

Technical guide



Vitodens 100-W

Vitodens 111-W

VITODENS 100-W Type B1HA, B1KA

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

VITODENS 111-W Type B1LB

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

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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 fan for quiet and economical operation
- Ⓔ Plate heat exchanger
- Ⓕ Integral, variable speed HE circulation pump
- Ⓖ Digital control

- Standard seasonal efficiency [to DIN] of up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- Modulation range up to 1:4
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads

- Easy analogue operation via control unit with rotary selectors and a large display
- Control unit for constant temperature and weather-compensated operation

Recommendation for application



Property development, either modernisation or new build (replacement of old appliances in apartment blocks or pre-fabricated houses)

Delivered condition

- Modulating MatriX cylinder burner
- Control unit for constant temperature and weather-compensated operation
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

Meets the requirements for the "Blue Angel" eco-label RAL UZ 61

1.2 Specification

Gas boiler, series B and C, Category II_{2H3P}					
Rated heating output range (to EN 677)					
$T_F/T_R = 50/30\text{ °C}$	kW	6.5 - 19.0	6.5 - 26.0	8.8 - 30.0	8.8 - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	5.9 - 17.3	5.9 - 23.7	8.0 - 27.3	8.0 - 31.9
Rated heating output range for DHW heating					
– Gas condensing boiler	kW	5.9 - 17.3	5.9 - 23.7	8.0 - 27.3	8.0 - 31.9
– Gas condensing combi boiler	kW	—	5.9 - 26.0	8.0 - 30.0	8.0 - 35.0
Rated heat input					
	kW	6.1 - 17.8	6.1 - 24.3	8.2 - 28.0	8.2 - 32.7
Product ID		CE-0085BT0029			
IP rating		IP X4D 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)					
Partial load	dB(A)	< 38	< 38	< 40	< 40
Power consumption					
– In the delivered condition	W	46	68	84	108
– Max. - gas condensing boiler	W	84	92	98	108
– Max. - gas condensing combi boiler	W	—	104	105	119
Weight					
– Gas condensing 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 rate (limit for the use of hydraulic separation)					
	l/h	1018	1018	1370	1370
Rated circulation water volume at $T_F/T_R = 80/60\text{ °C}$					
	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
Height with flue bend	mm	860	860	860	860
Height with DHW cylinder, below	mm	1925	1925	1925	1925
Instantaneous standby water heater (gas condensing combi boiler only)					
Hot and cold water connections	G	—	½	½	½
Permiss. operating pressure (on the 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 $\Delta T\ 30\text{ K}$ (to EN 13203)	l/min	—	12.4	14.3	16.7
Gas connection					
	G	¾	¾	¾	¾
Connection values relative to max. load					
Natural gas E	m ³ /h	1.88	2.57	2.96	3.46
LPG P	kg/h	1.4	1.9	2.2	2.6

Vitodens 100-W (cont.)

Gas boiler, series B and C, Category II _{2H3P}						
Rated heating output range (to EN 677)						
$T_F/T_R = 50/30\text{ °C}$	kW	6.5 - 19.0	6.5 - 26.0	8.8 - 30.0	8.8 - 35.0	
$T_F/T_R = 80/60\text{ °C}$	kW	5.9 - 17.3	5.9 - 23.7	8.0 - 27.3	8.0 - 31.9	
Flue gas parameters						
Calculation values for sizing the flue system to EN 13384. Flue gas temperatures as actual 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. amount of condensate (according 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 $T_F/T_R = 40/30\text{ °C}$	%	Up to 98 (H _g) [gross cv] / 109 (H _i) [net cv]				
Energy efficiency class						
– Central heating		A	A	A	A	
– DHW heating, draw-off profile XL		—	A	A	A	

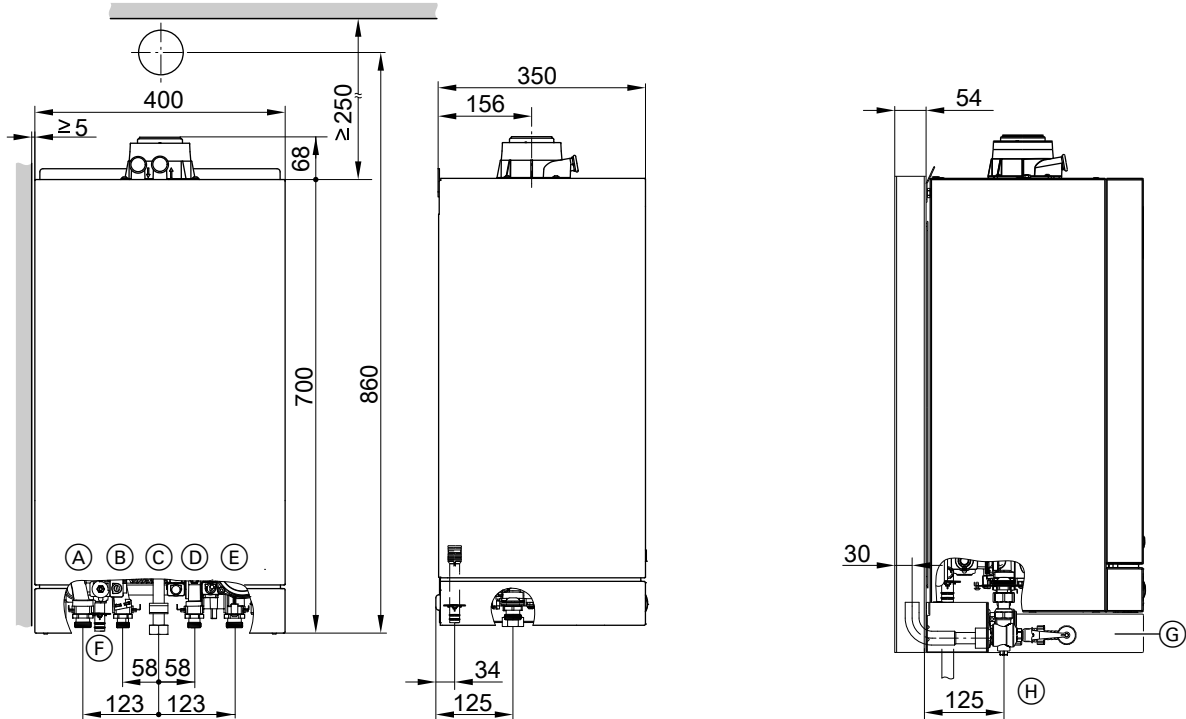
Information regarding the max. permissible gas supply pressure

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

Note on connection values

The connection 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).

Dimensions

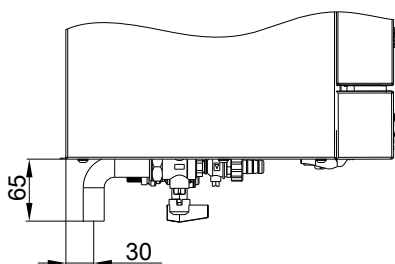


- (A) Heating flow G ¾
- (B) Gas condensing boiler:
Cylinder flow G ¾
- Gas condensing combi boiler:
DHW G ½
- (C) Gas connection G ¾
- (D) Gas condensing boiler:
Cylinder return G ¾
- Gas condensing combi boiler:
Cold water G ½
- (E) Heating return G ¾
- (F) Condensate drain/ drain safety valve: Plastic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

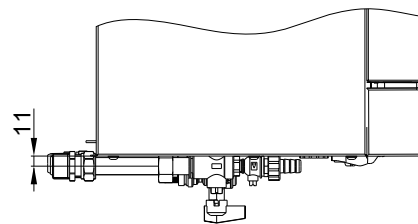
Note

Lay all required supply cables on site and route them into the boiler at the point indicated (see page 39).

Dimensions incl. connection accessories



Installation on finished walls



Installation on unfinished walls

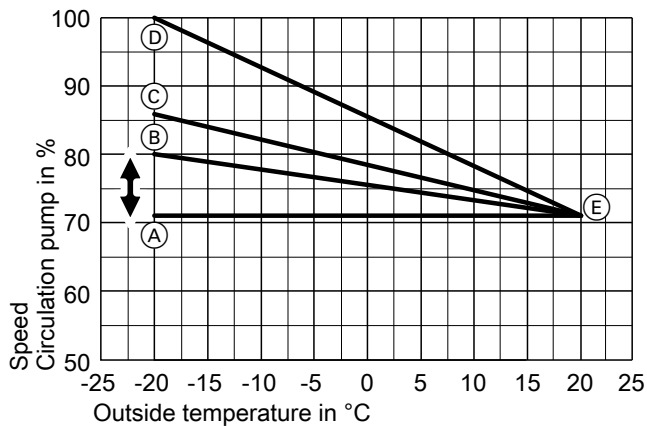
Integral circulation pump in the Vitodens 100-W

High efficiency [HE] circulation pump UPM3 15-75

- Default speed for DHW heating:
The internal pump operates at maximum speed (100 %).
- Default speed in heating operation without outside temperature sensor:

- The internal pump operates at a fixed maximum default speed (< 100 %).
- Default speed in heating operation 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 %)

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 range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
6.5 - 19.0	72	72
6.5 - 26.0	72	80
8.8 - 30.0	72	86
8.8 - 35.0	72	100

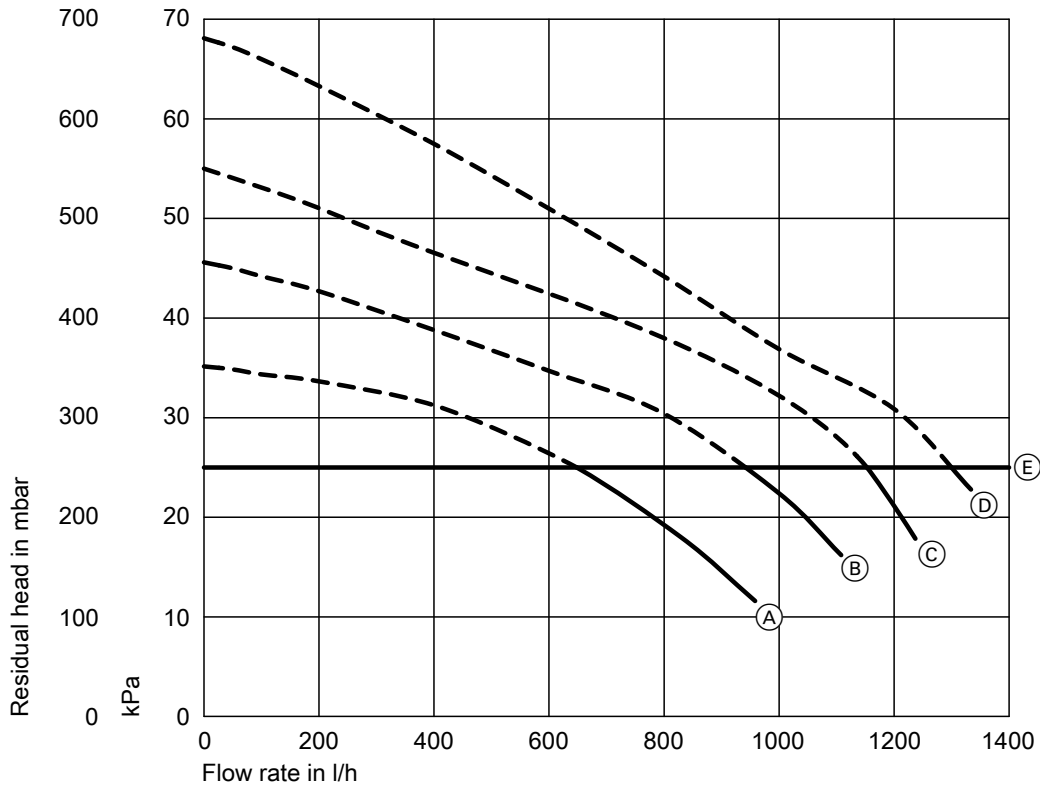
- Ⓓ Max. speed 35 kW (100 %)
- Ⓔ Minimum speed at outside temperature +20 °C

Power consumption, circulation pump

Rated heating output range in kW	Max.	Delivered condition
	6.5 - 19.0	60
6.5 - 26.0	60	36
8.8 - 30.0	60	45
8.8 - 35.0	60	60

Vitodens 100-W (cont.)

Residual heads (delivered condition)

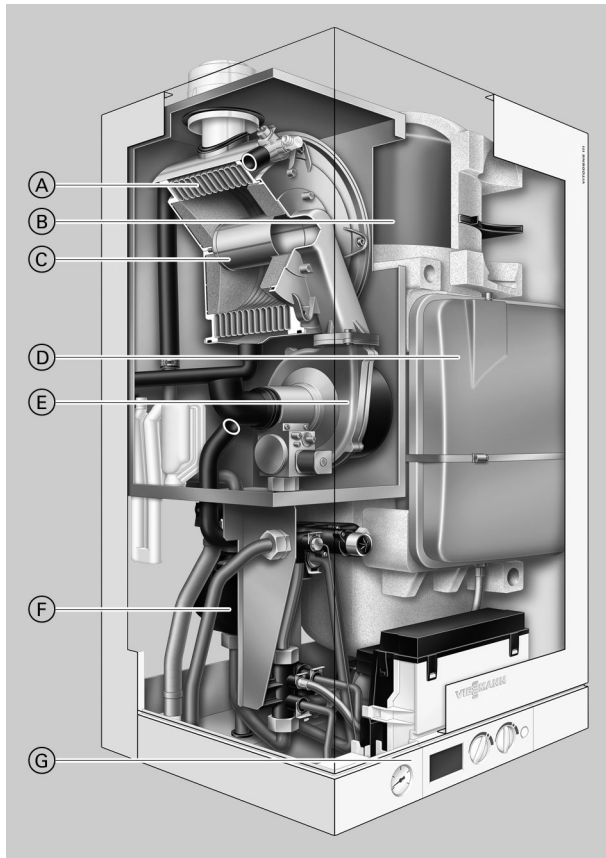


- Ⓐ Pump rate 19 kW/min. Pump rate (72 %)
- Ⓑ Pump rate 26 kW (80 %)
- Ⓒ Pump rate 30 kW (86 %)

- Ⓓ Pump rate 35 kW (100 %)
- Ⓔ Upper operational limit

2.1 Product description

Benefits



- Ⓐ Innox-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
- Ⓓ Integral diaphragm expansion vessel
- Ⓔ Variable speed combustion fan for quiet and economical operation
- Ⓕ Integral, variable speed high efficiency circulation pump
- Ⓖ Digital control

- Particularly space efficient gas condensing boiler with integral stainless steel loading cylinder
- Standard seasonal efficiency [to DIN] of up to 98 % (H_g) [gross cv] / 109 % (H_i) [net cv]
- Durable and efficient thanks to the Innox-Radial heat exchanger
- Modulation range up to 1:4

- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads
- Easy-to-use control unit with manual output restriction and option to connect modulating room thermostats
- High DHW convenience due to cylinder loading system and integral stainless steel loading cylinder (46 l capacity)

Recommendation for application

- New build
E.g. pre-fabricated houses and housing association 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 below

Delivered condition

- Modulating MatriX cylinder burner
- Control unit for constant temperature and weather-compensated operation
The outside temperature sensor (accessory) is required for weather-compensated operation
- 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 CE designation according to current EC Directives
- ÖVGW ÖVGW Quality Mark for gas and water equipment

Meets the requirements for the "Blue Angel" eco-label RAL UZ 61

2.2 Specification

Gas boiler, series B and C, Category II_{2H3P}			
Rated heating output range (to EN 677)			
$T_F/T_R = 50/30\text{ °C}$	kW	6.5 - 26.0	8.8 - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	5.9 - 23.7	8.0 - 31.9
Rated heating output range for DHW heating		kW	5.9 - 29.3
Rated heat input		kW	6.1 - 30.5
Product ID		CE-0085BT0029	
IP rating		IP X4D to EN 60529	
Gas supply pressure			
Natural gas	mbar	20	20
	kPa	2	2
LPG	mbar	37	37
	kPa	3.7	3.7
Max. permissible 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)			
– Partial load	dB(A)	45.7	49.9
Power consumption			
– In the delivered condition	W	78	98
– Max.	W	141	153
Weight		kg	62
Heat exchanger capacity		l	1.8
Max. flow rate		l/h	1018
(limit for the use of hydraulic separation)			1370
Nominal amount of circulation water at $\Delta T = 20\text{ K}$		l/h	739
Nominal amount of circulation water at $\Delta T = 20\text{ K}$			1361
Diaphragm expansion vessel			
Capacity	l	10	10
Pre-charge pressure	bar	0.75	0.75
	kPa	75	75
Permiss. operating pressure		bar	3
	MPa	0.3	0.3
Connections			
Boiler flow and return	G	$\frac{3}{4}$	$\frac{3}{4}$
Cold water and DHW	G	$\frac{1}{2}$	$\frac{1}{2}$
Dimensions			
Length	mm	480	480
Width	mm	600	600
Height	mm	900	900
Height with flue bend	mm	1060	1060
DHW loading cylinder			
Capacity	l	46	46
Permiss. operating pressure (on the 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		1.0	1.5
Gas connection		G	$\frac{3}{4}$
Connection values relative to max. load			
Natural gas E	m ³ /h	3.23	3.86
LPG P	kg/h	2.39	2.86
Flue gas parameters			
Calculation values for sizing the flue system to EN 13384. Flue gas temperatures as actual 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			



Vitodens 111-W (cont.)

