

Technical guide



Vitodens 200-W/300-W

Vitodens 222-W

VITODENS 200-W Type WB2C

Wall mounted gas condensing boiler,
4.8 to 35.0 kW,
for natural gas and LPG

VITODENS 222-W Type WS2B

Compact gas condensing boiler,
4.8 to 35.0 kW,
for natural gas and LPG

VITODENS 300-W Type WB3D

Wall mounted gas condensing boiler,
3.8 to 35.0 kW,
for natural gas and LPG

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1.1 Product description

1



- (A) Modulating MatriX cylinder burner with intelligent Lambda Pro Control combustion controller for clean combustion and quiet operation
- (B) Integral diaphragm expansion vessel
- (C) Inox-Radial heat exchangers made from stainless steel - for high operational reliability, a long service life and high output on the smallest footprint
- (D) Variable speed combustion fan for quiet and economical operation
- (E) Integral two-stage circulation pump or variable speed high efficiency DC pump
- (F) Plate heat exchanger (for gas condensing combi boilers, 6.5 to 35 kW)
- (G) Gas and water connections
- (H) 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 because it also utilises the latent heat in the flue gas. Result: Standard efficiency of up to 98 % (H_s) / 109 % (H_i). It's clear that this will reduce your heating costs and be good for the environment.

Stainless steel is the only choice of material where economy and a long service life are required. For this reason, 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 in-house, has a modulation range of 1:4. The integral Lambda Pro Control combustion controller adjusts combustion automatically to changing gas types. This ensures consistently high energy efficiency and offers security for the future in liberalised gas markets and where gases of biogenic origin are mixed with natural gas.

The Vitodens 200-W is also available with a variable speed high efficiency DC pump, which reduces power consumption by more than 50 %.

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)
- Usage in rented and leased properties

Benefits at a glance

- Wall mounted gas condensing boiler
 - as a gas boiler: 4.8 to 35.0 kW
 - as a combi boiler: 6.5 to 35.0 kW
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s)/109 % (H_i)
- Durable and efficient through the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX mesh – resistant to high temperature loads
- New Vitotronic control unit that is easy to operate with plain text and graphic display
- The programming unit part of the control unit can also be fitted on a wall mounting base (accessory)
- Optionally with power-saving high efficiency DC pump (compliant with energy efficiency label A)
- Lambda Pro Control combustion controller for all gas types – saving fees by extending the inspection intervals to up to five years [in Germany]
- Quiet operation through low fan speed

Vitodens 200-W (cont.)

Delivered condition

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], Aqua-plate with multi-connect system and two-stage heating circuit pump or variable speed high efficiency DC pump.

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

For combi boilers:

Plate heat exchanger with convenience function for DHW heating.

Packed separately:

Vitotronic 100 for constant temperature mode

or

Vitotronic 200 for weather-compensated operation.

Set up for operation with natural gas. A conversion within the gas group E/LL is not required. The conversion to LPG is made at the gas valve (a conversion kit is not required).

Accessories required (order separately)

Vitodens installation directly onto a wall

Installation aid:

- With fixing elements
- With fittings

- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve.

For installation either on finished or unfinished walls.

Vitodens installation in front of a wall

Self-supporting mounting frame (depth 110 mm):

- With fixing elements
- With fittings
- With boiler drain & fill valve
- With gas angle valve with integral thermally activated safety shut-off valve

For installation with threaded connections.

Approved quality



CE designation according to current EC Directives



Qualitätsmarke der ÖVGW gem. Gütezeichenverordnung

1942 DRGBI. I für Erzeugnisse des Gas- und Wasserfachs

Meets the requirements for the "Blue Angel" certificate of environmental excellence to RAL UZ 61.

1.2 Specification

1

Gas boiler, series B and C, Category II _{2N3P}		Gas boiler			Gas combi boiler	
Rated output range (details to EN 677)						
$T_V/T_R = 50/30\text{ °C}$	kW	4.8-19.0	6.5-26.0	8.8-35.0	6.5-26.0	8.8-35.0
$T_V/T_R = 80/60\text{ °C}$	kW	4.3-17.2	5.9-23.7	8.0-31.7	5.9-23.7	8.0-31.7
Rated output range for DHW heating						
	kW	–	–	–	5.9-29.3	8.0-35.0
Rated heat input						
	kW	4.5-17.9	6.2-24.7	8.3-33.0	6.2-30.5	8.3-36.5
Product ID		CE-0085BR0432				
IP rating		IP X4D to EN 60529				
Gas supply pressure						
Natural gas	mbar	20	20	20	20	20
LPG	mbar	50	50	50	50	50
Max. permissible gas supply pressure^{*1}						
Natural gas	mbar	25.0	25.0	25.0	25.0	25.0
LPG	mbar	57.5	57.5	57.5	57.5	57.5
Power consumption (in the delivered condition)						
– with two-stage heating circuit pump	W	90	105	138	105	138
– with variable speed high efficiency DC pump	W	62	65	85	65	85
Weight						
	kg	43	45	47	46	48
Heat exchanger capacity						
	l	1.8	2.4	2.8	2.4	2.8
Max. flow rate (limit for the use of hydraulic separation)						
	l/h	1200	1400	1600	1400	1600
Nominal circulation water volume at $T_V/T_R = 80/60\text{ °C}$						
	l/h	739	1018	1361	1018	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
Permiss. operating pressure						
	bar	3	3	3	3	3
Safety valve connection						
	Rp	¾	¾	¾	¾	¾
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	mm	1925	1925	1925	–	–
Gas connection						
	R	½	½	½	½	½
Standby instantaneous water heater						
Hot and cold water connections	G	–	–	–	½	½
Permiss. operating pressure (DHW side)	bar	–	–	–	10	10
Minimum pressure, cold water connection	bar	–	–	–	1.0	1.0
Outlet temperature (adjustable)	°C	–	–	–	30-57	30-57
Continuous DHW output	kW	–	–	–	29.3	35.0
Specific throughput at $\Delta T = 30\text{ K}$ (to DIN EN 13203)	l/min	–	–	–	13.9	16.7
Connection values in relation to the max. load with gas						
Natural gas E	m ³ /h	1.89	2.61	3.48	3.23	3.86
Natural gas LL	m ³ /h	2.20	3.04	4.10	3.75	4.49
LPG P	kg/h	1.40	1.93	2.57	2.38	2.85

^{*1} If the gas supply pressure is higher than the maximum permitted value, install a separate gas pressure governor upstream of the system.

Vitodens 200-W (cont.)

Gas boiler, series B and C, Category II _{2N3P}		Gas boiler			Gas combi boiler	
Rated output range (details to EN 677)						
$T_V/T_R = 50/30$ °C	kW	4.8-19.0	6.5-26.0	8.8-35.0	6.5-26.0	8.8-35.0
$T_V/T_R = 80/60$ °C	kW	4.3-17.2	5.9-23.7	8.0-31.7	5.9-23.7	8.0-31.7
Flue gas parameters*²						
Flue gas value group 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 30 °C return temperature)						
– at rated output	°C	45	45	45	45	45
– at partial load	°C	35	35	35	35	35
Temperature (at return temperature 60 °C)	°C	68	70	70	70	70
Mass flow rate						
Natural gas						
– at rated output	kg/h	33.3	47.3	63.2	47.3	70.0
– at partial load	kg/h	8.4	11.8	15.7	11.8	15.7
LPG						
– at rated output	kg/h	32.5	46.4	62.0	46.4	68.2
– at partial load	kg/h	8.2	11.5	15.4	11.5	15.4
Available draught						
	Pa	250	250	250	250	250
	mbar	2.5	2.5	2.5	2.5	2.5
Seasonal efficiency [to DIN]		up to 98 (H _s)/109 (H _i)				
at $T_V/T_R = 40/30$ °C						
Average condensate volume						
for natural gas and						
$T_V/T_R = 50/30$ °C	l/day	10-12	11-13	15-17	11-13	15-17
Internal pipe diameter 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

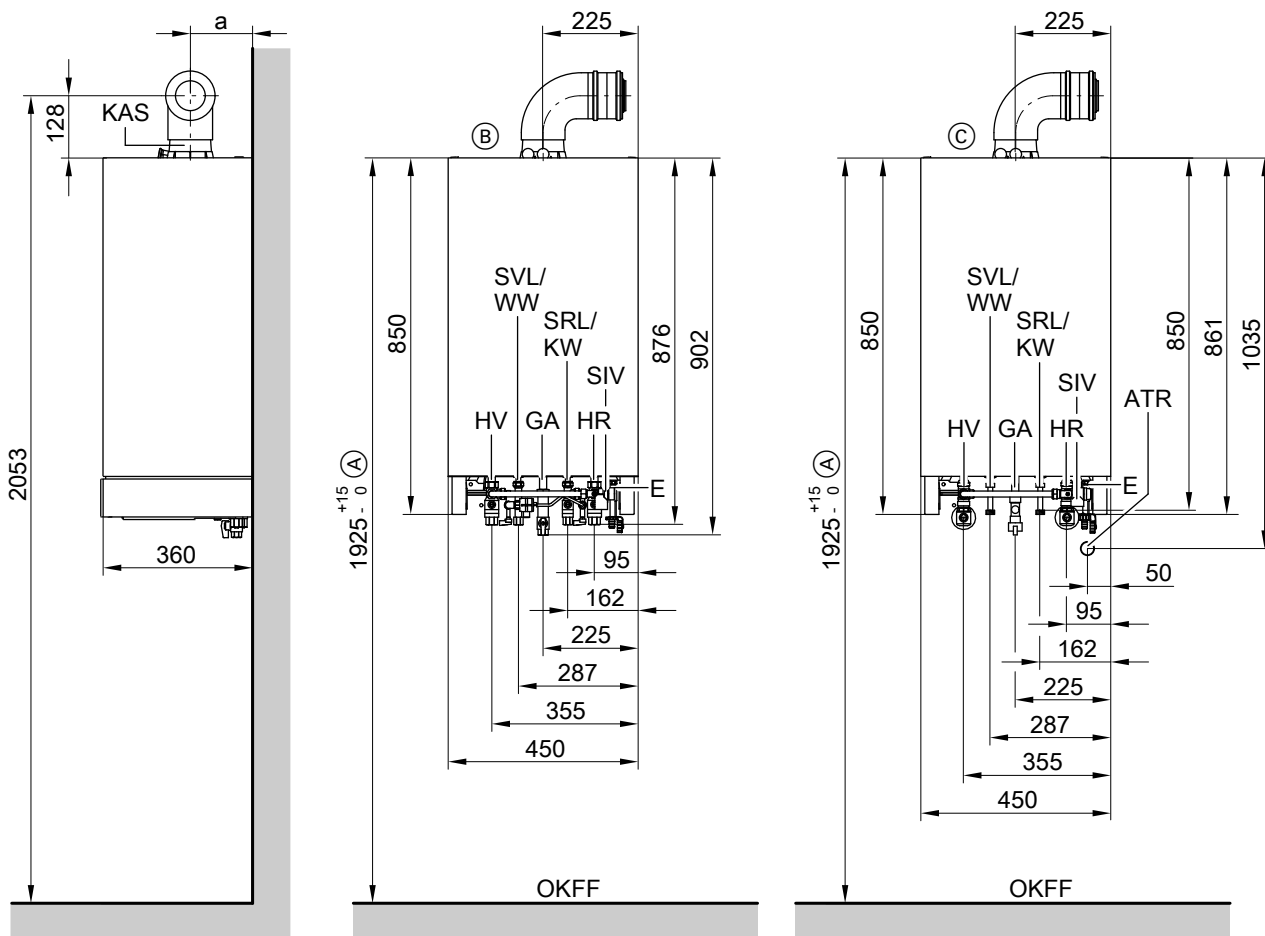
*² Calculation values for sizing the flue gas system to EN 13384.

Flue gas temperatures measured as 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.

1



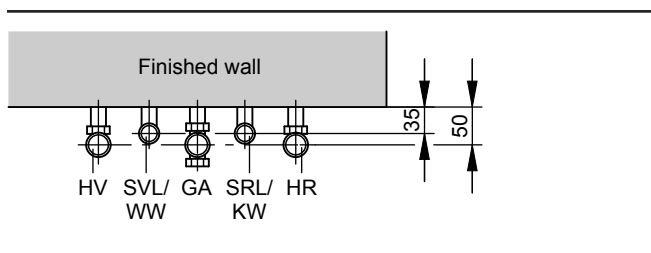
- (A) Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only.
- (B) Installation on finished walls
- (C) Installation on unfinished walls
- ATR Drain outlet connection
- E Drain
- GA Gas connection
- HR Heating return

- HV Heating flow
- KAS Boiler flue connection
- KW Cold water (gas combi boiler)
- OKFF Top edge finished floor
- SIV Safety valve
- SRL Cylinder return (gas boiler)
- SVL Cylinder flow (gas boiler)
- WW DHW (gas combi boiler)

Rated output kW	Dimension a mm
4.8 - 19.0	136
6.5 - 26.0	158
8.8 - 35.0	158

Note
 For connection dimensions for installation on finished walls with installation aid, see page 53.
 For connection dimensions for installation on unfinished walls with installation aid, see page 55.

Note
 Route all required supply cables on site and lead them into the boiler at the point indicated (see page 51).



Two-stage heating circuit pump in the Vitodens 200-W

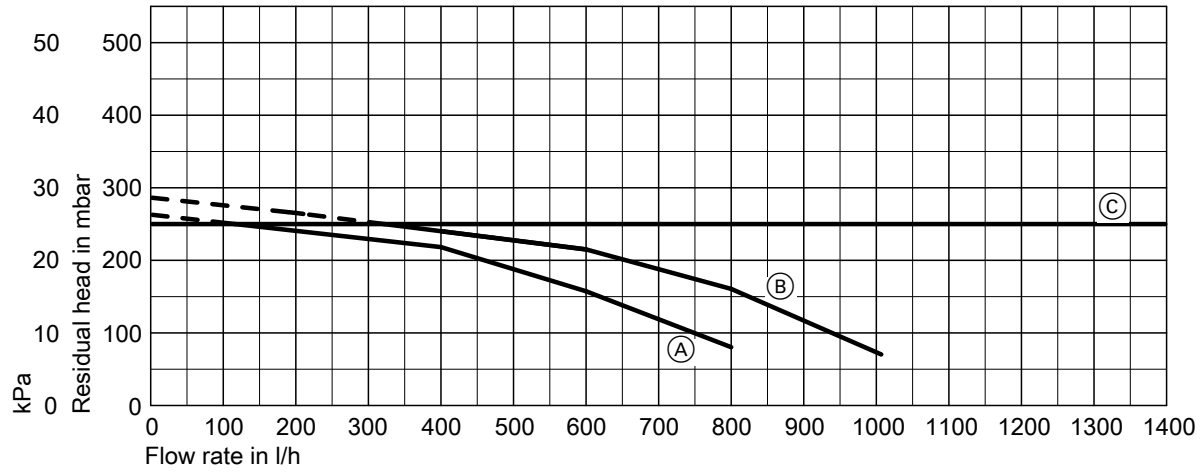
Rated boiler output	kW	4.8 - 19.0	6.5 - 26.0	8.8 - 35.0
Type		VI RLE-40	VI RLE-50	VI RLE-70
Rated voltage	V~	230	230	230
Power consumption	Stage 1	45	60	70
	Stage 2	60	70	90

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Vitodens 200-W (cont.)

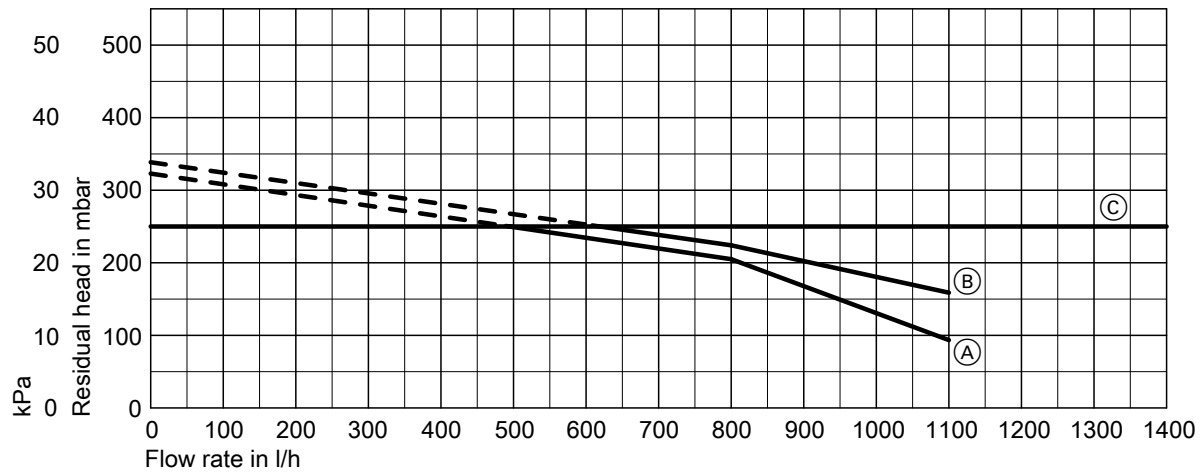
Residual head of the integral circulation pump

Vitodens 200-W, 4.8 - 19.0 kW



- (A) Stage 1
- (B) Stage 2
- (C) Upper operational limit

Vitodens 200-W, 6.5 - 26.0 kW

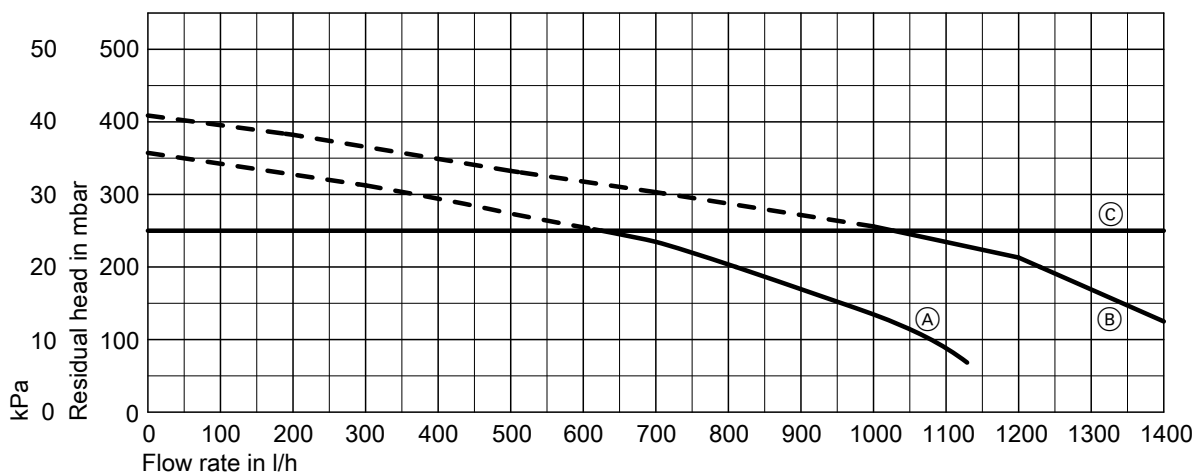


- (A) Stage 1
- (B) Stage 2
- (C) Upper operational limit

Vitodens 200-W (cont.)

Vitodens 200-W, 8.8 - 35.0 kW

1



- (A) Stage 1
- (B) Stage 2
- (C) Upper operational limit

Variable speed heating circuit pump in the Vitodens 200-W

The integral circulation pump is a highly efficient DC pump with more than 50 % less power consumption than conventional pumps.

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

Individually match the minimum and maximum speed plus the speed for reduced mode to the existing heating system using the control unit codes.

In the delivered condition, the minimum pump rate (coding address "E7") is set to 30 %. The maximum pump rate (coding address "E6") is set to the following values:

Rated output range in kW	Speed settings in the delivered condition in %
4.8-19	55
6.5-26	65
8.8-35	65

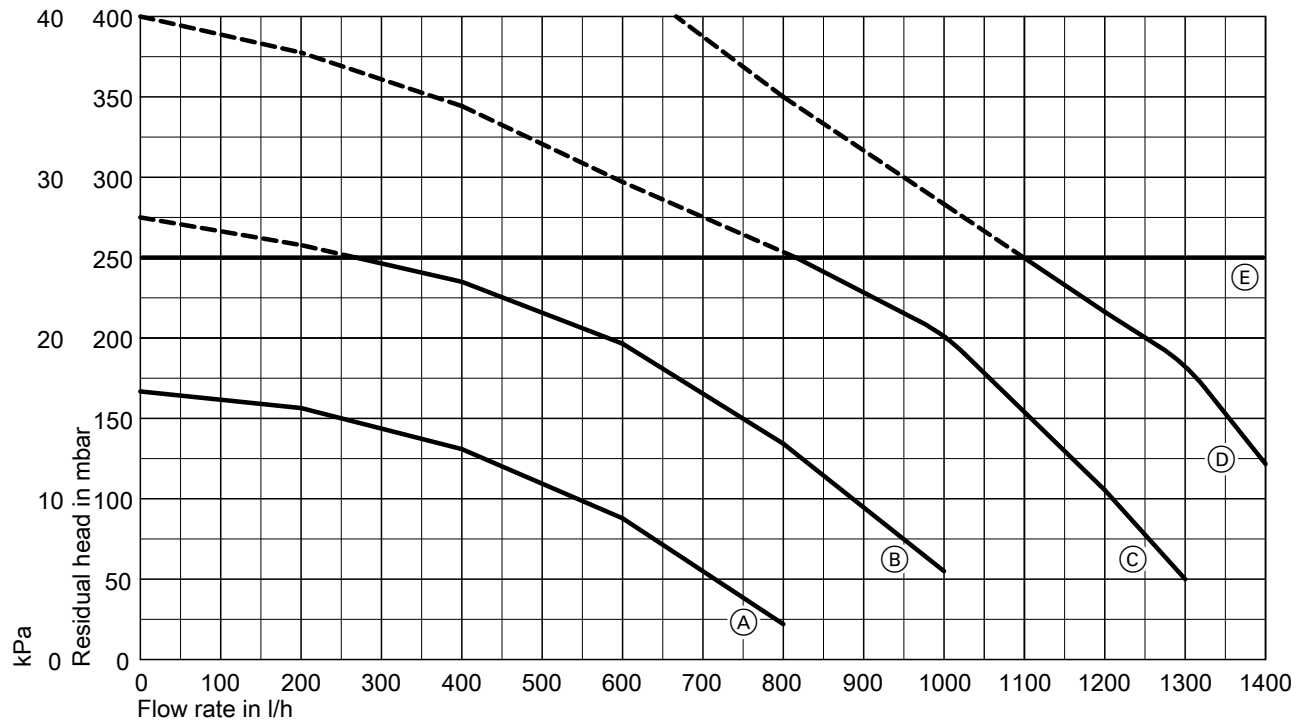
Circulation pump VI UPM-15-70 KM

Rated voltage	V~	230
Power consumption	max.	W 70
	min.	W 6
Power consumption in the delivered condition		
- 4.8-19 kW	W	27
- 6.5-26 kW	W	37
- 8.8-35 kW	W	37

Vitodens 200-W (cont.)

Residual head of the integral circulation pump

Vitodens 200-W, 4.8 - 26.0 kW

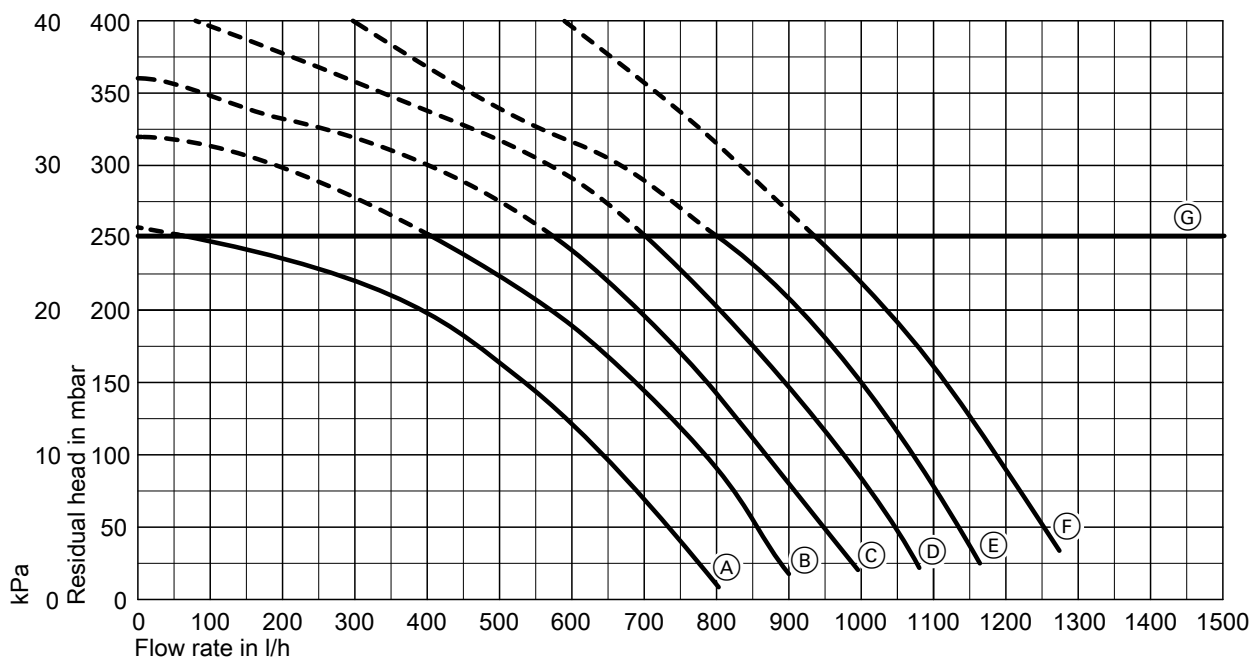


(E) Upper operational limit

Curve	Circulation pump rate	Setting code address "E6"
(A)	30 %	E6:030
(B)	50 %	E6:050
(C)	75 %	E6:075
(D)	100 %	E6:100

Vitodens 200-W (cont.)

Vitodens 200-W, 8.8 - 35.0 kW



Ⓒ Upper operational limit

Curve	Circulation pump rate	Setting code address "E6"
Ⓐ	30 %	E6:030
Ⓑ	50 %	E6:050
Ⓒ	60 %	E6:060
Ⓓ	70 %	E6:070
Ⓔ	80 %	E6:080
Ⓕ	100 %	E6:100

Instantaneous standby water heater (gas condensing combi boiler)

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

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

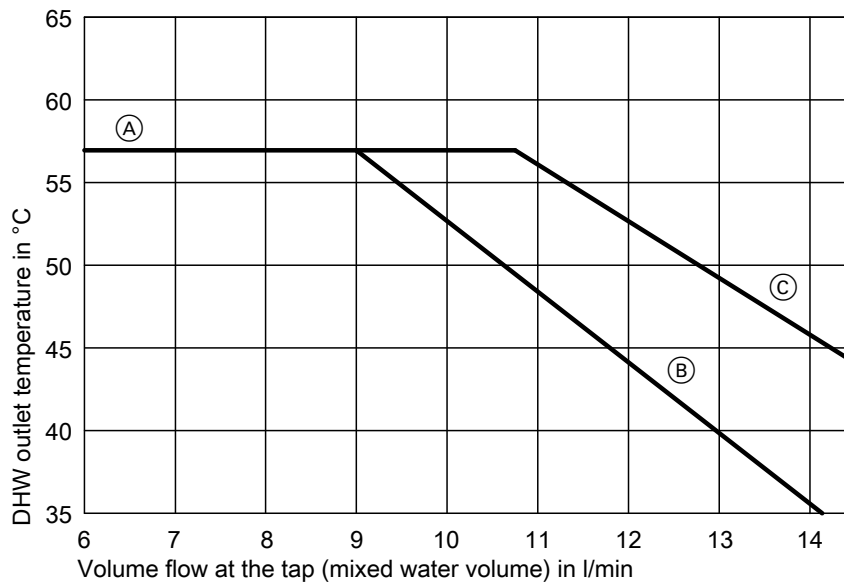
Output

Rated output range of the gas combi boiler	kW	6.5-26.0	8.8-35.0
Continuous DHW output	kW	29.3	35.0
for heating DHW from 10 to 45°C	l/h	720	860
Draw-off rate	l/min	3-12	3-14
Outlet temperature, adjustable	°C	30-57	30-57

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Vitodens 200-W (cont.)

DHW temperature subject to volume flow



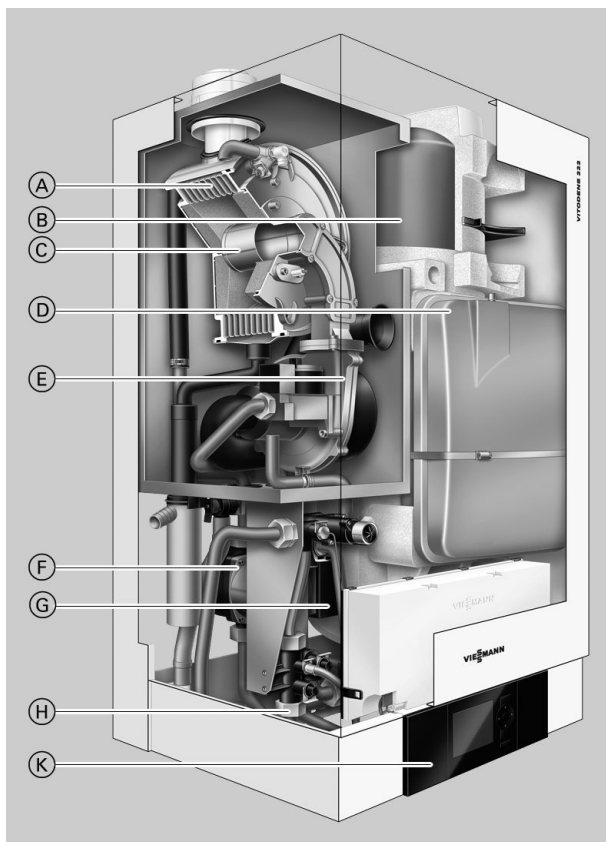
- Ⓐ DHW outlet temperature at the mixer
- Ⓑ Vitodens 200-W, 6.5 to 26 kW
- Ⓒ Vitodens 200-W, 8.8 to 35 kW

The diagram illustrates the changes in the outlet temperature, subject to the flow rate at the tap.

