

Technical guide

**VITODENS 200-W** Type B2HB, B2KB

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

VITODENS 222-W Type B2LB

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

VITODENS 300-W Type B3HB

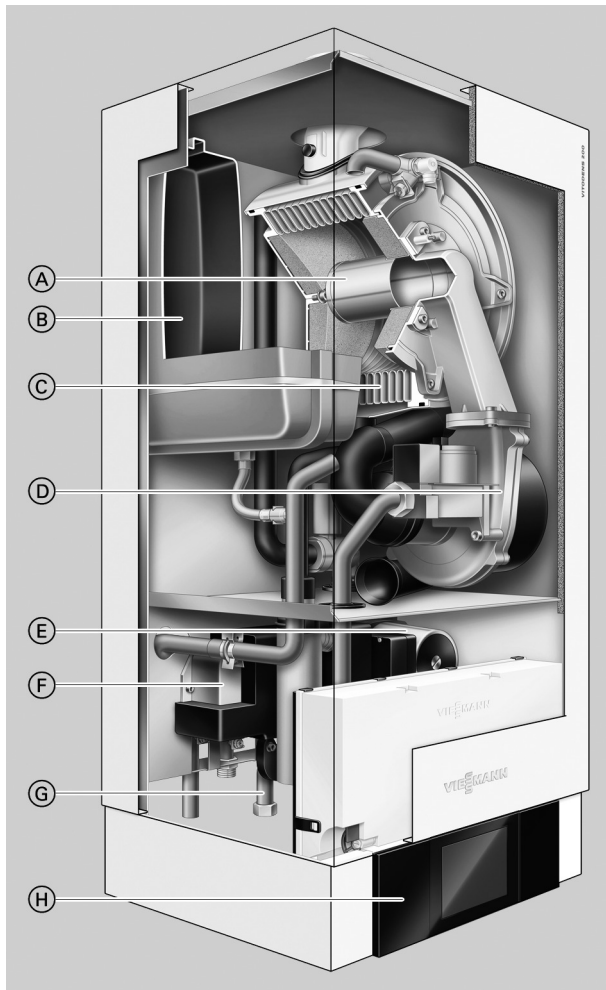
Wall mounted gas condensing boiler,
1.9 to 35.0 kW
For natural gas and LPG

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1.1 Product description



- Ⓐ Modulating MatriX cylinder burner with intelligent Lambda Pro Control Plus combustion controller for clean combustion and quiet operation
- Ⓑ 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
- Ⓔ Integral variable speed high efficiency circulation pump
- Ⓕ Plate heat exchanger (for gas condensing combi boiler, 1.8 to 35 kW)
- Ⓖ Gas and water connections
- Ⓗ Digital boiler control unit

The Vitodens 200-W wall mounted gas condensing boiler offers high quality condensing technology with an exemplary price/performance ratio, excellent heating and DHW convenience, compact dimensions and a timeless, elegant design.

The Vitodens 200-W consumes less energy, as it also makes use of the latent heat in the flue gas. The result: Standard seasonal efficiency [to DIN] of up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].

This noticeably reduces your heating bills and also protects the environment.

Both for economy and a long service life, stainless steel is the material of choice. This is why the Vitodens 200-W is equipped with a stainless steel Inox-Radial heat exchanger. It offers the required reliability and ensures permanently high condensing efficiency.

The MatriX cylinder burner, developed and produced in house, has a wide modulation range of up to 1:19 (35 kW). Also integrated is the Lambda Pro Control Plus combustion controller, which automatically matches the combustion to changing gas types. This ensures consistently high energy efficiency and offers security in liberalised gas markets and where gases of biogenic origin are mixed with natural gas.

The combi versions of the Vitodens 200-W are equipped with a DHW standby function. This ensures that DHW is always available at the required temperature.

Recommended applications

- Detached and terraced houses
- Property development, either modernisation or new build (replacement of water heaters in apartment blocks or pre-fabricated houses)

Benefits at a glance

- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner, modulation range up to 1:19, with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads
- High DHW convenience – combi boilers generally include a standby function
- Automatic flue gas route adaptation
- Energy saving high efficiency circulation pump (compliant with Energy Label A)
- New, innovative operating concept using colour touchscreen with plain text and graphic display, commissioning assistants and displays for energy consumption, as well as alternative operation from a mobile end device
- Lambda Pro Control Plus combustion controller for all gas types – saves on costs by extending the inspection interval to 3 years [in Germany]
- Quiet operation thanks to low fan speed
- Web-enabled thanks to Vitoconnect (accessories) for operation and service via Viessmann app

Factory setting

Wall mounted gas condensing boiler with Inox-Radial heat exchanger, modulating MatriX cylinder burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], compact hydraulics with multi connect system and variable speed high efficiency circulation pump.

Vitodens 200-W (cont.)

Fully plumbed and wired. Colour of the epoxy-coated casing: white.
With diaphragm expansion vessel

For combi boilers:

Plate heat exchanger with comfort function for DHW heating
Packed separately:
Vitotronic 100 for constant temperature operation
or
Vitotronic 200 for weather-compensated operation
Preset for operation with natural gas. Conversion within gas groups
E/LL is not required. The conversion to LPG is made at the control
unit (a conversion kit is not required).

Accessories required (order separately)

Installing the Vitodens directly on the wall

Pre-plumbing jig:

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With gas shut-off valve

For installation either on finished or unfinished walls

Installing the Vitodens in front of the wall

Self-supporting mounting frame (installed depth 110 mm):

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With angle gas valve

For installation with threaded fittings

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 condensing system boiler

Gas boiler, series B and C Category II _{2N3P}		B2HB				
Type		Values in () when operating with LPG P				
Rated heating output range (details to EN 677)						
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	1.8 (3.5) - 35.0	
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	1.6 (3.2) - 32.5	
Rated heating output range for DHW heating		kW	1.7 - 17.2	1.7 - 17.2	2.4 - 23.7	1.6 (3.2) - 31.7
Rated heat input		kW	1.8 - 17.9	1.8 - 17.9	2.5 - 24.7	1.7 (3.3) - 33.0
Product ID		CE-0085CN0050				
IP rating		IP X4 to EN 60529				
Gas supply pressure						
Natural gas	mbar	20	20	20	20	
	kPa	2	2	2	2	
LPG	mbar	50	50	50	50	
	kPa	5	5	5	5	
Max. permissible gas supply pressure^{*3}						
Natural gas	mbar	25.0	25.0	25.0	25.0	
	kPa	2.5	2.5	2.5	2.5	
LPG	mbar	57.5	57.5	57.5	57.5	
	kPa	5.75	5.75	5.75	5.75	
Sound power level (to EN ISO 15036-1)						
At partial load	dB(A)	32	32	36	36	
At rated heating output (DHW heating)	dB(A)	39	40	48	52	
Power consumption						
– In the delivered condition	W	28	42	65	95	
– Max.	W	80	86	95	110	
Weight	kg	41	41	43	47	
Heat exchanger capacity	l	1.8	1.8	2.4	2.8	
Max. flow temperature	°C	74	74	74	74	
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1200	1200	1400	1600	
Nominal circulating water volume At $T_F/T_R = 80/60\text{ °C}$	l/h	507	739	1018	1361	
Diaphragm expansion vessel						
Capacity	l	10	10	10	10	
Pre-charge pressure	bar	0.8	0.8	0.8	0.8	
	kPa	80	80	80	80	
Permiss. operating pressure	bar	3	3	3	3	
	MPa	0.3	0.3	0.3	0.3	
Safety valve connection	Rp	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	
Dimensions						
Length	mm	360	360	360	360	
Width	mm	450	450	450	450	
Height	mm	850	850	850	850	
Height with flue bend	mm	1066	1066	1066	1066	
Height with DHW cylinder below the boiler	mm	1925	1925	1925	1925	
Gas connection	R	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	
Connection values						
Relative to max. load						
With gas						
Natural gas E	m ³ /h	1.77	1.89	2.61	3.49	
Natural gas LL	m ³ /h	2.06	2.20	3.04	4.06	
LPG P	kg/h	1.31	1.40	1.93	2.58	
Flue gas parameters^{*4}						
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	

^{*3} If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

^{*4} Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Vitodens 200-W (cont.)

Gas boiler, series B and C Category II _{2N3P}		B2HB			
Type		Values in () when operating with LPG P			
Rated heating output range (details to EN 677)					
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	1.8 (3.5) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	1.6 (3.2) - 32.5
Temperature (at a return temperature of 30 °C)					
– At rated heating output (DHW heating)	°C	45	45	45	45
– At partial load	°C	35	35	35	35
Temperature (at a return temperature of 60 °C)					
	°C	68	68	70	70
Mass flow rate					
Natural gas					
– At rated heating output (DHW heating)	kg/h	29.7	31.8	43.9	58.7
– At partial load	kg/h	5.5	5.5	8.7	8.7
LPG					
– At rated heating output (DHW heating)	kg/h	28.2	30.2	41.7	55.7
– At partial load	kg/h	7.6	7.6	14.0	14.0
Available draught	Pa	250	250	250	250
	mbar	2.5	2.5	2.5	2.5
Max. amount of condensate					
To DWA-A 251	l/h	2.3	2.5	3.5	4.6
Internal diameter of the pipe to the safety valve	DN	15	15	15	15
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]		Up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]			
At $T_F/T_R = 40/30\text{ °C}$	%				
Energy efficiency class		A	A	A	A

Gas boiler, series B and C Category II _{2N3P}		B2HB			
Type		Values in () when operating with LPG P			
Rated heating output range (details to EN 677)					
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	1.8 (3.5) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	1.6 (3.2) - 31.7
Rated heating output range for DHW heating	kW	1.7 - 17.2	1.7 - 17.2	2.4 - 23.7	1.6 (3.2) - 31.7
Rated heat input	kW	1.8 - 17.9	1.8 - 17.9	2.5 - 24.7	1.7 (3.3) - 33.0
Product ID		CE-0085CN0050			
IP rating		IP X4 to EN 60529			
Gas supply pressure					
Natural gas					
	mbar	20	20	20	20
	kPa	2	2	2	2
LPG					
	mbar	50	50	50	50
	kPa	5	5	5	5
Max. permissible gas supply pressure^{*3}					
Natural gas					
	mbar	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5
LPG					
	mbar	57.5	57.5	57.5	57.5
	kPa	5.75	5.75	5.75	5.75
Sound power level (to EN ISO 15036-1)					
At partial load					
	dB(A)	32	32	36	36
At rated heating output (DHW heating)					
	dB(A)	39	40	48	52
Power consumption					
– In the delivered condition					
	W	28	42	65	95
– Max.					
	W	80	86	95	105
Weight	kg	41	41	43	47
Heat exchanger capacity	l	1.8	1.8	2.4	2.8
Max. flow temperature	°C	74	74	74	74

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

Vitodens 200-W (cont.)

Gas boiler, series B and C Category II _{2N3P}		B2HB				
Type	Values in () when operating with LPG P					
Rated heating output range (details to EN 677)						
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	2.6 - 30.0	1.8 (3.5) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	2.4 - 28.0	1.6 (3.2) - 31.7
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1200	1200	1400	1600	1600
Nominal circulating water volume At $T_F/T_R = 80/60\text{ °C}$	l/h	507	739	1018	1169	1361
Diaphragm expansion vessel						
Capacity	l	10	10	10	10	10
Pre-charge pressure	bar	0.8	0.8	0.8	0.8	0.8
	kPa	80	80	80	80	80
Permiss. operating pressure	bar	3	3	3	3	3
	MPa	0.3	0.3	0.3	0.3	0.3
Safety valve connection	Rp	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Dimensions						
Length	mm	360	360	360	360	360
Width	mm	450	450	450	450	450
Height	mm	850	850	850	850	850
Height with flue bend	mm	1066	1066	1066	1066	1066
Height with DHW cylinder below the boiler	mm	1925	1925	1925	1925	1925
Gas connection	R	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Connection values						
Relative to max. load						
With gas						
Natural gas E	m ³ /h	1.77	1.89	2.61	3.02	3.49
Natural gas LL	m ³ /h	2.06	2.20	3.04	3.51	4.06
LPG P	kg/h	1.31	1.40	1.93	2.23	2.58
Flue gas parameters^{*4}						
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)						
- At rated heating output (DHW heating)	°C	45	45	45	45	45
- At partial load	°C	35	35	35	35	35
Temperature (at a return temperature of 60 °C)						
- At rated heating output (DHW heating)	°C	68	68	70	70	70
Mass flow rate						
Natural gas						
- At rated heating output (DHW heating)	kg/h	29.7	31.8	43.9	50.7	58.7
- At partial load	kg/h	5.5	5.5	8.7	8.7	8.7
LPG						
- At rated heating output (DHW heating)	kg/h	28.2	30.2	41.7	48.1	55.7
- At partial load	kg/h	7.6	7.6	14.0	14.0	14.0
Available draught	Pa	250	250	250	250	250
	mbar	2.5	2.5	2.5	2.5	2.5
Max. amount of condensate						
To DWA-A 251	l/h	2.3	2.5	3.5	4.0	4.6
Internal diameter of the pipe to the safety valve	DN	15	15	15	15	15
Condensate connection (hose nozzle)	Ø mm	20-24	20-24	20-24	20-24	20-24
Flue gas connection	Ø mm	60	60	60	60	60
Ventilation air connection	Ø mm	100	100	100	100	100

*4 Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Vitodens 200-W (cont.)

Gas boiler, series B and C Category II _{2N3P}						
Type		B2HB				
Rated heating output range (details to EN 677)		Values in () when operating with LPG P				
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	2.6 - 30.0	1.8 (3.5) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	2.4 - 28.0	1.6 (3.2) - 31.7
Standard seasonal efficiency [to DIN]		Up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]				
At $T_F/T_R = 40/30\text{ °C}$		%				
Energy efficiency class		A	A	A	A	A

Gas condensing combi boiler

Gas boiler, series B and C Category II _{2N3P}						
Type		B2KB				
Rated heating output range (details to EN 677)		Values in () when operating with LPG P				
$T_F/T_R = 50/30\text{ °C}$	kW	2.6 - 26.0	2.6 - 30.0	1.8 (3.5) - 35.0		
$T_F/T_R = 80/60\text{ °C}$	kW	2.4 - 24.1	2.4 - 28.0	1.6 (3.2) - 32.5		
Rated heating output range for DHW heating		kW		2.4 - 29.3	2.4 - 30.0	1.6 (3.2) - 33.5
Rated heat input		kW		2.5 - 30.5	2.5 - 31.3	1.7 (3.3) - 34.9
Product ID		CE-0085CN0050				
IP rating		IP X4 to EN 60529				
Gas supply pressure						
Natural gas	mbar	20	20	20		
	kPa	2	2	2		
LPG	mbar	50	50	50		
	kPa	5	5	5		
Max. permissible gas supply pressure ^{*5}						
Natural gas	mbar	25.0	25.0	25.0		
	kPa	2.5	2.5	2.5		
LPG	mbar	57.5	57.5	57.5		
	kPa	5.75	5.75	5.75		
Sound power level (to EN ISO 15036-1)						
At partial load	dB(A)	36	36	36		
At rated heating output (DHW heating)	dB(A)	48	52	52		
Power consumption						
- In the delivered condition	W	65	82	95		
- Max.	W	108	119	123		
Weight		kg		46	45	48
Heat exchanger capacity		l		2.4	2.8	2.8
Max. flow temperature		°C		74	74	74
Max. flow rate (Limit for the use of hydraulic separation)		l/h		1400	1600	1600
Nominal circulating water volume At $T_F/T_R = 80/60\text{ °C}$		l/h		1018	1169	1361
Diaphragm expansion vessel						
Capacity	l	10	10	10		
Pre-charge pressure	bar	0.8	0.8	0.8		
	kPa	80	80	80		
Permiss. operating pressure		bar		3	3	3
		MPa		0.3	0.3	0.3
Safety valve connection		Rp		¾	¾	¾
Dimensions						
Length	mm	360	360	360		
Width	mm	450	450	450		
Height	mm	850	850	850		
Height with flue bend	mm	1066	1066	1066		
Height with DHW cylinder below the boiler	mm	-	-	-		
Gas connection		R		½	½	½
Standby instantaneous water heater						
Hot and cold water connections	G	½	½	½		
Permiss. operating pressure (DHW side)	bar	10	10	10		
	MPa	1	1	1		

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

Vitodens 200-W (cont.)

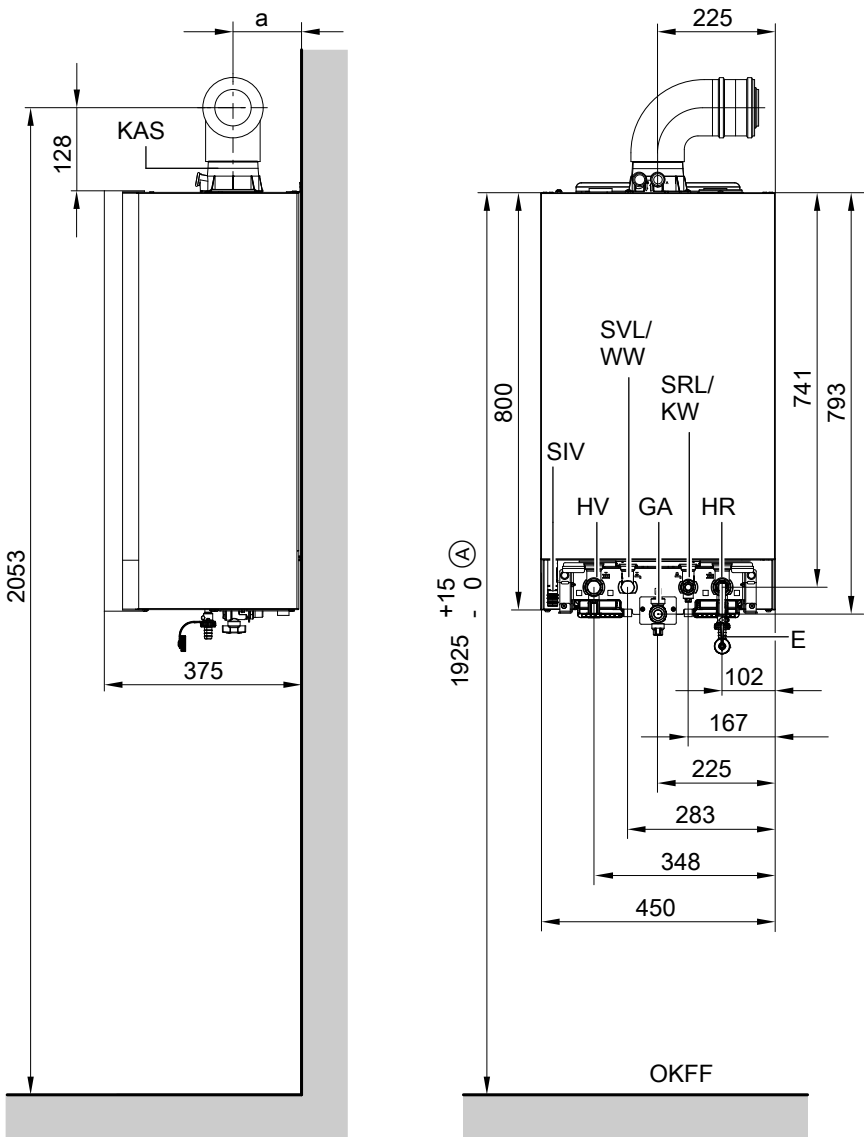
Gas boiler, series B and C Category II _{2N3P}		B2KB		
Type		Values in () when operating with LPG P		
Rated heating output range (details to EN 677)		2.6 - 26.0	2.6 - 30.0	1.8 (3.5) - 35.0
$T_F/T_R = 50/30$ °C	kW			
$T_F/T_R = 80/60$ °C	kW	2.4 - 24.1	2.4 - 28.0	1.6 (3.2) - 32.5
Minimum pressure, cold water connection	bar	1.0	1.0	1.0
	MPa	0.1	0.1	0.1
Outlet temperature, adjustable	°C	30-57	30-57	30-57
Continuous DHW output	kW	29.3	30.0	33.5
Specific flow rate	l/min	14.0	14.3	16.0
At $\Delta T = 30$ K (to EN 13203)				
Connection values				
Relative to max. load				
With gas				
Natural gas E	m ³ /h	3.23	3.31	3.69
Natural gas LL	m ³ /h	3.75	3.85	4.30
LPG P	kg/h	2.38	2.45	2.73
Flue gas parameters^{*6}				
Flue gas category to G 635/G 636				
		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)				
– At rated heating output	°C	45	45	45
– At partial load	°C	35	35	35
Temperature (at a return temperature of 60 °C)				
	°C	70	70	70
Mass flow rate				
Natural gas				
– At rated heating output (DHW heating)	kg/h	54.3	55.7	62.1
– At partial load	kg/h	8.7	8.7	8.7
LPG				
– At rated heating output (DHW heating)	kg/h	51.5	52.8	58.9
– At partial load	kg/h	14.0	14.0	14.0
Available draught				
	Pa	250	250	250
	mbar	2.5	2.5	2.5
Max. amount of condensate				
To DWA-A 251	l/h	4.3	4.4	4.9
Internal diameter of the pipe to the safety valve				
	DN	15	15	15
Condensate connection (hose nozzle)				
	Ø mm	20-24	20-24	20-24
Flue gas connection				
	Ø mm	60	60	60
Ventilation air connection				
	Ø mm	100	100	100
Standard seasonal efficiency [to DIN]				
At $T_F/T_R = 40/30$ °C	%	Up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]		
Energy efficiency class				
– Heating		A	A	A
– DHW heating, draw-off profile XL		A	A	A

^{*6} Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

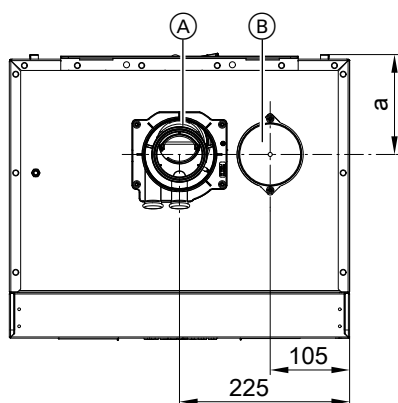
The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.



- Ⓐ Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.
- E Drain
- GA Gas connection
- HR Heating return
- HV Heating flow
- KAS Boiler flue connection

- KW Cold water (gas condensing combi boiler)
- OKFF Top edge finished floor
- SIV Drain for safety valve and condensate
- SRL Cylinder return (gas condensing system boiler)
- SVL Cylinder flow (gas condensing system boiler)
- WW DHW (gas condensing combi boiler)



Balanced flue connection

- (A) Balanced flue connection
- (B) Ventilation air connection (closed in delivered condition)

Rated heating output kW	Dim. a mm
13 and 19	136
26 and 35	158

Variable speed heating circuit pump in the Vitodens 200-W

The integral circulation pump is a highly efficient pump with substantially lower power consumption than conventional pumps.

The pump speed and consequently the pump rate are regulated subject to the outside temperature and the switching times for heating or reduced mode. The control unit transmits the current default settings to the circulation pump via an internal data BUS.

The control unit codes can be used to match the minimum and maximum speeds and the speed for reduced mode to the existing heating system.

In the delivered condition, the minimum pump rate (coding address "E7") and the maximum pump rate (coding address "E6") are set to the following values:

Rated heating output range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
13	45	60
19	45	65
26	45	80
35	45	90

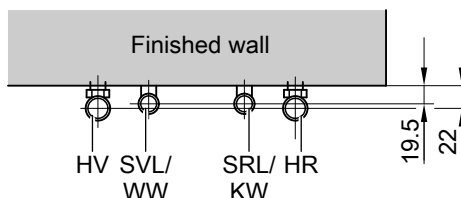
Note

For connection dimensions for installation on finished walls with pre-plumbing jig, see page 59.

For connection dimensions for installation on unfinished walls with pre-plumbing jig, see page 63.

Note

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



Note

Dimensions given in combination with pipe bends (accessories)

Note

In conjunction with a low loss header, heating water buffer cylinder and heating circuits with mixer, the internal circulation pump runs at a constant speed. The speed can be adjusted subject to demand by changing codes at the control unit.

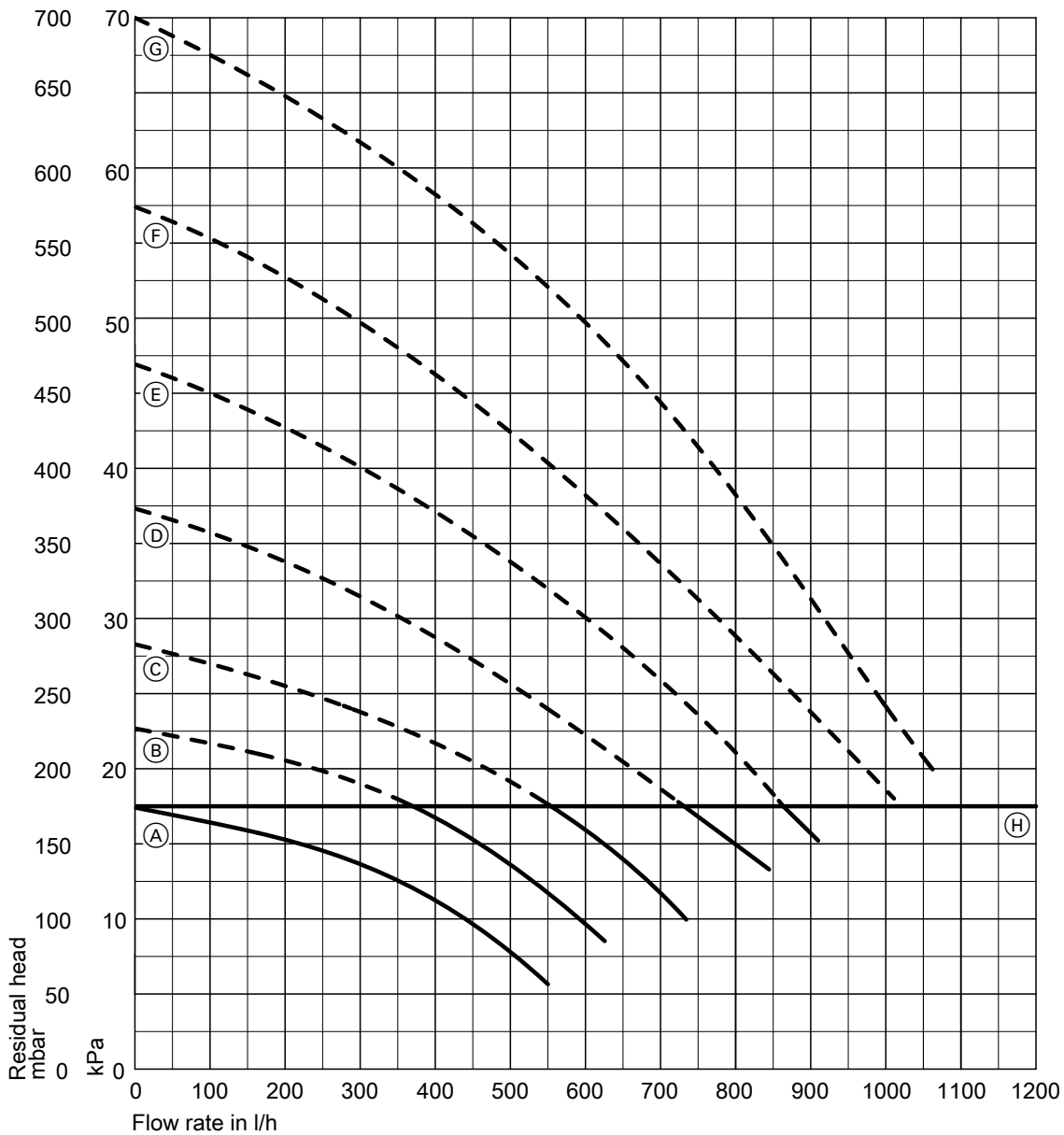
Specification – circulation pump

Rated heating output kW	13	19	26	35
Circulation pump Type	UPM3 15-75	UPM3 15-75	UPM3 15-75	UPM3 15-75
Rated voltage	V~	230	230	230
Power consumption				
– max.	W	60	60	60
– min.	W	2	2	2
– Factory setting	W	12	20	38
Energy efficiency class	A	A	A	A

Vitodens 200-W (cont.)

Residual head of the integral circulation pump

Vitodens 200-W



(H) Upper operational limit

Curve	Pump rate, circulation pump	Coding address setting "E6"
(A)	45 %	E6:045
(B)	55 %	E6:055
(C)	60 %	E6:060
(D)	70 %	E6:070
(E)	80 %	E6:080
(F)	90 %	E6:090
(G)	100 %	E6:100

Vitodens 200-W (cont.)

Instantaneous standby water heater (gas condensing combi boiler)

An instantaneous standby water heater is integrated into the Vitodens 200-W. When the comfort function is switched on, the temperature of the instantaneous water heater will be maintained. This makes DHW instantly available from the Vitodens at the required temperature.

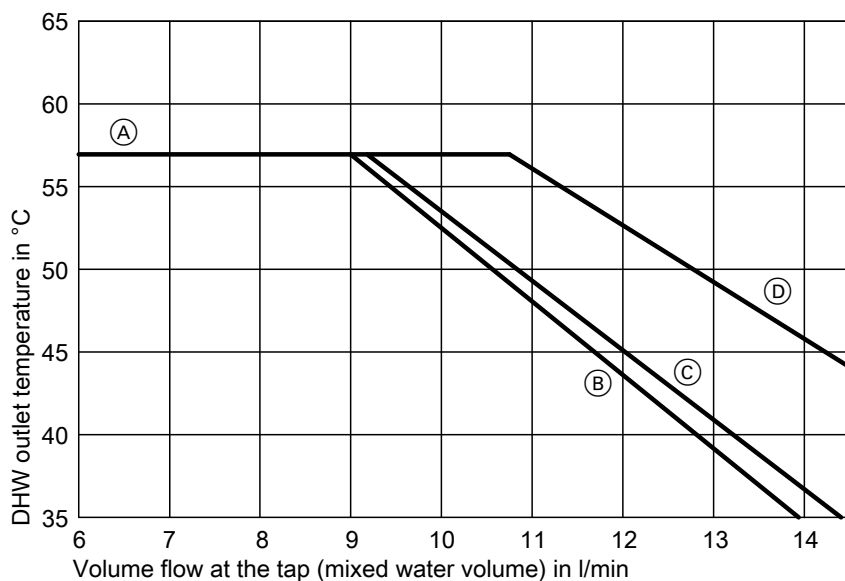
Specification – instantaneous standby water heater

Capacity		
– DHW side	l	1.0
– Heating water side	l	0.7
Connections		
DHW and cold water	G	½
Max. operating pressure		
	bar	10
	MPa	1.0

Output

Rated heating output range of the gas condensing combi boiler	kW	26.0	30.0	35.0
Continuous DHW output	kW	29.3	30.0	33.5
When heating DHW from 10 to 45 °C	l/h	840	860	960
Draw-off rate	l/min	3-12	3-14	3-14
Outlet temperature, adjustable	°C	30-57	30-57	30-57

DHW temperature subject to flow rate



- (A) DHW outlet temperature at the mixer tap
 (B) Vitodens 200-W, 26 kW

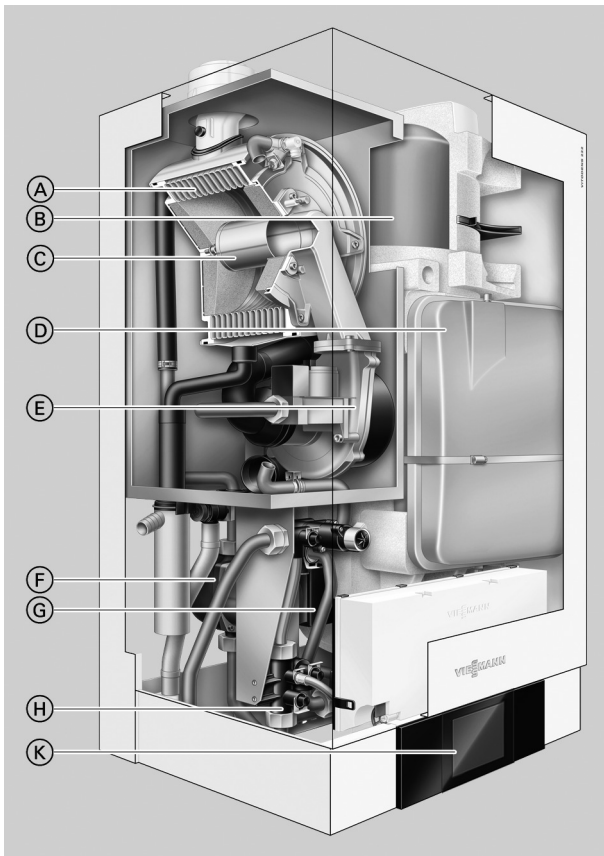
- (C) Vitodens 200-W, 30 kW
 (D) Vitodens 200-W, 35 kW

The diagram illustrates the changes in the outlet temperature, subject to the flow rate at the draw-off point.

If a greater volume of water is required, cold water needs to be admixed, which reduces the outlet temperature.

The illustrated outlet temperature characteristics are based on a cold water inlet temperature of 10 °C.

2.1 Product description



- (A) 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
- (B) Loading cylinder made from stainless steel
- (C) Modulating Matrix cylinder burner with intelligent Lambda Pro Control Plus combustion controller for clean combustion and quiet operation
- (D) Integral diaphragm expansion vessel
- (E) Variable speed combustion fan for quiet and economical operation
- (F) Integral variable speed high efficiency circulation pump
- (G) Plate heat exchanger
- (H) Gas and water connections
- (K) Digital boiler control unit

The Vitodens 222-W is a particularly space saving wall mounted gas condensing storage combi boiler for situations where high DHW convenience is required. The heat cell comprises the proven stainless steel Inox-Radial heat exchanger, the modulating Matrix cylinder burner and the automatic Lambda Pro Control Plus combustion controller.

The integral 46 l stainless steel loading cylinder offers the same DHW convenience as a separate 150 l DHW cylinder with internal indirect coils. DHW is available immediately at the required temperature and with high consistency, even simultaneously at different draw-off points. Apart from the loading cylinder, all essential system components such as heating water expansion vessels, pumps and safety valves are integrated and fully fitted. All this comes at a total weight of no more than 67 kg and in a casing that fits into a standard 600 mm wide kitchen unit space.

The Vitodens 222-W is the ideal product, particularly in new build, as it can be installed before the screed is put down.

Recommended applications

- Detached and terraced houses
- New build (e.g. pre-fabricated houses and developer projects): Installation in utility rooms and attics
- Modernisation: Replacement of gas system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders installed below.

Benefits at a glance

- Standard seasonal efficiency [to DIN]: up to 98 % (H_g) [gross cv] / 109 % (H_i) [net cv]
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating Matrix cylinder burner, modulation range up to 1:19, with a long service life thanks to stainless steel Matrix gauze – resistant to high temperature loads

- High DHW convenience: NL performance factor up to 1.5 (corresponds to a separate DHW cylinder with approx. 150 l capacity)
- Energy saving high efficiency circulation pump (compliant with Energy Label A)
- New, innovative operating concept using colour touchscreen with plain text and graphic display, commissioning assistants and displays for energy consumption, as well as alternative operation from a mobile end device
- Lambda Pro Control Plus combustion controller for all gas types – saves on costs by extending the inspection interval to 3 years [in Germany]
- Automatic flue gas route adaptation
- All system components, such as loading cylinder, (heating water) expansion vessel, pumps and safety valves are fully fitted.
- Web-enabled thanks to Vitoconnect (accessories) for operation and service via Viessmann app

Factory setting

Wall mounted gas condensing boiler with Inox-Radial heat exchanger, integral loading cylinder made from stainless steel, modulating Matrix cylinder burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], compact hydraulics with multi connect system, and variable speed high efficiency circulation pump. With diaphragm expansion vessel for heating water. Fully plumbed and wired. Colour of the epoxy-coated casing: white. Packed separately:
 Vitotronic 100 for constant temperature operation
 or
 Vitotronic 200 for weather-compensated operation
 Preset for operation with natural gas. Conversion within gas groups E/LL is not required. The conversion to LPG is made at the control unit (a conversion kit is not required).

