue pipes with max. permissible operating temperatures)	°C	68	68	70	70
Mass flow rate					
Natural gas					
– At rated heating output (DHW heating)	kg/h	30.1	41.1	56.9	56.9
– At partial load	kg/h	14.6	14.6	17.6	17.6
LPG					
– At rated heating output (DHW heating)	kg/h	34.0	46.4	62.0	62.0
– At partial load	kg/h	15.9	15.9	19.4	19.4
Available draught	Pa	100	100	100	100
	mbar	1.0	1.0	1.0	1.0
Max. condensate volume (to DWA-A 251)	l/h	2.5	3.4	3.9	4.6
Condensate connection (hose nozzle)	Ø mm	20-24	20-24	20-24	20-24
Flue gas connection	Ø mm	60	60	60	60
Ventilation air connection	Ø mm	100	100	100	100
Standard seasonal efficiency [to DIN]					
At T_F/T_R = 40/30 °C	%	Up to 98 (H_s) [gross cv]			
Energy efficiency class					
– Heating		A	A	A	A
– DHW heating, draw-off profile XL		—	A	A	A

Information on max. permissible gas supply pressure

If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

Information on supply values

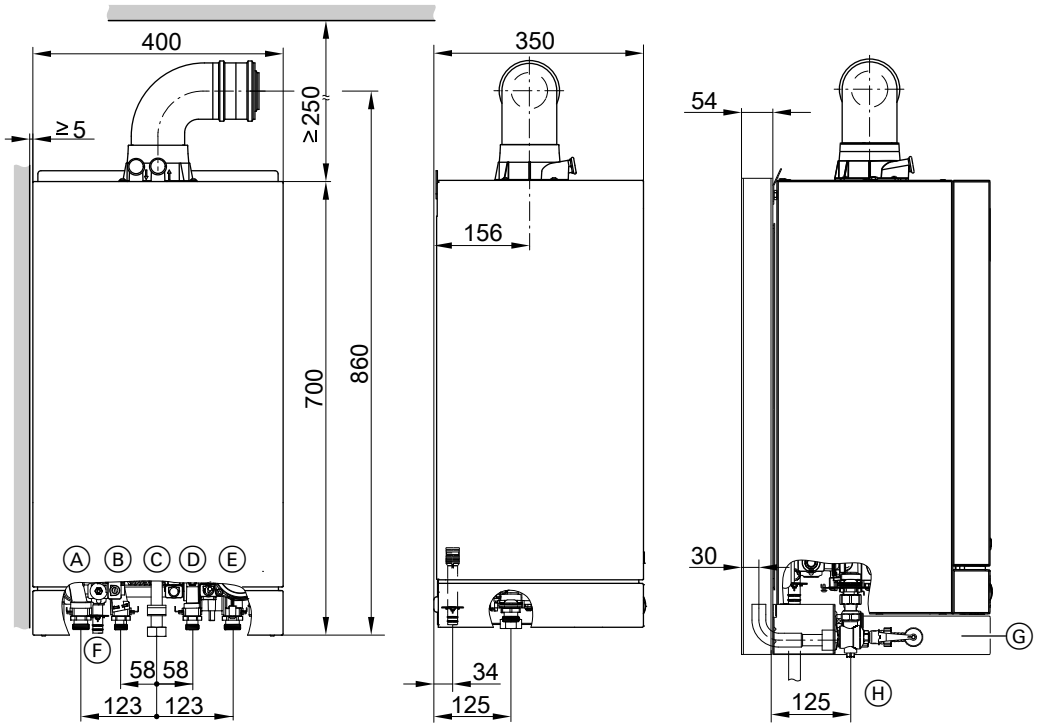
The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

**1 For operation with LPG*

5777747

Vitodens 100-W (cont.)

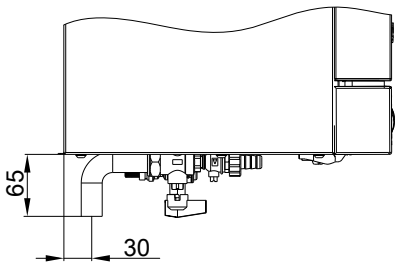
Dimensions



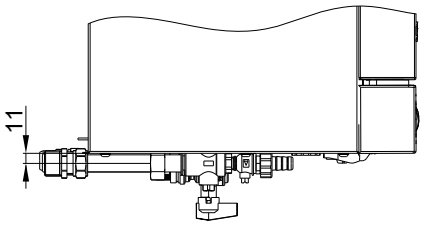
Ⓐ Heating flow G ¾ (male thread)
Ⓑ Gas condensing system boiler:
Cylinder flow G ¾ (male thread)
Gas condensing combi boiler:
DHW G ½ (male thread)
Ⓒ Gas connection G ¾ (male thread)
Ⓓ Gas condensing system boiler:
Cylinder return G ¾ (male thread)
Gas condensing combi boiler:
Cold water G ½ (male thread)
Ⓔ Heating return G ¾ (male thread)
Ⓕ Condensate drain/safety valve drain: Plastic hose ∅ 22 mm
Ⓖ Valve/fittings cover
Ⓗ Vitodens 100-W with mounting frame

Note
Lay all required supply cables on site and route them into the boiler at the point indicated (see page 45).

Dimensions incl. connection accessories



Surface mounting



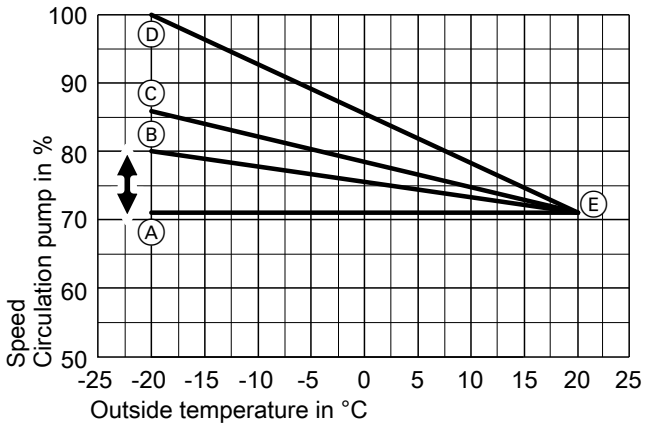
Flush mounting

Integral circulation pump in Vitodens 100-W

High efficiency circulation pump UPM3 15-75

- Specified speed for DHW heating:
  The internal pump operates at maximum speed (100 %).
- Specified speed in heating mode without outside temperature sensor:
  The internal pump operates at a fixed maximum speed (< 100 %).
- Specified speed in heating mode with outside temperature sensor:
  The maximum speed for outside temperature –20 °C can be selected at the control unit.

Maximum speed setting in the delivered condition



Ⓐ Max. speed 19 kW (72 %)
Ⓑ Max. speed 26 kW (80 %)
Ⓒ Max. speed 30 kW (86 %)
Ⓓ Max. speed 35 kW (100 %)
Ⓔ Minimum speed at outside temperature +20 °C

Increasing the maximum speed changes the slope of the curve. This causes the speed to automatically increase over the entire temperature range.

Pump rates

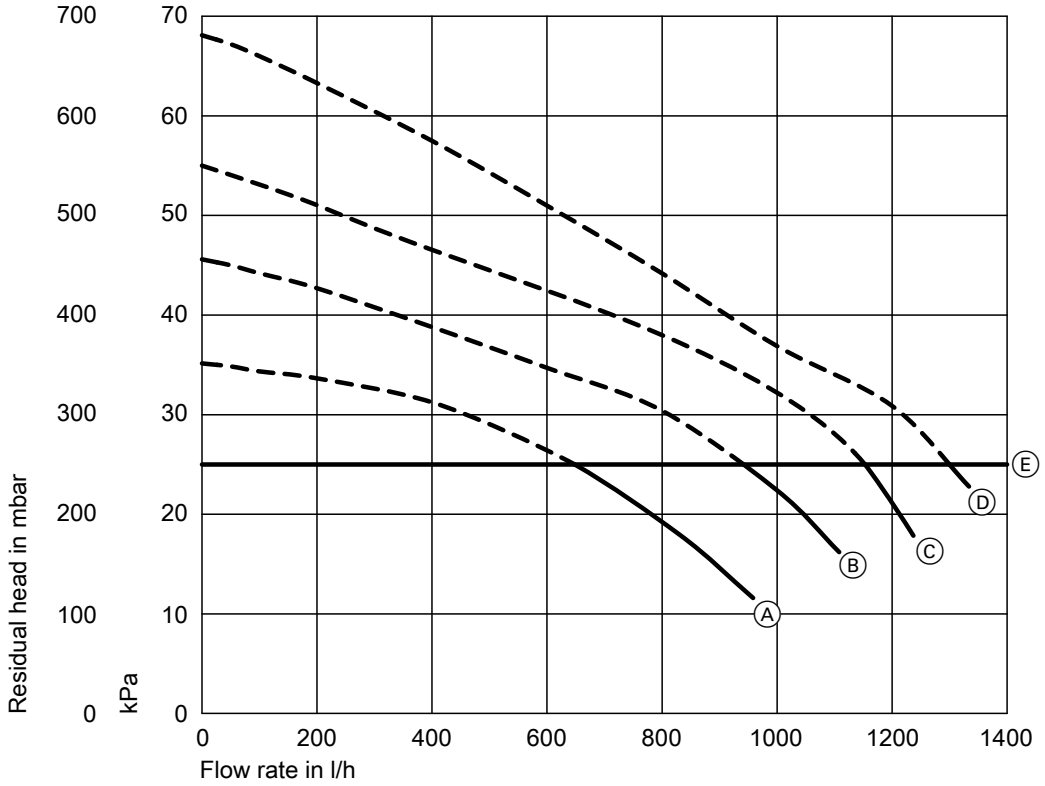
Rated heating output in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
19.0	72	72
26.0	72	80
30.0	72	86
35.0	72	100

Circulation pump power consumption

Rated heating output range in kW	Power consumption in W	
	Max.	Delivered condition
19.0	60	22
26.0	60	36
30.0	60	45
35.0	60	60
Energy efficiency index (EEI)	≤ 0.20	

Vitodens 100-W (cont.)

Residual heads (delivered condition)



Ⓐ Pump rate 19 kW/min. Pump rate (72 %)
Ⓑ Pump rate 26 kW (80 %)
Ⓒ Pump rate 30 kW (86 %)
Ⓓ Pump rate 35 kW (100 %)
Ⓔ Upper operational limit

2.1 Product description

Benefits

Ⓐ Inox-Radial heat exchanger made from stainless steel – for high operational reliability, a long service life and high heating output on a very small footprint
Ⓑ Loading cylinder made from stainless steel
Ⓒ Modulating MatriX cylinder burner
Ⓓ Variable speed combustion air fan for quiet and economical operation
Ⓔ Integral diaphragm expansion vessel
Ⓕ Integral variable speed high efficiency circulation pump
Ⓖ Digital control unit with touchscreen

- Particularly space efficient gas condensing system boiler with integral stainless steel loading cylinder
- Standard seasonal efficiency [to DIN] of up to 98 % (H_s) [gross cv]
- Durable and efficient thanks to Inox-Radial heat exchanger
- Modulation range to 1:6
- Modulating MatriX cylinder burner with a long service life
- Simple and innovative operation via control unit with touchscreen
- Constant temperature and weather-compensated control unit
- High DHW convenience due to loading system and integral stainless steel loading cylinder (46 l capacity)

Recommendation for application

- New build
  E.g. prefabricated houses and developer projects: Installation in utility rooms and attics
  The Vitodens 111-W is the ideal product, particularly in new build, as it can be installed before the screed is put down.
- Modernisation:
  Replacement of gas system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders installed below

Delivered condition

- Modulating MatriX cylinder burner
- Constant temperature and weather-compensated control unit
  Weather-compensated operation requires both an outside temperature sensor and a clock thermostat or time switch (accessories)
- Integral DHW heating via plate heat exchanger and loading cylinder
- Safety valves, expansion vessel (8 l)
- Circulation pump and 3-way diverter valve
- Fully plumbed and wired
- Boiler flue connection

Preset for operation with natural gas. Conversion within gas groups E/LL is required.
Conversion to LPG requires a conversion kit (standard delivery).

Tested quality

CE designation according to current EC Directives

ÖVGW Quality Mark for gas and water equipment

5777747

2.2 Specification

Gas boiler, types B and C **Category II_{2H3P}**			
Rated heating output range (to EN 15502-1)			
T_F/T_R = 50/30 °C	**kW**	**4.7 (6.5)*1 - 26.0**	**5.9 (8.8)*1 - 35.0**
T_F/T_R = 80/60 °C	**kW**	**4.3 (5.9)*1 - 23.8**	**5.4 (8.0)*1 - 32.1**
Rated heating output range for DHW heating	kW	4.3 (5.9)*1 - 29.3	5.4 (8.0)*1 - 35.0
Rated heat input	kW	4.4 (6.1)*1 - 30.5	5.5 (8.2)*1 - 36.5
Product ID		CE-0063CQ3356	
IP rating		IP X4 to EN 60529	
Gas supply pressure			
Natural gas	mbar	20	20
	kPa	2	2
LPG	mbar	37	37
	kPa	3.7	3.7
Max. permiss. gas supply pressure			
Natural gas	mbar	25.0	25.0
	kPa	2.5	2.5
LPG	mbar	45.0	45.0
	kPa	4.5	4.5
Sound power level (to EN ISO 15036-1)	dB(A)	51	53
Power consumption (max.)	W	152.4	150.7
Weight	kg	62	64
Heat exchanger capacity	l	2.2	2.8
Max. flow temperature	°C	78	78
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1018	1370
Nominal circulating water volume at ΔT = 20 K	l/h	739	1361
Diaphragm expansion vessel			
Capacity	l	10	10
Pre-charge pressure	bar	0.75	0.75
	kPa	75	75
Permiss. operating pressure	bar	3	3
	MPa	0.3	0.3
Connections (male thread)			
Boiler flow and return	G	¾	¾
Cold water and DHW	G	½	½
Dimensions			
Length	mm	480	480
Width	mm	600	600
Height	mm	900	900
DHW loading cylinder			
Capacity	l	46	46
Permiss. operating pressure (DHW side)	bar	10	10
	MPa	1.0	1.0
Continuous DHW output	kW	29.3	35.0
Initial output for DHW heating from 10 to 45 °C	l/10 min	180	200
Performance factor N_L		1.3	1.5
Gas connection (male thread)	G	¾	¾
Supply values relative to the max. load			
Natural gas E	m^3/h	3.23	3.86
LPG P	kg/h	2.38	2.85
Flue gas parameters			
Calculation values for sizing the flue system to EN 13384. Flue gas temperatures as measured gross values at 20 °C combustion air temperature			
Flue gas category to G 635/G 636		G_{52}/G_{51}	G_{52}/G_{51}
Flue gas temperature at a return temperature of 30 °C (significant for the sizing of the flue system)			
– At rated heating output	°C	45	45
– At partial load	°C	35	35
Flue gas temperature at a return temperature of 60 °C (used to determine the application range of flue pipes with max. permissible operating temperatures)	°C	68	70
Mass flow rate			
Natural gas			
– At rated heating output (DHW heating)	kg/h	51.0	58.6

*1 *For operation with LPG*

Gas boiler, types B and C **Category II_{2H3P}**			
Rated heating output range (to EN 15502-1)			
T_F/T_R = 50/30 °C	**kW**	**4.7 (6.5)*1 - 26.0**	**5.9 (8.8)*1 - 35.0**
T_F/T_R = 80/60 °C	**kW**	**4.3 (5.9)*1 - 23.8**	**5.4 (8.0)*1 - 32.1**
– At partial load	kg/h	7.4	9.2
LPG			
– At rated heating output (DHW heating)	kg/h	56.0	64.3
– At partial load	kg/h	8.1	10.1
Available draught	Pa	100	100
	mbar	1.0	1.0
Max. condensate volume (to DWA-A 251)	l/h	3.4	4.6
Condensate connection (hose nozzle)	Ø mm	20-24	20-24
Flue gas connection	Ø mm	60	60
Ventilation air connection	Ø mm	100	100
Standard seasonal efficiency [to DIN]			
At T_F/T_R = 40/30 °C	%	Up to 98 (H_s) [gross cv]	
Energy efficiency class			
– Heating		A	A
– DHW heating, draw-off profile XL		A	A

Information on max. permissible gas supply pressure
If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

Information on performance factor N_L
DHW performance factor N_L depends on cylinder storage temperature Tcyl.

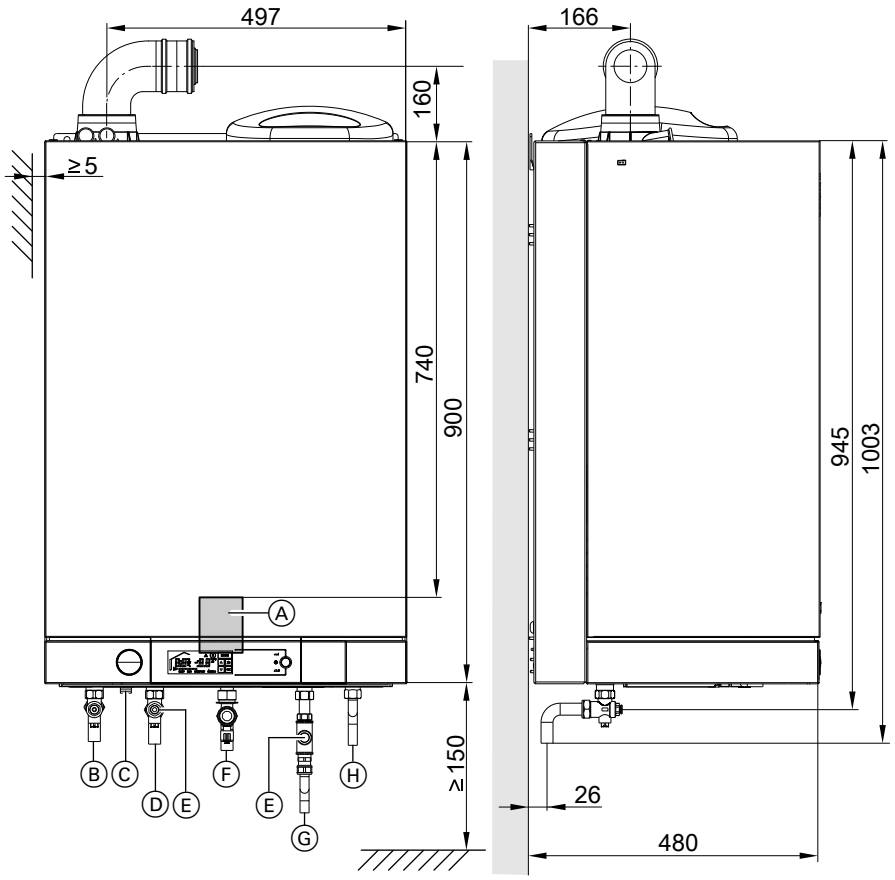
Standard values:
Tcyl = 60 °C: 1.0 x N_L
Tcyl = 55 °C: 0.75 x N_L
Tcyl = 50 °C: 0.55 x N_L
Tcyl = 45 °C: 0.3 x N_L

Information on supply values
The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar (101.3 kPa).

**1 For operation with LPG*

5777747

Dimensions



Ⓐ Area for electrical connections
Ⓑ Heating flow ∅ 22 mm
Ⓒ Condensate drain
Ⓓ Heating return ∅ 22 mm
Ⓔ Filling device
Ⓕ Gas connection ∅ 22 mm
Ⓖ Cold water ∅ 15 mm
Ⓗ DHW ∅ 15 mm

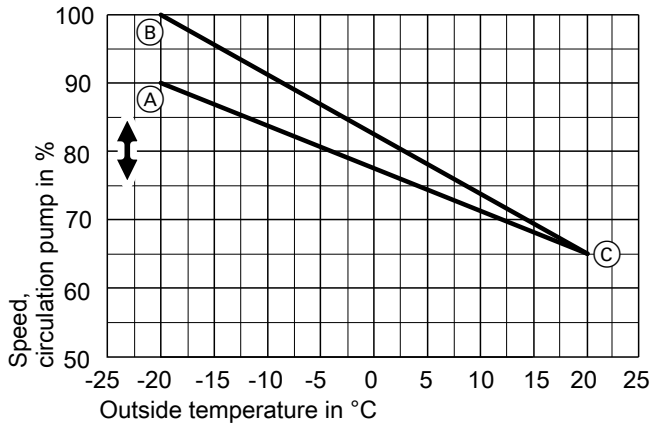
Note
Lay all required supply cables on site and route them into the boiler at the point indicated (Ⓐ).

