VIESMANN

VITODENS 200-W

Gas condensing boiler
12.0 to 150.0 kW
As multi boiler system up to 900.0 kW

Technical guide

VITODENS 200-W Type B2HA

Wall mounted gas condensing boiler
With modulating MatriX cylinder burner for natural gas and LPG
For open flue or room sealed operation

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1.1 Product description

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Vitodens 200-W, 45 to 60 kW

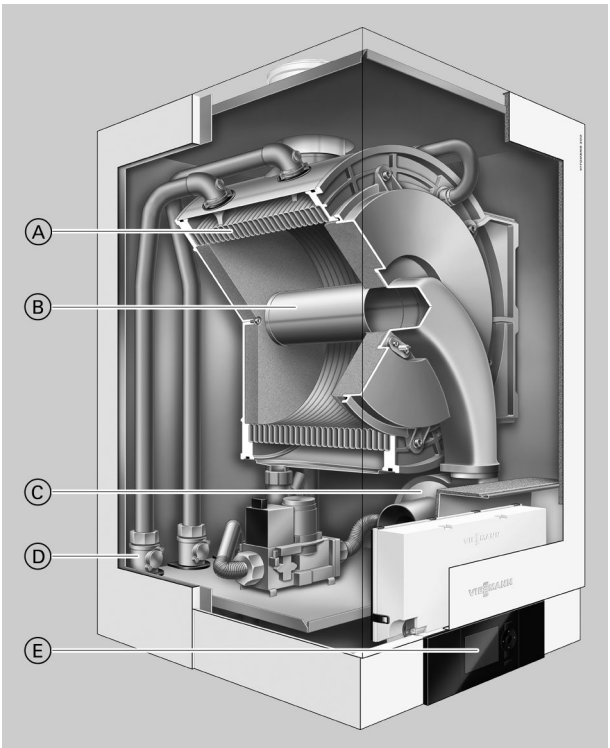
Ⓐ Inox-Radial heat exchanger made from stainless steel – for high operational reliability and a long service life. Large heating output on a very small footprint
Ⓑ Modulating MatriX cylinder burner for extremely clean combustion and quiet operation
Ⓒ Variable speed combustion fan for quiet and economical operation
Ⓓ Gas and water connections
Ⓔ Digital boiler control unit

Vitodens 200-W (cont.)

Vitodens 200-W, 80 to 100 kW

Ⓐ Inox-Radial heat exchanger made from stainless steel – for high operational reliability and a long service life. Large heating output on a very small footprint
Ⓑ Modulating MatriX cylinder burner for extremely clean combustion and quiet operation
Ⓒ Variable speed combustion fan for quiet and economical operation
Ⓓ Gas and water connections
Ⓔ Digital boiler control unit

Vitodens 200-W, 125 to 150 kW



Ⓐ Inox-Radial heat exchanger made from stainless steel – for high operational reliability and a long service life. Large heating output on a very small footprint.
Ⓑ Modulating MatriX cylinder burner for extremely clean combustion and quiet operation
Ⓒ Variable speed combustion fan for quiet and economical operation
Ⓓ Gas and water connections
Ⓔ Digital boiler control unit

Vitodens 200-W (cont.)

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Vitodens 200-W wall mounted condensing boilers up to 150 kW are especially suitable for installation in apartment buildings and commercial or public buildings. For these, the Vitodens 200-W offers an affordable, space-saving solution – either as a single unit up to 150 kW or as a cascade with up to eight boilers and a heating output up to 900 kW.
The Inox-Radial heat exchanger made from stainless steel offers high output on a very small footprint. This enables particularly efficient operation with standard seasonal efficiency [to DIN] up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].
The Vitotronic 300-K cascade control unit regulates up to eight Vitodens 200-W as a single heating centre. It also automatically matches the boiler output to the heat demand. This means: Subject to the prevailing demand, either one boiler modulates or all eight boilers operate concurrently.
We offer the complete range of matching system components for creating cascade systems, e.g. control units with up to eight appliances, fully insulated hydraulic cascades and flue gas headers.