Gas boiler, series B and C, Category II _{2H3P}			
Rated heating output range (to EN 677)			
$T_F/T_R = 50/30\text{ °C}$	kW	6.5 - 26.0	8.8 - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	5.9 - 23.7	8.0 - 31.9
– At rated heating output (DHW heating)	kg/h	41.1	56.9
– At partial load	kg/h	14.6	17.6
LPG			
– At rated heating output (DHW heating)	kg/h	46.4	62.0
– At partial load	kg/h	15.9	19.4
Available draught	Pa	100	100
	mbar	1.0	1.0
Max. amount of condensate (according 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 $T_F/T_R = 40/30\text{ °C}$	%	Up to 98 (H _g) [gross cv] / 109 (H _i) [net cv]	
Energy efficiency class			
– Central heating		A	A
– DHW heating, draw-off profile XL		A	A

Information regarding the 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 regarding performance factor N_L

The DHW performance factor N_L depends on the cylinder storage temperature T_{cyl} .

Standard values:

$T_{cyl} = 60\text{ °C}$: $1.0 \times N_L$

$T_{cyl} = 55\text{ °C}$: $0.75 \times N_L$

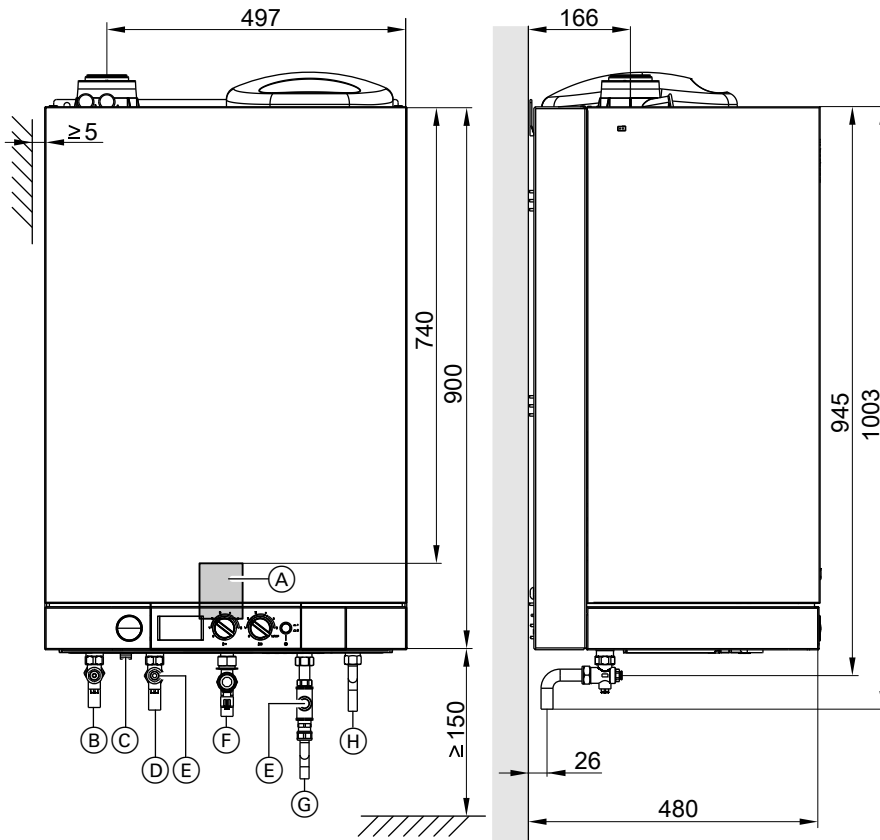
$T_{cyl} = 50\text{ °C}$: $0.55 \times N_L$

$T_{cyl} = 45\text{ °C}$: $0.3 \times N_L$

Note on connection values

The connection 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).

Dimensions



- (A) Area for electrical connections
- (B) Heating flow \varnothing 22 mm
- (C) Condensate drain
- (D) Heating return \varnothing 22 mm
- (E) Filling loop
- (F) Gas connection \varnothing 22 mm
- (G) Cold water \varnothing 15 mm
- (H) DHW \varnothing 15 mm

Note

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

Integral circulation pump in the Vitodens 111-W

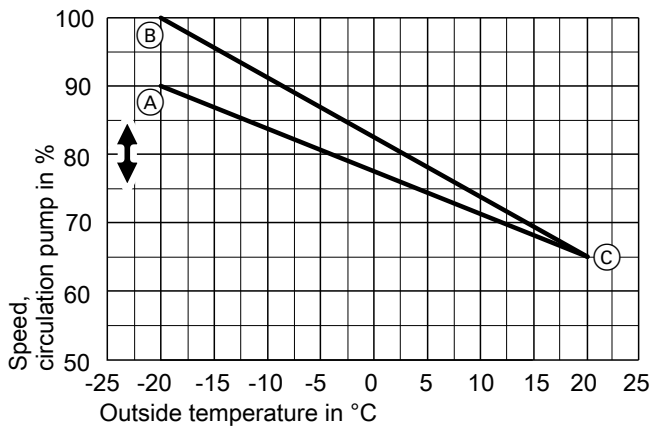
High efficiency [HE] circulation pump UPM3 15-75

- Default speed for DHW heating:
 - The internal pump operates at maximum speed (100 %).
- Default speed in heating operation without outside temperature sensor:

The internal pump operates at a fixed maximum default speed (< 100 %).

- Default speed in heating operation with outside temperature sensor:
 - The maximum speed for outside temperature $-20\text{ }^{\circ}\text{C}$ can be selected at the control unit.

Maximum speed setting in the delivered condition



- (A) Max. speed 26 kW (90 %)
- (B) Max. speed 35 kW (100 %)
- (C) 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

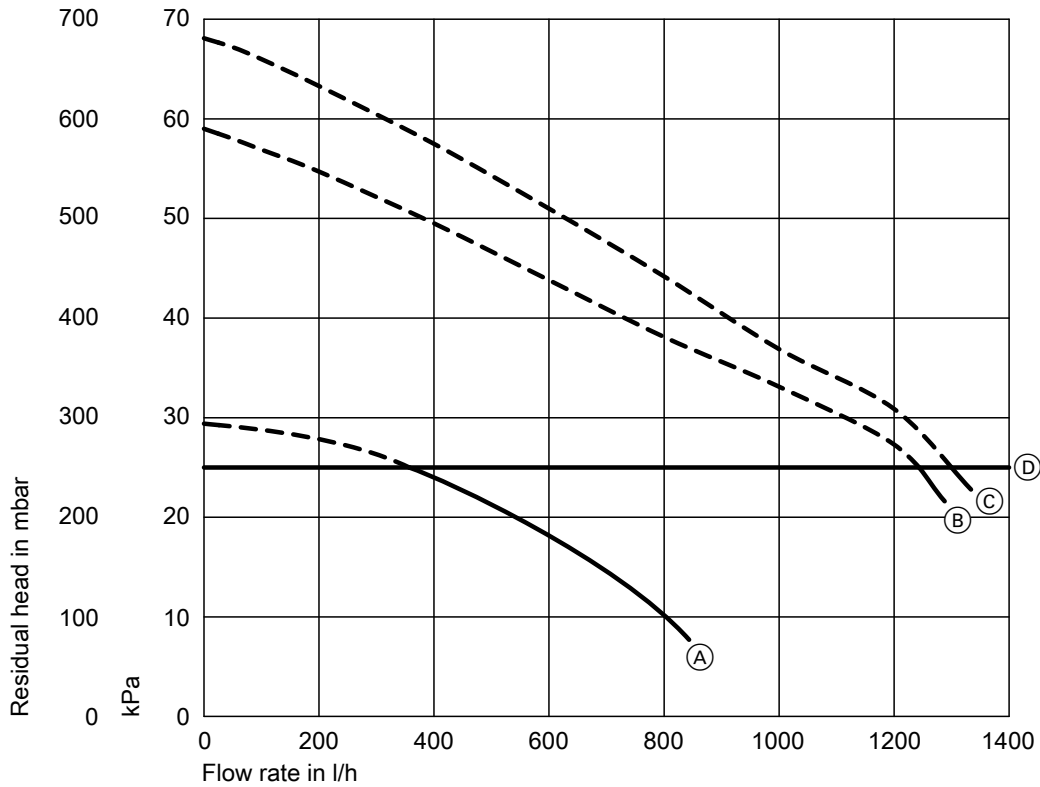
Rated heating output range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
6.5 - 26.0	65	90
8.8 - 35.0	65	100

Power consumption, circulation pump

Rated heating output range in kW	Delivered condition	
	Max.	Delivered condition
6.5 - 26.0	60	51.4
8.8 - 35.0	60	60

Vitodens 111-W (cont.)

Residual heads (delivered condition)



- Ⓐ Min. pump rate 65 %
- Ⓑ Max. pump rate 26 kW (90 %)

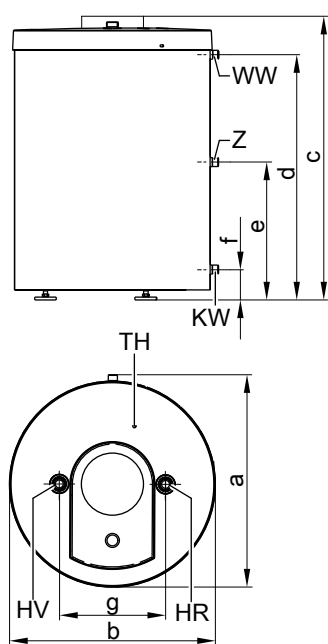
- Ⓒ Max. pump rate 35 kW (100 %)
- Ⓓ Upper operational limit

Separate DHW cylinder for the Vitodens 100-W

3.1 Vitocell 100-W (type CUGA and CUGA-A), below, made from steel, with Ceraprotect enamel coating

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

Type		CUG	CUGA	CUGA-A	CUGA	CUGA-A
Cylinder capacity	l	100		120		150
DIN registration no.		9W245/11-13 MC/E				
Connections (male thread)						
Heating water flow and return	R	1	1	1	1	1
Hot and cold water	R	3/4	3/4	3/4	3/4	3/4
DHW circulation	R	3/4	3/4	3/4	3/4	3/4
Permiss. operating pressure						
Heating water and DHW sides	bar	10	10	10	10	10
	MPa	1	1	1	1	1
Permiss. temperatures						
- Heating water side	°C	160	160	160	160	160
- DHW side	°C	95	95	95	95	95
Standby heat loss to EN 12897:2006 Q_{ST} at 45 K temp. differential	kWh/24 h	1.49	1.10	0.75	1.21	0.84
Dimensions						
Length a	mm	574	596	596	641	641
Width b	Ømm	553	596	596	641	641
Height c	mm	836	914	914	942	942
Weight	kg	51	75	75	88	88
Heating surface	m ²	0.9	1.0	1.0	1.0	1.0
Energy efficiency class		C	B	A	B	A



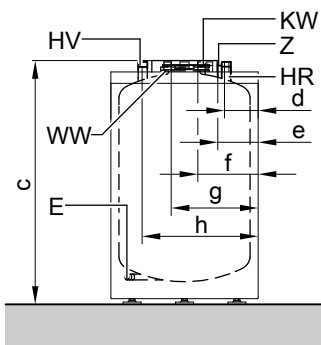
KW Cold water
 WW DHW
 TH Sensor well for cylinder temperature sensor (internal diameter 7 mm)
 Z DHW circulation

Dimensions		
a	mm	574
b	mm	553
c	mm	836
d	mm	700
e	mm	399
f	mm	78
g	mm	308

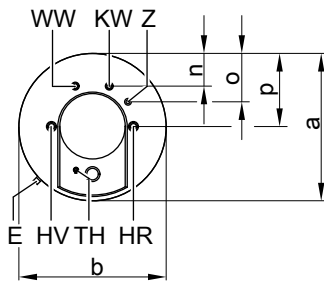
Vitocell 100-W (type CUG, 100 l)

HR Heating return
 HV Heating flow

Separate DHW cylinder for the Vitodens 100-W (cont.)



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



Vitocell 100-W (type CUGA/CUGA-A, 120 and 150 l)

- E Drain
- HR Heating return

Dimensions

Type		CUGA	CUGA-A	CUGA	CUGA-A
Capacity		120 l		150 l	
a	mm	596	596	641	641
b	mm	596	596	641	641
c	mm	914	914	942	942
d	mm	144	144	166	166
e	mm	165	165	187	187
f	mm	236	236	252	252
g	mm	361	361	382	382
h	mm	452	452	474	474
n	mm	148	148	170	170
o	mm	205	205	227	227
p	mm	298	298	320	320

Information regarding the casing for connecting pipes (B, C,

D)

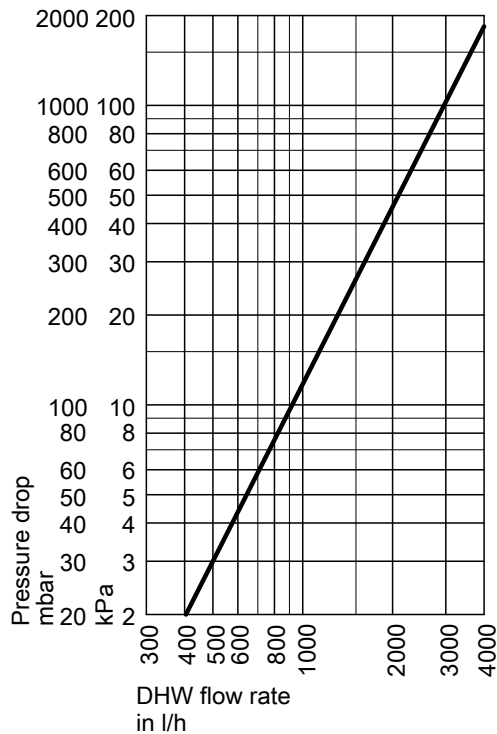
The casing for connecting pipes is not available with the Vitodens 100-W.

Dimensions

Capacity		120 l	150 l
a	mm		618
b	mm		904
c	mm		875
d	mm		122
e	mm		143
f	mm		214
g	mm		339
h	mm		430
k	mm		Ø 553
l	mm		Ø 596
m	mm		1954
n	mm		1990
o	mm		126
p	mm		183
r	mm		276
			1800

Separate DHW cylinder for the Vitodens 100-W (cont.)

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 with 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

Delivered condition

Vitocell 100-W, type CUG,CUGA,CUGA-A

The colour of the epoxy-coated sheet steel casing is white.

100, 120 and 150 l capacity

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

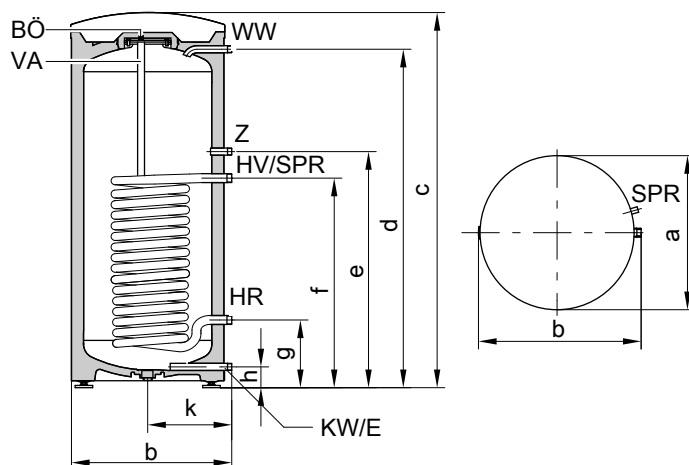
Separate DHW cylinder for the Vitodens 100-W (cont.)

3.2 Vitocell 100-W, adjacent, type CVA, CVAA and CVAA-A - 160, 200 and 300 l, white finish, made from steel, with Ceraprotect enamel coating

- Adjacent
 - With internal indirect coils, made from steel, with Ceraprotect enamel coating
- For further technical details, see separate datasheet for the Vitocell 100-V.