Integral circulation pump in Vitodens 111-W

High efficiency circulation pump UPM3 15-75

- Specified speed for DHW heating:
  The internal pump operates at maximum speed (100 %).
- Specified speed in heating mode without outside temperature sensor:
  The internal pump operates at a fixed maximum speed (< 100 %).
- Specified speed in heating mode with outside temperature sensor:
  The maximum speed for outside temperature –20 °C can be selected at the control unit.

Maximum speed setting in the delivered condition



Ⓐ Max. speed 26 kW (90 %)
Ⓑ Max. speed 35 kW (100 %)
Ⓒ Minimum speed (65 %) at outside temperature +20 °C

Increasing the maximum speed changes the slope of the curve. This causes the speed to automatically increase over the entire temperature range.

Pump rates

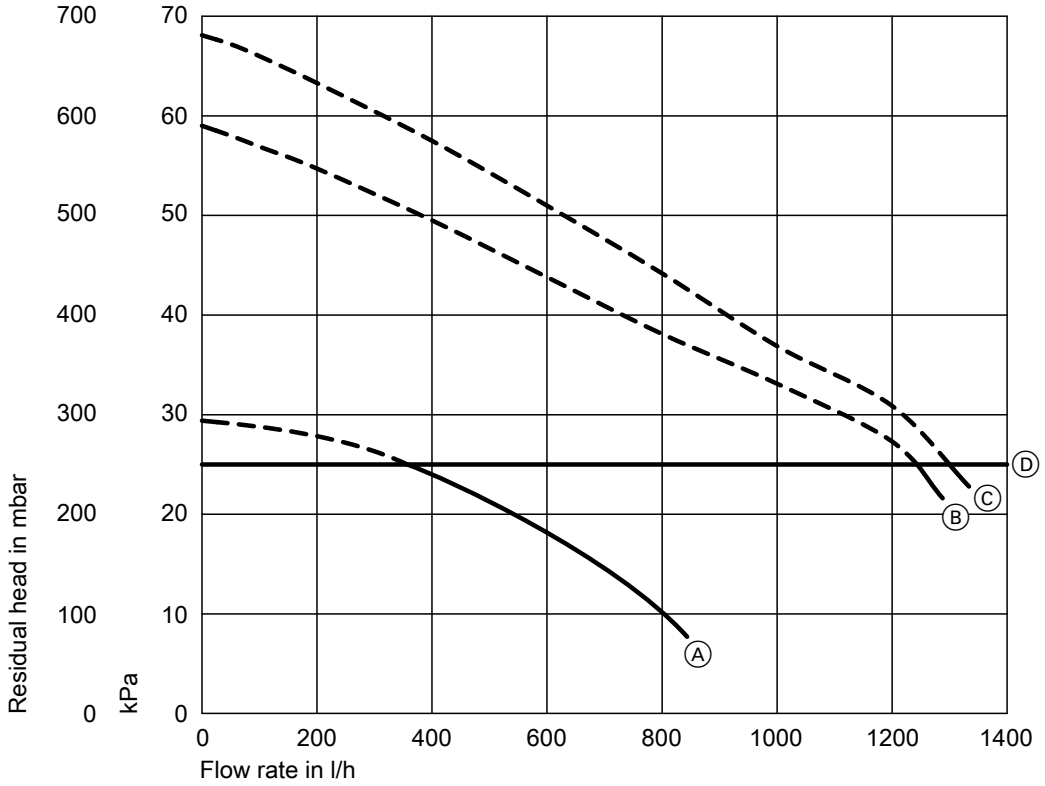
Rated heating output in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
26.0	65	90
35.0	65	100

Circulation pump power consumption

Rated heating output in kW	Power consumption in W	
	Max.	Delivered condition
26.0	60	51.4
35.0	60	60
Energy efficiency index (EEI)	≤ 0.20	

Vitodens 111-W (cont.)

Residual heads (delivered condition)



Ⓐ Min. pump rate 65 %
Ⓑ Max. pump rate 26 kW (90 %)
Ⓒ Max. pump rate 35 kW (100 %)
Ⓓ Upper operational limit

3.1 Vitocell 100-W below the boiler, made from steel, with Ceraprotect enamel coating

- Installed below the boiler
- With internal indirect coil, made from steel, with Ceraprotect enamel coating

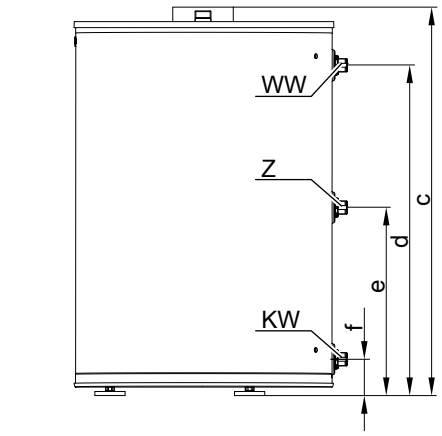
Vitocell 100-W, colour: Vitopearlwhite

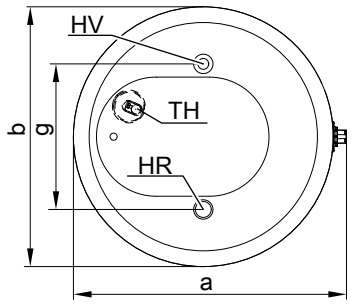
Specification

Type		**CUGA**	**CUGB**	**CUGB-A**	**CUGB**	**CUGB-A**
Cylinder capacity	**l**	**100**	**120**		**150**	
Heating water capacity	l	6	6.5		6.5	
Gross volume	l	106	126.5		156.5	
DIN registration no.		Applied for				
Connections (male thread)						
Heating water flow and return	R	1	1	1	1	1
DHW and cold water	R	¾	¾	¾	¾	¾
DHW circulation	R	¾	¾	¾	¾	¾
Permiss. operating pressure						
Heating water and DHW sides	bar	10	10	10	10	10
	MPa	1	1	1	1	1
Permissible temperatures						
– Heating water side	°C	160	160	160	160	160
– DHW side	°C	95	95	95	95	95
Standby heat loss	kWh/24 h	1.239	1.015	0.866	1.041	0.853
Dimensions						
Length a	mm	577	582	634	634	634
Width b	mm	∅ 549	∅ 582	∅ 634	∅ 634	∅ 634
Height c	mm	815	929	929	958	958
Weight	kg	48	55	58	61	61
Heating surface	m^2	0.9	1.0	1.0	1.0	1.0
Energy efficiency class		C	B	A	B	A

Separate DHW cylinders for Vitodens 100-W (cont.)

Vitocell 100-W, type CUGA, 100 l





HR Heating return
HV Heating flow
KW Cold water (drain)
WW DHW
TH Sensor well for cylinder temperature sensor (internal diameter 7 mm)
Z DHW circulation

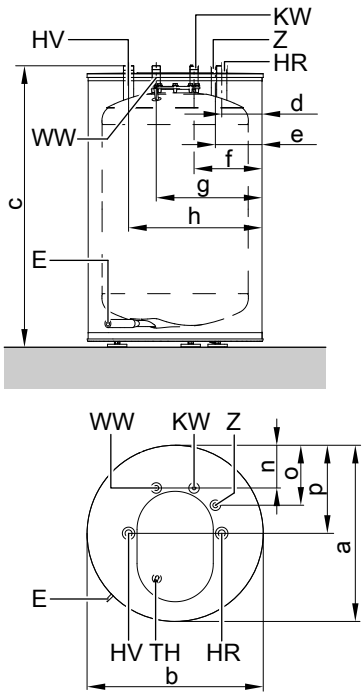
Table of dimensions

Dim.		
a	mm	577
b	mm	549
c	mm	815
d	mm	700
e	mm	398
f	mm	77
g	mm	308

3

Separate DHW cylinders for Vitodens 100-W (cont.)

Vitocell 100-W, type CUGB/CUGB-A, 120 and 150 l



E Drain
HR Heating return
HV Heating flow
KW Cold water
WW DHW
TH Sensor well for cylinder temperature sensor (internal diameter 7 mm)
Z DHW circulation

Table of dimensions

Type		CUGB	CUGB-A	CUGB	CUGB-A
Capacity		120 l		150 l	
a	mm	582	634	634	634
b	mm	582	634	634	634
c	mm	929	929	958	958
d	mm	137	163	163	163
e	mm	158	184	184	184
f	mm	229	255	255	255
g	mm	353	379	379	379
h	mm	445	471	471	471
n	mm	141	167	167	167
o	mm	198	224	224	224
p	mm	291	317	317	317

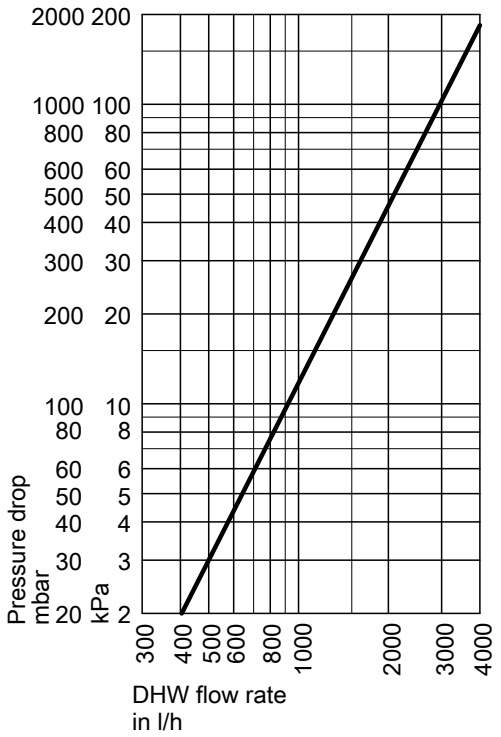
Information on casing for connection pipes (Ⓑ, Ⓒ, Ⓓ)
The casing for connection pipes is not available with the Vitodens 100-W.

Separate DHW cylinders for Vitodens 100-W (cont.)

Table of dimensions

Capacity		120 l	150 l
a	mm	618	661
b	mm	904	932
c	mm	875	902
d	mm	122	144
e	mm	143	165
f	mm	214	235
g	mm	339	360
h	mm	430	452
k	mm	Ø 553	Ø 596
l	mm	1954	1954
m	mm	1990	1990
n	mm	126	148
o	mm	183	205
p	mm	276	298
r	mm	1800	1800

Pressure drop on the DHW side



DHW output data at rated heating output

Rated heating output for DHW heating	kW	17	24	32
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C				
Cylinder capacity 100 l	kW	17	22	22
	l/h	415	540	540
Cylinder capacity 120 and 150 l	kW	17	24	24
	l/h	415	590	590
Performance factor N_L to DIN 4708				
Cylinder capacity 100 l		1.0	1.0	1.0
Cylinder capacity 120 l		1.2	1.2	1.2
Cylinder capacity 150 l		1.6	1.6	1.6
Peak output				
Cylinder capacity 100 l	l/10 min	143	143	143
Cylinder capacity 120 l	l/10 min	153	153	153
Cylinder capacity 150 l	l/10 min	173	173	173

Separate DHW cylinders for Vitodens 100-W (cont.)

Delivered condition

Vitocell 100-W, type CUGA, CUGB and CUGB-A
100, 120 and 150 l

DHW cylinder made from steel with Ceraprotect enamel coating
- Welded sensor well for cylinder temperature sensor
- Threaded adjustable feet
- Protective magnesium anode
- Fitted thermal insulation

Colour of the epoxy-coated sheet steel casing: Vitopearlwhite

3.2 Vitocell 100-W adjacent to the boiler, 160, 200 and 300 l, white finish, made from steel, with Ceraprotect enamel coating

- Adjacent to the boiler
- With internal indirect coil, made from steel, with Ceraprotect enamel coating

Vitocell 100-W, colour: Vitopearlwhite (160/200 l)
Vitocell 100-W, colour: White (300 l)
For further specifications, see the separate datasheet for the Vitocell 100-V.

Specification

Type		**CVAA/CVAB-A**	**CVAA/CVAB-A**	**CVAA**
Cylinder capacity (AT: Actual water capacity)	**l**	**160**	**200**	**300**
Heating water capacity	l	5.5	5.5	10.0
Gross volume	l	165.5	205.5	310.0
DIN registration no.		9W241/11-13 MC/E		
Connections (male thread)				
Heating water flow and return	R	1	1	1
DHW and cold water	R	¾	¾	1
DHW circulation	R	¾	¾	1
Permissible operating pressure				
– Heating water side	bar	25	25	25
	MPa	2.5	2.5	2.5
– DHW side	bar	10	10	10
	MPa	1	1	1
Permissible temperatures				
– Heating water side	°C	160	160	160
– DHW side	°C	95	95	95
Standby heat loss	kWh/24 h	0.97/1.35	1.04/1.46	1.65
Dimensions				
Length a (∅)	mm	582/634	582/634	667
Width b	mm	607/637	607/637	744
Height c	mm	1128/1129	1348/1349	1734
Weight	kg	62/65	70/73	156
Energy efficiency class		B / A	B / A	B

Take the following into account when sizing entry points:
The actual dimensions of the DHW cylinder may vary slightly due to manufacturing tolerances.

Separate DHW cylinders for Vitodens 100-W (cont.)

Vitocell 100-V, type CVAA/CVAB-A, 160 and 200 l capacity

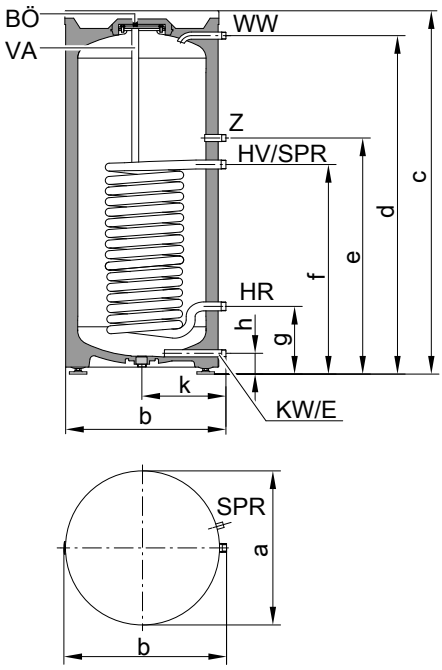


Table of dimensions

Type			CVAA		CVAB-A	
Cylinder capacity		**l**	**160**	**200**	**160**	**200**
Length (∅)	a	mm	582	582	634	634
Width	b	mm	607	607	637	637
Height	c	mm	1128	1348	1129	1349
	d	mm	1055	1275	1055	1275
	e	mm	889	889	889	889
	f	mm	639	639	639	639
	g	mm	254	254	254	254
	h	mm	77	77	77	77
	k	mm	317	317	347	347

BÖ Inspection and cleaning aperture
E Drain
HR Heating water return
HV Heating water flow
KW Cold water
SPR Clamping device for securing immersion temperature sensors to the cylinder jacket (fixing points for up to 3 temperature sensors)
VA Protective magnesium anode
WW DHW
Z DHW circulation

Separate DHW cylinders for Vitodens 100-W (cont.)

Vitocell 100-V, type CVAA, 300 l capacity

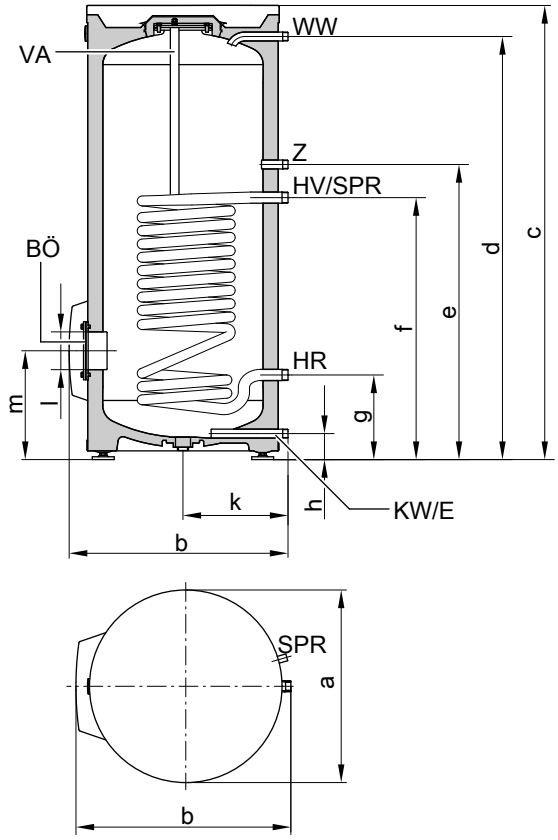


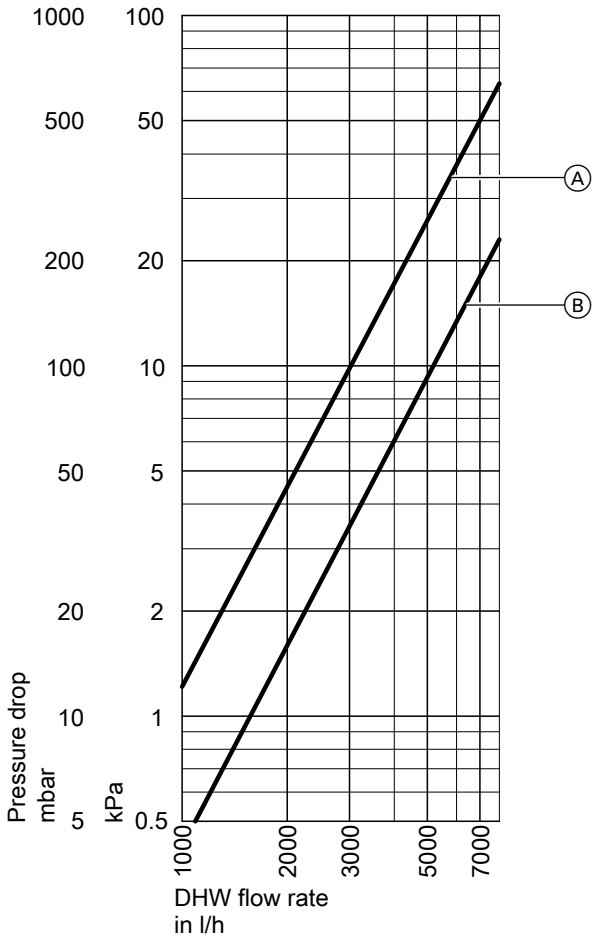
Table of dimensions

Cylinder capacity		l	300
Length (∅)	a	mm	667
Width	b	mm	744
Height	c	mm	1734
	d	mm	1600
	e	mm	1115
	f	mm	875
	g	mm	260
	h	mm	76
	k	mm	361
	l	mm	∅ 100
	m	mm	333

BÖ Inspection and cleaning aperture
E Drain
HR Heating water return
HV Heating water flow
KW Cold water
SPR Cylinder temperature sensor of the cylinder temperature controller or thermostat
VA Protective magnesium anode
WW DHW
Z DHW circulation

Separate DHW cylinders for Vitodens 100-W (cont.)

Pressure drop on the DHW side



Ⓐ 160 and 200 l
Ⓑ 300 l

DHW output data at rated heating output

Rated heating output for DHW heating	**kW**	**17**	**24**	**32**
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C				
Cylinder capacity 160 and 200 l	kW	17	24	26
	l/h	415	590	638
Cylinder capacity 300 l	kW	17	24	32
	l/h	415	590	786
Performance factor N_L to DIN 4708				
Cylinder capacity 160 l		2.0	2.2	2.2
Cylinder capacity 200 l		3.0	3.2	3.2
Cylinder capacity 300 l		7.5	8.0	8.0
Peak output				
Cylinder capacity 160 l	l/10 min	190	199	199
Cylinder capacity 200 l	l/10 min	230	236	236
Cylinder capacity 300 l	l/10 min	357	368	368

Separate DHW cylinders for Vitodens 100-W (cont.)