Vitodens 222-W (cont.)

Accessories required (order separately)

Pre-plumbing jig with:

- Fixings
- Valves/fittings
- DHW safety valve
- Boiler drain & fill valve
- Gas shut-off valve with thermally activated safety shut-off valve

For installation either on finished or unfinished walls

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.

2.2 Specification

Gas boiler, series B and C Category II _{2N3P}		Values in () when operating with LPG P			
Rated heating output range (details to EN 677)					
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	1.8 (3.5) - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	1.6 (3.2) - 32.5
Rated heating output range for DHW heating		kW			
Rated heat input		kW			
Product ID		CE-0085CN0050			
IP rating		IP X4 to EN 60529			
Gas supply pressure					
Natural gas	mbar	20	20	20	20
	kPa	2	2	2	2
LPG	mbar	50	50	50	50
	kPa	5	5	5	5
Max. permissible gas supply pressure ^{*7}					
Natural gas	mbar	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5	57.5
	kPa	5.75	5.75	5.75	5.75
Sound power level (to EN ISO 15036-1)					
At partial load	dB(A)	39	41	38	36
At rated heating output (DHW heating)	dB(A)	42	47	48	52
- Max.	W	126	126	148	163
Weight	kg	60	60	63	67
Heat exchanger capacity	l	1.8	1.8	2.4	2.8
Max. flow temperature	°C	74	74	74	74
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1200	1200	1400	1600
Nominal circulating water volume At $\Delta T = 20\text{ K}$	l/h	537	739	1018	1361
Diaphragm expansion vessel					
Capacity	l	10	10	10	10
Pre-charge pressure	bar	0.8	0.8	0.8	0.8
	kPa	80	80	80	80
Permiss. operating pressure	bar	3	3	3	3
	MPa	0.3	0.3	0.3	0.3
Connections					
Boiler flow and return	G	¾	¾	¾	¾
Cold water and DHW	G	½	½	½	½
Dimensions					
Length	mm	480	480	480	480
Width	mm	600	600	600	600
Height	mm	900	900	900	900
Height with flue bend	mm	1028	1028	1028	1028
Gas connection (with connection accessories)	R	½	½	½	½
DHW loading cylinder					
Capacity	l	46	46	46	46
Permiss. operating pressure (DHW side)	bar	10	10	10	10
	MPa	1.0	1.0	1.0	1.0
Continuous DHW output	kW	17.2	17.2	29.3	33.5
Initial DHW output	l/10 min	135	135	180	200
When heating DHW from 10 to 45 °C					
Performance factor N_L ^{*8}		1.0	1.0	1.3	1.5
Connection values					
Relative to max. load					
With gas					
Natural gas E	m³/h	1.89	1.89	3.23	3.69
Natural gas LL	m³/h	2.20	2.20	3.75	4.30
LPG P	kg/h	1.40	1.40	2.38	2.73

^{*7} If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

^{*8} At 70 °C average boiler water temperature and cylinder storage temperature $T_{cyl} = 60\text{ °C}$.
DHW performance factor N_L depends on cylinder storage temperature T_{cyl} .

Standard values: $T_{cyl} = 60\text{ °C} \rightarrow 1.0 \times N_L$ $T_{cyl} = 55\text{ °C} \rightarrow 0.75 \times N_L$ $T_{cyl} = 50\text{ °C} \rightarrow 0.55 \times N_L$ $T_{cyl} = 45\text{ °C} \rightarrow 0.3 \times N_L$.

Vitodens 222-W (cont.)

Gas boiler, series B and C Category II _{2N3P}		Values in () when operating with LPG P			
Rated heating output range (details to EN 677)		1.9 - 13.0	1.9 - 19.0	2.6 - 26.0	1.8 (3.5) - 35.0
T _F /T _R = 50/30 °C	kW				
T _F /T _R = 80/60 °C	kW	1.7 - 12.1	1.7 - 17.6	2.4 - 24.1	1.6 (3.2) - 32.5
Flue gas parameters ^{*2*4}					
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)					
– At rated heating output	°C	45	45	45	45
– At partial load	°C	35	35	35	35
Temperature (at a return temperature of 60 °C)					
– At rated heating output	°C	68	68	70	70
Mass flow rate					
Natural gas					
– At rated heating output (DHW heating)	kg/h	31.8	31.8	54.3	62.1
– At partial load	kg/h	5.5	5.5	8.7	8.7
LPG					
– At rated heating output (DHW heating)	kg/h	30.2	30.2	51.5	58.9
– At partial load	kg/h	7.6	7.6	14.0	14.0
Available draught					
	Pa	250	250	250	250
	mbar	2.5	2.5	2.5	2.5
Max. amount of condensate					
To DWA-A 251	l/h	2.3	2.5	4.3	4.9
Internal diameter of the pipe to the safety valve					
	DN	15	15	15	15
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]		Up to 98 (H _g) [gross cv] / 109 (H _i) [net cv]			
At T _F /T _R = 40/30 °C		%			
Energy efficiency class					
– Heating		A	A	A	A
– DHW heating, draw-off profile XL		A	A	A	A

^{*2} Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

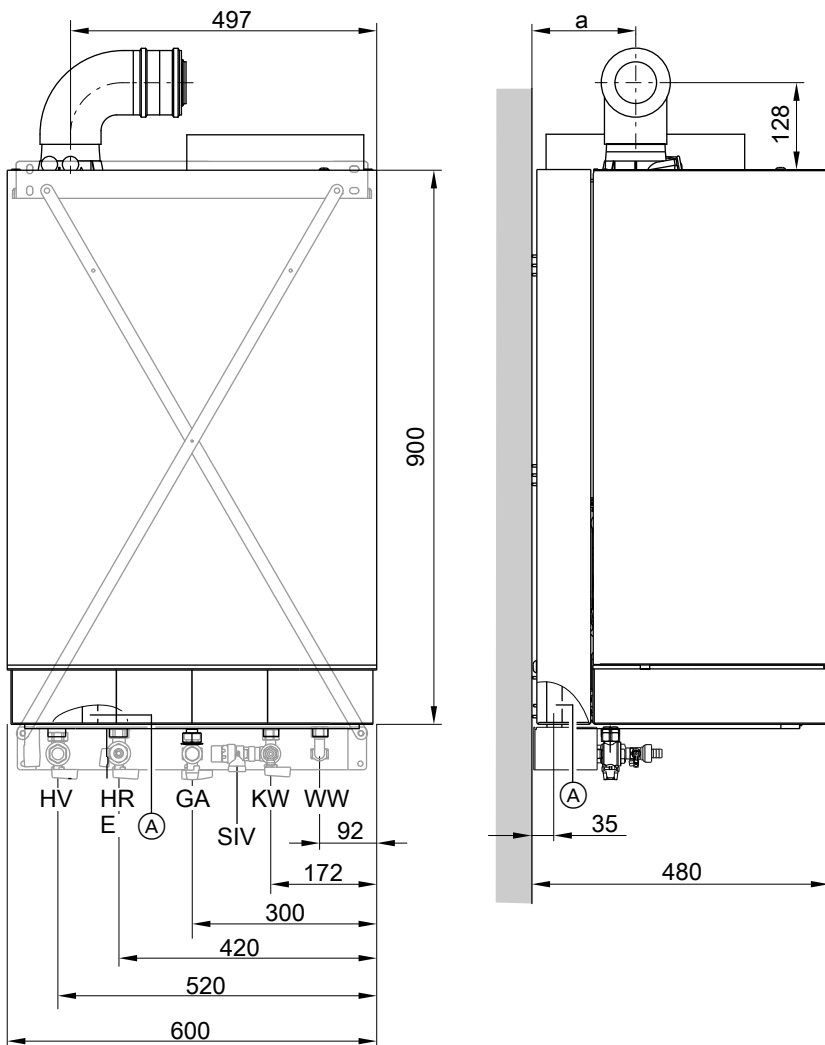
The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

^{*4} Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.



- (A) Condensate drain
- E Drain
- GA Gas connection
- HR Heating return

- HV Heating flow
- KW Cold water
- SIV Safety valve on the DHW side
- WW DHW

Rated heating output kW	Dim. a mm
13 and 19	143
26 and 35	168

Note

For connection dimensions for installation on finished walls with pre-plumbing jig, see page 67.

For connection dimensions for installation on unfinished walls with pre-plumbing jig, see page 68.

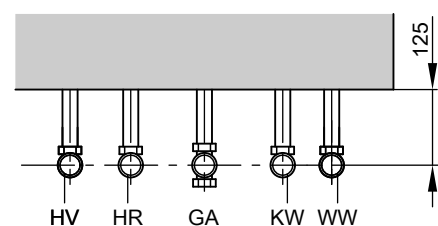
Note

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

Variable speed heating circuit pump in the Vitodens 222-W

The integral circulation pump is a highly efficient pump with substantially lower power consumption than conventional pumps.

The pump speed and consequently the pump rate are regulated subject to the outside temperature and the switching times for heating or reduced mode. The control unit transmits the current default settings to the circulation pump via an internal data BUS.



The control unit codes can be used to match the minimum and maximum speeds and the speed for reduced mode to the existing heating system.

In the delivered condition, the minimum pump rate (coding address "E7") and the maximum pump rate (coding address "E6") are set to the following values:

Vitodens 222-W (cont.)

Rated heating output in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
13	45	60
19	45	65
26	45	80
35	45	90

Note

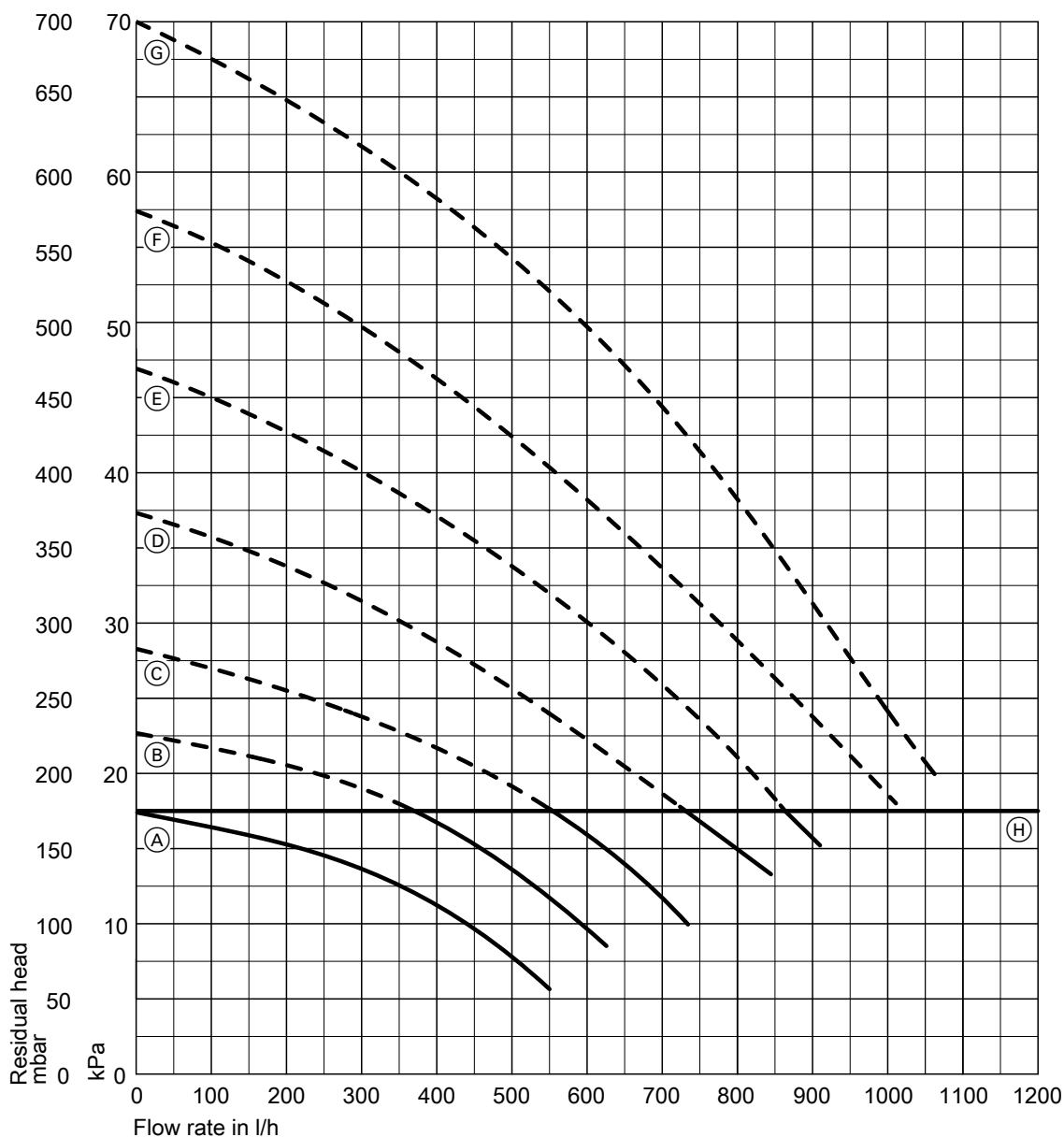
In conjunction with a low loss header, heating water buffer cylinder and heating circuits with mixer, the internal circulation pump runs at a constant speed. The speed can be adjusted subject to demand by changing codes at the control unit.

Specification – circulation pump

Rated heating output	kW	13	19	26	35
Circulation pump	Type	UPM3 15-75	UPM3 15-75	UPM3 15-75	UPM3 15-75
Rated voltage	V~	230	230	230	230
Power consumption					
– max.	W	60	60	60	60
– min.	W	2	2	2	2
– Factory setting	W	12	20	38	45
Energy efficiency class		A	A	A	A

Residual head of the integral circulation pump

Vitodens 222-W

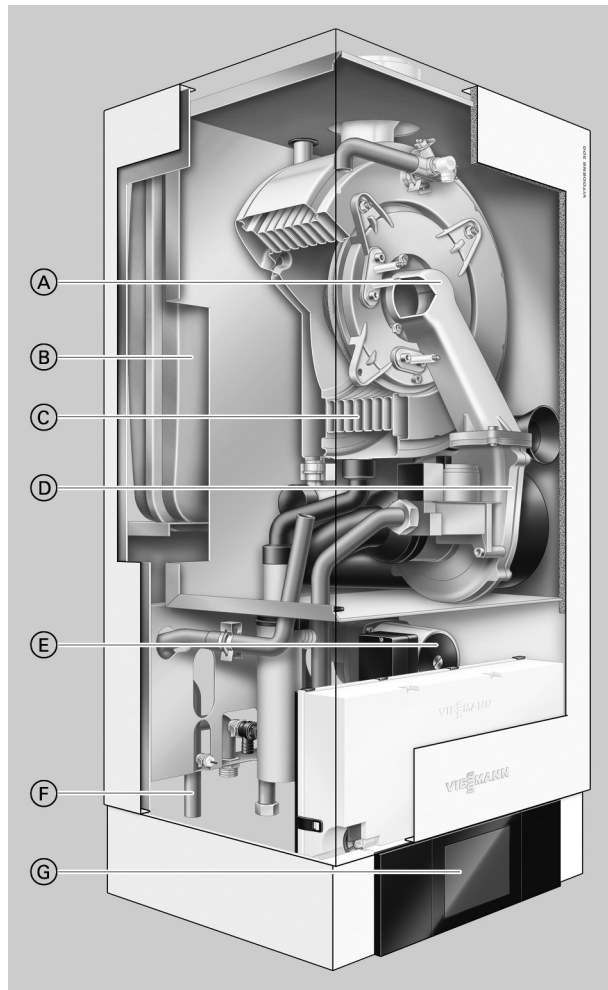


(H) Upper operational limit

Vitodens 222-W (cont.)

Curve	Pump rate, circulation pump	Coding address setting "E6"
Ⓐ	45 %	E6:045
Ⓑ	55 %	E6:055
Ⓒ	60 %	E6:060
Ⓓ	70 %	E6:070
Ⓔ	80 %	E6:080
Ⓕ	90 %	E6:090
Ⓖ	100 %	E6:100

3.1 Product description



- Ⓐ Modulating MatriX gas burner with intelligent Lambda Pro Control combustion controller for extremely clean combustion and quiet operation
- Ⓑ Integral diaphragm expansion vessel (Vitodens 300-W, up to 19 kW)
- Ⓒ 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
- Ⓔ Integral, variable speed high efficiency circulation pump
- Ⓕ Gas and water connections
- Ⓖ Digital boiler control unit with colour touchscreen

The top model among the wall mounted gas condensing boilers is the Vitodens 300-W. The MatriX gas burner and Inox Radial heat exchanger made of stainless steel are a combination that guarantees high efficiency and high long-term heating convenience.

All Vitodens 300-W models are now equipped with the automatic Lambda Pro Control combustion controller. Modulation range up to 1:10 (19 kW).

The integral, variable speed high efficiency circulation pump reduces power consumption by up to 70 %.

The Vitodens 300-W is equipped with integral sensor technology that enables operation without additional measures to ensure a minimum flow rate. Thanks to the integral flow rate sensor, hydronic balancing requires minimum effort (eligible for KfW subsidies [in Germany]).

Recommended applications

- Modernisation of heating systems on single floors or in detached houses with high demands for central heating and DHW convenience
- Systems with little space available for the heat generator or tight (flexible) installation locations (e.g. attic or inside furniture)
- Replacement of existing floorstanding boilers in various systems, also with several heating circuits and underfloor heating

Benefits at a glance

- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- Low cycling frequency, even with low heat demand, through optimised pauses and wide modulation range of up to 1:10 (19 kW)

- Durable and efficient through the Inox-Radial heat exchanger with water-cooled front and back panel, plus venting function
- MatriX gas burner (spherical burner) with Lambda Pro Control combustion controller for permanently high efficiency and clean combustion.
- Power saving, high efficiency circulation pump
- New, innovative operating concept using colour touchscreen with plain text and graphic display, commissioning assistants and displays for energy consumption, as well as alternative operation from a mobile end device
- Web-enabled via integral LAN interface
- Reduced energy consumption and flow noise through self-acting/automatic adjustment of pump rate (residual head control)
- Easy hydraulic connections: no overflow valve required
- Set up for automated hydronic balancing

Factory setting

Wall mounted gas condensing boiler with Inox-Radial heat exchanger, modulating MatriX gas burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], Aqua-plate with multi connect system and variable speed high efficiency circulation pump. Vitotronic 200 for weather-compensated operation with integral LAN interface.

Fully plumbed and wired. Colour of the epoxy-coated casing: white. With Vitodens 300-W, 1.9 to 19 kW: integral diaphragm expansion vessel (10 l capacity).

Preset for operation with natural gas. Conversion within gas groups E/LL is not required. The conversion to LPG is made at the gas train (a conversion kit is not required).

Vitodens 300-W (cont.)

Accessories required (order separately)

Installing the Vitodens directly on the wall

Pre-plumbing jig:

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With gas shut-off valve and thermally activated safety shut-off valve

For installation either on finished or unfinished walls

Mounting frame (not for Vitodens 300-W, 1.9 to 19 kW):

- With diaphragm expansion vessel (18 l capacity)
- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With angle gas valve with thermally activated safety shut-off valve

For installation on finished or unfinished walls with threaded fittings

Installing the Vitodens in front of the wall

Self-supporting mounting frame (installed depth 110 mm):

- With fixings
- With valves/fittings
- With boiler drain & fill valve
- With angle gas valve with thermally activated safety shut-off valve

For installation with threaded fittings

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.

3.2 Specification

Gas boiler, type B and C, category II _{2N3P}		Gas condensing system boiler			
Rated heating output range (details to EN 677)					
$T_F/T_R = 50/30\text{ °C}$	kW	1.9 - 11.0	1.9 - 19.0	4.0 - 26.0	4.0 - 35.0
$T_F/T_R = 80/60\text{ °C}$	kW	1.7 - 10.1	1.7 - 17.2	3.6 - 23.7	3.6 - 31.7
Rated heating output for DHW heating	kW	1.7 - 16.0	1.7 - 17.2	3.6 - 23.7	3.6 - 31.7
Rated heat input	kW	1.8 - 16.7	1.8 - 17.9	3.8 - 24.7	3.8 - 33.3
Product ID		CE-0085CM0463			
IP rating		IP X4 to EN 60529			
Gas supply pressure					
Natural gas	mbar	20	20	20	20
	kPa	2	2	2	2
LPG	mbar	50	50	50	50
	kPa	5	5	5	5
Max. permissible gas supply pressure⁹					
Natural gas	mbar	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5	57.5
	kPa	5.75	5.75	5.75	5.75
Sound power level (to EN ISO 15036-1)					
At partial load	dB(A)	29	29	33	33
At rated heating output (DHW heating)	dB(A)	41	48	48	51
Power consumption (in the delivered condition)	W	36	49	63	83
Weight	kg	50	50	48	50
Heat exchanger capacity	l	3.8	3.8	5.6	5.6
Max. flow temperature	°C	74	74	74	74
Max. flow rate (Limit for the use of hydraulic separation)	l/h	1000	1200	1400	1600
Nominal circulating water volume At $T_F/T_R = 80/60\text{ °C}$	l/h	434	739	1018	1376
Diaphragm expansion vessel					
Capacity	l	10	10	—	—
Pre-charge pressure	bar	0.75	0.75	—	—
	kPa	75	75	—	—
Permiss. operating pressure	bar	3	3	3	3
	MPa	0.3	0.3	0.3	0.3
Safety valve connection	Rp	¾	¾	¾	¾
Dimensions					
Length	mm	360	360	380	380
Width	mm	450	450	480	480
Height	mm	850	850	850	850
Height with flue bend	mm	1053	1053	1066	1066
Height with DHW cylinder below the boiler	mm	1925	1925	1925	1925
Gas connection	R	½	½	½	½
Connection values					
Relative to max. load					
With gas					
Natural gas E	m ³ /h	1.77	1.89	2.61	3.52
Natural gas LL	m ³ /h	2.05	2.20	3.04	4.10
LPG P	kg/h	1.31	1.40	1.93	2.60

⁹ If the gas supply pressure is higher than the maximum permissible value, install a separate gas pressure governor upstream of the system.

Vitodens 300-W (cont.)

Gas boiler, type B and C, category II _{2N3P}		Gas condensing system boiler			
Rated heating output range (details to EN 677)					
$T_F/T_R = 50/30$ °C	kW	1.9 - 11.0	1.9 - 19.0	4.0 - 26.0	4.0 - 35.0
$T_F/T_R = 80/60$ °C	kW	1.7 - 10.1	1.7 - 17.2	3.6 - 23.7	3.6 - 31.7
Flue gas parameters *2*4					
Flue gas category to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at a return temperature of 30 °C)					
– At rated heating output	°C	45	45	45	45
– At partial load	°C	35	35	35	35
Temperature (at a return temperature of 60 °C)					
	°C	68	68	70	70
Mass flow rate					
Natural gas					
– At rated heating output	kg/h	29.7	31.8	43.9	59.2
– At partial load	kg/h	3.2	3.2	6.8	6.8
LPG					
– At rated heating output	kg/h	28.2	30.3	41.7	56.3
– At partial load	kg/h	3.0	3.0	6.4	6.4
Available draught					
	Pa	250	250	250	250
	mbar	2.5	2.5	2.5	2.5
Max. amount of condensate					
To DWA-A 251	l/h	2.3	2.5	3.5	4.7
Internal diameter of the pipe to the expansion vessel					
	DN	–	–	20	20
Condensate connection (hose nozzle)					
	Ø mm	20-24	20-24	20-24	20-24
Flue gas connection					
	Ø mm	60	60	60	60
Ventilation air connection					
	Ø mm	100	100	100	100
Standard seasonal efficiency [to DIN] at					
$T_F/T_R = 40/30$ °C	%	Up to 98 (H _s) [gross cv] / 109 (H _i) [net cv]			
Energy efficiency class		A	A	A	A

*2 Calculation values for sizing the flue system to EN 13384.

Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

*4 Calculation values for sizing the flue system to EN 13384.

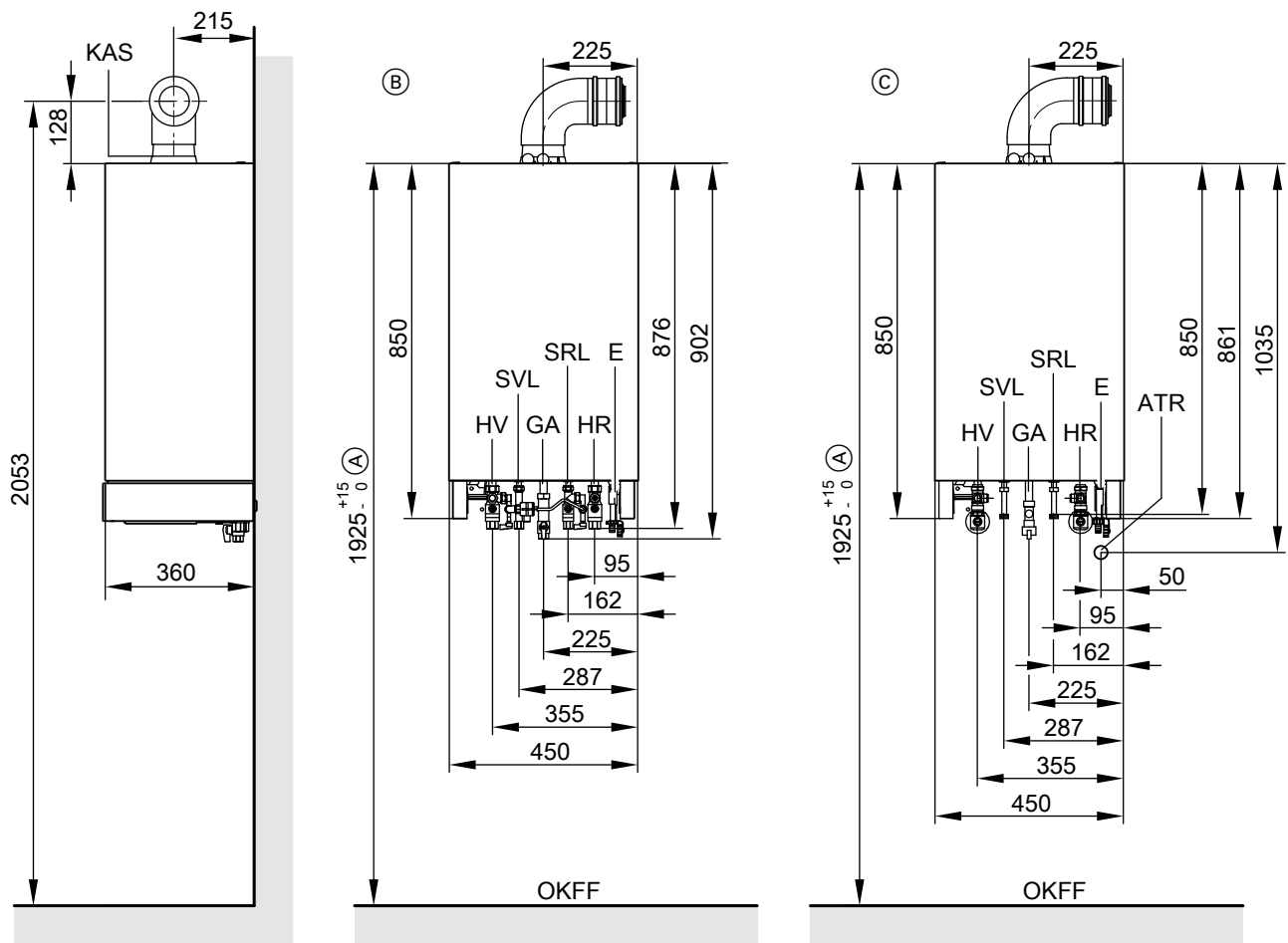
Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Vitodens 300-W (cont.)

Vitodens 300-W, 1.9 to 19 kW



- (A) Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.
- (B) Installation on finished walls
- (C) Installation on unfinished walls
- ATR Drain outlet connection
- E Drain
- GA Gas connection

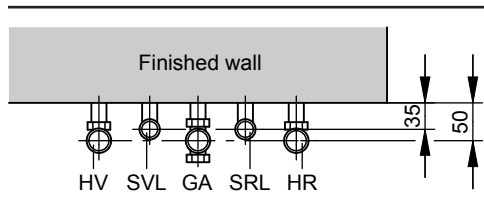
- HR Heating return
- HV Heating flow
- KAS Boiler flue connection
- OKFF Top edge finished floor
- SRL Cylinder return
- SVL Cylinder flow

Note

For connection dimensions for installation on finished walls with pre-plumbing jig, see page 59.
 For connection dimensions for installation on unfinished walls with pre-plumbing jig, see page 65.

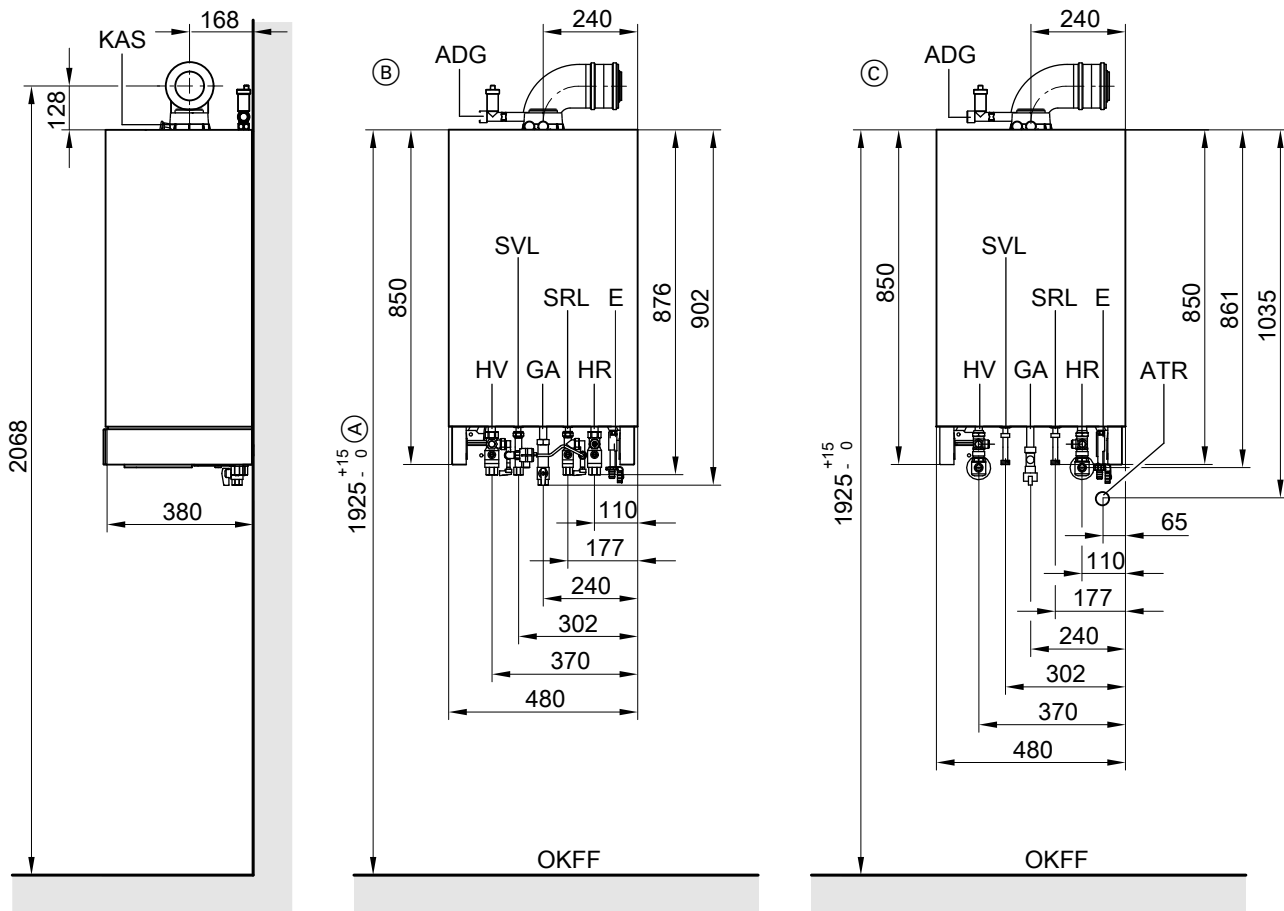
Note

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



Vitodens 300-W (cont.)

Vitodens 300-W, 4.0 to 35 kW



- (A) Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.
 (B) Installation on finished walls
 (C) Installation on unfinished walls
 ADG Expansion vessel connection G 3/4
 ATR Drain outlet connection
 E Drain

- GA Gas connection
 HR Heating return
 HV Heating flow
 KAS Boiler flue connection
 OKFF Top edge finished floor
 SRL Cylinder return
 SVL Cylinder flow

Note

For connection dimensions for installation on finished walls with pre-plumbing jig, see page 59.

For connection dimensions for installation on unfinished walls with pre-plumbing jig, see page 65.

For connection dimensions for installation with a mounting frame, see page.

Note

Prepare all connections on site before commencing the boiler installation.

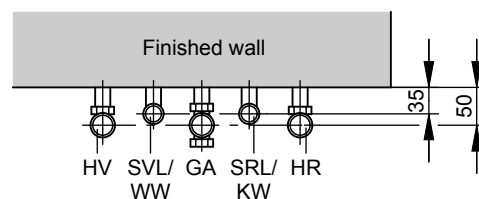
Lay all required supply cables on site and route them into the boiler at the point indicated (see page).

Variable speed heating circuit pump in the Vitodens 300-W

The integral circulation pump is a highly efficient pump with substantially lower power consumption than conventional pumps.

The pump speed and consequently the pump rate are regulated subject to the outside temperature and the switching times for heating or reduced mode. The control unit transmits the current default settings to the circulation pump via an internal data BUS.

The control unit parameters can be used to match the minimum and maximum speeds and the speed for reduced mode to the existing heating system.



In the delivered condition, the minimum pump rate (coding address "E7") and the maximum pump rate (coding address "E6") are set to the following values:

Vitodens 300-W (cont.)

Rated heating output range in kW	Speed settings in the delivered condition in %	
	Min. pump rate	Max. pump rate
1.9-11	38	50
1.9-19	38	55
4.0-26	40	75
4.0-35	40	85

In order to run the heating system even more economically and minimise flow noise, the heating circuit pump can be operated alternatively with a specified residual head (parameter "86"), subject to the following system conditions.

- System conditions:
 - System only has one heating circuit without mixer
 - System has no low loss header or heating water buffer cylinder
 - Heating circuit in a typical detached house
- For appliances in conjunction with a heating circuit without mixer, we recommend a residual head of 120 mbar.