Type		CVAA-A	CVA	CVAA-A	CVA	CVAA
Capacity	l	160		200		300
DIN registration no.		9W241/11-13 MC/E				
Connections (male thread)						
Heating water flow and return	R	1		1		1
Hot and cold water	R	¾		¾		1
DHW circulation	R	¾		¾		1
Permiss. 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
Permiss. temperatures						
– Heating water side	°C	160		160		160
– DHW side	°C	95		95		95
Standby heat loss q_{BS} at 45 K temperature differential (actual values to DIN 4753-8)	kWh/24 h	0.97	1.35	1.04	1.46	1.65
Dimensions						
Length a (∅)	mm	581		581		667
Width b	mm	605		605		744
Height c	mm	1189		1409		1734
Weight	kg	86		97		156
Energy efficiency class		A	B	A	B	B

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



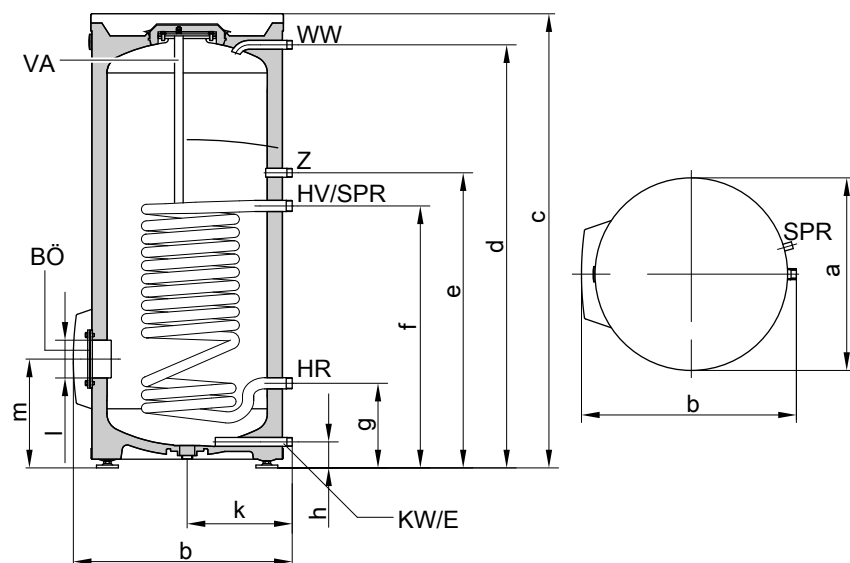
BÖ Inspection and cleaning aperture
 E Drain outlet
 HR Heating water return
 HV Heating water flow
 KW Cold water

SPR Cylinder temperature sensor of the cylinder temperature controller or thermostat
 VA Protective magnesium anode
 WW DHW
 Z DHW circulation

Separate DHW cylinder for the Vitodens 100-W (cont.)

Cylinder capacity			160	200
Length (∅)	a	mm	581	581
Width	b	mm	605	605
Height	c	mm	1189	1409
	d	mm	1050	1270
	e	mm	884	884
	f	mm	634	634
	g	mm	249	249
	h	mm	72	72
	k	mm	317	317

Vitocell 100-V, type CVAA, 300 l capacity



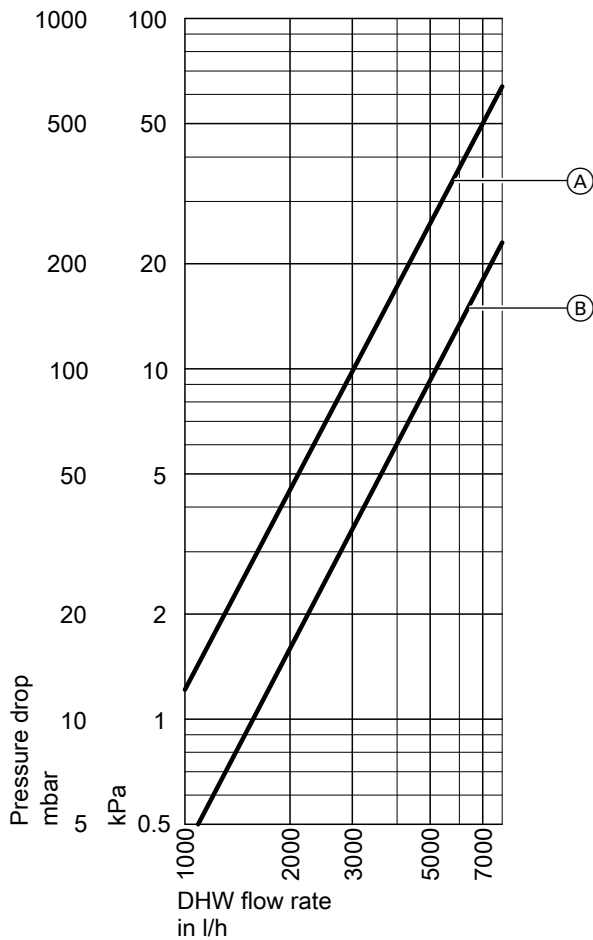
BÖ Inspection and cleaning aperture
 E Drain outlet
 HR Heating water return
 HV Heating water flow
 KW Cold water

SPR Cylinder temperature sensor of the cylinder temperature controller or thermostat
 VA Protective magnesium anode
 WW DHW
 Z DHW circulation

Cylinder capacity			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

Separate DHW cylinder for the Vitodens 100-W (cont.)

Pressure drop on the DHW side



- (A) 160 and 200 l
(B) 300 l

DHW output data at rated heating output

Rated heating output for DHW heating

	kW	17	24	32
Continuous DHW output with 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

Delivered condition

DHW cylinder made from steel with Ceraprotect enamel coating.
 ■ Integral welded sensor well for cylinder temperature sensor or temperature controller
 ■ Threaded adjustable feet

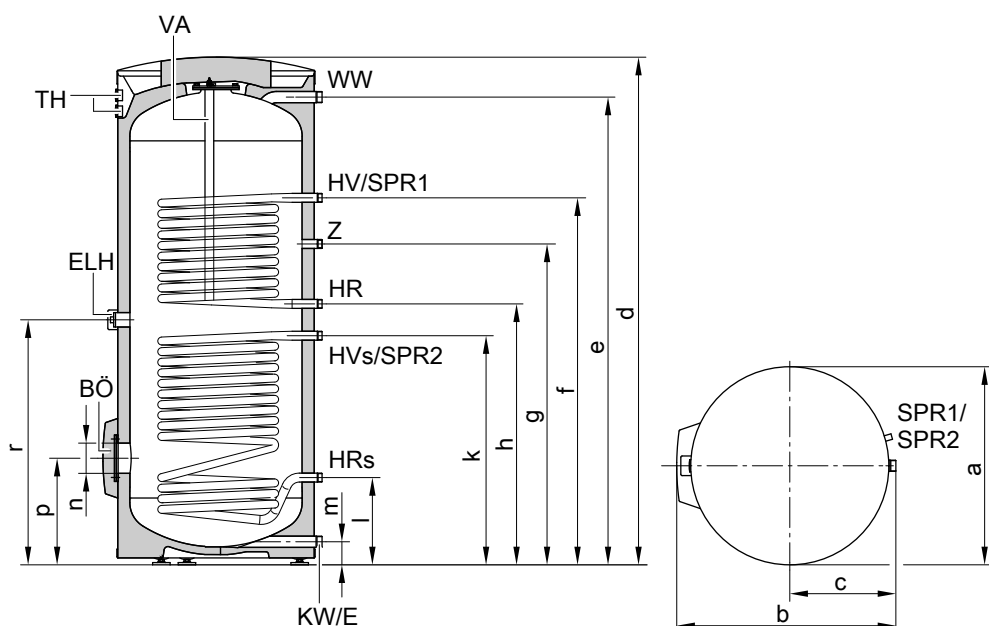
- Protective magnesium anode
- Fitted thermal insulation

Separate DHW cylinder for the Vitodens 100-W (cont.)

3.3 Vitocell 100-W, adjacent, type CVB and CVBB – 300 and 400 l white finish, made from steel with Ceraprotect enamel coating for dual mode DHW heating

- Installed, adjacent
 - With internal indirect coils, 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
Capacity	l	300	400
DIN registration no.		9W242/11-13 MC/E	
Connections (male thread)			
Heating water flow and return	R	1	1
Hot and cold water	R	1	1½
DHW circulation	R	1	1
Permiss. operating pressure			
on the heating water, solar and DHW sides	bar	10	10
	MPa	1	1
Permiss. temperatures			
– on the heating water side	°C	160	160
– on the solar side	°C	160	160
– on the DHW side	°C	95	95
Standby heat loss q_{BS} at 45 K temp. differential (standard parameter)	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	160	167
Energy efficiency class		B	B

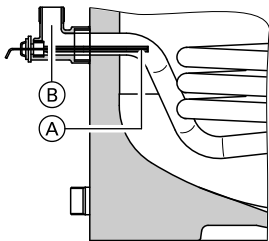


Separate DHW cylinder for the Vitodens 100-W (cont.)

Dimensions

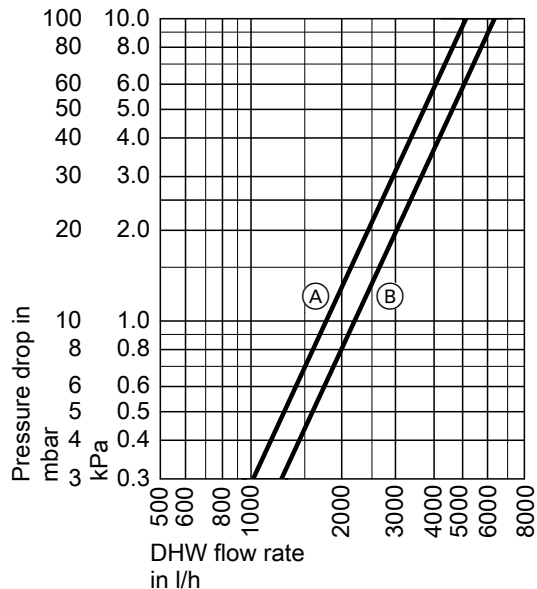
Cylinder capacity	l	300	400
a	mm	∅ 667	∅ 859
b	mm	744	923
c	mm	361	455
d	mm	1734	1624
e	mm	1600	1458
f	mm	1355	1204
g	mm	1115	1044
h	mm	995	924
k	mm	875	804
l	mm	260	349
m	mm	76	107
n	mm	∅ 100	∅ 100
p	mm	333	422
r	mm	935	864

Recommended positioning of the cylinder temperature sensor for solar operation



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

Pressure drop on the DHW side



- (A) 300 litre capacity
- (B) 400 litre capacity

DHW output data at rated heating output

Rated heating output for DHW heating	kW	17	24	32
Continuous DHW output with 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

Separate DHW cylinder for the Vitodens 100-W (cont.)

Rated heating output for DHW heating	kW	17	24	32
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 litre capacity

DHW cylinder made from steel with Ceraprotect enamel coating.

- 2 welded sensor wells for cylinder temperature sensor or temperature controller
- Threaded elbow with sensor well
- Female connection R 1½ for the installation of an immersion heater and plug R 1½
- Adjustable feet
- Protective magnesium anode
- Fitted thermal insulation

Vitocell 100-W, type CVB 400 litre capacity

DHW cylinder made from steel with Ceraprotect enamel coating.

- 2 welded sensor wells for cylinder temperature sensor or thermostat
- Threaded elbow with sensor well
- Female connection R 1½ for the installation of an immersion heater and plug R 1½
- Adjustable feet
- Protective magnesium anode
- Thermal insulation, packed separately

4.1 Installation

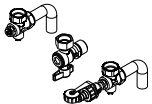
Connection accessories for gas condensing boiler

Installation on finished walls

Part no. 7479 005

Components:

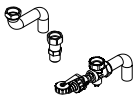
- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Angle gas valve with thermally activated safety shut-off valve



Part no. 7479 598

Components:

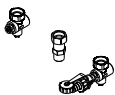
- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Connector for gas shut-off valve



Part no. 7476 497

Components:

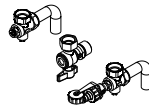
- Valves for heating water flow and heating water return
- Connector for gas shut-off valve



Part no. 7476 440

Components:

- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Angle gas valve

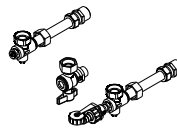


Installation on unfinished walls

Part no. 7535 710

Components:

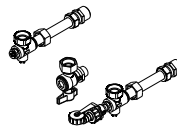
- Valve with connection pipe and locking ring fitting for heating water flow
- Valve with connection pipe and locking ring fitting for heating water return
- Angle gas valve with thermally activated safety shut-off valve



Part no. 7478 829

Components:

- Valve with connection pipe and locking ring fitting for heating water flow
- Valve with connection pipe and locking ring fitting for heating water return
- Angle gas valve



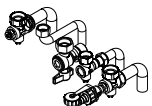
Connection accessories for gas condensing combi boiler

Installation on finished walls

Part no. 7479 001

Components:

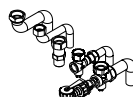
- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Valve with connection pipe for cold water
- Connection pipe for DHW
- Angle gas valve with thermally activated safety shut-off valve



Part no. 7478 833

Components:

- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Valve with connection pipe for cold water
- Connection pipe for DHW
- Connector for gas shut-off valve

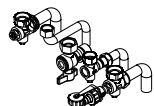


Installation accessories Vitodens 100-W (cont.)

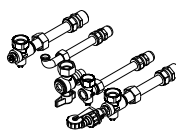
Part no. 7476 436

Components:

- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Valve with connection pipe for cold water
- Connection pipe for DHW
- Angle gas valve



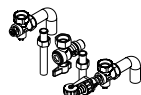
- Valve with connection pipe and locking ring fitting for cold water
- Connection pipe and locking ring fitting for domestic hot water
- Angle gas valve with thermally activated safety shut-off valve



Part no. 7478 827

Components:

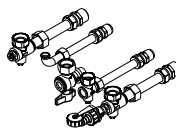
- Valve with connection pipe for heating water flow
- Valve with connection pipe for heating water return
- Valve with connection pipe for cold water
- Connection pipe for DHW
- Angle gas valve with thermally activated safety shut-off valve



Part no. 7428 828

Components:

- Valve with connection pipe and locking ring fitting for heating water flow
- Valve with connection pipe and locking ring fitting for heating water return
- Valve with connection pipe and locking ring fitting for cold water
- Connection pipe and locking ring fitting for domestic hot water
- Angle gas valve



Installation on unfinished walls

Part no. 7535 709

Components:

- Valve with connection pipe and locking ring fitting for heating water flow
- Valve with connection pipe and locking ring fitting for heating water return

Connection accessories

Part no. 7478 862

For gas condensing boiler

Components:

- Valves for heating water flow and heating water return
- Valves for cold water and DHW
- Connector for gas shut-off valve



Mounting frame

Gas condensing boiler

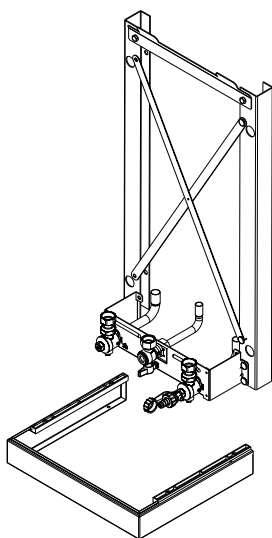
Part no. 7478 651

Installed depth 50 mm

Components:

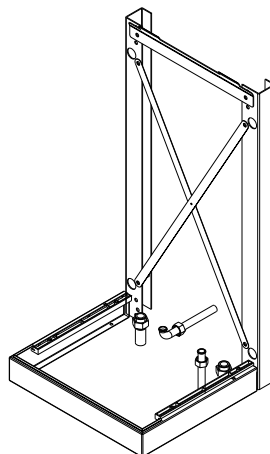
- Fixings
- Valves/fitings
- Gas shut-off valve
- Power cable
- Drained water collector
- Valve/fitting cover

Installation accessories Vitodens 100-W (cont.)



Part no. 7474 189
Installed depth 50 mm

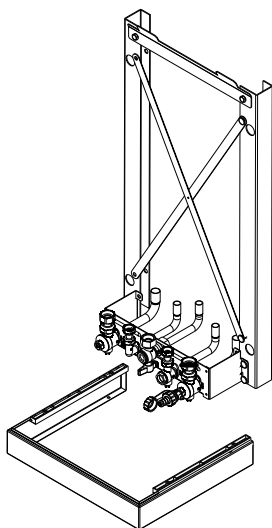
- Components:
- Fixings
 - Connection pipe pieces
 - Connector for gas shut-off valve
 - Valve/fitting cover



Gas condensing combi boiler

Part no. 7478 648
Installed depth 50 mm

- Components:
- Fixings
 - Valves/fitings
 - Gas shut-off valve
 - Power cable
 - Drained water collector
 - Valve/fitting cover



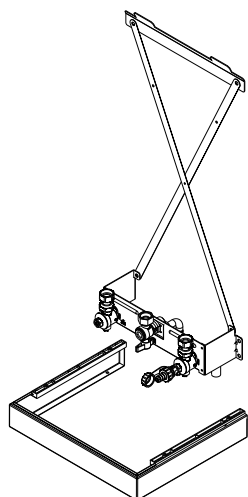
Installation aid for finished walls

Gas condensing boiler

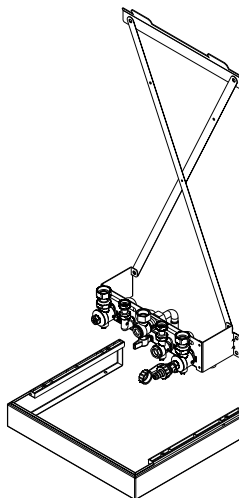
Part no. 7476 448

- Components:
- Fixings
 - Valves/fitings
 - Gas shut-off valve with thermally activated safety shut-off valve
 - Valve/fitting cover

Installation accessories Vitodens 100-W (cont.)