Delivered condition

Vitocell 100-V/W, type CVAA and CVAB-A
160 and 200 l (CVAA, CVAB-A)

Steel DHW cylinder with Ceraprotect enamel coating for DHW heating
- Clamping device for fixing immersion temperature sensors to the cylinder jacket (3 fixing points)
- Adjustable feet
- Protective magnesium anode
- Fitted thermal insulation

Colour of the epoxy-coated sheet steel casing: Vitosilver and Vitopearlwhite.

300 l (CVAA)

Steel DHW cylinder with Ceraprotect enamel coating for DHW heating
- Integral welded sensor well (internal diameter 16 mm) for cylinder temperature sensor or temperature controller
- Adjustable feet
- Protective magnesium anode
- Fitted thermal insulation

Colour of the epoxy-coated sheet steel casing: Vitosilver and white.

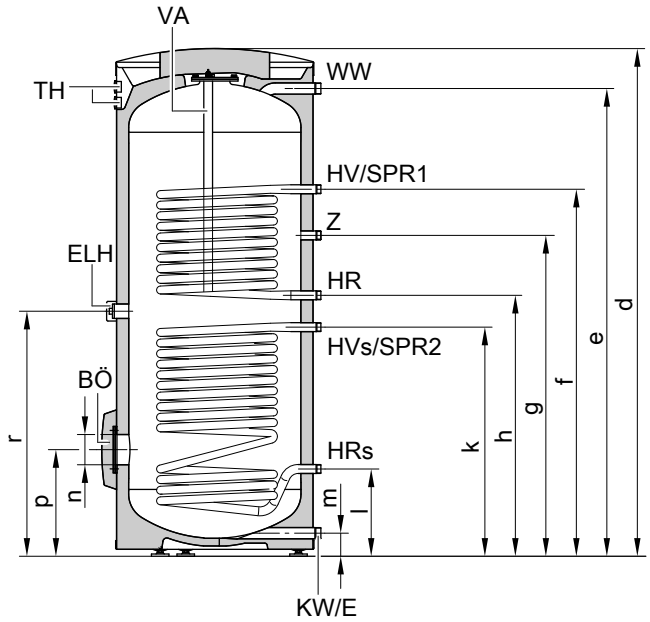
3.3 Vitocell 100-W adjacent to the boiler, 300 and 400 l, white finish, made from steel, with Ceraprotect enamel coating for dual mode DHW heating

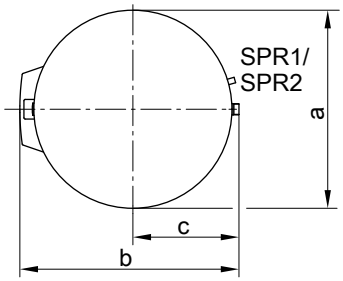
- Adjacent
- With internal indirect coil, made from steel, with Ceraprotect enamel coating
- For dual mode DHW heating

For further technical details, see separate datasheet for the Vitocell 100-B.

Type		**CVBB**	**CVB**
Cylinder capacity (AT: Actual water capacity)	**l**	**300**	**400**
Heating water capacity	l	16	17
Gross volume	l	316	417
DIN registration no.		9W242/11-13 MC/E	
Connections (male thread)			
Heating water flow and return	R	1	1
DHW and cold water	R	1	1¼
DHW circulation	R	1	1
Permiss. operating pressure	bar	10	10
Heating water, solar and DHW sides	MPa	1	1
Permiss. temperatures			
– Heating water side	°C	160	160
– Solar side	°C	160	160
– DHW side	°C	95	95
Standby heat loss	kWh/24 h	1.65	1.80
Dimensions			
Length a (∅)	mm	667	859
Width b	mm	744	923
Height d	mm	1734	1624
Weight	kg	166	167
Energy efficiency class		B	B

Separate DHW cylinders for Vitodens 100-W (cont.)





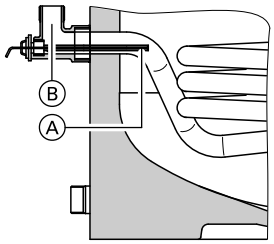
E Drain outlet
ELH Connector for immersion heater
HR Heating water return of the boiler
HR_S Heating water return, solar
HV Heating water flow of the boiler
HV_S Heating water flow, solar
KW Cold water
BÖ Inspection and cleaning aperture
SPR1 Sensor well for cylinder temperature sensor or temperature controller
SPR2 Temperature sensors/thermometer
TH Thermometer
VA Protective magnesium anode
WW DHW
Z DHW circulation

Dimensions

Cylinder capacity	l	300	400
a	mm	∅ 667	∅ 859
b	mm	744	923
c	mm	361	455
d	mm	1734	1624
e	mm	1600	1458
f	mm	1355	1204
g	mm	1115	1044
h	mm	995	924
k	mm	875	804
l	mm	260	349
m	mm	76	107
n	mm	∅ 100	∅ 100
p	mm	333	422
r	mm	935	864

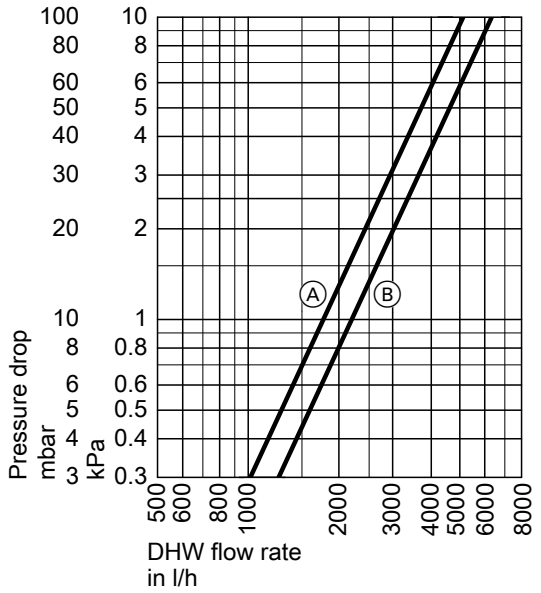
Separate DHW cylinders for Vitodens 100-W (cont.)

Recommended positioning of the cylinder temperature sensor for solar operation



Ⓐ Cylinder temperature sensor (solar control unit)
Ⓑ Threaded elbow with sensor well (standard delivery)

Pressure drop on the DHW side



Ⓐ 300 l capacity
Ⓑ 400 l capacity

DHW output data at rated heating output

Rated heating output for DHW heating	**kW**	**17**	**24**	**32**
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C	kW	17	24	26
	l/h	415	590	638
Performance factor N_L to DIN 4708 (value for upper indirect coil)		1.4	1.4	1.4
Peak output	l/10 min	164	164	164

Delivered condition

Vitocell 100-W, type CVBB
300 l

DHW cylinder made from steel with Ceraprotect enamel coating
- 2 integral welded sensor wells for cylinder temperature sensor or temperature controller (internal diameter 16 mm)
- Threaded elbow with sensor well (internal diameter 6.5 mm)
- Adjustable feet
- Protective magnesium anode
- Fitted thermal insulation

Separate DHW cylinders for Vitodens 100-W (cont.)

Vitocell 100-W, type CVB
400 l

DHW cylinder made from steel with Ceraprotect enamel coating
- 2 integral welded sensor wells for cylinder temperature sensor or temperature controller (internal diameter 16 mm)
- Threaded elbow with sensor well (internal diameter 6.5 mm)
- Adjustable feet
- Protective magnesium anode

Packed separately:
- Removable thermal insulation

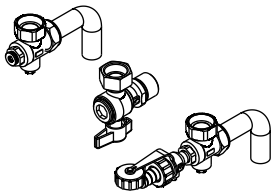
4.1 Installation

Connection accessories for gas condensing system boiler

Surface mounting

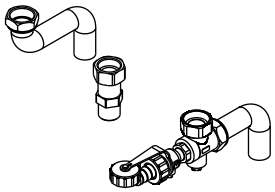
Part no. ZK02 473

Components:
- Valve with connection pipe Ø 22 mm for heating water flow
- Valve with connection pipe Ø 22 mm for heating water return
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve



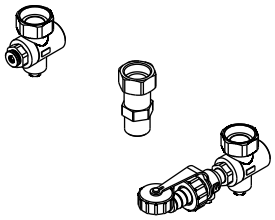
Part no. ZK02 472

Components:
- Pipe bend Ø 22 mm for heating water flow
- Valve with connection pipe Ø 22 mm for heating water return
- Connection piece R ½ (male thread) for gas shut-off valve



Part no. ZK02 478

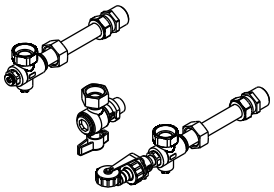
Components:
- Valves G ¾ (male thread) for heating water flow and heating water return
- Connection piece R ½ (male thread) for gas shut-off valve



Flush mounting

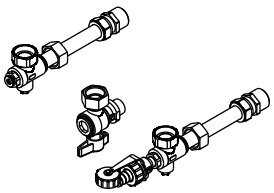
Part no. ZK02 483

Components:
- Valves with connection pipe and locking ring fitting for heating water flow and heating water return
  Connection R ¾ (male thread)
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve



Part no. ZK02 484

Components:
- Valves with connection pipe and locking ring fitting for heating water flow and heating water return
  Connection R ¾ (male thread)
- Angle gas valve R ½ (male thread)

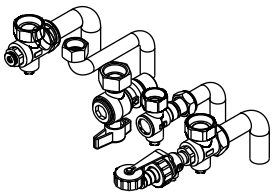


Connection accessories for gas condensing combi boiler

Surface mounting

Part no. ZK02 475

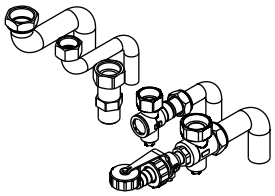
Components:
- Valves with connection pipe Ø 22 mm for heating water flow and heating water return
- Valve with connection pipe Ø 15 mm for cold water
- Connection pipe Ø 15 mm for DHW
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve



Installation accessories for Vitodens 100-W (cont.)

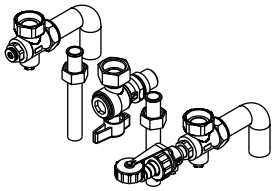
Part no. ZK02 471

Components:
- Connection pipe Ø 22 mm for heating water flow
- Valve with connection pipe Ø 22 mm for heating water return
- Valve with connection pipe Ø 15 mm for cold water
- Connection pipe Ø 15 mm for DHW
- Connection piece R ½ (male thread) for gas shut-off valve



Part no. ZK02 476

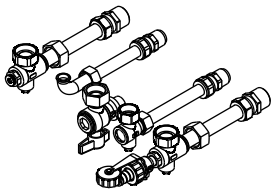
Components:
- Valves with connection pipe Ø 22 mm for heating water flow and heating water return
- Connection pipes Ø 15 mm for cold water and DHW
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve



Flush mounting

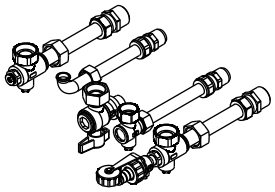
Part no. ZK02 482

Components:
- Valve with connection pipe and locking ring fitting for heating water flow and heating water return
  Connection R ¾ (male thread)
- Valve with connection pipe and locking ring fitting for cold water
  Connection R ½ (male thread)
- Connection pipe and locking ring fitting for DHW
  Connection R ½ (male thread)
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve



Part no. ZK02 470

Components:
- Valves with connection pipe and locking ring fitting for heating water flow and heating water return
  Connection R ¾ (male thread)
- Valve with connection pipe and locking ring fitting for cold water
  Connection R ½ (male thread)
- Connection pipe and locking ring fitting for DHW
  Connection R ½ (male thread)
- Angle gas valve R ½ (male thread)

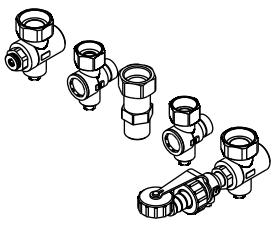


4

Connection accessories

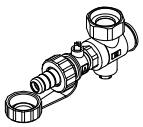
Part no. ZK02 477
For gas condensing system boiler

Components:
- Valves G ¾ (male thread) for heating water flow and heating water return
- Valves G ½ (male thread) for cold water and DHW
- Connection piece R ½ (male thread) for gas shut-off valve



Part no. ZK02 481
For gas condensing system boiler

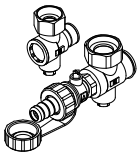
Components:
- Valves G ¾ (male thread) for heating water flow and heating water return
- Drain & fill valve



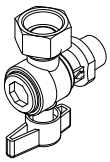
Part no. ZK02 479
For gas condensing combi boiler

5777747

Components:
- Valves G ¾ (male thread) for heating water flow and heating water return
- Valve G ½ (male thread) for cold water
- Drain & fill valve



Angle gas valve
Part no. ZK02 146
G ¾ x R ½ (male thread)

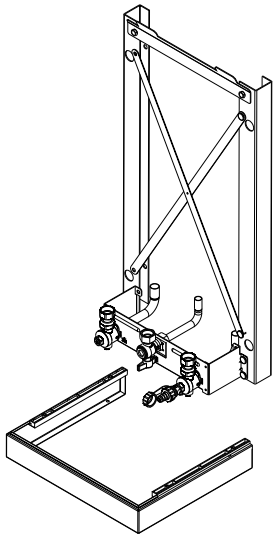


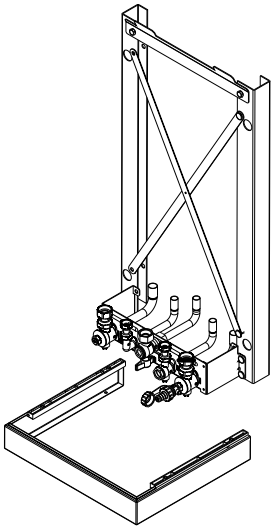
Mounting frame

Gas condensing system boiler

Part no. 7478 651
Installed depth 50 mm

Components:
- Fixings
- Valves with connection pipe Ø 20 mm for heating water flow and heating water return
- Gas shut-off valve with connection pipe Ø 16 mm
- Power cable
- Drained water collector
- Valve/fittings cover





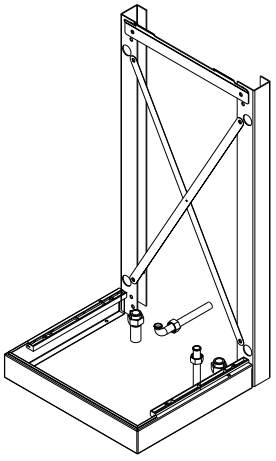
Part no. 7474 189
Installed depth 50 mm

Components:
- Fixings
- Connection pipe sections Ø 22 mm for heating water flow and heating water return
- Connection pipe sections Ø 15 mm for cold water and DHW
- Connection pipe section Ø 22 mm for gas shut-off valve
- Valve/fittings cover

Gas condensing combi boiler

Part no. 7478 648
Installed depth 50 mm

Components:
- Fixings
- Valves with connection pipe Ø 20 mm for heating water flow and heating water return
- Valve with connection pipe Ø 16 mm for cold water
- Connection pipe Ø 16 mm for DHW
- Gas shut-off valve with connection pipe Ø 16 mm
- Power cable
- Drained water collector
- Valve/fittings cover

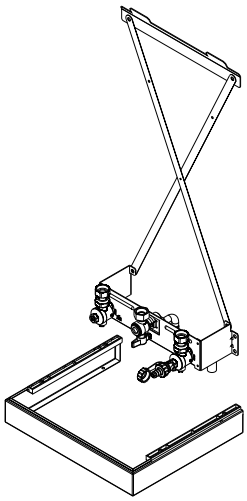


Pre-plumbing jig for surface mounting

Gas condensing system boiler

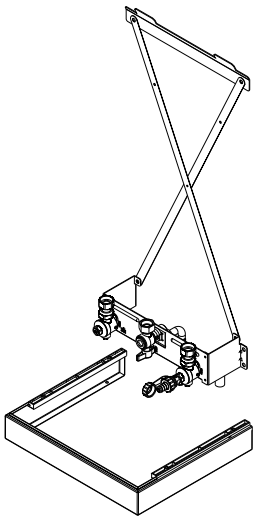
Part no. 7476 448

Components:
- Fixings
- Valves with connection pipe Ø 22 mm for heating water flow and heating water return
- Gas shut-off valve with thermally activated safety shut-off valve with connection pipe Ø 15 mm
- Valve/fittings cover



Part no. 7478 689

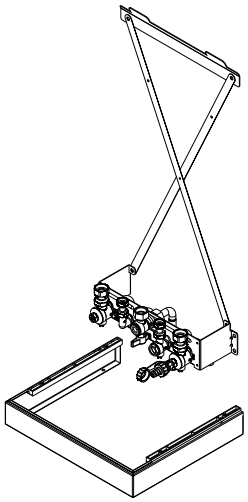
Components:
- Fixings
- Valves with connection pipe Ø 20 mm for heating water flow and heating water return
- Connection pipes Ø 16 mm for cold water and DHW
- Gas shut-off valve with connection pipe Ø 16 mm
- Power cable
- Drained water collector
- Valve/fittings cover



Gas condensing combi boiler

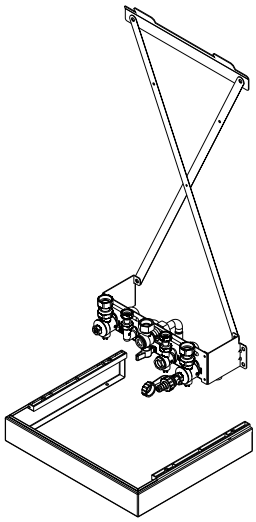
Part no. 7476 447

Components:
- Fixings
- Valves with connection pipe Ø 22 mm for heating water flow and heating water return
- Valve with connection pipe Ø 15 mm for cold water
- Connection pipe Ø 15 mm for DHW
- Gas shut-off valve with thermally activated safety shut-off valve with connection pipe Ø 15 mm
- Valve/fittings cover



Part no. 7478 660

Components:
- Fixings
- Valves with connection pipe Ø 20 mm for heating water flow and heating water return
- Connection pipes Ø 16 mm for cold water and DHW
- Gas shut-off valve with connection pipe Ø 16 mm
- Power cable
- Drained water collector
- Valve/fittings cover



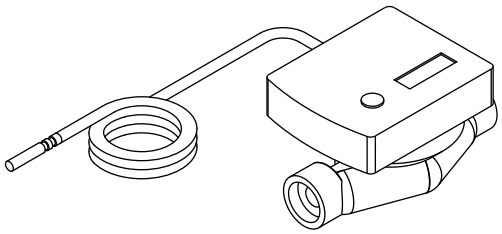
4.2 Additional accessories

Heat meter

For installation in the connection line

Part no.	Suitable for DHW cylinders:
7172847	– Vitocell 100: Up to 500 l capacity – Vitocell 300: Up to 200 l capacity With connection accessories for G 1
7172848	– Vitocell 300: 300 to 500 l capacity With connection accessories for G 1¼

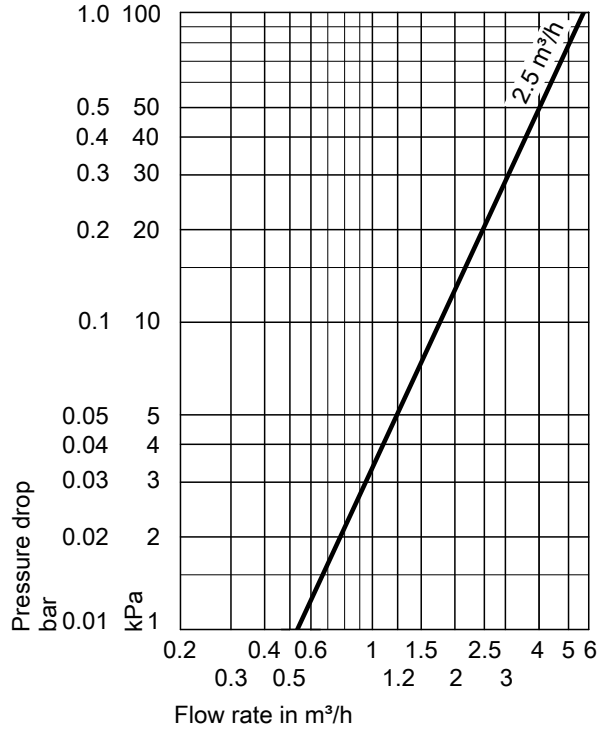
Components:
- Measuring unit with threaded connector for capturing the flow rate.
- Temperature sensor Pt1000, connected to the heat meter, sensor lead 1.5 m long.
- G 1 or G 1¼ connection accessories including ball valves.