Note

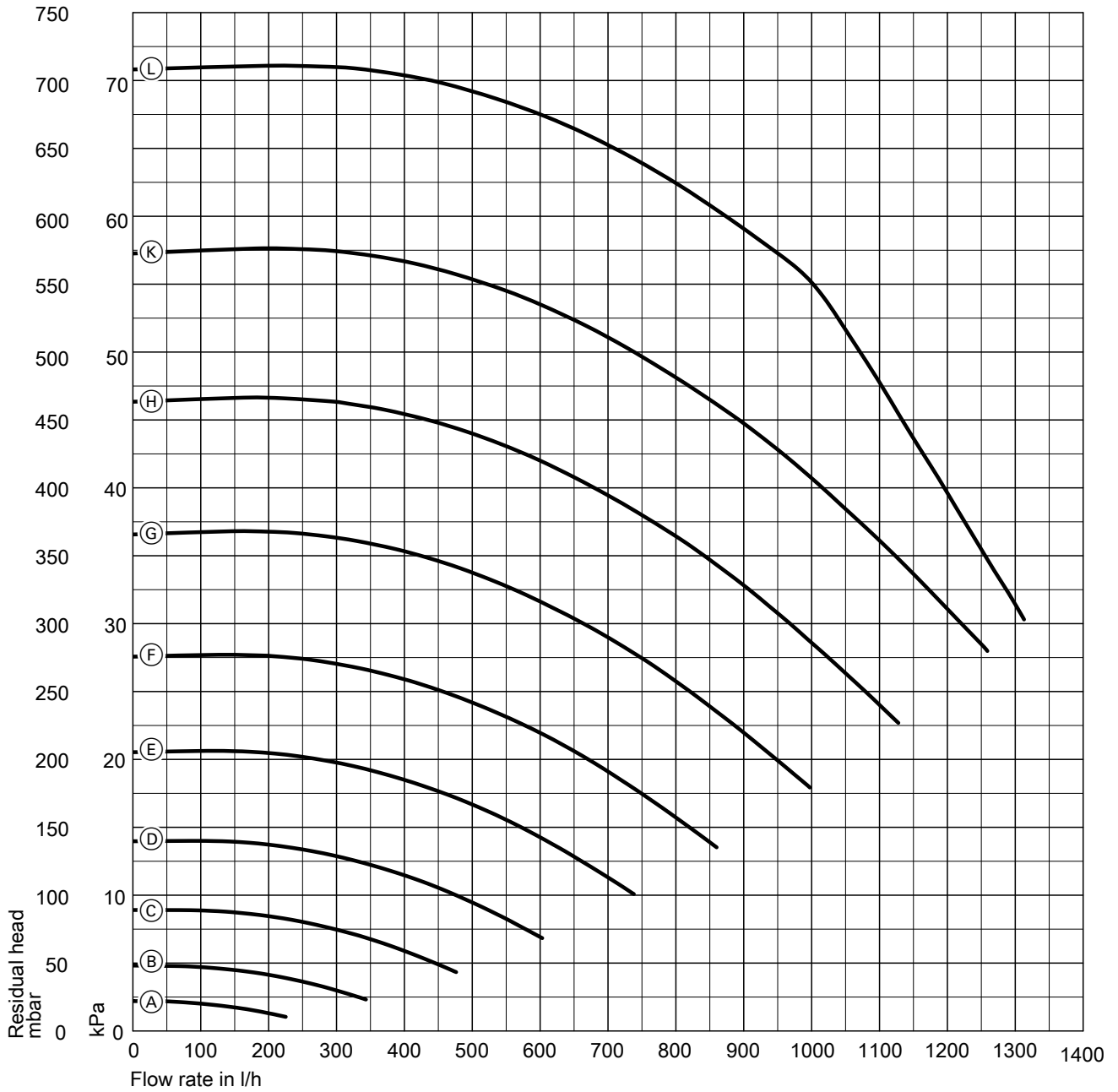
In conjunction with a low loss header, heating water buffer cylinder and heating circuits with mixer, the internal circulation pump runs at a constant speed. The speed can be adjusted subject to demand by changing codes at the control unit.

Specification – circulation pump

Rated heating output	kW	1.9-11	1.9-19	4.0-26	4.0-35
Circulation pump	Type	UPM3 15-75	UPM3 15-75	UPM3 15-75	UPM3 15-75
Rated voltage	V~	230	230	230	230
Power consumption					
– max.	W	60	60	60	60
– min.	W	2	2	2	2
– Factory setting	W	14	24	39	54
Energy efficiency class		A	A	A	A

Vitodens 300-W (cont.)

Residual head of the integral circulation pump



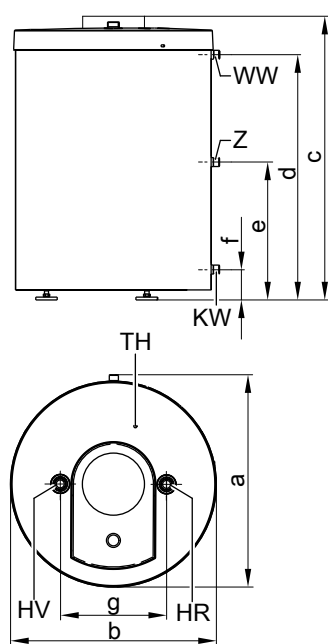
Curve	Pump rate, circulation pump	Coding address setting "E6"
(A)	10 %	E6:010
(B)	20 %	E6:020
(C)	30 %	E6:030
(D)	40 %	E6:040
(E)	50 %	E6:050
(F)	60 %	E6:060
(G)	70 %	E6:070
(H)	80 %	E6:080
(K)	90 %	E6:090
(L)	100 %	E6:100

Separate DHW cylinders

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

- Installed below the boiler
- With internal indirect coils, 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
DHW 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	∅mm	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



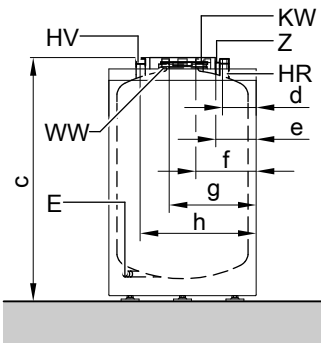
KW Cold water
 WW DHW
 TH Sensor well for cylinder temperature sensor (internal diameter 7 mm)
 Z DHW circulation

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

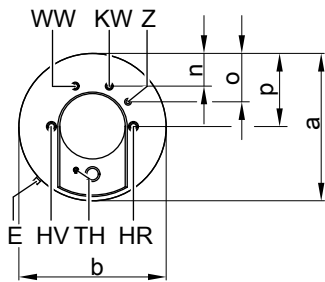
Vitocell 100-W (type CUG, 100 l)

HR Heating return
 HV Heating flow

Separate DHW cylinders (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)

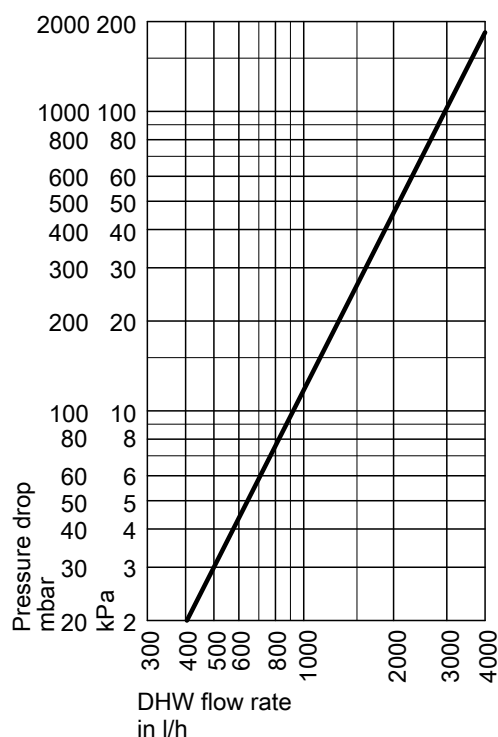
- E Drain
- HR Heating return

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

Separate DHW cylinders (cont.)

Pressure drop on the DHW side



DHW output data at rated heating output

Rated heating output for DHW heating	kW	16	17	24	32
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C					
Cylinder capacity 100 l	kW	16	17	22	22
	l/h	390	415	540	540
Cylinder capacity 120 and 150 l	kW	16	17	24	24
	l/h	390	415	590	590
Performance factor N_L to DIN 4708					
Cylinder capacity 100 l		1.0	1.0	1.0	1.0
Cylinder capacity 120 l		1.2	1.2	1.2	1.2
Cylinder capacity 150 l		1.6	1.6	1.6	1.6
Peak output over a 10 minute period					
Cylinder capacity 100 l	l/10 min	143	143	143	143
Cylinder capacity 120 l	l/10 min	153	153	153	153
Cylinder capacity 150 l	l/10 min	173	173	173	173

Factory setting

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

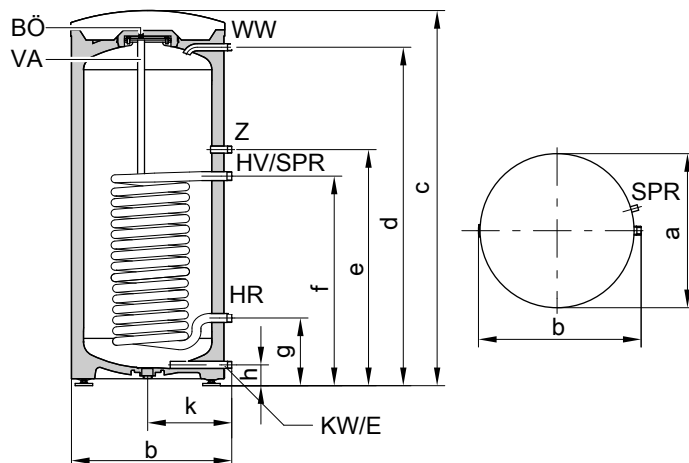
Separate DHW cylinders (cont.)

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

- Adjacent to the boiler
 - With internal indirect coils, made from steel, with Ceraprotect enamel coating
- For further specifications, see the 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
DHW and cold water	R	¾		¾		1
DHW circulation	R	¾		¾		1
Permiss. operating pressure						
– Heating water side	bar MPa	25 2.5		25 2.5		25 2.5
– DHW side	bar MPa	10 1		10 1		10 1
Permiss. temperatures						
– Heating water side	°C	160		160		160
– DHW side	°C	95		95		95
Standby heat loss q_{ST} 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



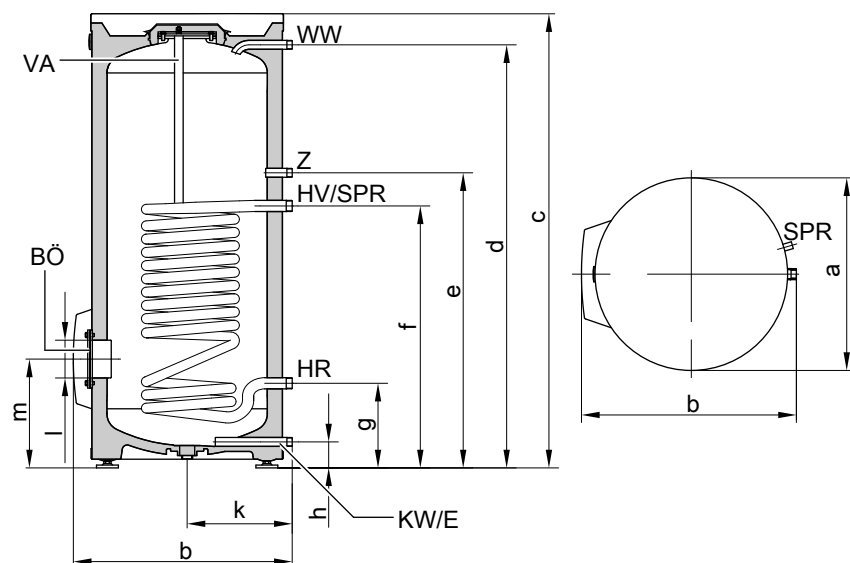
BÖ Inspection and cleaning aperture
 E Drain
 HR Heating water return
 HV Heating water flow
 KW Cold water

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

Separate DHW cylinders (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



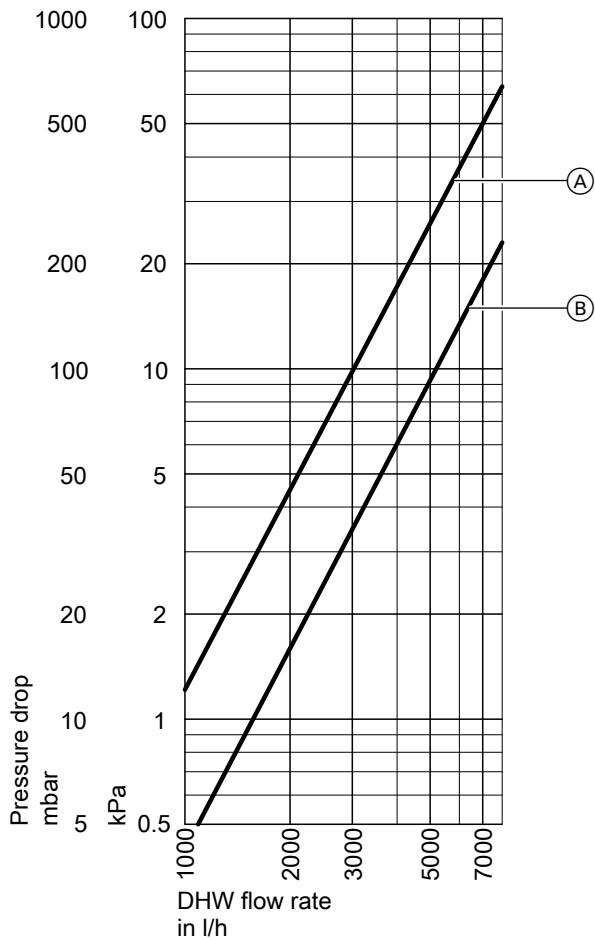
BÖ Inspection and cleaning aperture
 E Drain
 HR Heating water return
 HV Heating water flow
 KW Cold water

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 cylinders (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	16	17	24	32
Continuous DHW output					
for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C					
Cylinder capacity 160 and 200 l					
	kW	16	17	24	26
	l/h	390	415	590	638
Cylinder capacity 300 l					
	kW	16	17	24	32
	l/h	390	415	590	786
Performance factor N_L					
to DIN 4708					
Cylinder capacity 160 l					
		1.6	2.0	2.2	2.2
Cylinder capacity 200 l					
		2.6	3.0	3.2	3.2
Cylinder capacity 300 l					
		7.5	7.5	8.0	8.0
Peak output					
over a 10 minute period					
Cylinder capacity 160 l					
	l/10 min	173	190	199	199
Cylinder capacity 200 l					
	l/10 min	214	230	236	236
Cylinder capacity 300 l					
	l/10 min	357	357	368	368

Factory setting

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

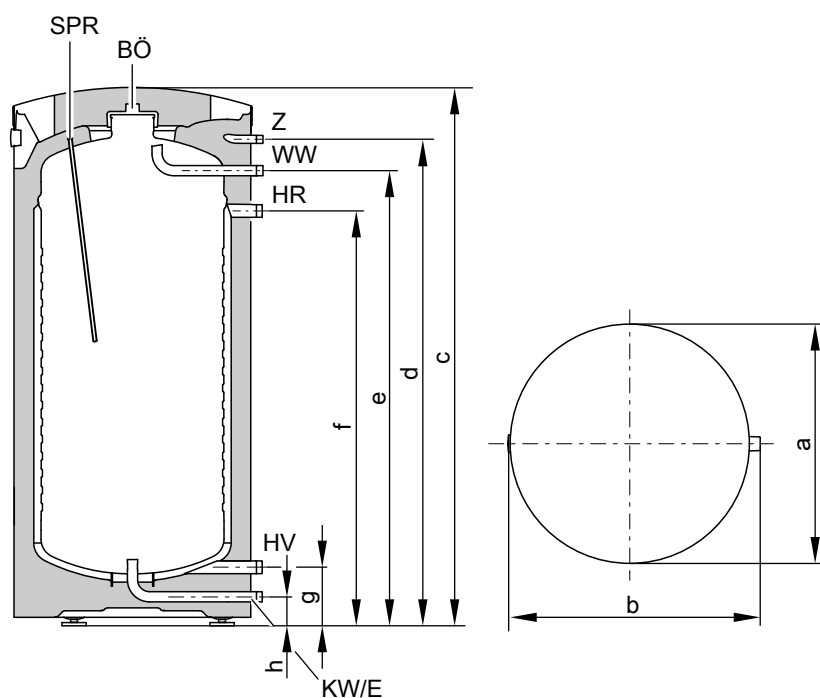
- Protective magnesium anode
- Fitted thermal insulation

Separate DHW cylinders (cont.)

4.3 Vitocell 300-W adjacent to the boiler, type EVA – 160 and 200 l, white finish, heated by a peripheral indirect coil, made from stainless steel

- Adjacent
 - Heated by a peripheral heat exchanger, stainless steel
- For further technical details, see separate datasheet for the Vitocell 300-V.

Capacity	l	160	200
DIN registration no.		0166/04-10 MC	
Connections (male thread)			
Heating water flow and return	R	1	1
Hot and cold water	R	¾	¾
DHW circulation	R	½	½
Permiss. operating pressure			
– Heating water side	bar	3	3
	MPa	0.3	0.3
– DHW side	bar	10	10
	MPa	1	1
Permiss. temperatures			
– Heating water side	°C	110	110
– DHW side	°C	95	95
Standby heat loss q_{BS} at 45 K temperature differential (actual values to DIN 4753-8)	kWh/24 h	1.20	1.36
Dimensions			
Length a (∅)	mm	633	633
Width b	mm	667	667
Height c	mm	1203	1423
Weight	kg	84	98
Energy efficiency class		B	B



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

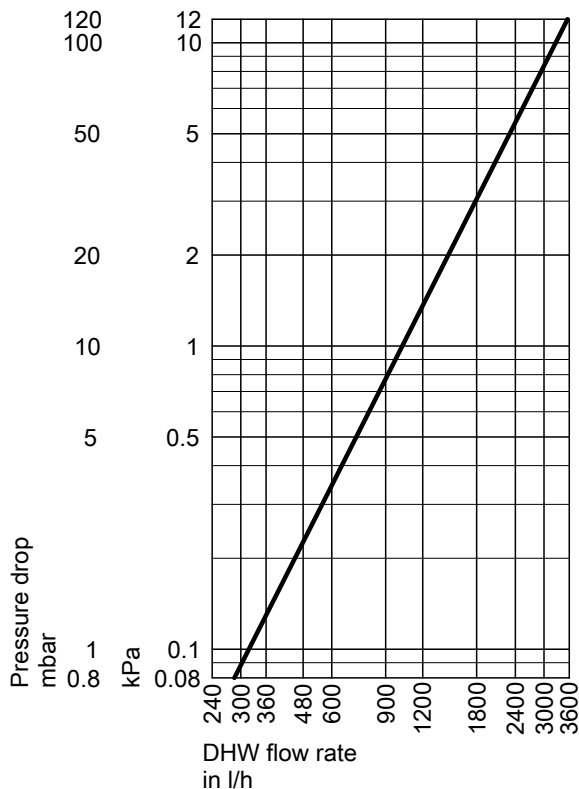
SPR Sensor well for cylinder temperature sensor or temperature controller
 WW DHW
 Z DHW circulation

Separate DHW cylinders (cont.)

Dimensions

Cylinder capacity	l	160	200
a	mm	∅ 633	∅ 633
b	mm	667	667
c	mm	1203	1423
d	mm	1067	1287
e	mm	984	1204
g	mm	877	1097
g	mm	155	155
h	mm	77	77

Pressure drop on the DHW side



DHW output data at rated heating output

Rated heating output for DHW heating	kW	16	17	24	32
Continuous DHW output					
for DHW heating from 10 to 45 °C and an average boiler water temperature of 70 °C					
Cylinder capacity 160 l	kW	16	17	24	24
	l/h	390	415	590	590
Cylinder capacity 200 l	kW	16	17	24	32
	l/h	390	415	590	786
Performance factor N_L					
to DIN 4708					
Cylinder capacity 160 l		1.6	1.7	1.7	1.7
Cylinder capacity 200 l		2.8	2.9	2.9	2.9
Peak output					
over a 10 minute period					
Cylinder capacity 160 l	l/10 min	173	177	177	177
Cylinder capacity 200 l	l/10 min	222	226	226	226

Factory setting

Vitocell 300-V type EVA, heated by a peripheral indirect coil
160 to 200 litre capacity

DHW cylinders made from stainless steel.

- Integral welded sensor well for cylinder temperature sensor or thermostat
- Integral thermometer

Separate DHW cylinders (cont.)

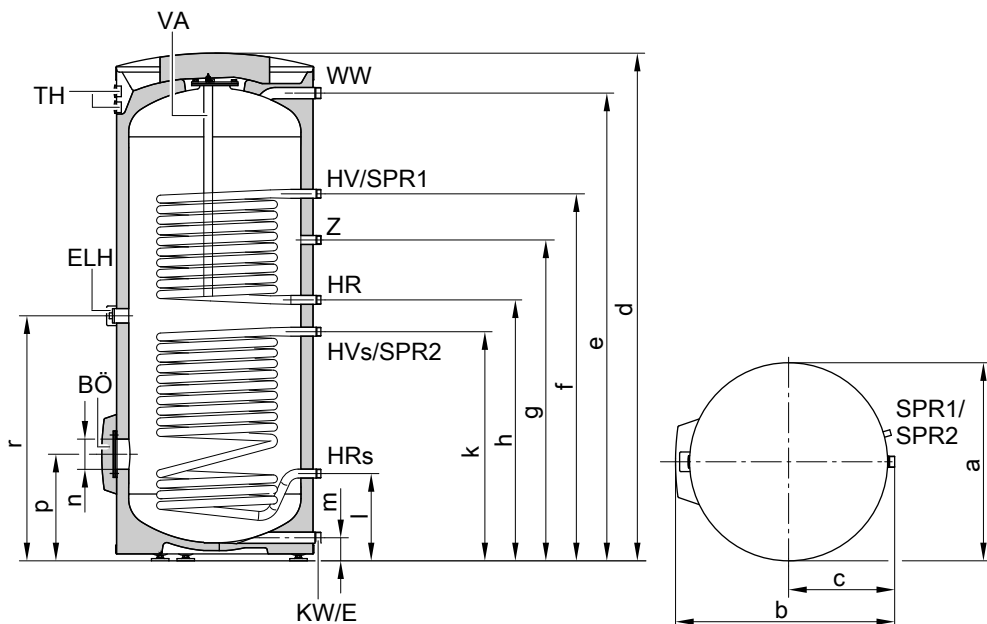
- Threaded adjustable feet
- Fitted thermal insulation

Separate DHW cylinders (cont.)

4.4 Vitocell 100-W adjacent to the boiler, 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	1¼
DHW circulation	R	1	1
Permiss. operating pressure	bar	10	10
on the heating water, solar and DHW sides	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



- E Drain outlet
- ELH Connector for immersion heater
- HR Heating water return of the boiler
- HR_s Heating water return, solar
- HV Heating water flow of the boiler
- HV_s Heating water flow, solar
- KW Cold water
- BÖ Inspection and cleaning aperture

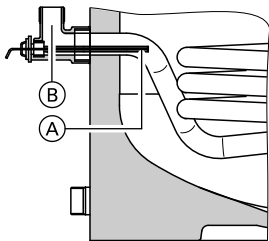
- SPR1 Sensor well for cylinder temperature sensor or temperature controller
- SPR2 Temperature sensors/thermometer
- TH Thermometer
- VA Protective magnesium anode
- WW DHW
- Z DHW circulation

Separate DHW cylinders (cont.)

Dimensions

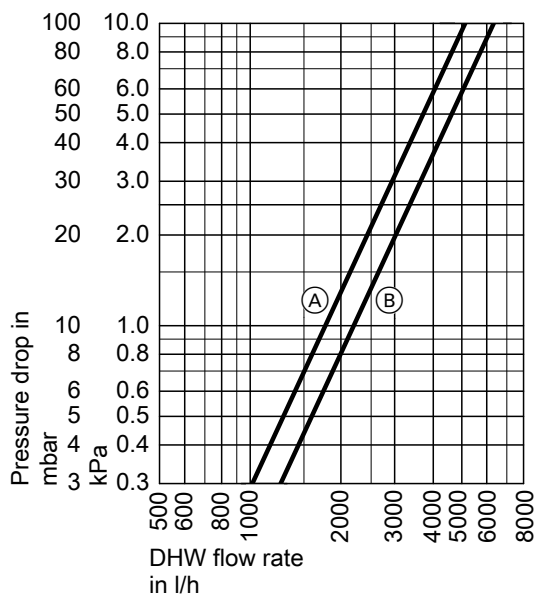
Cylinder capacity	l	300	400
a	mm	∅ 667	∅ 859
b	mm	744	923
c	mm	361	455
d	mm	1734	1624
e	mm	1600	1458
f	mm	1355	1204
g	mm	1115	1044
h	mm	995	924
k	mm	875	804
l	mm	260	349
m	mm	76	107
n	mm	∅ 100	∅ 100
p	mm	333	422
r	mm	935	864

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

Separate DHW cylinders (cont.)

DHW output data at rated heating output

Rated heating output for DHW heating	kW	16	17	24	32
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C	kW l/h	16 390	17 415	24 590	26 638
Performance factor N_L*10 to DIN 4708		1.3	1.4	1.4	1.4
Peak output over a 10 minute period	l/10 min	159	164	164	164

Factory setting

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

4.5 Vitocell 100-W adjacent to the boiler, type CVUB and CVUC-A – 300 l, white finish, made from steel, with Ceraprotect enamel coating for dual mode DHW heating

- Adjacent to the boiler
- With internal indirect coils, made from steel, with Ceraprotect enamel coating
- For dual mode DHW heating
- With Solar-Divicon, integral pipework and solar control module, type SM1

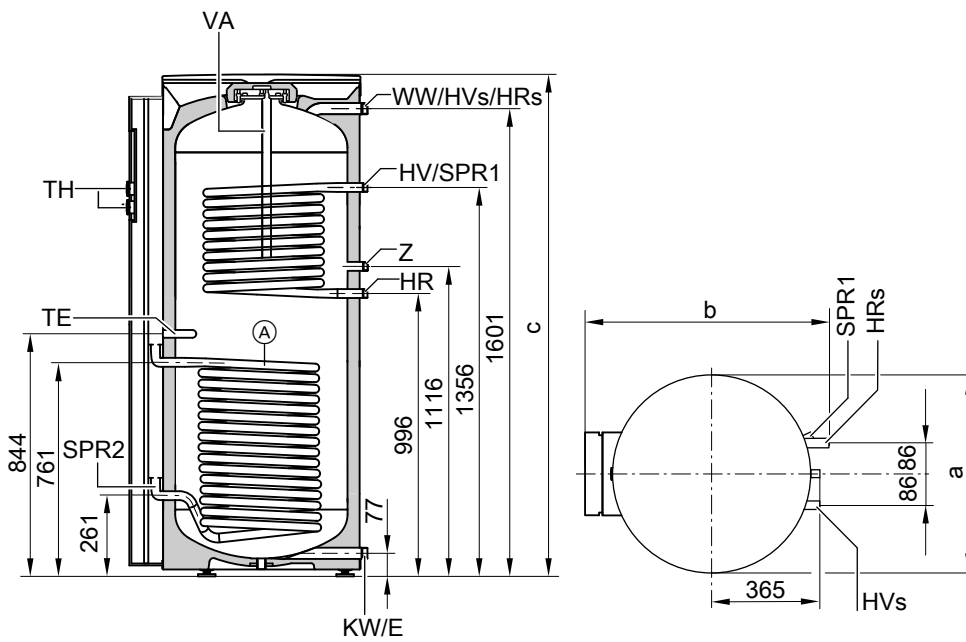
Type CVUC-A:

- Can only be used in conjunction with Vitodens 300-W, type B3HB
- Display of heat-up conditions, energy yields and fault messages at the Vitodens control unit

For further specifications, see the separate datasheet for the Vitocell 100-U.

Type		CVUB	CVUC-A
Capacity	I	300	300
DIN registration no.		0266/07-13 MC/E	0266/07-13 MC/E
Connections			
Heating water flow and return	R	1	1
DHW and cold water	R	1	1
DHW circulation	R	1	1
Permiss. operating pressure			
– Heating water, solar and DHW sides	bar	10	10
	MPa	1.0	1.0
Permiss. temperatures			
– Heating water side	°C	160	160
– Solar side	°C	110	110
– DHW side	°C	95	95
Standby heat loss (standard parameter) q _{ST} at 45 K temp. differential	kWh/24 h	1.52	1.15
Dimensions			
Length (Ø)	mm	660	660
Width	mm	840	840
Height	mm	1735	1735
Height when tilted	mm	1830	1830
Weight incl. thermal insulation	kg	179	179
Total weight in operation	kg	481	481
Energy efficiency class		B	A

Separate DHW cylinders (cont.)



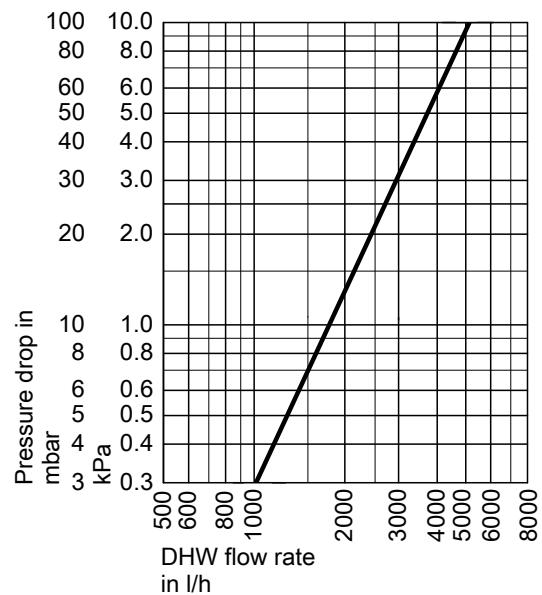
- (A) Lower indirect coil (solar thermal system)
The connections HV_s and HR_s are located at the top of the DHW cylinder
- E Drain
- HR Heating water return
- HR_s Heating water return, solar thermal system
- HV Heating water flow
- HV_s Heating water flow, solar thermal system
- KW Cold water

- SPR1 Sensor well for cylinder temperature sensor of cylinder temperature controller (internal diameter 16 mm)
- SPR2 Sensor well for cylinder temperature sensor of solar thermal system (internal diameter 16 mm)
- TE Sensor well (internal diameter 16 mm)
- TH Thermometer
- VA Protective magnesium anode
- WW DHW
- Z DHW circulation

Dimensions

Dim.	mm
a	660
b	840
c	1735

Pressure drop on the DHW side



DHW output data at rated heating output

Rated heating output for DHW heating	kW	16	17	24	32
Continuous DHW output for DHW heating from 10 to 45 °C and an average boiler water temperature of 78 °C	kW	16	17	26	26
	l/h	390	415	638	638

Separate DHW cylinders (cont.)

Rated heating output for DHW heating	kW	16	17	24	32
Performance factor N_L^{*11} to DIN 4708		1.3	1.4	1.4	1.4
Peak output over a 10 minute period	l/10 min	159	164	164	164

Factory setting

Dual mode steel DHW cylinder with Ceraprotect enamel coating and Solar-Set.

■ Solar-Set components:

- Solar circuit pump (variable speed high efficiency circulation-pump)
- 2 thermometers (only with CVUB)
- 2 ball valves with check valve
- Flow meter
- Pressure gauge
- Safety valve 6 bar
- Fill valve
- Air separator
- Solar control module, type SM1 with electronic temperature differential control
- – CVUB: 1 cylinder temperature sensor
- CVUC-A: 3 cylinder temperature sensors
- Collector temperature sensor

■ 2 welded sensor wells for cylinder temperature sensor or temperature controller

- Threaded elbow with sensor well
- Adjustable feet
- Protective magnesium anode
- Thermal insulation

*11 Values for the upper internal indirect coil.

Installation accessories

5.1 Installation accessories for Vitodens 200-W and 300-W

Installing the Vitodens 200-W directly on the wall

Gas condensing combi boiler

Pre-plumbing jig for installation on finished walls

Part no. ZK02 541

Comprising:

- Fixings
- Valves/fittings
- Gas shut-off valve R ½



Comprising:

- Fixings
- Valves/fittings
- Gas shut-off valve R ½ with thermally activated safety shut-off valve



Pre-plumbing jig for installation on finished walls

Part no. ZK02 679

Comprising:

- Fixings
- Valves/fittings
- Gas shut-off valve R ½

Pipe bends for installation on finished walls, combi boiler

Part no. ZK02 589

Comprising:

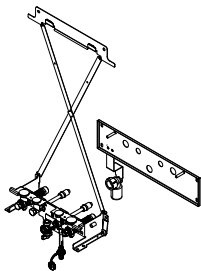
- Two pipe bends, 22 mm
- Two pipe bends, 15 mm

Pre-plumbing jig for installation on unfinished walls

Part no. ZK02 543

Comprising:

- Fixings
- Valves/fittings
- Angle gas valve R ½ with thermally activated safety shut-off valve



Pipe bends for installation on finished walls, system boiler

Part no. ZK02 590

Comprising:

- Two pipe bends, 22 mm

Caps, system boiler

Part no. ZK02 164

Comprising:

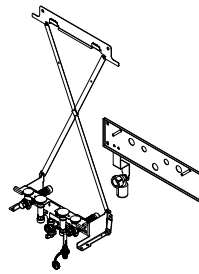
- Sealing washer 24.3 x 3
- Cap G3/4

Pre-plumbing jig for installation on unfinished walls

Part no. ZK02 544

Comprising:

- Fixings
- Valves/fittings
- Gas shut-off valve R ½ with thermally activated safety shut-off valve



Pre-plumbing jig for installation on finished walls

Part no. ZK02 678

Comprising:

- Fixings
- Valves/fittings
- Gas shut-off valve R ½

Gas condensing system boiler

Pre-plumbing jig for installation on finished walls

Part no. ZK02 542

Installing the Vitodens 300-W directly on the wall

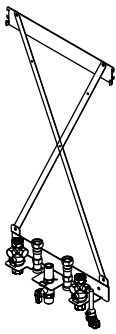
Gas condensing system boiler

Pre-plumbing jig for installation on finished walls

Part no. ZK00 023

Comprising:

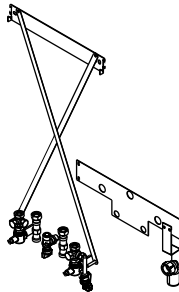
- Fixings
- Valves/fittings
- Straight-through gas valve Rp ½ with thermally activated safety shut-off valve



Pre-plumbing jig for installation on unfinished walls
Part no. ZK00 024

Comprising:

- Fixings
- Valves/fittings
- Angle gas valve R ½ with thermally activated safety shut-off valve



Sub-mounting kit with mixer

Installation on finished walls with gas condensing system boiler or gas condensing combi boiler (for Vitodens 200-W and Vitodens 300-W only).

Note

In conjunction with the Vitodens 300-W, in addition to the sub-mounting kit, order a pre-plumbing jig for installation on finished walls. The sub-mounting kit for the Vitodens 200-W includes the pre-plumbing jig as part of the standard delivery.

Sub-mounting kit

- For Vitodens 200-W gas condensing system boilers up to 35 kW
Part no. ZK02585
- For Vitodens 200-W gas condensing combi boilers up to 35 kW
Part no. ZK02586
- For Vitodens 300-W, 11 - 19 kW
Part no. 7438 923
- For Vitodens 300-W, 26 - 35 kW
Part no. 7438 922

Comprising:

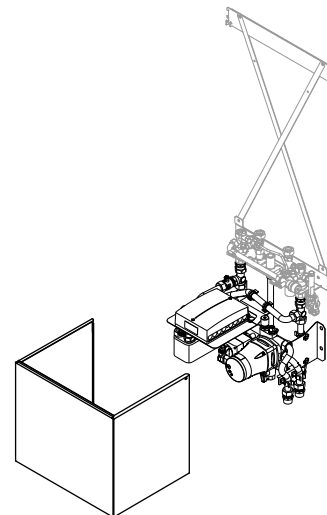
- Plate heat exchanger for system separation of the heating circuit with mixer
- Variable speed high efficiency circulation pump for the heating circuit with mixer
- 3-way mixer with mixer motor
- Valve for regulating the flow rates of both heating circuits
- Adjustable bypass
- Mixer PCB, capable of communicating with Vitotronic 200 via KM BUS
- Flow temperature sensor
- Cover in same design as wall mounted boiler
- Installation template for quick and easy installation

Specification – sub-mounting kit with mixer

Assembly for heat distribution via one heating circuit with mixer and one heating circuit without mixer, in same design as wall mounted boiler. For installation below the boiler.

Comprising:

The heating circuit without mixer is supplied by the integral circulation pump of the Vitodens 200-W or 300-W. For the installation scheme regarding operation with the sub-mounting kit, see "System examples".



Sub-mounting kit accessories

Flow indicator

Part no. 7438 927

To display the flow rate in the unregulated heating circuit when hydraulically balancing the heating circuits.