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 exchangers made from stainless steel - for high operational reliability, a long service life and high output on the smallest footprint
- (B) Primary store made from stainless steel
- (C) Modulating MatriX cylinder burner with intelligent Lambda Pro Control 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 two-stage circulation pump or variable speed high efficiency DC pump
- (G) Plate heat exchanger
- (H) Gas and water connections
- (K) Digital boiler control unit

The Vitodens 222-W is a particularly space-efficient, wall mounted, gas compact condensing boiler for high DHW demands. The heat cell comprises the proven stainless steel Inox-Radial heat exchanger, the modulating MatriX cylinder burner and the automatic Lambda Pro Control combustion controller.

The Vitodens 222-W is also available with a variable speed high efficiency DC pump, which reduces power consumption by more than 50 %.

The integral 46 litre stainless steel primary store offers the same DHW convenience as a separate 150 litre 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 primary store, nearly all vital system components such as heating water expansion vessels, pumps and safety valves are integrated and fully fitted. All that with a total weight of only 60 kg (4.8 to 19.0 kW) and in a casing that fits into a standard kitchen unit width of 600 mm.

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 housing association projects): installation in utility rooms and attics
- Modernisation: replacement of system boilers, floorstanding atmospheric gas boilers and oil/gas boilers with DHW cylinders below.

Benefits at a glance

- Standard seasonal efficiency [to DIN]: up to 98 % (H_s)/109 % (H_i)
- Durable and efficient through the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX mesh – resistant to high temperature loads
- New Vitotronic control unit that is easy to operate with plain text and graphic display

- The programming unit part of the control unit can also be fitted on a wall mounting base (accessory)
- Optionally with power-saving high efficiency DC pump (compliant with energy efficiency label A)
- Lambda Pro Control combustion controller for all gas types – saving fees by extending the inspection intervals to up to five years [in Germany]
- Quiet operation through low fan speed
- Particularly space-efficient gas condensing storage combi boiler with integral stainless steel primary store
- High level of DHW convenience with immediate availability
- High continuous output of hot water through cylinder heating
- New Vitotronic control unit that is easy to operate with plain text and graphic display
- All system components, such as primary store, heating water expansion vessel, pumps and safety valves are fully fitted.

Delivered condition

Wall mounted gas condensing boiler with Inox-Radial heat exchanger, integral primary store made from stainless steel, modulating MatriX cylinder burner for natural gas and LPG to DVGW Code of Practice G260 [Germany], AquaBloc with multi-connect system, and two-stage heating circuit pump or variable speed high efficiency DC 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 mode

or

Vitotronic 200 for weather-compensated operation.

Set up for operation with natural gas. A conversion within the gas group E/LL is not required. The conversion to LPG is made at the gas valve (a conversion kit is not required).

Vitodens 222-W (cont.)

Accessories required (order separately)

Installation aid:

- With fixing elements
- With fittings
- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve.

For installation either on finished or unfinished walls.

Approved quality



CE designation according to current EC Directives



Qualitätsmarke der ÖVGW gem. Gütezeichenverordnung
1942 DRGBI. I für Erzeugnisse des Gas- und Wasserfachs

Meets the requirements for the "Blue Angel" certificate of environmental excellence to RAL UZ 61.

2.2 Specification

Gas boiler, series B and C, Category II _{2N3P}				
Rated output range (details to EN 677)				
$T_v/T_R = 50/30\text{ °C}$	kW	4.8-19.0	6.5-26.0	8.8-35.0
$T_v/T_R = 80/60\text{ °C}$	kW	4.3-17.2	5.9-23.7	8.0-31.7
Rated output range for DHW heating		kW	4.3-17.2	5.9-29.3
Rated heat input		kW	4.5-17.9	6.2-30.5
Product ID		CE-0085BR0432		
IP rating		IP X4D to EN 60529		
Gas supply pressure				
Natural gas	mbar	20	20	20
LPG	mbar	50	50	50
Max. permissible gas supply pressure^{*3}				
Natural gas	mbar	25.0	25.0	25.0
LPG	mbar	57.5	57.5	57.5
Power consumption (in the delivered condition)				
– with two-stage heating circuit pump	W	90	105	138
– with variable speed high efficiency DC pump	W	62	65	85
Weight		kg	60	63
Heat exchanger capacity		l	1.8	2.4
Max. flow rate		l/h	1200	1400
(limit for the use of hydraulic separation)				
Nominal circulation water volume		l/h	739	1018
at $\Delta T = 20\text{ K}$				
Diaphragm expansion vessel				
Capacity	l	10	10	10
Pre-charge pressure	bar	0.8	0.8	0.8
Permiss. operating pressure		bar	3	3
Connections				
Boiler flow and return	G	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Hot and cold water	G	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Dimensions				
Length	mm	480	480	480
Width	mm	600	600	600
Height	mm	900	900	900
Height with flue bend	mm	1028	1028	1028
Gas connection (with connection accessories)		R	$\frac{1}{2}$	$\frac{1}{2}$
DHW primary store				
Capacity	l	46	46	46
Permiss. operating pressure (DHW side)	bar	10	10	10
Continuous DHW output	kW	17.2	29.3	35.0
DHW outlet output for heating DHW from 10 to 40 °C	l/10 min	135	180	200
Performance factor N_L ^{*4}		1.0	1.3	1.5
Connection values				
in relation to the max. load with gas				
Natural gas E	m ³ /h	1.89	3.23	3.86
Natural gas LL	m ³ /h	2.20	3.75	4.49
LPG P	kg/h	1.40	2.38	2.85

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

^{*4} At 70 °C average boiler water temperature and cylinder storage temperature $T_{cyl} = 60\text{ °C}$.

The performance factor N_L changes with the 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}				
Rated output range (details to EN 677)				
$T_V/T_R = 50/30\text{ °C}$	kW	4.8-19.0	6.5-26.0	8.8-35.0
$T_V/T_R = 80/60\text{ °C}$	kW	4.3-17.2	5.9-23.7	8.0-31.7
Flue gas parameters^{*5}				
Flue gas value group to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at 30 °C return temperature)				
– at rated output	°C	45	45	45
– at partial load	°C	35	35	35
Temperature (at return temperature 60 °C)				
	°C	68	70	70
Mass flow rate				
Natural gas				
– at rated output	kg/h	33.3	47.3	70.0
– at partial load	kg/h	8.4	11.8	15.7
LPG				
– at rated output	kg/h	32.5	46.4	68.2
– at partial load	kg/h	8.2	11.5	15.4
Available draught				
	Pa	250	250	250
	mbar	2.5	2.5	2.5
Seasonal efficiency [to DIN]				
at $T_V/T_R = 40/30\text{ °C}$	%	up to 98 (H _s)/109 (H _i)		
Average condensate volume				
for natural gas and				
$T_V/T_R = 50/30\text{ °C}$	l/day	10-12	11-13	15-17
Internal pipe diameter to the safety valve		DN	15	15
Condensate connection (hose nozzle)		Ø mm	20-24	20-24
Flue gas connection		Ø mm	60	60
Ventilation air connection		Ø mm	100	100

^{*5} Calculation values for sizing the flue gas system to EN 13384.

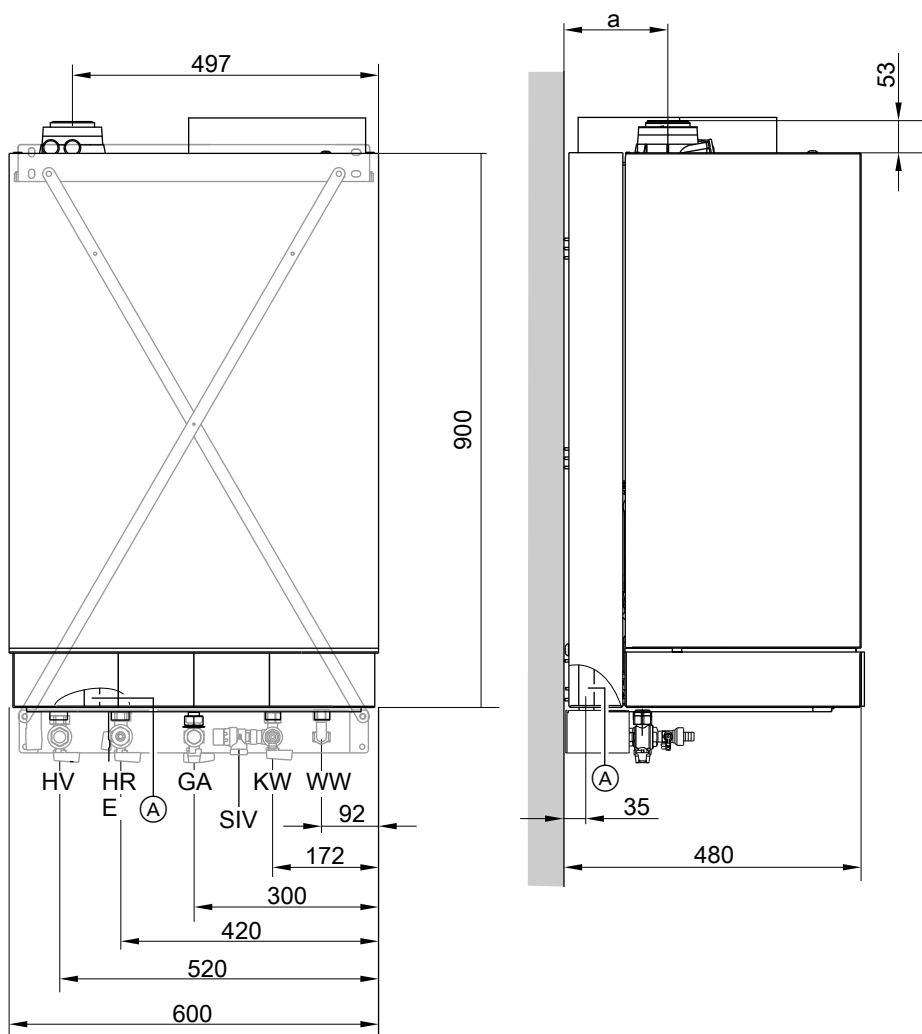
Flue gas temperatures measured as gross values at 20 °C combustion air temperature.

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 222-W (cont.)

2



- (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 Domestic hot water

Rated output kW	Dimension a mm
4.8 - 19.0	143
6.5 - 35.0	168

Note

For connection dimensions for installation on finished walls with installation aid, see page 58.

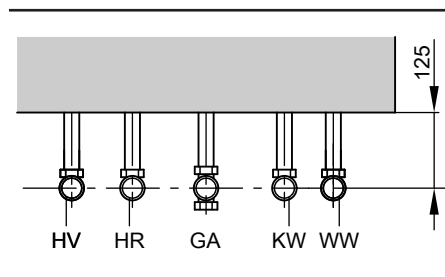
For connection dimensions for installation on unfinished walls with installation aid, see page 59.

Note

Route all required supply cables on site and lead them into the boiler at the point indicated (see page 51).

Two-stage heating circuit pump in the Vitodens 222-W

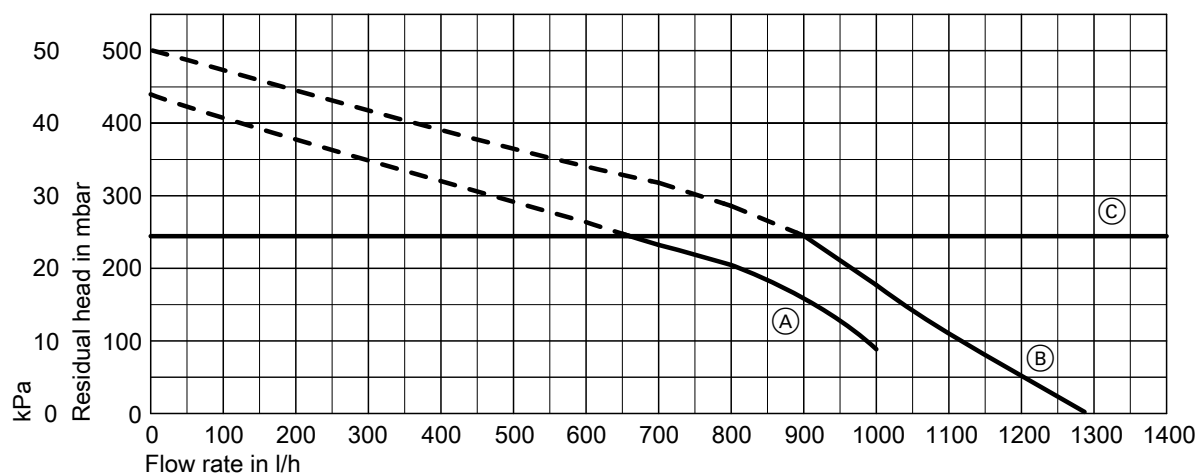
Rated boiler output	kW	4.8 - 19.0	6.5 - 26.0	8.8 - 35.0
Type		VI UPS 60	VI UPS 60	VI UPS 70
Rated voltage	V~	230	230	230
Power consumption	Stage 1	W 60	W 60	W 70
	Stage 2	W 70	W 70	W 90



Vitodens 222-W (cont.)

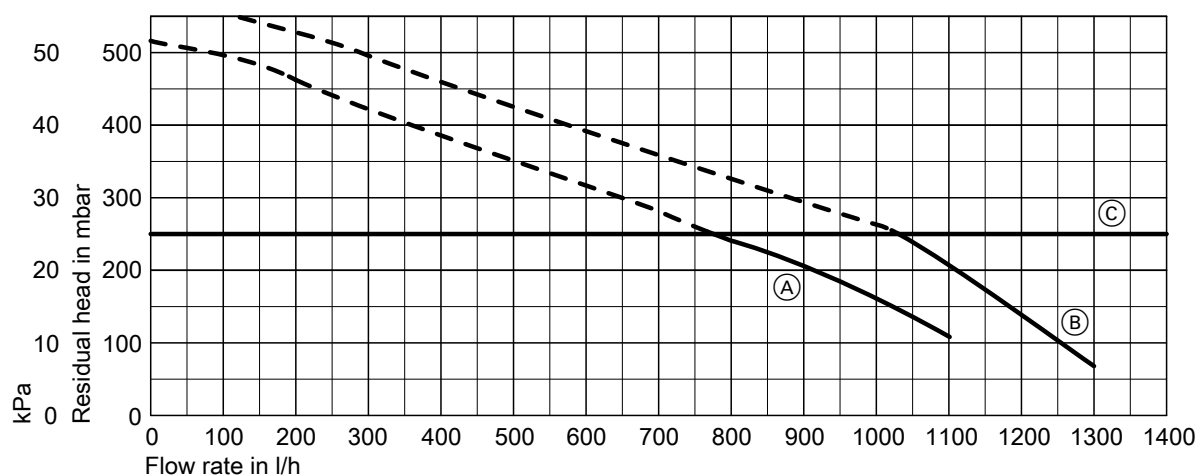
Residual head of the integral circulation pump

Vitodens 222-W, 4.8 - 26.0 kW



- (A) Stage 1
- (B) Stage 2
- (C) Upper operational limit

Vitodens 222-W, 8.8 - 35.0 kW



- (A) Stage 1
- (B) Stage 2
- (C) Upper operational limit

Variable speed heating circuit pump in the Vitodens 222-W

The integral circulation pump is a highly efficient DC pump with more than 50 % less power consumption than conventional pumps.

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

Individually match the minimum and maximum speed plus the speed for reduced mode to the existing heating system using the control unit codes.

In the delivered condition, the minimum pump rate (coding address "E7") is set to 30 %. The maximum pump rate (coding address "E6") is set to the following values:

Rated output range in kW	Speed settings in the delivered condition in %
4.8-19	55
6.5-26	65
8.8-35	65

Vitodens 222-W (cont.)

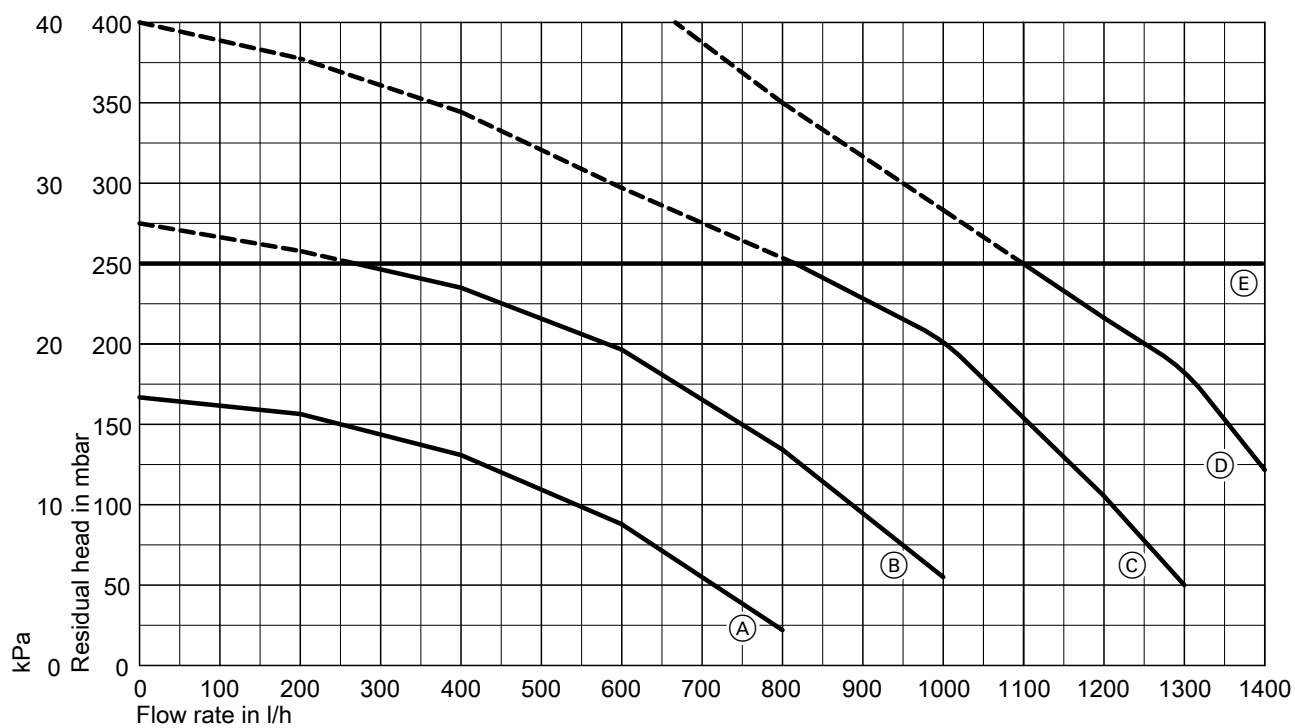
Circulation pump VI UPM-15-70 KM

Rated voltage		V~	230
Power consumption	max.	W	70
	min.	W	6
Power consumption in the delivered condition			
	- 4.8-19 kW	W	27
	- 6.5-26 kW	W	37
	- 8.8-35 kW	W	37

2

Residual head of the integral circulation pump

Vitodens 222-W, 4.8 - 26.0 kW

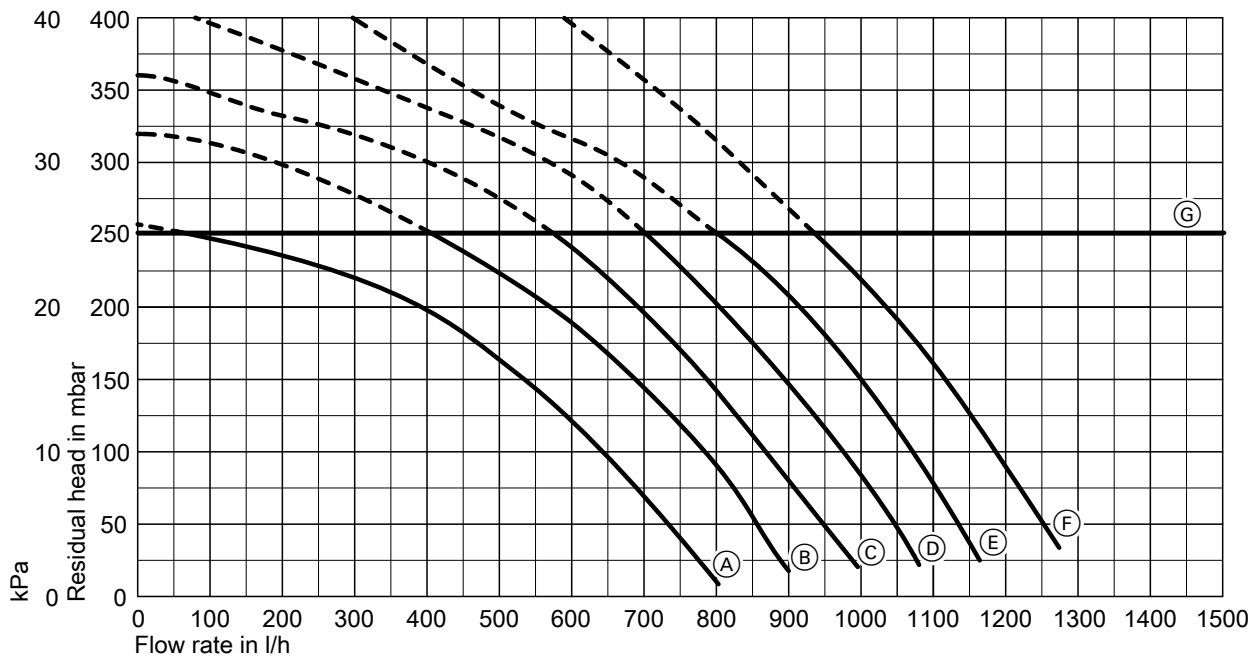


Ⓔ Upper operational limit

Curve	Circulation pump rate	Setting code address "E6"
Ⓐ	30 %	E6:030
Ⓑ	50 %	E6:050
Ⓒ	75 %	E6:075
Ⓓ	100 %	E6:100

Vitodens 222-W (cont.)

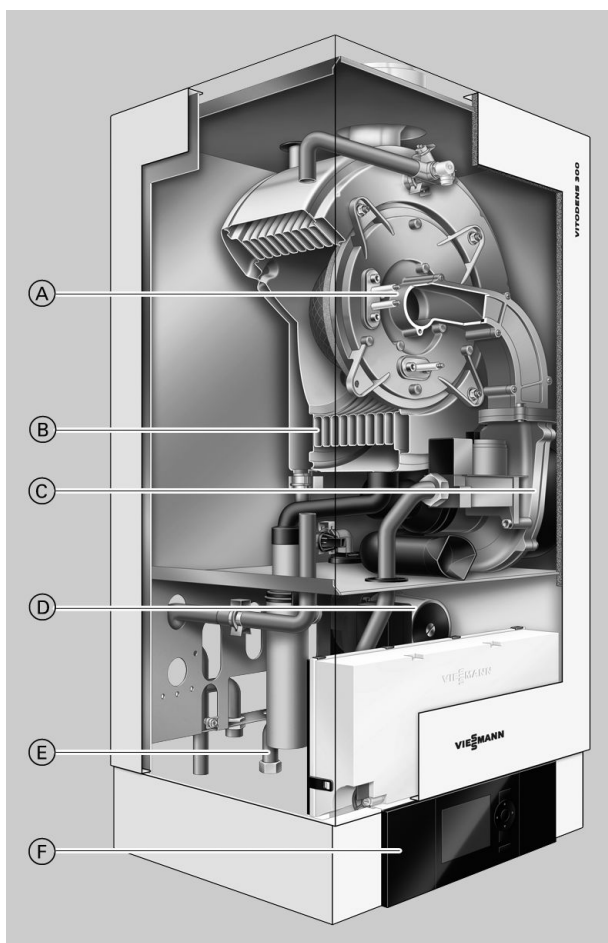
Vitodens 222-W, 8.8 - 35.0 kW



Ⓒ Upper operational limit

Curve	Circulation pump rate	Setting code address "E6"
Ⓐ	30 %	E6:030
Ⓑ	50 %	E6:050
Ⓒ	60 %	E6:060
Ⓓ	70 %	E6:070
Ⓔ	80 %	E6:080
Ⓕ	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
- Ⓑ Inox-Radial heat exchangers made from stainless steel - for high operational reliability, a long service life and high output on the smallest footprint
- Ⓒ Variable speed combustion fan for quiet and economical operation
- Ⓓ Integral, variable speed high efficiency DC pump
- Ⓔ Gas and water connections
- Ⓕ Digital boiler control unit

3

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. The modulation range is 1:5.

The integral, variable speed, high efficiency DC pump reduces power consumption by more than 50 %.

The Vitodens 300-W is equipped with the SMART (Self Monitoring And Reporting Technology) diagnostic system that reports deviations from the permissible operating conditions and issues relevant, plain text messages in good time. This enables easy maintenance and service scheduling, prevents failures and reduces repair costs.

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 boiler 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

- Wall mounted gas condensing boiler (system boiler), 3.8 to 35 kW
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s)/109 % (H_i)
- Wide modulation range
- Large water content; low cycling frequency, even when little heat is drawn off
- Durable and efficient through the Inox-Radial heat exchanger

- MatriX gas burner with long service life thanks to stainless steel MatriX mesh – resistant to high temperature loads
- New Vitotronic control unit that is easy to operate with plain text and graphic display
- The programming unit part of the control unit can also be fitted on a wall mounting base (accessory)
- Lambda Pro Control combustion controller for all gas types – saving fees by extending the inspection intervals to up to five years [in Germany]
- Energy saving high efficiency DC pump (in accordance with Energy Label A)
- SMART: preventative maintenance message – high appliance availability; services can be scheduled.
- Quiet operation through low fan speed

Delivered condition

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 pump.

Fully plumbed and wired. Colour of the epoxy-coated casing: white. For the Vitodens 300-W, 3.8 to 19 kW: Integral diaphragm expansion vessel (10 litre capacity).

Packed separately:

Vitotronic 100 for constant temperature mode

or

Vitotronic 200 for weather-compensated operation.

Set up for operation with natural gas. A conversion within the gas group E/LL is not required. The conversion to LPG is made at the gas valve (a conversion kit is not required).

Vitodens 300-W (cont.)

Accessories required (order separately)

Vitodens installation directly onto a wall

Installation aid:

- With fixing elements
- With fittings
- With boiler drain & fill valve
- With gas shut-off valve with thermally activated safety shut-off valve.

For installation either on finished or unfinished walls.

Mounting frame (not for the Vitodens 300-W, 3.8 to 19 kW):

- With diaphragm expansion vessel (18 litre capacity)
- With fixing elements
- With fittings
- With boiler drain & fill valve
- With gas angle valve with thermally activated safety shut-off valve.

Optionally for installation on finished or unfinished walls with threaded connections.

Vitodens installation in front of a wall

Self-supporting mounting frame (depth 110 mm):

- With fixing elements
- With fittings
- With boiler drain & fill valve
- With gas angle valve with integral thermally activated safety shut-off valve

For installation with threaded connections.

Approved quality



CE designation according to current EC Directives



Qualitätsmarke der ÖVGW gemäß Gütezeichenverordnung 1942 DRGBI. I für Erzeugnisse des Gas- und Wasserfachs

Meets the requirements for the "Blue Angel" certificate of environmental excellence to RAL UZ 61.

3.2 Specification

Gas boiler, types B and C, category II _{2N3P}		Gas boiler			
Rated output range (details to EN 677)					
$T_V/T_R = 50/30\text{ °C}$	kW	3.8-13.0	3.8-19.0	5.2-26.0	7.0-35.0
$T_V/T_R = 80/60\text{ °C}$	kW	3.5-11.8	3.5-17.2	4.7-23.7	6.4-32.0
Rated output for DHW heating	kW	3.5-16.0	3.5-17.2	4.7-23.7	6.4-32.0
Rated heat input	kW	3.6-16.7	3.6-17.9	4.9-24.7	6.6-33.3
Product ID		CE-0085BR0433			
IP rating		IP X4D to EN 60529			
Gas supply pressure					
Natural gas	mbar	20	20	20	20
LPG	mbar	50	50	50	50
Max. permissible gas supply pressure^{*6}					
Natural gas	mbar	25.0	25.0	25.0	25.0
LPG	mbar	57.5	57.5	57.5	57.5
Power consumption (in the delivered condition)	W	57	61	68	78
Weight	kg	50	50	48	50
Heat exchanger capacity	l	3.8	3.8	5.0	5.6
Max. flow rate (limit for the use of hydraulic separation)	l/h	1000	1200	1400	1600
Nominal circulation water volume at $T_V/T_R = 80/60\text{ °C}$	l/h	507	739	1018	1376
Diaphragm expansion vessel					
Capacity	l	10	10	—	—
Pre-charge pressure	bar	0.75	0.75	—	—
Permiss. operating pressure	bar	3	3	3	3
Safety valve connection	Rp	¼	¼	¼	¼
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	mm	1925	1925	1925	1925
Gas connection	R	½	½	½	½
Connection values in relation to the 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
Flue gas parameters^{*7}					
Flue gas value group to G 635/G 636		G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁	G ₅₂ /G ₅₁
Temperature (at 30 °C return temperature)					
– at rated output	°C	45	45	45	45
– at partial load	°C	35	35	35	35
Temperature (at return temperature 60 °C)					
– at rated output	°C	68	68	70	70
Mass flow rate					
Natural gas					
– at rated output	kg/h	29.7	31.8	43.9	59.2
– at partial load	kg/h	6.4	6.4	8.7	11.7
LPG					
– at rated output	kg/h	28.6	30.6	42.3	57.0
– at partial load	kg/h	6.2	6.2	8.4	11.3
Available draught	Pa	100	100	100	100
	mbar	1.0	1.0	1.0	1.0
Standard efficiency at $T_V/T_R = 40/30\text{ °C}$		up to 98 (H _s)/109 (H _i)			
Average condensate volume with natural gas and $T_V/T_R = 50/30\text{ °C}$	l/day	9-11	10-12	11-13	15-17

^{*6} If the gas supply pressure is higher than the maximum permitted value, install a separate gas pressure governor upstream of the system.

^{*7} Values for calculating the size of the flue gas system to EN 13384. Flue gas temperature as calculated gross value at 20 °C combustion air temperature.