Recommended applications
High heating output from a compact, user friendly wall mounted boiler, suitable for the following applications:
- Systems with few, large-demand consumers, e.g. fan heaters in supermarkets/shopping centres, workshops and industrial premises, commercial nurseries, garages and DHW heating systems
- Systems with several heating circuits for underfloor and/or static radiators in apartment buildings, central heating plants for terraced houses, office buildings and administration premises – particularly suitable for attic heating centres
- Heating of public buildings, such as sports and multi purpose halls, schools, kindergartens
- Suitable for installation in basement boiler rooms, on intermediary floors or in the attic

Benefits at a glance
- Optional cascade installation with up to eight boilers and up to 900 kW rated heating output
- Standard seasonal efficiency [to DIN]: Up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- Durable and efficient thanks to the Inox-Radial heat exchanger
- Modulating MatriX cylinder burner with a long service life thanks to stainless steel MatriX gauze – resistant to high temperature loads
- Easy-to-use Vitotronic control unit with plain text and graphic display
- The programming unit of the control unit can also be fitted on a wall mounting base (accessories)
- Lambda Pro Control combustion controller for all gas types – saves on costs, with inspection interval extended to 3 years
- Quiet operation through low fan speed

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], plus wall mounting bracket.
Fully plumbed and wired. White epoxy-coated casing.
Packed separately:
Vitotronic 100 for constant temperature operation
or
Vitotronic 200 for weather-compensated operation.
Preset for operation with natural gas. A conversion within gas groups E/LL is not required. The conversion to LPG is made at the gas train (a conversion kit is not required).

Multi boiler systems
Multi boiler systems for open flue operation with 2, 3, 4, 6 or 8 boilers.

Installation with a self-supporting mounting frame in series and in block formation

Comprising:
- Hydraulic cascade
- Connection set for every boiler with:
  - Connection lines formed to suit
  - High efficiency circulation pump
  - Ball valves
  - Drain & fill valve
  - Check valve
  - Gas shut-off valve
  - Safety valve
- Thermal insulation
- Weather-compensated, digital cascade and heating circuit control unit Vitotronic 300-K
- Cascade communication module for each boiler
- Self-supporting mounting frame

Note
Order circulation pumps for heating circuits and cylinder heating separately.

Tested quality
CE designation according to current EC Directives
ÖVGW Quality Mark pursuant to quality symbol regulation 1942 DRGBl. I for gas and water products
Meets the requirements for the "Blue Angel" eco-label RAL UZ 61.