Contact temperature limiter

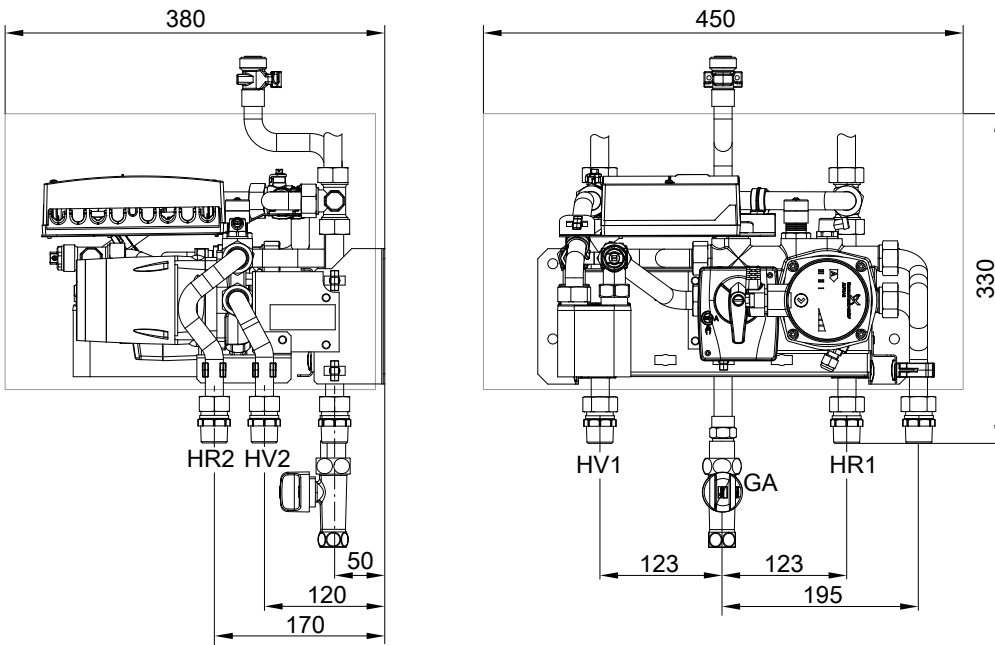
Part no. 7425 493

Maximum temperature limiter for underfloor heating circuits. With connecting cable, 1.5 m long.

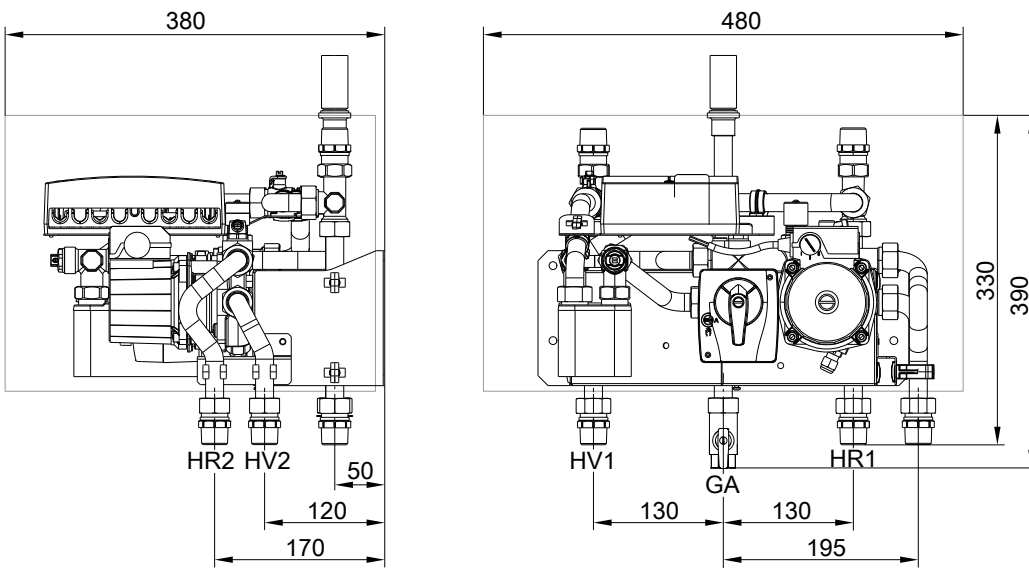
The sub-mounting kit can only be used in conjunction with the Vitotronic 200 and the pre-plumbing jig for installation on finished walls.

Not in conjunction with the Vitocell 100-W DHW cylinder below the boiler, type CUG.

Installation accessories (cont.)



Sub-mounting kit for Vitodens 200-W



Sub-mounting kit for Vitodens 300-W

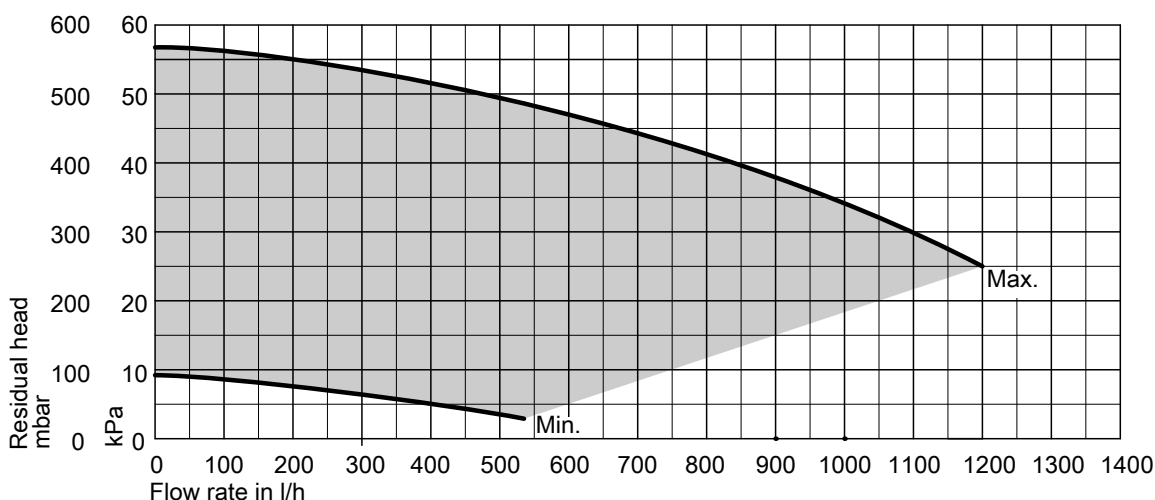
GA Gas connection Rp ½
 HR1 Heating return, heating circuit without mixer R ¾
 HR2 Heating return, heating circuit with mixer R ¾

HV1 Heating flow, heating circuit without mixer R ¾
 HV2 Heating flow, heating circuit with mixer R ¾

Installation accessories (cont.)

Max. transferable heating output of the heating circuit with mixer (ΔT 10 K)	kW	14
Max. flow rate of the heating circuit with mixer (ΔT 10 K)	l/h	1200
Permiss. operating pressure	bar	3
	MPa	0.3
Max. power consumption (total)	W	48
Dim. a		
– Vitodens 200-W up to 35 kW and 300-W up to 19 kW	mm	450
– Vitodens 300-W, 26 and 35 kW	mm	480
Weight (incl. packaging)	kg	17

Residual head of the integral circulation pump for the heating circuit with mixer



5

Calculating the transferable heating output (examples)

The sub-mounting kit is equipped with an integral balancing valve. This allows the flow rate via the plate heat exchanger to the regulated heating circuit to be restricted as required.

The maximum heating output that can be transferred via the plate heat exchanger of the sub-mounting kit is 14 kW. For balanced flow rates between the regulated heating circuit (sub-mounting kit) and the unregulated heating circuit (radiator heating circuit), the pressure drop in the sub-mounting kit must be increased. The integral balancing valve is used for this purpose.

For accurate adjustment of the flow rates, a flow indicator (available as an accessory) can be fitted into the flow line of the unregulated heating circuit. The nominal circulation water volume of the boiler (see specification), minus the flow rate through the plate heat exchanger of the sub-mounting kit, results in the flow rate of the unregulated heating circuit.

Example:

Vitodens 300-W, 4.0 -26 kW

- Nominal amount of circulation water at ΔT 20 K: 1018 l/h
- Heating output for regulated heating circuit (assumed): 13 kW
- Resulting flow rate, primary side, plate heat exchanger at ΔT 20 K: 560 l/h
- Flow rate of unregulated heating circuit (to be adjusted via the balancing valve): 1018 l/h – 560 l/h = **458 l/h**

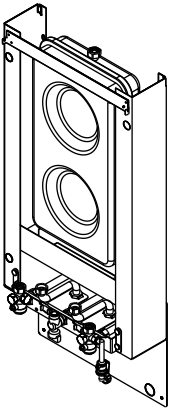
Installing the Vitodens 300-W with mounting frame

Mounting frame consisting of:

- Diaphragm expansion vessel, nominal capacity 18 l
- Valves/fittings on the heating water and DHW side
- Boiler drain & fill valve
- Angle gas valve R ½ with integral thermally activated safety shut-off valve
- Flexible connection line for the diaphragm expansion vessel

All valves/fittings are located inside the boiler casing.

Installation accessories (cont.)



Mounting frame for Vitodens 300-W, 26 and 35 kW

Only for Vitodens 300-W, 26 and 35 kW

- For installation on finished walls with threaded fittings
Part no. ZK00 277
- For installation on unfinished walls
Part no. ZK00 278

Installation with a self-supporting mounting frame

Self-supporting mounting frame

With valves/fittings and angle gas valve G 3/4 with thermally activated safety shut-off valve

- **Part no. ZK02 592**
For Vitodens 200-W gas condensing combi boiler with threaded fitting
- **Part no. ZK02 591**
For Vitodens 200-W gas condensing system boiler with threaded fitting
- **Part no. ZK00 025**
For Vitodens 300-W gas condensing system boiler with threaded fitting

Extension for ceiling installation to self-supporting mounting frame for Vitodens 200-W

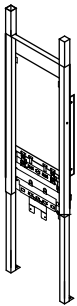
Part no. ZK02546

For "self-supporting" installation in a room

Ceiling extension for self-supporting mounting frame for Vitodens 300-W

Part no. 7329 151

For "self-supporting" installation in a room



Further accessories

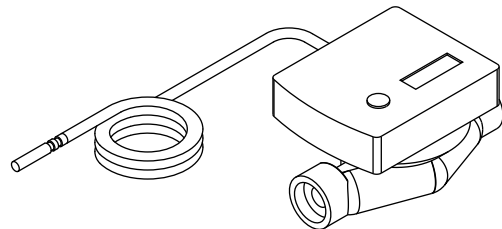
Heat meter

For installation in the system connection.

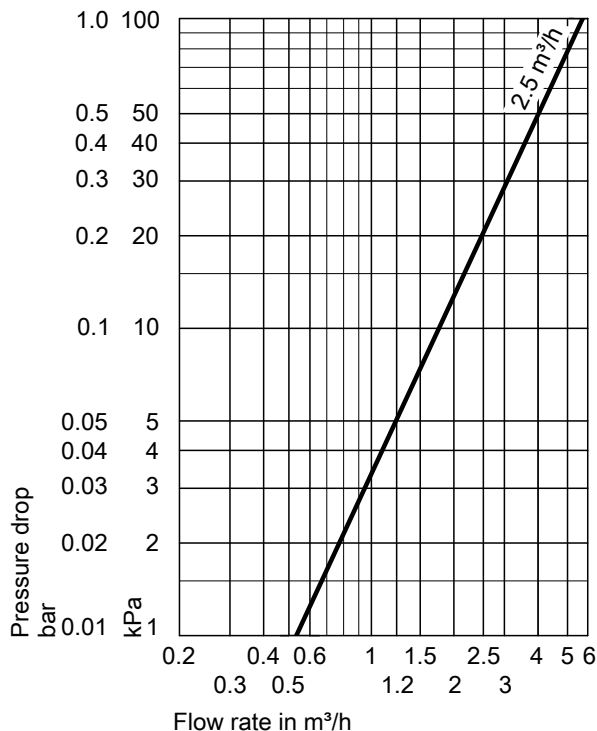
Part no.	Suitable for DHW cylinders:
7172 847	– Vitocell 100 with up to 500 litre capacity. – Vitocell 300 with up to 200 litre capacity. With connection accessories for G 1
7172 848	– Vitocell 300 with 300 to 500 litre capacity With connection accessories for G 1 1/4

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 1 1/4 connection accessories including ball valves.



Pressure drop graph



Specification

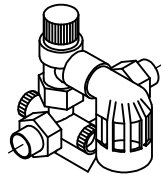
Nominal flow rate	2.5 m³/h
Lead length	1.5 m
IP rating	IP 54 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– During operation	5 to 55 °C
– During storage and transport	–20 to +70 °C
Sensor type	Pt1000
Max. operating pressure	10 bar (1 MPa)
Nominal diameter	DN 20
Fitted length	130 mm
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

Safety assembly to DIN 1988

Comprising:

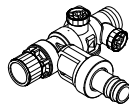
- Shut-off valve
- Non-return valve and test connector

- 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 the boiler

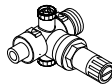
- 10 bar (1 MPa), DN 15, right angle version
Part no. 7180 097
- (A) 6 bar (0.6 MPa), DN 15, right angle version
Part no. 7179 457



Pressure reducer (DN 15)

Part no. 7180 148

To match right angle version of the safety assembly

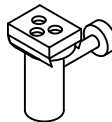


Drain outlet kit

Part no. 7459 591

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

Drain connection G 1

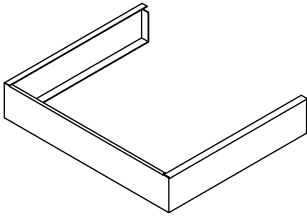


Valve/fitting cover

- For Vitodens 300-W, 1.9 to 19 kW
Part no. 7438 096
- For Vitodens 300-W, 4.0 to 35 kW
Part no. 7438 094

Cannot be used in conjunction with DHW cylinders below the boiler

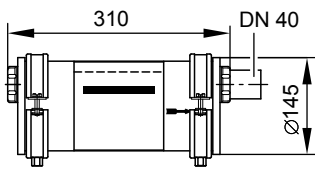
Installation accessories (cont.)



Neutralising system

Part no. 7252 666

With neutralising granulate



Neutralising granulate

Part no. 9524 670

2 x 1.3 kg

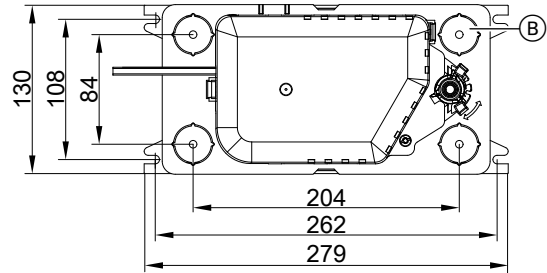
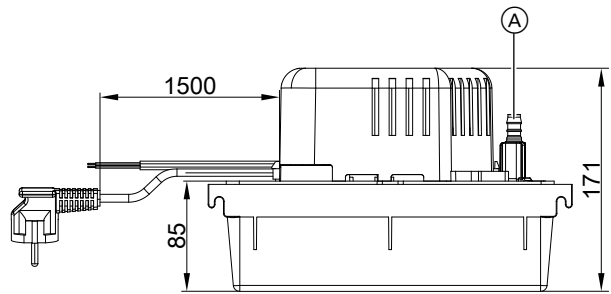
Condensate lifting system

Part no. ZK02 486

Automatic condensate lifting system for condensate with a pH value ≥ 2.5 from oil and gas condensing boilers

Components:

- Condensate container 2.0 l
- Centrifugal pump
- Non-return valve
- Connecting cable (1.5 m long) for fault messaging
- Power cable (1.5 m long) with plug
- 4 connection apertures \varnothing 30 mm for condensate inlet with connector \varnothing max. 40 mm
- Drain hose \varnothing 10 mm (5 m long)



- Ⓐ Condensate drain
- Ⓑ 4 x condensate inlet with plug

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	70 W
IP rating	IP 20
Permissible medium temperature	+65 °C
Max. head	50 kPa
Max. pump rate	500 l/h
Alarm contact	Changeover contact (floating), breaking capacity 250 V/4 A

Service accessories for automated hydronic balancing

See pricelist.

Plate heat exchanger flushing system

Part no. 7373 005

For Vitodens 200-W

Small softening system for heating water

For filling heating circuits

See Vitoset pricelist

CO limiter

Part no. ZK02 193

Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.

Wall mounting in the ceiling area near the boiler.

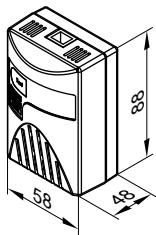
Suitable for:

- Vitodens 200-W, type B2HB, B2KB
- Vitodens 222-W, type B2LB
- Vitodens 222-F, type B2TB, B2SB
- Vitodens 242-F, type B2UB

Components:

- Casing with integral CO sensor, electronic signal generation and displays for operation, faults and alarm
- Fixing materials
- Heat generator communication cable (2.5 m)

Installation accessories (cont.)



Specification

Rated voltage	24 V from the control unit
Alarm threshold	55 ppm CO to EN 50291-1
Signal	PWM signal, evaluated by the control unit
Protection class	II
IP rating	IP 20 to EN 60529
Permissible ambient temperature	0 °C to 40 °C

Part no. 7499 330

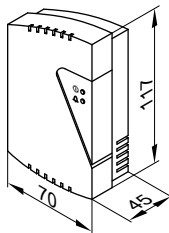
Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.

Wall mounting in the ceiling area near the boiler.

Components:

- Casing with integral CO sensor, 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
Protection class	II
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	70 °C

Connections between Vitodens and DHW cylinder

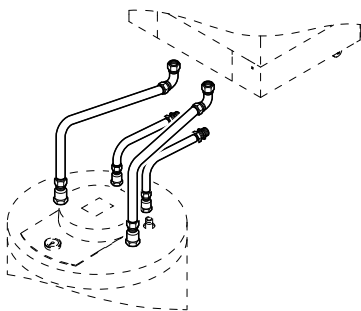
Connection set with connection pipes for Vitocell 100-W DHW cylinder below the boiler, type CUGA and CUGA-A

Part no. 7178 347

Comprising:

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

Installation on finished or unfinished walls



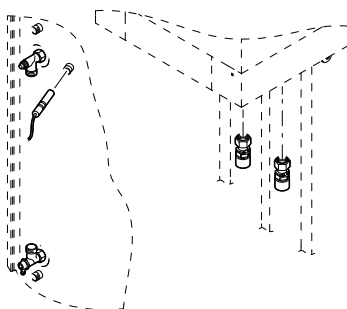
- Cylinder temperature sensor
 - Connection fittings
- DHW cylinder to the **left or right** of the Vitodens

- Threaded fitting version

Part no. 7178 349

- Solder version

Part no. 7178 348



Connection set for Vitocell 100-W and 300-W DHW cylinders adjacent to the boiler

Comprising:

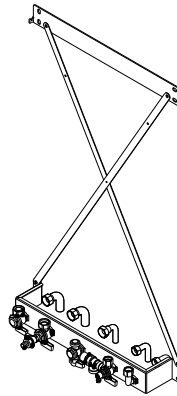
5.2 Installation accessories Vitodens 222-W

Pre-plumbing jig for installation on finished walls

- Diaphragm safety valve 10 bar (1 MPa)
Part no. 7248 408
- (A) Diaphragm safety valve 6 bar (0.6 MPa)
Part no. 7248 406

Comprising:

- Fixings
- Valves/fittings
- Angle gas valve R ½ with thermally activated safety shut-off valve
- Safety valve on the DHW side
- Pipe bends

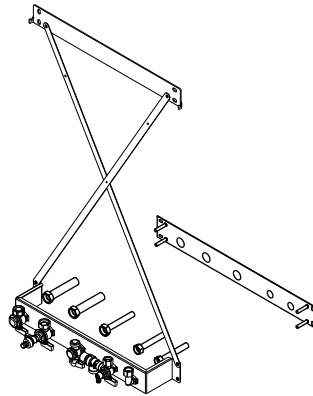


Pre-plumbing jig for installation on unfinished walls

- Diaphragm safety valve 10 bar (1 MPa)
Part no. 7248 401
- (A) Diaphragm safety valve 6 bar (0.6 MPa)
Part no. 7248 400

Comprising:

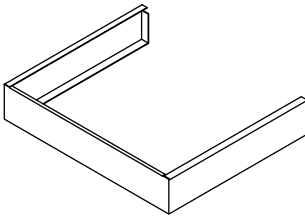
- Fixings
- Valves/fittings
- Angle gas valve R ½ with thermally activated safety shut-off valve
- Safety valve on the DHW side
- Connection pieces



Further accessories

Valve/fitting cover

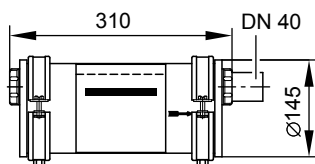
Part no. 7438 340



Neutralising system

Part no. 7252 666

With neutralising granulate



5822 430 GB

Neutralising granulate

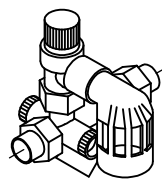
Part no. 9524 670

2 x 1.3 kg

Safety assembly to DIN 1988

Comprising:

- Shut-off valve
- Non-return valve and test connector
- Pressure gauge connector
- Diaphragm safety valve



- 10 bar (1 MPa), DN 15

Part no. 7219 722

- (A) 6 bar (0.6 MPa), DN 15

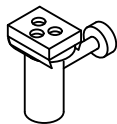
Part no. 7265 023

Installation accessories (cont.)

Drain outlet kit

Part no. 7459 591

Drain outlet with trap and rose



For connecting the drain lines of the safety valves and the condensate drain.

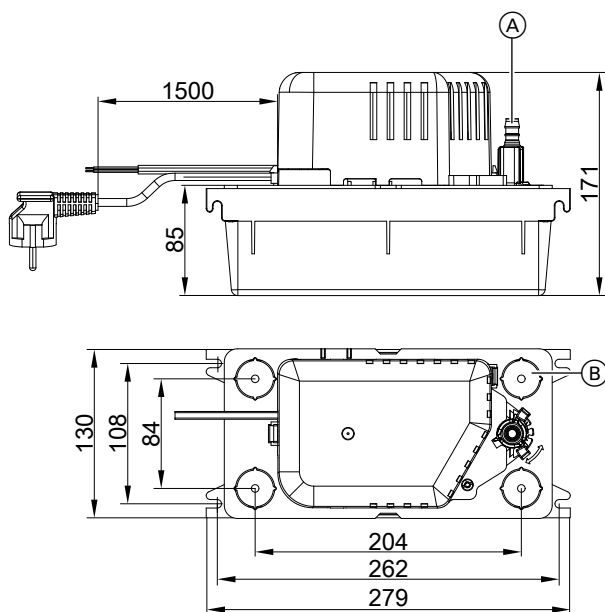
Condensate lifting system

Part no. ZK02 486

Automatic condensate lifting system for condensate with a pH value ≥ 2.5 from oil and gas condensing boilers

Components:

- Condensate container 2.0 l
- Centrifugal pump
- Non-return valve
- Connecting cable (1.5 m long) for fault messaging
- Power cable (1.5 m long) with plug
- 4 connection apertures \varnothing 30 mm for condensate inlet with connector \varnothing max. 40 mm
- Drain hose \varnothing 10 mm (5 m long)



- (A) Condensate drain
(B) 4 x condensate inlet with plug

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	70 W
IP rating	IP 20
Permissible medium temperature	+65 °C
Max. head	50 kPa
Max. pump rate	500 l/h
Alarm contact	Changeover contact (floating), breaking capacity 250 V/4 A

Service accessories for automated hydronic balancing

See pricelist.

Plate heat exchanger flushing system

Part no. 7373 005

Small softening system for heating water

For filling heating circuits

See Vitoset pricelist

CO limiter

Part no. ZK02 193

Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.

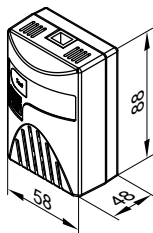
Wall mounting in the ceiling area near the boiler.

Suitable for:

- Vitodens 200-W, type B2HB, B2KB
- Vitodens 222-W, type B2LB
- Vitodens 222-F, type B2TB, B2SB
- Vitodens 242-F, type B2UB

Components:

- Casing with integral CO sensor, electronic signal generation and displays for operation, faults and alarm
- Fixing materials
- Heat generator communication cable (2.5 m)



Specification

Rated voltage	24 V from the control unit
Alarm threshold	55 ppm CO to EN 50291-1
Signal	PWM signal, evaluated by the control unit
Protection class	II
IP rating	IP 20 to EN 60529
Permissible ambient temperature	0 °C to 40 °C

Part no. 7499 330

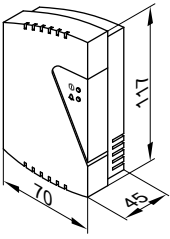
Monitoring device for safety shutdown of the boiler in the event of escaping carbon monoxide.

Wall mounting in the ceiling area near the boiler.

Components:

- Casing with integral CO sensor, 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)

Installation accessories (cont.)



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

Specification

Rated voltage	230 V~
Rated frequency	50 Hz

Flue gas cascade (positive pressure) for multi boiler systems with Vitodens 200-W and 222-W

Comprising:

- Back draught safety device for each boiler
- Flue gas header
- End piece with condensate drain and trap

■ Two-boiler system

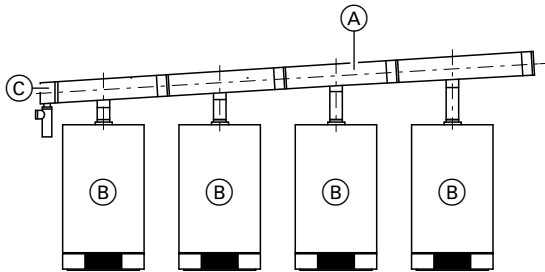
- System size 100 **part no. ZK01 944**
- System size 150 **part no. Z008 385**

■ 3-boiler system

- System size 100 **part no. ZK01 945**
- System size 150 **part no. Z008 386**

■ 4-boiler system

- System size 100 **part no. ZK01 946**
- System size 150 **part no. Z008 387**



- (A) Flue gas header
- (B) Back draught safety device (for installation in the Vitodens)
- (C) End piece with trap

Design information

6.1 Siting, 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.

Provide a condensate drain and a discharge pipe for the safety valve in the installation room.

The maximum ambient temperature of the system should not exceed 35 °C.

If these instructions are not observed, any consequential appliance damage directly related to any of these causes is excluded from our warranty.

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

Multi boiler systems with flue systems under positive or negative pressure

Systems with several Vitodens with separate hydraulic connections require a flue gas cascade suitable for positive or negative pressure (see technical guide "Flue systems for the Vitodens") or individual flue gas routing for each boiler.

Installation room

Permissible:

- Boiler installation 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 vents to the outside: Ventilation air/extract air 150 cm² or 2 × 75 cm² each at the top and bottom of the same wall, up to 35 kW
- Attic rooms, but only with adequate minimum chimney height, acc. to DIN 18160 – 4 m above inlet (negative pressure operation).

Design information (cont.)

Not permissible:

- Stairwells and communal hallways. Exception: detached 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 should be as straight as possible. If diversions are unavoidable, do not arrange these 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.

With multiple connections/cascades, a back draught safety device must be installed.

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

Extractors

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

Safety equipment for the installation room

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

Installation conditions for room sealed operation (appliance type C)

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 **independent** of the size and ventilation of the installation room.

Installation room

Suitable siting locations include:

- Recreational rooms and other living spaces
- Ancillary rooms without their 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 designed to be as short and straight as possible.

If bends are unavoidable, do not install them directly one after another. 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.

Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits comprising sulphur and soot must not remain on the inside of the chimney. Running a balanced flue pipe through the shaft is then not required. If thorough cleaning is impossible, chloride deposits are present or the shaft is silted up, a separate balanced flue pipe can be used inside the shaft.

Close off and seal any other connection apertures with appropriate materials.

This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.

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 a garage, maintain a clearance between the floor and the burner of at least 500 mm. Install a frame or deflector (provided on site) to protect the boiler against mechanical damage.

Safety equipment for the installation room

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

Operation of the Vitodens in wet rooms

■ Room sealed operation:

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

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

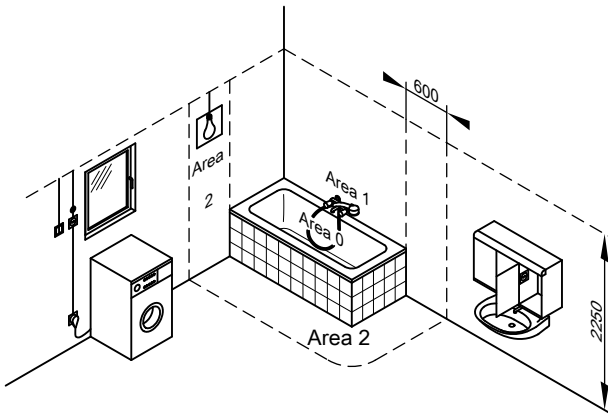
■ Open flue operation:

The boiler may only be installed in safety zone 1 or 2 if additional splash protection (part no. 7590109) is fitted.

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

Design information (cont.)

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 body 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.

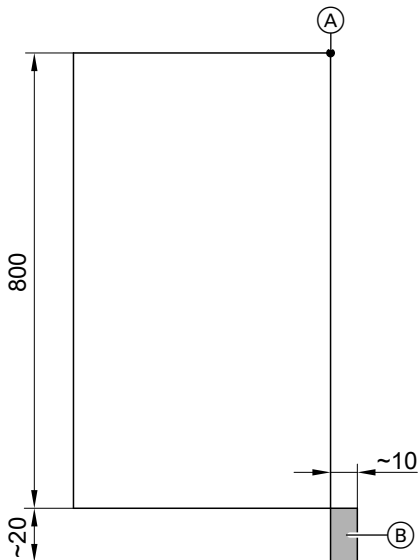
Electrical connection

The power supply must comply with the requirements of your local power supply utility and current VDE [or local] regulations (Ⓐ): ÖVE regulations).

Protect the power cable with a fuse with a maximum rating of 16 A. We recommend installing an AC/DC-sensitive RCD (RCD class B) for DC (fault) currents that can occur with energy efficient equipment.

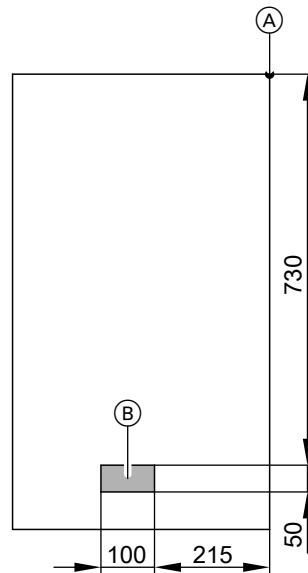
Make the power supply (230 V~, 50 Hz) via a permanent connection. Connect the supply cables and accessories at the terminals inside the boiler.

A flexible connecting cable is included with the Vitodens 200-W as part of the standard delivery. It is connected to an on-site socket. With the Vitodens 300-W, allow cables/leads in the shaded area to protrude at least 800 mm from the wall (see diagram)



Vitodens 200-W

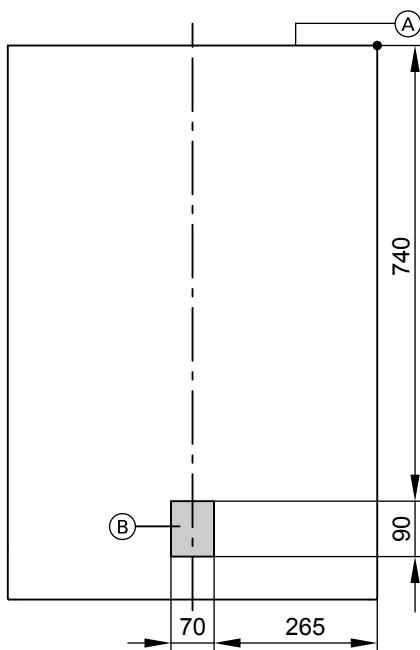
- Ⓐ Reference point Vitodens top edge
- Ⓑ Area for power cables (on-site socket)



Vitodens 300-W

- Ⓐ Reference point Vitodens top edge
- Ⓑ Area for power cables.
Allow cables/leads to protrude at least 800 mm from the wall.

Design information (cont.)



Vitodens 222-W

- Ⓐ Reference point Vitodens top edge
- Ⓑ Area for power cables (on-site socket)

Recommended cables/leads

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
<ul style="list-style-type: none"> – Power cables (incl. for accessories) – DHW circulation pump – A flexible power cable is already connected to the Vitodens 200 / 222-W. 	<ul style="list-style-type: none"> – AM1 or EA1 extension – Outside temperature sensor – Vitotronic 200-H (LON) – Extension kit for heating circuit with mixer (KM BUS) – Vitotrol 100, type UTDB – Vitotrol 200-A – Vitotrol 300-A – Vitocomfort 200 – Wireless base station – Radio clock receiver 	<ul style="list-style-type: none"> – 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. For this, the internal H2 extension (accessories) can be used. This switches the extractors off when the burner is started.

Power supply for accessories

The power supply for accessories can be provided directly at the control unit.

This connection is switched by the system ON/OFF switch.

If the total system current exceeds 6 A, connect one or more extensions directly to the mains supply via an ON/OFF switch.

Where the boiler is sited in a wet room, the power supply connection of accessories must not be made at the control unit.

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

According to TRF 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 in the gas line.

Design information (cont.)

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 supply pipe

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

For each 90° bend, 1 m is deducted from the max. possible pipe length.

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

Rated heat input kW	Gas type	Connection values		Nominal diameter of the gas supply pipe		
		m³/h	kg/h	DN 15	DN 20	DN 25
16.7	Natural gas E	1.77		13	60	–
	Natural gas LL	2.05		8	40	127
	LPG		1.31	80	–	–
17.9	Natural gas E	1.89		8	40	127
	Natural gas LL	2.20		6	28	91
	LPG		1.40	62	–	–
24.7	Natural gas E	2.61		6	28	91
	Natural gas LL	3.04		4	21	68
	LPG		1.93	36	156	–
30.5	Natural gas E	3.23		4	21	68
	Natural gas LL	3.75		–	16	53
	LPG		2.38	23	100	–
33.0	Natural gas E	3.52		4	21	68
	Natural gas LL	4.10		–	16	53
	LPG		2.60	23	100	–
34.9	Natural gas E	3.86		4	21	68
	Natural gas LL	4.49		–	16	53
	LPG		2.85	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 gas appliance, multiplied by a factor of 1.14 (ratio H_{IB} 8.6/7.55). Use this fictitious rated heat input to select the gas flow switch and design the pipework to TRGI 2008 [or local regulations].