Specification

Nominal flow rate	2.5 m³/h
Lead length	1.5 m
IP rating	IP 54 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– During operation	5 to 55 °C
– During storage and transport	–20 to +70 °C
Sensor type	Pt1000
Max. operating pressure	10 bar (1 MPa)
Nominal diameter	DN 20
Installed length	130 mm
Max. flow rate	5000 l/h
Minimum flow rate	
– Horizontal installation	50 l/h
– Vertical installation	50 l/h
Start-up value (for horizontal installation)	7 l/h
Battery life	Approx. 10 years

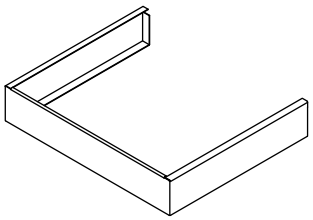
Pressure drop



4.3 Valve/fittings covers

Valve/fittings cover

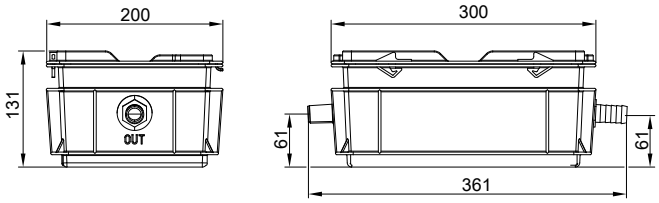
Part no. 7435 443
Cannot be used in conjunction with a DHW cylinder below the boiler



4.4 Neutralising systems

Neutralising system with wall mounting bracket

Part no. ZK03652
With neutralising granulate



Neutralising granulate

Part no. ZK03654
2.5 kg

To match the neutralising system, part no. ZK03652

4.5 Sensors

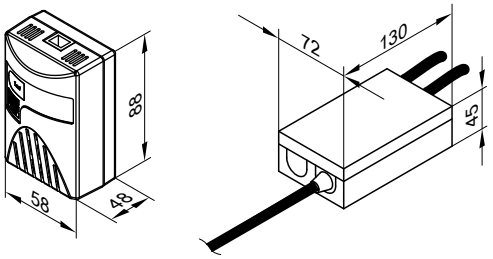
CO limiter

Part no. Z015500
Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.
Wall mounting in the ceiling area near the boiler.

Components:
- Casing with
  - Integral CO sensor
  - Mode, fault and alarm indicators
  - Acoustic alarm system
- Communication cable for interface (2.5 m).
- Interface inside the casing with power cable (1.2 m) and connecting lead for burner shutdown relay (1.2 m)
- Fixing materials

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	2 W
Rated breaking capacity of the relay output	8 A 230 V~
Alarm threshold	55 ppm CO to EN 50291-1
Protection class	II
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	0 °C to 40 °C



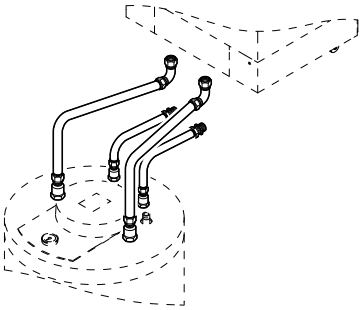
4.6 System accessories for DHW heating for gas condensing system boiler

Connection set for Vitocell 100-W DHW cylinder below the boiler, type CUG, with connection pipes

Part no. 7510 285

Components:
- Cylinder temperature sensor
- Connection pipes on the heating water side
- Connection pipes on the DHW side

Surface or flush mounting

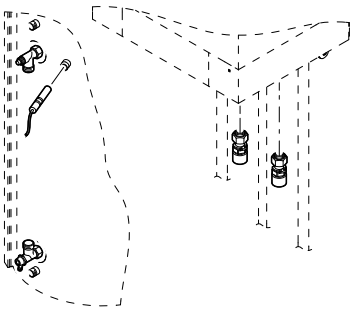


Connection set for Vitocell 100-W DHW cylinder adjacent to the boiler

Components:
- Cylinder temperature sensor
- Connection fittings

DHW cylinder to the **left or right** of the Vitodens

- Threaded fitting version
  Part no. 7178 349
- Solder version
  Part no. 7178 348



Impressed current anode

Part no. 7265008
- Maintenance free
- Install in place of the magnesium anode supplied

Thermometer

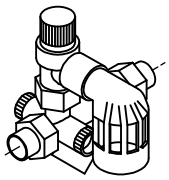
Part no. 7595 765
For installation in the thermal insulation or front panel

Safety assembly to DIN 1988

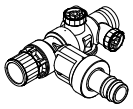
Components:
- Shut-off valve
- Non-return valve and test connector

Installation accessories for Vitodens 100-W (cont.)

- Pressure gauge connector
- Diaphragm safety valve
  - 10 bar (1 MPa)
    - DN 15, up to 200 l cylinder capacity
      Part no. 7219 722
    - DN 20, for 300 l cylinder capacity
      Part no. 7180 662
  - Ⓐ 6 bar (0.6 MPa)
    - DN 15, up to 200 l cylinder capacity
      Part no. 7265 023
    - DN 20, for 300 l cylinder capacity
      Part no. 7179 666

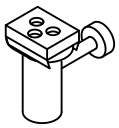


For Vitocell 100-W below the boiler
- 10 bar (1 MPa), DN 15, right angle version
  Part no. 7180 097
- Ⓐ 6 bar (0.6 MPa), DN 15, right angle version
  Part no. 7179 457



Drain outlet kit

Part no. 7459 591
Drain outlet with trap and rose. For connecting the drain lines of the safety valves and the condensate drain.
Drain connection G 1



4

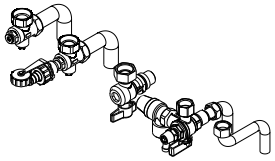
5.1 Installation

Connection accessories

Surface mounting

Part no. 7495 443

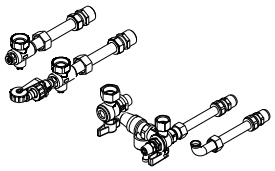
Components:
- Valves with connection pipe Ø 22 mm for heating water flow and heating water return
- Valve with connection pipe Ø 15 mm for cold water
- Connection pipe Ø 15 mm for DHW
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve R ½ (male thread) with thermally activated safety shut-off valve
- Drain & fill valve
- Seal rings



Flush mounting

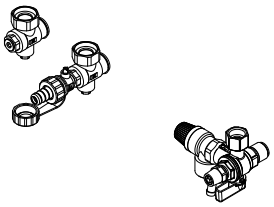
Part no. 7495 445

Components:
- Valves with connection pipe and locking ring fitting for heating water flow and heating water return
  Connection R ¾ (male thread)
- Valve with connection pipe and locking ring fitting for cold water
  Connection R ½ (male thread)
- Connection pipe and locking ring fitting for DHW
  Connection R ½ (male thread)
- Safety valve on the DHW side 10 bar (1 MPa)
- Drain & fill valve
- Angle gas valve G ½ with thermally activated safety shut-off valve
- Seal rings



Part no. 7369 905

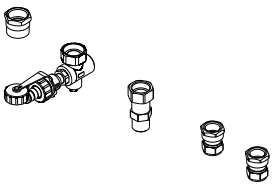
Components:
- Valves G ¾ (male thread) for heating water flow and heating water return
- Drain & fill valve
- Valve G ½ (male thread) for cold water
- Safety valve on the DHW side 10 bar (1 MPa)



Connection accessories for surface or flush mounting

Part no. 7495 502

Components:
- Valve G ¾ (male thread) for heating water return
- Drain & fill valve
- 2 adaptors G ½ to 15 mm for cold water and DHW
- 1 adaptor G ¾ to 22 mm for heating water flow
- Intermediate gas piece G ¾ to R ¾ (male thread)



Pre-plumbing jigs for surface mounting

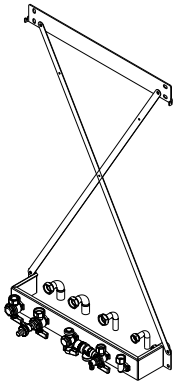
Part no. 7248 408

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 elbows 90° G ¾ to R ¾
- 2 elbows 90° G ½ to R ½

Installation accessories for Vitodens 111-W (cont.)

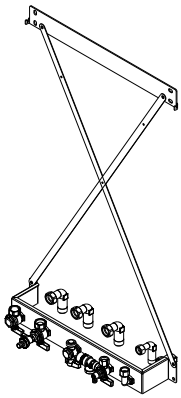
Part no. 7248 407

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 6 bar (0.6 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 pipe bends G ¾ to Ø 22 mm
- 2 pipe bends G ½ to Ø 15 mm
- Seal rings



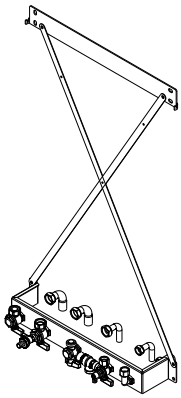
Part no. 7248 406

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 6 bar (0.6 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 elbows 90° G ¾ to R ¾
- 2 elbows 90° G ½ to R ½
- Seal rings



Part no. 7248 405

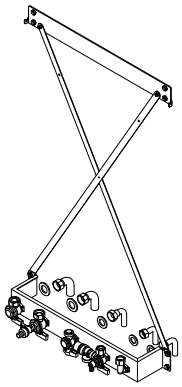
Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ¾
- 2 pipe bends G ½ to Ø 16 mm
- 1 pipe bend G ¾ to Ø 16 mm
- 2 pipe bends G ¾ to Ø 22 mm
- Seal rings



Part no. 7248 404

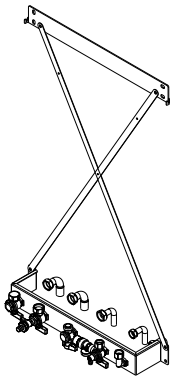
Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ¾
- 2 pipe bends G ½ to Ø 16 mm
- 1 pipe bend G ¾ to Ø 16 mm
- 2 pipe bends G ¾ to Ø 20 mm
- Seal rings

Installation accessories for Vitodens 111-W (cont.)



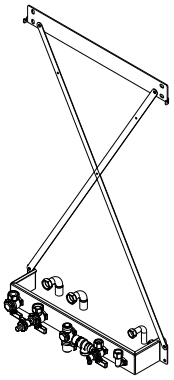
Part no. 7248 403

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ¾
- 2 pipe bends G ½ to Ø 15 mm
- 1 pipe bend G ¾ to Ø 15 mm
- 2 pipe bends G ¾ to Ø 22 mm
- Seal rings



Part no. 7248 402

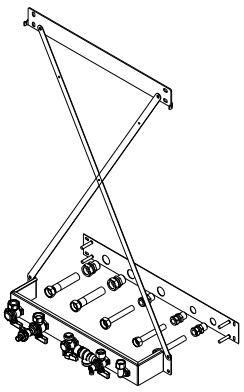
Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Intermediate gas piece G ¾ to R ¾
- Seal rings



Pre-plumbing jig for flush mounting

Part no. 7248 401

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 pipe sections G ¾ to Ø 18 mm with fitting
- 3 pipe sections G ½ to Ø 15 mm with fitting

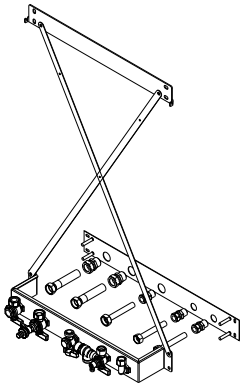


5

Installation accessories for Vitodens 111-W (cont.)

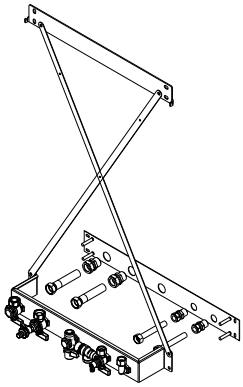
Part no. 7248 400

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 6 bar (0.6 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 pipe sections G ¾ to Ø 18 mm with fitting
- 3 pipe sections G ½ to Ø 15 mm with fitting
- Seal rings



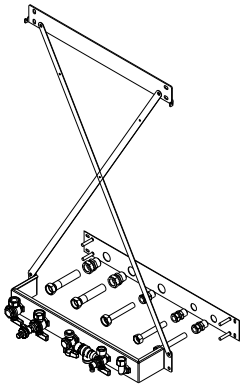
Part no. 7248 398

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- 2 pipe sections G ¾ to Ø 18 mm with fitting
- 3 pipe sections G ½ to Ø 15 mm with fitting
- Gas adaptor G ¾ to G ½
- Seal rings



Part no. 7248 399

Components:
- Wall mounting bracket
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ¾
- 2 pipe sections G ¾ to Ø 18 mm with fitting
- 3 pipe sections G ½ to Ø 15 mm with fitting
- Seal rings



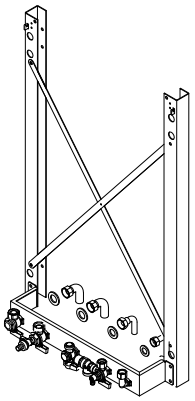
Mounting frame

Surface mounting

Part no. 7248 397
Installed depth 50 mm

Components:
- Mounting frame
- Wall mounting brackets
- Cross braces
- Fitting assembly with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ¾
- 2 pipe bends G ½ to Ø 16 mm
- 1 pipe bend G ¾ to Ø 16 mm

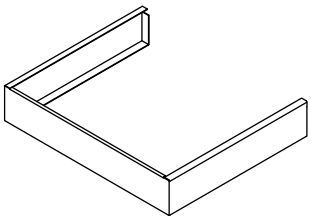
- 2 pipe bends G ¾ to Ø 20 mm
- Seal rings



5.2 Valve/fittings covers

Valve/fittings cover

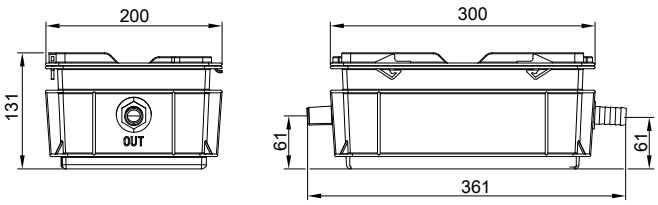
Part no. 7435 340
Cannot be used in conjunction with a DHW cylinder below the boiler



5.3 Neutralising systems

Neutralising system with wall mounting bracket

Part no. ZK03652
With neutralising granulate



Neutralising granulate

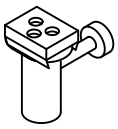
Part no. ZK03654
2.5 kg

To match the neutralising system, part no. ZK03652

5.4 Miscellaneous

Drain outlet kit

Part no. 7459 591
Drain outlet with trap and rose. For connecting the drain lines of the safety valves and the condensate drain.
Drain connection G 1



Installation accessories for Vitodens 111-W (cont.)

Tool kit

Part no. 9537 070
For maintenance and service

Case with all tools required for maintenance and service: Screwdriver, extension and inserts

Ionisation current test adaptor

Part no. 7822 883
For measuring the ionisation current with commercially available tester

5.5 Sensors

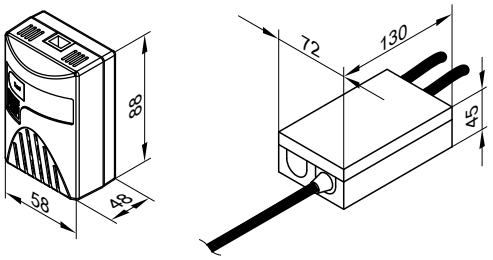
CO limiter

Part no. Z015500
Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.
Wall mounting in the ceiling area near the boiler.

Components:
- Casing with
  - Integral CO sensor
  - Mode, fault and alarm indicators
  - Acoustic alarm system
- Communication cable for interface (2.5 m).
- Interface inside the casing with power cable (1.2 m) and connecting lead for burner shutdown relay (1.2 m)
- Fixing materials

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	2 W
Rated breaking capacity of the relay output	8 A 230 V~
Alarm threshold	55 ppm CO to EN 50291-1
Protection class	II
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	0 °C to 40 °C



Design information

6.1 Siting, installation

Siting conditions for open flue operation (appliance type B)

Type B_{23} and B_{33}
In rooms where **air contamination from halogenated hydrocarbons or organosilicon compounds (e.g. siloxanes)** may occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories, etc., the Vitodens may only be operated as a **room sealed** system.
If in doubt, please consult us.
Never install the Vitodens in areas subject to very dusty conditions.
The installation location must be kept free from frost and must be adequately ventilated.
Provide a condensate drain and a discharge pipe for the safety valve in the installation room.
The maximum ambient temperature of the system should not exceed 35 °C.
If these instructions are not observed, any consequential appliance damage directly related to any of these causes is excluded from our warranty.

Ⓐ When installing in Austria, observe all current safety regulations as defined by ÖVGW-TR Gas (G1), ÖNORM, ÖVGW, ÖVE and locally applicable standards.

Installation room

Permissible:
- Siting on the same floor
- Living space with interconnected room air supply
- Ancillary rooms with interconnected room air supply (larders, basements, utility rooms, etc.)
- Ancillary rooms with vents to the outside, up to 35 kW: Ventilation air/extract air 150 cm^2 or 2 x 75 cm^2 each at the top and bottom of the same wall
- Attic rooms, but only with adequate minimum chimney height to DIN 18160 – 4 m above inlet (negative pressure operation).

Not permissible:
- Stairwells and communal hallways. Exception: In detached and two-family houses of low height, top edge of floor in the top storey < 7 m above ground level.
- Bathrooms and toilets without outside windows with shaft ventilation

- Rooms where explosive or flammable materials are stored
- Rooms that are ventilated mechanically or via individual duct systems to DIN 18117-1

Observe all local fire regulations.

Connection on the flue gas side
The connection piece to the chimney should be as short as possible. Therefore position the Vitodens as close to the chimney as possible. The flue should be designed to be as straight as possible. If bends are unavoidable, do not arrange these one after the other. It must be possible to test and clean the entire flue gas path as required.
No special protective measures or clearances towards combustible objects, such as furniture, packaging or similar, need to be taken/observed. The surface temperatures of the Vitodens and the flue system do not exceed 85 °C at any point.
For **flue gas cascades or multiple connections** to a single flue system, install the back draught safety device (available as an accessory) in every boiler.

For further details, see the technical guide on flue systems for the Vitodens.

Extractors
When installing appliances with extraction to the outside (cooker hoods, extractor fans, etc.), ensure that air extraction will not create negative pressure inside the installation room. A return flow of flue gases could result if the ventilation system and the Vitodens are operated simultaneously. In such cases, install an **interlock circuit**.

Safety equipment for the installation room
Viessmann heat generators are tested and approved in accordance with all safety regulations and are therefore fail-safe. Unpredictable, external factors may, in the rarest of cases, lead to the potentially harmful escape of carbon monoxide (CO). For this case, we recommend using a CO limiter. This can be ordered as a separate accessory.

Siting conditions for room sealed operation (appliance type C)

Type C_{13x}, C_{33x}, $C_{14(3)x}$, C_{53x}, C_{63x}, C_{83x} or C_{93x} to TRGI 2008
The Vitodens can be installed for **room sealed** operation **independent** of the size and ventilation of the installation room.

Suitable siting locations include:
- Recreational rooms and other living spaces
- Unventilated ancillary rooms
- Cabinets (open at the top)
- Recesses without compulsory clearance towards combustible materials
- Attic rooms (pitched attics and long panes) where the balanced flue pipe can be routed directly through the roof

The installation room must be free from the risk of frost.
Provide a condensate drain and a discharge pipe for the safety valve in the installation room.
Electrical interlocks for extractors (extractor hoods, etc.) are not required with room sealed operation.

Connection on the flue gas side
The flue should be designed as short and straight as possible. If bends are unavoidable, do not install them directly one after another. It must be possible to test and clean the entire flue gas path as required.
Since the flue pipe connection for room sealed operation is surrounded by combustion air (coaxial pipe), maintaining clearances towards combustible components is not required.
Ventilation air ducts with which oil or solid fuel boilers were previously used must not contain any sulphur or soot deposits on the inner surfaces of the chimney. Sulphur and soot deposits cause operating faults. If thorough cleaning is not possible, a balanced flue pipe must be laid through the shaft. Alternatively, the flue gas/ventilation air pipes can be routed separately. Viessmann accepts no liability for damages resulting from failure to observe these instructions.
For further details, see the technical guide on flue systems for the Vitodens.