- Gas shut-off valve with thermally activated safety shut-off valve
- Valve/fitting cover



Part no. 7478 689

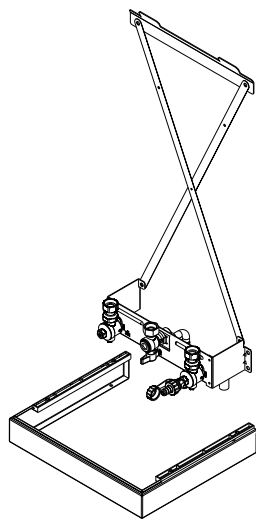
Components:

- Fixings
- Valves/fittings
- Gas shut-off valve
- Power cable
- Drained water collector
- Valve/fitting cover

Part no. 7478 660

Components:

- Fixings
- Valves/fittings
- Gas shut-off valve
- Power cable
- Drained water collector
- Valve/fitting cover

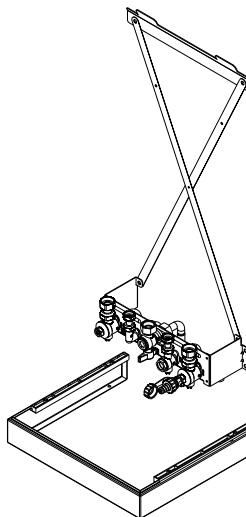


Gas condensing combi boiler

Part no. 7476 447

Components:

- Fixings
- Valves/fittings



Solar kit for gas condensing combi boiler

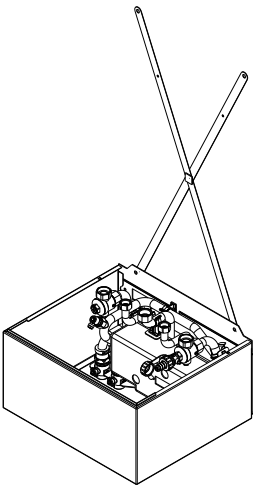
Part no. 7519 125

Complete assembly for solar DHW heating for installation below the appliance

For installation on finished walls

- Plate heat exchanger for system separation of DHW circuit and solar circuit
- Air vent valve

- Shut-off valves for solar flow and solar return
- Cover, in same design as the wall mounted boiler
- Installation aid



4.2 Additional accessories

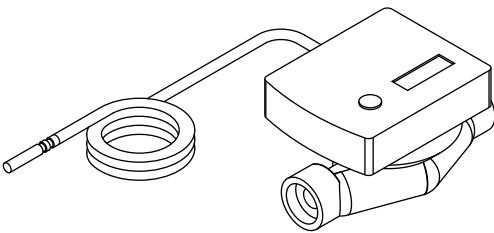
Heat meter

For installation in the system connection.

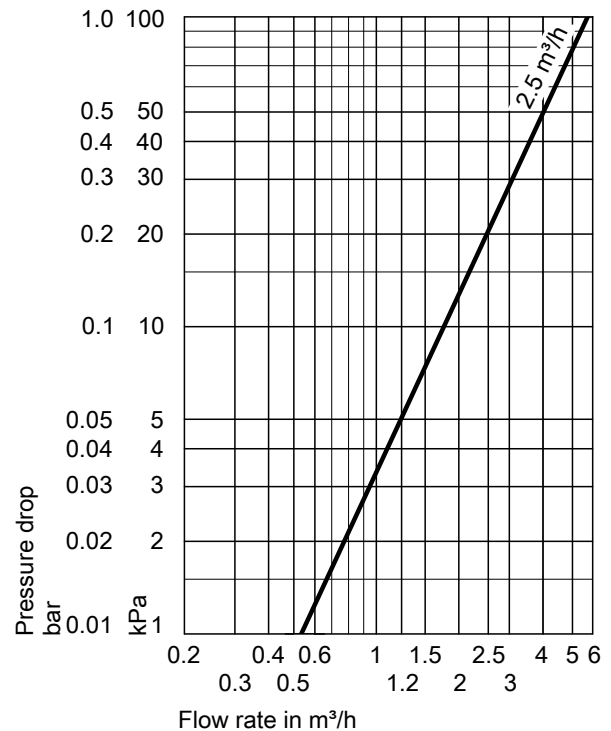
Part no.	Suitable for DHW cylinders:
7172 847	– Vitocell 100 with up to 500 litre capacity. – Vitocell 300 with up to 200 litre capacity. With connection accessories for G 1
7172 848	– Vitocell 300 with 300 to 500 litre capacity With connection accessories for G 1¼

Components:

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



Pressure drop graph



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
Fitted length	130 mm

Installation accessories Vitodens 100-W (cont.)

Max. flow rate	5000 l/h
Min. 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

4.3 Adapter for older appliances

Gas condensing boiler

- For replacing older appliances with the Vitodens 100-W
- With shut-off valves
- With gas shut-off valve and thermally activated safety shut-off valve

Installation on finished walls		Installation on unfinished walls	
Part no.	Replacement for	Part no.	Replacement for
Part no. ZK01 401	– Thermoblock-VC – Thermoblock-VC 110 E – Thermoblock-VC 112 E – Cerastar-ZR – Ceramini	Part no. ZK01 405	– Thermoblock-VC – Thermoblock-VC110E – Thermoblock-VC112E
Part no. ZK01 402	Pendola	Part no. ZK01 406	– Cerastar-ZR – Ceramini
		Part no. ZK01 407	Pendola

Gas condensing combi boiler

- For replacing older appliances with the Vitodens 100-W
- With shut-off valves

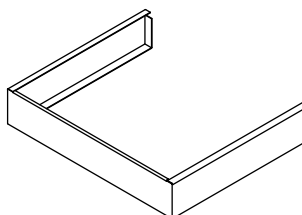
Installation on finished walls		Installation on unfinished walls	
Part no.	Replacement for	Part no.	Replacement for
Part no. ZK01 403	– Thermoblock-VCW – Cerastar-ZWR	Part no. ZK01 408	Thermoblock-VCW
Part no. ZK01 404	Pendola	Part no. ZK01 409	Cerastar-ZWR
		Part no. ZK01 410	Pendola

4.4 Valve/fitting covers

Valve/fitting cover

Part no. 7435 443

Cannot be used in conjunction with DHW cylinders, below

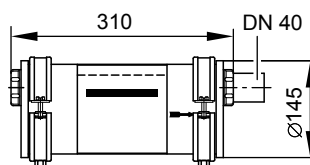


4.5 Neutralising systems

Neutralising system

Part no. 7252 666

With neutralising granulate



Neutralising granulate

Part no. 9524 670

2 x 1.3 kg

4.6 Sensors

CO limiter

Part no. 7499 330

Monitoring device, for safety shut down of the boiler in the event of escaping carbon monoxide.

Wall mounting in the ceiling area near the boiler.

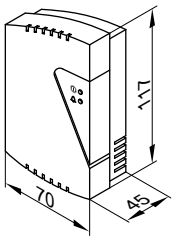
Can be used for boilers built from 2004 onwards.

Components:

- Casing with integrated CO sensor, relay and displays for operation and alarm
- Fixing materials
- Power cable (2.0 m long)
- Connecting cable – relay for burner shutdown (2.0 m long)

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	3.5 W
Rated breaking capacity of the relay output	8 A 230 V~
Alarm threshold	40 ppm CO
Safety category	II
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	70 °C



4.7 System accessories for DHW heating for gas condensing boiler

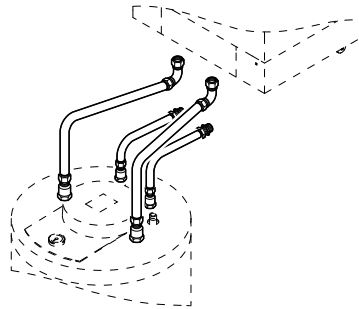
Connection set with connecting pipes, for Vitocell 100-W, type CUG DHW cylinder, below

Part no. 7510 285

Components:

- Cylinder temperature sensor
- Heating water connecting pipes
- DHW connecting pipes

Installation on finished or unfinished walls



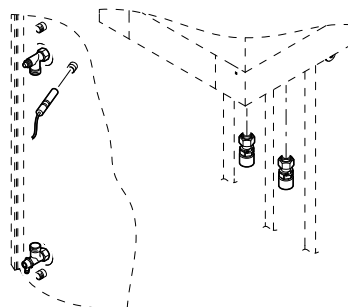
Connection set for the Vitocell 100-W DHW cylinder, adjacent

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. 7265 008

- Maintenance free
- In place of the supplied magnesium anode

Thermometer

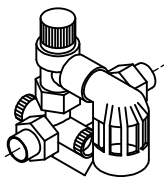
Part no. 7595 765

For installation in the thermal insulation or front panel

Safety assembly to DIN 1988

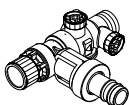
Components:

- Shut-off valve
- Non-return valve and test connector
- 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
 - (A) 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

- 10 bar (1 MPa), DN 15, right angle version
Part no. 7180 097
- (A) 6 bar (0.6 MPa), DN 15, right angle version
Part no. 7179 457

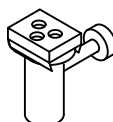


Tundish kit

Part no. 7459 591

Tundish with trap and rose. For connecting the drain lines of the safety valves and the condensate drain.

Drain connection G 1



5.1 Installation

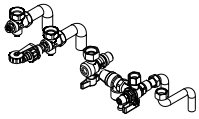
Connection accessories

Installation on finished walls

Part no. 7495 443

Components:

- 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 bends G ¾ to 22 mm
- 2 pipe bends G ½ to 15 mm
- Seal rings



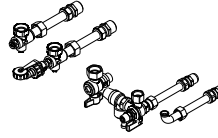
Installation on unfinished walls

Part no. 7495 445

Components:

- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve G ½ with thermally activated safety shut-off valve
- 2 pipe bends G ¾ to 18 mm

- 3 pipe bends G ½ to 15 mm
- Seal rings

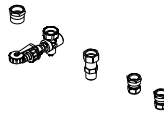


Connection accessories for installation on finished or unfinished walls

Part no. 7495 502

Components:

- Drain & fill valve
- 2 adaptors G ½ to 15 mm
- 1 adaptor G ¾ to 22 mm
- Intermediate gas piece G ¾ to R ¾

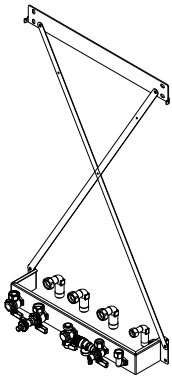


Installation aids for finished walls

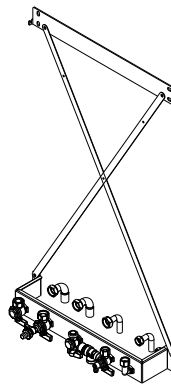
Part no. 7248 408

Components:

- Wall mounting bracket
- Mounting gauge
- Mounting bracket 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



- 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 22 mm
- 2 pipe bends G ½ to 15 mm
- Seal rings



Part no. 7248 407

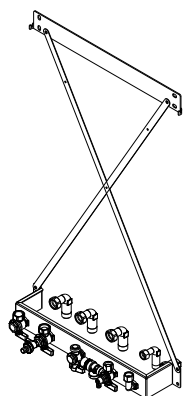
Components:

- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve

Part no. 7248 406

Components:

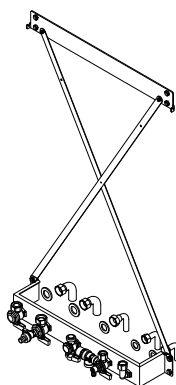
- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 6 bar (0.6 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 elbows 90° G ¾ to R ¾
- 2 elbows 90° G ½ to R ½
- Seal rings



Part no. 7248 405

Components:

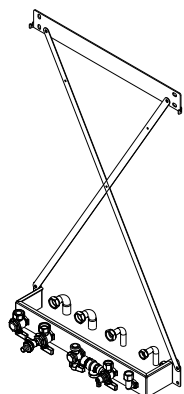
- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Gas angle valve G $\frac{3}{4}$
- 2 pipe bends G $\frac{1}{2}$ to 16 mm
- 1 pipe bend G $\frac{3}{4}$ to 16 mm
- 2 pipe bends G $\frac{3}{4}$ to 22 mm
- Seal rings



Part no. 7248 403

Components:

- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Gas angle valve G $\frac{3}{4}$
- 2 pipe bends G $\frac{1}{2}$ to 15 mm
- 1 pipe bend G $\frac{3}{4}$ to 15 mm
- 2 pipe bends G $\frac{3}{4}$ to 22 mm
- Seal rings



Part no. 7248 404

Components:

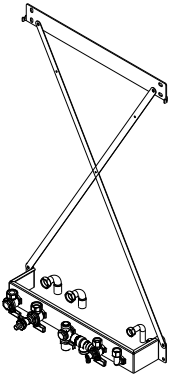
- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Gas angle valve G $\frac{3}{4}$
- 2 pipe bends G $\frac{1}{2}$ to 16 mm
- 1 pipe bend G $\frac{3}{4}$ to 16 mm
- 2 pipe bends G $\frac{3}{4}$ to 20 mm
- Seal rings



Part no. 7248 402

Components:

- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Intermediate gas piece G $\frac{3}{4}$ to R $\frac{3}{4}$
- Seal rings

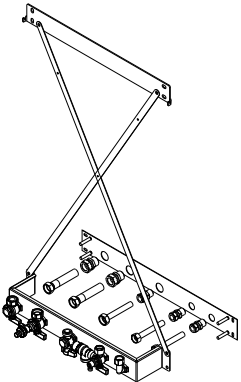


Installation aid for installation on unfinished walls

Part no. 7248 401

Components:

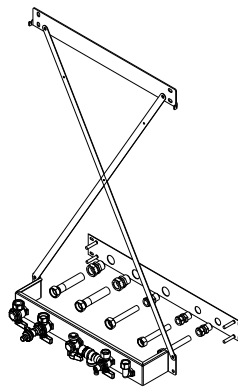
- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 pipe sections G ¾ to 18 mm with fitting
- 3 pipe sections G ½ to 15 mm with fitting



Part no. 7248 400

Components:

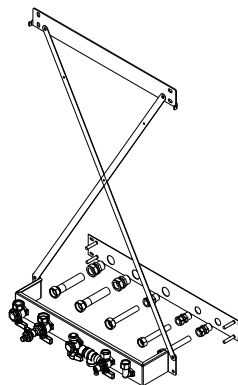
- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 6 bar (0.6 MPa)
- Angle gas valve R ½ with thermally activated safety shut-off valve
- 2 pipe sections G ¾ to 18 mm with fitting
- 3 pipe sections G ½ to 15 mm with fitting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



Part no. 7248 399

Components:

- Wall mounting bracket
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Gas angle valve G ¾
- 2 pipe sections G ¾ to 18 mm with fitting
- 3 pipe sections G ½ to 15 mm with fitting
- Seal rings



Part no. 7248 398

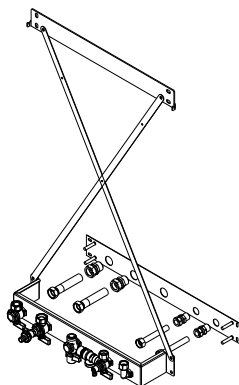
Components:

- Wall mounting bracket
- Mounting gauge



Installation accessories Vitodens 111-W (cont.)

- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- 2 pipe sections G $\frac{3}{4}$ to 18 mm with fitting
- 3 pipe sections G $\frac{1}{2}$ to 15 mm with fitting
- Gas adaptor G $\frac{3}{4}$ to G $\frac{1}{2}$
- Seal rings



Mounting frame

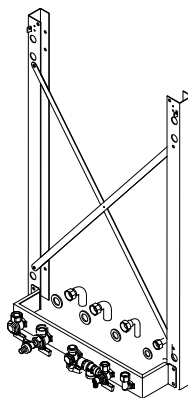
Installation on finished walls

Part no. 7248 397

Installed depth 50 mm

Components:

- Mounting frame
- Wall mounting brackets
- Mounting gauge
- Mounting bracket with shut-off valves
- Drain & fill valve
- Safety valve on the DHW side 10 bar (1 MPa)
- Gas angle valve G $\frac{3}{4}$
- 2 pipe bends G $\frac{1}{2}$ to 16 mm
- 1 pipe bend G $\frac{3}{4}$ to 16 mm
- 2 pipe bends G $\frac{3}{4}$ to 20 mm
- Seal rings



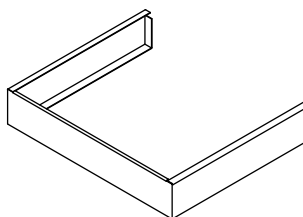
5

5.2 Valve/fitting covers

Valve/fitting cover

Part no. 7435 340

Cannot be used in conjunction with DHW cylinders, below

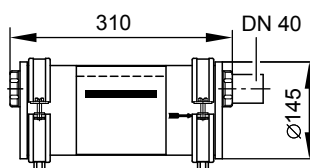


5.3 Neutralising systems

Neutralising system

Part no. 7252 666

With neutralising granulate



Installation accessories Vitodens 111-W (cont.)