Vitodens rated heating output

kW

11 to 19

26

35 (gas condensing **system** boilers)

35 (gas condensing **combi** boilers and Vitodens 222-W)

Gas flow switch For natural gas

GS 4

GS 6

GS 6

GS 10

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

Minimum clearances

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

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

Pre-installation for mounting the Vitodens 200-W and 300-W directly on the wall – installation on finished walls

Accessories required for installation without DHW cylinder

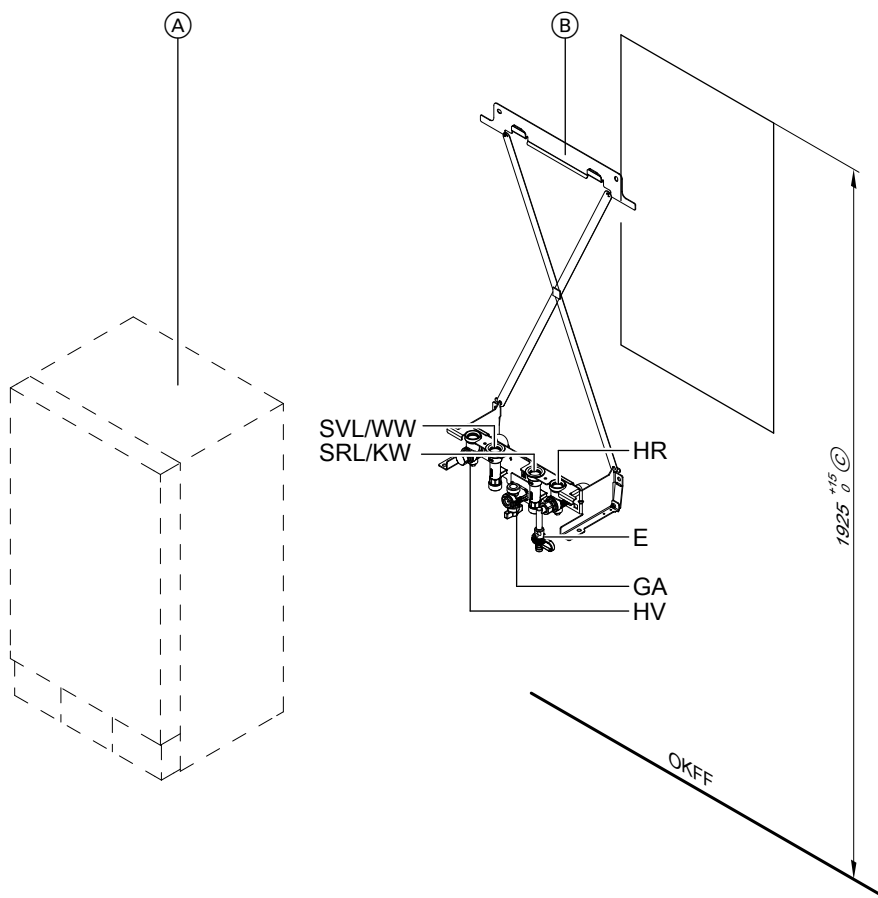
Cylinder connection caps.

Pre-plumbing jig

With fixings, valves/fittings and gas shut-off valve Rp ½ with integral thermally activated safety shut-off valve.

Additional requirements when connecting a DHW cylinder

Connection set for DHW cylinders.

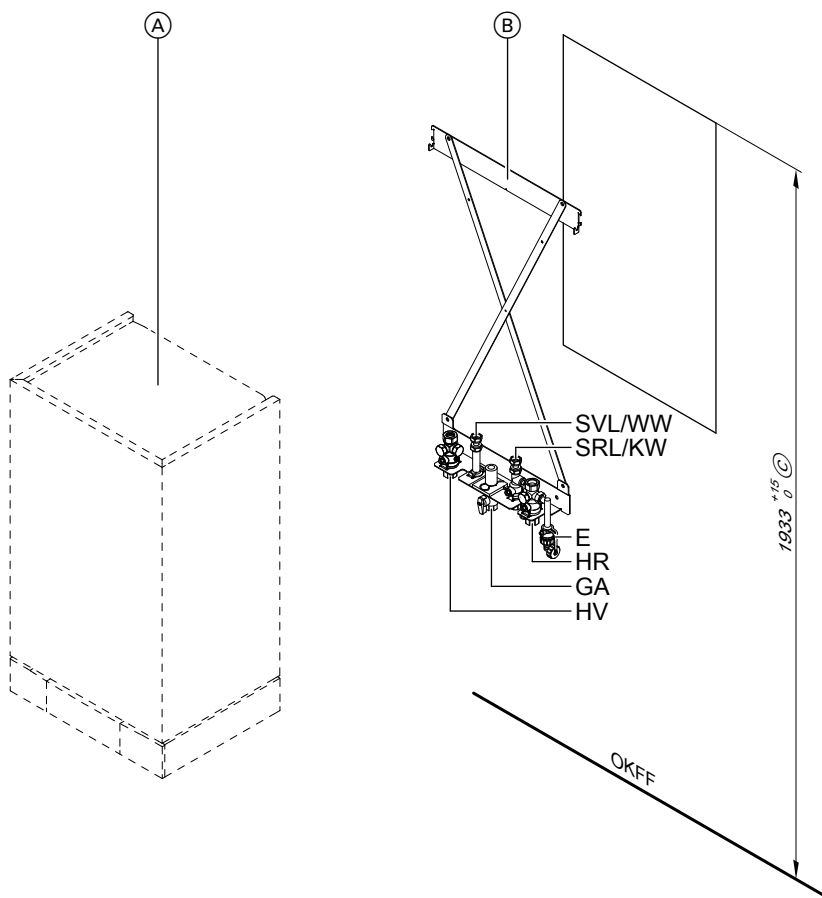


Pre-plumbing jig for Vitodens 200-W

Ⓐ	Vitodens	HV	Heating flow G $\frac{3}{4}$
Ⓑ	Pre-plumbing jig	KW	Cold water G $\frac{1}{2}$ (gas condensing combi boiler)
Ⓒ	Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.	OKFF	Top edge, finished floor
E	Drain	WW	DHW G $\frac{1}{2}$ (gas condensing combi boiler)
GA	Gas connection R $\frac{1}{2}$	SRL	Cylinder return G $\frac{3}{4}$ (gas system boiler)
HR	Heating return G $\frac{3}{4}$	SVL	Cylinder flow G $\frac{3}{4}$ (gas system boiler)

Note

Pipe bends for installation on finished walls 22 mm (heating flow/return) and 15 mm (cold water/DHW) for gas condensing combi boilers as separate accessories.



Pre-plumbing jig for Vitodens 300-W

(A)	Vitodens	HV	Heating flow Rp $\frac{3}{4}$
(B)	Pre-plumbing jig	KW	Cold water Rp $\frac{1}{2}$ (gas condensing combi boiler)
(C)	Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.	OKFF	Top edge, finished floor
E	Drain	WW	DHW Rp $\frac{1}{2}$ (gas condensing combi boiler)
GA	Gas connection R $\frac{1}{4}$ and G $\frac{3}{4}$	SRL	Cylinder return G $\frac{3}{4}$ (gas system boiler)
HR	Heating return Rp $\frac{3}{4}$	SVL	Cylinder flow G $\frac{3}{4}$ (gas system boiler)

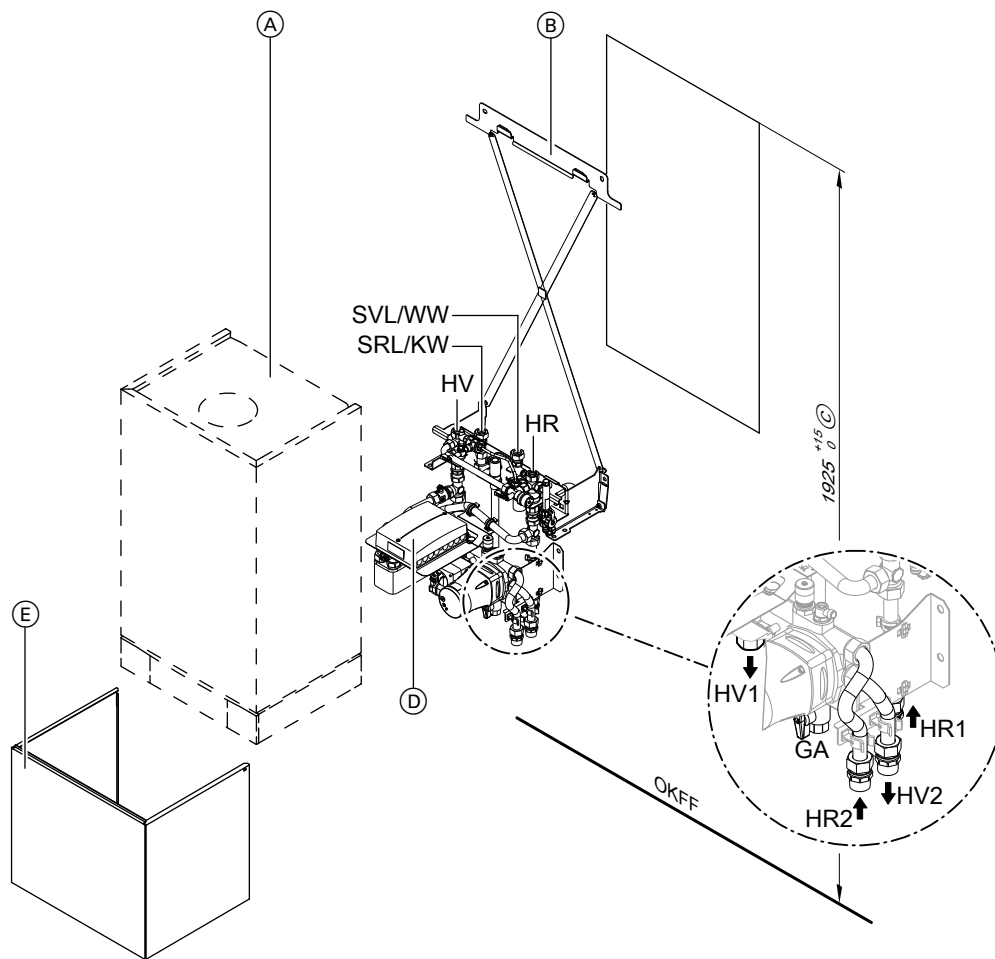
Pre-installation with the sub-mounting kit with mixer – installation on finished walls

Required accessories:

- Sub-mounting kit with:
 - Plate heat exchanger
 - Circulation pump
 - 3-way mixer
 - Bypass
 - Mixer PCB
 - Flow temperature sensor
 - Cover
 - Installation template
 - Pre-plumbing jig with:
 - Fixings
 - Valves/fittings
 - Gas shut-off valve Rp $\frac{1}{2}$ with integral thermally activated safety shut-off valve
 - Connection set for DHW cylinders (if installed)
- Cannot** be used in conjunction with the Vitocell 100-W DHW cylinder below the boiler

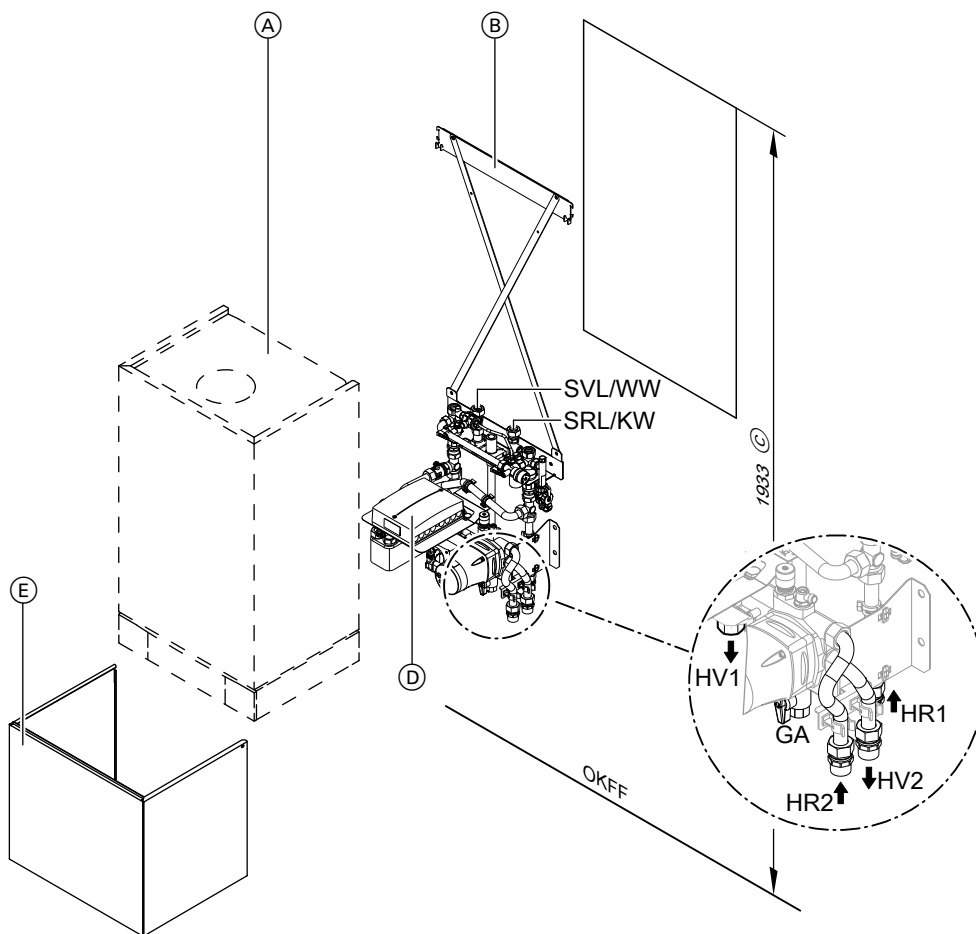
For specification and accessories for the sub-mounting kit, see page 46.

Install a drain & fill valve on site in the flow of the heating circuit with mixer (HV2).



Showing sub-mounting kit for Vitodens 200-W

Ⓐ	Vitodens	HV1	Heating flow, heating circuit without mixer R ¾
Ⓑ	Pre-plumbing jig	HV2	Heating flow, heating circuit with mixer R ¾
Ⓒ	Recommendation	KW	Cold water G ½ (gas condensing combi boiler)
Ⓓ	Sub-mounting kit	OKFF	Top edge, finished floor
Ⓔ	Sub-mounting kit cover	WW	DHW G ½ (gas condensing combi boiler)
GA	Gas connection R ½	SRL	Cylinder return G ¾ (gas system boiler)
HR1	Heating return, heating circuit without mixer R ¾	SVL	Cylinder flow G ¾ (gas system boiler)
HR2	Heating return, heating circuit with mixer R ¾		



Showing sub-mounting kit for Vitodens 300-W

- | | | | |
|-----|---|------|---|
| (A) | Vitodens | HV1 | Heating flow, heating circuit without mixer R $\frac{3}{4}$ |
| (B) | Pre-plumbing jig | HV2 | Heating flow, heating circuit with mixer R $\frac{3}{4}$ |
| (C) | Recommendation | KW | Cold water G $\frac{1}{2}$ (gas condensing combi boiler) |
| (D) | Sub-mounting kit | OKFF | Top edge, finished floor |
| (E) | Sub-mounting kit cover | WW | DHW G $\frac{1}{2}$ (gas condensing combi boiler) |
| GA | Gas connection R $\frac{1}{2}$ | SRL | Cylinder return G $\frac{3}{4}$ (gas system boiler) |
| HR1 | Heating return, heating circuit without mixer R $\frac{3}{4}$ | SVL | Cylinder flow G $\frac{3}{4}$ (gas system boiler) |
| HR2 | Heating return, heating circuit with mixer R $\frac{3}{4}$ | | |

Pre-installation for mounting the Vitodens 200-W and 300-W directly on the wall – installation on unfinished walls

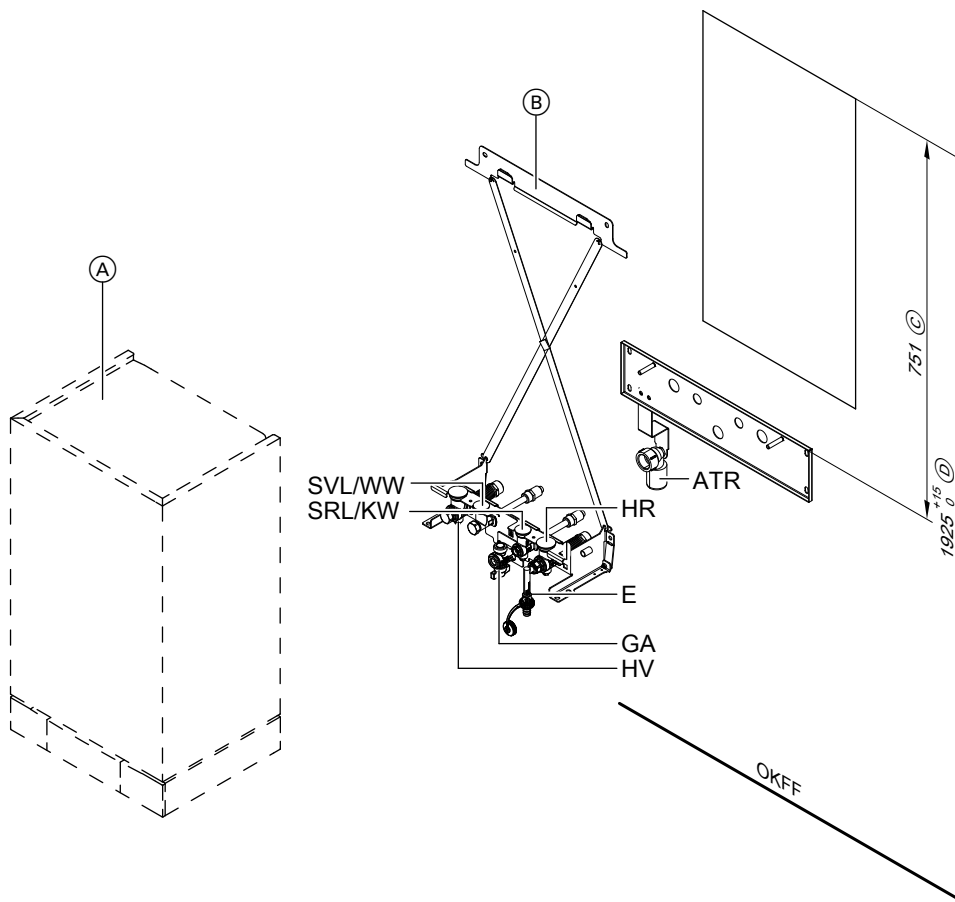
Accessories required for installation without DHW cylinder

Pre-plumbing jig

With fixings, valves/fittings and gas shut-off valve R $\frac{1}{2}$ with integral thermally activated safety shut-off valve.

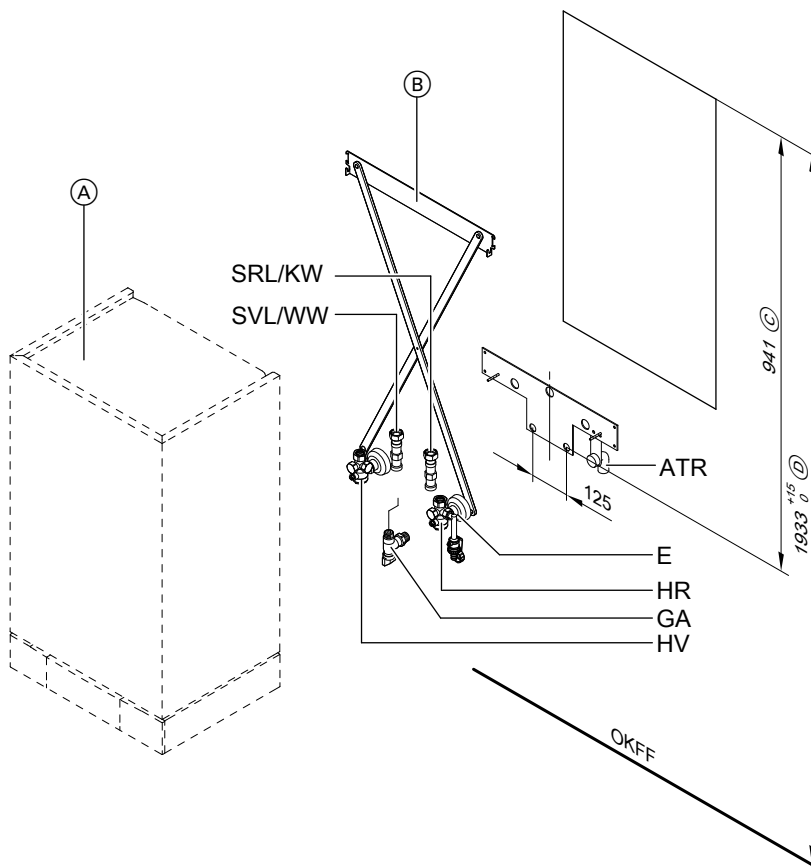
Additional requirements when connecting a DHW cylinder

Connection set for DHW cylinders



Vitodens 200-W connection situation

- | | | | |
|---|---|------|--|
| Ⓐ | Vitodens | GA | Gas connection R ½ |
| Ⓑ | Pre-plumbing jig | HR | Heating return G ¾ |
| Ⓒ | Pre-plumbing jig for unfinished walls compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended. | HV | Heating flow G ¾ |
| Ⓓ | Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended. | KW | Cold water G ½ (gas condensing combi boiler) |
| Ⓔ | Drain | OKFF | Top edge, finished floor |
| | | WW | DHW G ½ (gas condensing combi boiler) |
| | | SRL | Cylinder return G ¾ (gas system boiler) |
| | | SVL | Cylinder flow G ¾ (gas system boiler) |



Vitodens 300-W connection situation

Ⓐ	Vitodens	GA	Gas connection R ½
Ⓑ	Pre-plumbing jig	HR	Heating return G ¾
Ⓒ	Cold water and DHW connections in conjunction with DHW cylinder below the boiler	HV	Heating flow G ¾
Ⓓ	Compulsory in conjunction with DHW cylinders below the boiler; otherwise recommended.	KW	Cold water G ½ (gas condensing combi boiler)
ATR	Drain outlet connection R 1	OKFF	Top edge, finished floor
E	Drain	WW	DHW G ½ (gas condensing combi boiler)
		SRL	Cylinder return G ¾ (gas system boiler)
		SVL	Cylinder flow G ¾ (gas system boiler)

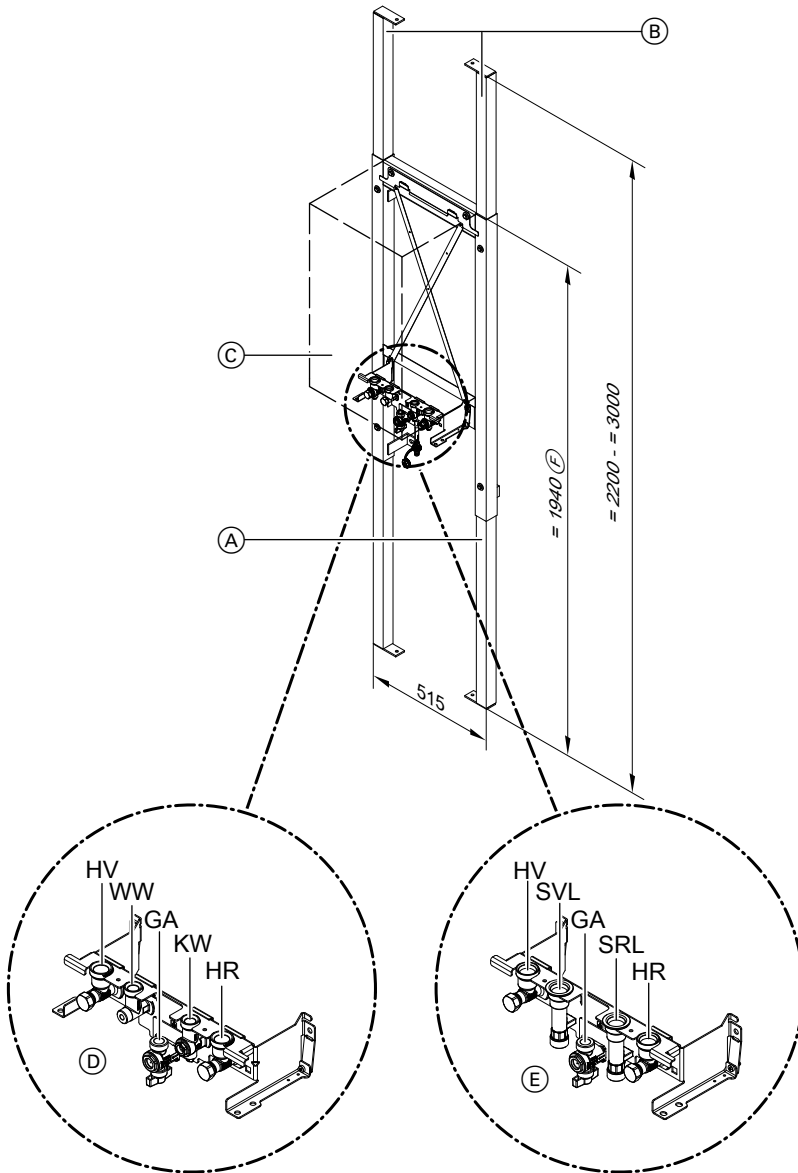
Self-supporting installation of the Vitodens 200-W and 300-W

Self-supporting mounting frame

Suitable for wall mounting, self-supporting installation or cladding. With valves/fittings with threaded connection and angle gas valve G ¾ with thermally activated safety shut-off valve.

- For gas condensing combi boiler
- For gas system boiler

Mounting frame for Vitodens 200-W



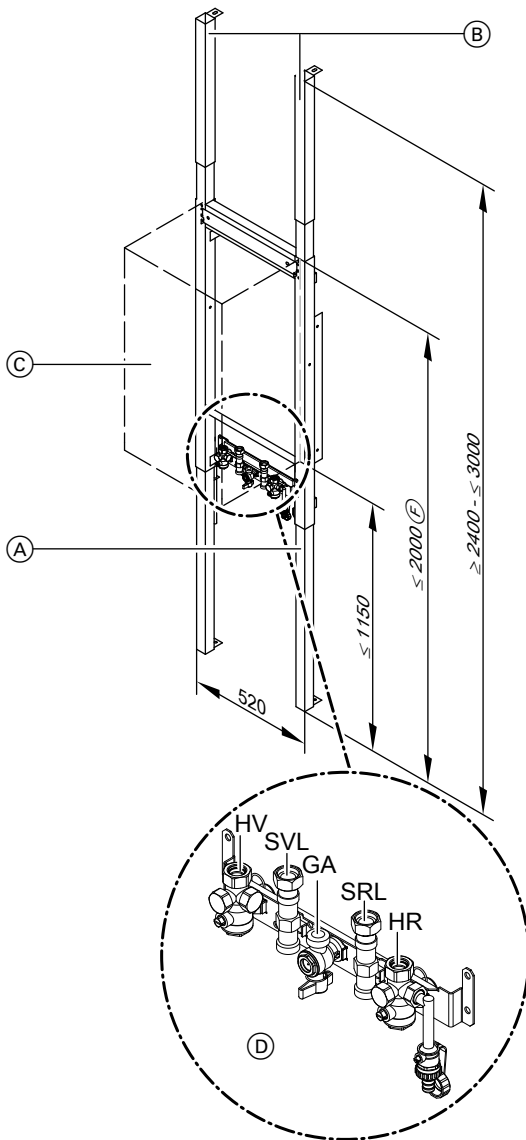
6

- (A) Self-supporting mounting frame for Vitodens incl. fitting assembly
- (B) Extension for ceiling installation
- (C) Vitodens
- (D) Fitting assembly for gas condensing combi boiler
- (E) Fitting assembly for gas condensing system boiler
- (F) In conjunction with DHW cylinder below the boiler, min. 1933 mm

- GA Gas connection R ½
- HR Heating return G ¾
- HV Heating flow G ¾
- KW Cold water G ½ (gas condensing combi boiler)
- WW DHW G ½ (gas condensing combi boiler)
- SRL Cylinder return G ¾ (gas condensing system boiler)
- SVL Cylinder flow G ¾ (gas condensing system boiler)

Design information (cont.)

Mounting frame for Vitodens 300-W



- (A) Self-supporting mounting frame for Vitodens incl. fitting assembly
- (B) Extension for ceiling installation
- (C) Vitodens
- (D) Fitting assembly
- (F) In conjunction with DHW cylinder below the boiler, min. 1933 mm

- GA Gas connection R 1/2
- HR Heating return G 3/4
- HV Heating flow G 3/4
- SRL Cylinder return G 3/4
- SVL Cylinder flow G 3/4

Pre-installation Vitodens 222-W

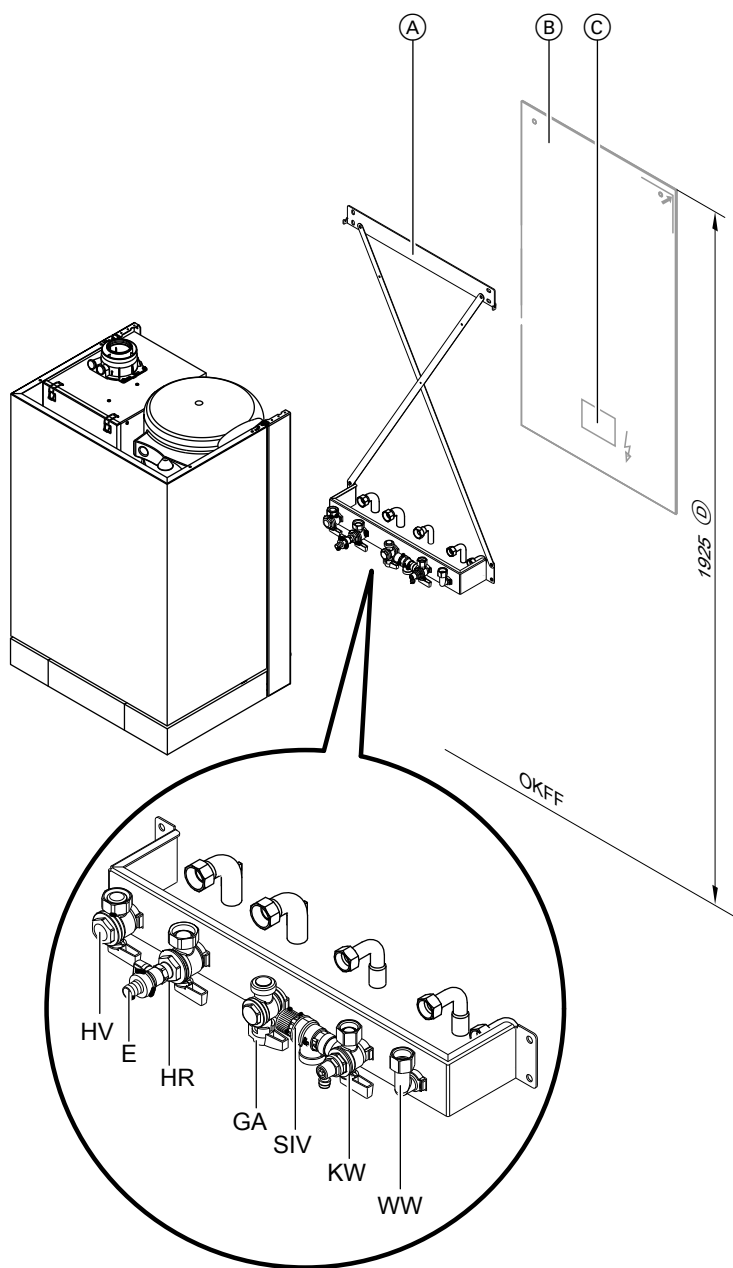
Pre-installation on finished walls

Accessories required for installation in unfinished buildings:

Pre-plumbing jig, comprising:

- Fixings
- Valves/fittings

- Gas shut-off valve
- Safety valve on the DHW side
- Pipe bends



- (A) Pre-plumbing jig
- (B) Vitodens position
- (C) Area for power cables (on-site socket)
- (D) Compulsory installation height
- E Drain
- GA Gas connection R ½

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

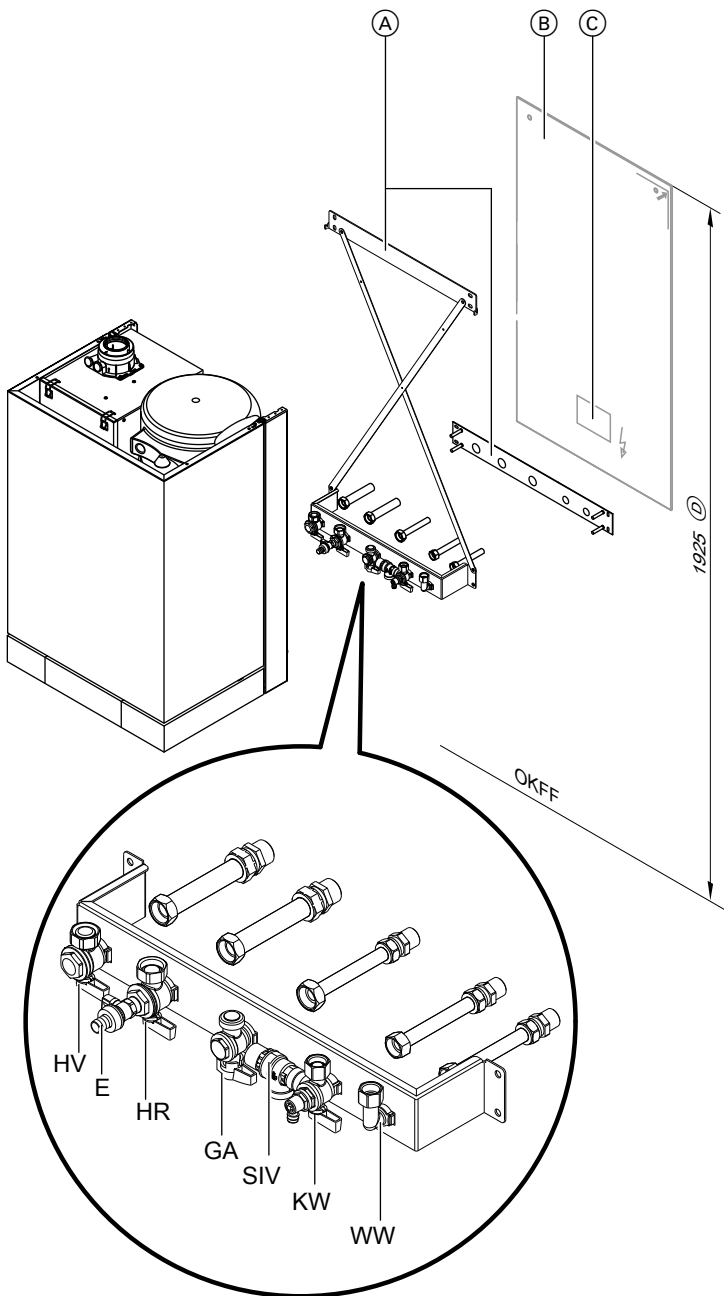
Pre-installation on unfinished walls

Accessories required for installation in unfinished buildings:

Pre-plumbing jig, comprising:

- Fixings
- Valves/fittings

- Gas shut-off valve
- Safety valve on the DHW side
- Connecting pieces



- (A) Pre-plumbing jig
- (B) Vitodens position
- (C) Area for power cables (on-site socket)
- (D) Compulsory installation height
- E Drain
- GA Gas connection R ½

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

6.2 Replacing third party appliances with Vitodens 200-W or 300-W

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

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

Replacing these boilers with the Vitodens is no more work than replacing them with a same-brand appliance. Where a wall mounted gas boiler is replaced by a Vitodens 200-W or 300-W gas condensing boiler, the flue must also be replaced with a system that is suitable for "condensing operation" (see pricelist "Flue systems for the Vitodens"). Adapt the flue connections on site.

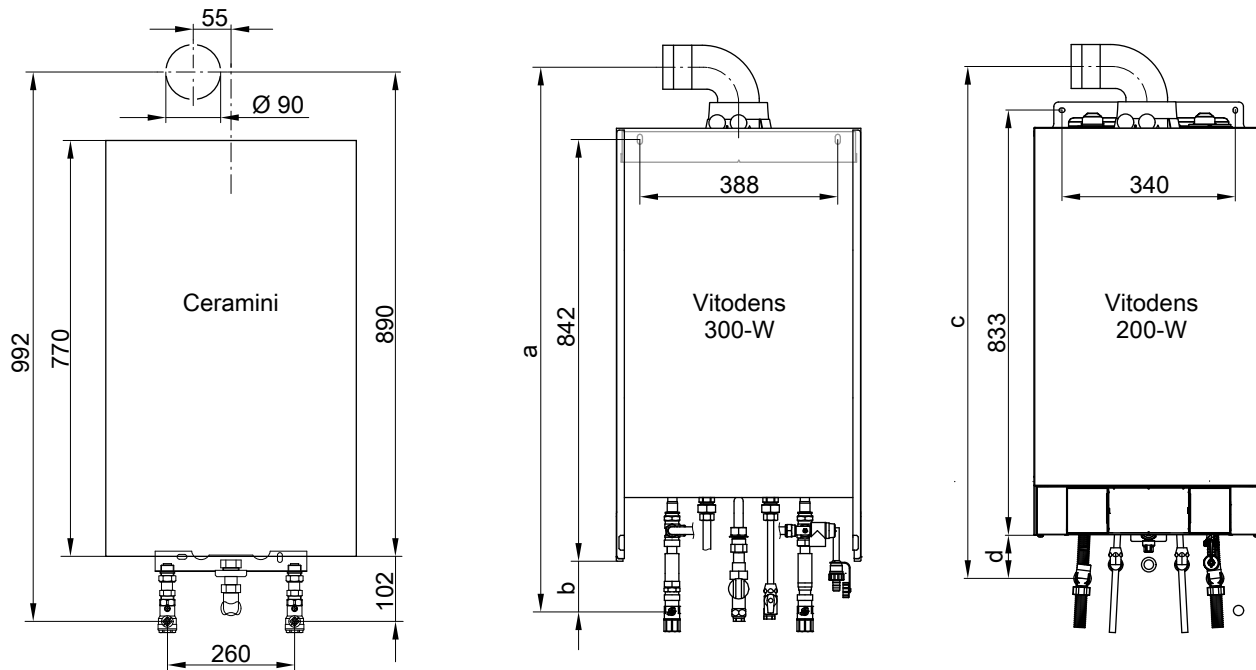
Design information (cont.)