Use of third party flue systems of type C_{63}/C_{63x}
Any approved flue system can be used for type C_{63}/C_{63x}. A system test of these flue systems with Viessmann heat generators has not been carried out, so there is no system certification in accordance with Gas Appliances Regulation (EU) 2016/426.

When implementing type C_{63}/C_{63x} with Viessmann heat generators, the following specifications must be observed and complied with:
- Viessmann design specifications for types C_{13x}, $C_{14(3)x}$ [*2], C_{33x}, C_{53x}, C_{83x} and C_{93x}
- Appliance-specific details of Viessmann heat generators, e.g. max. draughts, flue gas temperatures, mass flow rates, boiler flue connection tolerances
- Reverse flow of flue gas at the terminal of the flue system, even when it is windy: ≤ 10 %
- Wind protection devices for the supply of combustion air and the discharge of flue gas must not be installed on opposite walls of the building.

Flue pipes
- Flues made from plastic (PPS):
  Measures inside the equipment ensure that the flue gas temperature of 110 °C will never be exceeded. Flues made from plastic (PPS) with an approval for flue gas temperatures up to max. 120 °C (type B) can therefore be used.
- Flues made from aluminium:
  Aluminium residues in the condensate can impair the function of the heat generator. A condensate trap must therefore be additionally installed above the boiler flue connection. The condensate trap must allow the condensate returned from the flue system to completely bypass the heat generator.

Installation in a garage
Tests carried out by the Gaswärme-Institut e.V., Essen, have confirmed that the Vitodens is suitable for installation in garages.
When installing this boiler in a garage, maintain a clearance between the floor and the burner of at least 500 mm. Install a frame or deflector (provided on site) to protect the boiler against mechanical damage.

Safety equipment for the installation room
Viessmann heat generators are tested and approved in accordance with all safety regulations and are therefore fail-safe. Unpredictable, external factors may, in the rarest of cases, lead to the potentially harmful escape of carbon monoxide (CO). For this case, we recommend using a CO limiter. This can be ordered as a separate accessory.

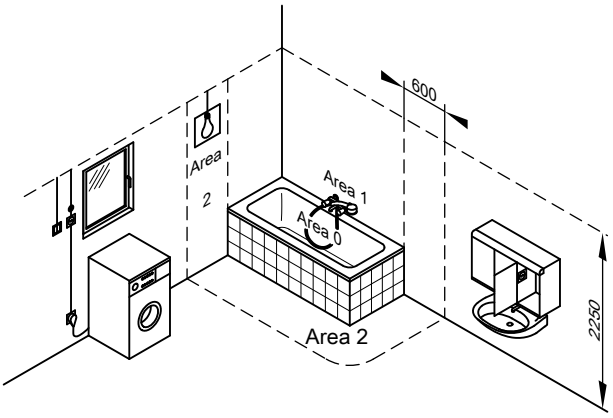
*2 *Not permissible for the Vitocaldens*

Operation of the Vitodens in wet rooms

- Room sealed operation:
  The Vitodens is approved for installation in wet rooms (IP rating: IP X4, splashproof).
  The boiler may be installed in safety zone 1 if hosed water (e.g. from massage showers) is prevented.
- Open flue operation:
  The boiler may only be installed in safety zone 1 or 2 if additional splash protection (part no. 7590109) is fitted.

When installing the Vitodens in wet rooms, observe the safety zones and minimum wall clearances according to VDE 0100 [or local regulations] (see also "Electrical safety zone").

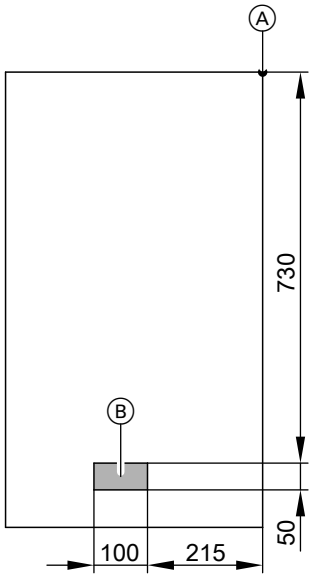
Electrical safety zone



Electrical equipment in rooms containing a bathtub or a shower must be installed in such a way that users cannot be exposed to dangerous shock currents. VDE 0100 specifies that cables supplying permanently installed consumers in zones 1 and 2 should only be run vertically and routed into the equipment from the back.

Electrical connection

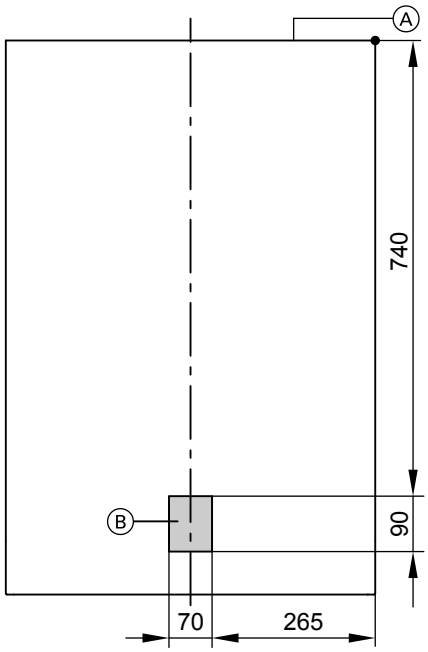
The power supply must comply with the requirements of your local power supply utility and current VDE [or local] regulations.
Protect the power cable with a fuse with a max. rating of 16 A.
We recommend installing an AC/DC-sensitive RCD (RCD class B) for DC (fault) currents that can occur with energy efficient equipment.
Make the power supply (230 V~, 50 Hz) via a permanent connection.
Connect the supply cables and accessories at the terminals inside the boiler.
Allow cables/leads in the shaded area to protrude at least 800 mm from the wall (see diagram).



Vitodens 100-W

Ⓐ Reference point Vitodens top edge
Ⓑ Area for power cables

Design information (cont.)



Vitodens 111-W

Ⓐ Reference point Vitodens top edge
Ⓑ Area for power cables

Recommended cables

Flexible cable 3 x 1.5 mm²	**2-core sheathed cable min. 0.5 mm²**	**Sheathed cable** **– 4-core 1.5 mm²** **or** **– 3-core 1.5 mm² without green/yellow wire**
– Power cables (incl. accessories)	– Outside temperature sensor – Vitotrol 100, type UTDB	– Vitotrol 100, type UTDB-RF – Vitotrol 100, type UTA

Interlock switch
Install an interlock for open flue operation if an extractor (e.g. cooker hood) is fitted in the room providing the combustion air supply.

Power supply for accessories
The power supply for accessories can be provided directly at the control unit.
This connection is switched by the system ON/OFF switch.
If the total system current exceeds 6 A, connect one or more extensions directly to the mains supply via an ON/OFF switch.
Where the boiler is sited in a wet room, the power supply connection of accessories must not be made at the control unit.

Additional requirements when siting boilers operated with LPG in rooms below ground level
According to TRF 2012 – valid as of March 2012 – an external safety solenoid valve is no longer required when installing the Vitodens below ground level.
However, the high safety standard derived from the use of an external safety solenoid valve has proved to be valuable. We therefore recommend the continued installation of an external safety solenoid valve when installing the Vitodens in rooms below ground level. For this, internal H1 extension is required.

Gas connection

Gas installations must only be carried out by a registered gas fitter authorised by the relevant gas supply utility.
Connect and size the mains gas according to TRGI 2008 or TRF 2012 [or local regulations].
Ⓐ Connect the mains gas according to ÖVGW-TR Gas (G1) and the regionally applicable building regulations.
Max. test pressure 150 mbar (15 kPa).
We recommend installing a gas filter to DIN 3386 in the gas line.

Thermally activated safety shut-off valve
According to paragraph 4, section 5 of the FeuVo 2008 [check local fire regulations], thermally actuated gas shut-off devices must be installed in combustion equipment or in gas supply lines immediately upstream of the combustion equipment. This equipment must shut off the gas supply if the external temperature exceeds 100 °C. The valves must isolate the gas supply for at least 30 min up to a temperature of 650 °C. This is intended to prevent the formation of explosive gas mixtures in the event of a fire.
The gas shut-off valves supplied with the Vitodens are equipped with integral, thermally activated safety shut-off valves.

Gas supply pipe
The following table is designed to assist in the approximate sizing of the on-site gas supply pipe.
For each 90° bend 1 m is deducted from the max. possible pipe length.

Checking your calculations against TRGI and TRF [or local regulations] is recommended.

Rated heat input	Gas type	Supply values		Nominal diameter of the gas supply pipe		
kW		m^3/h	kg/h	DN 15	DN 20	DN 25
				Max. possible pipe length in m		
17.8	Natural gas E	1.89		8	40	127
	LPG		1.40	62	–	–
24.3	Natural gas E	2.57		6	28	91
	LPG		1.93	36	156	–
28.0	Natural gas E	2.96		4	21	68
	LPG		2.38	23	100	–
32.7	Natural gas E	3.46		4	21	68
	LPG		2.60	23	100	–

Sizing recommendation, gas flow switch
In supply areas with H_{IB} below 8.6 kWh/m^3 and gas appliances compliant with category I_{2N}, determine a fictitious rated heat input. This fictitious rated heat input results from the rated heat input (Q_{NB}) of the gas appliance, multiplied by a factor of 1.14 (ratio H_{IB} 8.6/7.55). Use this fictitious rated heat input to select the gas flow switch and design the pipework to TRGI 2008 [or local regulations].

Vitodens rated heating output kW	Gas flow switch for natural gas
19	GS 4
26	GS 6
35 (gas condensing **system** boilers)	GS 6
35 (gas condensing **combi** boilers)	GS 10

The sizing recommendation for the gas flow switch does not negate the requirement for sizing the pipework correctly.

Minimum clearances

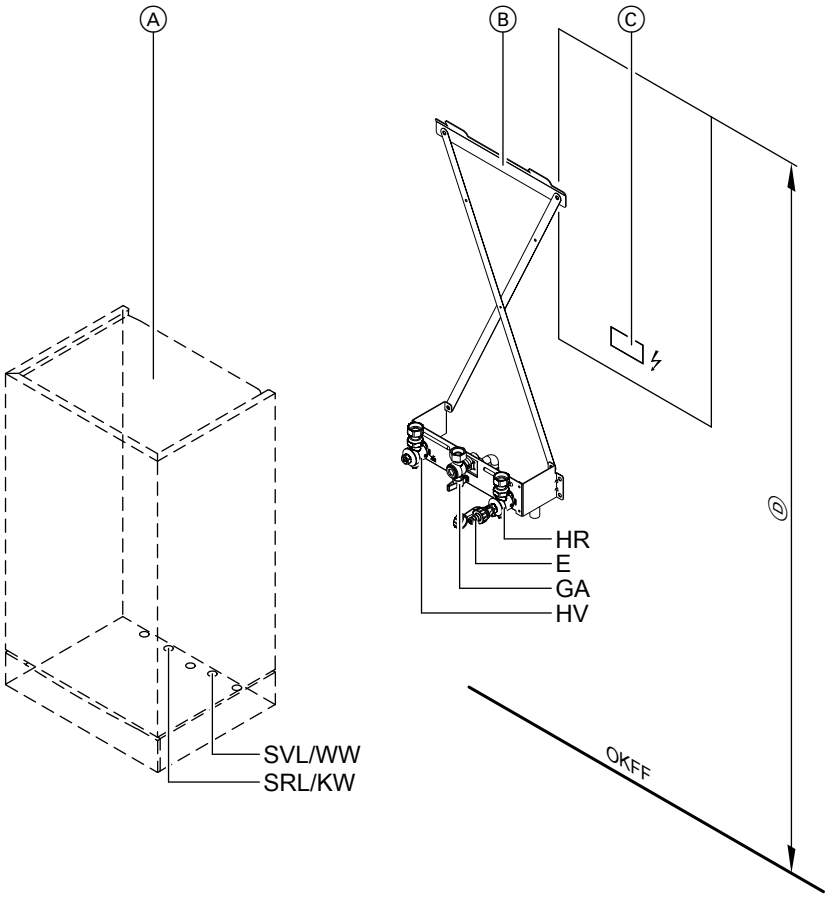
Maintain a clearance of 700 mm in front of the Vitodens or the DHW cylinder for maintenance purposes.

No maintenance clearances are required to the left or right of the Vitodens.

Pre-installation for mounting the Vitodens 100-W directly on the wall

Surface mounting with pre-plumbing jig

Required accessories:
- For installation **without** DHW cylinder:
  Pre-plumbing jig with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve
- For installation **with** DHW cylinder:
  Pre-plumbing jig with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve and connection set for DHW cylinder



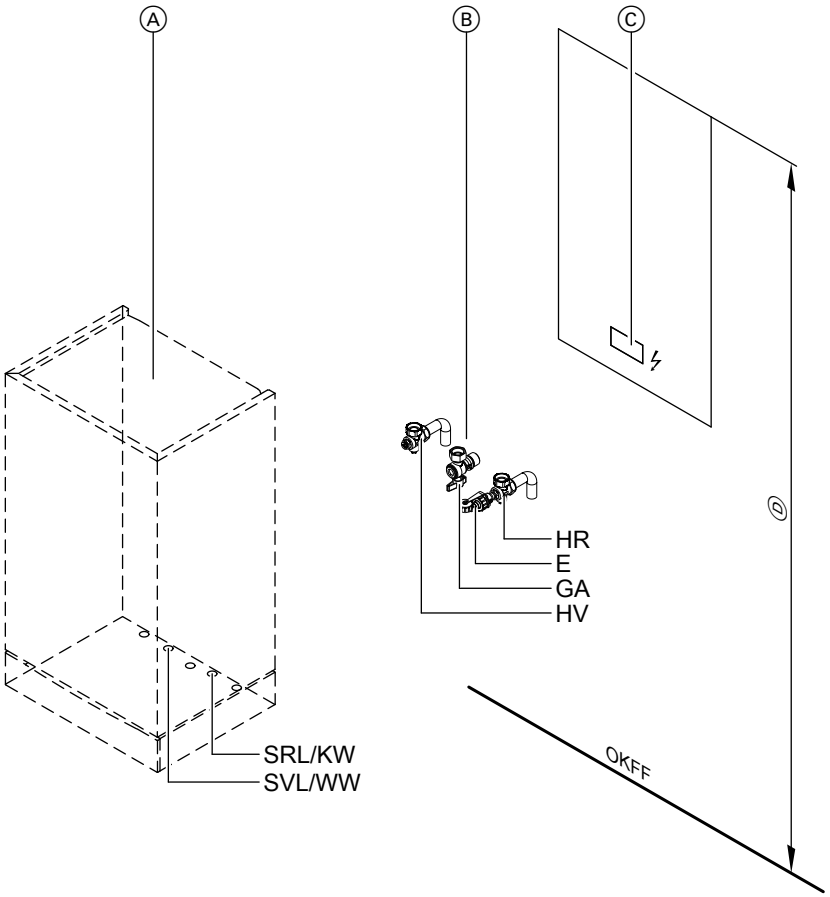
Shown: Pre-plumbing jig for Vitodens 100-W gas condensing system boiler

Ⓐ Vitodens
Ⓑ Pre-plumbing jig
Ⓒ Area for power cables
Allow cables to protrude approx. 800 mm from the wall.
Ⓓ 1800 mm: Compulsory in conjunction with DHW cylinder below the boiler
1925 mm: Recommended for all other versions
E Drain

GA Gas connection Rp ½
HR Heating return 22 mm
HV Heating flow 22 mm
KW Cold water 15 mm (gas condensing combi boiler)
OKFF Top edge, finished floor
WW DHW 15 mm (gas condensing combi boiler)
SRL Cylinder return G ¾ (gas condensing system boiler)
SVL Cylinder flow G ¾ (gas condensing system boiler)

Surface mounting with connection accessories

Required accessories:
- For installation **without** DHW cylinder:
  Connection accessories with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve
- For installation **with** DHW cylinder:
  Connection accessories with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve
  and
  Connection set for DHW cylinders



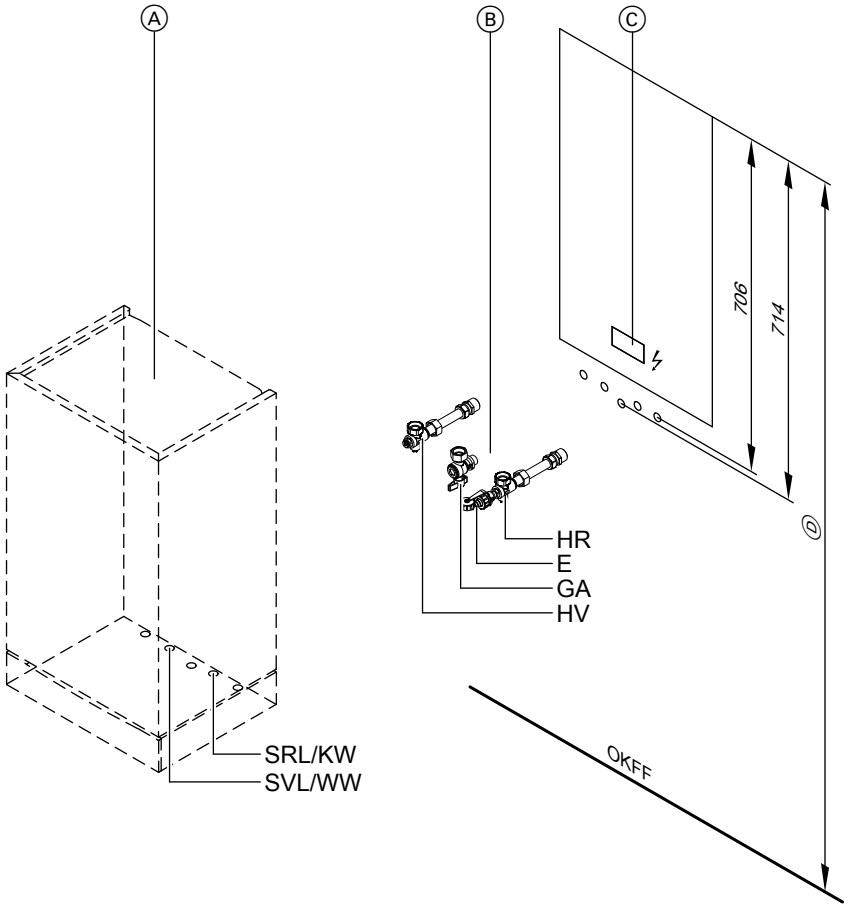
Shown: Connection accessories for Vitodens 100-W gas condensing system boiler

Ⓐ Vitodens
Ⓑ Connection accessories
Ⓒ Area for power cables
Allow cables to protrude approx. 800 mm from the wall.
Ⓓ 1800 mm: Compulsory in conjunction with DHW cylinder below the boiler
1925 mm: Recommended for all other versions
E Drain

GA Gas connection Rp ½
HR Heating return 22 mm
HV Heating flow 22 mm
KW Cold water 15 mm (gas condensing combi boiler)
OKFF Top edge, finished floor
WW DHW 15 mm (gas condensing combi boiler)
SRL Cylinder return G ¾ (gas condensing system boiler)
SVL Cylinder flow G ¾ (gas condensing system boiler)

Flush mounting with connection accessories

Required accessories:
- For installation **without** DHW cylinder:
  Connection accessories with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve
- For installation **with** DHW cylinder:
  Connection accessories with fixings, valves/fittings and gas shut-off valve with integral thermally activated safety shut-off valve
  and
  Connection set for DHW cylinders