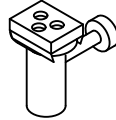
Neutralising granulate

Part no. 9524 670
2 x 1.3 kg

5.4 Miscellaneous

Tundish kit

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



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

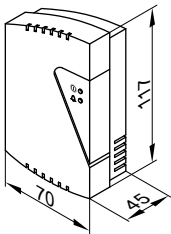
Part no. 7499 330
Monitoring device, for safety shut down of the boiler in the event of escaping carbon monoxide.
Wall mounting in the ceiling area near the boiler.
Can be used for boilers built from 2004 onwards.

Components:

- Casing with integrated CO sensor, relay and displays for operation and alarm
- Fixing materials
- Power cable (2.0 m long)
- Connecting cable – relay for burner shutdown (2.0 m long)

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	3.5 W
Rated breaking capacity of the relay output	8 A 230 V~
Alarm threshold	40 ppm CO
Safety category	II
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	70 °C



Design information

6.1 Positioning, installation

Siting conditions for open flue operation (appliance type B)

Type B₂₃ and B₃₃
In rooms where **air contamination from halogenated hydrocarbons** may occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories, etc., operate the Vitodens only as a room sealed system.

If in doubt, please contact 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.

Design information (cont.)

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 equipment damage directly related to any of these causes are 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 location

Permissible:

- Siting on the same floor
- Living space with interconnected room air supply
- Adjacent rooms with interconnected room air supply (larders, basements, utility rooms etc.)
- Adjacent rooms with apertures to the outside, up to 35 kW: supply air/extract air 150 cm² or 2 x 75 cm² 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: Single- and two-family houses of low height: Top edge of top storey floor < 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 closely to the chimney as possible.

The flue pipe should be as straight as possible. If bends cannot be avoided, ensure they are not directly one after the other. The entire flue gas path must be able to be checked and cleaned 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 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 otherwise 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 sources 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 (part no. 7499 330).

Installation conditions for room sealed operation (appliance type C)

Equipment type C_{13x}, C_{33x}, C_{43x}, C_{53x}, C_{63x}, C_{83x} or C_{93x} according to TRGI 2008

The Vitodens can be installed for **room sealed** operation **irrespective** of the size and ventilation of the installation room.

Suitable siting locations include:

- Recreational rooms and other living spaces
- Ancillary rooms without own ventilation
- Cupboards (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 area must be safe 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 pipe should be as short and as straight as possible.

If bends cannot be avoided, ensure they are not directly one after the other. The entire flue gas path must be able to be checked and cleaned as required.

Since the flue pipe connection for room-sealed operation is surrounded by combustion air (coaxial pipe), no clearances towards combustible materials need be maintained.

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

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 garages, 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 sources 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 (part no. 7499 330).

Design information (cont.)

Operation of the Vitodens in wet rooms

■ Room sealed operation:

The Vitodens is approved for installation in wet rooms (IP rating: IP X4 D, splashproof).

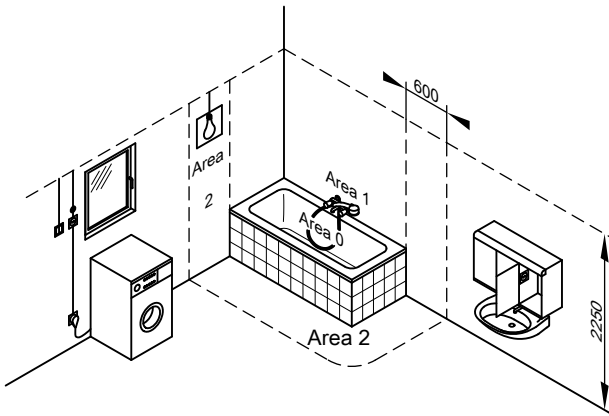
The boiler may be installed in safety zone 1 if hosed water (such as from massage showers) is prevented.

■ Open flue operation:

The Vitodens must not be installed in safety zone 1 or safety zone 2.

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.

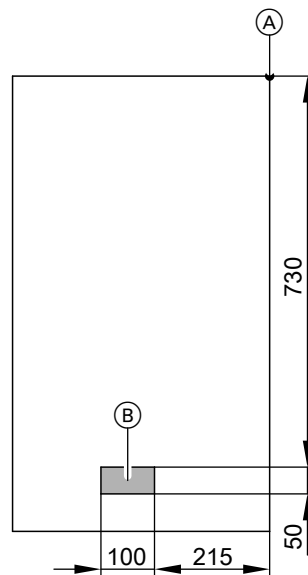
Electrical connection

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 maximum rating of 10 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.

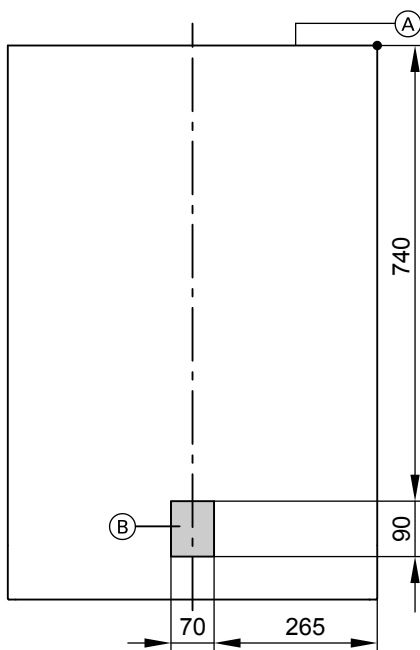
Allow cables/leads in the shaded area to protrude at least 800 mm from the wall (see diagram).



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 leads/cables

NYM 3 G 1.5 mm ²	2-core min. 0.75 mm ²	4-core 1.5 mm ² or 3-core 1.5 mm ² without green/yellow wire
– Power cables (incl. for 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 installed in a wet area, the power supply connection of accessories must not be made at the control unit.

Additional requirements when installing boilers operated with LPG in rooms below ground level

According to TRF 1996 Vol. 2 – valid as of 1 September 1997 – 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 1996 [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 into the gas line.

Thermally activated safety shut-off valve

According to paragraph 4, section 5 of the FeuVo 2008 [or local regulations], thermally activated shut-off equipment 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 connection line

The following table is designed to assist in the approximate sizing of the on-site gas supply line.

Design information (cont.)

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 kW	Gas type	Connection values		Nominal diameter of the gas supply pipe		
		m ³ /h	kg/h	DN 15	DN 20	DN 25
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/m³ 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 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 plan the pipework to TRGI 2008 [or local regulations].

Rated heating output - Vitodens

kW	Gas flow switch for natural gas
19	GS 4
26	GS 6
35 (gas condensing boilers)	GS 6
35 (gas condensing combi boilers)	GS 10

The sizing recommendation for the gas flow switch does not waive 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 and 100-W directly on the wall

Installation on finished walls with installation aid

Required accessories:

- If installing **without** DHW cylinder:

Installation aid with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve

- If installing **with** DHW cylinder:

Installation aid with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve and

Connection set for DHW cylinders

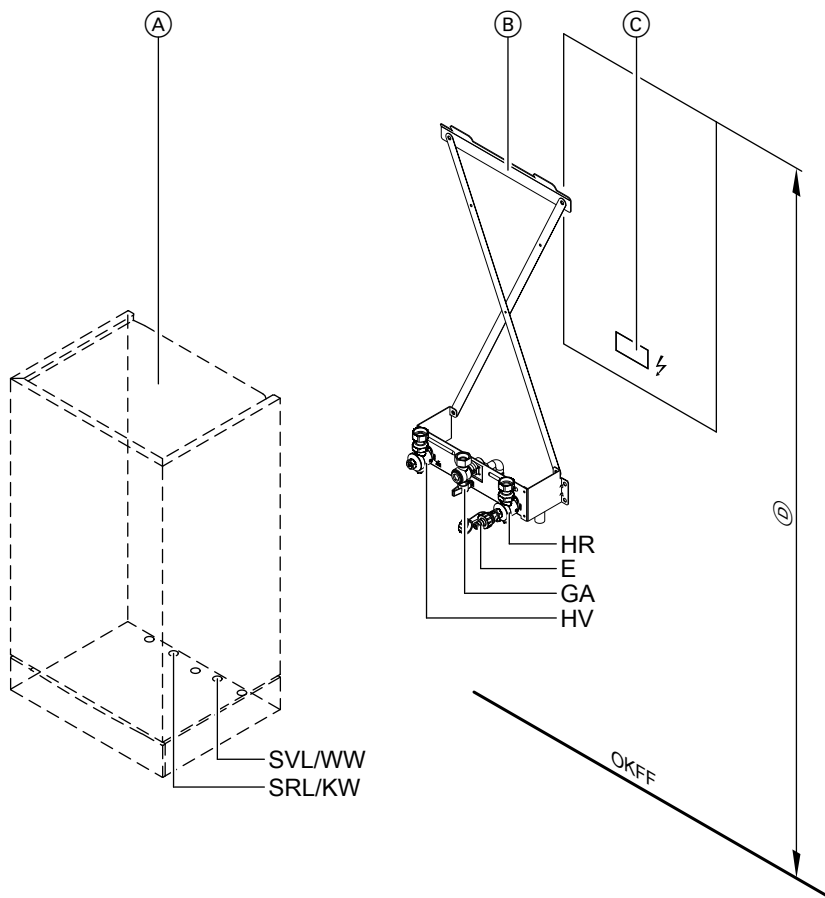


Illustration of installation aid for Vitodens 100-W gas condensing boiler

Ⓐ	Vitodens	GA	Gas connection Rp ½
Ⓑ	Installation aid	HR	Heating return 22 mm
Ⓒ	Area for power cables Allow all cables to protrude approx. 800 mm from the wall.	HV	Heating flow 22 mm
Ⓓ	1800 mm: Compulsory in conjunction with DHW cylinders, below 1925 mm: Recommendation for all other versions	KW	Cold water 15 mm (gas condensing combi boiler)
E	Drain outlet	OKFF	Top edge, finished floor
		WW	DHW 15 mm (gas condensing combi boiler)
		SRL	Cylinder return G ¾ (gas condensing boiler)
		SVL	Cylinder flow G ¾ (gas condensing boiler)

Installation on finished walls with connection accessories

Required accessories:

- If installing **without** DHW cylinder:

Connection accessories with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve

- If installing **with** DHW cylinder:

Connection accessories with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve
and

Connection set for DHW cylinders

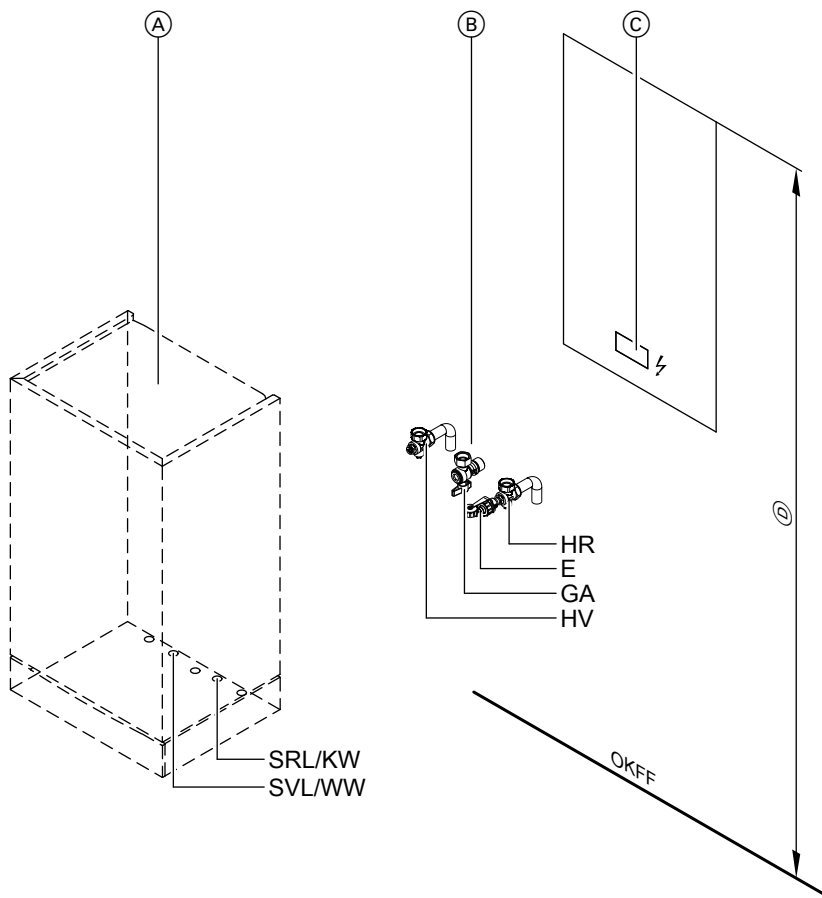


Illustration of connection accessories for Vitodens 100-W gas condensing boiler

- (A) Vitodens
- (B) Connection accessories
- (C) Area for power cables
Allow all cables to protrude approx. 800 mm from the wall.
- (D) 1800 mm: Compulsory in conjunction with DHW cylinders, below
1925 mm: Recommendation for all other versions
- E Drain outlet

- GA Gas connection Rp 1/2
- 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 3/4 (gas condensing boiler)
- SVL Cylinder flow G 3/4 (gas condensing boiler)

Installation on unfinished walls with connection accessories

Required accessories:

- If installing **without** DHW cylinder:

Connection accessories with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve

- If installing **with** DHW cylinder:

Connection accessories with fixings, valves and gas shut-off valve with integral thermally activated safety shut-off valve **and**

Connection set for DHW cylinders

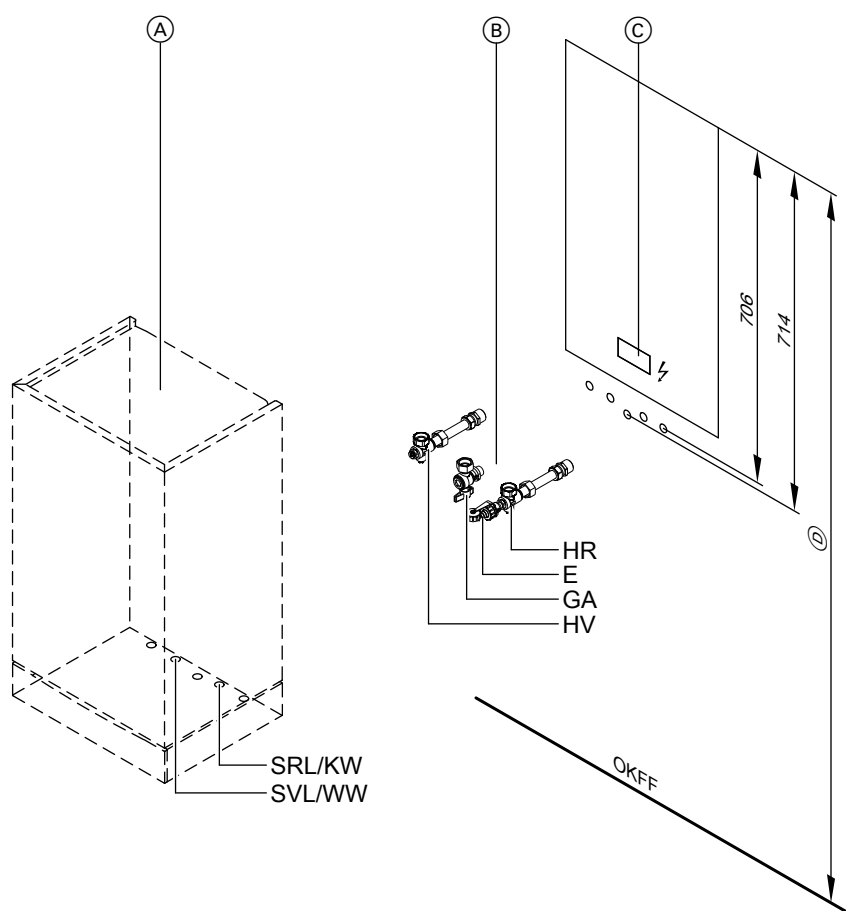


Illustration of connection accessories for Vitodens 100-W gas condensing boiler

- | | | | |
|---|---|------|--|
| Ⓐ | Vitodens | GA | Gas connection Rp 1/2 |
| Ⓑ | Connection accessories | HR | Heating return R 3/4 |
| Ⓒ | Area for power cables
Allow all cables to protrude approx. 800 mm from the wall. | HV | Heating flow R 3/4 |
| Ⓓ | 1800 mm: Compulsory in conjunction with DHW cylinders,
below
1925 mm: Recommendation for all other versions | KW | Cold water R 1/2 (gas condensing combi boiler) |
| E | Drain outlet | OKFF | Top edge, finished floor |
| | | WW | DHW R 1/2 (gas condensing combi boiler) |
| | | SRL | Cylinder return G 3/4 (gas condensing boiler) |
| | | SVL | Cylinder flow G 3/4 (gas condensing boiler) |