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.

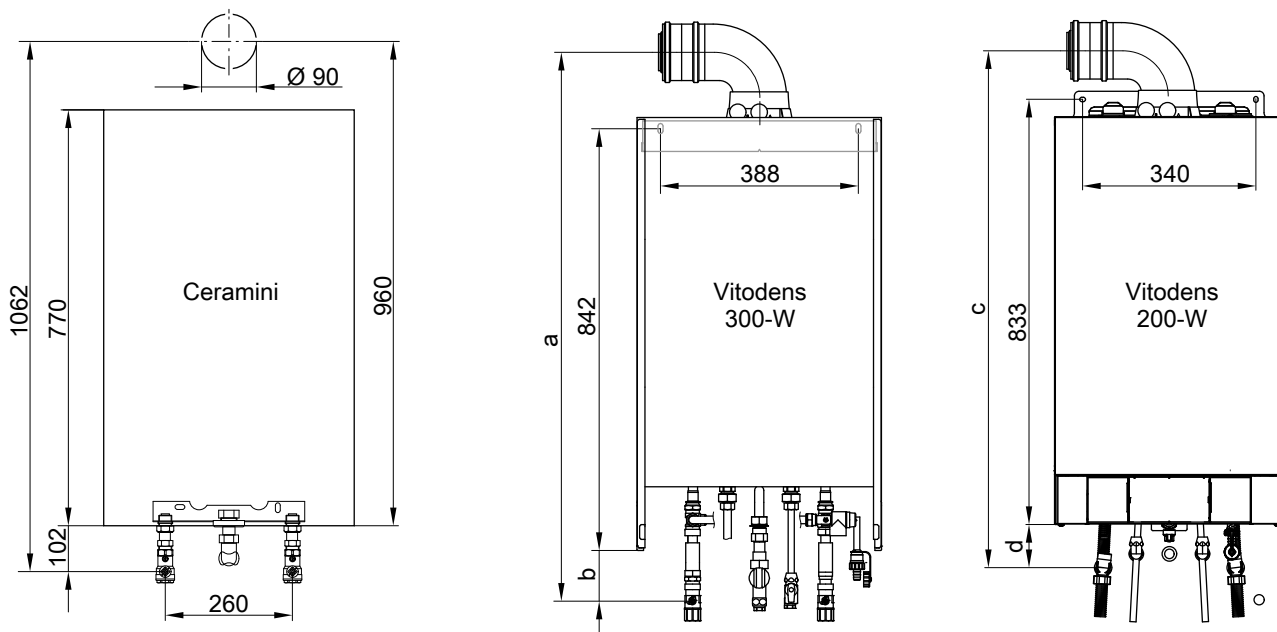
Replacing a Ceramini-Z-SR with a Vitodens 200-W or Vitodens 300-W (11-19 kW)

Open flue operation



Dim.		Unfinished walls	Finished walls	Dim.		Unfinished walls	Finished walls
a	mm	1098	1086	c	mm	1032	1049
b	mm	127	115	d	mm	85	101

Room sealed operation



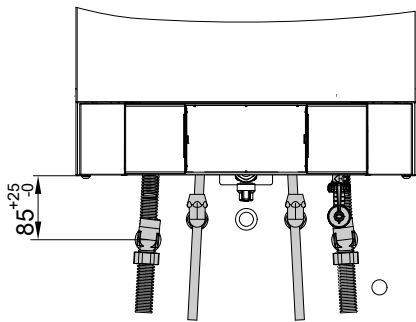
Design information (cont.)

Dim.		Unfinished walls	Finished walls
a	mm	1105	1093
b	mm	127	115
c	mm	1032	1049
d	mm	85	101

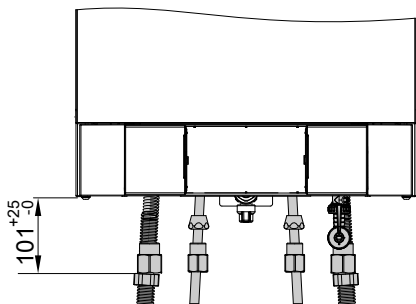
Existing hydraulic connections have identical dimensions.
The parts marked in grey (incl. mounting bracket) in the following diagrams are part of the standard delivery.

Vitodens 200-W

Installation on unfinished walls

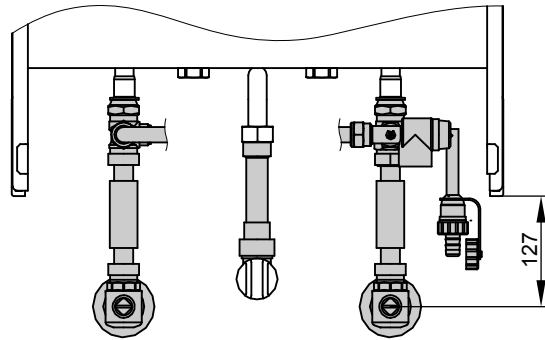


Installation on finished walls

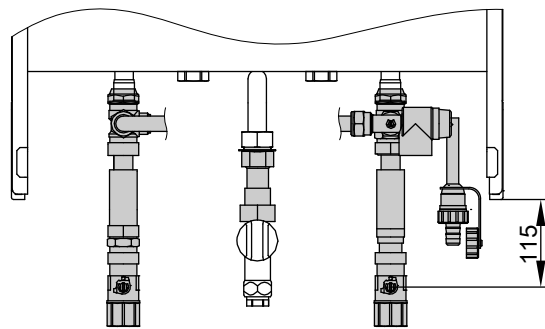


Vitodens 300-W

Installation on unfinished walls



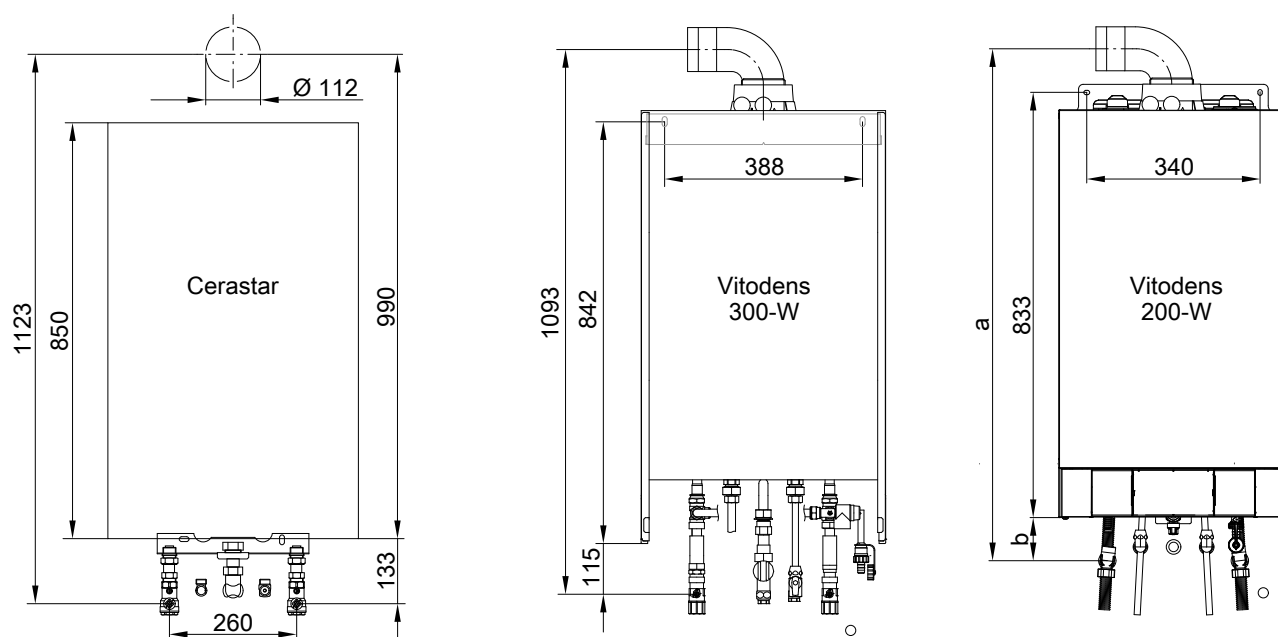
Installation on finished walls



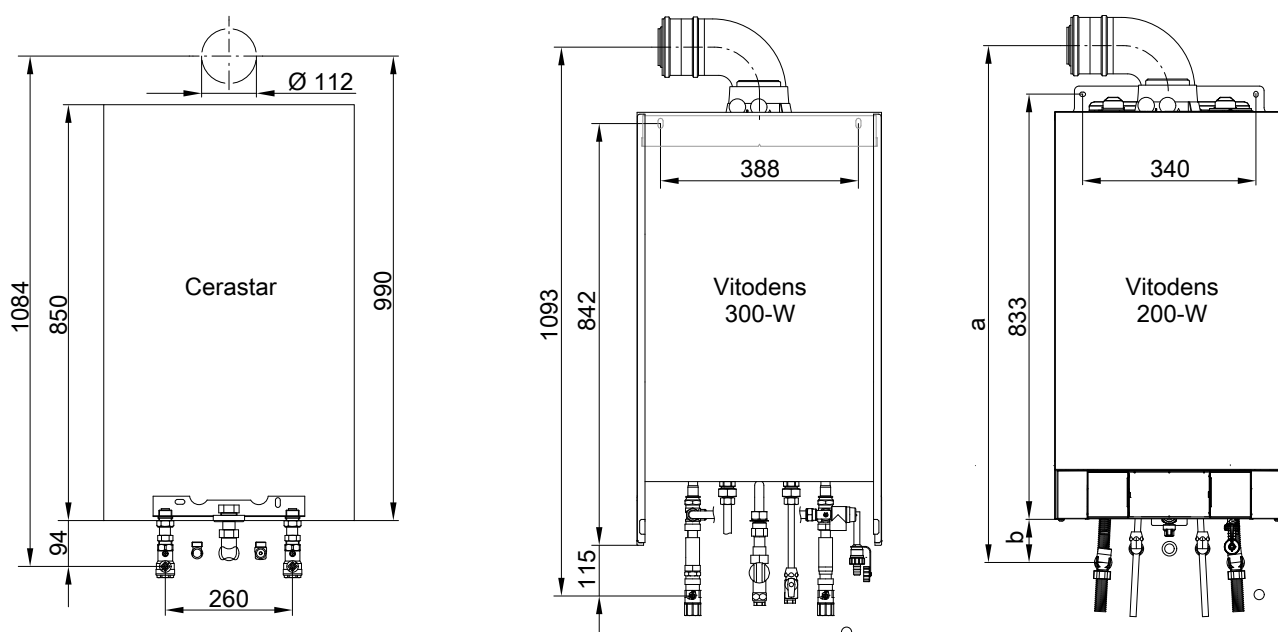
Design information (cont.)

Replacing a Cerastar-ZR/-ZWR with a Vitodens 200-W or Vitodens 300-W (26 and 35 kW)

Open flue operation



Room sealed operation



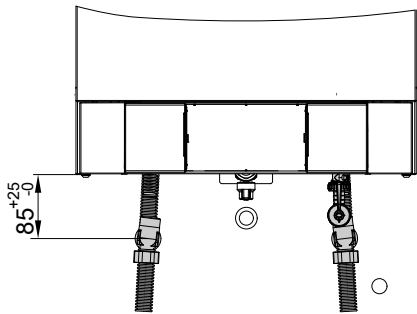
Dim.		Unfinished walls	Finished walls
a	mm	1032	1049
b	mm	85	101

Vitodens 200-W

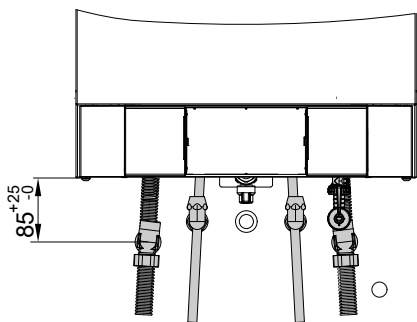
Existing hydraulic connections have identical dimensions.
The parts marked in grey (incl. mounting bracket) in the following diagrams are part of the standard delivery.

Design information (cont.)

Installation on unfinished walls

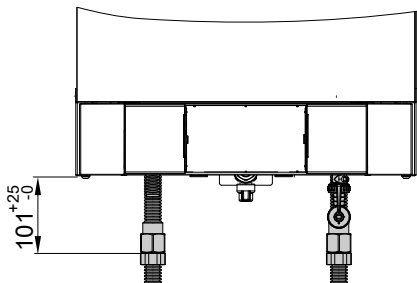


Gas condensing system boiler

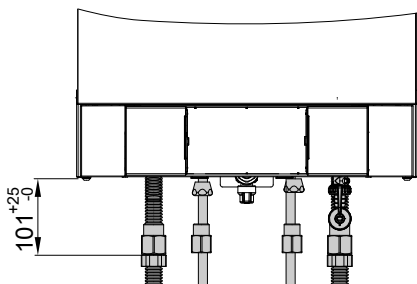


Gas condensing combi boiler

Installation on finished walls



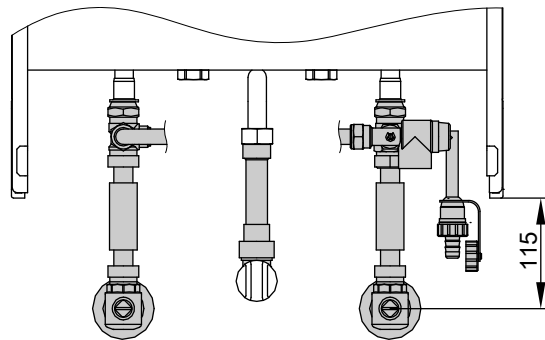
Gas condensing system boiler



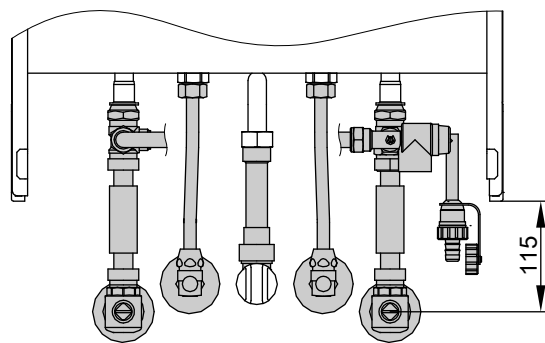
Gas condensing combi boiler

Vitodens 300-W

Installation on unfinished walls

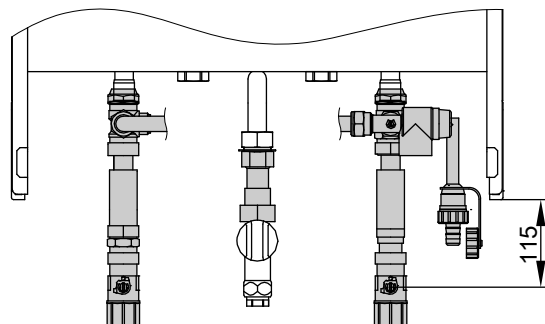


Gas condensing system boiler



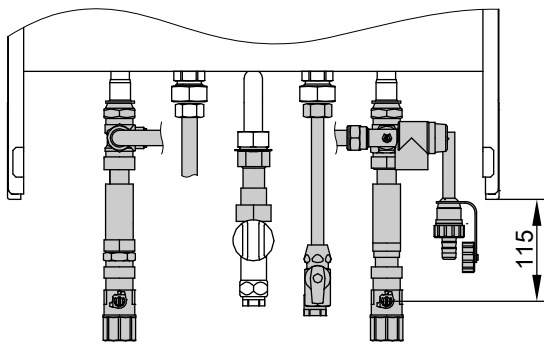
Gas condensing combi boiler

Installation on finished walls



Gas condensing system boiler

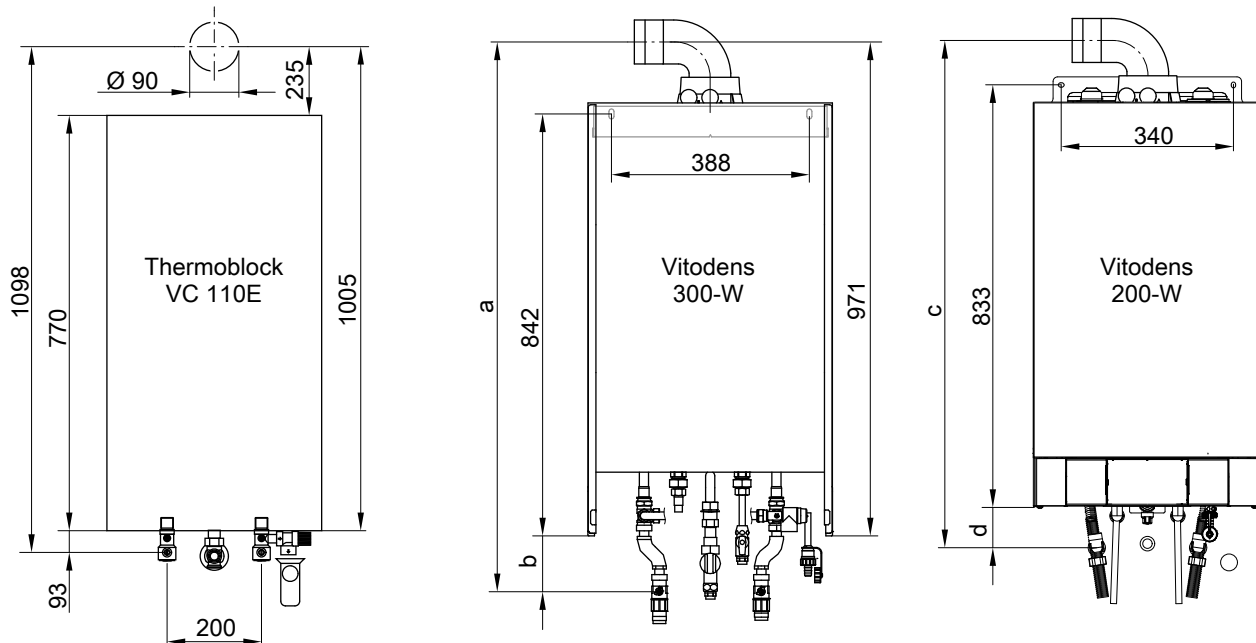
Design information (cont.)



Gas condensing combi boiler

Replacing a Thermoblock-VC110E/-VC112E with a Vitodens 200-W or Vitodens 300-W (11-19 kW)

Open flue operation

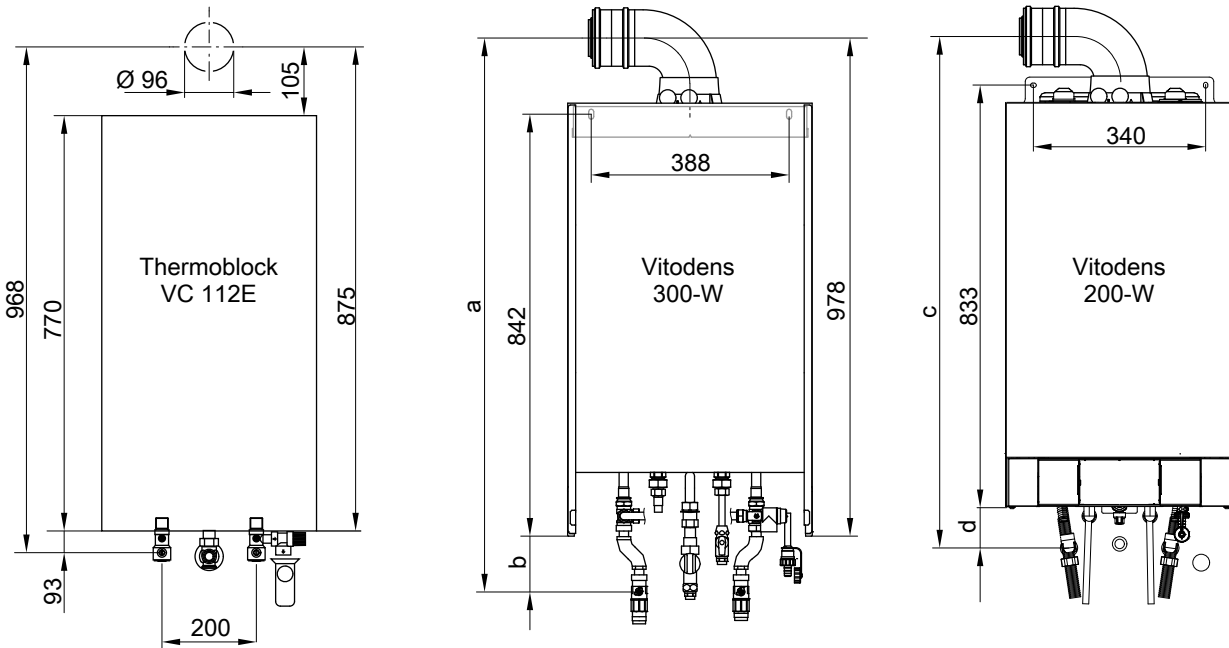


Dim.		Unfinished walls	Finished walls
a	mm	1037	1076
b	mm	66	105

Dim.		Unfinished walls	Finished walls
c	mm	1027	1047
d	mm	81	101

Design information (cont.)

Room sealed operation



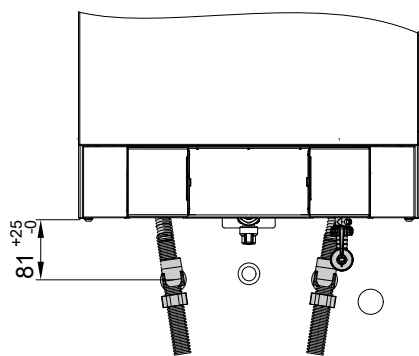
Dim.		Unfinished walls	Finished walls
a	mm	1044	1083
b	mm	66	105

Dim.		Unfinished walls	Finished walls
c	mm	1027	1047
d	mm	81	101

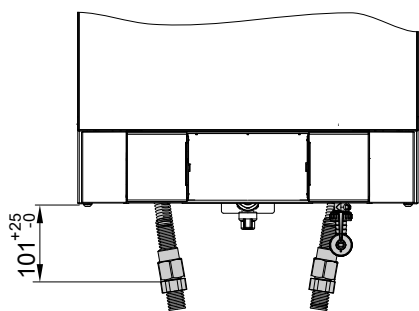
Existing hydraulic connections have identical dimensions.
The parts marked in grey (incl. mounting bracket) in the following diagrams are part of the standard delivery.

Vitodens 200-W

Installation on unfinished walls

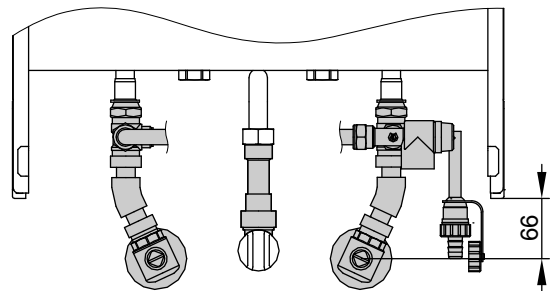


Installation on finished walls

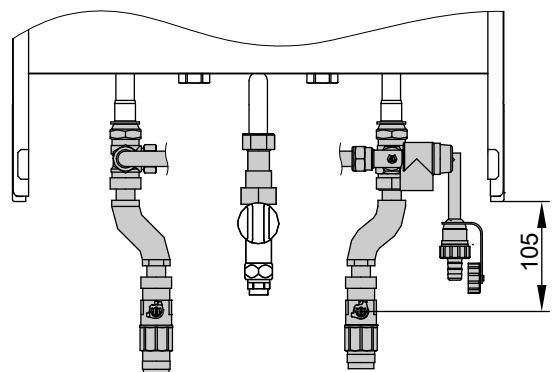


Vitodens 300-W

Installation on unfinished walls



Installation on finished walls

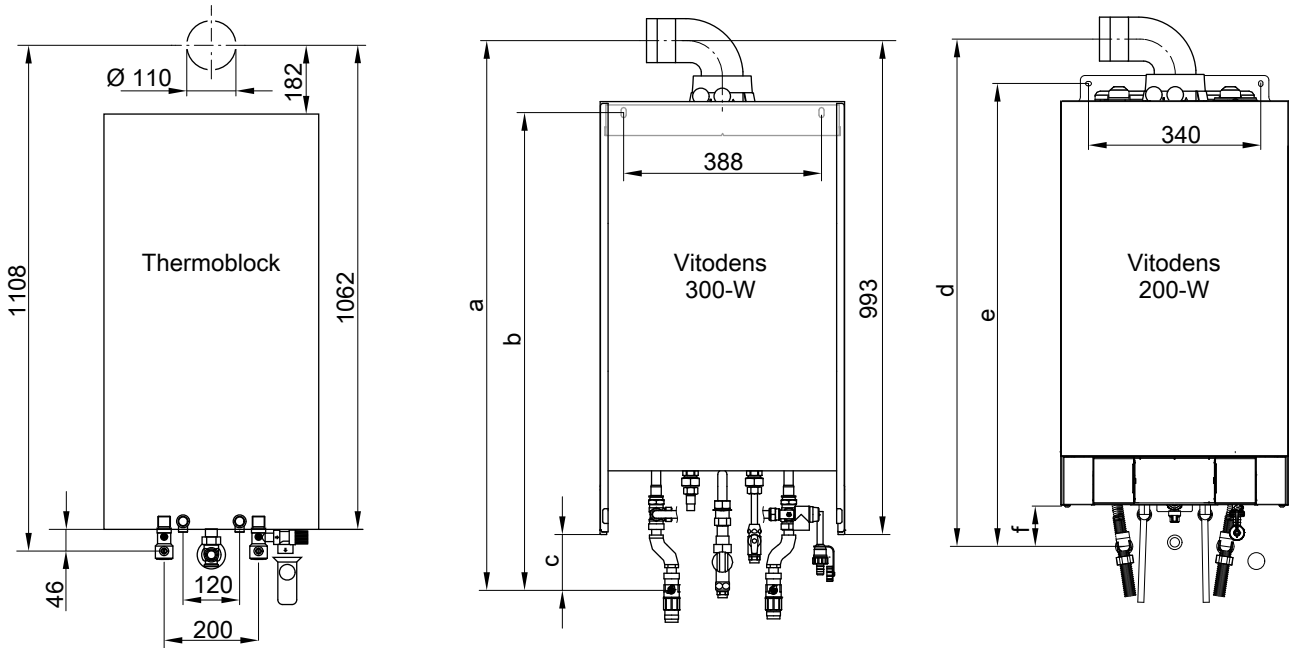


5822 430 GB

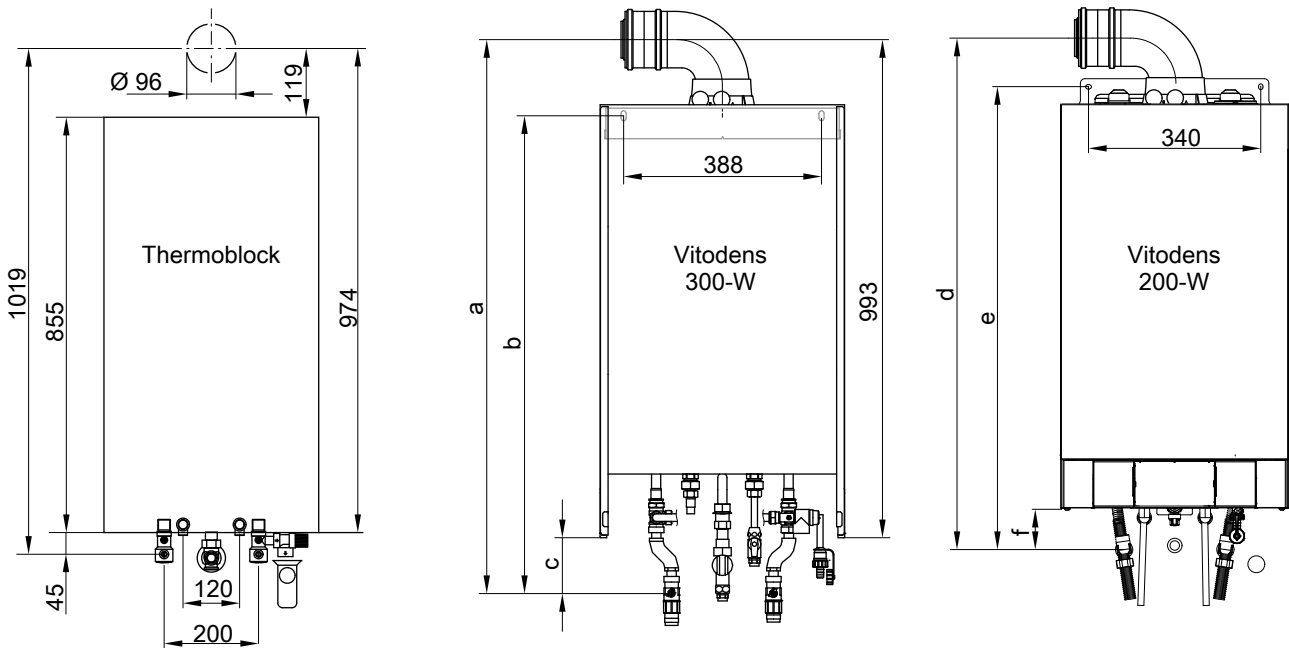
Design information (cont.)

Replacing a Thermoblock-VC/-VCW with a Vitodens 200-W or Vitodens 300-W (26 and 35 kW)

Open flue operation



Room sealed operation



Dim.		Unfinished walls	Finished walls
a	mm	1059	1098
b	mm	908	947
c	mm	66	105

Dim.		Unfinished walls	Finished walls
d	mm	1027	1047
e	mm	914	934
f	mm	81	101

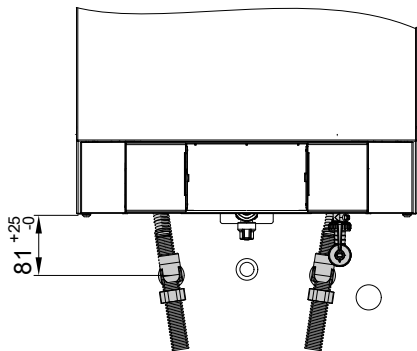
Existing hydraulic connections have identical dimensions.
The parts marked in grey (incl. mounting bracket) in the following diagrams are part of the standard delivery.



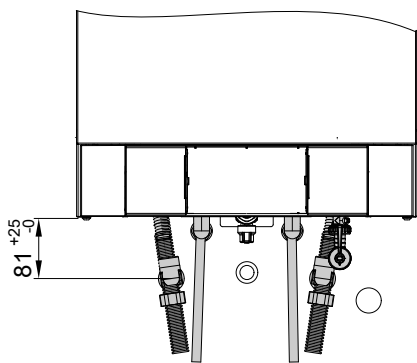
Design information (cont.)

Vitodens 200-W

Installation on unfinished walls

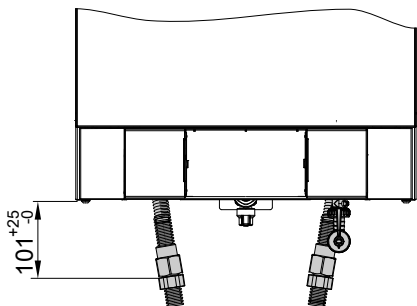


Gas condensing system boiler

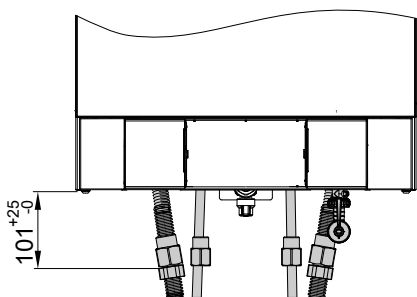


Gas condensing combi boiler

Installation on finished walls



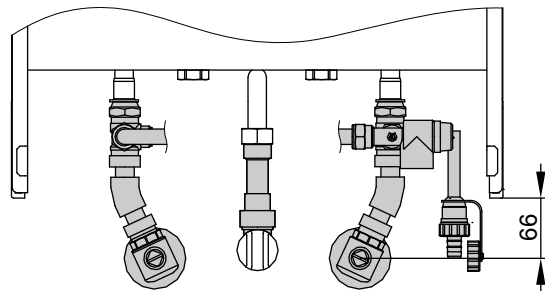
Gas condensing system boiler



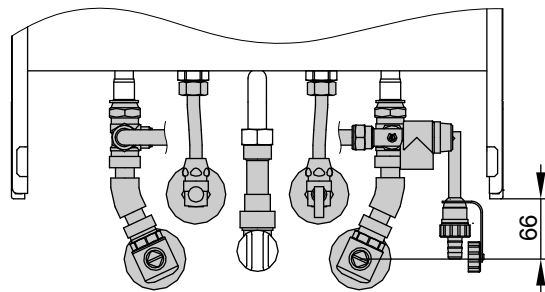
Gas condensing combi boiler

Vitodens 300-W

Installation on unfinished walls

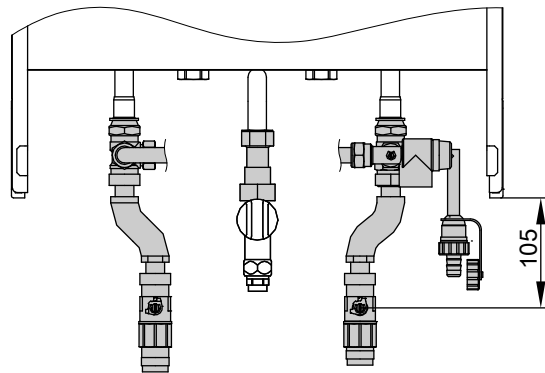


Gas condensing system boiler

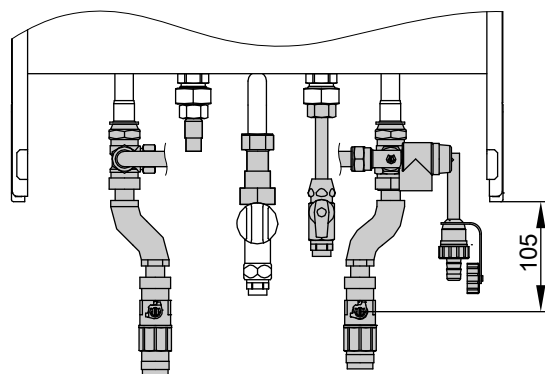


Gas condensing combi boiler

Installation on finished walls



Gas condensing system boiler



Gas condensing combi boiler

6.3 Decision-making aids for DHW heating

To provide the perfect solution for every situation, the Vitodens is available in the following versions:

- Vitodens 200-W
 - As a gas system boiler in combination with a separate DHW cylinder
 - As a gas condensing combi boiler with integral, direct DHW heating
- Vitodens 300-W
 - As a gas system boiler in combination with a separate DHW cylinder
- Vitodens 222-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 system boiler with separate DHW cylinder or a gas system boiler with integral DHW loading cylinder:

- DHW demand, convenience
- Use of the various connected draw-off points
- Distance of the draw-off points from the boiler
- System modernisation
- Space requirement
- Water quality

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 200-W gas condensing combi boiler with instantaneous water heater	Vitodens 200-W and Vitodens 300-W gas system boiler with separate DHW cylinder	Vitodens 222-W with integral DHW loading cylinder
DHW demand, convenience	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 (excl. DHW circulation pipe)	+	+	+
	With DHW circulation pipe	–	+	–
Modernisation project	DHW cylinder installed	–	+	–
	Replacement of an existing combi boiler	+	–	0
Space requirement	Low space requirement (siting in recesses)	+	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 to the boiler (160, 200, 300 or 400 l)

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

The Vitodens 200-W and 300-W as system boilers are equipped at factory with a separate DHW cylinder for DHW heating. For this purpose, the Vitodens 200-W and 300-W are 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".