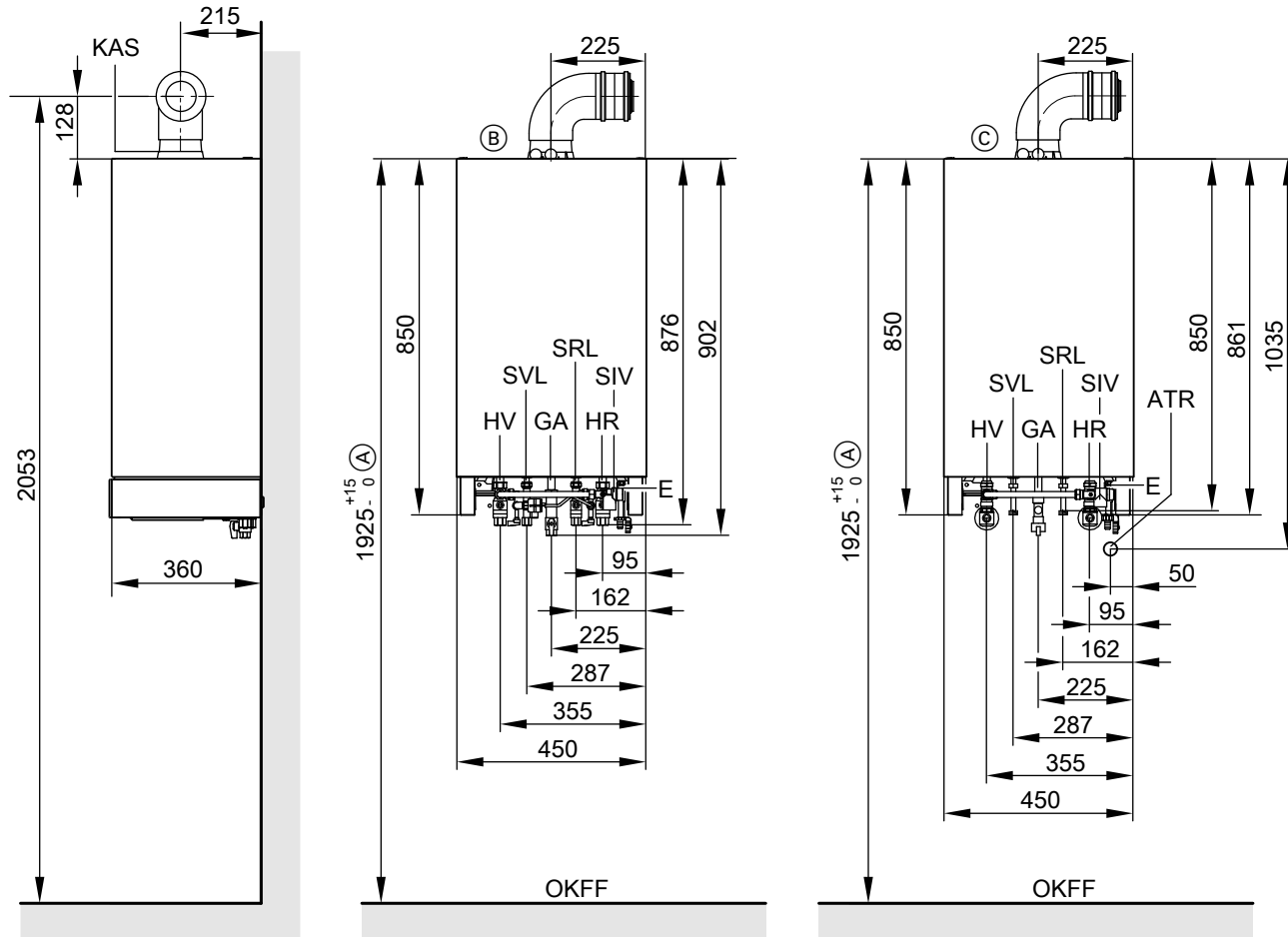
The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.

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.)

Gas boiler, types B and C, category II _{2N3P}		Gas boiler			
Rated output range (details to EN 677)					
$T_V/T_R = 50/30\text{ °C}$	kW	3.8-13.0	3.8-19.0	5.2-26.0	7.0-35.0
$T_V/T_R = 80/60\text{ °C}$	kW	3.5-11.8	3.5-17.2	4.7-23.7	6.4-32.0
Internal diameter of pipe to 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

Vitodens 300-W, 3.8 to 19 kW



- (A) Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only.
 (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
 SIV Safety valve
 SRL Cylinder return
 SVL Cylinder flow

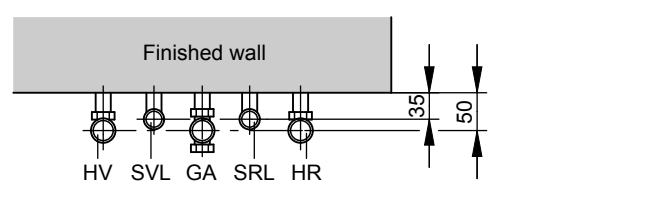
Note

For connection dimensions for installation on finished walls with installation aid, see page 53.

For connection dimensions for installation on unfinished walls with installation aid, see page 56.

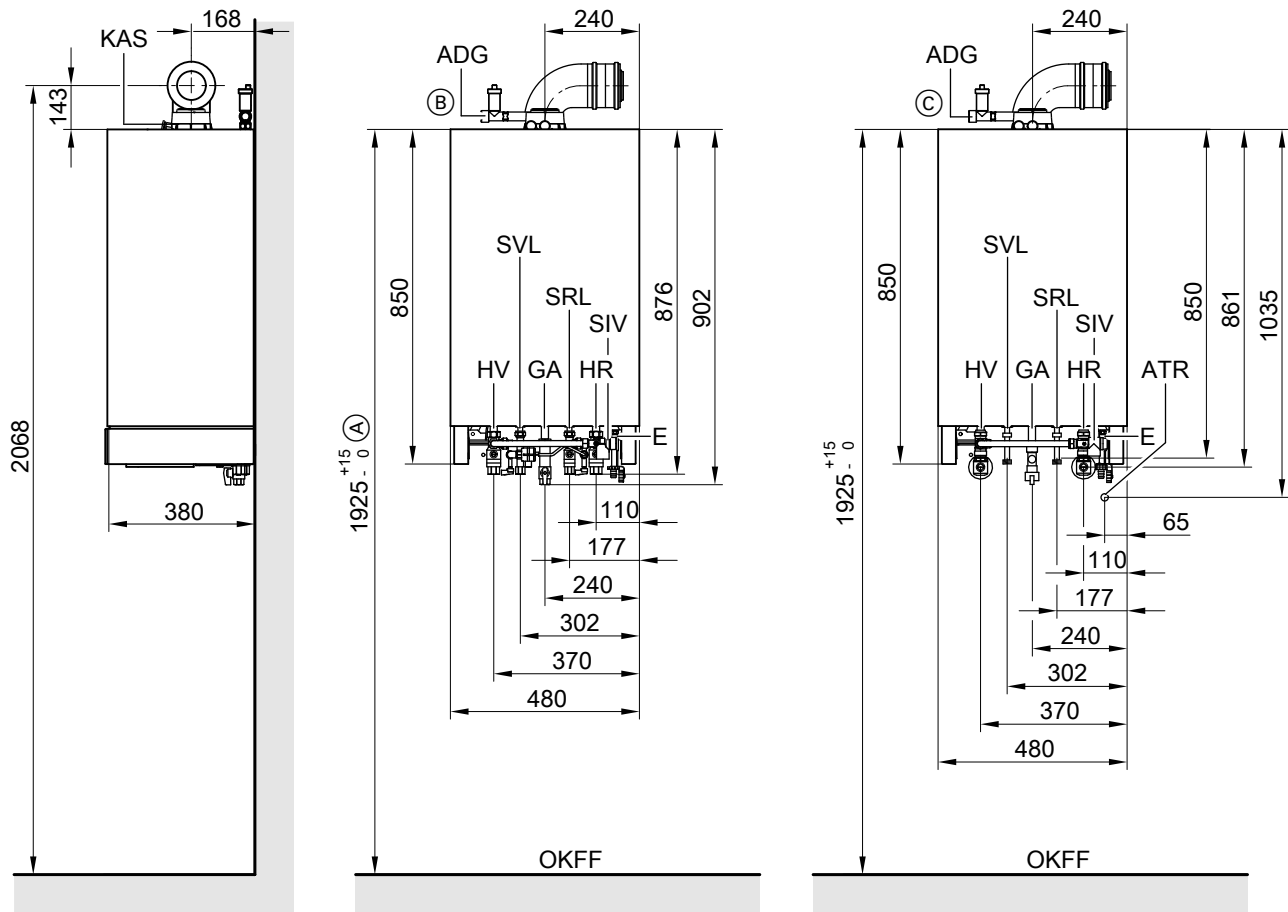
Note

Route all required supply cables on site and lead them into the boiler at the point indicated (see page 51).



Vitodens 300-W (cont.)

Vitodens 300-W, 5.2 to 35 kW



- (A) Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only.
- (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
- SIV Safety valve
- SRL Cylinder return
- SVL Cylinder flow

Note

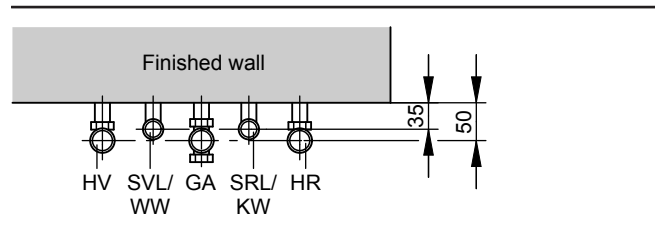
For connection dimensions for installation on finished walls with installation aid, see page 53.
 For connection dimensions for installation on unfinished walls with installation aid, see page 56.
 For connection dimensions for installation with a mounting frame, see page 57.

Note

Prepare all connections on site before commencing the boiler installation.
 Route all required supply cables on site and lead them into the boiler at the point indicated (see page 51).

Variable speed heating circuit pump in the Vitodens 300-W

The integral circulation pump is a highly efficient DC pump with more than 50 % less power consumption than conventional pumps. The pump speed and consequently the pump rate is regulated subject to the outside temperature and the switching times for heating or reduced mode. The control unit transmits the current default speed via an internal data BUS to the circulation pump.



Individually match the minimum and maximum speed plus the speed for reduced mode to the existing heating system using the control unit codes.

In the delivered condition, the minimum pump rate (coding address "E7") is set to 30 %. The maximum pump rate (coding address "E6") is set to the following values:

Vitodens 300-W (cont.)

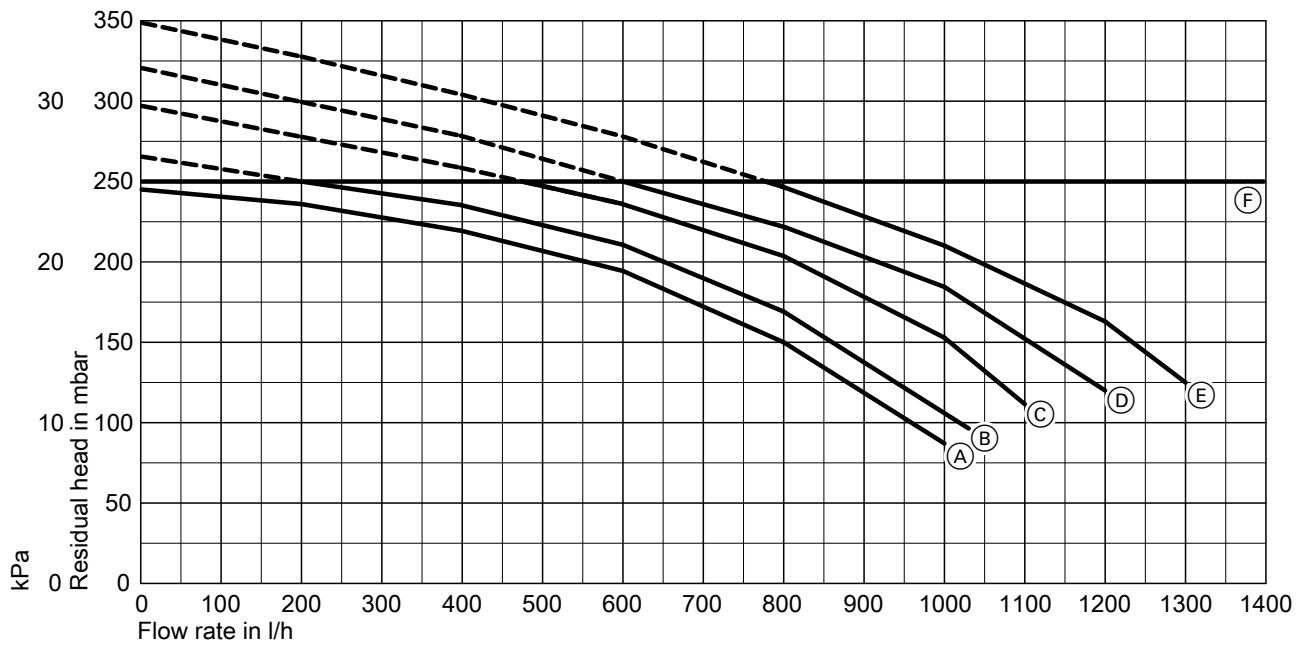
Rated output range in kW	Speed settings in the delivered condition in %
3.8-13	50
3.8-19	55
5.2-26	65
7.0-35	65

Circulation pump UPM 15

Rated voltage	V~	230
Power consumption	W	70
	max.	6
min.		
in the delivered condition		
	- 3.8-13 kW	24
	- 3.8-19 kW	27
	- 5.2-26 kW	37
	- 7.0-35 kW	37

Residual head of the integral circulation pump

Vitodens 300-W, 3.8-19 kW

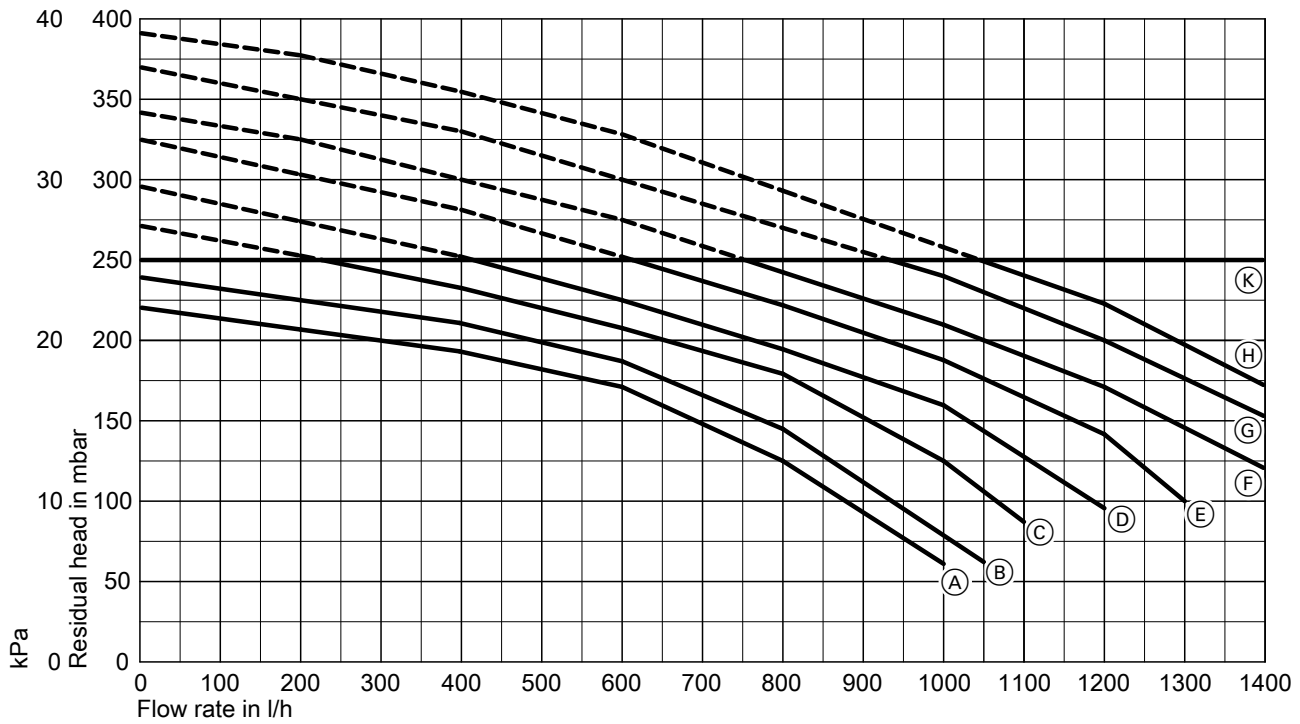


Ⓕ Upper operational limit

Curve	Circulation pump rate	Setting code address "E6"
Ⓐ	30 %	E6:030
Ⓑ	40 %	E6:040
Ⓒ	50 %	E6:050
Ⓓ	60 %	E6:060
Ⓔ	70 %	E6:070

Vitodens 300-W (cont.)

Vitodens 300-W, 5.2-35 kW



(K) Upper operational limit

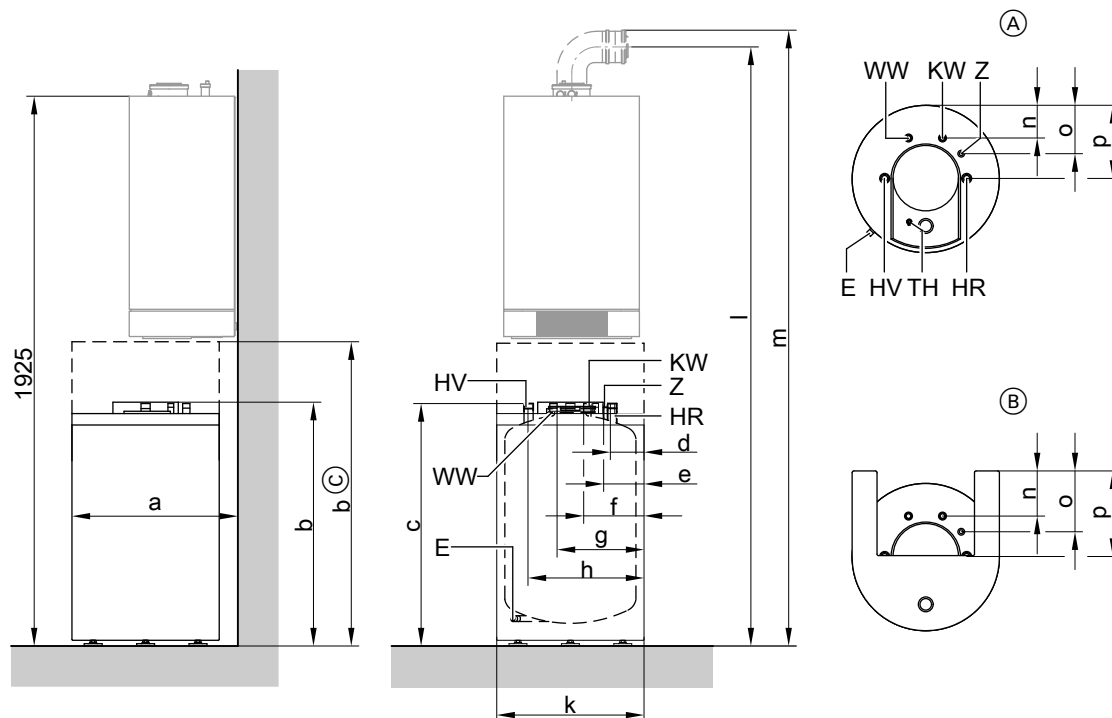
Curve	Circulation pump rate	Setting code address "E6"
(A)	30 %	E6:030
(B)	40 %	E6:040
(C)	50 %	E6:050
(D)	60 %	E6:060
(E)	70 %	E6:070
(F)	80 %	E6:080
(G)	90 %	E6:090
(H)	100 %	E6:100

Separate DHW cylinders

4.1 Vitocell 100-W (type CUG – 120 and 150 litres), below made from steel with Ceraprotect enamel coating

- Below the boiler
- Made from steel, with Ceraprotect enamel coating and internal indirect coils

Capacity	I	120		150	
DIN register no.		0245/06-13 MC			
			with casing to cover connecting pipes		with casing to cover connecting pipes
Connections					
Heating water flow and return	R	1	1	1	1
DHW and cold water	R	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
DHW circulation	R	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Permiss. operating pressure					
heating water and DHW side	bar	10	10	10	10
Permiss. temperatures					
– heating water side	°C	160	160	160	160
– DHW side	°C	95	95	95	95
Standby heat loss q_{BS} at 45 K temperature differential (standard parameter to DIN V 18599)	kWh/24 h	1.60	1.60	1.75	1.75
Dimensions					
Length a	mm	625	625	670	670
Width k	mm	$\varnothing 553$	564	$\varnothing 596$	607
Height b	mm	904	1055	932	1055
Total height	mm	1925 $^{+15/-0}$	1925 $^{+15/-0}$	1925 $^{+15/-0}$	1925 $^{+15/-0}$
Weight	kg	72	75	85	88



- (A) Top view
 (B) Top view with casing to cover connecting pipes
 (C) Height with casing to cover connecting pipes
 E Drain
 HR Heating return

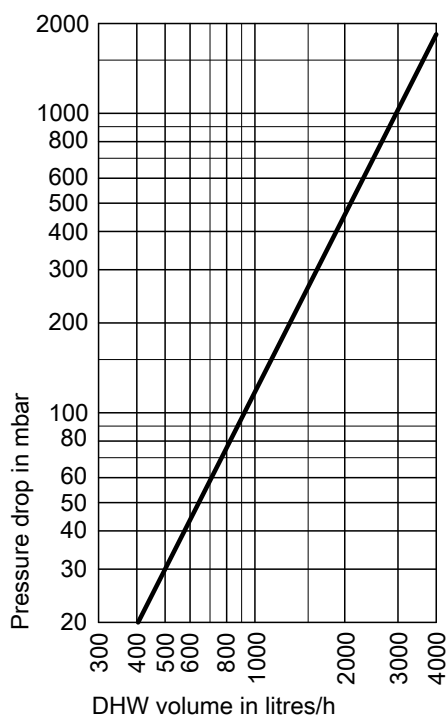
- HV Heating flow
 KW Cold water
 WW DHW
 TH Sensor well for cylinder temperature sensor
 Z DHW circulation

Separate DHW cylinders (cont.)

Dimensions

Capacity		120 l		150 l	
		Without casing connecting pipes	with casing to cover connecting pipes	Without casing connecting pipes	with casing to cover connecting pipes
a	mm	618	623	661	667
b	mm	904	1055	932	1055
c	mm	875	875	902	902
d	mm	122	128	144	150
e	mm	143	149	165	171
f	mm	214	220	235	241
g	mm	339	345	360	366
h	mm	430	436	452	458
k	mm	Ø 553	564	Ø 596	607
l	mm	2079	2079	2079	2079
m	mm	2149	2149	2149	2149
n	mm	126	191	148	213
o	mm	183	248	205	270
p	mm	276	341	298	363

Pressure drop on the DHW side



DHW output at rated boiler output

Rated 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	24 590
Performance factor N_L to DIN 4708					
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 120 l	l/10 min	153	153	153	153
Cylinder capacity 150 l	l/10 min	173	173	173	173

Delivered condition

Vitocell 100-W, type CUG
120 and 150 litre capacity

Separate DHW cylinders (cont.)

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 made from rigid PU foam

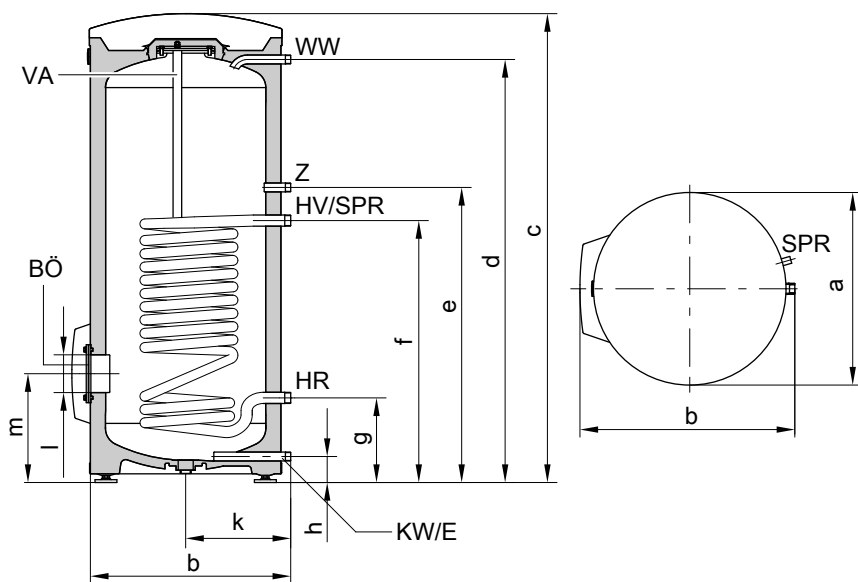
The colour of the epoxy-coated sheet steel casing is white.

Separate DHW cylinders (cont.)

4.2 Vitocell 100-W, adjacent, (type CVA – 160, 200 and 300 litres, white finish) made from steel with Ceraprotect enamel coating

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

Capacity	l	160	200	300
DIN register no.		0241/06-13 MC/E		
Connections				
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	25	25	25
– DHW side	bar	10	10	10
Permiss. temperatures				
– heating water side	°C	160	160	160
– DHW side	°C	95	95	95
Standby heat loss q_{BS} at 45 K temperature differential (actual values to DIN 4753-8)	kWh/24 h	1.50	1.70	2.20
Dimensions				
Length c (∅)	mm	581	581	633
Width a	mm	605	605	705
Height k	mm	1189	1409	1746
Weight	kg	86	97	151



BÖ Inspection and cleaning aperture only for 300 litre capacity.
 E Drain
 HR Heating return
 HV Heating flow
 KW Cold water

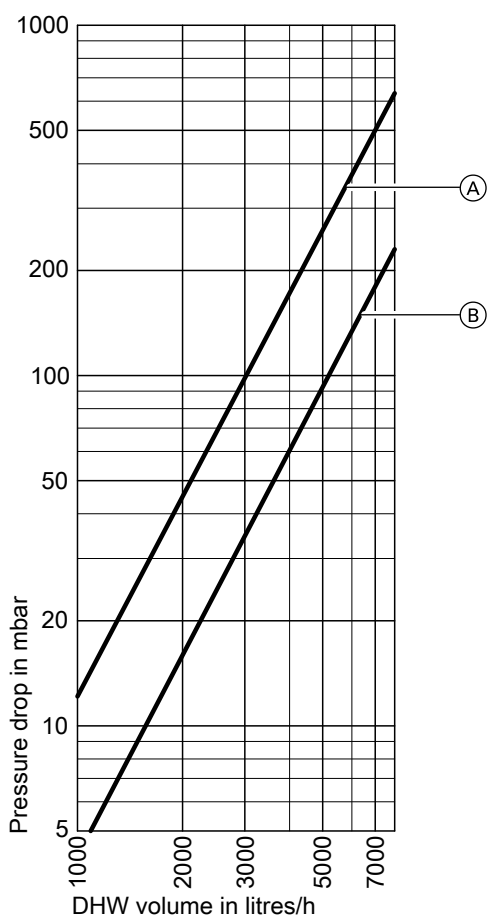
SPR Sensor well for cylinder temperature sensor or control thermostat
 WW DHW
 Z DHW circulation

Separate DHW cylinders (cont.)

Dimensions

Cylinder capacity	l	160	200	300
a	mm	∅ 581	∅ 581	∅ 633
b	mm	608	608	705
c	mm	1189	1409	1746
d	mm	1050	1270	1600
e	mm	884	884	1115
f	mm	634	634	875
g	mm	249	249	260
h	mm	72	72	76
k	mm	317	317	343
l	mm	–	–	∅ 100
m	mm	–	–	333

Pressure drop on the DHW side



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

DHW output at rated boiler output

Rated 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

5822 430 GB

Separate DHW cylinders (cont.)

Rated output for DHW heating	kW	16	17	24	32
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

Delivered condition

Vitocell 100-W, type CVA

160 to 300 litre capacity

DHW cylinder made from steel with Ceraprotect enamel coating.

- Welded-in sensor well for cylinder temperature sensor or thermostat
- Fitted adjustable feet

- Protective magnesium anode

- Fitted thermal insulation made from rigid PU foam

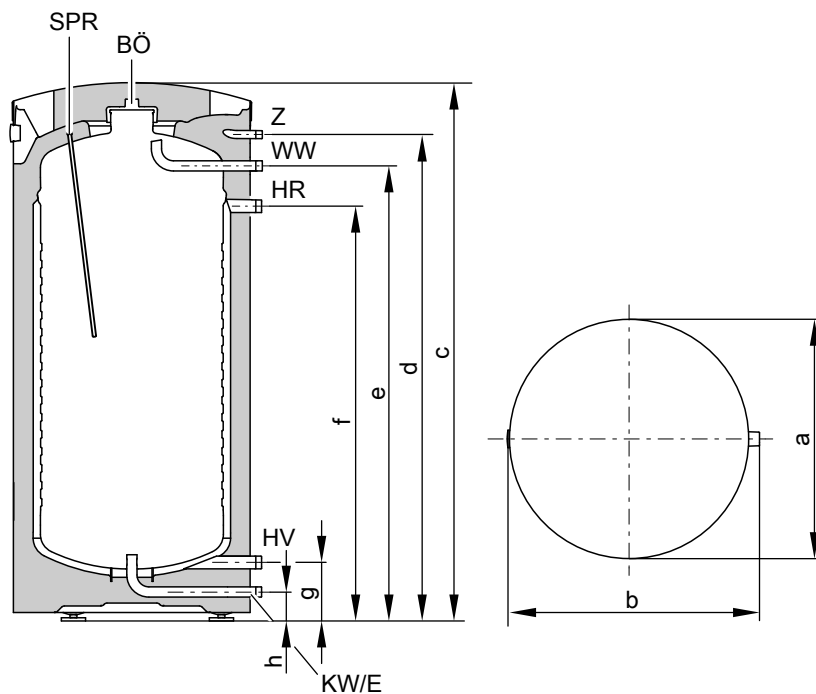
The colour of the epoxy-coated sheet steel casing is white.

Separate DHW cylinders (cont.)

4.3 Vitocell 300-W, adjacent (type EVA – 160 and 200 litre, white finish), with peripheral indirect coil, made from stainless steel

- Adjacent
- Made from stainless steel, with external indirect coils
(for further technical details, see the separate datasheet for the Vitocell 300-V)

Capacity	I	160	200
DIN register no.		0166/04-10 MC	
Connections			
Heating water flow and return	R	1	1
DHW and cold water	R	$\frac{3}{4}$	$\frac{3}{4}$
DHW circulation	R	$\frac{1}{2}$	$\frac{1}{2}$
Permiss. operating pressure			
– heating water side	bar	3	3
– DHW side	bar	10	10
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	1.40	1.60
Dimensions			
Length (\varnothing)	mm	633	633
Width	mm	667	667
Height d	mm	1203	1423
Weight	kg	84	98



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

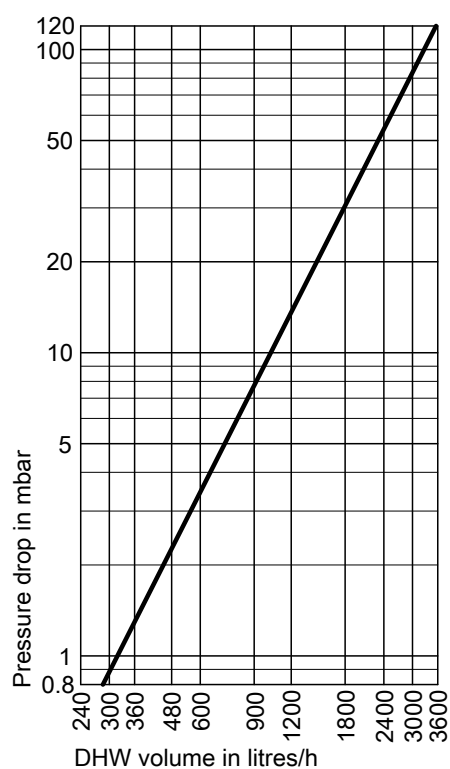
SPR Sensor well for cylinder temperature sensor or control thermostat
 WW DHW
 Z DHW circulation

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 at rated boiler output

Rated 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

Delivered condition

Vitocell 300-V type EVA, peripheral indirect coil

160 to 200 litre capacity

DHW cylinders made from stainless steel.