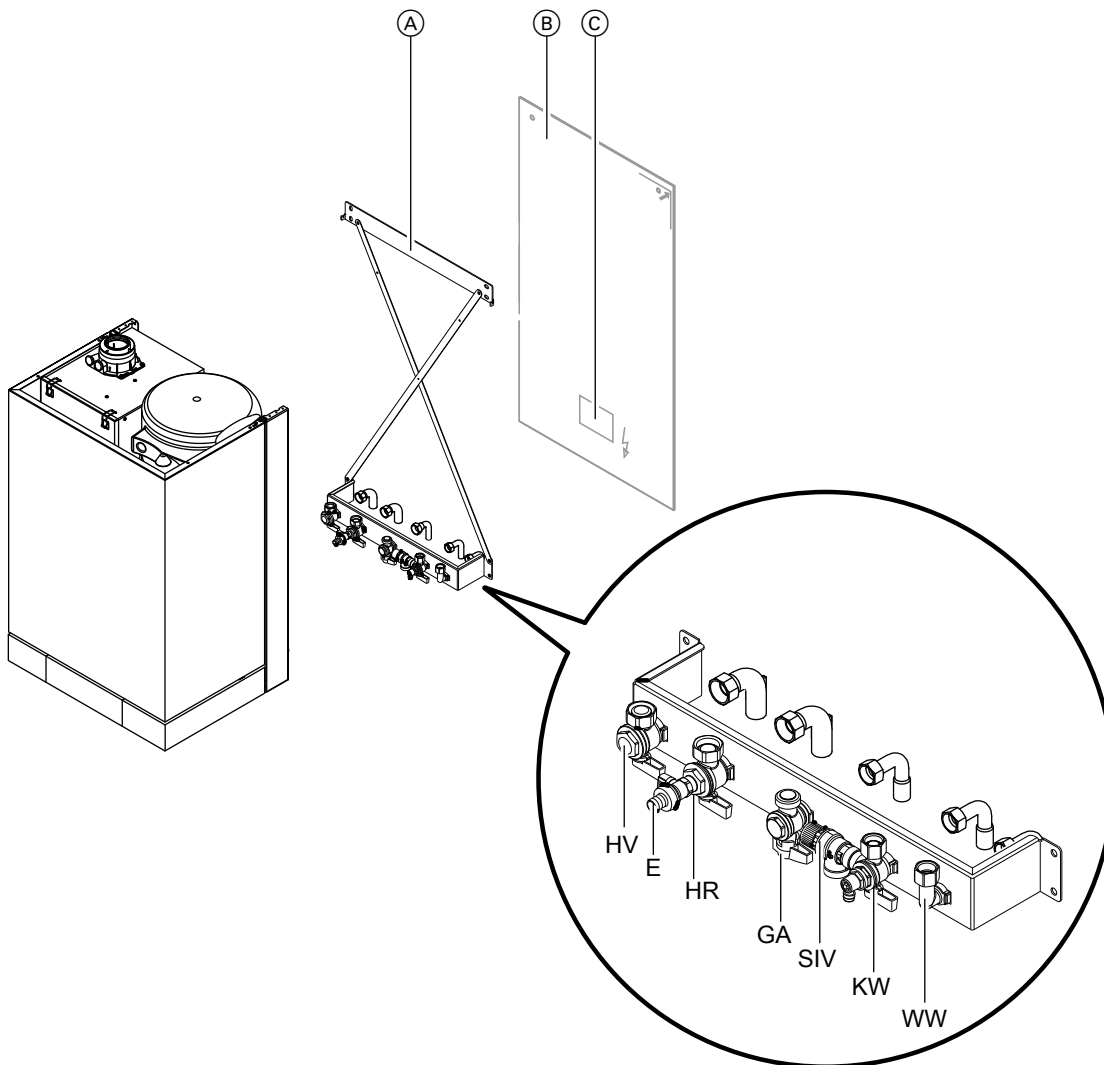
Design information (cont.)

Pre-installation for Vitodens 111-W

Pre-installation on finished walls

Accessories required for installation in unfinished buildings:

- Installation aid



- (A) Installation aid
- (B) Vitodens position
- (C) Area for power cables
Allow all cables to protrude approx. 1300 mm from the wall.
- E Drain outlet
- GA Gas connection R 1/2

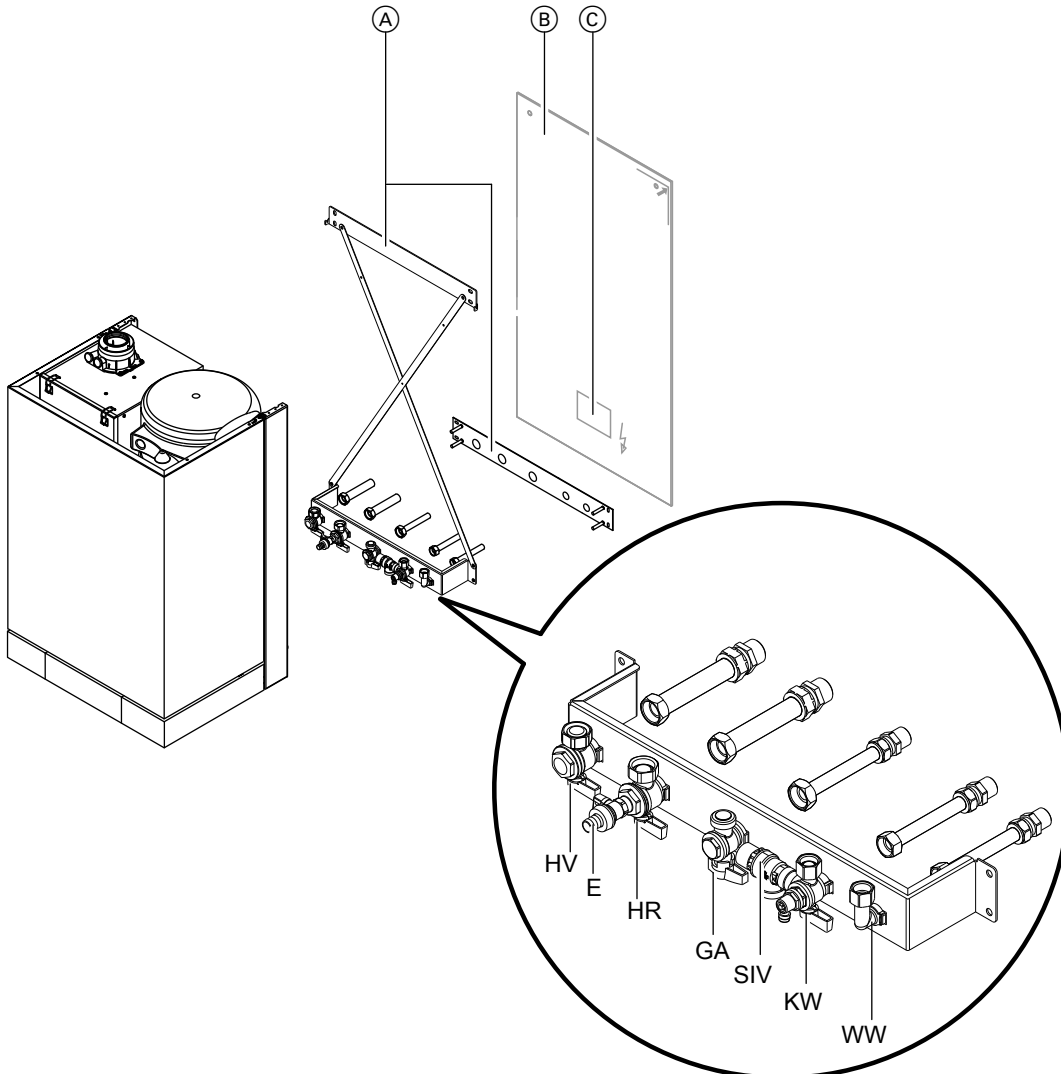
- HR Heating return R 3/4
- HV Heating flow R 3/4
- KW Cold water R 1/2
- SIV Safety valve on the DHW side
- WW DHW R 1/2

Design information (cont.)

Pre-installation on unfinished walls

Accessories required for installation in unfinished buildings:

- Installation aid



- (A) Installation aid
- (B) Vitodens position
- (C) Area for power cables.
Allow all cables to protrude approx. 1300 mm from the wall.
- E Drain outlet
- 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 Replacing third party appliances with the Vitodens 100-W

Using an adaptor, the Vitodens hydraulic connections are compatible with Ceramini-Z-SR, Cerastar-ZR/-ZWR, Thermoblock-VC/VC110E/VC112E and Thermoblock-VCW boilers.

For modernisation projects, adaptors are available as accessories (see pricelist). These comprise connection components for the heating water and DHW sides and fixing components for replacing the third party appliances listed below with a Vitodens.

Replacing these boilers with the Vitodens will not result in a greater installation effort compared to replacing them with a same-brand appliance.

Generally, where a wall mounted gas boiler is replaced by a Vitodens 100-W gas condensing boiler, the flue must also be replaced with a system that is suitable for "condensing operation" (see pricelist for "flue systems for Vitodens").

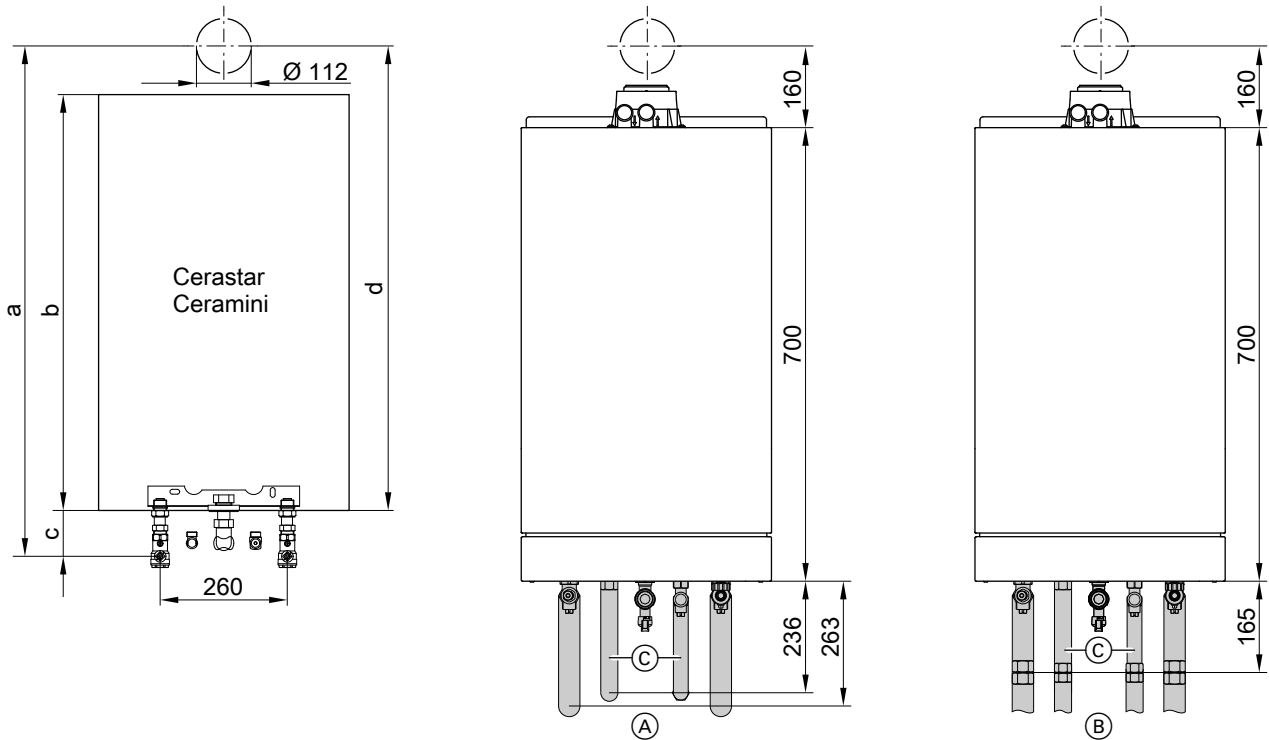
Match up the flue connections on site.

Note

For modernisation projects, the State Building Regulations [Germany] require the on-site installation of a gas shut-off valve with thermally activated shut-off facility.

Design information (cont.)

Replacement of Cerastar-ZR/-ZWR and Ceramini with a Vitodens 100-W



- (A) Installation on unfinished walls
- (B) Installation on finished walls
- (C) Only for gas condensing combi boiler

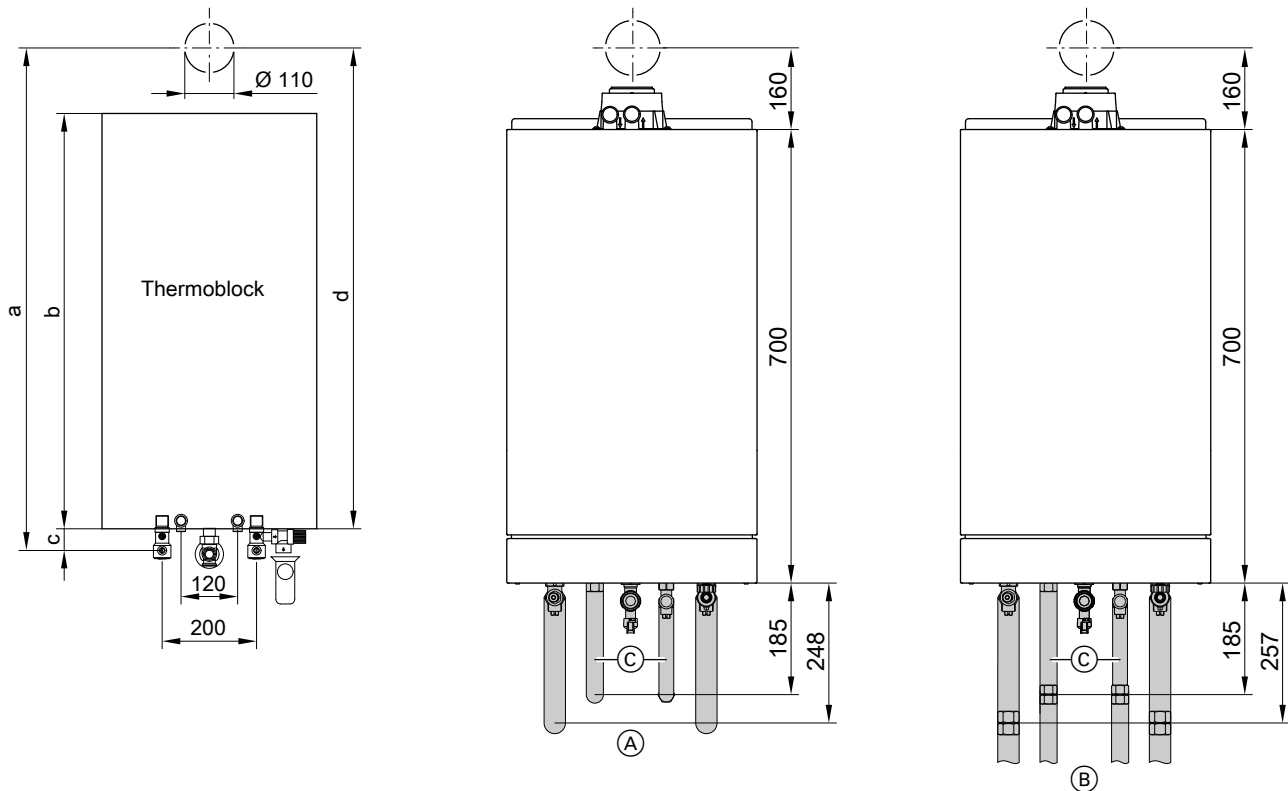
Third-party appliance	Dimension			
	a	b	c	d
Cerastar				
Open flue appliance	1123	850	133	990
Appliance for room sealed operation	1084	850	94	990
Ceramini				
Open flue appliance	992	770	102	890
Appliance for room sealed operation	1062	770	102	960

- The parts marked in grey are part of the standard delivery.
- Cerastar:

Existing hydraulic connections have identical dimensions.

- Ceramini:
Subject to the flue system, adapters for the old appliances must be modified.

Replacement of Thermoblock-VC/VC110E/112E, Thermoblock-VCW with a Vitodens 100-W



- (A) Installation on unfinished walls
- (B) Installation on finished walls
- (C) Only for gas condensing combi boiler

Third-party appliance

	Dimension			
	a	b	c	d
Thermoblock	1108	855	46	1062
Open flue appliance	1019	855	45	974
Appliance for room sealed operation				

- The parts marked in grey are part of the standard delivery.
- Cerastar:

Existing hydraulic connections have identical dimensions.

- Ceramini:
Subject to the flue system, adapters for the old appliances must be modified.

6.3 Decision-making aids for DHW heating

To provide the perfect solution for every situation, the Vitodens may be supplied in the following versions:

- Vitodens 100-W
 - As a gas condensing 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 boiler with a separate DHW cylinder or a gas condensing boiler with an 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
- Footprint
- Water quality

Design information (cont.)

Information 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 Gas condensing combi boiler with instantaneous water heater	Gas condensing boiler with sepa- rate DHW cylin- der	Vitodens 111-W With integral DHW loading cylinder
DHW demand, con- venience	DHW supply for one apartment	+	+	+
	DHW supply for a detached house	0	+	+
	Centralised DHW supply for an apartment building	–	+	–
	Decentralised DHW supply 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	Existing DHW cylinder	–	+	–
	Replacement of an existing combi boiler	+	–	0
Footprint	Low space requirement (siting in a recess)	+	0	0
	Sufficient space available (installation room)	+	+	+
Solar DHW heating can be connected	Connection to a dual mode DHW cylinder	–	+	–
	Connection to the 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 (160, 200 or 300 l)

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

The Vitodens 100-W as gas condensing boilers are 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 consumer combinations may apply.