Design information (cont.)

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 200-W or 300-W with 120 l DHW cylinder, a Vitodens 222-W can also be used.

Cylinder capacity in litres

	Bath 1600 to DIN 4471	Bath 1700 to DIN 4471	Small bath and sit bath	Large bath (1800 × 750 mm)	Shower cubicle with mixer tap and standard shower head	Shower cubicle with 1 shower head and 2 side nozzles	Washbasin	Bidet
Draw-off rate in W/h	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	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

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

Vitodens 200-W and 300-W gas system boilers, cylinder allocation

Rated heating output range [kW]	Practical cylinder allocation (cylinder capacity in litres)		
	1.9 to 19.0	4.0 to 26.0	4.0 to 35.0
Vitocell 100-W (type CUGA, CUGA-A) below the boiler	120 150	120 150	120 150
Vitocell 100-W (type CVA, CVAA, CVAA-A) adjacent to the boiler	160 200 300	160 200 300	160 200 300
Vitocell 100-V (type CVA) adjacent to the boiler	—	—	500
Vitocell 300-W (type EVA) adjacent to the boiler	160 200	160 200	160 200
Vitocell 300-V (type EVI) adjacent to the boiler	—	300 500	300 500
Vitocell 100-W (type CVB, CVBB) adjacent to the boiler, dual mode	300 400	300 400	300 400

Design information (cont.)

Rated heating output range [kW]	Practical cylinder allocation (cylinder capacity in litres)		
	1.9 to 19.0	4.0 to 26.0	4.0 to 35.0
Vitocell 100-W (type CVUB) adjacent to the boiler, dual mode	300	300	300
Vitocell 100-W (type CVUC-A) adjacent to the boiler, dual mode (only for Vitodens 300-W)	300	300	300
Vitocell 100-B (type CVB) adjacent to the boiler, dual mode	—	500	500
Vitocell 300-B (type EVB) adjacent to the boiler, dual mode	300	300 500	300 500
Vitocell 340-M (type SVKA) heating water buffer cylinder with DHW heating	705/33	705/33	705/33
Vitocell 360-M (type SVSA) heating water buffer cylinder with DHW heating	705/33	705/33	705/33

6.4 Connections on the water side

Connections on the DHW side

Vitodens 200-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.

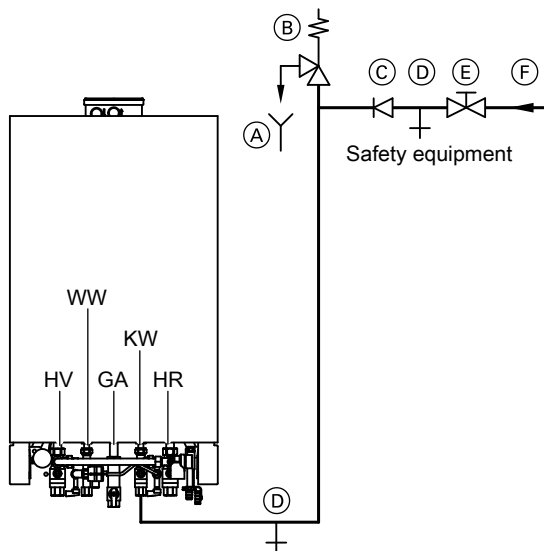
When using galvanised pipes, please note that the instantaneous water heater is designed as a stainless steel plate heat exchanger with copper solder joints (observe the flow rule).

In existing installations (modernisation projects), the risk of electrolytic corrosion is low, since a protective layer will have formed on the inside of the pipes.

If DHW is to be drawn simultaneously from several points, we recommend the installation of a separate DHW cylinder in conjunction with the gas system boiler (see "Decision-making aids regarding DHW heating").

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

Cold water installation of Vitodens 200-W gas condensing combi boiler



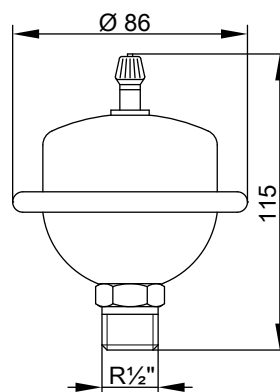
- (A) Visible drain pipe outlet point
- (B) Safety valve
- (C) Non-return valve
- (D) Drain
- (E) Shut-off valve
- (F) Cold water
- GA Gas connection
- HR Heating return
- HV Heating flow
- KW Cold water
- WW DHW

A safety valve to DIN 1988 only has to be installed if the mains water supply pressure exceeds 10 bar (1 MPa); (A): 6 bar (0.6 MPa), and no DHW pressure reducing valve is used (in accordance with DIN 4753).

Install a safety valve if the cold water supply is equipped with a non-return valve. In addition remove the toggle from the cold water shut-off valve.

Non-return valves are commonly found in pressure reducers and combined shut-off and non-return valves.

Shock arrestor



If the pipework to which the Vitodens is connected also supplies draw-off points at which water hammers may occur (e.g. pressure washers, washing machines or dishwashers): Install shock arrestors near the source of the water hammer (recommended).

Flexofit S made by Flamco-Flexcon
or

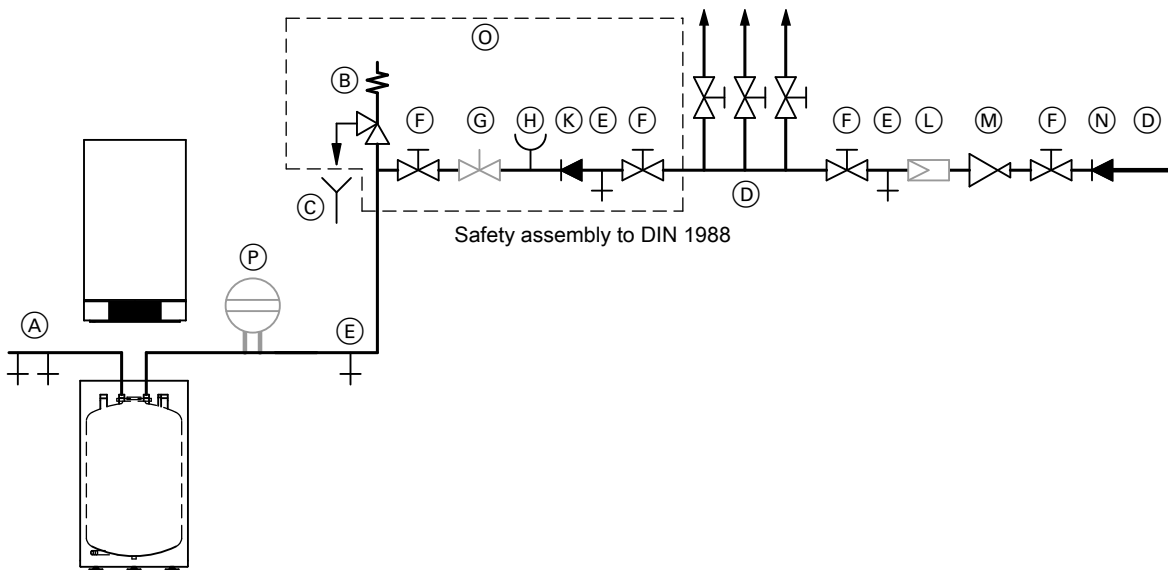
Reflex made by Winkelmann + Pannhoff GmbH
(available from your local dealer).

Design information (cont.)

Cold water installation, separate DHW cylinder and loading cylinder of the Vitodens 222-W

Example:

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



- (A) DHW
- (B) Safety valve
Included in the standard delivery of the pre-plumbing jig for **Vitodens 222-W**
- (C) Visible discharge pipe outlet point (tundish)
- (D) Cold water
- (E) Drain
- (F) Shut-off valve
- (G) Flow regulating valve (installation recommended)

- (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

Safety valve

The safety valve **must** be installed.

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

Drinking water filter

According to DIN 1988-2, 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

Only in conjunction with Vitodens 200-W and 300-W 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.

With a **line length of 7 m** or longer, we recommend the installation of a DHW circulation line with appropriate thermal insulation 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.

Power supply for DHW circulation pump

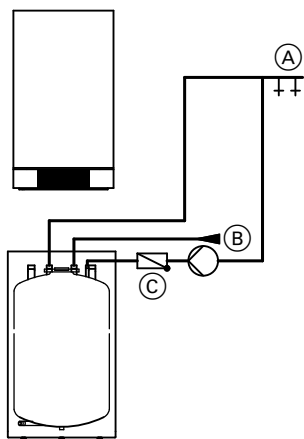
DHW circulation pumps with their own internal control unit must be connected to a separate power supply. Mains connection via the Vitotronic control unit or Vitotronic accessories is **not** permissible.

Using a non-return valve

If the DHW cylinder is installed adjacent to the boiler, we recommend fitting a non-return valve in the heating water connection line to prevent the cylinder being cooled if recirculation occurs.

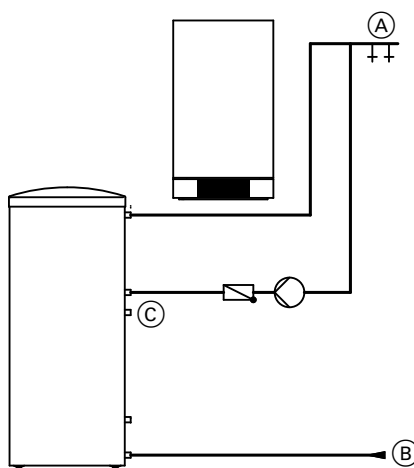
Design information (cont.)

Vitodens 200-W and 300-W



DHW cylinder below the boiler

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



DHW cylinder adjacent to the boiler

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

Vitodens 222-W

The connection of a DHW circulation pipe is **not recommended**.

DHW circulation for gas condensing combi boilers

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

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

6.5 Condensate connection

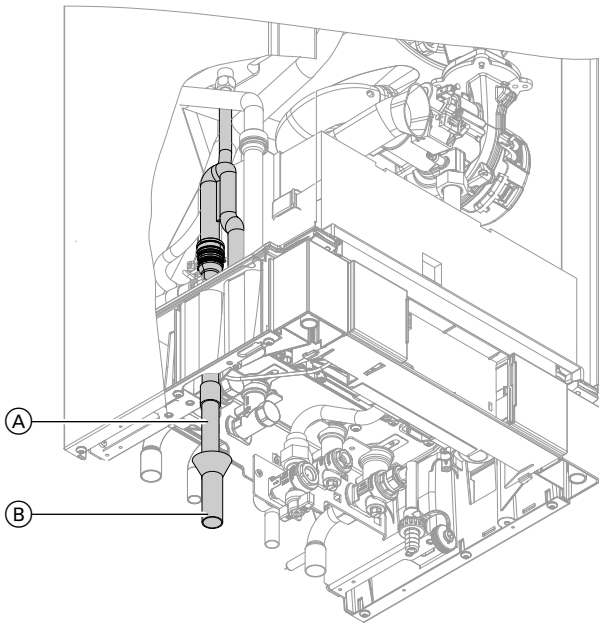
Route the condensate drain pipe with a constant fall.
Route the condensate from the flue system together with the boiler condensate directly or (if installed) via a neutralising system (accessories) to the public sewage system.

Note

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

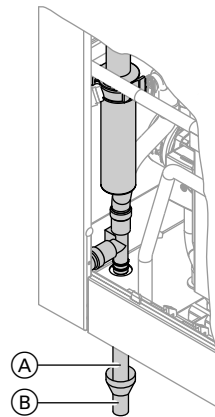
Design information (cont.)

Vitodens 200-W



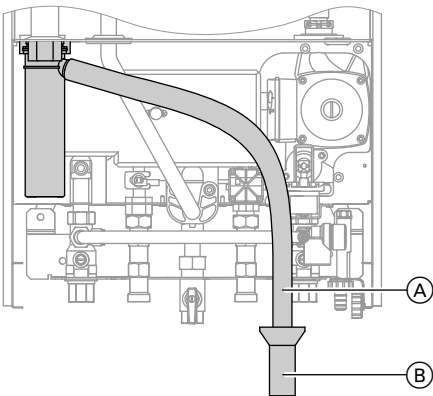
- (A) Drain hose (Vitodens standard delivery)
- (B) Drain outlet kit (accessories)

Vitodens 222-W



- (A) Drain hose (Vitodens standard delivery)
- (B) Drain outlet kit (accessories)

Vitodens 300-W



- (A) Drain hose (Vitodens standard delivery)
- (B) Drain outlet kit (accessories)

Condensate drain pipe and neutralisation

During heating operation, condensate with pH values between 4 and 5 is formed in the condensing boiler and in the flue.

The condensate should be drained in accordance with appropriate regulations.

Code of Practice DWA-A 251 on "Condensate from condensing boilers", which is generally based on the local waste water regulations [in Germany], determines conditions for draining condensate from condensing boilers into the public sewer system.

The composition of condensate drained from Vitodens condensing boilers meets the requirements specified in Code of Practice DWA-A 251.

The condensate drain pipe to the sewer connection must be freely accessible for inspection.

It must be installed with a continuous fall and must contain a stench trap. Also provide a suitable facility for sampling.

Condensate drain pipes must only be made from corrosion-resistant materials (e.g. reinforced hoses).

Never use any zinc-plated materials or those containing copper for pipes, connection pieces, etc.

A siphon 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.

Design information (cont.)

Contact your local authority responsible for waste water management in good time prior to installation, to find out about local regulations.

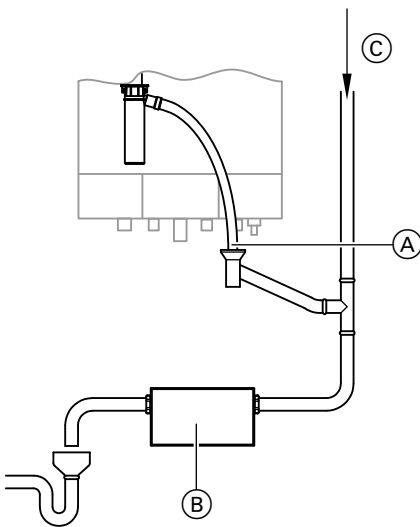
Condensate from gas combustion equipment up to 200 kW combustion output

Up to a rated heating output of 200 kW, the condensate from a gas condensing boiler can generally be introduced into the public sewerage 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.

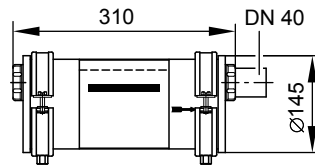
The condensate drain pipe to the sewer connection must be accessible for inspection. Install it with a fall and a stench trap on the sewer side, and provide a suitable facility for extracting samples.

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

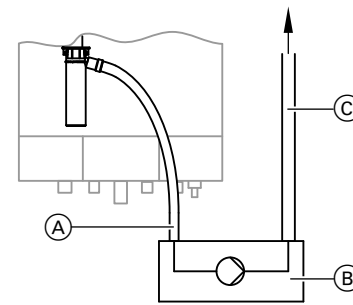
Condensate lifting pumps are available as accessories.

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 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.

Due to the immediate capturing of the room-influencing factors, we recommend using the Vitodens with constant temperature control unit in conjunction with the Vitotrol 100 for apartments with less than 80 m² living space or for low energy houses with a low heat demand.

To reduce burner cycling in low energy houses with a correspondingly low heat demand, we recommend the use of a low loss header or a heat generator with low partial load, e.g. Vitodens 300-W with 1.9 to 19 kW.

The heat generator must be correctly sized and selected.

Chemical anti-corrosion agents

In correctly installed and operated sealed unvented heating systems corrosion is generally avoided.

Never use chemical anti-corrosion additives.

Design information (cont.)

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

For heating systems with plastic pipes, we recommend the use of impermeable pipes to prevent the diffusion of oxygen through the pipe walls.

Provide system separation in heating systems with plastic pipes that are permeable to oxygen (DIN 4726). A separate heat exchanger for this purpose is available.

Install a dirt separator in underfloor heating systems. See Viessmann Vitoset pricelist.

Underfloor heating systems and heating circuits with very large water content (>15 l/kW) should be connected to the condensing boiler via a 3-way mixer. See technical guide "Control of underfloor heating systems" or the relevant sample applications.

Install a temperature limiter in the flow of the underfloor heating circuit to restrict the maximum temperature. Observe the requirements of DIN 18560-2 [or local regulations].

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 boiler damage.

Observe VDI 2035 [or local regulations] 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)

- 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.
- Special antifreeze (category 1 to 3) 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 each section. 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 added to 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.
- In multi boiler systems, start all boilers simultaneously to prevent the total amount of limescale deposits settling in the heat exchanger of just one boiler.
- During expansion or repair work, only drain the necessary pipe-work sections.
- 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 commissioning and in new installations. Later on this can be carried out subject to the requirements of the water treatment applied (e.g. water softening).

Modernising existing systems

Third party appliance adaptors are available as accessories for the Vitodens 200-W and 300-W.

This enables existing hydraulic connections for wall mounted boilers of type Thermobloc-VC/-VCW, Cerastar-ZR/-ZWR and Ceramini to be adapted for the Vitodens (see page 69).

Installation examples

For installation examples for the Vitodens 200-W, 222-W and 300-W, see "System examples".

Never install the Vitodens 222-W in dual mode systems with solid fuel boilers.

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 following Vitodens boilers:

Design information (cont.)

- Vitodens 200-W up to 35 kW
- Vitodens 222-W
- Vitodens 300-W, 11 and 19 kW
- For Vitodens 300-W, 26 and 35 kW, a mounting frame with expansion vessel and valves/fittings is available as an accessory (see page 48).

Low loss header

Application

Design rules for system hydraulics:

- When balancing the low loss header, adjust the flow rate on the equipment side to approx. 10 to 30 % below the flow rate on the system side (reducing the return temperature).
- The low loss header should be sized for the max. flow rate which may occur in the overall system.

The low loss header separates the heat generator circuit (boiler circuit) from the downstream heating circuits.

Install a low loss header if the max. flow rate of an individual design is greater than the corresponding value shown in the "Specification" table.

For installation schemes in conjunction with low loss headers, see "System examples".

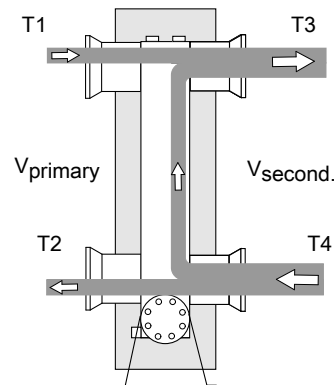
Heat generator circuit

The circulation pump in the Vitodens must be able to supply the required water volume despite the (mostly low) pressure drop of the heat generator circuit; the pressure drop of the low loss header is negligible. The pump diagrams serve to determine the correct residual head for the internal pipe diameters, subject to the water volume circulating in the heat generator circuit.

Heating circuit

The heating circuit pumps to be installed on site must be able to deliver the water volume in the heating circuits against their pressure drop. They must be sized accordingly.

Principle of operation



V_{primary}	Heating water volume in the heat generator circuit (approx. 10 to 30 % less than $V_{\text{secondary}}$)
$V_{\text{secondary}}$	Heating water volume, heating circuit
T_1	Flow temperature, heat generator circuit
T_2	Return temperature, heat generator circuit
T_3	Flow temperature, heating circuit
T_4	Return temperature, heating circuit
Q_{primary}	Amount of heat supplied by the heat generator
$Q_{\text{secondary}}$	Amount of heat transferred by the heating circuit

Determine the size of the expansion vessel to be installed in accordance with EN 12828.

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

$$\begin{aligned} V_{\text{primary}} &< V_{\text{secondary}} \\ T_1 &> T_3 \\ T_2 &\approx T_4 \\ Q_{\text{primary}} &= Q_{\text{secondary}} \end{aligned}$$

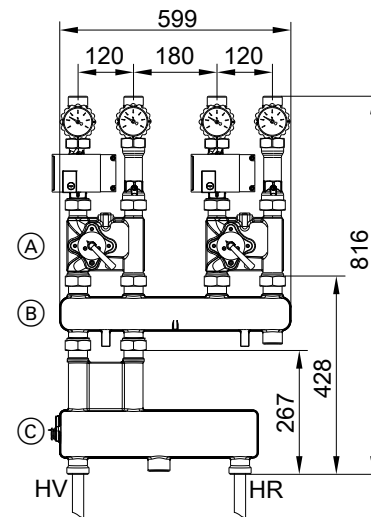
Note

Thermometers in the flow and return of the low loss header make adjustments easier.

Low loss header in conjunction with Divicon

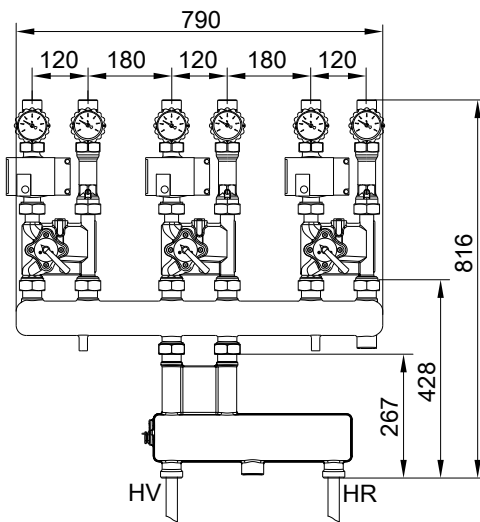
For further details, see the technical guide on the Vitodens 200-W, 45 to 150 kW.

	Max. flow rate in m ³ /h
Low loss header	
– R ¾	4.5
– R 1	4.5
– R 1¼	7.5
Divicon heating circuit distributor	
– R ¾	1.0
– R 1	1.5
– R 1¼	2.5



- HR Heating return
- HV Heating flow
- (A) Divicon heating circuit distributor
- (B) Manifold
- (C) Low loss header

Design information (cont.)



Low loss header from the Vitoset range
See "Vitoset" pricelist

HR Heating return
HV Heating flow

6.7 Intended use

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

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

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

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

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

Control units

7.1 Vitotronic 100, type HC1B, for constant temperature operation

In conjunction with the Vitodens 200-W and 222-W

Structure and functions

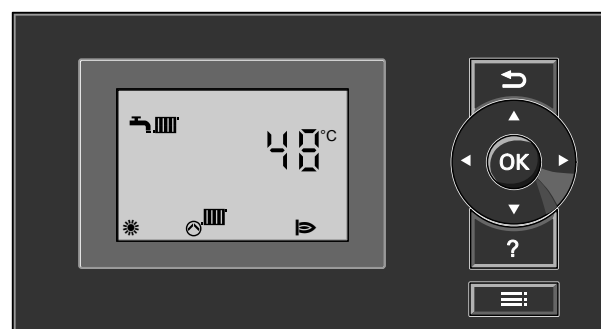
Modular structure

The control unit is integrated into the boiler.

The control unit comprises a standard unit, electronics modules and a programming unit.

Standard unit:

- ON/OFF switch
- Optolink laptop interface
- Operating and fault indicators
- Reset button
- Fuses



Control units (cont.)

Programming unit:

- Easy operation through display with large font and depiction with good contrast
- Removable programming unit; can be mounted as option on the wall with separate accessory
- Menu prompts through pictograms
- Operating keys for:
 - Navigation
 - Confirmation
 - Settings/menu
- Settings:
 - Boiler water temperature
 - DHW temperature
 - Operating program
 - Codes
 - Actuator tests
 - Test mode
- Displaying:
 - Boiler water temperature
 - DHW temperature
 - Operating data
 - Diagnostic details
 - Fault messages

Functions

- Electronic boiler control unit for operation at a constant boiler water temperature
- Room temperature-dependent operation requires a Vitotrol 100, type UTA, UTDB or UTDB-RF (according to EnEV [Germany])
- Heating system frost protection
- Anti-seizing pump protection
- Integral diagnostic system
- Cylinder thermostat with priority
- Control of solar DHW heating and central heating backup in conjunction with the solar control module, type SM1
- Auxiliary function for DHW heating (short-term heating to a higher temperature)
- Maintenance display
- External starting and blocking (in conjunction with extension EA1)

Control characteristics

PI characteristics with modulating output.

Setting the heating programs

The heating system frost protection (see frost protection function) applies to all heating programs.

The following heating programs can be selected:

- Heating and DHW
- Only DHW
- Standby mode

Frost protection function

The frost protection function is active in all heating programs.

The burner is switched ON at a boiler water temperature of 5 °C and will be switched OFF again at a boiler water temperature of 20 °C. The circulation pump will be switched ON simultaneously with the burner and switched OFF after a delay. The DHW cylinder will be heated to approx. 20 °C. To protect the system against frost, the circulation pump may be started at certain intervals (up to 24 times per day) for periods of approx. 10 minutes.

Summer mode

Operating program "☀"

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

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

Cylinder temperature sensor

Standard delivery for:

- Connection set for DHW cylinders below the boiler (120 or 150 l) (order separately)
- Connection set for DHW cylinders adjacent to the boiler (160 to 400 l) or alternative DHW cylinders (order separately)

Specification

Lead length	3.75 m, fully wired
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

Cylinder temperature sensor (Vitodens 222-W) and outlet temperature sensor

These sensors are connected to the control unit and built into the boiler or DHW cylinder.

Specification

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

Specification – Vitotronic 100, type HC1B

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A
Protection class	I
Function type	Type 1 B to EN 60730-1
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	
– Gas condensing combi boilers	10 to 57 °C
– Gas system boilers	10 to 68 °C
– Vitodens 222-W	10 to 63 °C

7.2 Vitotronic 200, type HO2B, for weather-compensated operation

Structure and functions

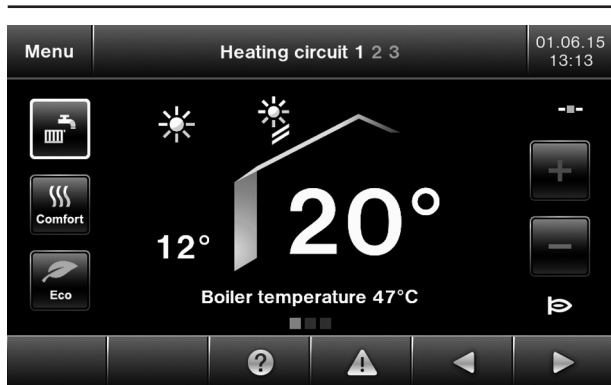
Modular structure

The control unit is integrated into the boiler.

The control unit comprises a standard unit, electronics modules and a programming unit with 5-inch colour touchscreen.

Standard unit:

- ON/OFF switch
- Optolink laptop interface
- Operating and fault display
- Reset button
- Fuses



Programming unit:

- Easy operation thanks to:
 - Colour touchscreen with plain text and graphic display
 - Large font and colour depiction for good contrast
 - Context-sensitive help
- With digital time switch
- Setting:
 - Room temperature
 - Reduced room temperature
 - DHW temperature
 - Operating program
 - Time programs for central heating, DHW heating and DHW circulation
 - Economy mode (ECO)
 - Comfort mode
 - Holiday program
 - Heating curves
 - Favourites menu
 - Parameters with plain text display
 - Actuator tests
 - Test mode
- Display:
 - Boiler water temperature
 - DHW temperature
 - Energy cockpit with indication of:
 - Energy yields
 - Energy consumption
 - Heat-up conditions in conjunction with Vitocell 100-W, type CVUC-A
 - Operating data
 - Diagnostic details
 - Fault messages

■ Available languages:

- German
- Czech
- Danish
- English
- French
- Italian
- Dutch
- Polish
- Slovak
- Swedish
- Bulgarian
- Estonian
- Croatian
- Latvian
- Lithuanian
- Romanian
- Russian
- Slovenian
- Spanish
- Turkish
- Hungarian

Connectivity

Remote control of the heating system using the Vitotrol Plus or ViCare app (for further information, see the technical guide on data communication). Integral LAN interface in the Vitodens 300-W (to 08/2016). If LON communication (e.g. Vitogate or Vitotronic 200-H) is required, replace the integral LAN module with the LON communication module (accessories). If an internet connection is also required, a Vitocom must be ordered separately. Vitoconnect 100 for new and existing systems.

Functions

- Weather-compensated control of the boiler water and/or flow temperature
- Control of one heating circuit without mixer and two heating circuits with mixer
- Electronic maximum and minimum temperature limit
- Demand-dependent heating circuit pump and burner shutdown control
- Adjustment of a variable heating limit
- Pump anti-seizing protection
- Frost protection monitoring for the heating system
- Setting of the control method for the integral circulation pump
- Integral diagnostic system
- Flow rate monitoring (for Vitodens 300-W)
- Commissioning using commissioning assistant with display of the installed hydraulic scheme.
- Simplified performance of automated hydronic balancing. In conjunction with service case, extension kits (accessories) and the flow rate sensor installed in the Vitodens 300-W.
- Service indicator
- Cylinder temperature controller with priority control
- In conjunction with solar control module, type SM1:
 - Control of solar DHW heating and central heating backup
 - Graphic representation of the solar energy yield
- Auxiliary function for DHW heating (short term heating to a higher temperature)
- Screed drying program
- Connection option for DHW circulation pump with Vitodens 3xx
- External starting and blocking (in conjunction with EA1 extension)

To reduce the heat-up output, the reduced room temperature is raised when outside temperatures are low. To shorten the heat-up time after a setback phase the flow temperature is raised for a limited time.

Control units (cont.)

According to the German Energy Saving Ordinance, the temperature in each room must be individually controlled, e.g. by means of thermostatic valves.

Control characteristics

PI characteristics with modulating output

Time switch

Digital time switch (integrated into the programming unit)

- Individual day and seven-day program
- Automatic summer/wintertime changeover
- Automatic function for DHW heating and DHW circulation pump
- Time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are factory-set
- Switching times are individually programmable, i.e. up to four switching periods per day

Shortest switching interval: 10 minutes

Power reserve: 14 days

Setting the operating programs

The heating system frost protection (see frost protection function) applies to all heating programs.

The following heating programs can be selected:

- Heating and DHW
- Only DHW
- Standby mode

External heating program changeover in conjunction with EA1 extension.

Frost protection function

- The frost protection function will be started when the outside temperature drops below approx. +1 °C.
With frost protection, the heating circuit pump is 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 will be stopped when the outside temperature rises above approx. +3 °C.

Summer mode

Operating program "☀"

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

Adjusting the heating curves (slope and level)

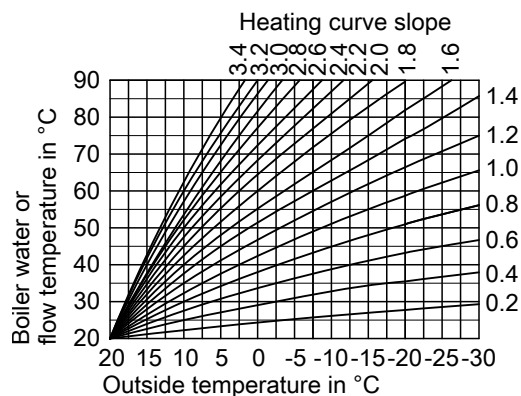
The Vitotronic 200 controls the boiler water temperature (= flow temperature of the heating circuit without mixer) **and** the flow temperature of the heating circuits with mixer (in conjunction with the extension kit for one heating circuit with mixer) in weather-compensated mode. The boiler water temperature is automatically boosted by between 0 and 40 K higher than the currently required set flow temperature (delivered condition 8 K).

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 operating conditions.

Heating curves:

The upper boiler water temperature is limited by the temperature limiter and the temperature set at the electronic maximum thermostat. The flow temperature cannot exceed the boiler water temperature.



Heating systems with low loss header

When using hydraulic separation (low loss header), connect a temperature sensor for use in the low loss header.

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

Cylinder temperature sensor

Standard delivery for:

- Connection set for DHW cylinders below the boiler (120 or 150 l) (order separately)
- Connection set for DHW cylinders adjacent to the boiler (160 to 400 l) or alternative DHW cylinders (order separately)

Specification

Lead length	3.75 m, fully wired
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

Outside temperature sensor

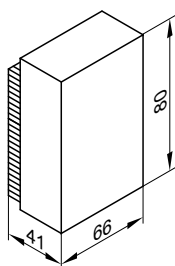
Installation site:

- 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 up to 35 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230/400 V cables.

Control units (cont.)



Specification

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

Note

The hardwired outside temperature sensor is included in the delivered condition. Alternatively, the wireless outside temperature sensor can be used; see accessories.

Specification – Vitotronic 200, type HO2B

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A
Protection class	I
Permissible ambient temperature – During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	-20 to +65 °C

Electronic temperature limiter setting (heating mode)	82 °C (change not possible)
DHW temperature setting range	10 to 68 °C
Heating curve setting range	
Slope	0.2 to 3.5
Level	-13 to 40 K

7.3 Vitotronic accessories

Allocation to control unit types

Vitotronic Type	100 HC1B	200 HO1B	200 HO2B
Accessories			
Vitotrol 100, type UTA	x		
Vitotrol 100, type UTDB	x		
External H4 extension	x		
Vitotrol 100, type UTDB-RF	x		
Vitotrol 200-A		x	x
Vitotrol 300-A		x	x
Vitocomfort 200		x	x
Vitotrol 200-RF		x	x
Vitotrol 300-RF		x	x
Wireless base station		x	x
Wireless outside temperature sensor		x	x
Wireless repeater		x	x
Room temperature sensor for Vitotrol 300-A		x	x
Immersion temperature sensor	x	x	x
Mounting base for programming unit	x	x	
Radio clock receiver		x	
KM BUS distributor	x	x	x
Extension kit, mixer with integral mixer motor		x	x
Extension kit, mixer with separate mixer motor		x	x
Immersion thermostat for underfloor heating systems		x	x
Contact thermostat for underfloor heating systems		x	x
Solar control module SM1	x	x	x
Temperature sensor for solar control module SM1	x	x	x
Internal H1 extension	x	x	x
Internal H2 extension	x	x	x
AM1 extension	x	x	x
EA1 extension	x	x	x
Vitocom 100 LAN1 with communication module			x ^{*12}
Vitocom 100 GSM2	x	x	x
Vitocom 200 LAN2		x	x
LON cable		x	x
LON coupling		x	x

*12 If LON communication (e.g. Vitogate or Vitotronic 200-H) is required, replace the integral LAN module with the LON communication module. If an internet connection is also required, a Vitocom must be ordered separately.

Control units (cont.)

Vitotronic	100	200	200
Type	HC1B	HO1B	HO2B
Accessories			
LON plug-in connector		x	x
LON socket		x	x
Terminator		x	x
LON communication module		x	x
Vitoconnect 100, type OPTO 1		x	x

Vitotrol 100, type UTA

Part no. 7170 149

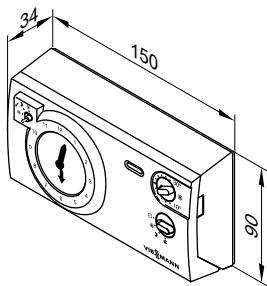
Room thermostat

- 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 UTDB

Part no. Z007 691

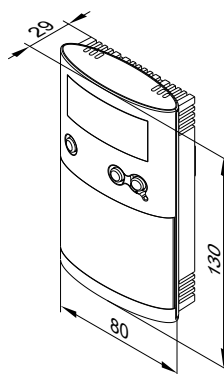
Room temperature controller

- 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 (two 1.5 V round alkaline cells, type LR6/AA, battery life approx. 1.5 years).