- Welded-in sensor well for cylinder temperature sensor or thermostat
- Integral thermometer

- Fitted adjustable feet
 - Fitted thermal insulation made from rigid PU foam
- The colour of the epoxy-coated sheet steel casing is white.

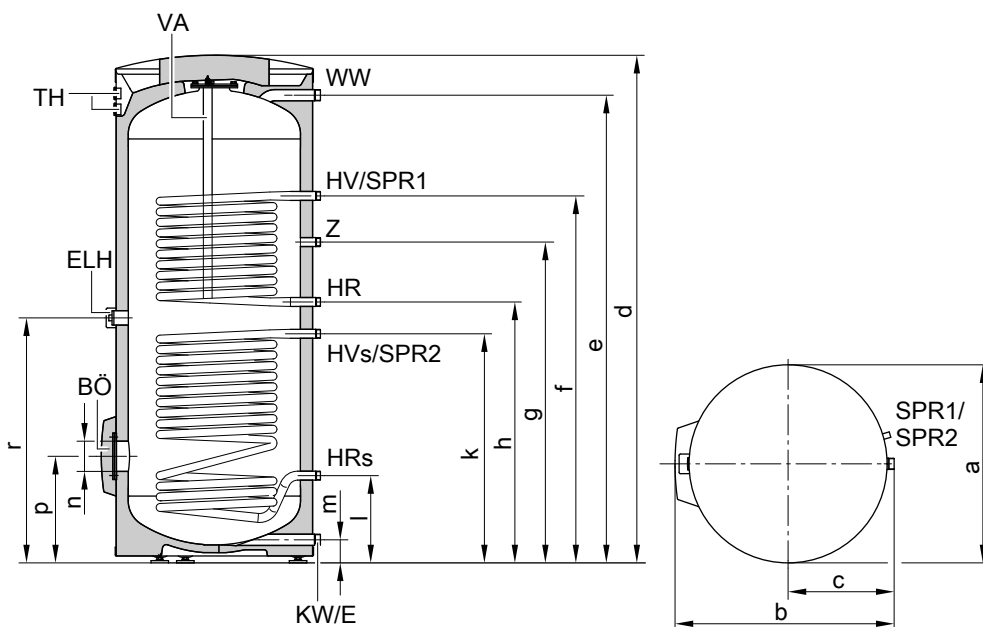
Separate DHW cylinders (cont.)

4.4 Vitocell 100-W, adjacent (type CVB – 300 and 400 litres, white finish), made from steel with Ceraprotect enamel coating for dual mode DHW heating

- Adjacent
- made from steel, with Ceraprotect enamel coating and internal indirect coils
- for dual-mode DHW heating

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

Contents	I	300	400
DIN register no.		0242/06-13 MC/E	
Connections			
Heating water flow and return	R	1"	1"
DHW and cold water	R	1"	1½"
DHW circulation	R	1"	1"
Permiss. operating pressure			
heating water, solar and DHW side	bar	10	10
Permiss. temperatures			
– heating water side	°C	160	160
– solar side	°C	160	160
– DHW side	°C	95	95
Standby heat loss q_{BS} at 45 K temperature differential (standard parameter)	kWh/24 h	1.00	1.08
Dimensions			
Length c (∅)	mm	633	850
Width a	mm	705	918
Height m	mm	1746	1630
Weight	kg	160	167



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

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

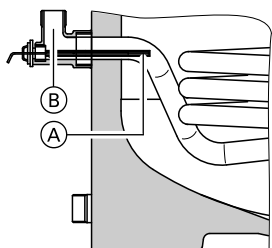
5822 430 GB

Separate DHW cylinders (cont.)

Dimensions

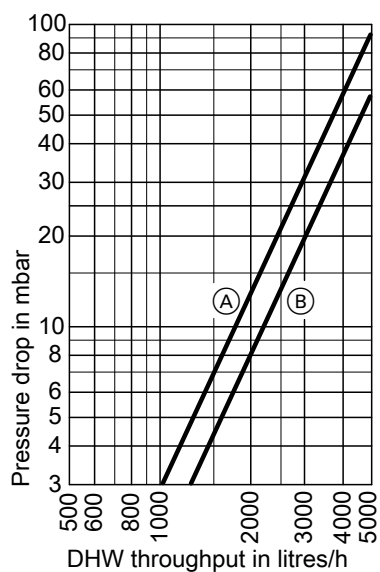
Cylinder capacity	l	300	400
a	mm	∅ 633	∅ 850
b	mm	705	918
c	mm	343	455
d	mm	1746	1630
e	mm	1600	1458
f	mm	1355	1204
g	mm	1115	1044
h	mm	995	924
k	mm	875	804
l	mm	260	349
m	mm	76	107
n	mm	∅ 100	∅ 100
p	mm	333	422
r	mm	935	864

Recommended arrangement of the cylinder temperature sensor for solar operation



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

Pressure drop on the DHW side



- Ⓐ 300 litre capacity
- Ⓑ 400 litre capacity

Separate DHW cylinders (cont.)

DHW output at rated boiler output

Rated 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^{*8} 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

Delivered condition

Vitocell 100-W, type CVB, 300 litre capacity

DHW cylinder made from steel with Ceraprotect enamel coating.

- 2 welded sensor wells for cylinder temperature sensor or control thermostat
 - Threaded elbow with sensor well
 - Fem. connection R 1½" for the installation of an electric immersion heater and plug R 1½"
 - Adjustable feet
 - Protective magnesium anode
 - Fitted thermal insulation made from rigid PU foam
- The colour of the epoxy-coated sheet steel casing is white.

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 control thermostat
 - Threaded elbow with sensor well
 - Fem. connection R 1½" for the installation of an electric immersion heater and plug R 1½"
 - Adjustable feet
 - Protective magnesium anode
 - Thermal insulation made from flexible PU foam (packed separately)
- The colour of the plastic-coated thermal insulation is white.

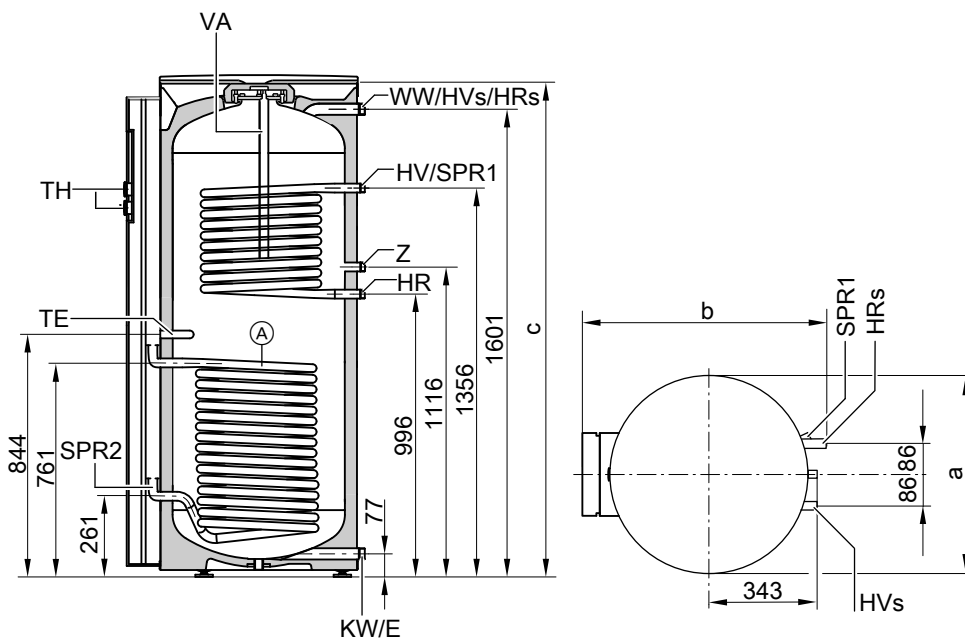
Separate DHW cylinders (cont.)

4.5 Vitocell 100-W, adjacent (type CVUA – 300 litres, white finish), made from steel with Ceraprotect enamel coating for dual mode DHW heating

- Adjacent
- Made from steel, with Ceraprotect enamel coating and internal indirect coils
- for dual mode DHW heating
- with Solar-Divicon, integral pipework and solar control module, type SM1.

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

Capacity	l	300
DIN register no.		0266/07-13 MC/E
Connections		
Heating water flow and return	R	1
DHW and cold water	R	1
DHW circulation	R	1
Permiss. operating pressure		
– heating water, solar and DHW side	bar	10
Permiss. temperatures		
– heating water side	°C	160
– solar side	°C	110
– DHW side	°C	95
Standby heat loss (standard parameter)	kWh/24 h	1.00
q_{BS} at 45 K temp. differential		
Dimensions		
Length (∅)	mm	631
Width	mm	780
Height	mm	1705
Height when tilted	mm	1790
Weight including thermal insulation	kg	179
Total weight in operation	kg	481



E	Drain	SPR1	Cylinder temperature control sensor
HR	Heating water return (upper indirect coil)	SPR2	Solar thermal system cylinder temperature sensor
HRs	Heating water return, solar (lower indirect coil; fit the cylinder temperature sensor into the solar heating water return (HRs) using the threaded elbow with sensor well SPR2 from the standard delivery)	TE	Sensor well for lower thermometer
HV	Heating water flow (upper indirect coil)	TH	Thermometer
HVs	Heating water flow, solar (lower indirect coil)	VA	Protective magnesium anode
KW	Cold water	WW	DHW to the pipework
		Z	DHW circulation
		Ⓐ	Lower indirect coil (solar)
			The connections HVs and HRs are located at the top of the DHW cylinder

5822 430 GB

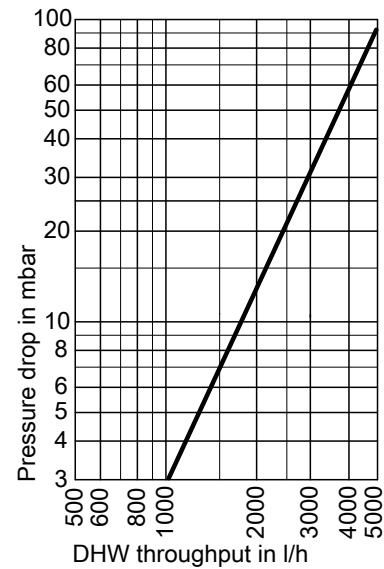


Separate DHW cylinders (cont.)

Dimensions

Dimensions	Dimensions in mm
a	631
b	780
c	1705

Pressure drop on the DHW side



DHW output at rated boiler output

Rated 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	26 638	26 638
Performance factor N_L^{*9} 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

Delivered condition

Dual mode DHW cylinder made from steel with Ceraprotect enamel coating and solar set.

- Solar set, comprising:
 - Solar circuit pump (variable speed high efficiency DC pump)
 - 2 thermometers
 - 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
 - Cylinder temperature sensor
 - Collector temperature sensor
- 2 welded sensor wells for cylinder temperature sensor or thermostat

- Threaded elbow with sensor well
 - Adjustable feet
 - Protective magnesium anode
 - Thermal insulation made from rigid PUR foam
- Colour of the epoxy-coated sheet steel casing: white

Installation accessories

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

Installation directly onto a wall

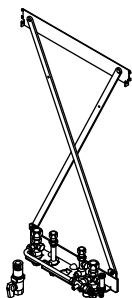
Gas condensing combi boiler

Installation aid for finished walls

Part no. Z002 350

Comprising:

- Fixing elements
- Valves
- Straight-through gas valve Rp ½ with thermally activated safety shut-off valve



Gas condensing boiler

Installation aid for finished walls

Part no. Z002 337

Comprising:

- Fixing elements
- Valves
- Straight-through gas valve Rp ½ with thermally activated safety shut-off valve

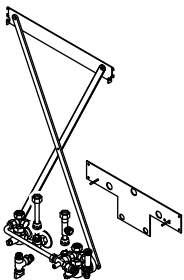


Installation aid for unfinished walls

Part no. Z002 349

Comprising:

- Fixing elements
- Valves
- Gas angle valve R ½ with thermally activated safety shut-off valve

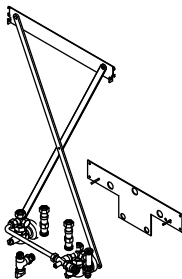


Installation aid for unfinished walls

Part no. Z002 348

Comprising:

- Fixing elements
- Valves
- Gas angle valve R ½ with thermally activated safety shut-off valve



5

Installation with a sub-mounting kit

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

Note

Order an installation aid for installation on finished walls with the sub-mounting kit.

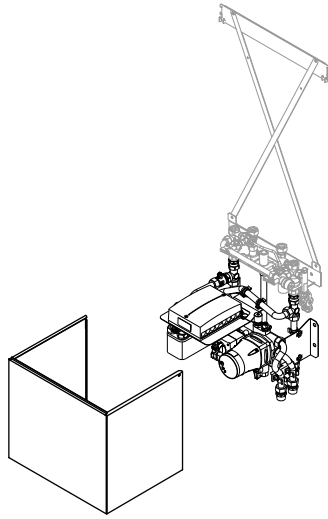
Sub-mounting kit

- For Vitodens 200-W
 - with three-stage circulation pump:
Part no. 7439 104
 - With variable speed high efficiency DC pump:
Part no. 7438 923
- For Vitodens 300-W, 3.8 - 19 kW
 - With variable speed high efficiency DC pump:
Part no. 7438 923
- For Vitodens 300-W, 5.2 - 35 kW
 - With variable speed high efficiency DC pump:
Part no. 7438 922

Comprising:

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

Installation accessories (cont.)



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.

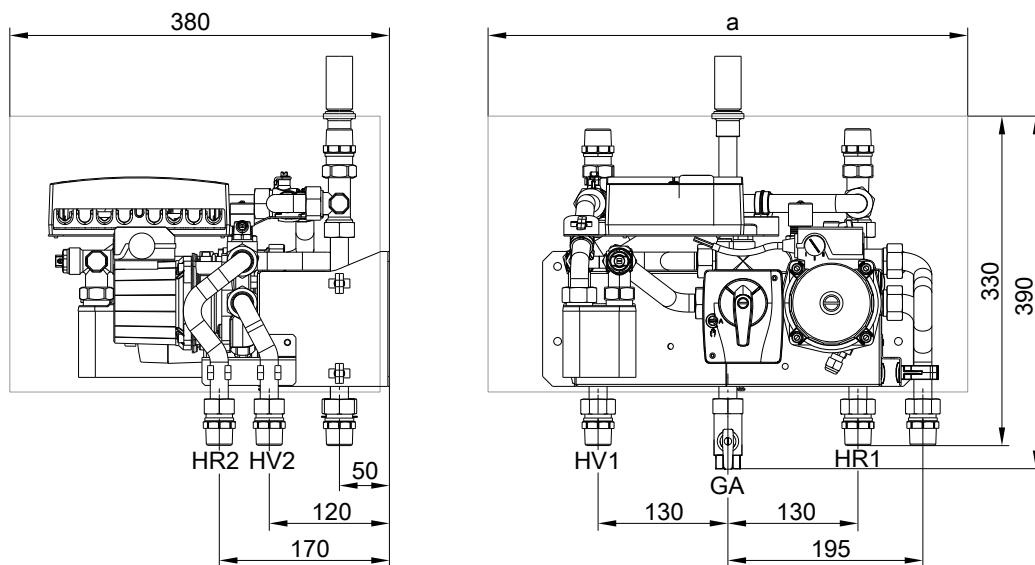
Specification, sub-mounting kit with mixer

Assembly for heat distribution via a heating circuit with mixer and one heating circuit without mixer as wall mounted version. 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 installation design regarding operation with the sub-mounting kit, see "System examples".

The sub-mounting kit can only be used in conjunction with the Vitotronic 200 and the installation aid for finished walls. Not in conjunction with the Vitocell 100-W DHW cylinder, type CUG, below.



GA Gas connection Rp 1/2

HR1 Heating return, heating circuit without mixer R 3/4

HR2 Heating return, heating circuit with mixer R 3/4

HV1 Heating flow, heating circuit without mixer R 3/4

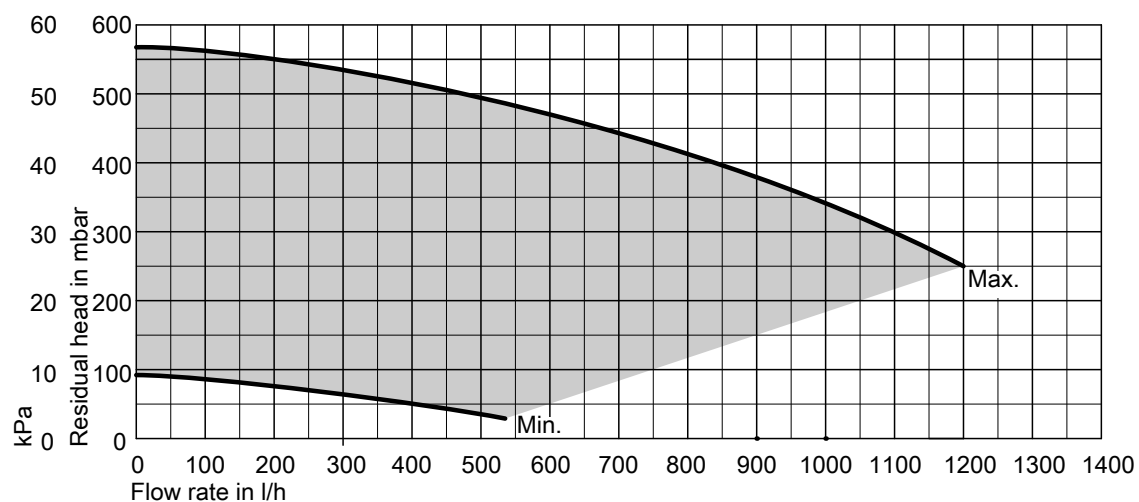
HV2 Heating flow, heating circuit with mixer R 3/4

Installation accessories (cont.)

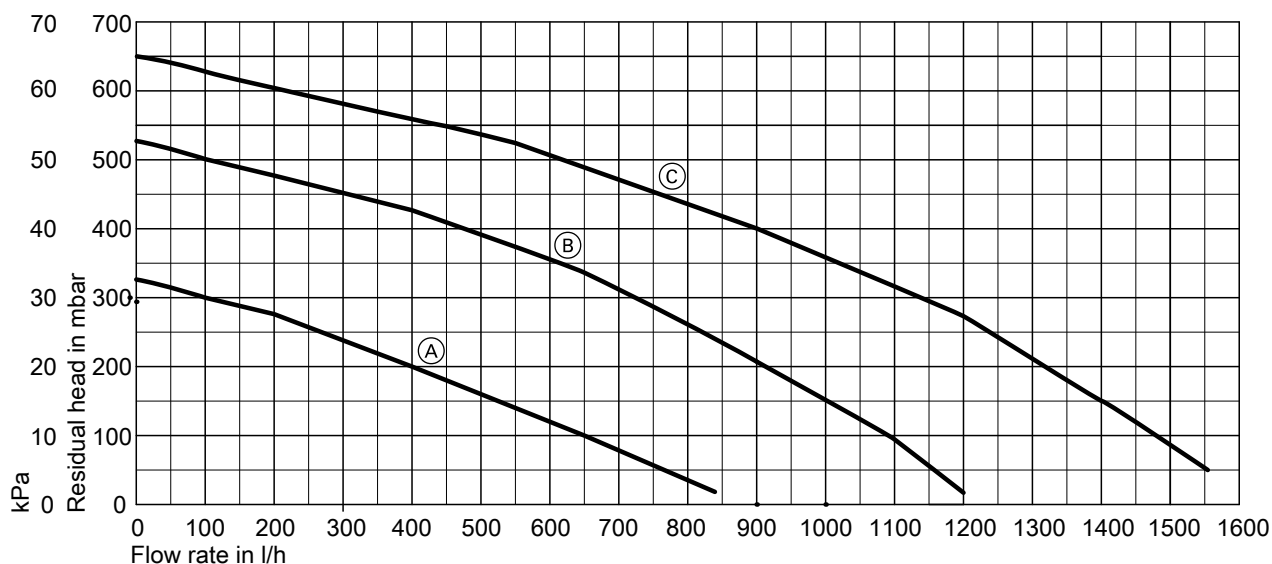
Max. transferable output of the heating circuit with mixer (ΔT 10 K)	kW	14
Max. flow rate of the heating circuit with mixer (ΔT 10 K)	l/h	1200
Permiss. operating pressure	bar	3
Max. power consumption (total)		
– with 3-stage circulation pump	W	89
– With variable speed high efficiency DC pump	W	48
Dimension a		
– Vitodens 200-W, 19 to 35 kW and 300-W 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

With variable speed high efficiency DC pump



With three-stage circulation pump



- (A) Stage 1
- (B) Stage 2
- (C) Stage 3

Installation accessories (cont.)

Calculating the transferable output (examples)

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

The maximum output that can be transferred via the sub-mounting kit plate heat exchanger 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 precise adjustment of the flow rate, a flow meter (available as an accessory) can be fitted into the flow line of the unregulated heating circuit. The rated circulation water volume of the boiler (see specification), minus the flow rate through the sub-mounting kit plate heat exchanger, results in the flow rate of the unregulated heating circuit.

Example:

Vitodens 300-W, 5.2 -26 kW

- Rated circulation water volume at ΔT 20 K: 1018 l/h
- 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): $1018 \text{ l/h} - 560 \text{ l/h} = 458 \text{ l/h}$

Installation with mounting frame

Mounting frame consisting of:

- Diaphragm expansion vessel, rated capacity 18 litres
 - Fittings on the heating water and DHW side
 - Boiler drain & fill valve
 - Gas angle valve R $\frac{1}{2}$ with integral thermally activated safety shut-off valve
 - Flexible connecting line for the diaphragm expansion vessel
- All fittings are located under the boiler covers.

Mounting frame

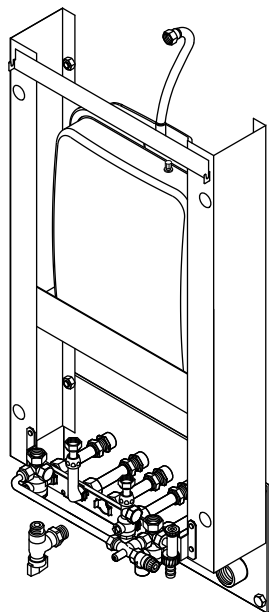
for gas boilers (for the Vitodens 300-W, 26 and 35 kW only)

- for installation on finished walls with threaded fittings

Part no. Z005 587

- for installation on unfinished walls

Part no. Z005 588



Installation with a self-supporting mounting frame

Self-supporting mounting frame

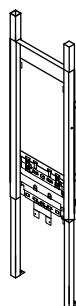
With valves and gas angle valve G $\frac{3}{4}$ with thermally activated safety shut-off valve

- for gas combi boiler with threaded fittings

Part no. Z002 352

- for gas boiler with threaded fittings

Part no. Z002 354



Ceiling extension for the self-supporting mounting frame
Part no. 7329 151

Installation accessories (cont.)

For "self-supporting" installation in a room.

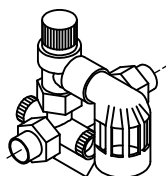


Additional accessories

Safety assembly to DIN 1988

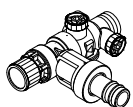
Comprising:

- Shut-off valve
- Non-return valve and test connector
- Pressure gauge connector
- Diaphragm safety valve
 - 10 bar
 - DN 15, up to 200 litre capacity
Part no. 7219 722
 - DN 20, for 300 litre capacity
Part no. 7180 662
 - (A) 6 bar
 - DN 15, up to 200 litre capacity
Part no. 7265 023
 - DN 20, for 300 litre capacity
Part no. 7179 666



For Vitocell 100-W, below

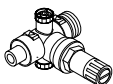
- 10 bar, DN 15, right angle version
Part no. 7180 097
- (A) 6 bar, DN 15, right angle version
Part no. 7179 457



Pressure reducer (DN 15)

Part no. 7180 148

To match the safety assembly of the right angle version.

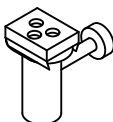


Drain outlet kit

Part no. 7189 014

Drain outlet kit with siphon and bezel for the connection of the safety valves and condensate drain lines.

Drain connection G 1



Valve/fitting cover

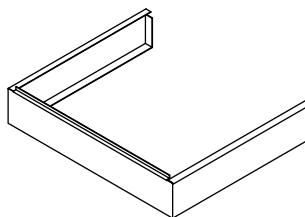
- For the Vitodens 200-W and the Vitodens 300-W, 3.8 to 19 kW

Part no. 7438 096

- For the Vitodens 300-W, 5.2 to 35 kW

Part no. 7438 094

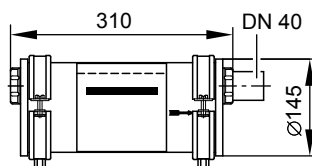
Cannot be used in conjunction with DHW cylinders installed below.



Neutralising system

Part no. 7252 666

With neutralising granulate



Neutralising granulate

Part no. 9524 670

(2 × 1.3 kg)

Condensate lifting system

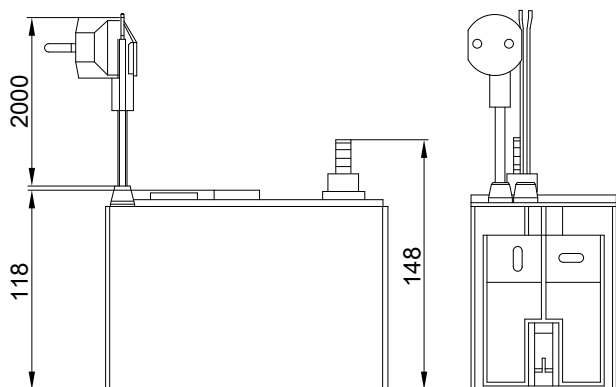
Part no. 7374 796

Automatic condensate lifting system for condensate with a pH value ≥ 2.7 from oil and gas condensing boilers.

Components:

- Condensate container 0.5 l
 - Shaftless permanent magnet ball motor pump
 - Control unit for pump operation, display of operating conditions and fault messages
 - 2 m long power cable with plug
 - Two $\varnothing 24$ mm connection apertures for condensate inlet
- The standard delivery comprises:
- 6 m long drain hose $\varnothing 14 \times 2$ mm
 - Non-return valve

Installation accessories (cont.)



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	20 W
IP rating	IP 44
Protection class	F
Permissible medium temperature	+60 °C
Max. head	45 kPa
Max. capacity	450 l/h
Zero volt contact	N/C, breaking capacity 230 VA

Plate heat exchanger flushing system

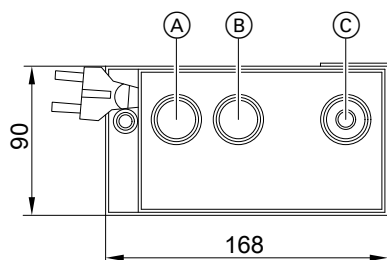
Part no. 7373 005

For Vitodens 200-W, 6.5 to 35 kW.

Small softening system for heating water

For filling heating circuits.

See Vitoset pricelist.



- (A) Condensate inlet
- (B) Condensate inlet with drain plug
- (C) Condensate drain

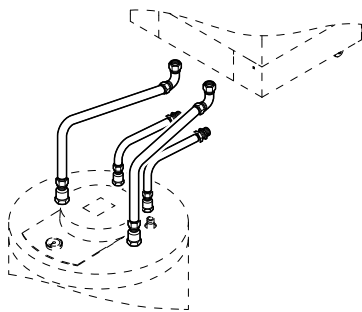
Connection between the Vitodens and the DHW cylinder

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

Part no. 7178 347

Comprising:

- Cylinder temperature sensor
 - Heating water connecting pipes
 - Secondary connecting pipes
- Installation on finished or unfinished walls



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

Comprising:

- Cylinder temperature sensor
- Connection compression fittings

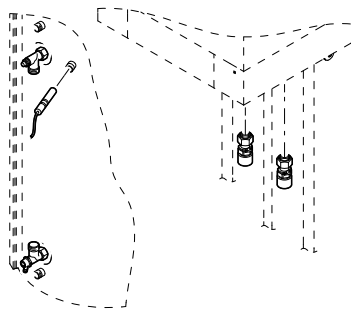
DHW cylinder either on the l.h. or the r.h. side of the Vitodens.

- Compression version

Part no. 7178 349

- Solder version

Part no. 7178 348



Casing to cover interconnecting pipes

With thermometer for the Vitocell 100, type CUG.