Shown: Connection accessories for Vitodens 100-W gas condensing system boiler

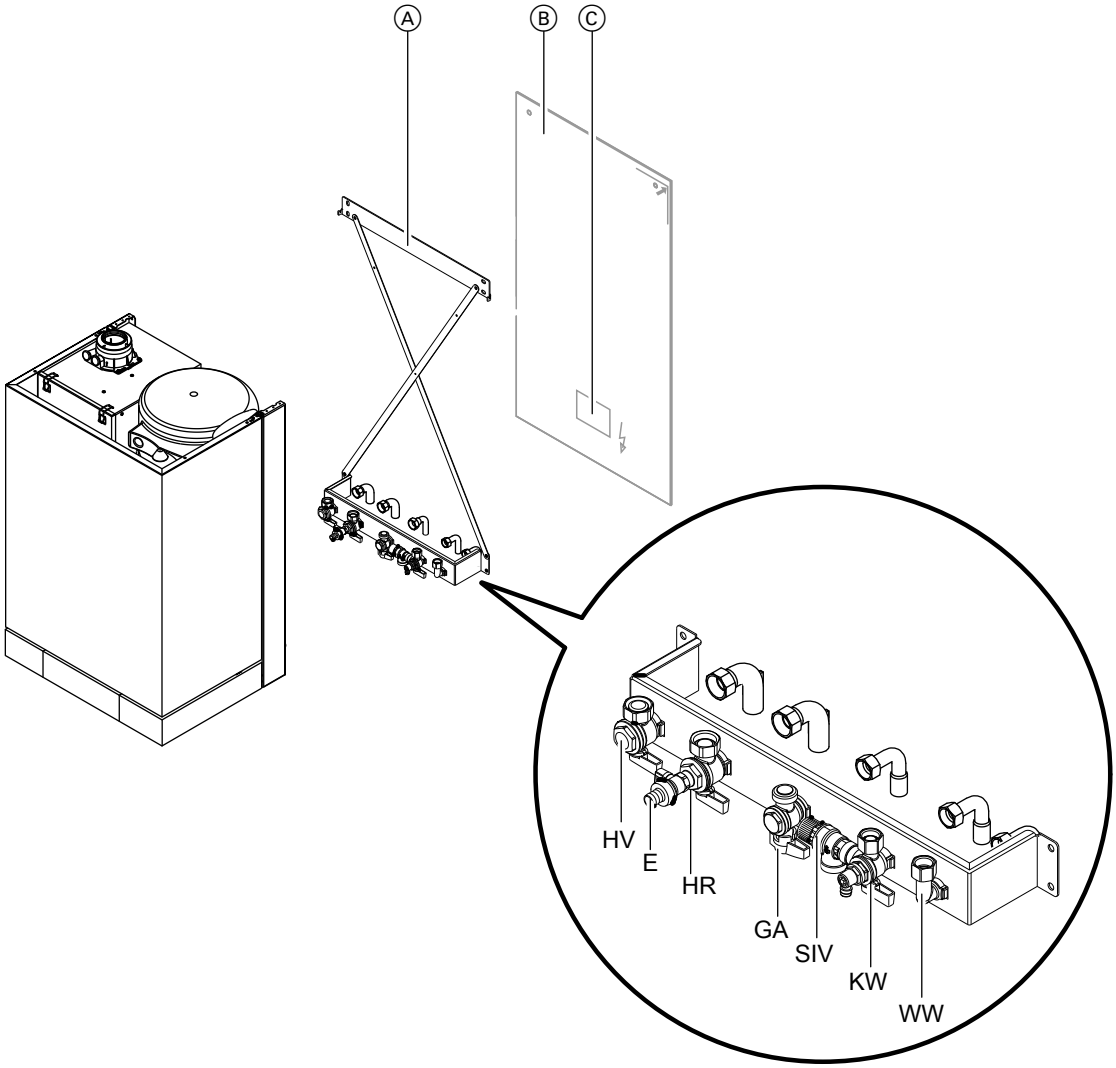
Ⓐ Vitodens
Ⓑ Connection accessories
Ⓒ Area for power cables
Allow cables to protrude approx. 800 mm from the wall.
Ⓓ 1800 mm: Compulsory in conjunction with DHW cylinder below the boiler
1925 mm: Recommended for all other versions
E Drain

GA Gas connection Rp ½
HR Heating return R ¾
HV Heating flow R ¾
KW Cold water R ½ (gas condensing combi boiler)
OKFF Top edge, finished floor
WW DHW R ½ (gas condensing combi boiler)
SRL Cylinder return G ¾ (gas condensing system boiler)
SVL Cylinder flow G ¾ (gas condensing system boiler)

Pre-installation of the Vitodens 111-W

Pre-installation on finished walls

Accessories required for installation in unfinished buildings:
■ Pre-plumbing jig

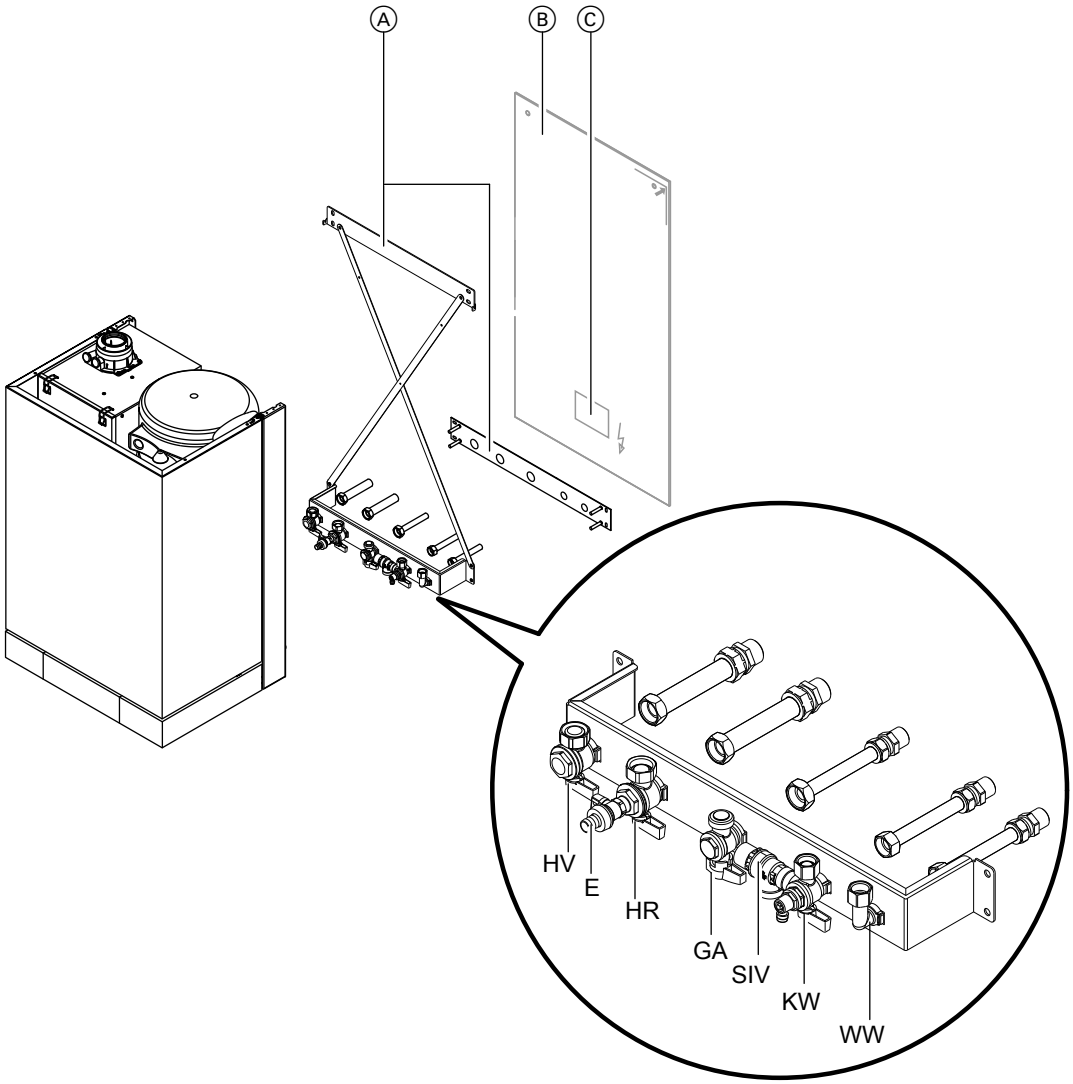


Ⓐ Pre-plumbing jig
Ⓑ Vitodens position
Ⓒ Area for power cables
Allow cables to protrude approx. 1300 mm from the wall.
E Drain

GA Gas connection R ½
HR Heating return R ¾
HV Heating flow R ¾
KW Cold water R ½
SIV Safety valve on the DHW side
WW DHW R ½

Pre-installation on unfinished walls

Accessories required for installation in unfinished buildings:
■ Pre-plumbing jig



Ⓐ Pre-plumbing jig
Ⓑ Vitodens position
Ⓒ Area for power cables
Allow cables to protrude approx. 1300 mm from the wall.
E Drain
GA Gas connection R ½
HR Heating return R ¾
HV Heating flow R ¾
KW Cold water R ½
SIV Safety valve on the DHW side
WW DHW R ½

6.2 Decision making aids for DHW heating

To provide the perfect solution for every situation, the Vitodens is available in the following versions:
■ Vitodens 100-W
– As a gas condensing system boiler in combination with a separate DHW cylinder
– As a gas condensing combi boiler with integral, direct DHW heating
■ Vitodens 111-W
With integral DHW loading cylinder

Various factors should be taken into consideration when designing heating systems and deciding between a gas condensing combi boiler, a gas condensing system boiler with separate DHW cylinder or a gas condensing system boiler with integral DHW loading cylinder:
■ DHW demand, convenience
■ Use of the various connected draw-off points
■ Distance of the draw-off points from the boiler
■ System modernisation
■ Space requirement
■ Water quality

Notes on water quality

During DHW heating, settling of lime on the surfaces of the plate heat exchanger cannot be completely prevented. The tendency towards limescale build-up depends on various conditions, predominantly on the substances contained in the water, the amount of water that is heated (DHW consumption) and the DHW temperature.
Although scale deposits inside the plate heat exchanger are generally minor enough not to cause any reduction in DHW output, such impairment cannot be excluded with increased water hardness.
From a water hardness of 20 °dH (3.5 mol/m³) and higher, we therefore recommend the use of DHW cylinders with internal indirect coils or a water treatment system in the cold water supply when heating DHW.

Please note that regional water supply utilities frequently specify an average water hardness. Higher levels of water hardness may therefore occur from time to time. This may make the use of a water treatment facility advisable even from 17 °dH (> 3.0 mol/m³) upwards.

Selection table

		Vitodens 100-W		Vitodens 111-W
		Gas condensing combi boiler with instantaneous water heater	Gas condensing system boiler with separate DHW cylinder	With integral DHW loading cylinder
DHW demand, convenience	DHW demand for an apartment	+	+	+
	DHW demand for a detached house	0	+	+
	Centralised DHW demand for an apartment building	–	+	–
	Decentralised DHW demand for an apartment building	+	+	0
Use of the various connected draw-off points	One draw-off point	+	0	0
	Several draw-off points, not used simultaneously	+	+	+
	Several draw-off points, used simultaneously	–	+	+
Distance of draw-off point from boiler	Up to 7 m (without DHW circulation pipe)	+	+	+
	With DHW circulation pipe	–	+	–
Modernisation	DHW cylinder installed	–	+	–
	Replacement of an existing combi boiler	+	–	0
Space requirement	Low space requirement (siting in a recess)	+	0	0
	Sufficient space available (installation room)	+	+	+
Solar DHW heating can be connected	Connection to dual mode DHW cylinder	–	+	–
	Connection to integral DHW cylinder	–	–	–

+ = Recommended
0 = Recommended under certain conditions
– = Not recommended

Separate DHW cylinders

For greater DHW convenience, separate DHW cylinders are also available in white in the following versions:
- Below the boiler (120 or 150 l)
- Adjacent to the boiler (160, 200 or 300 l)

Further DHW cylinders with up to 1000 l capacity are available in Vitosilver and may also be used in accordance with the available heating output.

The Vitodens 100-W as a gas condensing system boiler is equipped at factory with a separate DHW cylinder for DHW heating. For this purpose, the Vitodens 100-W is provided with an integral diverter valve.
To connect a separate DHW cylinder, always include the connection set for the respective DHW cylinder in your order.
For DHW cylinder specifications, see chapter "DHW cylinders".

Sizing the DHW cylinder

Determine the DHW cylinder size in accordance with the specific DHW demand.
Various combinations of taps/draw-off points can be applied.
If identical consumers are combined, only take into account the individual consumer, not the combination.
The following summary enables an **approximate** sizing of the DHW cylinder:

Small households (1 to 2 occupants)	
Average households (3 to 4 occupants)	

Note
Instead of a Vitodens 100-W with 120 l DHW cylinder, a Vitodens 111-W can also be used.

Cylinder capacity in litres

	Bath 1600 to DIN 4471	Bath 1700 to DIN 4471	Small bath and sit bath	Large bath (1800 × 750 mm)	Shower cubicle with mixer tap and standard shower head	Shower cubicle with 1 shower head and 2 side nozzles	Washbasin	Bidet
Draw-off rate in Wh	5820	6510	4890	8720	1630	4070	700	810
Draw-off volume per use or useful capacity in l	140	160	120	200	40	100	17	20
Bath 1600 to DIN 4471	120				120	120	120	120
	120				**120**	150/160	120	120
Bath 1700 to DIN 4471		120			120	120	120	120
		120			120	120	120	120
Small bath and sit bath			120		120	120	120	120
			120		120	120	120	120
Large bath (1800 × 750 mm)				120	120	120	120	120
				200	150/160	200	150/160	150/160
Shower cubicle with mixer tap and standard shower head	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120
Shower cubicle with 1 shower head and 2 side nozzles	120	120	120		120	120	120	120
	150/160		150/160	200	120	120	120	120
Washbasin	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120
Bidet	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120

Example:
- Average household with 3 occupants
- Use of a bath 1600 with 140 l drawn
- Simultaneous operation of a shower with mixer tap and standard head with 40 l drawn

The table shows that in accordance with DIN 4708, the correct DHW cylinder would have a capacity of 120 l.

DHW cylinder selection tables

DHW cylinders with "-W" in the product name are supplied with a white finish. Appliances with "-B" or "-V" in the product name are supplied in Vitosilver (marked in grey in the table).

Vitodens 100-W gas condensing system boilers, cylinder allocation

	Practical cylinder allocation (cylinder capacity in litres)		
Rated heating output [kW]	**19.0**	**26.0**	**35.0**
Vitocell 100-W (type CUG, CUGA, CUGA-A) below the boiler	100	100	100
	120	120	120
	150	150	150
Vitocell 100-W (type CVA, CVAA, CVAA-A) adjacent to the boiler	160	160	160
	200	200	200
	300	300	300
Vitocell 100-V (type CVA) adjacent to the boiler	—	—	500
Vitocell 100-W (type CVB, CVBB) adjacent to the boiler, dual mode	300	300	300
	400	400	400
Vitocell 100-U (type CVUB) adjacent to the boiler, dual mode	300	300	300
Vitocell 100-B (type CVB) adjacent to the boiler, dual mode	—	500	500

6.3 Connections on the water side

Connection on the DHW side

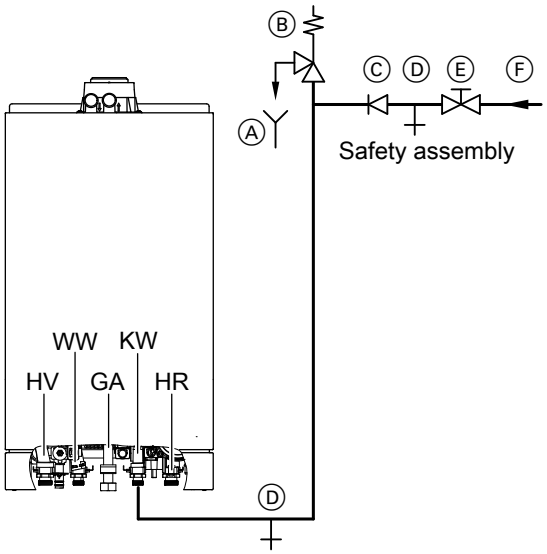
Vitodens 100-W gas condensing combi boiler
For the DHW connection, connection sets for surface or flush mounting are available as accessories. The instantaneous water heater provides direct DHW heating.

If used in conjunction with galvanised pipes, note that the instantaneous water heater is designed as a stainless steel plate heat exchanger with copper solder joints (observe the flow rule).

In existing installations (modernisation projects), the risk of electrolytic corrosion is low, since a protective layer will have formed on the inside of the pipes.
If DHW is to be drawn simultaneously from several points, we recommend the installation of a separate DHW cylinder in conjunction with the gas condensing system boiler (see "Decision making aids regarding DHW heating").

From a water hardness of 20 °dH (3.5 mol/m³) and higher, we recommend the use of a water treatment system in the cold water line when heating DHW.

Cold water installation of Vitodens 100-W gas condensing combi boiler

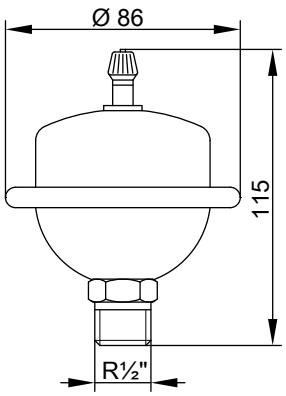


Ⓐ Visible drain pipe outlet point
Ⓑ Safety valve
Ⓒ Non-return valve
Ⓓ Drain
Ⓔ Shut-off valve
Ⓕ Cold water
GA Gas connection
HR Heating return
HV Heating flow
KW Cold water
WW DHW

A safety valve to DIN 1988 is only required if the mains water supply pressure exceeds 10 bar (1 MPa) and no DHW pressure reducing valve is installed (to DIN 4753).

Install a safety valve if the cold water supply is equipped with a non-return valve. In addition remove the toggle from the cold water shut-off valve.
Non-return valves are commonly found in pressure reducers and combined shut-off and non-return valves.

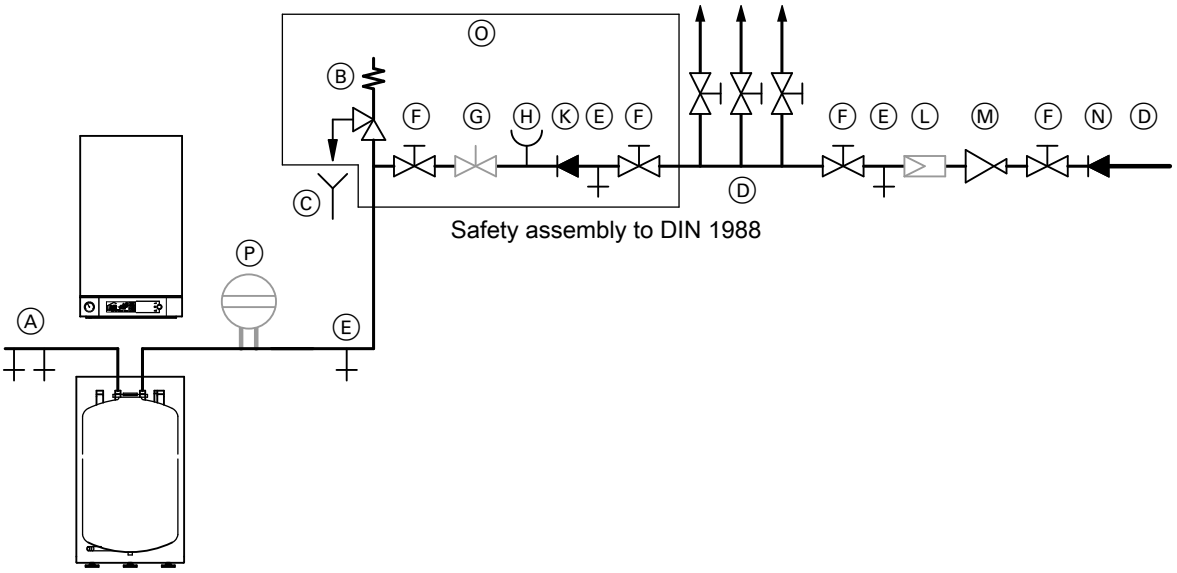
Shock arrestor



If the pipework to which the Vitodens is connected also supplies draw-off points at which water hammers may occur (e.g. pressure washers, washing machines or dishwashers): Install shock arrestors near the source of the water hammer (recommended).
Flexofit S made by Flamco-Flexcon
or
Reflex made by Winkelmann + Pannhoff GmbH
(available from your local dealer).

Design information (cont.)