Control unit connection:

2-core cable with a cross-section of 0.75 mm² for 230 V~.



Specification

Rated voltage	3 V– Battery LR6/AA
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

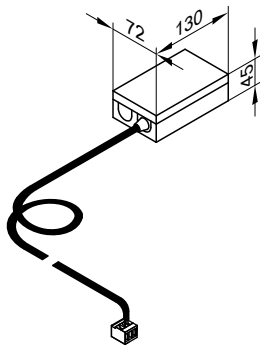
Control units (cont.)

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-RF

Part no. Z007 692

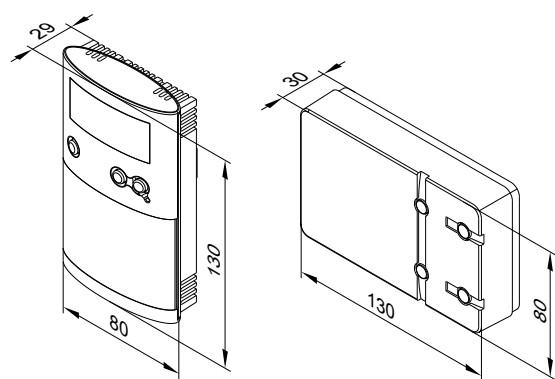
Room temperature controller with integral wireless transmitter and receiver

- 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.). Room temperature controller operation independent of mains power supply (two 1.5 V round alkaline cells, type LR6/AA, battery life approx. 1.5 years). Receiver with relay state indication.

Connection of the receiver to the control unit (subject to control unit type):

- 4-core cable with a cross-section of 1.5 mm² for 230 V~ or
- 3-core cable without green/yellow wire for 230 V~ or
- 2-core lead with a cross-section of 0.75 mm² for LV for the connection to the control unit, plus an additional 2-core cable for the 230 V~ power supply



Specification, room temperature controller

Rated voltage	3 V–
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

Control units (cont.)

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

Specification, receiver

Operating voltage	230 V~± 10 % 50 Hz
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
Safety category	II to EN 60730-1 subject to correct installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–25 to +65 °C

Notes regarding room temperature hook-up (RS function) for remote control units

Never activate the RS function for underfloor heating circuits (inertia).

In heating systems with a heating circuit without mixer and heating circuits with mixer, the RS function must only affect the heating circuit with mixer.

Information on the Vitotrol 200-A and Vitotrol 300-A

For every heating circuit in a heating system, a Vitotrol 200-A or Vitotrol 300-A can be used.

The Vitotrol 200-A can regulate one heating circuit; the Vitotrol 300-A up to three heating circuits.

Up to two remote controls can be connected to the control unit.

Note

Hardwired remote control units cannot be combined with the wireless base station.

Vitotrol 200-A

Part no. Z008 341

KM BUS subscriber

■ Displays:

- Room temperature
- Outside temperature
- Operating condition

■ Settings:

- Set room temperature for standard mode (normal room temperature)

Note

The set room temperature for reduced mode (reduced room temperature) is set at the control unit.

- Operating program

- Party and economy mode can be enabled via keys
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

Installation location:

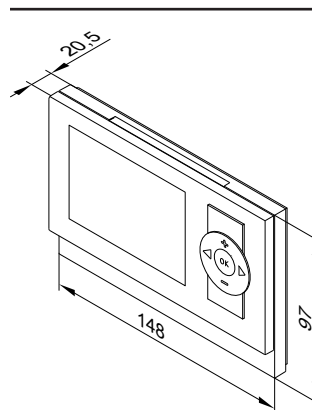
- Weather-compensated mode: installation anywhere in the building
- Room temperature hook-up: the integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature.

The captured room temperature depends on the installation site:

- Main living room on an internal wall opposite radiators
- Not on shelves or in recesses
- Never in the immediate vicinity of doors or close to heat sources (e.g. direct insolation, fireplace, TV set, etc.).

Connection:

- 2-core lead, length max. 50 m (even if connecting several remote control units)
- Never route this lead immediately next to 230/400 V cables
- LV plug as standard delivery



Specification

Power supply	Via KM BUS
Power consumption	0.2 W
Protection class	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Setting range of the set room temperature for standard mode	3 to 37 °C

Notes

- If the Vitotrol 200-A is to be used for room temperature hook-up, site the device in a main living room (lead room).
- Connect a maximum of 2 Vitotrol 200-A units to the control unit.

Control units (cont.)

Vitotrol 300-A

Part no. Z008 342

KM BUS subscriber

- Displays:
 - Room temperature
 - Outside temperature
 - Operating program
 - Operating condition
 - Graphic illustration of the solar energy yield in conjunction with the solar control module, type SM1
- Settings:
 - Set room temperature for standard mode (normal room temperature) and reduced mode (reduced room temperature)
 - Set DHW temperature
 - Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
- Party and economy mode can be enabled via the menu
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

Installation location:

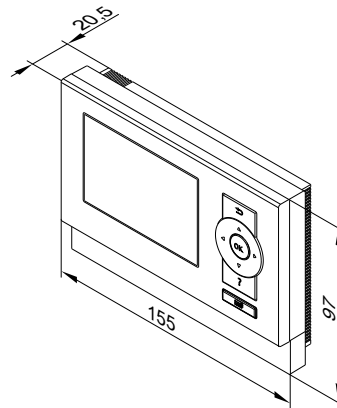
- Weather-compensated mode: installation anywhere in the building
- Room temperature hook-up: the integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature.

The captured room temperature depends on the installation site:

- Main living room on an internal wall opposite radiators
- Not on shelves or in recesses
- Never in the immediate vicinity of doors or close to heat sources (e.g. direct insolation, fireplace, TV set, etc.).

Connection:

- 2-core lead, length max. 50 m (even if connecting several remote control units)
- Never route this lead immediately next to 230/400 V cables
- LV plug as standard delivery



Specification

Power supply via KM BUS	
Power consumption	0.5 W
Protection class	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Setting range for set room temperature	3 to 37 °C

Information on the Vitotrol 200-RF and Vitotrol 300-RF

Wireless remote control units with integral wireless transmitter for operation with the wireless base station.

One Vitotrol 200-RF or one Vitotrol 300-RF can be used for every heating circuit in a heating system.

The Vitotrol 200-RF can regulate one heating circuit; the Vitotrol 300-RF up to three heating circuits.

Up to three wireless remote controls can be connected to the control unit.

Note

The wireless remote controls **cannot** be combined with hardwired remote control units.

Vitotrol 200 RF

Part no. Z011 219

Wireless subscriber

- Displays:
 - Room temperature
 - Outside temperature
 - Operating condition
 - Wireless signal reception quality
- Settings:
 - Set room temperature for standard mode (normal room temperature)

Note

The set room temperature for reduced mode (reduced room temperature) is set at the control unit.

- Operating program

- Party and economy mode can be enabled via keys
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

Installation location:

- Weather-compensated mode: Installation anywhere in the building
- Room temperature hook-up: The integral room temperature sensor captures the room temperature and effects any necessary correction of the flow temperature.

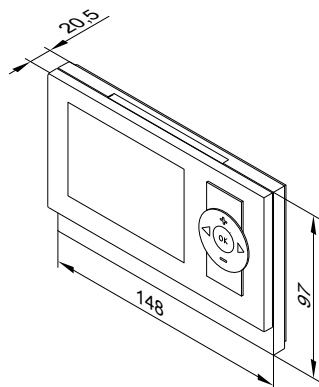
The captured room temperature depends on the installation site:

- Main living room on an internal wall opposite radiators
- Not on shelves or in recesses
- Never in the immediate vicinity of doors or close to heat sources (e.g. direct insolation, fireplace, TV set, etc.)

Control units (cont.)

Note

Observe the "Wireless accessories" technical guide.



Specification

Power supply	2 AA batteries 3 V
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
Protection class	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Setting range of the set room temperature for standard mode	3 to 37 °C

Vitotrol 300-RF with table-top dock

Part no. Z011 410

Wireless subscriber

■ Displays:

- Room temperature
- Outside temperature
- Operating condition
- Graphic illustration of solar yield in conjunction with the solar control module, type SM1
- Wireless signal reception quality

■ Settings:

- Set room temperature for standard mode (normal room temperature) and reduced mode (reduced room temperature)
- Set DHW temperature
- Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
- Party and economy mode can be enabled via keys

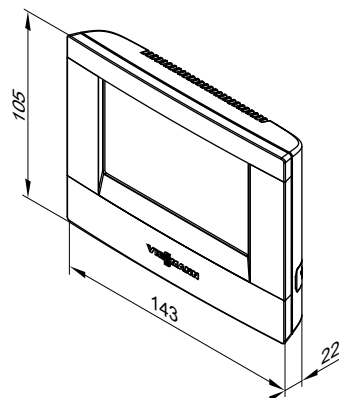
■ Integral room temperature sensor

Note

Observe the "Wireless accessories" technical guide.

Standard delivery:

- Vitotrol 300-RF
- Table-top dock
- Plug-in power supply unit
- 2 rechargeable NiMH batteries for operating outside the table-top dock



Vitotrol 300-RF

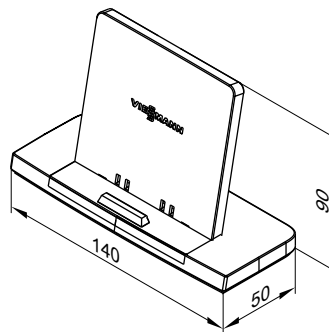


Table-top dock

Specification

Power supply via plug-in power supply unit	230 V~/5 V–
Power consumption	2.4 W
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
Protection class	II
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–25 to +60 °C
Setting range for set room temperature	3 to 37 °C

Control units (cont.)

Vitotrol 300-RF with wall mounting bracket

Part no. Z011 412

Wireless subscriber

- Displays:
 - Room temperature
 - Outside temperature
 - Operating condition
 - Graphic illustration of solar yield in conjunction with the solar control module, type SM1
 - Wireless signal reception quality
- Settings:
 - Set room temperature for standard mode (normal room temperature) and reduced mode (reduced room temperature)
 - Set DHW temperature
 - Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
 - Party and economy mode can be enabled via the menu
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

Installation location:

- Weather-compensated mode: installation anywhere in the building
- Room temperature hook-up: the integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature.

The captured room temperature depends on the installation site:

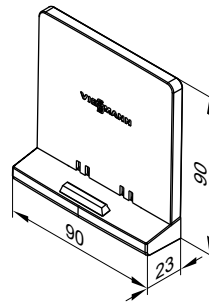
- Main living room on an internal wall opposite radiators
- Not on shelves or in recesses
- Never in the immediate vicinity of doors or close to heat sources (e.g. direct insolation, fireplace, TV set, etc.).

Note

Observe the "Wireless accessories" technical guide.

Standard delivery:

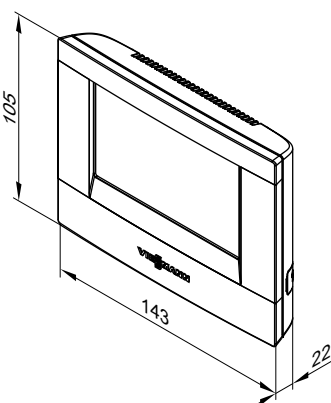
- Vitotrol 300-RF
- Wall mounting bracket
- Power supply unit for fitting into a plaster box
- 2 rechargeable NiMH batteries for use out of wall mounting bracket



Wall mounting bracket

Specification

Power supply via power supply unit for installation in a plaster box	230 V~/4 V
Power consumption	2.4 W
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
Protection class	II
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–25 to +60°C
Setting range for set room temperature	3 to 37 °C



Vitotrol 300-RF

Vitocomfort 200

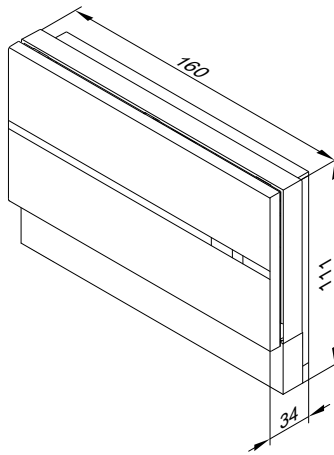
Part no. Z013 768

KM BUS subscriber or wireless subscriber

The Vitocomfort 200 combines heating and photovoltaics for integrated energy management, supplemented by shade, light and security functions to create a complete smart home system. The Vitocomfort 200 is suitable for use in any application area.

Control units (cont.)

- The automated individual room controls regulate room temperatures according to demand and reduce energy consumption.
 - The system is self-learning with regard to building engineering physics, resulting in optimised flow temperatures and cost savings.
 - DHW heating can be automated with time programs as required and can be requested directly as needed.
 - A display of solar yield ensures optimum transparency and gives the user an insight into the energy flows.
 - An automatic "open window detected" function saves energy costs when windows/doors are open.
 - Suitable for radiators and underfloor heating systems
 - Display of boiler messages
- For further information, see the "Vitocomfort 200" technical guide.



Wireless base station

Part no. Z011 413
KM BUS subscriber

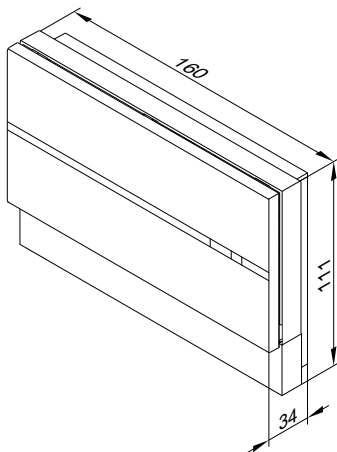
For communication between the Vitotronic control unit and the following wireless components:

- Wireless remote control Vitotrol 200-RF
- Wireless remote control Vitotrol 300-RF
- Wireless outside temperature sensor
- Vitocomfort 200 control centre

For up to 3 wireless remote control units or 3 Vitocomfort 200 control centres. Not in conjunction with a hardwired remote control unit.

Connection:

- 2-core lead, length up to 50 m (even when connecting several KM BUS subscribers).
- Never route this cable immediately next to 230/400 V cables.



Specification

Power supply via KM BUS	
Power consumption	1 W
Radio frequency	868 MHz
Protection class	III
IP rating	IP 20 to EN 60529; ensure through design/installation.
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	-20 to +65 °C

Wireless outside temperature sensor

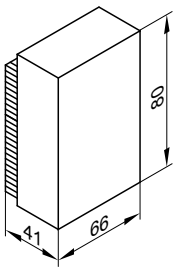
Part no. 7455 213
Wireless subscriber

Wireless, light-activated outside temperature sensor with integral wireless transmitter for operation with the wireless base station and the Vitotronic control unit.

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

Control units (cont.)



Specification

Power supply	Via PV cells and energy store
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
IP rating	IP 43 to EN 60529; ensure through design/installation
Permissible ambient temperature during operation, storage and transport	-40 to +60 °C

Wireless repeater

Part no. 7456 538

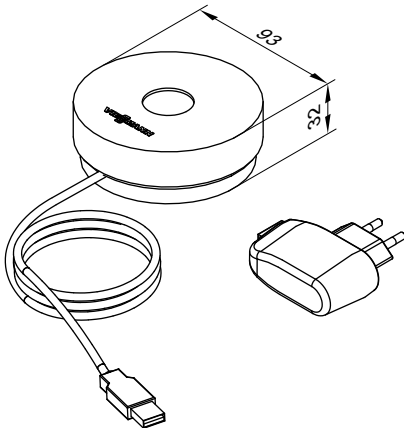
Mains operated wireless repeater to increase the wireless range and for use in areas where wireless communication is difficult. Observe the "Wireless accessories" technical guide.

Do not use more than one wireless repeater per Vitotronic control unit.

- For preventing strongly diagonal angles of penetration of the radio signals through steel reinforced concrete ceilings/floors and/or multiple walls
- For circumventing large metallic objects situated between the wireless components.

Specification

Power supply	230 V~/5 V- via plug-in power supply unit
Power consumption	0.25 W
Radio frequency	868 MHz
Lead length	1.1 m with plug
Safety category	II
IP rating	IP 20 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +55 °C
– Storage and transport	-20 to +75 °C



Room temperature sensor

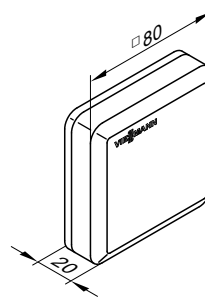
Part no. 7438 537

Separate room temperature sensor as supplement to the Vitotrol 300A; to be used if the Vitotrol 300A cannot be installed inside the main living room or in a suitable position for temperature capture and adjustment.

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 insolation, fireplace, TV set, etc. Connect the room temperature sensor to the Vitotrol 300A.

Connection:

- 2-core lead with a cross-section of 1.5 mm² (copper)
- Max. lead length from the remote control: 30 m
- Never route this lead immediately next to 230/400 V cables



Specification

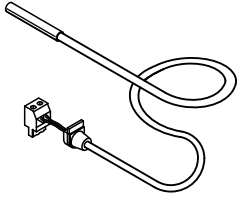
Protection class	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	-20 to +65 °C

Control units (cont.)

Immersion temperature sensor

Part no. 7438 702

To capture a temperature in a sensor well

**Specification**

Lead length	5.8 m, fully wired
IP rating	IP 32 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ, at 25 °C
Permissible ambient temperature	
– Operation	0 to +90 °C
– Storage and transport	-20 to +70 °C

Immersion temperature sensor

Part no. 7179 488

To capture the low loss header temperature

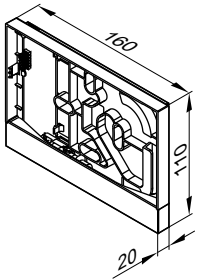
Specification

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

Mounting base for programming unit

Part no. 7299 408

To be able to freely position the programming unit of the control unit anywhere outside the appliance.



To be fitted directly to the wall or a surface box.

Distance from the boiler: Observe the lead length incl. plugs of 5 m.

Comprising:

- Wall mounting base with fixing materials
- 5 m long cable with plugs
- Cover for the control unit aperture on the boiler

Radio clock receiver

Part no. 7450 563

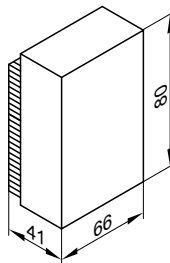
For receiving the DCF 77 time signal (location: Mainflingen near Frankfurt/Main).

Radio controlled setting of time and date.

Install on an outside wall, facing the transmitter. The reception may be reduced by metallic elements in the building structure, e.g. steel reinforced concrete, neighbouring buildings and sources of electromagnetic interference, e.g. HV and public transport lines.

Connection:

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

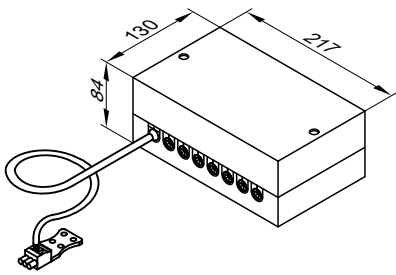


KM BUS distributor

Part no. 7415 028

For the connection of 2 to 9 devices to the control unit KM BUS.

Control units (cont.)



Specification

Lead length	3.0 m, fully wired
IP rating	IP 32 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C

Mixer extension kit with integral mixer motor

Part no. 7301 063

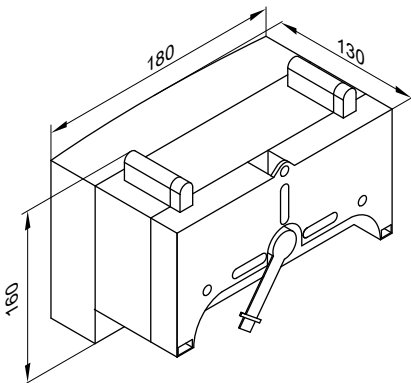
KM BUS subscriber

Components:

- Mixer PCB with mixer motor for Viessmann mixer DN 20 to DN 50 and R ½ to R 1¼
- Flow temperature sensor (contact temperature sensor)
- Plug for connecting the heating circuit pump
- 3.0 m long power cable with plug
- BUS connecting cable (3.0 m long) with plug

The mixer motor is mounted directly onto the Viessmann mixer DN 20 to DN 50 and R ½ to R 1¼.

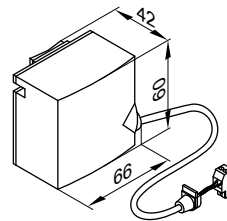
Mixer PCB with mixer motor



Specification, mixer PCB with mixer motor

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	5.5 W
IP rating	IP 32D to EN 60529; ensure through design/installation
Safety category	I
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Rated breaking capacity of the relay output for heating circuit pump \square_{20}	2(1) A, 230 V~
Torque	3 Nm
Runtime for 90° <	120 s

Flow temperature sensor (contact temperature sensor)



Secured with a tie.

Specification, flow temperature sensor

Lead length	2.0 m, fully wired
IP rating	IP 32D to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +120 °C
– Storage and transport	–20 to +70 °C

Mixer extension kit for separate mixer motor

Part no. 7301 062

KM BUS subscriber

For connecting a separate mixer motor

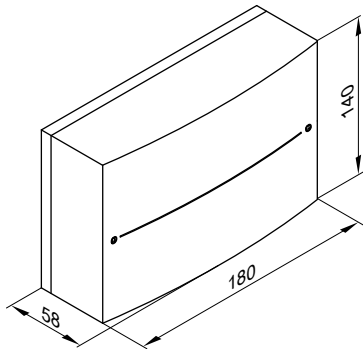
Components:

- Mixer PCB for connecting a separate mixer motor
- Flow temperature sensor (contact temperature sensor)

Control units (cont.)

- Plug for connecting the heating circuit pump and the mixer motor
- 3.0 m long power cable with plug
- BUS connecting cable (3.0 m long) with plug

Mixer PCB



Specification, mixer PCB

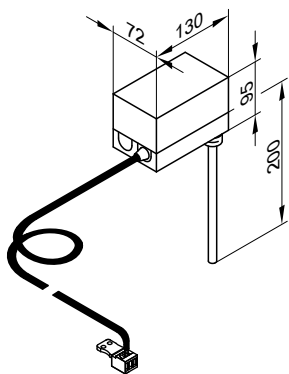
Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	1.5 W
IP rating	IP 20D to EN 60529, ensure through design/installation
Safety category	I
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C

Immersion thermostat

Part no. 7151 728

May be used as a maximum temperature limiter for underfloor heating systems.

The temperature limiter is installed into the heating flow and switches the heating circuit pump OFF if the flow temperature is too high.



Contact thermostat

Part no. 7151 729

May be used as a maximum temperature limiter for underfloor heating systems (only in conjunction with metal pipes).

The temperature limiter is integrated into the heating flow. If the flow temperature is too high, the temperature limiter switches off the heating circuit pump.

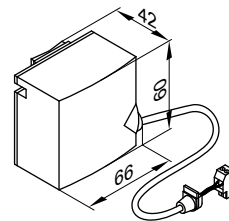
Rated relay output breaking capacity

– Heating circuit pump [20]	2(1) A, 230 V~
– Mixer motor	0.1 A, 230 V~

Required runtime of the mixer motor for 90° <

approx. 120 s

Flow temperature sensor (contact temperature sensor)



Secured with a tie.

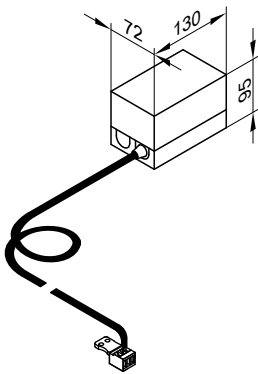
Specification, flow temperature sensor

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

Specification

Lead length	4.2 m, fully wired
Setting range	30 to 80 °C
Switching differential	Max. 11 K
Breaking capacity	6(1.5) A, 250 V~
Setting scale	Inside the casing
Stainless steel sensor well	R ½ x 200 mm
DIN reg. no.	DIN TR 1168

Control units (cont.)



Specification

Lead length	4.2 m, fully wired
Setting range	30 to 80 °C
Switching differential	Max. 14 K
Breaking capacity	6(1.5) A, 250 V~
Setting scale	Inside the casing
DIN reg. no.	DIN TR 1168

Solar control module, type SM1

Part no. Z014 470

Specification

Functions

- Output statement and diagnostic system
- Operation and display via Vitotronic control unit
- Switching the solar circuit pump
- Heating of 2 consumers via a collector array
- 2nd temperature differential control
- Thermostat function for reheating or utilising excess heat
- Speed control for solar circuit pump via PWM input (make: Grundfos and Wilo)
- Suppression of DHW cylinder reheating by the heat generator subject to solar yield
- Suppression of reheating for heating by the heat generator with central heating backup
- Heat-up of the solar preheating stage (with 400 l DHW cylinders or larger)
- Collector safety shutdown
- Electronic temperature limitation in the DHW cylinder
- Switching of an additional pump or valve via relay

To implement the following functions, also order immersion temperature sensor, part no. 7438 702:

- For DHW circulation diversion in systems with 2 DHW cylinders
- For return changeover between the heat generator and the heating water buffer cylinder
- For return changeover between the heat generator and the primary heat store
- For heating additional consumers

Structure

The solar control module contains:

- PCB
- Terminals:
 - 4 sensors
 - Solar circuit pump
 - KM BUS
 - Power supply (on-site ON/OFF switch)
- PWM output for switching the solar circuit pump
- 1 relay for switching one pump or one valve

Collector temperature sensor

For connection inside the appliance

On-site extension of the connecting lead:

- 2-core lead, length up to 60 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230 V/400 V cables

Collector temperature sensor specification

Lead length	2.5 m
IP rating	IP 32 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 20 kΩ at 25 °C
Permissible ambient temperature	
– Operation	–20 to +200 °C
– Storage and transport	–20 to +70 °C

Cylinder temperature sensor

For connection inside the appliance

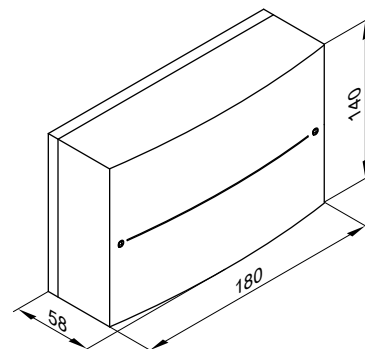
On-site extension of the connecting lead:

- 2-core lead, length up to 60 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230/400 V cables

Cylinder temperature sensor specification

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

For systems with Viessmann DHW cylinders, the cylinder temperature sensor is installed in the threaded elbow in the heating water return (standard delivery or accessory for the relevant DHW cylinder).



Control units (cont.)

Solar control module specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	1.5 W
Protection class	I
IP rating	IP 20 to EN 60529; ensure through design/installation
Function type	Type 1B to EN 60730-1

Permissible ambient temperature

– Operation	0 to +40 °C, use in the living space or boiler room (standard ambient conditions)
– Storage and transport	–20 to +65 °C

Rated relay output breaking capacity

– Semi-conductor relay 1	1 (1) A, 230 V~
– Relay 2	1 (1) A, 230 V~
– Total	Max. 2 A

Internal H1 extension

Part no. 7498 513

PCB for installation in the control unit.

Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
– Connection of an external safety solenoid valve (LPG)	1(0.5) A 250 V~
And one of the following functions (only for Vitodens 200-W and 300-W):	2(1) A 250 V~
– Connection of a heating circuit pump (multi stage) for a directly connected heating circuit	
– Connection of a central fault message	
– Connection of a circulation pump for cylinder heating	
– Only with Vitotronic 200, type HO1B and HO2B: – Connection of a DHW circulation pump	

Power supply for DHW circulation pump

DHW circulation pumps with their own internal control unit must be connected to a separate power supply. Mains connection via the Vitotronic control unit or Vitotronic accessories is **not** permissible.

Specification

Rated voltage	230 V~
Rated frequency	50 Hz

Internal H2 extension

Part no. 7498 514

PCB for installation in the control unit.

Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
– External extractor interlock	6(3) A 250 V~
And one of the following functions (only for Vitodens 200-W and 300-W):	2(1) A 250 V~
– Connection of a heating circuit pump (multi stage) for a directly connected heating circuit	
– Connection of a central fault message	
– Connection of a circulation pump for cylinder heating	
– Only with Vitotronic 200, type HO1B and HO2B: – Connection of a DHW circulation pump	

Power supply for DHW circulation pump

DHW circulation pumps with their own internal control unit must be connected to a separate power supply. Mains connection via the Vitotronic control unit or Vitotronic accessories is **not** permissible.

Specification

Rated voltage	230 V~
Rated frequency	50 Hz

AM1 extension

Part no. 7452 092

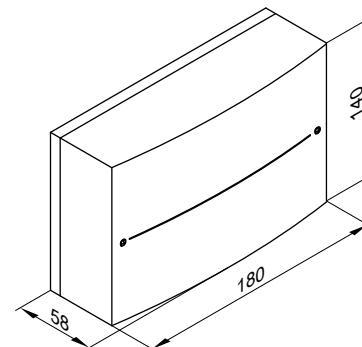
Function extension inside enclosure for wall mounting.

Using the extension enables up to two of the following functions to be achieved:

- Switching the DHW circulation pump (only with Vitotronic 200, type HO1B and HO2B)
- Switching the heating circuit pump for a directly connected heating circuit
- Switching the circulation pump for cylinder heating (not for boilers with integral DHW cylinder)

Power supply for DHW circulation pump

DHW circulation pumps with their own internal control unit must be connected to a separate power supply. Mains connection via the Vitotronic control unit or Vitotronic accessories is **not** permissible.



Control units (cont.)

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption	4 W
Rated relay output breaking capacity	2(1) A, 250 V~ each, total max. 4 A~
Safety category	I
IP rating	IP 20 D to EN 60529, ensure through design/installation
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

EA1 extension

Part no. 7452 091

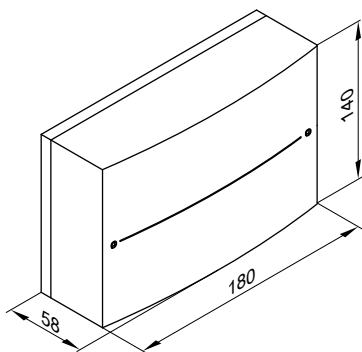
Function extension inside enclosure for wall mounting.

Using the inputs and outputs allows up to 5 functions to be achieved:

- 1 switching output (floating changeover contact)
 - Central fault message output
 - Switching the feed pump to a substation
 - Switching the DHW circulation pump (only with Vitotronic 200, type HO1B and HO2B)
- 1 analogue input (0 to 10 V)
 - Specifying the set boiler water temperature
- 3 digital inputs
 - External operating mode changeover for 1 to 3 heating circuits (only with Vitotronic 200, type HO1B and HO2B)
 - External blocking
 - External blocking with central fault message
 - Minimum boiler water temperature demand
 - Fault messages
 - Short term operation of DHW circulation pump (only with Vitotronic 200, type HO1B and HO2B)

Power supply for DHW circulation pump

*DHW circulation pumps with their own internal control unit must be connected to a separate power supply. Mains connection via the Vitotronic control unit or Vitotronic accessories is **not** permissible.*



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	4 W
Rated breaking capacity of the relay output	2(1) A, 250 V~
Safety category	I
IP rating	IP 20 D to EN 60529, ensure through design/installation
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

Control units (cont.)

Vitoconnect 100, type OPTO1

Part no. Z014494

- For remote control of a heating system with 1 heat generator via internet and WLAN with DSL router
- Compact device for wall mounting
- For system operation with **Vitotrol Plus app**, **ViCare app** and/or **Vitoguide Connect**

Functions when operating with the Vitotrol Plus app

- For remote control of all heating circuits in a heating system
- Setting of operating programs, set values and time programs
- Scanning system information
- Displaying messages on the Vitotrol Plus app user interface
- Displaying consumption data

The Vitotrol Plus app supports the following end devices:

- End devices with Apple iOS operating system version 8 or higher
- End devices with Google Android operating system version 4.0 or higher

Note

For more information, see www.vitotrol.info.

Functions when operating with the ViCare app

- Remote control of heating systems with one heating circuit
- Selecting operating programs, set values and time programs with switching time assistants
- Scanning system information
- Fault messages by push notification

The ViCare app supports the following end devices:

- End devices with Apple iOS operating system version 8 or higher
- End devices with Google Android operating system version 4.0 or higher

Note

For more information, see www.vicare.info.

Functions when operating with Vitoguide Connect

- Central point of access for the Viessmann online software
- System registration for monitoring heating systems
- Access to operating programs, set values and time programs
- Scanning system information for all connected heating systems
- Display and forwarding of fault messages in plain text
- Sizing and design

Vitoguide Connect supports the following end devices:

- End devices with a screen size of 8 inches or larger

Note

For more information, see www.vitoguide.info.

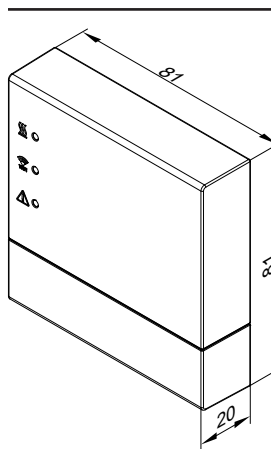
Standard delivery

- WLAN module for connection with the DSL router, for wall mounting
- Connection line with Optolink/USB (WLAN module/boiler control unit, 3 m long)
- Power cable with plug-in power supply unit (1 m long)

On-site requirements

- Heating system with Vitoconnect 100, type OPTO1
- Before commissioning, check the system requirements for communication via local IP networks/WLAN.
- Internet connection with flat rate data (**without time or volume restrictions**)

Specification



Specification

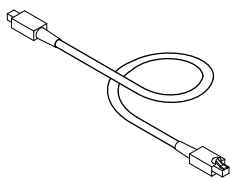
Power supply via plug-in power supply unit	230 V~/5 V-
Rated current	1 A
Power consumption	5 W
Protection class	II
IP rating	IP30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
- Operation	-5 to +40 °C Installation in living spaces or installation rooms (standard ambient conditions)
- Storage and transport	-20 to +60 °C
WLAN frequency	2.4 GHz

7

LON connecting cable for data exchange between control units

Part no. 7143 495

Cable length 7 m, fully wired.



Control units (cont.)

Extension of the connecting cable

- Installation spacing 7 to 14 m:
 - 2 connecting cables (7.0 m long)
Part no. 7143 495
 - 1 LON coupling RJ45
Part no. 7143 496
- Installation spacing 14 to 900 m with plug-in connectors:
 - 2 LON plug-in connectors
Part no. 7199 251
 - 2-core cable:
 - CAT5, screened
 - or
 - Solid conductor AWG 26-22/0.13 mm² to 0.32 mm²,
conductor AWG 26-22/0.14 mm² to 0.36 mm²
Ø 4.5 mm - 8 mm
- on site**
- Installation spacing 14 to 900 m with junction boxes:
 - 2 connecting cables (7.0 m long)
Part no. 7143 495
 - 2-core cable:
 - CAT5, screened
 - or
 - Solid conductor AWG 26-22/0.13 mm² to 0.32 mm²,
conductor AWG 26-22/0.14 mm² to 0.36 mm²
Ø 4.5 mm to 8 mm
- on site**
- 2 LON sockets RJ45, CAT6
Part no. 7171 784

Terminator (2 pce)

Part no. 7143 497

For terminating the LON BUS at the first and last control unit.

LON communication module

PCB for exchanging data with Vitotronic 200-H, Vitocom 100, type LAN1, Vitocom 200 and for connecting to higher level building management systems.

Part no. 7179 113

Powerline Adapter Devolo dLAN® 500 duo starter kit

Part no. ZK01 937

For establishing a LAN/IP network connection between the Vitocom or LAN module and the on-site DSL router via the mains. For more information, see www.vitocom.info

Appendix

8.1 Regulations / Directives

Regulations and directives

We, Viessmann Werke GmbH & Co. KG, declare that the Vitodens gas condensing boilers have been tested and approved in accordance with the currently applicable directives/regulations, standards and technical rules.

Observe all engineering standards 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 and flue gas connections, commissioning, 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 appliance for use in countries other than those stated on the type plate. The contractor must also arrange the acceptance in accordance with the statutes of the relevant country.

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Subject to technical modifications.

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