- For DHW cylinders with 120 l capacity
Part no. 7179 030
- For DHW cylinders with 150 l capacity
Part no. 7179 031

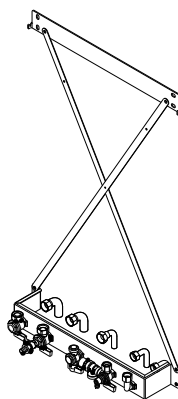
5.2 Installation accessories for the Vitodens 222-W

Installation aid for finished walls

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

Comprising:

- Fixing elements
- Valves
- Gas angle valve R ½ with thermally activated safety shut-off valve
- Safety valve on the DHW side
- Pipe bends

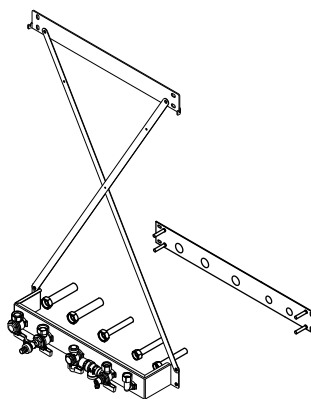


Installation aid for unfinished walls

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

Comprising:

- Fixing elements
- Valves
- Gas angle valve R ½ with thermally activated safety shut-off valve
- Safety valve on the DHW side
- Connectors

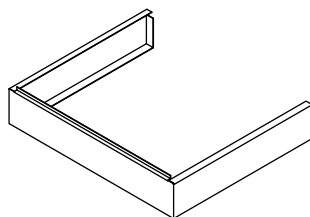


5

Additional accessories

Valve/fittings cover

Part no. 7438 340



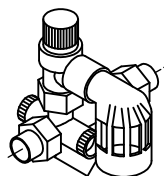
Neutralising granulate

Part no. 9524 670
(2 × 1.3 kg)

Safety assembly to DIN 1988

Comprising:

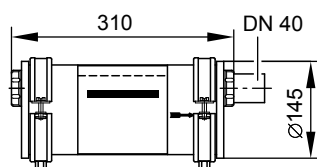
- Shut-off valve
- Non-return valve and test connector
- Pressure gauge connector
- Diaphragm safety valve



Neutralising system

Part no. 7252 666

With neutralising granulate



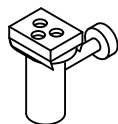
- 10 bar, DN 15
Part no. 7219 722
- (A) 6 bar, DN 15
Part no. 7265 023

Installation accessories (cont.)

Drain outlet kit

Part no. 7189 014

Drain outlet with siphon and bezel.



For connection of the safety valve and condensate drain lines.

Condensate lifting system

Part no. 7374 796

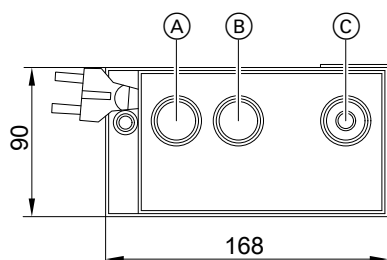
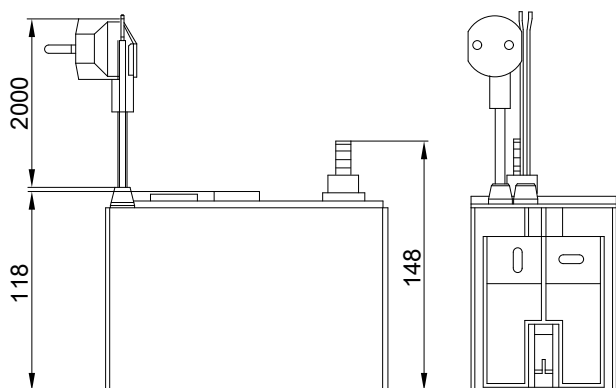
Automatic condensate lifting system for condensate with a pH value ≥ 2.7 from oil and gas condensing boilers.

Components:

- Condensate container 0.5 l
- Shaftless permanent magnet ball motor pump
- Control unit for pump operation, display of operating conditions and fault messages
- 2 m long power cable with plug
- Two $\varnothing 24$ mm connection apertures for condensate inlet

The standard delivery comprises:

- 6 m long drain hose $\varnothing 14 \times 2$ mm
- Non-return valve



- (A) Condensate inlet
- (B) Condensate inlet with drain plug
- (C) Condensate drain

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	20 W
IP rating	IP 44
Protection class	F
Permissible medium temperature	+60 °C
Max. head	45 kPa
Max. capacity	450 l/h
Zero volt contact	N/C, breaking capacity 230 VA

Plate heat exchanger flushing system

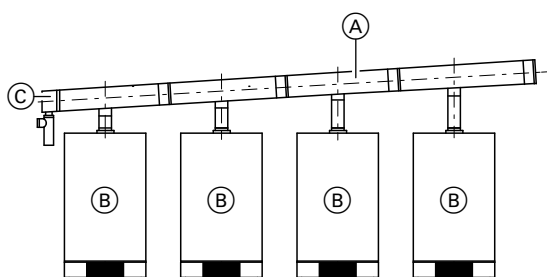
Part no. 7373 005

For Vitodens 200-W, 6.5 to 35 kW.

Small softening system for heating water

For filling heating circuits.

See Vitoset pricelist.



- (A) Flue gas header
- (B) Flue gas non-return device (for installation in the Vitodens)
- (C) Terminal with siphon

- **Two-boiler system**
 - 19 and 26 kW: **Part no. Z008 384**
 - 35 kW: **Part no. Z008 385**
- **Three-boiler system**
 - 19 to 35 kW: **Part no. Z008 386**
- **Four-boiler system**
 - 19 to 35 kW: **Part no. Z008 387**

Design information

6.1 Positioning, installation

Installation conditions for open flue operation (appliance type B)

(Type B₂₃ and B₃₃)

In rooms where **air contamination through halogenated hydrocarbons** can occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories, etc., install the Vitodens only as balanced flue system.

If in doubt, please contact us.

Wall mounted boilers should not be installed 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 blow-off line 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 loss directly related to any of these causes is excluded from our warranty.

- (A) Bei der Montage in Österreich sind die einschlägigen Sicherheitsbestimmungen der ÖVGW-TR Gas (G1), ÖNORM, ÖVGW, ÖVE und der landesrechtlichen Bestimmungen einzuhalten.

Multi-boiler systems with flue gas systems operating with positive or negative pressure

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

Installation room

Permissible:

- Boiler installation on the same floor
- Living space with interconnected room ventilation
- Adjacent rooms with interconnected room ventilation (larders, basement, utility rooms, etc.)

- Adjacent rooms with apertures 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 to DIN 18160 – 4 m above inlet (negative pressure operation).

Not permissible:

- Stair wells and common hallways; exception: Detached and two-family homes of low height (top edge of floor in the top storey < 7 m above ground level)
- Bathrooms and toilets without outside windows with duct ventilation
- Rooms where explosive or flammable materials are stored
- Rooms ventilated mechanically or via individual duct systems to DIN 18117-1.

Observe all local fire regulations.

Connection on the flue gas side

(for further details, see the technical guide "Flue gas systems for the Vitodens")

The connecting piece to the chimney should be as short as possible. Therefore position the Vitodens as closely to the chimney as possible.

No special protective measures or clearances towards combustible objects, e.g. furniture, cartons or similar, need to be taken/observed. The surface temperatures of the Vitodens and the flue system never exceeds 85 °C anywhere.

Extractors

When installing devices with extraction to the outside (cooker hoods, extractors, 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 were to operate simultaneously. In such cases, install an **interlocking circuit**.

Installation conditions for balanced flue operation (appliance type C)

The Vitodens can be installed as appliance type C_{13x}, C_{33x}, C_{43x}, C_{53x}, C_{63x} or C_{83x} to TRGI 2008, for **balanced** flue operation **independent** of the size and ventilation of the installation room.

Design information (cont.)

It may, for example, be installed in recreation rooms, in other living space, in ancillary rooms without ventilation, in cupboards (open at the top) and recesses without maintaining minimum clearances to combustible parts as well as in attic rooms (pitched attics and ancillary rooms) where the balanced flue pipe can be directly routed through the roof. Since the flue pipe connecting piece for balanced flue operation is surrounded by combustion air (coaxial pipe), no clearances towards combustible parts need to be maintained (for further details, see the technical guide "Flue gas systems for the Vitodens"). The installation location must be safe from the risk of frost. Provide a condensate drain and a blow-off line for the safety valve in the installation room.

Electrical interlocks for extractors (extractor hoods, etc.) are not required with balanced flue operation.

Installation in a garage

Tests carried out by the Gaswärme-Institut e.V., Essen, have confirmed that the Vitodens is suitable for installation in garages. When installing this boiler in garages, maintain a clearance between the floor and the burner of at least 500 mm. Protect the boiler on site with a bracket or deflector against mechanical damage.

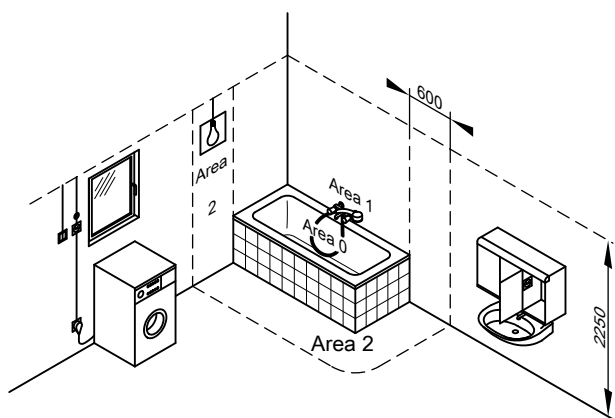
Operation of the Vitodens in wet areas

The Vitodens is approved for installation in wet areas (e.g. bath or shower rooms) (protection IP X4 D, splash-proof). When installing the Vitodens in wet areas, observe the safety zones and minimum wall clearances according to VDE 0100 [or local regulations] (see also "Electrical protection area"). The Vitodens may be installed in **safety zone 1**, if hosed water (e.g. through massage showers) is prevented.

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.

The VDE 0100 specifies that cables to supply permanently installed consumers in zones 1 and 2 will only be run vertically and fed into the equipment from the back.

Electrical safety zone



Electrical connection

Ensure the power supply complies with the requirements of your local power supply utility and current VDE [or local] regulations.

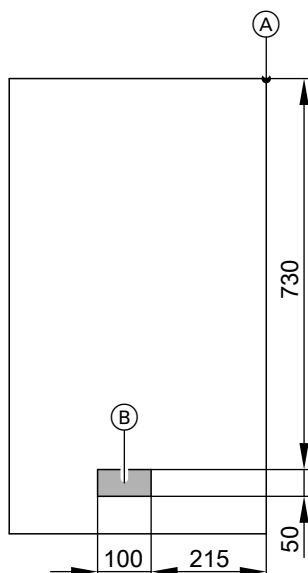
Protect the power cable with a fuse with a maximum rating of 16 A.

We recommend installing an AC/DC-sensitive RCD (RCD class B) for DC (fault) currents that can occur with energy-efficient equipment.

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

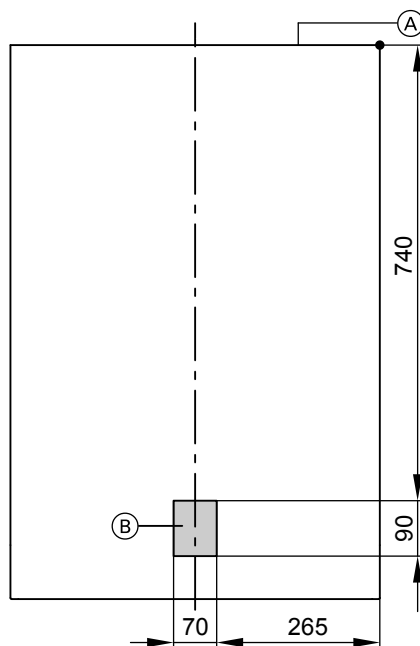
Allow cables/leads in the shaded area to protrude at least 800 mm from the wall (see diagram).

Design information (cont.)



Vitodens 200-W and 300-W

- (A) Reference point Vitodens top edge
- (B) Area for electrical supply cables



Vitodens 222-W

- (A) Reference point Vitodens top edge
- (B) Area for electrical supply cables

Recommended leads/cables

NYM 3 G 1.5 mm ²	2-core min. 0.75 mm ²	4-core 1.5 mm ² or 3-core 1.5 mm ² without green/ yellow core	NYM 3 X 1.5 mm ²
<ul style="list-style-type: none"> - Power cables (also for accessories) - DHW circulation pump 	<ul style="list-style-type: none"> - Extension AM1 or EA1 - Outside temperature sensor - Vitotronic 200-H (LON) - Extension kit for heating circuit with mixer (KM BUS) - Vitotrol 100, type UTDB (230 V) - Vitotrol 200A - Vitotrol 300A - Vitohome 300 - Radio clock receiver 	<ul style="list-style-type: none"> - Vitotrol 100, type UTDB-RF (230 V) 	<ul style="list-style-type: none"> - 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. For this, the internal extension H2 (accessories) can be used. This switches the extractors OFF when the burner is started.

Power supply of accessories

The power supply of accessories can be connected directly to the control unit. This connection is switched by the system ON/OFF switch. If the total system current exceeds 6 A, connect one or several extensions via a mains isolator directly to the mains supply. Where the boiler is installed in a wet area, the power supply connection of accessories must not be made at the control unit.

Additional requirements when installing boilers with LPG operation 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 installation of an external safety solenoid valve when installing the boiler in rooms below ground level. This requires the internal extension H1 (included in the standard delivery for the Vitodens 222-W and Vitodens 300-W).

Gas connection

Gas installations must only be carried out by an approved gas fitter [CORGI] who has been authorised by the relevant gas supply utility. Connect and size the mains gas according to TRGI 2008 or TRF 1996 [or local regulations].

- (A) Connect the mains gas according to ÖVGW-TR Gas (G1) and the regionally applicable Building Regulations. Max. test pressure 150 mbar. We recommend the installation of a gas filter compliant with DIN 3386 into the gas supply line.

Design information (cont.)

Thermally activated safety shut-off valve

According to paragraph 4, sect. 5 of the FeuVo '96 [Germany], thermally activated shut-off equipment, that isolates the gas supply if external temperatures exceed 100 °C, must be installed in gas combustion equipment or in gas supply lines. These valves must isolate the gas supply for at least 30 minutes up to a temperature of 650 °C. This should prevent the formation of explosive gas mixtures in the event of a fire.

The gas taps supplied with the Vitodens are equipped with integral thermally activated safety shut-off valves.

Gas supply line

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

90° bend results in a deduction from the max. possible pipe length of 1 m.

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

Rated heat input kW	Gas type	Connected load		Internal diameter of the gas supply line		
		m ³ /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	–
33.3	Natural gas E	3.52		4	21	68
	Natural gas LL	4.10		–	16	53
	LPG		2.60	23	100	–
36.5	Natural gas E	3.86		4	21	68
	Natural gas LL	4.49		–	16	53
	LPG		2.85	23	100	–

Sizing the gas flow limiter

Rated output - Vitodens kW	Gas flow limiter for natural gas
13 and 19	GS 4
26	GS 6
35	GS 10

Minimum clearances

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

Maintenance clearances to the l.h. or r.h. side of the Vitodens are **not** required.

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

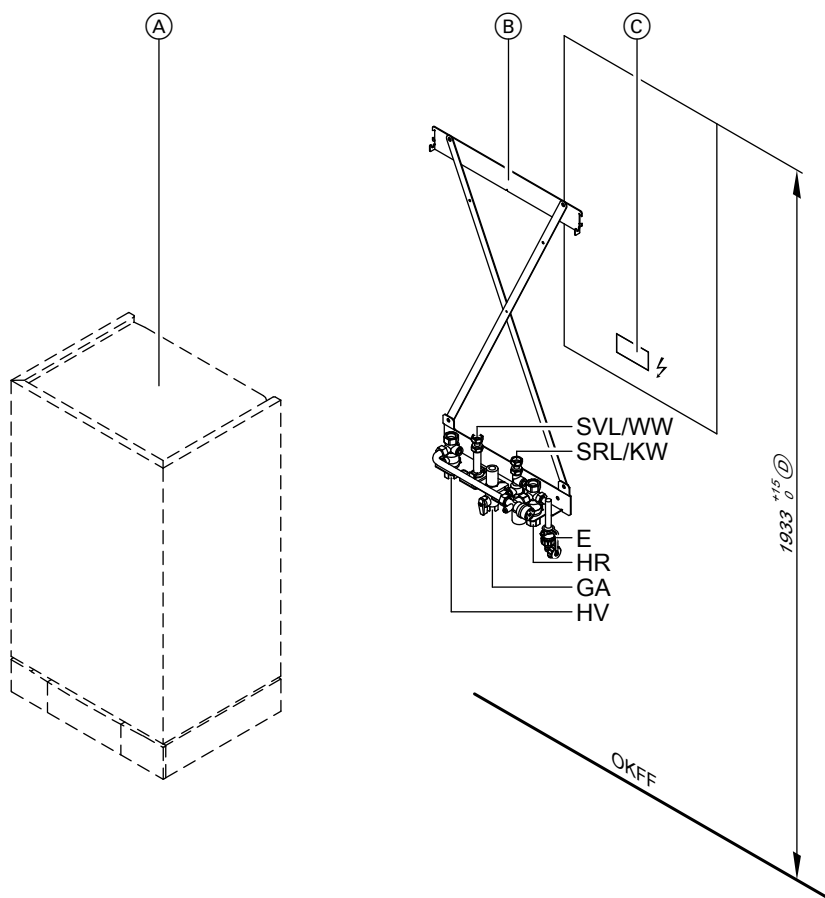
Accessories required for installation without DHW cylinder

Installation aid

With fixings, valves 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



- | | | | |
|-----|--|------|--------------------------------------|
| (A) | Vitodens | GA | Gas connection Rp 1/2 |
| (B) | Installation aid | HR | Heating return Rp 3/4 |
| (C) | Area for electrical supply cables.
Allow all cables/leads to protrude approx. 800 mm from the wall. | HV | Heating flow Rp 3/4 |
| (D) | Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only. | KW | Cold water Rp 1/2 (gas combi boiler) |
| (E) | Drain | OKFF | Top edge, finished floor |
| | | WW | DHW Rp 1/2 (gas combi boiler) |
| | | SRL | Cylinder return G 3/4 (gas boiler) |
| | | SVL | Cylinder flow G 3/4 (gas boiler) |

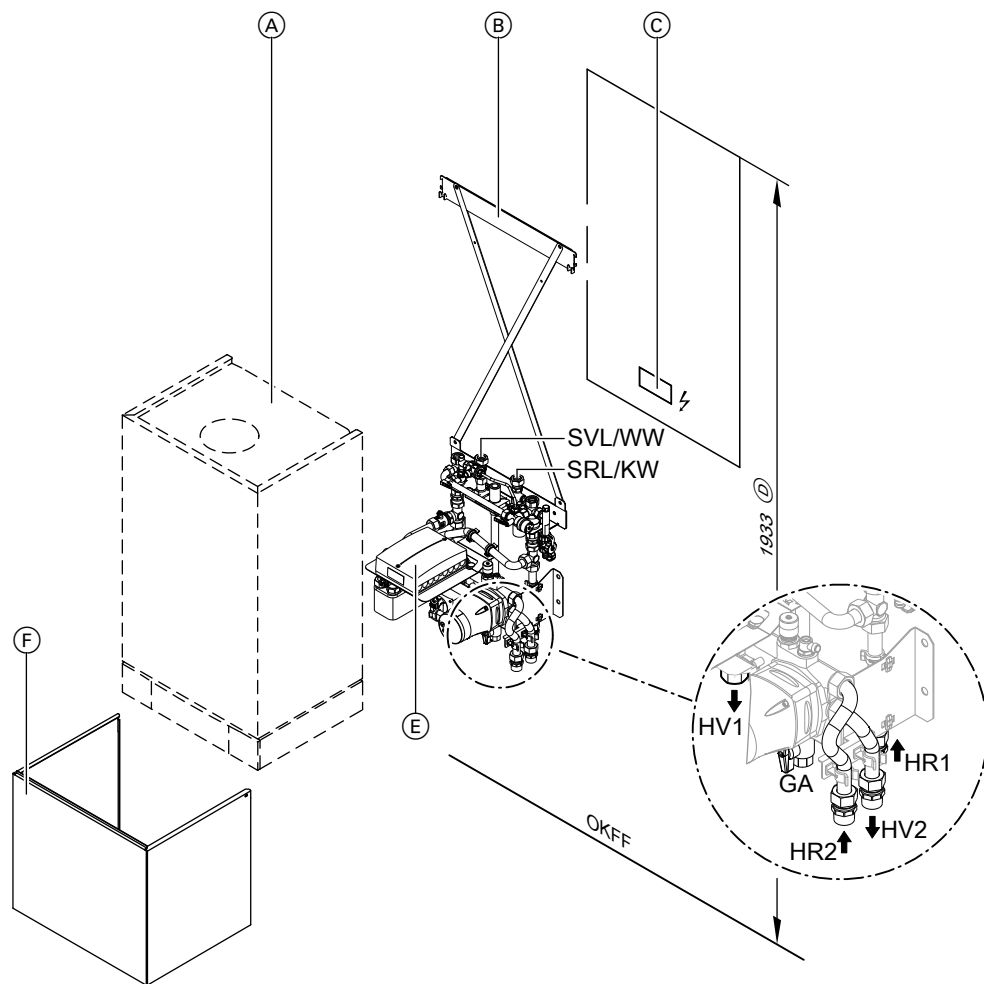
6 Pre-installation with the sub-mounting kit with mixer – installation on finished walls

Required accessories:

- Sub-mounting kit:
With a plate heat exchanger, circulation pump, three-way mixer, bypass, mixer electronics, flow temperature sensor, cover and installation template
- Installation aid:
With fixing components, valves and gas shut-off valve Rp 1/2 with integral thermally activated safety shut-off valve
- Connection set for DHW cylinders (if installed)
May **not** be used in conjunction with the DHW cylinder Vitocell 100-W, below.

For specification and accessories for the sub-mounting kit, see page 43.

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



- | | |
|--|--|
| <ul style="list-style-type: none"> Ⓐ Vitodens Ⓑ Installation aid Ⓒ Area for electrical supply cables.
Allow all cables/leads to protrude approx. 800 mm from the wall. Ⓓ Recommendation Ⓔ Sub-mounting kit Ⓕ Sub-mounting kit cover GA Gas connection R ½ | <ul style="list-style-type: none"> 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 KW Cold water G ½ (gas combi boiler) OKFF Top edge, finished floor WW DHW G ½ (gas combi boiler) SRL Cylinder return G ¾ (gas boiler) SVL Cylinder flow G ¾ (gas boiler) |
|--|--|

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

Installation aid

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

Additional requirements when connecting a DHW cylinder

Connection set for DHW cylinders.

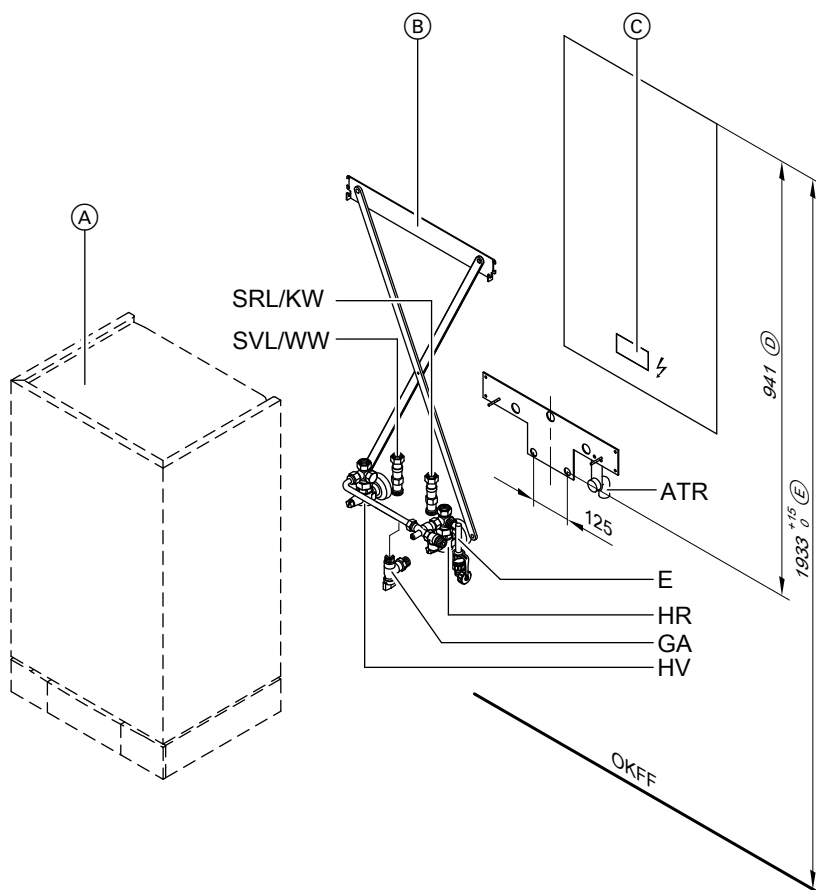


Illustration: Gas boiler connections

- | | | | |
|-----|--|------|-----------------------------------|
| (A) | Vitodens | E | Drain |
| (B) | Installation aid | GA | Gas connection R ½ |
| (C) | Area for electrical supply cables.
Allow all cables/leads to protrude approx. 800 mm from the wall. | HR | Heating return G ¾ |
| (D) | Cold water and DHW connections in conjunction with DHW cylinder installed below the boiler. | HV | Heating flow G ¾ |
| (E) | Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only. | KW | Cold water G ½ (gas combi boiler) |
| ATR | Drain outlet connection R 1 | OKFF | Top edge, finished floor |
| | | WW | DHW G ½ (gas combi boiler) |
| | | SRL | Cylinder return G ¾ (gas boiler) |
| | | SVL | Cylinder flow G ¾ (gas boiler) |

Pre-installation with mounting frame

Mounting frame with expansion vessel for the Vitodens 300-W (26 and 35 kW)

With diaphragm expansion vessel (rated capacity 18 litres), valves, fixings and gas angle valve G ¾ with thermally activated safety shut-off valve.

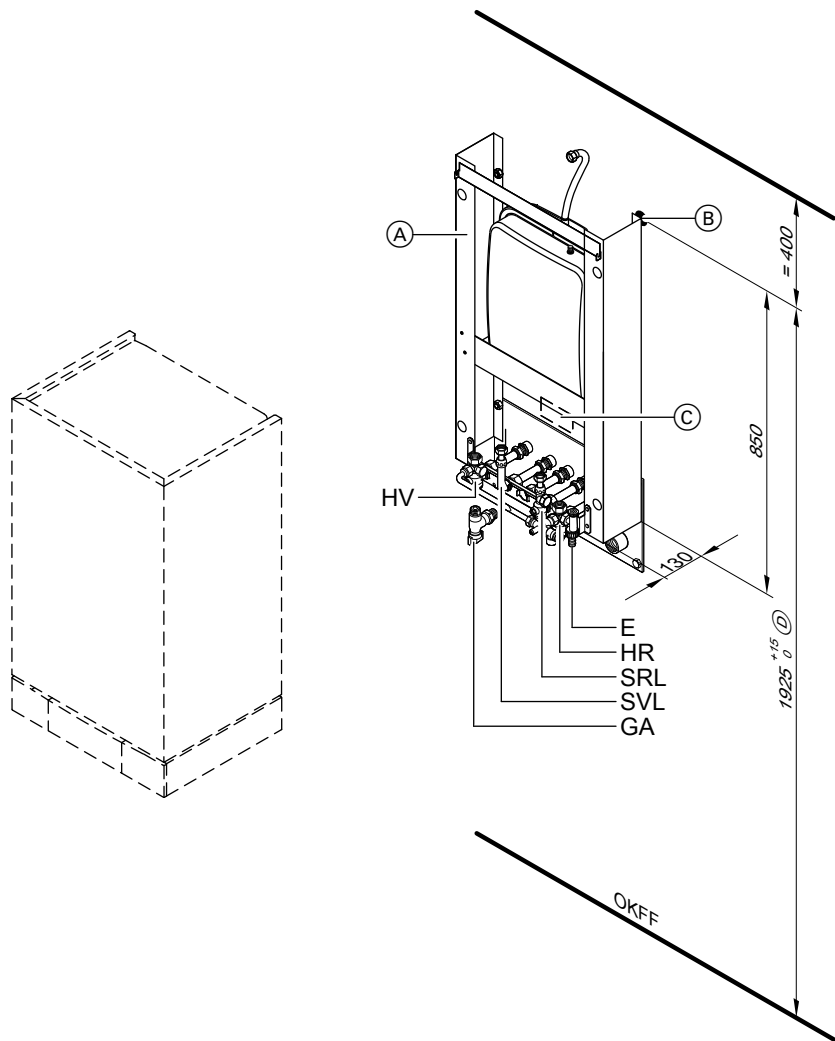
With valves with threaded fitting

- for installation on finished walls
- for installation on unfinished walls

All fittings are located inside the boiler casing.

Note

Minimum clearance between the mounting frame and the ceiling for the removal of the expansion vessel: 400 mm



- | | |
|--|---|
| <p>Ⓐ Mounting frame</p> <p>Ⓑ Reference point top edge Vitodens and mounting frame</p> <p>Ⓒ Area for electrical supply cables.
Allow all cables/leads to protrude approx. 800 mm from the wall.</p> <p>Ⓓ Compulsory in conjunction with DHW cylinders, below. Otherwise, recommendation only.</p> | <p>E Drain</p> <p>GA Gas connection G $\frac{3}{4}$</p> <p>HR Heating return G $\frac{3}{4}$</p> <p>HV Heating flow G $\frac{3}{4}$</p> <p>OKFF Top edge, finished floor</p> <p>SRL Cylinder return G $\frac{3}{4}$</p> <p>SVL Cylinder flow G $\frac{3}{4}$</p> |
|--|---|

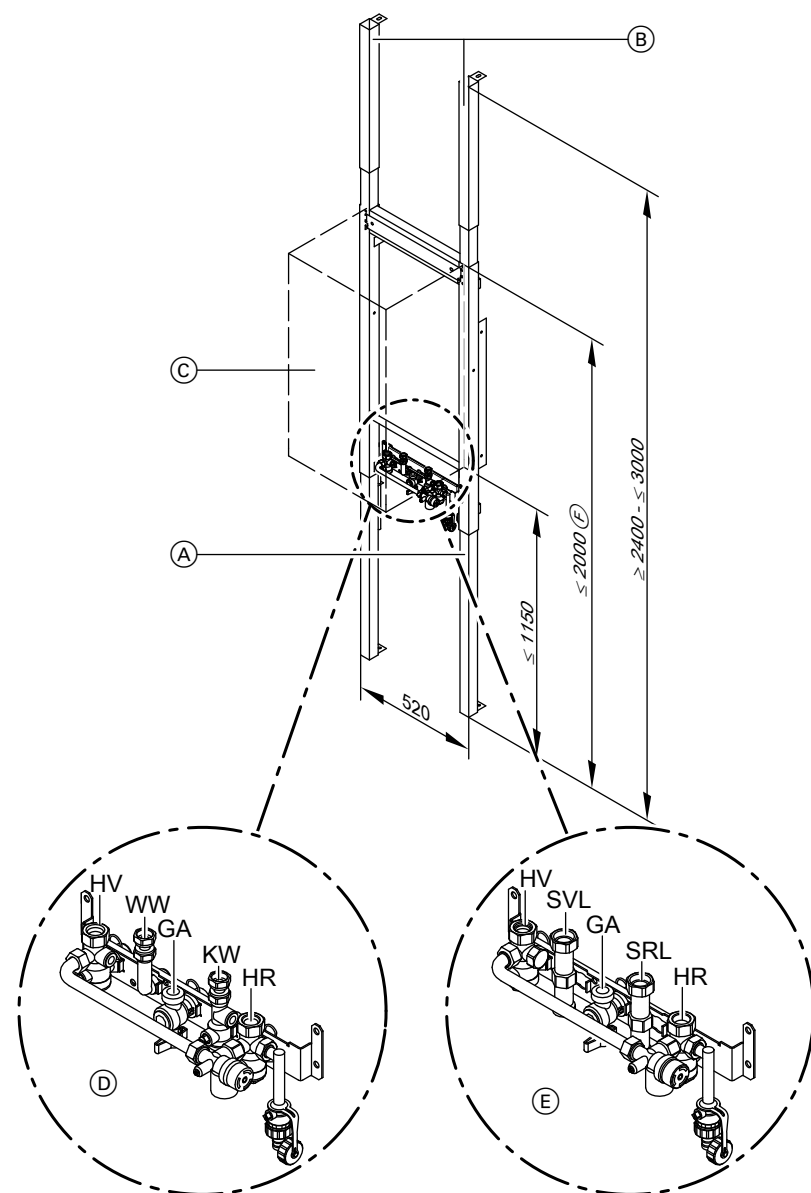
Self-supporting installation of the Vitodens 200-W and 300-W

Self-supporting mounting frame

Suitable for wall mounting, for self-supporting installation or covering.