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.

Design information (cont.)

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 the correct DHW cylinder to DIN 4708 would have a capacity of 120 l.

Selection tables, DHW cylinders

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

Vitodens 100-W gas condensing boilers, cylinder allocation

Rated heating output range [kW]	Practical cylinder allocation (cylinder capacity in litres)		
	6.5 to 19.0	6.5 to 26.0	8.8 to 35.0
Vitocell 100-W (type CUG, CUGA, CUGA-A), below	100 120 150	100 120 150	100 120 150
Vitocell 100-W (type CVA, CVAA, CVAA-A), adjacent	160 200 300	160 200 300	160 200 300
Vitocell 100-V (type CVA), adjacent	—	—	500
Vitocell 100-W (type CVB, CVBB) adjacent, dual mode	300 400	300 400	300 400
Vitocell 100-U (type CVUB), adjacent, dual mode	300	300	300
Vitocell 100-B (type CVB) adjacent, dual mode	—	500	500

6.4 Connections on the water side

Connection on the DHW side

Vitodens 100-W gas condensing combi boiler

For the DHW connection, connection sets for installation on finished or unfinished walls are available as accessories. The instantaneous water heater provides direct DHW heating.

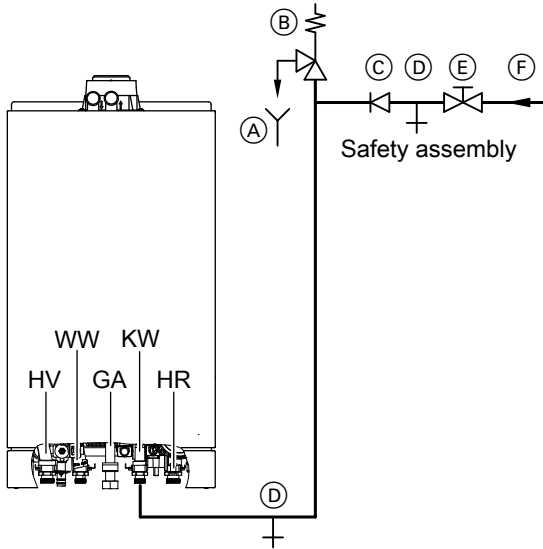
When using galvanised pipes, observe that the instantaneous water heater is designed as a stainless steel plate heat exchanger with copper solder joints (observe the flow rule).

Design information (cont.)

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 boiler (see "Decision-making aids regarding DHW heating").

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



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

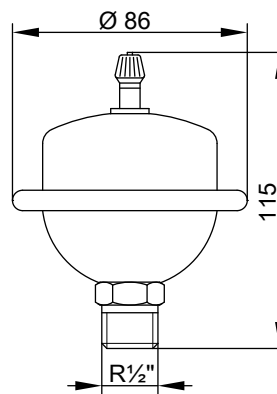
A safety valve to DIN 1988 is only required if the mains water supply pressure exceeds 10 bar (1 MPa) and no DHW pressure reducing valve is installed (to DIN 4753).

For 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.

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 arrester



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

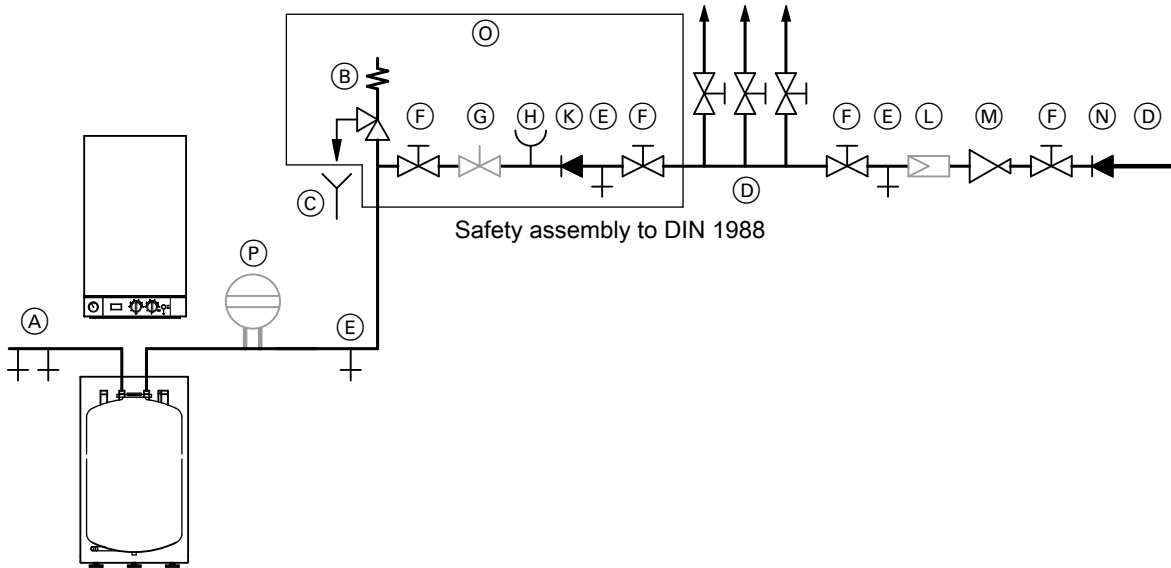
(available from your local dealer).

Design information (cont.)

Cold water installation of separate DHW cylinder

Example:

DHW cylinder installed below (120 l or 150 l) with safety assembly to DIN 1988



- (A) DHW
- (B) Safety valve
- (C) Visible discharge pipe outlet point
- (D) Cold water
- (E) Drain outlet
- (F) Shut-off valve
- (G) Flow regulating valve (installation recommended)
- (H) Pressure gauge connection

Safety valve

The safety valve **must** be installed.

Drinking water filter

According to DIN 1988-2, 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.

- (K) Non-return valve
- (L) Drinking water filter
- (M) Pressure reducer to DIN 1988-2, Dec. 1988 issue
- (N) Non-return valve/pipe separator
- (O) Standard delivery of the safety assembly offered as an accessory (for separate DHW cylinders only)
- (P) Diaphragm expansion vessel, suitable for potable water

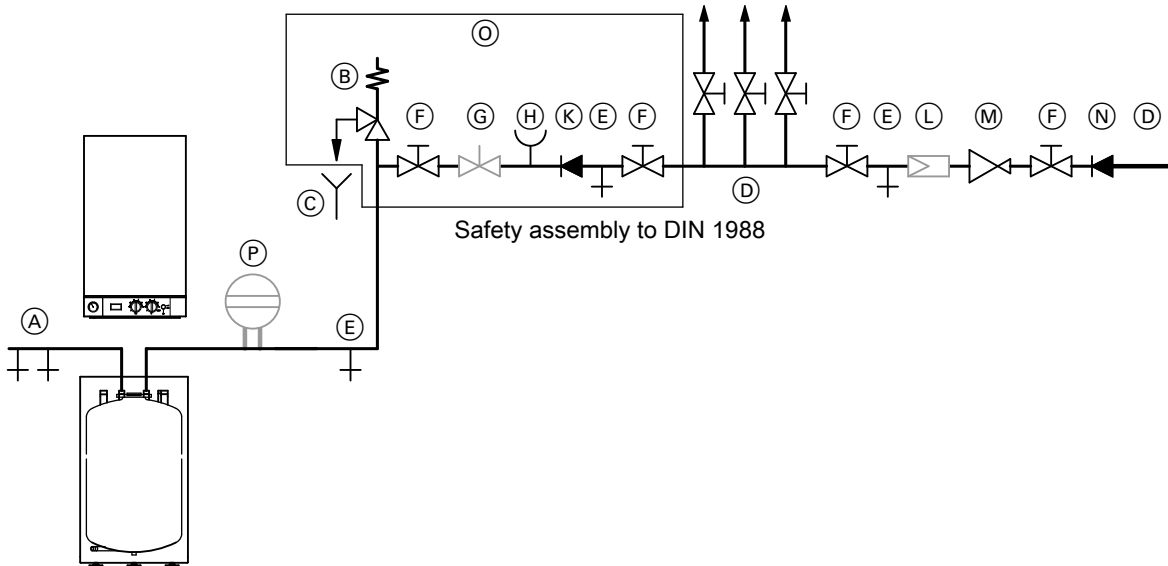
We recommend you install the safety valve higher than the top edge of the cylinder. This protects the safety valve against contamination, scaling and high temperatures. It also means that the DHW cylinder does not need to be drained when working on the safety valve.

Design information (cont.)

Cold water installation, separate DHW cylinder and loading cylinder of the Vitodens 111-W

Example:

DHW cylinder installed below (120 or 150 l) with safety assembly to DIN 1988



- (A) DHW
- (B) Safety valve
Included in the standard delivery of the installation aid for the **Vitodens 111-W**
- (C) Visible discharge pipe outlet point
- (D) Cold water
- (E) Drain outlet
- (F) Shut-off valve
- (G) Flow regulating valve (installation recommended)

Safety valve

The safety valve **must** be installed.

Drinking water filter

According to DIN 1988-2, 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 advantages 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.

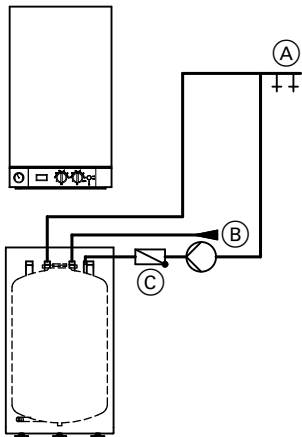
From a **line length of 7 m** we recommend providing appropriate thermal insulation for the DHW circulation in accordance with the Energy Saving Ordinance [Germany]. This specifies that the DHW circulation pipe should, in accordance with the Energy Saving Ordinance, include a circulation pump, a check valve and a time switch for shutting down DHW circulation during the night.

- (H) Pressure gauge connection
- (K) Non-return valve
- (L) Drinking water filter
- (M) Pressure reducer to DIN 1988-2, Dec. 1988 issue
- (N) Non-return valve/pipe separator
- (O) Standard delivery of the safety assembly offered as an accessory (for separate DHW cylinders only)
- (P) Diaphragm expansion vessel, suitable for potable water

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.

Design information (cont.)

Vitodens 100-W



DHW cylinder, below

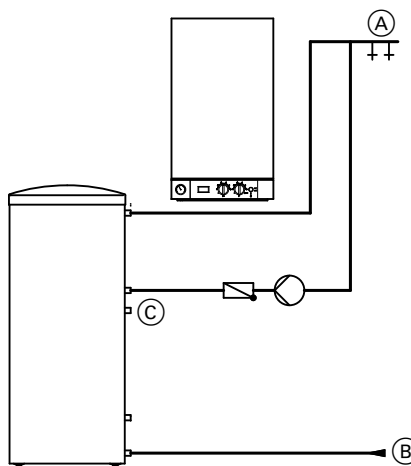
- (A) DHW
- (B) Cold water
- (C) DHW circulation

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.



DHW cylinder, adjacent

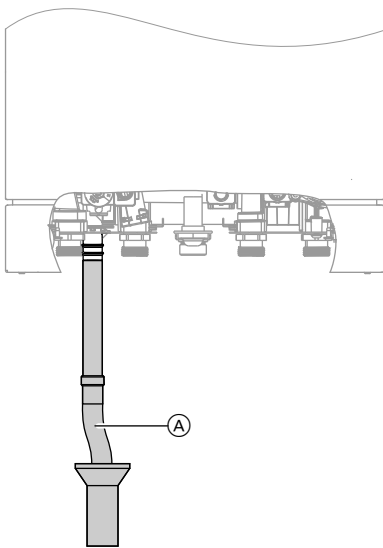
- (A) DHW
- (B) Cold water
- (C) DHW circulation

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).

6.5 Condensate connection

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

Vitodens 100-W

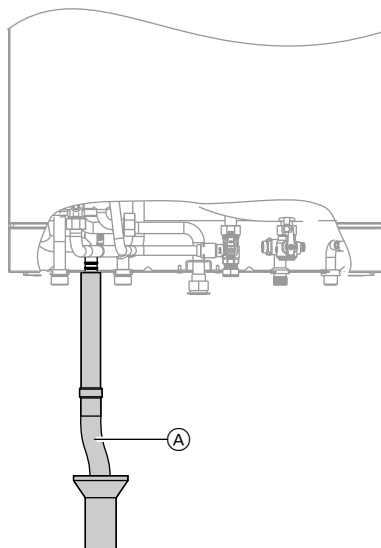


- (A) Drain hose (Vitodens standard delivery)

Note

A pipe vent valve **must** be installed between the siphon and the neutralising system.

Vitodens 111-W



- (A) Drain hose (Vitodens standard delivery)

Condensate drain 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.

Condensate drains 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, which 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

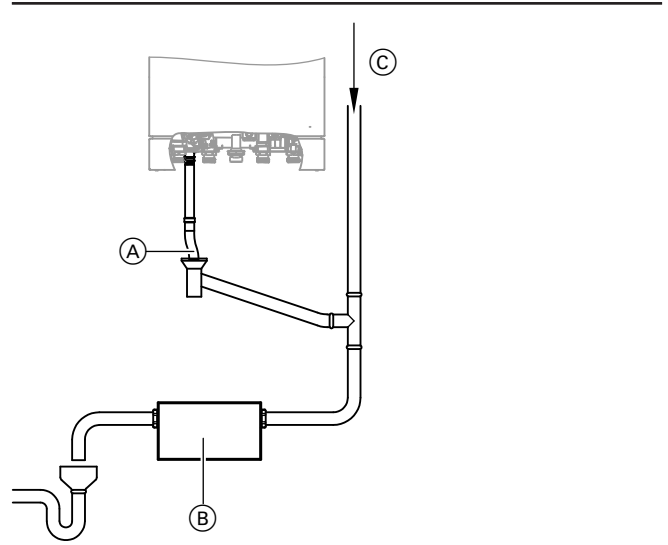
Up to a rated heating output of 200 kW, the condensate from a gas condensing boiler can generally be introduced into the public sewage system without prior neutralisation.

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:

- Clay pipes
- Hard PVC pipes
- PVC pipes
- PE HD pipes
- PP pipes
- ABS/ASA pipes
- Stainless steel pipes
- Borosilicate pipes

Neutralising system



- (A) Condensate drain
- (B) Neutralising system
- (C) 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.

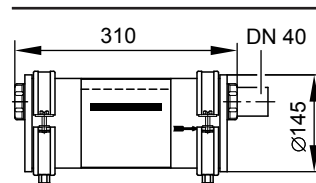
The condensate drain pipe to the sewer connection must be accessible for inspection. Install it with a fall and a stench trap on the sewer side, and provide a suitable facility for extracting samples.

Install a condensate lifting pump if the Vitodens has been installed below the waste water anti-flooding level.

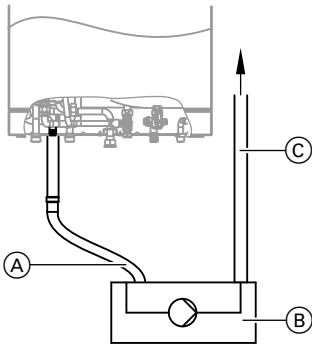
Condensate lifting pumps are available as accessories.

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 lifting system (accessories)



- (A) Condensate inlet
- (B) Condensate lifting system
- (C) Condensate drain

6.6 Hydraulic connection

General information

System design

Viessmann condensing boilers can generally be installed in any fully pumped hot water heating system (sealed unvented system). The boiler 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 Energy Saving Ordinance [EnEV - Germany], use a clock thermostat (accessory) for constant temperature mode and weather-compensated mode. The control unit does not have an integral time switch.

Chemical anti-corrosion agents

In correctly installed and operated sealed unvented heating systems corrosion is generally avoided. Never use chemical anti-corrosion additives. Some manufacturers of plastic pipes recommend the use of chemical additives. In such cases, only use anti-corrosion additives offered by the heating trade that have been approved for boilers with DHW heating via single-walled heat exchangers (instantaneous water heater or DHW cylinder). For this, observe the VDI guideline 2035 [or local regulations].

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

Unsuitable fill and top-up water increases the level of deposits and corrosion and may lead to the boiler damage. Observe VDI 2035 regarding quality and amount of heating water, including fill and top-up water.

- Flush the heating system thoroughly before filling.
- Only fill with water of potable quality.
- Fill and top-up water with a water hardness in excess of the following values must be softened, e.g. with the small softening system for heating water (see the Viessmann Vitoset pricelist):

Total permissible hardness of the fill and top-up water

Total heating output kW	Specific system volume		
	< 20 l/kW	≥ 20 l/kW to < 50 l/kW	≥ 50 l/kW
≤ 50	≤ 3.0 mol/m ³ (16.8 °dH)	≤ 2.0 mol/m ³ (11.2 °dH)	< 0.02 mol/m ³ (0.11 °dH)
> 50 to ≤ 200	≤ 2.0 mol/m ³ (11.2 °dH)	≤ 1.5 mol/m ³ (8.4 °dH)	< 0.02 mol/m ³ (0.11 °dH)

Design information (cont.)