Cold water installation, Vitodens 100-W with separate DHW cylinder and loading cylinder of the Vitodens 111-W
Example:
DHW cylinder below the boiler (120 or 150 l) with safety assembly to DIN 1988



Ⓐ DHW
Ⓑ Safety valve
Included in the standard delivery of the pre-plumbing jig for **Vitodens 111-W**
Ⓒ Visible discharge pipe outlet point
Ⓓ Cold water
Ⓔ Drain
Ⓕ Shut-off valve
Ⓖ Flow regulating valve (installation recommended)
Ⓗ Pressure gauge connector
Ⓚ Non-return valve
Ⓛ Drinking water filter
Ⓜ Pressure reducer DIN 1988-200:2012-05
Ⓝ Non-return valve/pipe separator
Ⓞ Standard delivery of the safety assembly available as an accessory (for separate DHW cylinders only)
Ⓟ Diaphragm expansion vessel, suitable for potable water

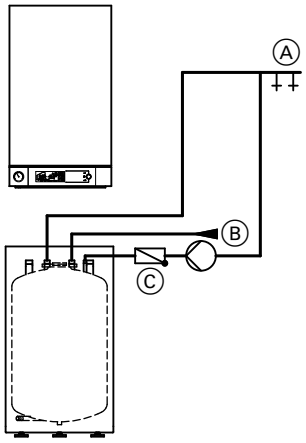
Safety valve
The safety valve **must** be installed.

We recommend you install the safety valve higher than the top edge of the cylinder. This protects the safety valve against contamination, scaling and high temperatures. It also means that the DHW cylinder does not need to be drained when working on the safety valve.

Drinking water filter
According to DIN 1988-200, a drinking water filter should be installed in systems with metal pipework. Viessmann also recommends the installation of a drinking water filter when using plastic pipes to DIN 1988 to prevent contaminants entering the DHW system.

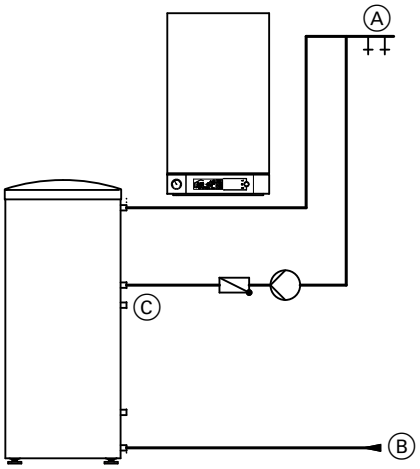
DHW circulation
DHW circulation pipes increase DHW convenience and reduce water consumption. These benefits result from the immediate availability of DHW at the tap/draw-off point.
However, poor thermal insulation of the DHW circulation pipe can lead to substantial heat losses.
From a **pipe length** of **7 m** upwards, we recommend the installation of a DHW circulation pipe with appropriate thermal insulation in accordance with the Energy Saving Ordinance. The Energy Saving Ordinance specifies that the DHW circulation pipe should include a circulation pump, check valve and time switch for stopping DHW circulation during the night.

Vitodens 100-W



DHW cylinder below the boiler

Ⓐ DHW
Ⓑ Cold water
Ⓒ DHW circulation



DHW cylinder adjacent to the boiler

Ⓐ DHW
Ⓑ Cold water
Ⓒ DHW circulation

Vitodens 111-W
The connection of a DHW circulation pipe is **not recommended**.

DHW circulation for gas condensing combi boilers
Due to the low water content of plate heat exchangers, the connection of DHW circulation pipes is **not recommended** for gas condensing combi boilers.

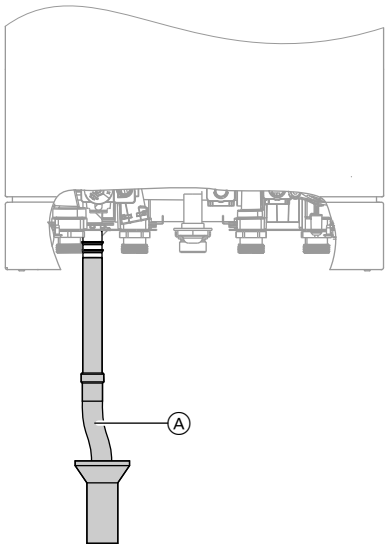
Even the low heat losses of thermally insulated DHW circulation lines (to EnEV) lead to a higher cycling frequency for the gas condensing combi boiler (reheating).

6.4 Condensate connection

Route the condensate pipe with a constant fall.
Route the condensate from the flue system together with the boiler condensate directly or via a neutralising system (if installed – accessories) to the public sewage system.

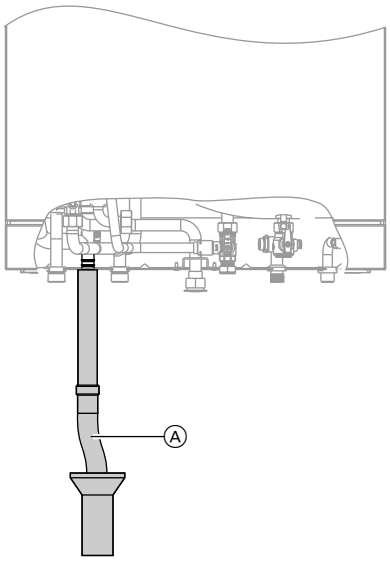
Note
*A pipe vent **must** be installed between the trap and the neutralising system.*

Vitodens 100-W



Ⓐ Drain hose (Vitodens standard delivery)

Vitodens 111-W



Ⓐ Drain hose (Vitodens standard delivery)

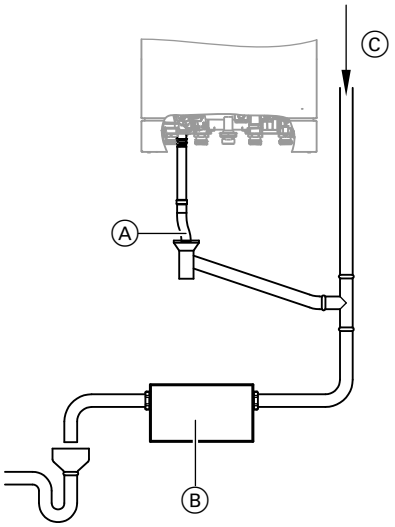
Condensate drain pipe and neutralisation

During heating operation, condensate with pH values between 4 and 5 is formed in the condensing boiler and in the flue.
The condensate should be drained in accordance with appropriate regulations.
Code of Practice DWA-A 251 on "Condensate from condensing boilers", which is generally based on the local waste water regulations [in Germany], determines conditions for draining condensate from condensing boilers into the public sewer system.
The composition of condensate drained from Vitodens condensing boilers meets the requirements specified in Code of Practice DWA-A 251.
The condensate drain pipe to the sewer connection must be freely accessible for inspection.
It must be installed with a continuous fall and must contain a stench trap. Also provide a suitable facility for sampling.
Condensate drain pipes must only be made from corrosion-resistant materials (e.g. reinforced hoses).
Never use any zinc-plated materials or those containing copper for pipes, connection pieces, etc.
A trap is installed in the condensate drain to prevent flue gases escaping.
Local water regulations and/or specific technical circumstances may prescribe designs that vary from those described in the above Codes of Practice.
Contact your local authority responsible for waste water management in good time prior to installation, to find out about local regulations.

Condensate from gas combustion equipment up to 200 kW combustion output
Up to a rated heating output of 200 kW, the condensate from a gas condensing boiler can generally be introduced into the public sewage system without prior neutralisation.
Domestic drainage systems must be made from materials that are resistant to acidic condensate.

According to the Code of Practice DWA-A 251, these materials include:
- Vitrified clay pipes
- Hard PVC pipes
- PVC pipes
- PE HD pipes
- PE pipes
- ABS/ASA pipes
- Stainless steel pipes
- Borosilicate pipes

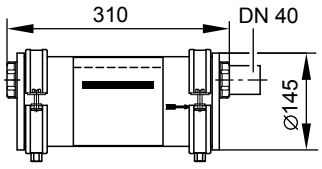
Neutralising system



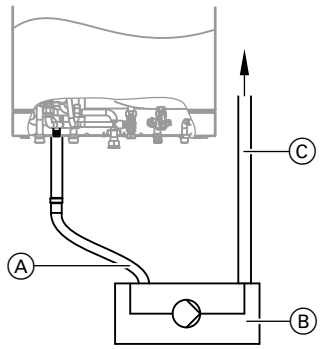
Ⓐ Condensate drain
Ⓑ Neutralising system
Ⓒ Ventilation via the roof

The Vitodens can (if required) be supplied with a separate neutralising system (accessories). Any condensate is piped to and processed in the neutralising system.
The condensate drain pipe to the sewer connection must be accessible for inspection. Install it with a fall and a stench trap on the sewer side, and provide a suitable facility for extracting samples.
Install a condensate lifting pump if the Vitodens has been installed below the waste water anti-flooding level.
Condensate lifting pumps are available as accessories.
Since the consumption of neutralising granulate depends on the operating mode of the system, carry out regular checks during the first year of operation to determine the required top-up volume. One fill can last longer than one year.

Neutralising system



Condensate removal pump (accessories)



Ⓐ Condensate inlet
Ⓑ Condensate removal pump
Ⓒ Condensate drain

6.5 Hydraulic connection

General

System design
Viessmann condensing boilers can generally be installed in any fully pumped hot water heating system (sealed unvented system).
The heat generator must be correctly sized and selected.
The circulation pump is an integral part of the appliance.
Minimum system pressure 1.0 bar (0.1 MPa).
The boiler water temperature is limited to 82 °C.
To minimise distribution losses, we recommend sizing the heat distribution system to a max. flow temperature of 70 °C.
To meet the requirements of the German Energy Saving Ordinance, use a clock thermostat (accessories) for constant temperature mode and weather-compensated mode. The control unit does not have an integral time switch.

Chemical anti-corrosion agents
According to VDI guideline 2035, the design of heating systems must ensure they are sealed against corrosion. Additives in the heating water (additives, chemicals) as corrosion protection measures are normally not necessary.
Exception: In systems without system separation, for example, additives can be considered.

Heating circuits
The integral boiler control unit can be used to control a directly connected heating circuit without mixer. The mixer extension kit available as an accessory can be used to control a heating circuit without mixer and a heating circuit with mixer, each with a separate heating circuit pump.

Plastic pipework for radiators
We also recommend the use of a temperature limiter to restrict the maximum temperature for plastic pipework in heating circuits with radiators.

Attic heating centre
The installation of a low water indicator, compulsory according to the DVGW [Germany], is not required when installing boilers in an attic heating centre.
The boilers are protected against water shortage in accordance with EN 12828.

Safety valve
A safety valve in accordance with TRD 721 is integrated in the Vitodens (opening pressure 3 bar (0.3 MPa)).

Route the discharge pipe in accordance with EN 12828 into a drain outlet (drain outlet kit available as an accessory). The drain outlet incorporates a siphon as a stench trap.

Low water indicator
According to EN 12828, a low water indicator can be omitted for boilers up to 300 kW, as long as heating can be reliably prevented when there is a water shortage.
Viessmann condensing boilers are equipped with a low water indicator (boil-dry protection). Tests have verified that the burner will be automatically switched off in the event of water shortage due to a leak in the heating system and simultaneous burner operation, before the boiler or the flue system reaches unacceptably high temperatures.

Water quality/Frost protection

Fill and top-up water
The quality of the fill and top-up water is one of the key factors for preventing damage caused by deposits or corrosion in the heating system.
In order to prevent system damage, the European standards and national guidelines for fill and top-up water must be observed right from the design stage, e.g. VDI 2035.

- Regular checks of the appearance, water hardness, conductivity and pH value of the heating water during operation lead to higher operational reliability and system efficiency. These properties must also be observed for the top-up water. According to VDI 2035, the quantity and properties of the top-up water must always be documented in the system log or maintenance reports.
- The basis for filling the heating system is tap water of potable water quality. For use as heating water, it is normally sufficient to soften the tap water. VDI 2035 specifies the maximum recommended concentrations of alkaline earths (hardeners), depending on the heating output and the specific system volume (ratio of the heating output of the heat generators to the heating water volume of the system): See the table below.

- We recommend always softening the fill and top-up water, as the water hardness can vary due to the mixture of different sources of supply, and the information provided by water supply utilities only gives average values. The information provided by water supply utilities is not sufficient for designing the system. In addition, it must be taken into account that the quantity of top-up water that will be added to the system during its service life cannot be predicted precisely at the design stage (especially in the case of existing heating circuits).
- If no aluminium or aluminium alloy components are installed, the heating water in systems with Viessmann heat generators does not need to be fully desalinated.
- The use of glycol as antifreeze without adequate inhibition and buffering is not permitted. The suitability of an antifreeze or other chemical additive should be certified by the manufacturer. Chemical additives in the heating water require more extensive monitoring and maintenance. Observe the manufacturer's instructions. Viessmann accepts no liability for damage or operational failure arising due to the use of unsuitable additives, incorrect dosing or poor maintenance.
- Chemical water treatments may only be planned and carried out by appropriately qualified specialist companies.

Total permissible hardness of the fill and top-up water according to VDI 2035

Total heating output of heat generator	Specific water capacity of heat generator*3	Specific system volume*4		
		≤ 20 l/kW	> 20 to ≤ 40 l/kW	> 40 l/kW
≤ 50 kW	≥ 0.3 l/kW	None	≤ 3.0 mol/m³ (16.8 °dH)	≤ 0.05 mol/m³ (0.3 °dH)
	< 0.3 l/kW	≤ 3.0 mol/m³ (16.8 °dH)	≤ 1.5 mol/m³ (8.4 °dH)	≤ 0.05 mol/m³ (0.3 °dH)
> 50 to **≤ 200 kW**	—	≤ 2.0 mol/m³ (11.2 °dH)	≤ 1.0 mol/m³ (5.6 °dH)	≤ 0.05 mol/m³ (0.3 °dH)
> 200 to **≤ 600 kW**	—	≤ 1.5 mol/m³ (8.4 °dH)	≤ 0.05 mol/m³ (0.3 °dH)	≤ 0.05 mol/m³ (0.3 °dH)
> 600 kW	—	≤ 0.05 mol/m³ (0.3 °dH)	≤ 0.05 mol/m³ (0.3 °dH)	≤ 0.05 mol/m³ (0.3 °dH)

Further requirements for the fill and top-up water independent of the heating output according to VDI 2035

Appearance
Clear, free of sedimented substances

Electrical conductivity
If the conductivity of the heating water is above **1500 µS/cm** due to a high salt content (e.g. in supply areas near the coast), desalination is necessary.

pH value

Materials in the system	pH value
Without aluminium alloys	8.2 to 10.0
With aluminium alloys	8.2 to 9.0

Information about system design
- For softening the heating water, use softening systems with water flow meters: See Vitoset pricelist.
- During installation, ensure that individual pipework sections can be drained separately. This avoids the need to drain all the heating water in the case of maintenance and repair work.
- As the formation of sludge and magnetite in the heating water cannot generally be completely prevented during operation, we recommend the installation of suitable magnetic dirt separators: See Vitoset pricelist.

Notes on commissioning and operating the system
- In order to prevent corrosion by remaining flushing water, fill the system completely immediately after flushing.
- Even treated fill water contains oxygen and small amounts of foreign matter. In order to prevent local concentrations of corrosion products and other deposits on the heating surfaces of the heat generator, commission the system in stages with a high heating water flow rate. Start with the heat generator at its lowest output. For the same reason, in the case of multi boiler systems and cascades, commission all heat generators at the same time.
- If extending the system or conducting maintenance or repair work, only drain the pipework sections where absolutely necessary.
- Check and clean filters, dirt traps and other blow-down or separating facilities in the heating water circuit after filling and commissioning.
- Special regional regulations regarding fill and top-up water must be observed. When disposing of heating water containing additives, check whether additional treatment may be required before it is discharged into the public waste water system.
  CH: Observe SWKI guideline BT 102-01.

Modernising existing systems
Adaptors for older appliances are available as accessories for the Vitodens 100-W.
This enables existing hydraulic connections for wall mounted boilers of type Thermobloc-VC/-VCW, Cerastar-ZR/-ZWR and Ceramini to be adapted for the Vitodens (see page).

Expansion vessels

In accordance with EN 12828, water heating systems must be equipped with a pressure expansion vessel.
- The boiler has an integral expansion vessel.
- Determine the size of the expansion vessel to be installed in accordance with EN 12828.

If the integral expansion vessel or that supplied as an accessory is inadequate, install a suitably sized expansion vessel on site.

Note
With regard to the hydraulic connection of the diaphragm expansion vessel, there must always be a connection between the diaphragm expansion vessel and the heat generator. For example, when the thermostat valves are closed and if the 3-way diverter valve is set to DHW heating.

**3 In the case of systems with several heat generators that have several different specific water capacities, the smallest specific water capacity is definitive.*
**4 To calculate the specific system volume, the smallest individual heating output should be used for systems with several heat generators.*

6.6 Intended use

The appliance is intended solely for installation and operation in sealed unvented heating systems that comply with EN 12828, with due attention paid to the associated installation, service and operating instructions. It is only designed for heating up heating water that is of potable water quality.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

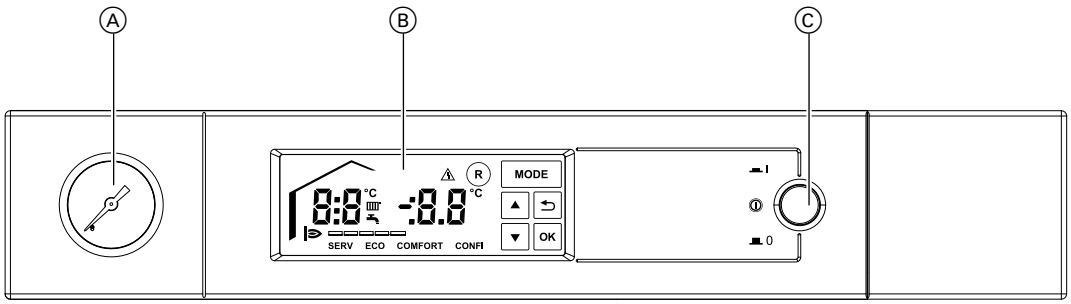
Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed).

Control unit

7.1 Control unit for constant temperature or weather-compensated operation

Design and functions

Design



Ⓐ Pressure gauge
Ⓑ Touchscreen with controls
Ⓒ ON/OFF switch

Programming unit touchscreen:
- Adjustment/control of:
  - Boiler water temperature
  - DHW temperature
  - Operating program (Eco/Comfort)
  - Heating curves (parallel offset of level)
  - Burner reset
  - Codes
  - Service functions
  - Display contrast
- Display of:
  - Boiler water temperature
  - DHW temperature
  - Operating data
  - Diagnostic data
  - Fault messages
- With acoustic signal (can be switched off) for touchscreen operation

Functions
- In conjunction with outside temperature sensor and clock thermostat (accessories) or external time switch:
  Weather-compensated control of the boiler water and/or flow temperature
- Control of a heating circuit without mixer
- Only in conjunction with mixer extension kit and room temperature controller (accessories):
  Control of one heating circuit with mixer and one heating circuit without mixer
- Electronic maximum and minimum flow temperature limit (permanently set)
- Demand-dependent heating circuit pump and burner shutdown control
- Pump anti-seizing protection
- Frost protection monitoring of the heating system (in conjunction with outside temperature sensor)
- Integral diagnostic system
- Cylinder temperature controller with priority control

Control characteristics
PI characteristics with modulating output

Time switch
Switching times cannot be selected at the control unit.
A clock thermostat or a time switch (accessories) is required for weather-compensated operation and to select switching times.

Setting the operating programs
Frost protection monitoring (see frost protection function) for the heating system is enabled in all operating programs.
The following operating programs can be selected:

Control unit (cont.)