With valves with threaded fitting and gas angle valve G $\frac{3}{4}$ with thermally activated safety shut-off valve.

- For gas combi boiler
- For gas boiler



6

- | | |
|--|--|
| <ul style="list-style-type: none"> (A) Self-supporting mounting frame for the Vitodens with connection panel (B) Ceiling fixing extension (Vitodens) (C) Vitodens (D) Gas combi boiler connection panel (E) Gas boiler connection panel (F) In conjunction with DHW cylinder, below at least 1933 mm | <ul style="list-style-type: none"> GA Gas connection R ½ HR Heating return G ¾ HV Heating flow G ¾ KW Cold water G ½ (gas combi boiler) WW DHW G ½ (gas combi boiler) SRL Cylinder return G ¾ (gas boiler) SVL Cylinder flow G ¾ (gas boiler) |
|--|--|

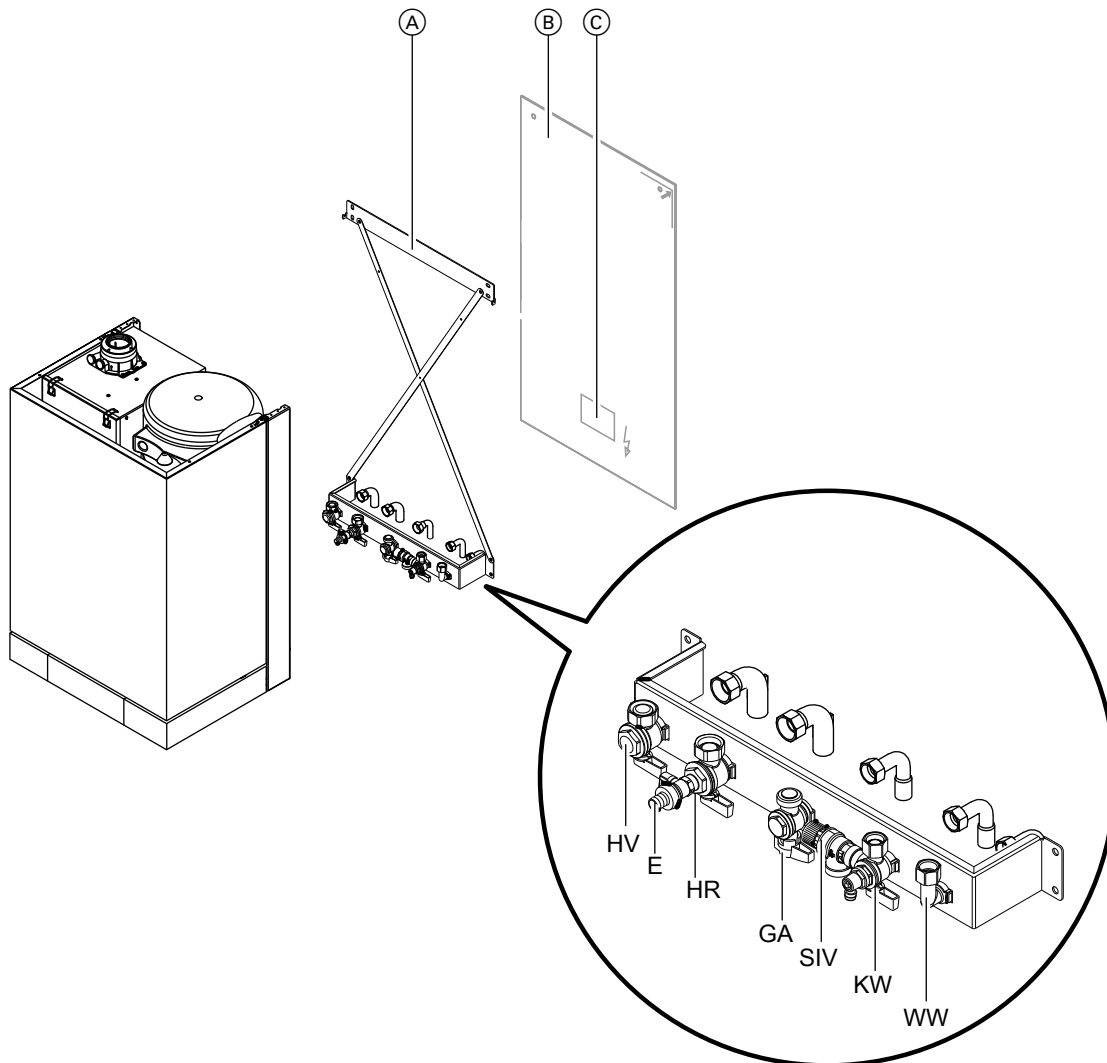
Pre-installation of the Vitodens 222-W

Pre-installation for finished walls

Accessories required for installation in unfinished buildings:
Installation aid, comprising:

Fixings, valves, gas shut-off valve, safety valve on the DHW side and pipe bends.

Design information (cont.)



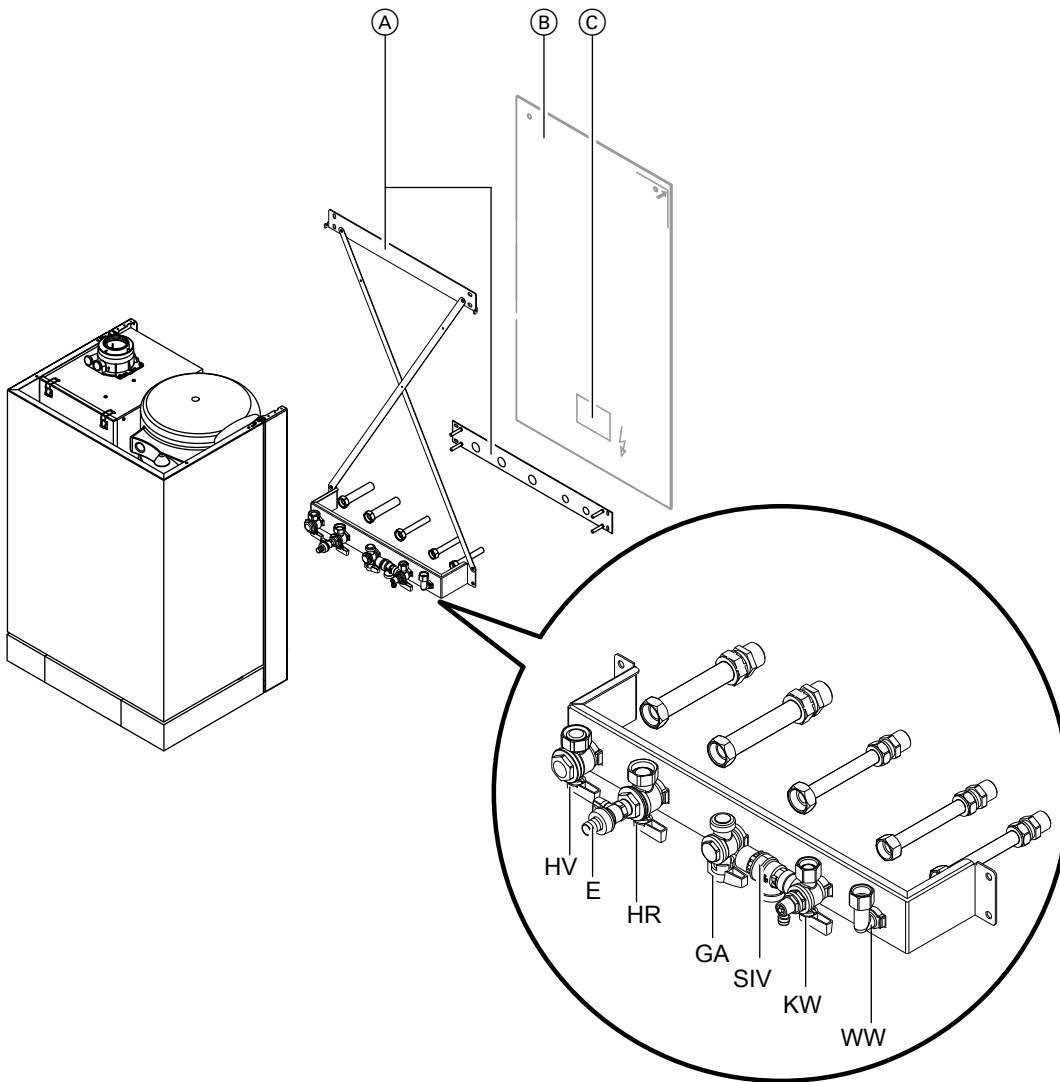
- Ⓐ Installation aid
- Ⓑ Vitodens position
- Ⓒ Area for electrical supply cables.
Allow all cables/leads to protrude approx. 1300 mm from the wall.
- E Drain

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

Pre-installation on unfinished walls

Accessories required for installation in unfinished buildings:
Installation aid, comprising:

Fixings, valves, gas shut-off valve, safety valve on the DHW side and connectors.



- (A) Installation aid
- (B) Vitodens position
- (C) Area for electrical supply cables.
Allow all cables/leads to protrude approx. 1300 mm from the wall.
- E Drain

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

6.2 Replacement of third party appliances with the Vitodens 200-W and 300-W

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

For modernisation, adaptors with connection components for the heating water and DHW sides and fixing components for the replacement of the following third party equipment with a Vitodens are available as accessories (see pricelist).

Replacing these devices with the Vitodens will not result in a greater installation effort than for the original equipment.

Generally, 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 for "flue gas systems for the Vitodens").

Match up the flue connections on site.

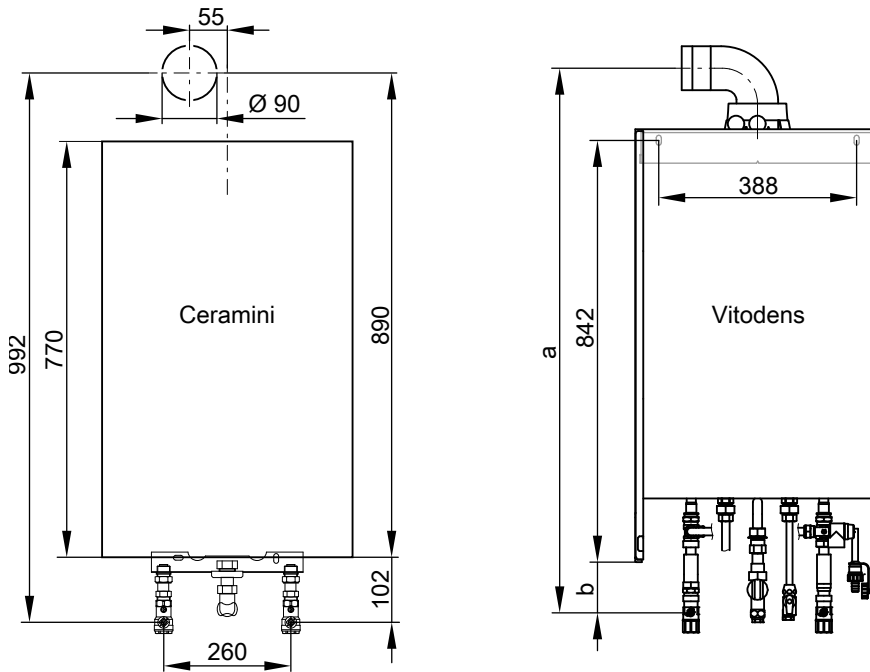
Note

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

Design information (cont.)

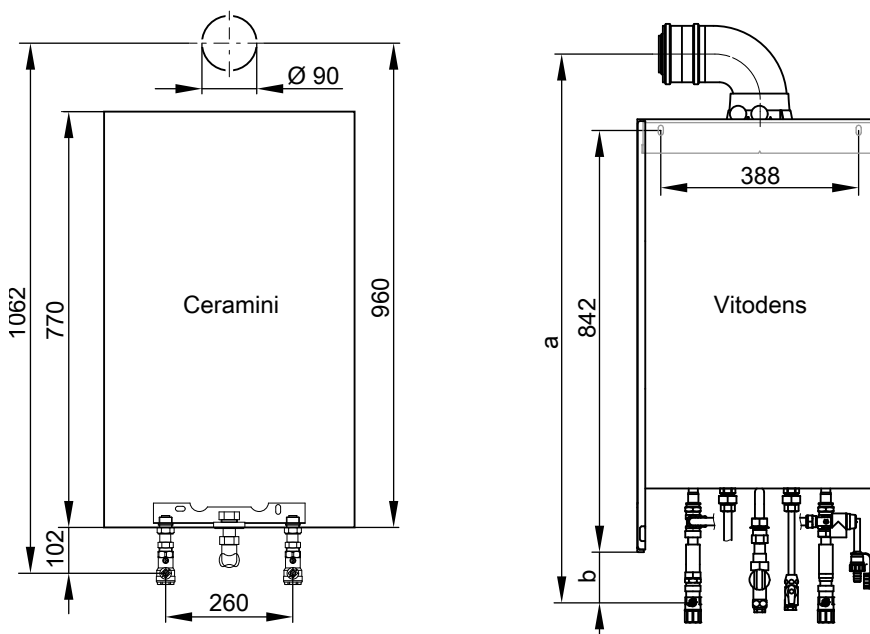
Replacing a Ceramini-Z-SR with a Vitodens 200-W (4.8-19 kW) or a Vitodens 300-W (3.8-19 kW)

Open flue operation



Dimensions	Unfinished walls	Finished walls
a mm	1098	1086
b mm	127	115

Balanced flue operation



Dimensions	Unfinished walls	Finished walls
a mm	1105	1093
b mm	127	115

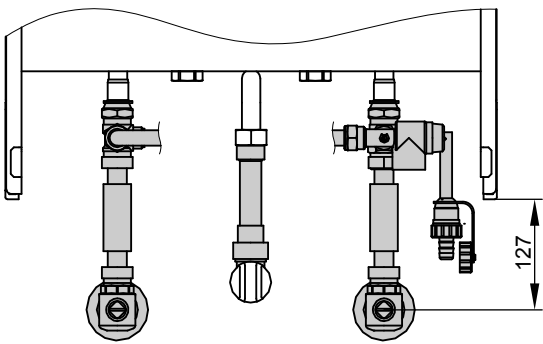
The parts marked in grey (incl. mounting rail) in the following diagrams are part of the standard delivery.

5822 430 GB

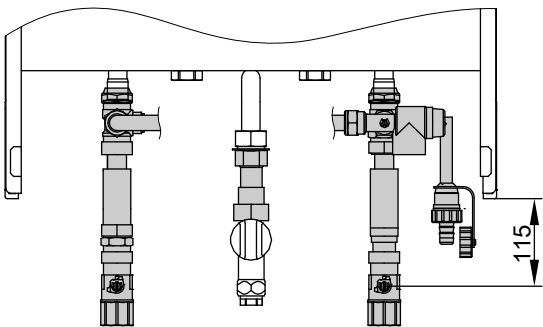
Existing hydraulic connections have identical dimensions.

Design information (cont.)

Installation on unfinished walls

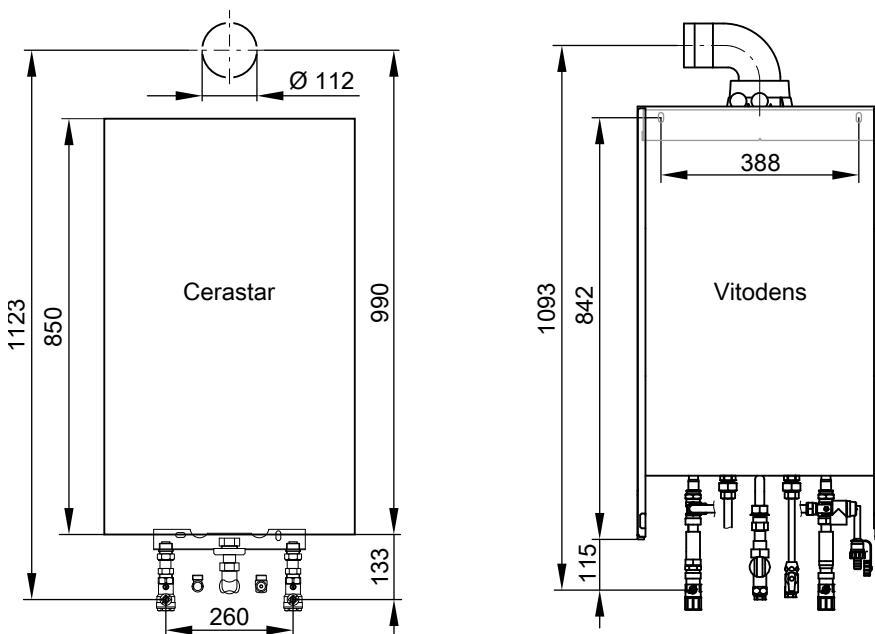


Installation on finished walls



Replacing a Cerastar-ZR/-ZWR with a Vitodens 200-W (6.5-35 kW) or a Vitodens 300-W (5.2-35 kW)

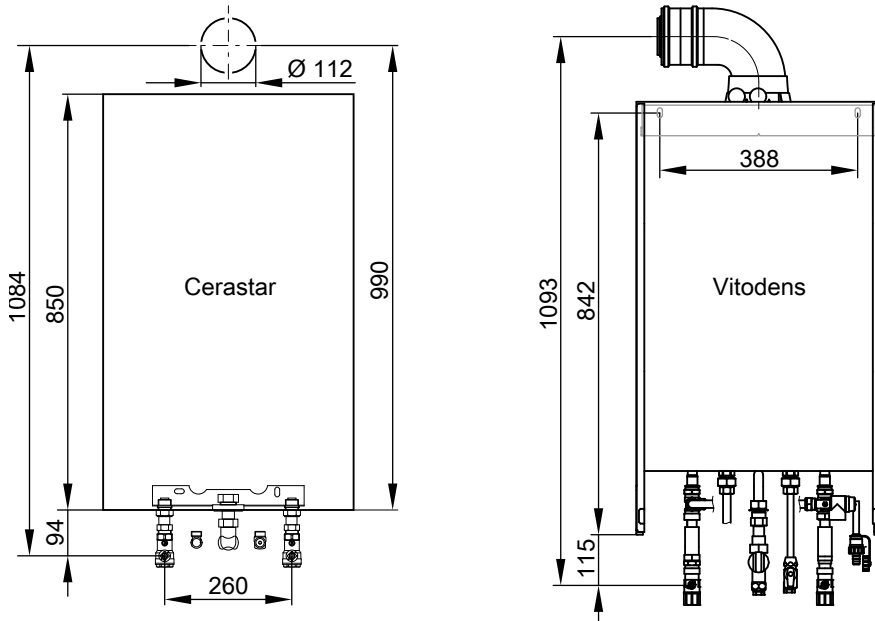
Open flue operation



6

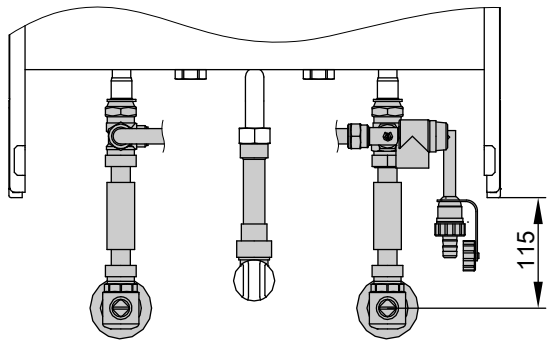
Design information (cont.)

Balanced flue operation

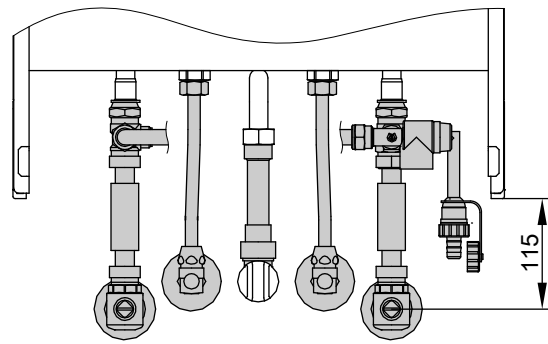


Existing hydraulic connections have identical dimensions. The parts marked in grey (incl. mounting rail) in the following diagrams are part of the standard delivery.

Installation on unfinished walls

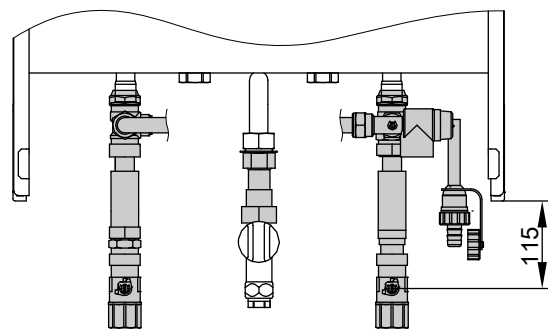


Gas boiler



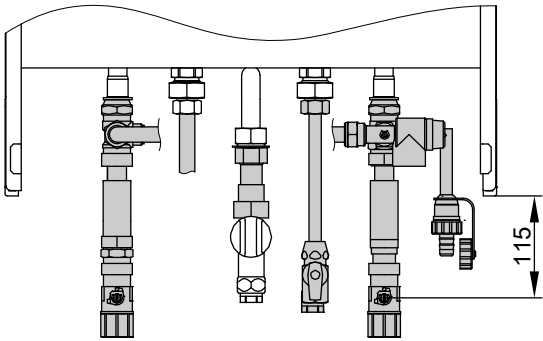
Gas combi boiler

Installation on finished walls



Gas boiler

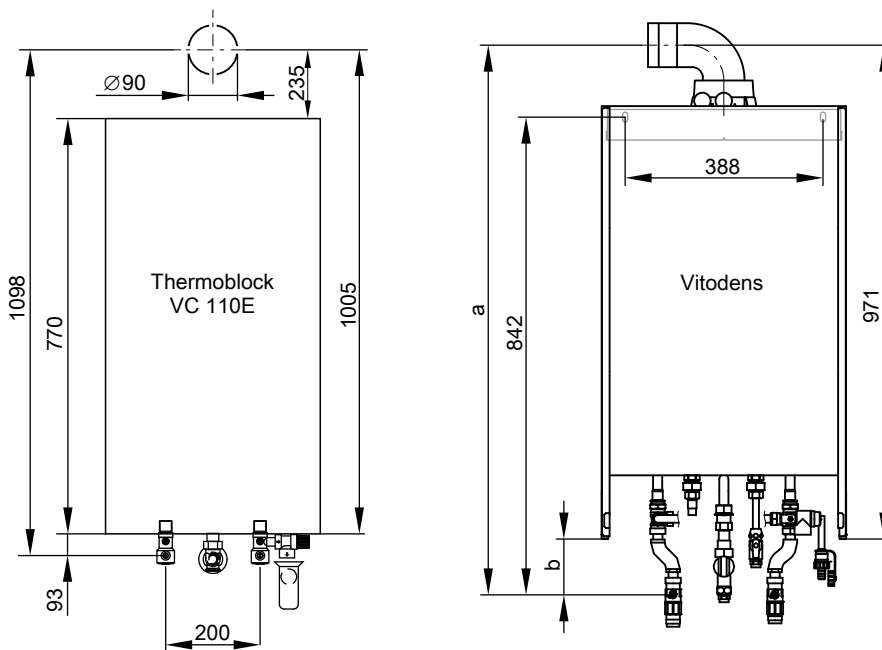
Design information (cont.)



Gas combi boiler

Replacing a Thermoblock-VC110E/-VC112E with a Vitodens 200-W (4.8-19 kW) or a Vitodens 300-W (3.8-19 kW)

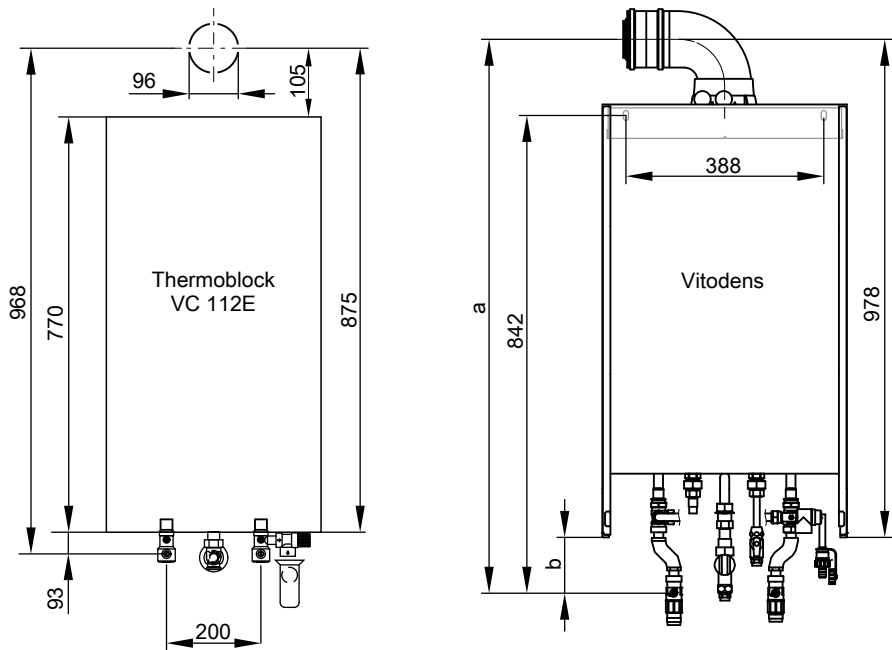
Open flue operation



Dimensions		Unfinished walls	Finished walls
a	mm	1037	1076
b	mm	66	105

Design information (cont.)

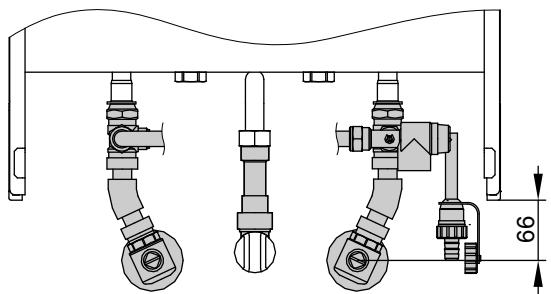
Balanced flue operation



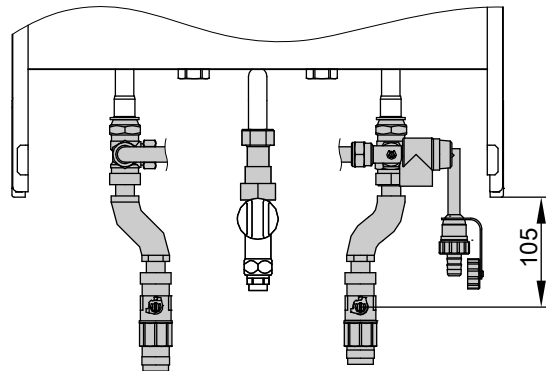
Dimensions		Unfinished walls	Finished walls
a	mm	1044	1083
b	mm	66	105

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

Installation on unfinished walls



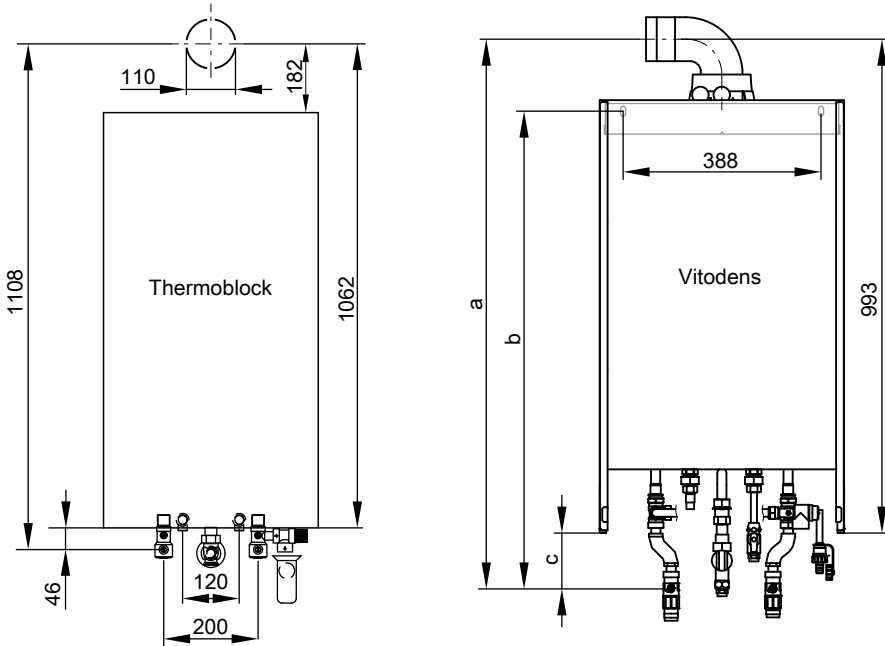
Installation on finished walls



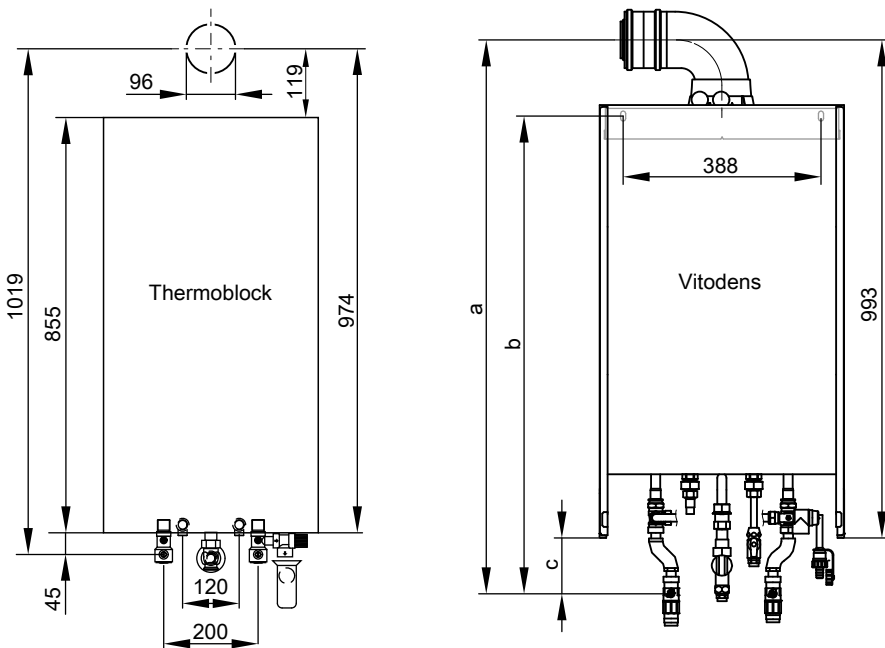
Design information (cont.)