- For systems with a specific system volume in excess of 20 l/kW heating output, use the output of the smallest boiler in multi boiler systems.
- Antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability, since otherwise damage to gaskets and diaphragms can occur as well as noisy heating operation. Viessmann accepts no liability for any resulting damage or consequential losses.

When designing the system, observe the following:

- Install shut-off valves in the different sections. This prevents the need for draining all the heating water in the case of repairs or system expansion.
- In systems > 50 kW, install a water meter to record the volume of fill and top-up water. Record the amount of water filled into the system and the water hardness.

Operating information:

- Commission the system step by step, starting with the lowest boiler output and a high heating water flow rate. This prevents localised concentration of limescale deposits on the boiler heating surfaces.
- During expansion or repair work, only drain the necessary pipe-work sections.

Expansion vessels

In accordance with EN 12828, water heating systems must be equipped with a pressure expansion vessel.

- An expansion vessel is integrated into the boiler.
- Determine the size of the expansion vessel to be installed in accordance with EN 12828.

- Where water treatment is required, treat even the first fill of the heating system prior to commissioning. This also applies to any subsequent filling, e.g. when adding top-up water or after a repair, or for any system expansion.
- Check, clean and activate filters, dirt traps and other blow-down or separating facilities in the heating water circuit more frequently after the commissioning or in case of new installations, later on subject to the water treatment applied (e.g. water softening).

Modernising existing systems

Adaptors for older appliances are available as accessories for the Vitodens 100-W.

This enables existing hydraulic connections for wall mounted boiler types Thermobloc-VC/-VCW, Cerastar-ZR/-ZWR and Ceramini to be adapted to suit the Vitodens (see page 46).

6.7 Intended use

The appliance is only intended to be installed and operated 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 the heating of 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.

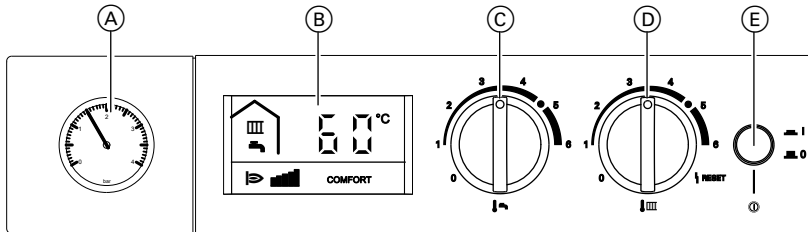
Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation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

Control unit

7.1 Control unit for constant temperature or weather-compensated operation

Design and functions

Design



- (A) Pressure gauge
- (B) Display
- (C) Rotary selector "DHW temperature"

Programming unit:

- Rotary selectors:
 - Menu functions at service level
 - Reset function
- Adjustment of:
 - DHW temperature
 - Operating program (Eco/Comfort)
 - Heating curves (displacement of level)
 - Codes
- Display of:
 - Boiler water temperature
 - DHW temperature
 - Operating data
 - Diagnostic details
 - Fault messages

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
- 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.

- (D) Rotary selector "Heating water temperature" and "Reset"
- (E) ON/OFF switch

The following operating programs can be selected:

- Heating and DHW
- Only DHW
- Standby mode

Frost protection function

With outside temperature sensor

- The frost protection function is switched on when the outside temperature drops below approx. +5 °C. With active frost protection, the heating circuit pump will be switched ON and the boiler water is maintained at a lower temperature of approx. 20 °C. The DHW cylinder will be 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 operation, the boiler water temperature (= flow temperature of the heating circuit without mixer) is regulated according to the outside temperature.

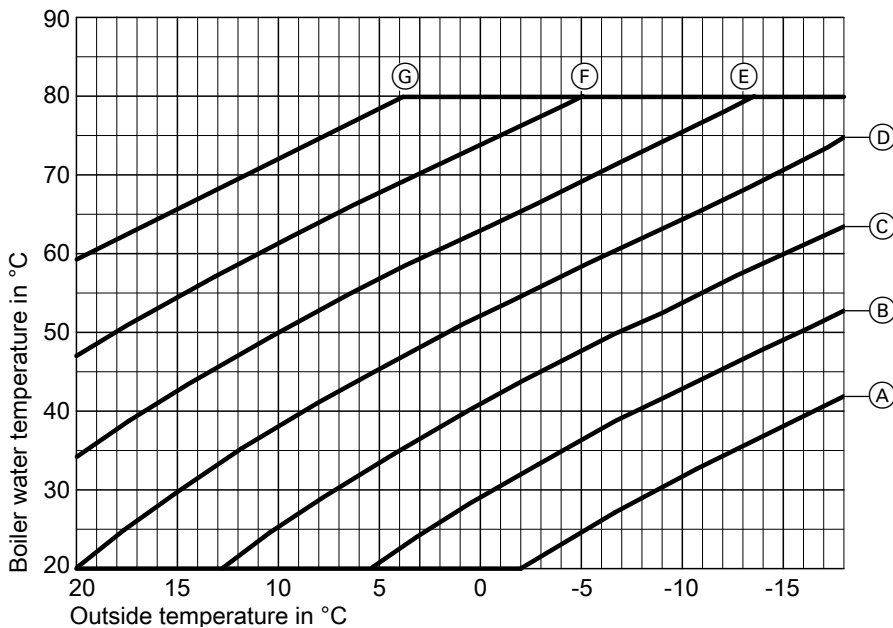
The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.

Adjusting the heating curves matches the boiler water temperature and the flow temperature to these conditions.

Heating curves:

- The temperature limiter limits the maximum boiler water temperature.
- The flow temperature cannot exceed the boiler water temperature.

Control unit (cont.)



Setting of rotary selector "↓ IIII"

- Ⓐ = 1
- Ⓑ = 2
- Ⓒ = 3
- Ⓓ = delivered condition
- Ⓔ = 4
- Ⓕ = 5
- Ⓖ = 6

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 (120 or 150 l) (accessory)
- Connection set for DHW cylinders, adjacent (160 to 300 l) or alternative DHW cylinders (accessory)

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 draw-off 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
Safety category	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 boilers	10 to 68 °C
– Vitodens 111-W	10 to 63 °C
Heating curve setting range	
Slope	0.2 to 3.5
Level	–13 to 40 K

7.2 Control unit accessories

Vitotrol 100 RT

Part no. 7141 709

- Room thermostat with switching output (two-point output)
- Operation with 230 V~ rated voltage

Vitotrol 100, type UTA

Part no. 7170 149

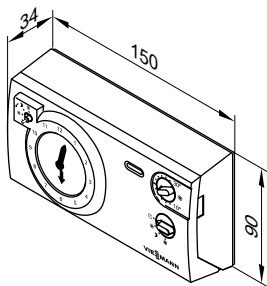
Room thermostat

- With switching output (two-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 mm² (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. 7454 521

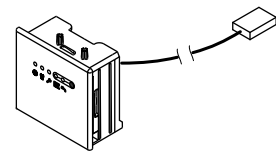
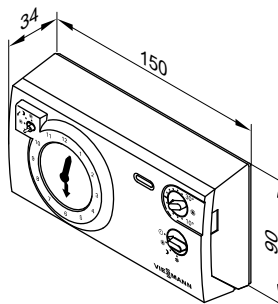
Room thermostat with integral wireless transmitter and separate wireless receiver

- 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. Never install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).

Operation of the room thermostat without mains power supply

Wireless receiver for installation in the control unit support



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	0 to +40 °C
– Storage and transport	–20 to +60 °C

Control unit (cont.)

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. Z007 691

Room temperature controller

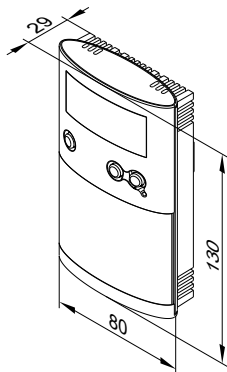
- With switching output (two-point output)
- With digital time switch
- With individual day and seven-day program
- Operation with user prompts:
 - 3 preselected time programs, individually adjustable
 - Constant manual mode with adjustable set room temperature
 - Frost protection mode
 - Holiday program
- 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 mm² for 230 V~.



Specification

Rated voltage	3 V– 2 LR6/AA batteries
Rated breaking capacity of the floating contact	
– max.	6(1) A, 230 V~
– min.	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	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

Part no. Z007 694

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

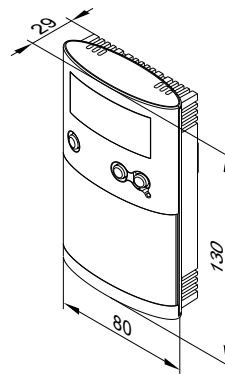
■ With selector keys for party and economy mode

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 mm² for 230 V~.



Specification

Rated voltage	3 V– 2 LR6/AA batteries
Rated breaking capacity of the floating contact	
– max.	6(1) A, 230 V~
– min.	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	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

Part no. Z011 473

Room temperature controller

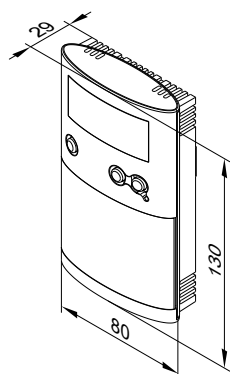
- With switching output (two-point output)
- With digital time switch
- With individual day and seven-day program
- Operation with user prompts:
 - 3 preselected time programs, individually adjustable
 - Constant manual mode with adjustable set room temperature
 - Frost protection mode
 - Holiday program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

Control unit (cont.)

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 mm² for 230 V~.



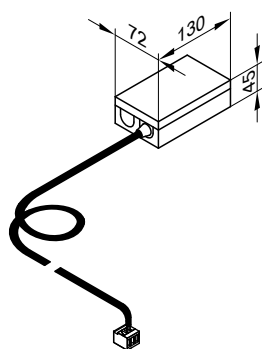
Specification

Rated voltage	3 V~ 2 LR6/AA batteries
Rated breaking capacity of the floating contact	
– max.	6(1) A, 230 V~
– min.	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	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

External H4 extension

Part no. 7197 227

- Connection extension for connecting the Vitotrol 100, type UTDB or 24 V clock thermostats via a LV lead
- With cable (0.5 m long) and plug for the connection to the control unit



Specification

Rated voltage	230 V~
Output voltage	24 V~
Rated frequency	50 Hz
Power consumption	2.5 W
Load 24 V~ (max.)	10 W
Safety category	I
IP rating	IP 41
Permissible ambient temperature	
– Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +65 °C

Vitotrol 100, type UTDB-RF2

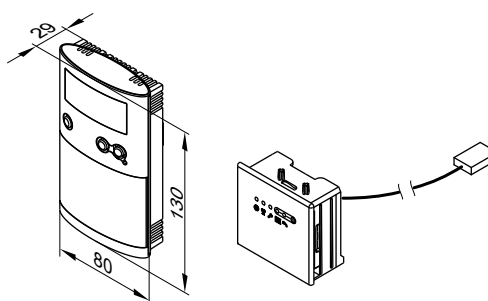
Part no. Z011 244

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

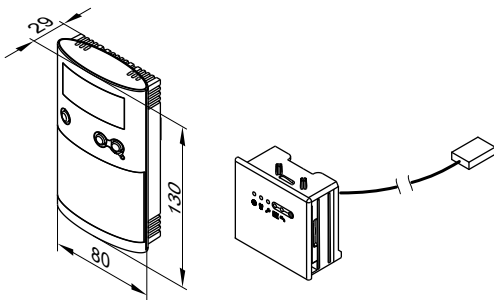
- For installation in the control unit support
- With power cable and connector for connection to the control unit

Part no. Z011 486

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.



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

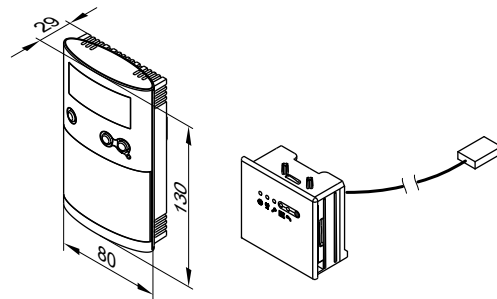
- For installation in the control unit support
- With power cable and connector for connection to the control unit

Part no. 7454 522

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.



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

Control unit (cont.)

Wireless receiver

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

Outside temperature sensor

Part no. Z006 506

Installation site:

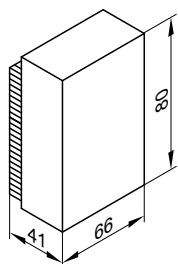
- North or north-west facing wall of the building
- 2 to 2.5 m above the ground, for multi storey buildings in the upper half of the second floor

Connection:

- 2-core lead, length max. 35 m with a cross-section of 1.5 mm² copper.
- Never route this lead immediately next to 230/400 V cables

Specification

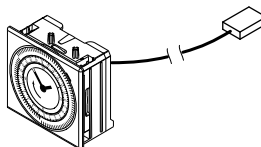
IP rating	IP 43 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ, at 25 °C
Permissible ambient temperature during operation, storage and transport	-40 to +70 °C



Analogue time switch

Part no. 7522 678

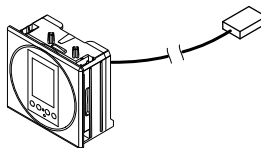
- Single channel time switch with individual day program
- For installation inside the control unit



Digital time switch

Part no. 7454 528

- Two-channel time switch with seven-day program
- For installation inside the control unit



"OpenTherm" modulating room temperature controller

Part no. Z007 399

- With seven-day program
- With connecting lead
- Operation without batteries (power supplied by the boiler)

Cylinder demand terminal box

Part no. 7296 968

- 230 V~
- For operation with a cylinder temperature sensor

Control unit (cont.)

Mixer extension kit (OpenTherm)

Part no. Z013 877

For 1 heating circuit without mixer and 1 heating circuit with mixer, with heating circuit pumps

- 3-way mixing valve
- Flow temperature sensor for heating circuit with mixer
- Temperature sensor, low loss header

With connections for:

- 2 room thermostats (OpenTherm)
- 2 heating circuit pumps

Pack with mixer extension kit (OpenTherm) with 1 room thermostat

Part no. Z013 919

Comprising:

- 1 mixer extension kit (OpenTherm)
- 1 room thermostat (OpenTherm)
 - Operation with user prompts
 - With digital time switch

- With individual day and seven-day program
- Independent of mains power supply (power supplied via OpenTherm)

Pack with mixer extension kit (OpenTherm) with 2 room thermostats

Part no. Z013 920

Comprising:

- 1 mixer extension kit (OpenTherm)
- 2 room thermostats (OpenTherm)
 - Operation with user prompts
 - With digital time switch

- With individual day and seven-day program
- Independent of mains power supply (power supplied via OpenTherm)

Appendix

8.1 Regulations / Directives

Regulations and Directives

The design and operational characteristics of the Vitodens gas condensing boilers from Viessmann meet the requirements of EN 297. They are CE-designated.

They can be installed in sealed heating systems with permissible flow temperatures (= safety temperatures) up to 100 °C compliant with EN 12828. The maximum achievable flow temperature is approx. 15 K below the safety temperature.

Observe all engineering standards and statutory requirements applicable to the installation and operation of this system in your country. Only qualified contractors should carry out the installation, the mains gas connection and the connection on the flue gas side, the commissioning and the electrical connection as well as general maintenance and repair work.

The installation of a condensing boiler may need to be notified to and approved by your local gas supply utility.

In some regions, permits may be required for the flue system and condensate drain into the public sewage system.

In some countries, the relevant flue gas inspector and water authorities must be informed prior to commencing the 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. Remedy any faults.

Condensing boilers must only be operated with specially designed, tested and approved flue pipes.

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 the acceptance in accordance with the statutes of the relevant country.

EnEV
1st BImSchV

FeuVo
DIN 1986
DIN 1988
DIN 4708
DIN 4753
DIN 18160
DIN 18380
DIN 57116
EN 677
EN 12828
EN 12831
EN 13384
DWA-A 251

Energy Saving Ordinance
1st regulation for the implementation of the German Immissions Act (regulation regarding small and medium-sized combustion equipment)
Fire Regulations of the German Federal States
Drainage system materials
DHW pipe systems for properties
Central DHW heating systems
Water heaters and DHW systems for DHW and process water
Domestic chimneys
Heating systems and central DHW heating systems (VOB)
Electrical equipment for combustion systems
Gas condensing boiler
Heating systems in buildings - design of hot water heating systems
Heating systems in buildings - process for calculating the standard heat load
Flue systems - thermal and flow technical calculations
Condensate from condensing boilers



DVGW G 260	Gas condition
DVGW G 600	Technical rules for gas installations (TRGI)
DVGW G 688	Gas consumption equipment, condensing technology
DVGW/DVFG	Technical rules for LPG (TRF)
DVGW VP 113	Systems comprising combustion equipment and flues
VDI 2035	Prevention of damage in water heating installations - scale formation in DHW supply installations and water heating installations
VdTÜV 1466	Water quality datasheet
VDE regulations and the special regulations of local power supply utilities	

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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

5546 630 GB