- Heating and DHW
- DHW only

Frost protection function

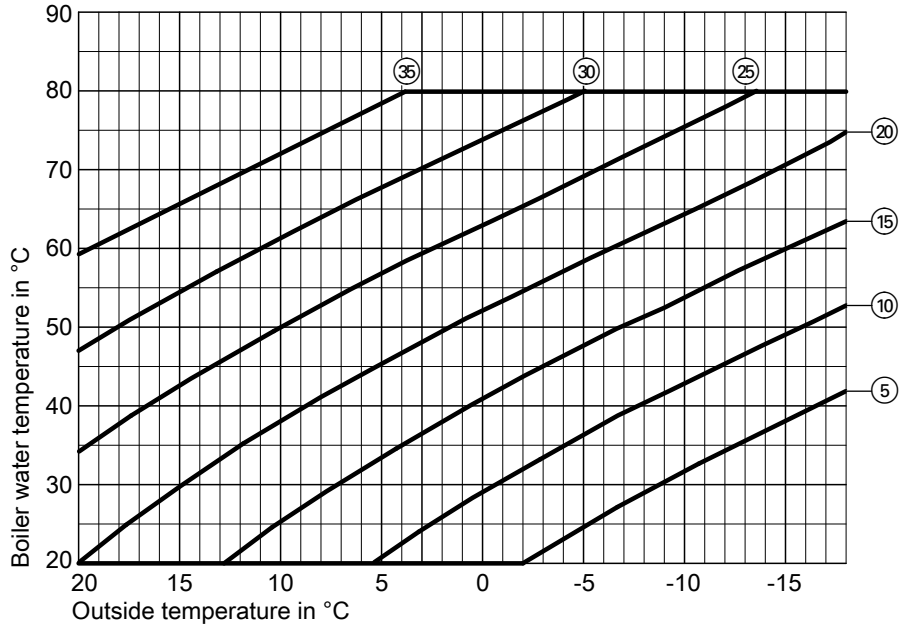
With outside temperature sensor
- The frost protection function is switched on when the outside temperature drops below approx. +5 °C.
  When the frost protection function is enabled, the heating circuit pump is switched on and the mixer is opened in conjunction with the mixer extension kit. The boiler water is kept at a lower temperature of approx. 20 °C.
  The DHW cylinder is heated to approx. 20 °C.
- The frost protection function is switched off when the outside temperature exceeds approx. +5 °C.

Without outside temperature sensor
Only boiler frost protection.

Summer mode
The burner starts only when the DHW cylinder needs reheating or when DHW is drawn from a gas condensing combi boiler.

Heating curve setting (level)
In weather-compensated mode, the boiler water temperature (= flow temperature of the heating circuit without mixer) is regulated according to the outside temperature.
The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.
Adjusting the heating curves matches the boiler water temperature and the flow temperature to these conditions.

Heating curves:
- The temperature limiter restricts the maximum boiler water temperature.
- The flow temperature cannot exceed the boiler water temperature.



Ⓧ Indicator for selected heating curve
The setting can be made in increments of - - to 35.

Boiler water temperature sensor
The boiler water temperature sensor is connected to the control unit and built into the boiler.

Specification

Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +130 °C
– Storage and transport	–20 to +70 °C

Vitodens 100-W: Cylinder temperature sensor

Connection set standard delivery:
- Connection set for DHW cylinders below the boiler (120 or 150 l) (accessories)
- Connection set for DHW cylinders adjacent to the boiler (160 to 300 l) or alternative DHW cylinders (accessories)

Specification

Lead length	3.75 m, fully wired
IP rating	IP 32
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +90 °C
– Storage and transport	–20 to +70 °C

Vitodens 111-W: Cylinder temperature sensor and outlet temperature sensor
These sensors are connected to the control unit and built into the boiler or DHW cylinder.

Specification

IP rating	IP 32
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– During operation	0 to +90 °C
– During storage and transport	–20 to +70 °C

Control unit specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A
Protection class	I
Permissible ambient temperature	
– During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	–20 to +65 °C
Electronic temperature limiter setting (heating mode)	82 °C (change not possible)

DHW temperature setting range	
– Vitodens 100-W: Gas condensing combi boilers	10 to 57 °C
– Vitodens 100-W: Gas condensing system boilers	10 to 68 °C
– Vitodens 111-W	10 to 63 °C
Setting range for heating curve	
Slope	0.2 to 3.5
Level	–13 to 40 K

7.2 Control unit accessories

Vitotrol 100, type UTA

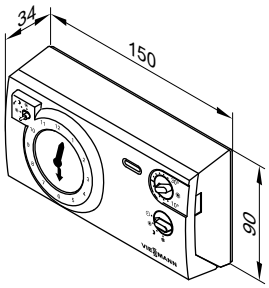
Part no. 7170149

Room thermostat
- With switching output (2-point output)
- With analogue time switch
- With adjustable individual day program
- Standard switching times are factory-set (individually programmable)
- Shortest switching interval 15 minutes

The Vitotrol 100 is installed in the main living room on an internal wall opposite radiators, although never inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Control unit connection:
3-core cable with a cross-section of 1.5 mm^2 (no green/yellow wire) for 230 V~.

Specification

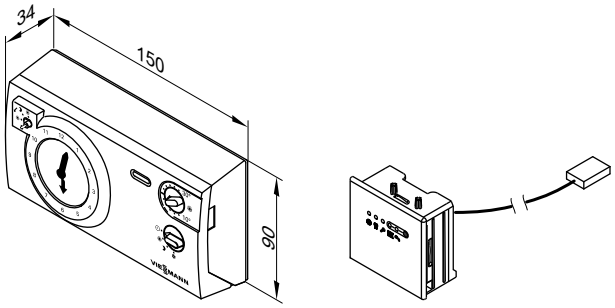
Rated voltage	230 V/50 Hz
Rated breaking capacity of the contact	6(1) A 250 V~
IP rating	IP 20 to EN 60529 Ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +60 °C
Set value setting range for standard mode and reduced mode	10 to 30 °C
Set room temperature in standby mode	6 °C



Vitotrol 100, type UTA-RF

Part no. 7454521
Room thermostat with integral wireless transmitter and separate wireless receiver
- With switching output (two-point output)
- With analogue time switch
- With adjustable individual day program

Installation in the main living room on an internal wall opposite radiators. Do not install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace or TV set).
Operation of the room thermostat without mains power supply
Wireless receiver for installation in the control unit support



Control unit (cont.)

Specification

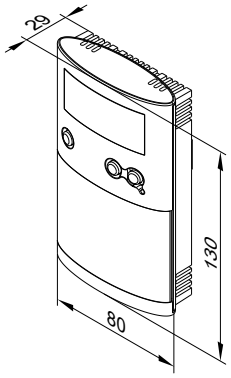
Rated voltage	3 V– 2 LR6/AA batteries
Rated breaking capacity of the contact	6(1) A 250 V~
IP rating	IP 20 to EN 60529; ensure through design/installation
Permissible ambient temperature – Operation – Storage and transport	 0 to +40 °C –20 to +60 °C
Set value setting range for standard mode and reduced mode	10 to 30 °C
Set room temperature in standby mode	6 °C

Vitotrol 100, type UTDB

Part no. Z007691

Room temperature controller
- With switching output (two-point output)
- With digital time switch
- With individual day and seven-day program
- Operation with user prompts:
  - 3 preselected time programs, individually adjustable
  - Constant manual mode with adjustable set room temperature
  - Frost protection mode
  - Holiday program
- With selector keys for party and economy mode

Installation in the main living room on an internal wall opposite radiators. Never install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Operation independent of mains power supply
Control unit connection:
2-core lead with a cross-section of 0.75 mm^2 for 230 V~.



Specification

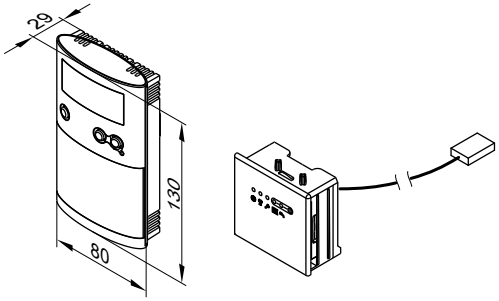
Rated voltage	3 V– 2 LR6/AA batteries
Rated breaking capacity of the floating contact – max. – min.	 6(1) A, 230 V~ 1 mA, 5 V–
IP rating	IP 20 to EN 60529; ensure through design/installation
Function type	RS type 1B to EN 60730-1
Permissible ambient temperature – Operation – Storage and transport	 0 to +40 °C –25 to +65 °C
Setting range – Comfort temperature – Setback temperature – Frost protection temperature	 10 to 40 °C 10 to 40 °C 5 °C
Power reserve during battery change	3 min

Vitotrol 100, type UTDB-RF2

Part no. Z011244

Room temperature controller with integral wireless transmitter and wireless receiver for installation in the control unit support
- With digital time switch
- With individual day and seven-day program
- Operation with user prompts:
  - 3 preselected time programs, individually adjustable
  - Constant manual mode with adjustable set room temperature
  - Frost protection mode
  - Holiday program
- With selector keys for party and economy mode

Installation in the main living room on an internal wall opposite radiators. Never install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Operation independent of mains power supply
Wireless receiver with relay state indication.



Control unit (cont.)

Specification, room temperature controller

Rated voltage	3 V– 2 LR6/AA batteries
Transmission frequency	868 MHz
Transmission	< 10 mW
Range	Approx. 25 to 30 m inside buildings, subject to construction
IP rating	IP 20 to EN 60529; ensure through design/installation
Function type	RS type 1B to EN 60730-1
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–25 to +65 °C
Setting range	
– Comfort temperature	10 to 40 °C
– Setback temperature	10 to 40 °C
– Frost protection temperature	5 °C
Power reserve during battery change	3 min

Wireless receiver

- For installation in the control unit support
- With power cable and connector for connection to the control unit

Mixer extension kit (OpenTherm)

Part no. Z013877

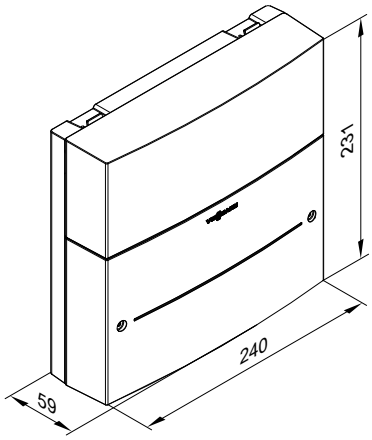
For connecting a mixer motor and a heating circuit pump for a heating circuit with mixer and a heating circuit pump for a heating circuit without mixer.

Connection to the boiler control unit via OpenTherm.

Components:

- Mixer PCB for connecting a separate mixer motor
- 2 flow temperature sensors (contact temperature sensor and immersion temperature sensor)
- Plug for connecting the heating circuit pumps and mixer motor

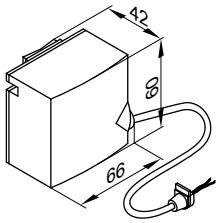
Mixer PCB



Mixer PCB specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption	1.5 W
IP rating	IP 20 D to EN 60529; ensure through design/installation
Protection class	I
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Rated relay output breaking capacity	
– Heating circuit pump [20]	2(1) A, 230 V~
– Mixer motor	0.2 (0.1 A), 230 V~
Required runtime of the mixer motor for 90° ◁	Approx. 120 s

Flow temperature sensor (contact temperature sensor)



Secured with a tie

Specification

Lead length	5.8 m
IP rating	IP 32 D to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +120 °C
– Storage and transport	–20 to +70 °C

Immersion temperature sensor

To capture the flow temperature for the heating circuit without mixer.

Specification

Lead length	3.75 m
IP rating	IP 32 D to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +90 °C
– Storage and transport	–20 to +70 °C

Pack with mixer extension kit (OpenTherm) with 1 room temperature controller

Part no. Z013919

For connecting a mixer motor and a heating circuit pump for a heating circuit with mixer and a heating circuit pump for a heating circuit without mixer.

Connection to the boiler control unit via OpenTherm.

Components:

- 1 mixer extension kit (for further details, see part no. Z013 877)
- 1 room temperature controller (OpenTherm)

Control unit (cont.)

Room temperature controller (OpenTherm)

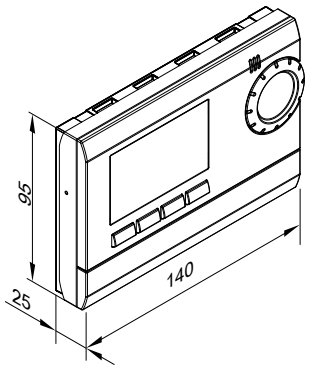
The room temperature controller includes heating circuit control for one heating circuit without mixer and one heating circuit with mixer. For room temperature-dependent operation or weather-compensated operation in conjunction with an outside temperature sensor (separate accessories).

- With digital time switch
- With individual day and seven-day program
- With menu-guided operation:
  - 4 preset time programs (individually adjustable) and one freely adjustable time program for heating mode and DHW heating
  - Constant manual mode with adjustable set room temperature
  - Frost protection mode
  - Holiday program
  -
- Display of:
  - Set and actual temperatures
  - Operating states
  - Fault messages

Installation in the main living room on an internal wall opposite radiators. Do not install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace or TV set).
Operation independent of mains power supply
Control unit connection:
2-core cable with a cross-section of 0.75 mm^2.

Specification

Power supply	OpenTherm connection for mixer extension kit
Protection class	II
IP rating	IP 40 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–25 to +65 °C
Setting ranges	
– Room temperature	5 to 32 °C
– DHW temperature	20 to 60 °C
– Frost protection temperature (delivered condition)	5 °C
Power reserve	> 1 h



Pack with mixer extension kit (OpenTherm) with 2 room temperature controllers

Part no. Z013920
For connecting a mixer motor and a heating circuit pump for a heating circuit with mixer and a heating circuit pump for a heating circuit without mixer
Connection to the boiler control unit via OpenTherm

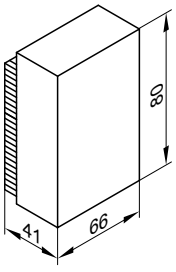
Components:
- 1 mixer extension kit (OpenTherm)
  For further details, see part no. Z013877
- 2 room temperature controllers (OpenTherm)
  For further details, see part no. Z013919

Outside temperature sensor

Part no. ZK02485

Installation location:
- North or north-west facing wall of the building
- 2 to 2.5 m above the ground; for multi storey buildings in the upper half of the second floor

Connection:
- 2-core lead, length up to 35 m with a cross-section of 1.5 mm^2 (copper).
- Never route this lead immediately next to 230/400 V cables



7

5777747

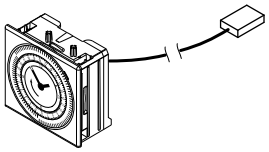
Control unit (cont.)

Specification

IP rating	IP 43 to EN 60529; ensure through design/installation.
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature during operation, storage and transport	–40 to +70 °C

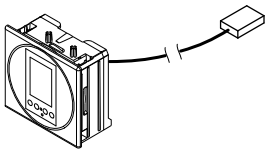
Analogue time switch

Part no. 7522678
- Single channel time switch with individual day program
- For installation in the control unit



Digital time switch

Part no. 7454528
- Two-channel time switch with seven-day program
- For installation in the control unit



Cylinder demand junction box

Part no. 7296968
- 230 V~
- For operation with a cylinder temperature sensor

Vitoconnect, type OT2 with Vitotrol 100, type OT1

Part no. ZK04327

Vitoconnect, type OT2
- Internet interface for remote control of a heating system with 1 heat generator via WiFi with DSL router
- Compact device for wall mounting
- For system operation with **ViCare app** and/or **Vitoguide**

Vitotrol 100, type OT1
- Room temperature controller for controlling the room temperature via an integral room temperature sensor
- Data communication between Vitotrol 100, type OT1 and Vitoconnect, type OT2 via OpenTherm interface

Functions when operating with the ViCare app
- Calling up the temperatures of connected heating circuits
- Intuitive adjustment of preferred temperatures and time programs for central heating and DHW heating
- Easy transmission of system data, e.g. fault messages via email or telephone communication with the heating contractor
- Heating system fault reporting by push notification

The ViCare app supports mobile devices with the following operating systems:
- Apple iOS
- Google Android

Note
- *Compatible versions: Visit the App Store or Google Play.*
- *Further information: Visit* ***www.vicare.info***

Functions when operating with Vitoguide
- Monitoring of heating systems following service clearance by the system user
- Access to operating programs, set values and time programs
- Retrieving system information for all connected heating systems
- Display and forwarding of fault messages in plain text

Vitoguide supports the following end devices:
- Mobile devices with a screen size of 8 inches or larger

Note
Further information: Visit ***www.vitoguide.info***

On-site requirements
- Compatible heating systems with Vitoconnect, type OT2

Note
Supported control units: Visit ***www.viessmann.de/vitoconnect***

- Before commissioning, check the system requirements for communication via local IP networks/WiFi.
- Port 443 (HTTPS) and port 123 (NTP) must be open.
- The MAC address is printed on the device label.
- Internet connection with flat rate data (**without time or volume restrictions**)

Installation location
- Installation type: Wall mounting
- Installation only in enclosed buildings
- The installation location must be dry and free of frost.
- Distance to heat generator min. 0.3 m and max. 2.5 m

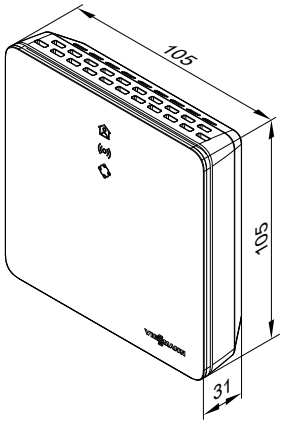
Control unit (cont.)

- Standard socket 230 V/50 Hz
  or
  US/CA: Socket 120 V/60 Hz
  max. 1.5 m to installation location
- Internet access with adequate WiFi signal

Note
The WiFi signal strength can be increased with commercially available WiFi repeaters.

Standard delivery
- Web interface for wall mounting
- Power cable with plug-in power supply unit (1.5 m long)
- Connecting cable with Optolink/USB (WiFi module/boiler control unit, 3 m long)

Specification – Vitoconnect

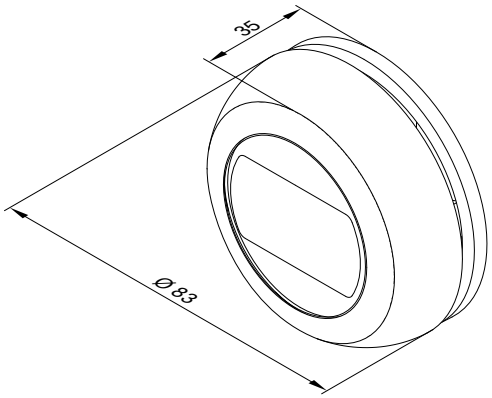


Specification	
Rated voltage	12 V⎓
WiFi frequency	2.4 GHz
WiFi encryption	Unencrypted or WPA2
Frequency band	2400.0 to 2483.5 MHz
Max. transmitting power	0.1 W (e.i.r.p.)
Internet protocol	IPv4
IP assignment	DHCP
Rated current	0.5 A
Power consumption	5.5 W
Protection class	III
IP rating	IP 20D to EN 60529
Permissible ambient temperature	
– Operation	5 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +60 °C

Plug-in power supply unit specification

Rated voltage	100 to 240 V~
Rated frequency	50/60 Hz
Output voltage	12 V⎓
Output current	1 A
Protection class	II
Permissible ambient temperature	
– Operation	5 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +60 °C

Specification – Vitotrol 100, type OT1



Specification	
Power supply	Via OpenTherm connection line
IP rating	IP 20
Permissible ambient temperature	
– Operation	0 to +40 °C at relative humidity of 10 to 90 % Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +55 °C

Appendix

8.1 Regulations / Directives

Regulations and directives

We, Viessmann Werke GmbH & Co. KG, declare that the Vitodens gas condensing boilers have been tested and approved in accordance with the currently applicable directives/regulations, standards and technical rules.
Observe all engineering standards of the building authorities and statutory requirements applicable to the installation and operation of this system.

Installation, gas and flue gas connections, commissioning, electrical connections and general service/maintenance may only be carried out by a registered contractor.
The installation of a condensing boiler must be reported to and approved by the relevant gas supply utility.
In some regions, permits may be required for the flue system and condensate connection to the public waste water system.

5777747

The local flue gas inspector and water authorities must be informed prior to commencing installation.
We recommend that maintenance and cleaning procedures are performed annually. As part of the maintenance procedure, check the correct function of the entire system. Any faults that occur must be rectified.

Condensing boilers must only be operated with specially designed, tested and approved flues.
Only an authorised contractor may convert this boiler for use in countries other than those stated on the type plate. That contractor must also arrange approval in accordance with the statutes of the relevant country.

Keyword index

5777747

Keyword index

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

5777747