Replacing a Thermoblock-VC/-VCW with a Vitodens 200-W (6.5-35 kW) or a Vitodens 300-W (5.2-35 kW)

Open flue operation



Balanced flue operation

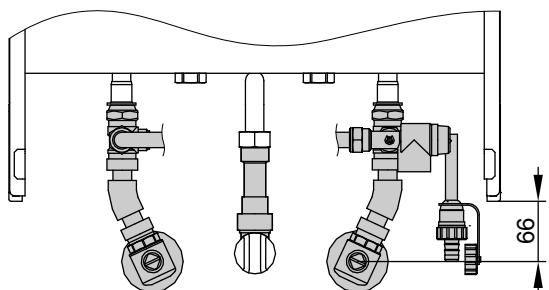


Dimensions	Unfinished walls	Finished walls
a mm	1059	1098
b mm	908	947
c mm	66	105

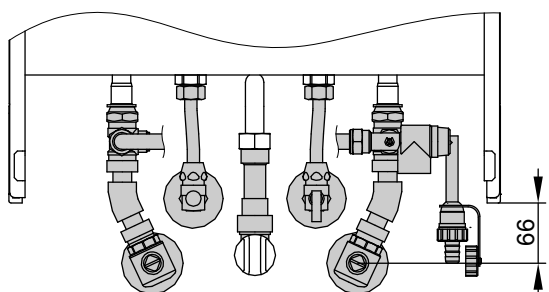
Existing hydraulic connections have identical dimensions.
The parts marked in grey (incl. mounting rail) in the following diagrams are part of the standard delivery.

Design information (cont.)

Installation on unfinished walls

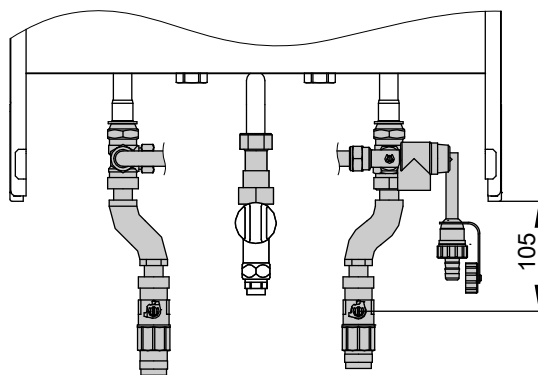


Gas boiler

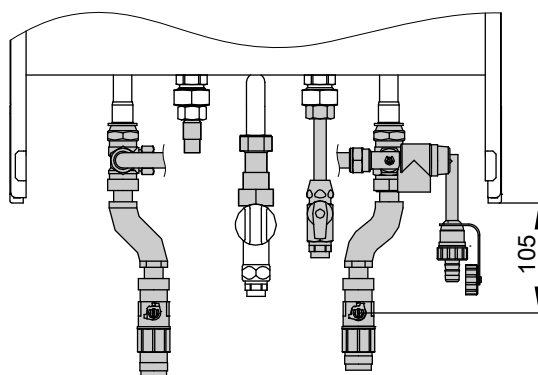


Gas combi boiler

Installation on finished walls



Gas boiler



Gas combi boiler

6.3 Decision-making aids regarding DHW heating

To provide the perfect solution for every case, the Vitodens may be supplied with integral, direct DHW heating (gas combi boiler), as a combination with separate DHW cylinders (gas boiler), or with an integral DHW primary store (Vitodens 222-W):

- Vitodens 200-W
as a gas boiler and gas combi boiler
- Vitodens 300-W
as gas boiler
- Vitodens 222-W
with integral DHW primary store

Various factors should be taken into consideration when designing heating systems and deciding between a gas combi boiler or a gas boiler with a separate DHW cylinder or an integral DHW primary store:

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

Information about water quality

During DHW heating, settling of lime on the surfaces of the plate heat exchanger cannot be totally prevented. The tendency towards lime-scale 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 generally scale deposits inside the plate heat exchanger are minor enough not to cause any reduction in DHW output, such impairment cannot be excluded with increasing 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 observe that frequently, regional water supply utilities specify an average water hardness. In practical applications, therefore, higher levels of water hardness may from time to time occur. This may make the use of a water treatment facility advisable even from 17 °dH (> 3.0 mol/m³) upwards.

Design information (cont.)

Selection table

		Vitodens 200-W gas combi boiler with instantaneous water heater	The Vitodens 200-W and Vitodens 300-W gas boiler with separate DHW cylinder	Vitodens 222-W with integral DHW primary store
DHW demand, convenience	DHW demand for one apartment	+	+	+
	DHW demand for a detached house	0	+	+
	DHW demand for a centralised system in an apartment building	-	+	-
	DHW demand for a decentralised system in an apartment building	+	+	0
Utilisation of the various connected draw-off points	One draw-off point	+	0	0
	Several draw-off points, no simultaneous utilisation	+	+	+
	Several draw-off points, simultaneous utilisation	-	+	+
Distance between draw-off point and boiler	Up to 7 m (without DHW circulation line)	+	+	+
	With DHW circulation line	-	+	-
Modernisation	Existing DHW cylinder	-	+	-
	Replacement of an existing combi boiler	+	-	0
Space requirement	Low space requirement (installation in a recess)	+	0	0
	Availability of sufficient space (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 even higher DHW convenience, separate DHW cylinders are also available in white in the following versions:

- Below (120 or 150 litres).
- Adjacent (160, 200, 300 or 400 litres).

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

The Vitodens 200-W and 300-W as boilers are intended (as ex factory version) for DHW heating with a separate DHW cylinder. For this purpose, the Vitodens 200-W and 300-W are equipped with an integral diverter valve.

To connect a DHW cylinder, always order the connection set for the respective DHW cylinder.

For specification of DHW cylinders, see chapter "DHW cylinder".

Sizing cylinders

Determine the DHW cylinder size in accordance with the specific DHW demand.

Various consumer combinations may apply.

If identical consumers are combined with each other, only the individual consumer will be considered and not the combination.

The following summary enables the **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 litre 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 and stepped bath	Large bath (1800 × 750 mm)	Shower cubicle with mixer tap and standard shower head	Shower cubicle with 1 shower head and 2 side nozzles	Washbasin	Bidet
Draw-off rate in Wh	5820	6510	4890	8720	1630	4070	700	810
Draw-off volume per use or available 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 and stepped 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

Design information (cont.)

	Bath 1600 to DIN 4471	Bath 1700 to DIN 4471	Small and stepped 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
Shower cubicle with mixer tap and standard shower head	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120
Shower cubicle with 1 shower head and 2 side nozzles	120	120	120		120	120	120	120
	150/160		150/160	200	120	120	120	120
Washbasin	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120
Bidet	120	120	120	120	120	120	120	120
	120	120	120	150/160	120	120	120	120

Example:

- Average household with 3 occupants.
- Use of a bath tub 1600 with 140 litres drawn.
- Simultaneous operation of a shower cubicle with mixer and standard head with 40 litres drawn.

The table shows that the correct DHW cylinder to DIN 4708 would have a capacity of 120 litres.

Selection tables, DHW cylinders

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

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

Rated output range [kW]	Practical cylinder allocation (cylinder capacity in litres)		
	3.8 to 19.0	5.2 to 26.0	7.0 to 35.0
Vitocell 100-W (type CUG), below	120 150	120 150	120 150
Vitocell 100-W (type CVA), adjacent	160 200 300	160 200 300	160 200 300
Vitocell 100-V (type CVA), adjacent	—	—	500
Vitocell 300-W (type EVA), adjacent	160 200	160 200	160 200
Vitocell 300-V (type EVI), adjacent	—	300 500	300 500
Vitocell 100-W (type CVB), adjacent, dual mode	300 400	300 400	300 400
Vitocell 100-W (type CVU), adjacent, dual mode	400	400	400
Vitocell 100-B (type CVB), adjacent, dual mode	—	500	500
Vitocell 300-B (type EVB), adjacent, dual mode	300	300 500	300 500
Vitocell 340-M (type SVK) heating water buffer cylinder with DHW heating	705/33	705/33	705/33
Vitocell 360-M (type SVS) 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 combi boiler

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

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

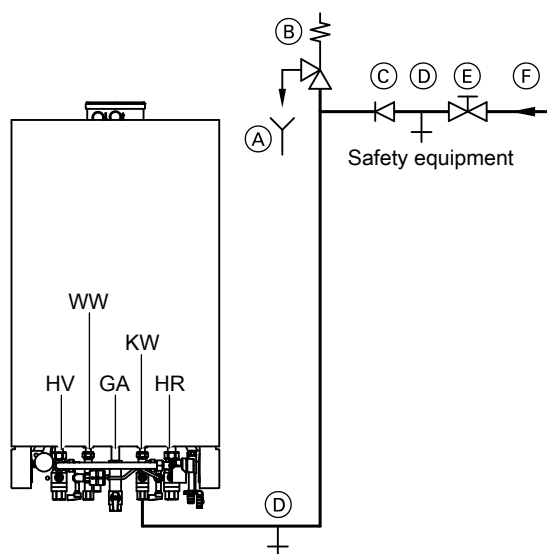
In existing installations (modernisation projects), the risk of electrolytic corrosion is low, since a protective layer will have formed on the inside of the pipes.

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

From a water hardness above 3.58 mmol/l and higher, we recommend the use of a water treatment system in the cold water supply.

Design information (cont.)

Cold water installation for the Vitodens 200-W gas combi boiler



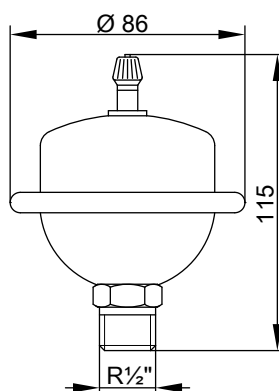
- (A) Visible drain pipe outlet
- (B) Safety valve
- (C) Non-return valve
- (D) Drain
- (E) Shut-off valve
- (F) Cold water
- GA Gas connection
- HR Heating return
- HV Heating flow
- KW Cold water
- WW Domestic hot water

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

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

Non-return valves may also be found in pressure reducers and combined free-flow valves with non-return valves.

Anti-water hammer device



We recommend the installation of an anti-water hammer device near pressure shock generators, if the pipework to which the Vitodens is connected comprises taps where water hammers may be created (e.g. pressure washers, washing or dishwashing machines).

Flexofit S made by Flamco-Flexcon

or

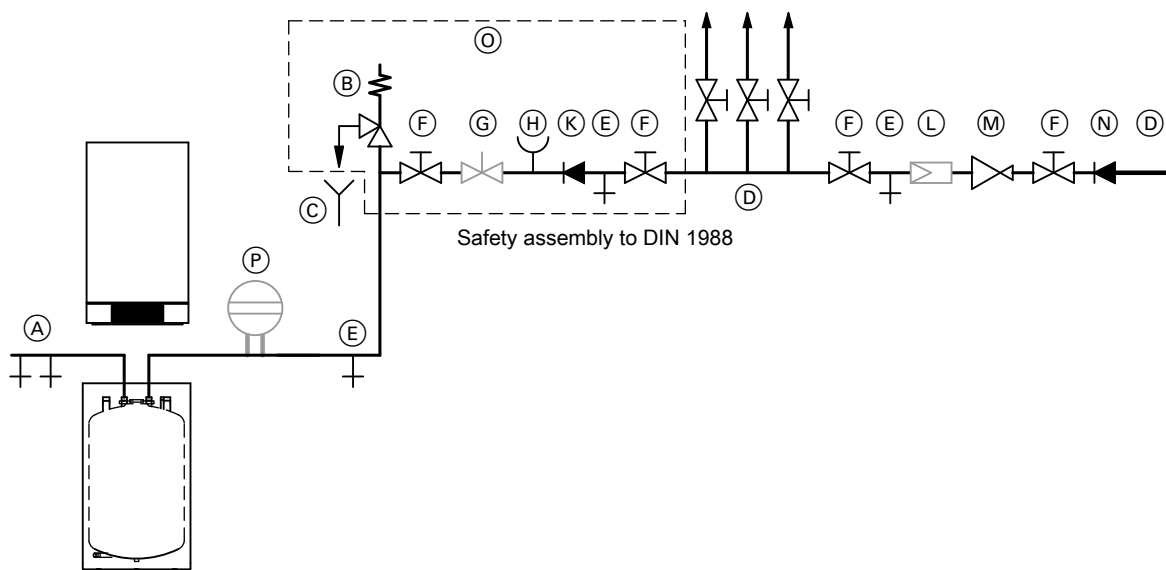
Reflex made by Winkelmann + Pannhoff GmbH
(available from your local dealer).

Design information (cont.)

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

Example:

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



- | | |
|---|--|
| Ⓐ Domestic hot water | Ⓗ Pressure gauge connector |
| Ⓑ Safety valve (included in the standard delivery of the installation aid for the Vitodens 222-W) | Ⓚ Non-return valve |
| Ⓒ Visible blow-off line outlet | Ⓛ Drinking water filter |
| Ⓓ Cold water | Ⓜ Pressure reducer to DIN 1988-2, issue Dec. 1988 |
| Ⓔ Drain | Ⓝ Non-return valve/pipe separator |
| Ⓕ Shut-off valve | Ⓞ Standard delivery of the safety assembly offered as an accessory (for separate DHW cylinders only) |
| Ⓖ Flow regulating valve (installation recommended) | Ⓟ Diaphragm expansion vessel, suitable for drinking 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. The DHW cylinder does not then 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, as per DIN 1988, to prevent contaminants entering the DHW system.

DHW circulation (only in conjunction with the Vitodens 200-W and 300-W)

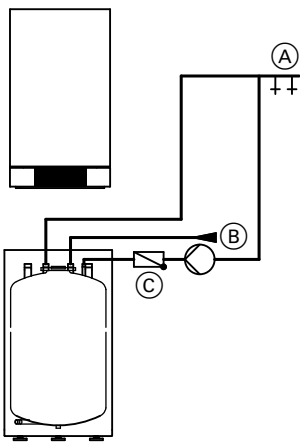
DHW circulation pipes increase DHW convenience and reduce water consumption. These advantages result from the immediate availability of hot water at the tap/draw-off point.

However, poor insulation of the DHW circulation line can lead to substantial heat losses.

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

Design information (cont.)

Vitodens 200-W and 300-W



DHW cylinder, below

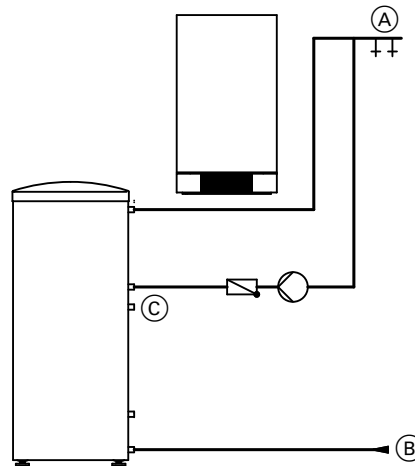
- (A) Domestic hot water
- (B) Cold water
- (C) DHW circulation

Vitodens 222-W

The connection of a DHW circulation line is not recommended.

DHW circulation for gas combi boilers

Due to the low water content of plate heat exchangers, the connection of DHW circulation lines **cannot be recommended** for gas combi boilers.



DHW cylinder, adjacent

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

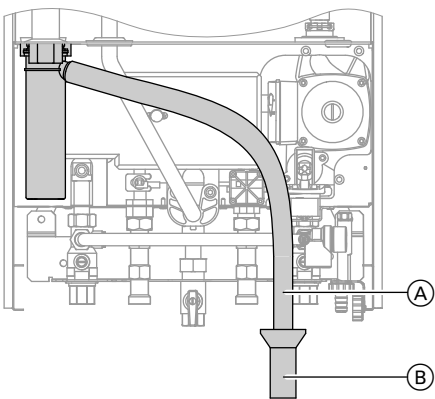
Even the low heat losses of thermally insulated DHW circulation lines (to EnEV) lead to a higher cycling frequency for the gas combi boiler (reheating).

6.5 Condensate connection

Route the condensate drain with a constant slope.

Route the condensate from the flue gas system (if equipped with a drain), together with the boiler condensate directly or (if installed) via a neutralising system to the public sewer.

Vitodens 200-W and 300-W

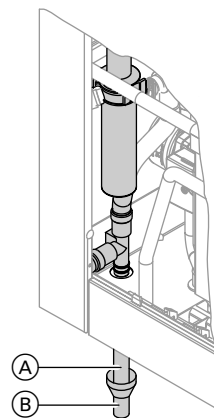


- (A) Drain hose (standard delivery for the Vitodens)
- (B) Drain outlet kit (accessories)

Note

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

Vitodens 222-W



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

Condensate drain and neutralisation

Drain the condensate created during the heating operation in the condensing boiler and in the flue pipe in accordance with appropriate regulations. During gas combustion, the condensate will have a pH between 4 and 5.

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

Design information (cont.)

The consistency of condensate drained from Vitodens condensing boilers meets the requirements specified in the Code of Practice ATV-DVWK-A 251.

The condensate drain to the sewer connection must be able to be inspected.

It must be installed with a continuous gradient and must contain a stench trap. Also provide a suitable facility for extracting samples. Condensate drains must only be made from corrosion-resistant materials (e.g. reinforced hoses).

Never use any galvanised materials or those containing copper for pipes, connectors, etc.

A siphon is installed in the condensate drain to prevent flue gases escaping.

Local waste water regulations and/or specific technical circumstances may specify designs that vary from those described in the above Codes of Practice.

It is advisable to contact your local authority responsible for waste water management prior to installation, to find out about local regulations.

Condensate from gas combustion equipment up to 200 kW combustion output

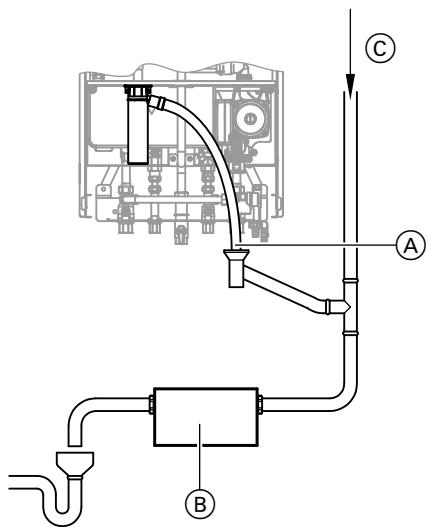
Up to a rated output of 200 kW, the condensate from a gas condensing boiler can generally be introduced into the public sewer system without prior neutralisation.

Also ensure that your domestic drainage system is made from materials that are resistant to acidic condensate.

According to the Code of Practice ATV DVWK 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) Venting via the roof

The Vitodens can (if required) be supplied with a separate neutralising system (accessories). Any condensate is piped to and treated in the neutralising system.

The condensate drain to the sewer connection must be able to be inspected. It must be installed with a slope and stench trap on the sewer side, and must provide a suitable facility for extracting samples.

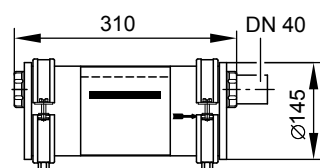
Install a condensate lifting pump if the Vitodens has been installed below the waste water antiflooding level.

Condensate lift pumps are available as accessories.

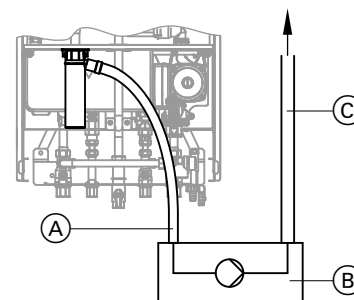
Since the consumption of neutralisation granulate depends on the operating mode of the system, determine the required top-up amount during the first year of operation by regular checks. It is feasible that one fill may last longer than 12 months.

Neutralising system

Part no. 7252 666



Condensate lifting system (accessory)



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

6.6 Hydraulic connection

General

System design

Viessmann condensing boilers can generally be installed in any pumped hot water heating system (sealed system).

The circulation pump is an integral part of the appliance.

Minimum system pressure 1.0 bar.

The boiler water temperature is limited to 82 °C.

To minimise distribution losses, we recommend that you size the heat distribution system to a max. flow temperature of 70 °C.

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

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 Vitodens 300-W with 3.8 to 13 kW.

Chemical anti-corrosion agents

Corrosion is generally avoided in correctly installed and operated sealed heating systems.

Never use chemical anti-corrosion agents.

Some manufacturers of plastic pipes recommend the use of chemical additives. In such cases, only use anti-corrosion agents 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 to DIN 4726 that are permeable to oxygen. We supply a separate heat exchanger for this.

Install a sludge separator in underfloor heating systems; see the Viessmann Vitoset pricelist.

Connect underfloor heating systems with very large water content (>15 l/kW), even with condensing boilers, to heating circuits via a 3-way mixer; see technical guide "Control of underfloor heating systems" or the relevant sample applications.

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

Plastic pipework for radiators

We also recommend the installation of a temperature limiter to restrict the maximum temperature of plastic pipes in heating circuits with radiators.

Attic heating centre

The installation of a low water indicator specified as compulsory by DVGW is not required when installing the Vitodens in an attic.

Expansion vessels

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

- An expansion vessel is integrated into the following Vitodens boilers:
 - Vitodens 200-W up to 35 kW
 - Vitodens 222-W
 - Vitodens 300-W, 13 and 19 kW
- A mounting frame with expansion vessel and valves is available as an accessory for the Vitodens 300-W, 26 and 35 kW (see page 45). The size of the expansion vessel is subject to the heating system specification and should be checked in each case (see page 75).

The Vitodens condensing boilers are protected against low water levels in accordance with EN 12828.

Safety valve

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

Route the blow-off line 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 level indicator can be omitted for boilers up to 300 kW, as long as heating can be reliably prevented when the water level is too low.

Viessmann Vitodens 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 reach 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.

Regarding the quality and volume of heating water, incl. fill and top-up water, observe the VDI 2035.

- Thoroughly flush the entire heating system prior to filling it with water.
- Only use fill water of potable quality.
- Soften fill water with a hardness above 3.0 mol/m³, e.g. with the small softening system for heating water (see the Viessmann Vitoset pricelist).
- An antifreeze additive suitable for heating systems can be mixed with the fill water. The antifreeze manufacturer must verify its suitability, since otherwise damage to gaskets and diaphragms can occur as well as noise during heating operation. Viessmann accepts no liability for damage or consequential damage as a result.
- For commissioning or systems with a volume that is in excess of 20 litres/kW, observe VDI 2035.

Modernising existing systems

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

This enables existing hydraulic connections of wall mounted boilers type Thermobloc-VC/-VCW, Cerastar-ZR/-ZWR and Ceramini to be adapted to suit the Vitodens (see page 60).

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.

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

Design information (cont.)

Testing the integral expansion vessel or the expansion vessel fitted to the mounting frame

Expansion vessel integrated into the Vitodens 200-W, Vitodens 222-W and Vitodens 300-W, 13 and 19 kW

Pre-charge pressure	0.75 bar
Blow-off pressure	2.5 bar
Capacity	10 l

Mounting frame with expansion vessel (accessory for the Vitodens 300-W, 26 and 35 kW)

Pre-charge pressure	0.75 bar
Blow-off pressure	2.5 bar
Capacity	18 l

When making the hydraulic connections, check that the size of the expansion vessel matches the system conditions. The following steps will enable you to make a rough check.

V_{DEV}	= $f \cdot ((V_A + V_K) A_f + 2.4)$
V_{DEV}	= Volume of the expansion vessel
f	= Expansion factor (= 2 for expansion vessel)
V_A	= System volume
V_K	= Boiler water volume
A_f	= Heating water expansion factor

Example:

System:

- Vitodens 200-W
- Boiler water volume 2.4 litres
- Rated output 26 kW
- Panel radiators
- System volume approx. 130 litres
- Heating system 70/50 °C

Calculation:

Heating system 70/50 °C: average water temperature approx. 60 °C

$A_f = 0.0171$

$V_{DEV} = 2 \cdot ((130 + 2.4) \cdot 0.0171 + 2.4)$

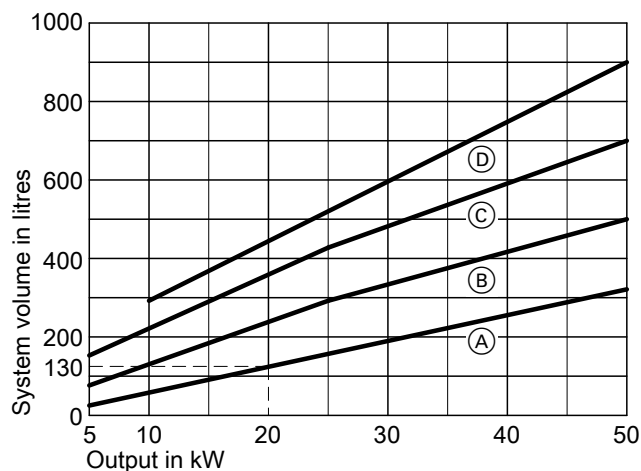
$V_{DEV} = 9.32$ litres

Result: The integral expansion vessel (10 litre capacity) is sufficiently large for this system.

Note

If the integral expansion vessel or the expansion vessel in the mounting frame is inadequate, connect an appropriately sized expansion vessel to the expansion vessel connector on the Vitodens.

Calculating the heating system volume (approximate values)



- (A) Convector heaters
- (B) Panel radiators
- (C) Radiators
- (D) Underfloor heating

Calculating the expansion factor A_f

Average water temp. [°C]	Expansion factor A_f
50	0.0121
60	0.0171
70	0.0228

Low loss header

Application

Design rules for system hydraulics:

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

The low loss header separates the heat source (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 designs in conjunction with low loss headers, see "System examples".

Boiler circuit

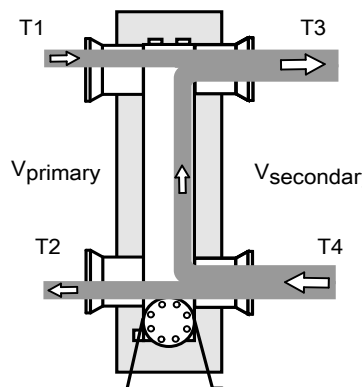
The circulation pump in the Vitodens must be able to supply the required water volume against the (mostly low) pressure drop of the boiler circuit; the pressure drop of the low loss header is negligible.

Subject to the water volume circulating in the boiler circuit, the respective residual head may be determined for sizing the internal pipe diameters using the pump diagrams; alternatively the variable speed pump for the Vitodens 300-W can be adjusted accordingly.

Heating circuit

The central heating pumps to be installed on site must be able to deliver the water volume in the heating circuits against their pressure drop; size the pumps accordingly.

Principle of operation



Design information (cont.)

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

V_{primary}	< $V_{\text{secondary}}$
T_1	> T_3
T_2	≈ T_4
Q_{primary}	= $Q_{\text{secondary}}$

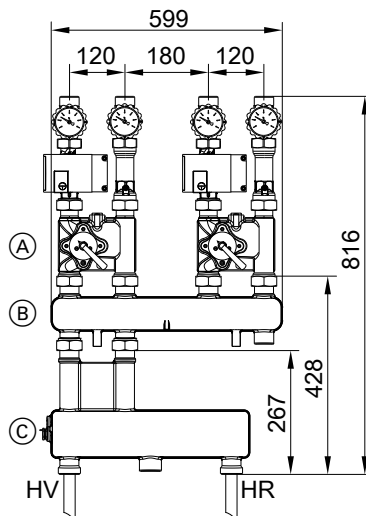
Note

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

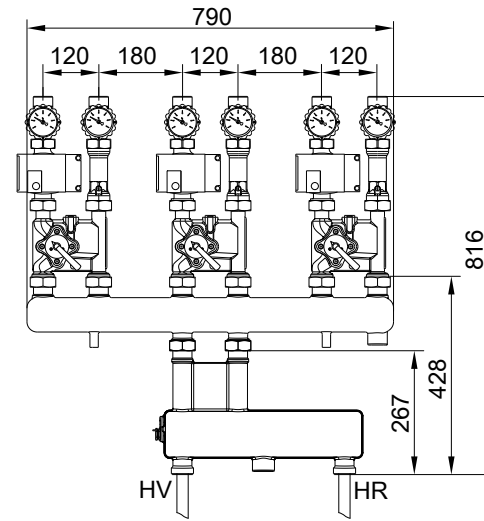
Low loss header in conjunction with Divicon

For further details, see the technical guide to the Vitodens 200-W, 45 to 105 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



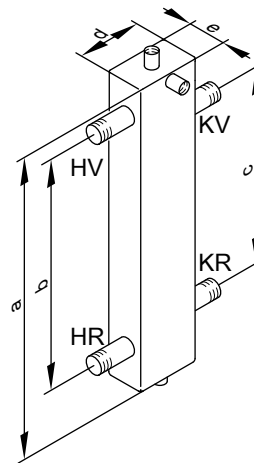
HR Heating return
HV Heating flow



HR Heating return
HV Heating flow

Low loss header from the Vitoset range

See "Vitoset" pricelist



HR Heating return
HV Heating flow
KR Boiler return
KV Boiler flow

Flow rate max.	m ³ /h	4	4	8	10	18
Connections						
- Female thread	Rp	1				
- Male thread	R		1¼	2		
- Flange	DN				65	80
Dimensions						
a	mm	500	500	800	1400	1450
b	mm	360	360	650	1000	1000
c	mm	270	270	550	1000	1000
d	mm	80	80	120	160	200
e	mm	50	50	80	80	120

Control units

7.1 Vitotronic 100, type HC1A, for constant temperature operation

Structure and functions

Modular design

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 display
- Reset button
- Fuses



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
- User prompts through pictograms
- Control keys for:
 - Navigation
 - Confirmation
 - Adjustments/menu
- Setting the:
 - Boiler water temperature
 - DHW temperature
 - Heating program
 - Codes
 - Actuator tests
 - Test mode
- Displaying:
 - Boiler water temperature
 - DHW temperature
 - Information
 - Operating details
 - 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

Heating program "☀"

The burner starts only when the cylinder needs reheating or when DHW is drawn from a 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

- during operation 0 to +130 °C
- during storage and transport -20 to +70 °C

Cylinder temperature sensor

Standard delivery for:

- Connection set for DHW cylinders, below (120 or 150 litres) (order separately)
- Connection set for DHW cylinders, adjacent (160 to 400 litres) 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 cylinder.

Specification

IP rating IP 32
Sensor type Viessmann NTC 10 kΩ at 25 °C



Control units (cont.)

Permissible ambient temperature	
– during operation	0 to +90 °C
– during storage and transport	–20 to +70 °C

Specification Vitotronic 100, type HC1A

Rated voltage	230 V~	Electronic temperature limiter setting (heating mode)	82 °C (change not possible)
Rated frequency	50 Hz	Setting range for the DHW temperature	
Rated current	6 A	– Gas combi boilers	10 to 57 °C
Protection class	I	– Gas boilers	10 to 68 °C
Function	Type 1 B to EN 60730-1	– Vitodens 222-W	10 to 63 °C
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		

7.2 Vitotronic 200, type HO1A, for weather-compensated operation

Structure and functions

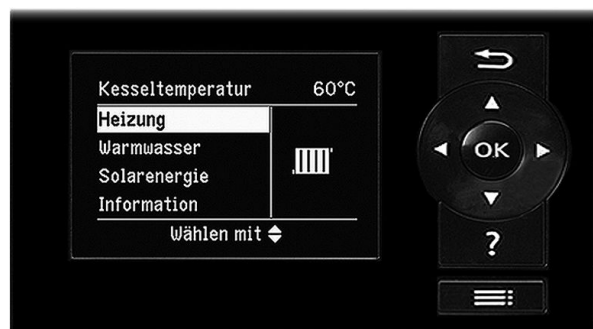
Modular structure

The control unit is integrated into the boiler.

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

Standard unit:

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



Programming unit:

- Easy operation through:
 - Plain text display with graphic ability
 - Large font and black/white depiction for good contrast
 - Context-sensitive help
 - Removable programming unit; can be mounted as option on the wall with separate accessory
- With digital time switch
- Control keys for:
 - Navigation
 - Confirmation
 - Help
 - Extended menu

- Setting the:
 - Room temperature
 - Reduced room temperature
 - DHW temperature
 - Heating program
 - Time programs for central heating, DHW heating and DHW circulation
 - Economy mode
 - Party mode
 - Holiday program
 - Heating curves
 - Codes
 - Actuator tests
 - Test mode
- Displaying:
 - Boiler water temperature
 - DHW temperature
 - Information
 - Operating details
 - Diagnostic details
 - Fault messages

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 off control
- Adjustment of a variable heating limit
- Anti-seizing pump protection
- Heating system frost protection
- Integral diagnostic system
- Maintenance display
- Cylinder thermostat with priority
- Control of solar DHW heating and central heating backup in conjunction with the solar control module, type SM1
- Display of the solar energy yield
- Auxiliary function for DHW heating (short-term heating to a higher temperature)
- Screed drying program
- External starting and blocking (in conjunction with extension EA1)

The requirements of DIN EN 12831 for the heating load calculation are met. To reduce the heat-up load, the reduced room temperature will be raised in case of low outside temperatures. The flow temperature will be raised for a limited time to reduce the heat-up time after a set-back period.

Control units (cont.)

According to the Energy Savings Order [Germany], the temperature in each room must be individually controlled, e.g. through thermostatic radiator valves.

Control characteristics

PI characteristics with modulating output.

Time switch

- Individual and 7-day program
- Automatic summer/winter time 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 backup: 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

Heating program "☀"

The burner starts only when the cylinder needs reheating or when DHW is drawn from a 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).

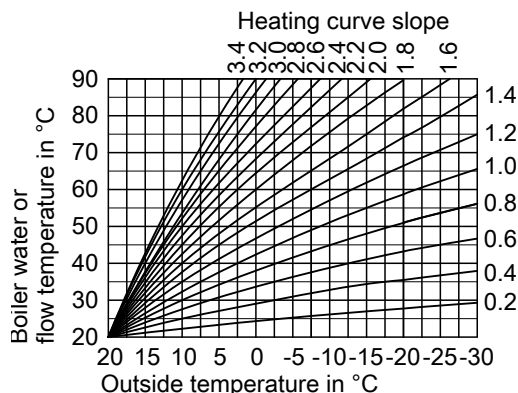
The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.

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 a 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	
– during operation	0 to +130 °C
– during storage and transport	-20 to +70 °C

Cylinder temperature sensor (Vitodens 200-W and 300-W)

Standard delivery for:

- Connection set for DHW cylinders, below (120 or 150 litre) (order separately)
- Connection set for DHW cylinders, adjacent, (160 to 400 litres) 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 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

Outside temperature sensor

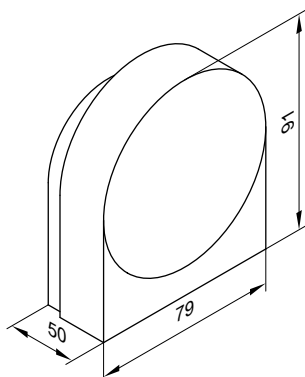
Installation location:

- North or north-western 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 appropriate design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature during operation, storage and transport	-40 to +70 °C

Specification Vitotronic 200, type HO1A

Rated voltage	230 V~	Setting range for the DHW temperature	
Rated frequency	50 Hz	– Gas combi boilers	10 to 57 °C
Rated current	6 A	– Gas boilers	10 to 68 °C
Protection class	I	– Vitodens 222-W	10 to 63 °C
Permissible ambient temperature		Heating curve setting range	
– during operation	0 to +40 °C	Slope	0.2 to 3.5
	Installation in living spaces or boiler rooms (standard ambient conditions)	Level	-13 to 40 K
– during storage and transport	-20 to +65 °C		
Electronic temperature limiter setting (heating mode)	82 °C (change not possible)		

7.3 Vitotronic accessories

Allocation to control unit types

Vitotronic Type	100 HC1A	200 HO1A
Accessories		
Vitotrol 100, type UTA	x	
Vitotrol 100, type UTDB	x	
External extension H4	x	
Vitotrol 100, type UTDB-RF	x	
Vitotrol 200A		x
Vitotrol 300A		x
Room temperature sensor		x
Mounting base for programming unit	x	x
Radio clock receiver		x
Vitocom 100	x	x
Extension kit for one heating circuit with mixer with integral mixer motor		x
Extension kit for one heating circuit with mixer with separate mixer motor		x
Immersion thermostat for underfloor heating systems		x
Contact thermostat for underfloor heating systems		x
Solar control module SM1	x	x
Temperature sensor for solar control module SM1	x	x
LON communication module		x
LON cable		x
LON coupling		x
LON plug-in connector		x
LON socket		x
Terminator		x
KM BUS distributor		x
Immersion temperature sensor		x
Internal extension H1	x	x
Internal extension H2	x	x

Control units (cont.)

Vitotronic	100	200
Type	HC1A	HO1A
Accessories		
Extension AM1	x	x
Extension EA1	x	x

Vitotrol 100, type UTA

Part no. 7170 149

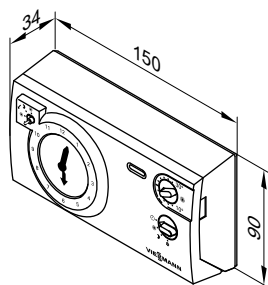
Room thermostat

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

Install the Vitotrol 100 in the main living room on an internal wall opposite radiators, but not inside shelf units, recesses, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).

Control unit connection:

3-core cable with a cross-section of 1.5 mm² (without green/yellow) for 230 V~.



Specification

Rated voltage	230 V/50 Hz
Rated breaking capacity of the contact	6(1) A 250 V~
Protection	IP 20 to EN 60529 safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +60 °C
Set value range for standard 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

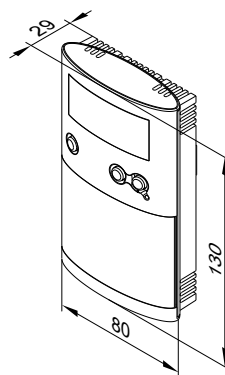
- With switching output (two-point output)
- With digital time switch
- With individual and seven-day programs
- Programming unit with user prompts:
 - 3 preselected time programs, individually adjustable
 - Constant manual mode with adjustable set room temperature
 - Frost protection mode
 - Holiday 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 without power supply (two 1.5 V round alkaline batteries, type LR6/AA, which run for approx. 1.5 years).

Control unit connection:

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



Specification

Rated voltage	3 V– Battery LR6/AA
Rated breaking capacity of the zero volt contact	
– max.	6(1) A, 230 V~
– min.	1 mA, 5 V–
IP rating	IP 20 to EN 60529; ensure through appropriate design/installation
Function	RS Type 1B to EN 60730-1

Control units (cont.)

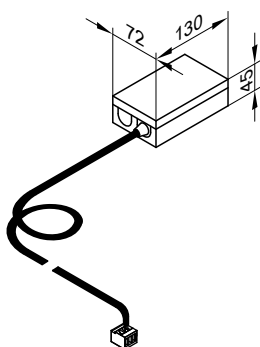
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	–25 to +65 °C

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 extension H4

Part no. 7197 227

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



Specification

Rated voltage	230 V~
Output voltage	24 V~
Rated frequency	50 Hz
Power consumption	2.5 W
Load 24 V~ (max.)	10 W
Protection class	I
IP rating	IP 41
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

Vitotrol 100, type UTDB-RF

Part no. Z007 692

Room temperature controller with integral wireless transmitter and one receiver

- With digital time switch
- With individual and seven-day programs
- Programming unit 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

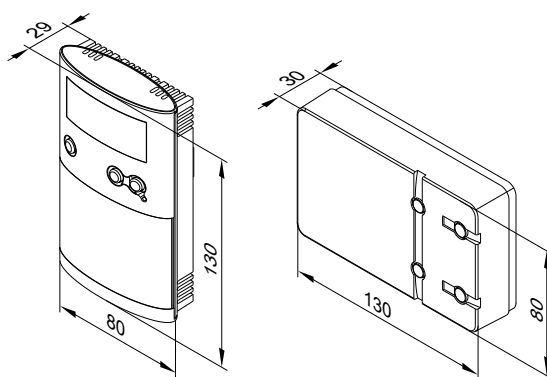
Installation in the main living room on an internal wall opposite radiators. Never install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).

Room temperature controller operation without power supply (two 1.5 V round alkaline batteries, type LR6/AA, which run for 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 core 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 appropriate design/installation
Function	RS Type 1B to EN 60730-1
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	–25 to +65 °C
Setting range	
– Comfort temperature	10 to 40 °C
– Setback temperature	10 to 40 °C
– Frost protection temperature	5 °C
Power reserve during battery change	3 min

Control units (cont.)

Specification, receiver

Operating voltage	230 V~ ± 10 % 50 Hz
Rated breaking capacity of the zero volt contact	
– max.	6(1) A, 230 V~
– min.	1 mA, 5 V–
IP rating	IP 20 to EN 60529; ensure through appropriate design/installation

Protection class	II to EN 60730-1 subject to correct installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during 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 regarding the Vitotrol 200A and 300A

Vitotrol 200A and 300A may be combined in a single heating system.

The Vitotrol 200A can regulate one heating circuit, the Vitotrol 300A up to 3 heating circuits.

Vitotrol 200A

Part no. Z008 341

KM BUS subscriber

A Vitotrol 200A can be used for each heating circuit in a heating system. Up to 2 remote controls may be connected to the control unit.

Functions:

- Display of room temperature, outside temperature and the operating condition.
- Setting the standard room temperature (day temperature) and operating program via the standard display.

Note

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

- Party and economy mode can be enabled via keys
- Only for heating circuit with mixer:
Room temperature sensor for room temperature hook-up

Note

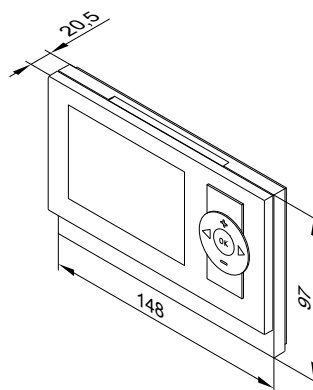
For room temperature hook-up, the Vitotrol 200A must be installed in the living space (lead room).

Installation location:

- Weather-compensated mode:
Installation at any point in the building.
- Room temperature hook-up:
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.). The integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature as well as a rapid heat-up at the start of the heating operation (if suitably encoded).

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 appropriate design/installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	–20 to +65 °C
Set room temperature range	3 to 37 °C

Vitotrol 300A

Part no. Z008 342

KM BUS subscriber

Up to 3 heating circuits can be operated with one Vitotrol 300A; alternatively one Vitotrol 300A can be employed for each heating circuit in a single heating system.

Up to 2 remote controls may be connected to the control unit.

Functions:

- Displaying:
 - Room temperature
 - Outside temperature
 - Heating program
 - Operating condition
 - Solar yield as graphic display
- Settings:

Control units (cont.)

- Set room temperatures for standard mode (day temperature) and reduced mode (night temperature) via the standard display
- Heating 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
- Only for heating circuit with mixer:
Room temperature sensor for room temperature hook-up

Note

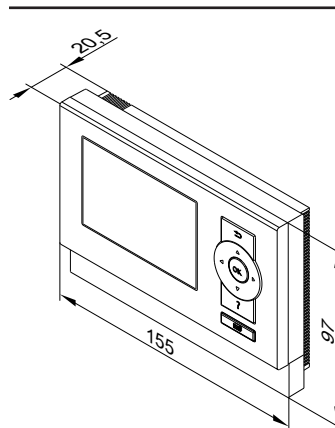
For room temperature hook-up, the Vitotrol 300A must be installed in the living space (lead room).

Installation location:

- Weather-compensated mode:
Installation anywhere in the building.
- Room temperature hook-up:
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.). The integral room temperature sensor captures the actual room temperature and effects any necessary correction of the flow temperature as well as a quick heat-up at the start of the heating operation (if suitably encoded).

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 appropriate design/installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	–20 to +65 °C
Set room temperature range	3 to 37 °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 where the unit could capture and adjust the temperature.

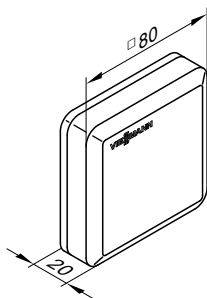
Installation in the main living room on an internal wall opposite radiators. Never install inside shelving units, in niches, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.). Connect the room temperature sensor to the Vitotrol 300A.

Connection:

- 2-core lead with a cross-section of 1.5 mm² (copper)
- Lead length from the remote control up to 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 appropriate design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	–20 to +65 °C



7

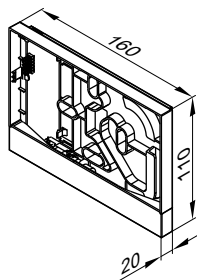
Mounting base for programming unit

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.

Control units (cont.)



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

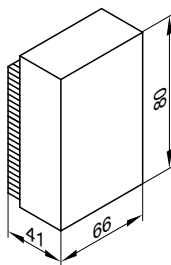
For receiving the DCF 77 time signal (location: Mainflingen near Frankfurt/Main).

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 electro-magnetic 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.



Vitocom 100, type GSM

- Without SIM card

Part no. Z004594

- With contract SIM card for the operation of the Vitocom 100 via mobile phone

Part no. Z004615

Note

For further information regarding the conditions of contract, see the Viessmann pricelist.

Functions:

- Remote switching via GSM mobile phone networks
- Remote scanning via GSM mobile phone networks
- Remote monitoring via SMS to 1 or 2 mobile phones
- Remote monitoring of additional systems via digital input (230 V)

Configuration:

Mobile phones via SMS

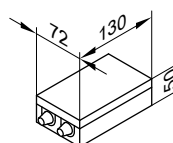
Standard delivery:

- Vitocom 100 (subject to order with or without SIM card)
- Power supply cable with Euro plug (2.0 m long)
- GSM aerial (3.0 m long), magnetic foot and adhesive pad
- KM BUS cable (3.0 m long)

On-site requirements:

Good reception for GSM communication of the selected mobile phone operator.

Total length of all KM BUS subscriber cables up to 50 m.



Specification

Rated voltage	230 V ~
Rated frequency	50 Hz
Rated current	15 mA
Power consumption	4 W
Protection class	II
Protection	IP 41 to EN 60529; safeguard through appropriate design and installation
Function	Type 1B to EN 60 730-1
Permissible ambient temperature – during operation	0 to +55 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transport	-20 to +85 °C
On-site connection	
Fault input DE 1	230 V~

Extension kit for one heating circuit with mixer with integral mixer motor

Part no. 7301 063

KM BUS subscriber

Components:

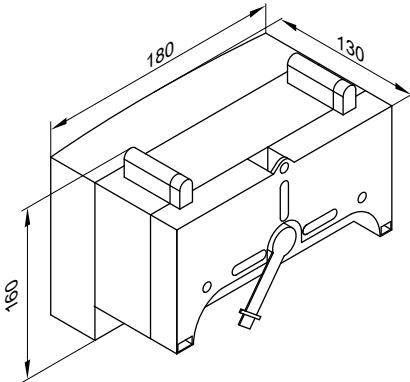
- Mixer PCB with mixer motor for Viessmann mixer DN 20 to 50 and R ½ to 1¼
- Flow temperature sensor (contact temperature sensor), lead length 2.2 m, fully wired, for specification see below

- Connecting plug for the heating circuit pump
- Power cable (3.0 m long)
- BUS cable (3.0 m long)

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

Control units (cont.)

Mixer PCB with mixer motor

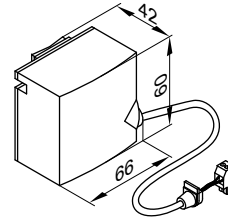


Specification

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 appropriate design/installation
Protection class	I
Permissible ambient temperature	
– during operation	0 to +40 °C
– during 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 sensor)



Secured with a tie.

Specification

IP rating	IP 32D to EN 60529 ensure through appropriate design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– during operation	0 to +120 °C
– during storage and transport	-20 to +70 °C

Extension kit for one heating circuit with mixer for separate mixer motor

Part no. 7301 062

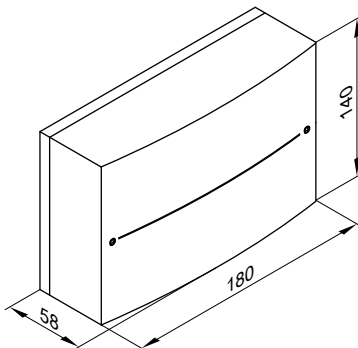
KM BUS subscriber

For the connection of a separate mixer motor.

Components:

- Mixer PCB for the connection of a separate mixer motor
- Flow temperature sensor (contact temperature sensor), lead length 5.8 m, fully wired
- Connecting plug for the heating circuit pump
- Mixer motor terminals
- Power cable (3.0 m long)
- BUS cable (3.0 m long)

Mixer PCB

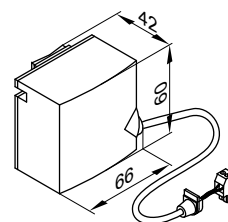


Specification

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 appropriate design/installation
Protection class	I
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +65 °C
Rated capacity of the relay outputs	
Heating circuit pump \square_{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 sensor)



Secured with a tie.

Control units (cont.)

Specification

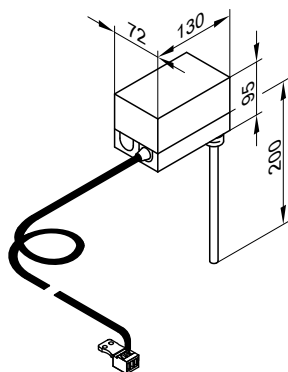
IP rating	IP 32D to EN 60529 ensure through appropriate design/installation
Sensor type	Viessmann NTC 10 k Ω at 25 °C
Permissible ambient temperature	
– during operation	0 to +120 °C
– during storage and transport	–20 to +70 °C

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.



Specification

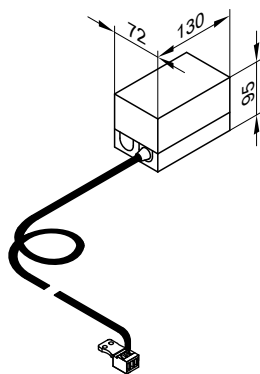
Lead length	4.2 m, fully wired
Setting range	30 to 80 °C
Switching differential	max. 11 K
Breaking capacity	6(1.5) A 250 V~
Setting scale	inside the casing
Stainless steel sensor well	R 1/2" x 200 mm
DIN reg. no.	DIN TR 116807 or DIN TR 96808

Contact thermostat

Part no. 7151 729

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

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



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 250V~
Setting scale	inside the casing
DIN reg. no.	DIN TR 116807 or DIN TR 96808

Solar control module, type SM1

Part no. 7429 073

Specification

Construction

The solar control module contains:

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

Collector temperature sensor

For connection inside the appliance.

On-site extension of the connecting lead:

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

Lead length	2.5 m
IP rating	IP 32 to EN 60529; ensure through design/installation
Sensor type	NTC 20 kΩ at 25 °C
Permissible ambient temperature	
– during operation	–20 to +200 °C
– during 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

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

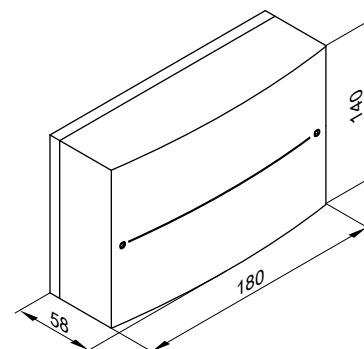
For systems with Viessmann DHW cylinders, the cylinder temperature sensor is installed in the threaded elbow (see chapter "Specification" of the relevant DHW cylinder and chapter "Installation accessories") in the heating water return.

Functions

- Switching the solar circuit pump
- Electronic limiter for the temperature in the DHW cylinder (safety shutdown at 90 °C)
- Collector safety shutdown
- Central heating backup is controlled in conjunction with a multi-mode heating water buffer cylinder
- The heating of two consumers is controlled via a collector array
- Switching an additional pump or valve via relay
- Second temperature differential control or thermostat function
- Solar circuit pump speed control via wave pack control or solar circuit pump with PWM input (Grundfos)
- Suppression of DHW cylinder reheating by the boiler (auxiliary function for DHW heating is possible)
- Suppression of reheating for central heating by the boiler with central heating backup

- Heating up of the solar-heated preheat stage (for DHW cylinders with a total capacity of ≥ 400 l)
- Load balancing and diagnostic system

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 1B to EN 60730-1
Permiss. ambient temperature	
– during operation	0 to +40 °C use in the living space or in boiler rooms (standard ambient conditions)
– during storage and transport	–20 to +65 °C
Rated capacity of the relay outputs	
– Semi-conductor relay 1	1 (1) A, 230 V~
– Relay 2	1 (1) A, 230 V~
– Total	max. 2 A

Temperature sensor (DHW cylinder/heating water buffer cylinder/combi cylinder)

Part no. 7438 702

- For DHW circulation diversion for systems with 2 DHW cylinders or
- for return changeover between the boiler and the heating water buffer cylinder or
- for heating additional consumers

On-site extension of the connecting lead:

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

Specification

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

Control units (cont.)

LON communication module

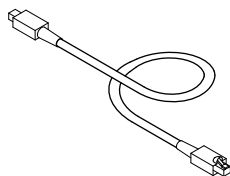
PCB for data exchange with the Vitotronic 200-H, Vitocom 200 and for connecting to a higher level building management system.

Part no. 7179 113

LON connecting cable for data exchange between control units

Part no. 7143 495

Cable length 7 m, fully wired.



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 distance 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 - 0.32 mm²,
 - Conductor AWG 26-22 / 0.14 mm² - 0.36 mm²
 - Ø 4.5 mm - 8 mm
 - on-site**
- Installation distance 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 - 0.32 mm²,
 - Conductor AWG 26-22 / 0.14 mm² - 0.36 mm²
 - Ø 4.5 mm - 8 mm
 - on-site**
 - 2 LON sockets RJ45, CAT6
Part no. 7171 784

Terminator (2 pce.)

Part no. 7143 497

To terminate the LON BUS at the first and last control unit.

KM BUS distributor

Part no. 7415 028

For the connection of 2 to 9 devices to the Vitotronic KM BUS.

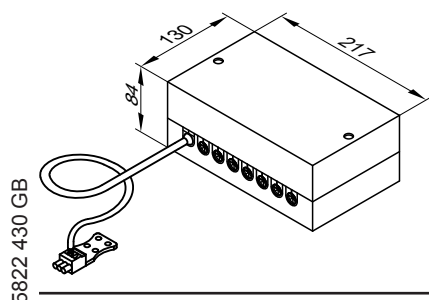
Specification

Lead length
Protection

3.0 m, fully wired
IP 32 to EN 60529;
safeguard through appropriate design and installation

Permissible ambient temperature
– during operation
– during storage and transport

0 to +40 °C
-20 to +65 °C



Control units (cont.)

Immersion temperature sensor

Part no. 7179 488

To capture the low loss header temperature.

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

Lead length 3.75 m, fully wired
IP rating IP 32 acc. to EN 60529
ensure through appropriate design/installation

Internal extension H1

Part no. 7179 057

PCB for integration into the control unit (for Vitodens 222-W and 300-W part of the standard delivery).

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 (stepped) for a directly connected heating circuit	
– Connection of a central fault message	
– Connection of a circulation pump for cylinder heating	
– Only with the Vitotronic 200, type HO1:	
– Connection of a DHW circulation pump	

Specification

Rated voltage 230 V~
Rated frequency 50 Hz

Internal extension H2

Part no. 7179 144

PCB for integration into the control unit (used with the Vitodens 222-W and 300-W instead of the internal extension H1).

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 (stepped) for a directly connected heating circuit	
– Connection of a central fault message	
– Connection of a circulation pump for cylinder heating	
– Only with the Vitotronic 200, type HO1:	
– Connection of a DHW circulation pump	

Specification

Rated voltage 230 V~
Rated frequency 50 Hz

Extension AM1

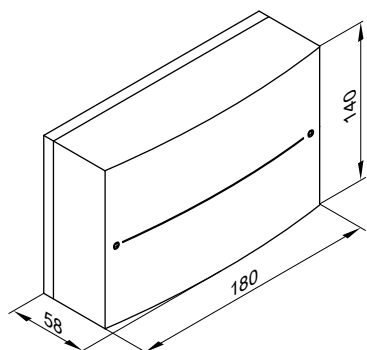
Part no. 7429 152

Function extension inside the casing for wall mounting.

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

Function	Rated breaking capacity of the relay output
– Switching the DHW circulation pump (only with the Vitotronic 200, type HO1A)	every 2(1) A 250 V~
– Switching the heating circuit pump for a directly connected heating circuit	total max. 4 A~
– Switching the circulation pump for cylinder heating (not for boilers with integral DHW cylinder)	

Control units (cont.)



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption	4 W
Protection class	I
IP rating	IP 20 D to EN 60529 ensure through appropriate design/installation
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

8

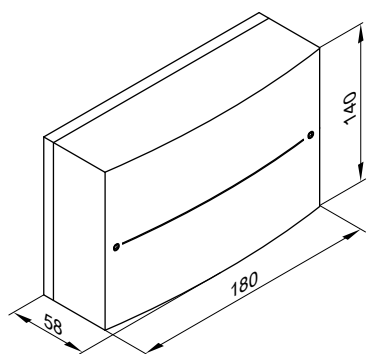
Extension EA1

Part no. 7429 151

Function extension inside the casing for wall mounting.

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

Function	Rated breaking capacity of the relay output
1 switching output (zero volt changeover contact) – Central fault message output – Switching a feed pump to a substation – Switching the DHW circulation pump (only with the Vitotronic 200, type HO1A)	2(1) A 250 V~
1 analogue input (0 to 10 V) – Set boiler water temperature default	
3 digital inputs – External heating program changeover for 1 to 3 heating circuits (only with Vitotronic 200, type HO1A) – External blocking – External blocking with central fault message – Minimum boiler water temperature demand – Fault messages – Brief operation, DHW circulation pump	



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption	4 W
Protection class	I
IP rating	IP 20 D to EN 60529 ensure through appropriate design/installation
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

Appendix

8.1 Regulations / Directives

Regulations and Directives

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

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

Observe all standards and guidelines applicable to the installation and operation of this system in your country.

Only qualified contractors must carry out the installation, the mains gas and flue gas connections, the 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.

5822 430 GB

Appendix (cont.)

8

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

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

We recommend that you carry out maintenance and cleaning procedures 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 recognised contractors may convert this boiler for use in countries other than those stated on the type plate. That contractor must also arrange the acceptance in accordance with the statutes of that country.

EnEV [Germany] 1. BImSchV	Energy Savings Ordinance First order for the implementation of the Federal Immissions Act (order regarding small and medium-sized combustion equipment)
FeuVo [Germany] DIN 1986 DIN 1988 DIN 4708 DIN 4753 DIN 18160 DIN 18380 DIN 57116 EN 677 EN 12828 EN 12831 EN 13384 ATV DVWK A 251 DVGW G 260 DVGW G 600 DVGW G 688 DVGW/DVFG DVGW VP 113 VDI 2035 VdTÜV 1466 VDE Regulations and special regulations of local energy supply companies.	Fire Regulations of the Federal States Materials drain system Potable water pipe systems on properties Central DHW heating systems Water heaters and DHW systems for DHW and process water Domestic chimneys Heating systems and central DHW heating systems (VOB) Electrical equipment for combustion systems Gas condensing boiler Heating systems in buildings – design of hot water heating systems Heating systems in buildings - process for calculating the standard heat load Flue gas systems – thermal and flow technical calculations Introduction of condensate from gas and oil combustion systems [into public sewers] Gas condition Technical rules for gas installations (TRGI) Gas consumption equipment, condensing technology Technical rules for LPG (TRF) Systems comprising combustion equipment and flues Guidelines for the prevention of losses through corrosion and scaling in hot water heating systems Water quality datasheet

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