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1.2 Specification

Gas boiler, type B and C, category II_{2N3P}		**Gas condensing boiler**					
Rated heating output range **45 and 60 kW: Specification to EN 677.** **80 to 150 kW: Specification to EN 15417.**							
T_F/T_R = 50/30 °C when operating with natural gas	**kW**	**12.0 - 45.0**	**12.0 - 60.0**	**20.0 - 80.0**	**20.0 - 100.0**	**32.0 - 125.0**	**32.0 - 150.0**
T_F/T_R = 80/60 °C when operating with natural gas	**kW**	**10.9 - 40.7**	**10.9 - 54.4**	**18.1 - 72.6**	**18.1 - 91.0**	**29.0 - 114.0**	**29.0 - 136.0**
Rated heat input when operating with natural gas	kW	11.2 - 42.2	11.2 - 56.2	18.8 - 75.0	18.8 - 93.8	30.0 - 118.0	30.0 - 142.0
T_F/T_R = 50/30 °C when operating with LPG P	kW	17.0 - 45.0	17.0 - 60.0	30.0 - 80.0	30.0 - 100.0	32.0 - 125.0	32.0 - 150.0
T_F/T_R = 80/60 °C when operating with LPG P	kW	15.4 - 40.7	15.4 - 54.4	27.0 - 72.6	27.0 - 91.0	29.0 - 114.0	29.0 - 136.0
Rated heat input when operating with LPG P	kW	16.1 - 42.2	16.1 - 56.2	28.1 - 75.0	28.1 - 93.8	30.0 - 118.0	30.0 - 142.0
Type		B2HA	B2HA	B2HA	B2HA	B2HA	B2HA
Product ID		CE-0085CN0050					
IP rating		IP X4D to EN 60529					
Gas supply pressure							
Natural gas	mbar	20	20	20	20	20	20
	kPa	2	2	2	2	2	2
LPG	mbar	50	50	50	50	50	50
	kPa	5	5	5	5	5	5
Max. permissible gas supply pressure[*1]							
Natural gas	mbar	25.0	25.0	25.0	25.0	25.0	25.0
	kPa	2.5	2.5	2.5	2.5	2.5	2.5
LPG	mbar	57.5	57.5	57.5	57.5	57.5	57.5
	kPa	5.75	5.75	5.75	5.75	5.75	5.75
Sound power level (to EN ISO 15036-1)							
At partial load	dB(A)	39	39	38	38	40	40
At rated heating output	dB(A)	56	67	56	59	57	60
Power consumption (delivered condition)	W	56	82	90	175	146	222
Weight	kg	65	65	83	83	130	130
Heat exchanger content	l	7.0	7.0	12.8	12.8	15.0	15.0
Max. flow rate Limit for the use of hydraulic separation	l/h	3500	3500	5700	5700	7165	8600
Rated circulation water volume at T_F/T_R = 80/60 °C	l/h	1748	2336	3118	3909	4900	5850
Permiss. operating pressure	bar	4	4	4	4	6	6
	MPa	0.4	0.4	0.4	0.4	0.6	0.6
Dimensions							
Length	mm	380	380	530	530	690	690
Width	mm	480	480	480	480	600	600
Height	mm	850	850	850	850	900	900
Gas connection	R	¾	¾	1	1	1	1
Connection values relative to max. load with gas							
Natural gas E	m^3/h	4.47	5.95	7.94	9.93	12.49	15.03
Natural gas LL	m^3/h	5.19	6.91	9.23	11.54	14.51	17.47
LPG	kg/h	3.30	4.39	5.86	7.33	9.23	11.10

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

Vitodens 200-W (cont.)

Gas boiler, type B and C, category II_{2N3P}		Gas condensing boiler					
Rated heating output range							
45 and 60 kW: Specification to EN 677.							
80 to 150 kW: Specification to EN 15417.							
T_F/T_R = 50/30 °C when operating with natural gas	**kW**	**12.0 - 45.0**	**12.0 - 60.0**	**20.0 - 80.0**	**20.0 - 100.0**	**32.0 - 125.0**	**32.0 - 150.0**
T_F/T_R = 80/60 °C when operating with natural gas	**kW**	**10.9 - 40.7**	**10.9 - 54.4**	**18.1 - 72.6**	**18.1 - 91.0**	**29.0 - 114.0**	**29.0 - 136.0**
Flue gas parameters[*2]							
Flue gas category to G 635/G 636		G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}
Temperature (at a return temperature of 30 °C)							
– at rated heating output	°C	62	66	46	57	51	60
– at partial load	°C	39	39	37	37	39	39
Temperature (at a return temperature of 60 °C)	°C	75	80	68	72	70	74
Mass flow rate							
Natural gas							
– at rated heating output	kg/h	78	104	139	174	210	253
– at partial load	kg/h	30	30	52	52	53	53
LPG							
– at rated heating output	kg/h	74	99	132	165	231	278
– at partial load	kg/h	28	28	49	49	59	59
Available draught	Pa	250	250	250	250	250	250
	mbar	2.5	2.5	2.5	2.5	2.5	2.5
Standard seasonal efficiency [to DIN] at							
T_F/T_R = 40/30 °C	%	Up to 98 (H_s) [gross cv] / 109 (H_i) [net cv]					
Max. amount of condensate							
to DWA-A 251	l/h	6.3	8.4	11.2	14.0	17.5	21.0
Condensate connection (hose nozzle)	Ø mm	20-24	20-24	20-24	20-24	20-24	20-24
Flue gas connection	Ø mm	80	80	100	100	100	100
Ventilation air connection	Ø mm	125	125	150	150	150	150

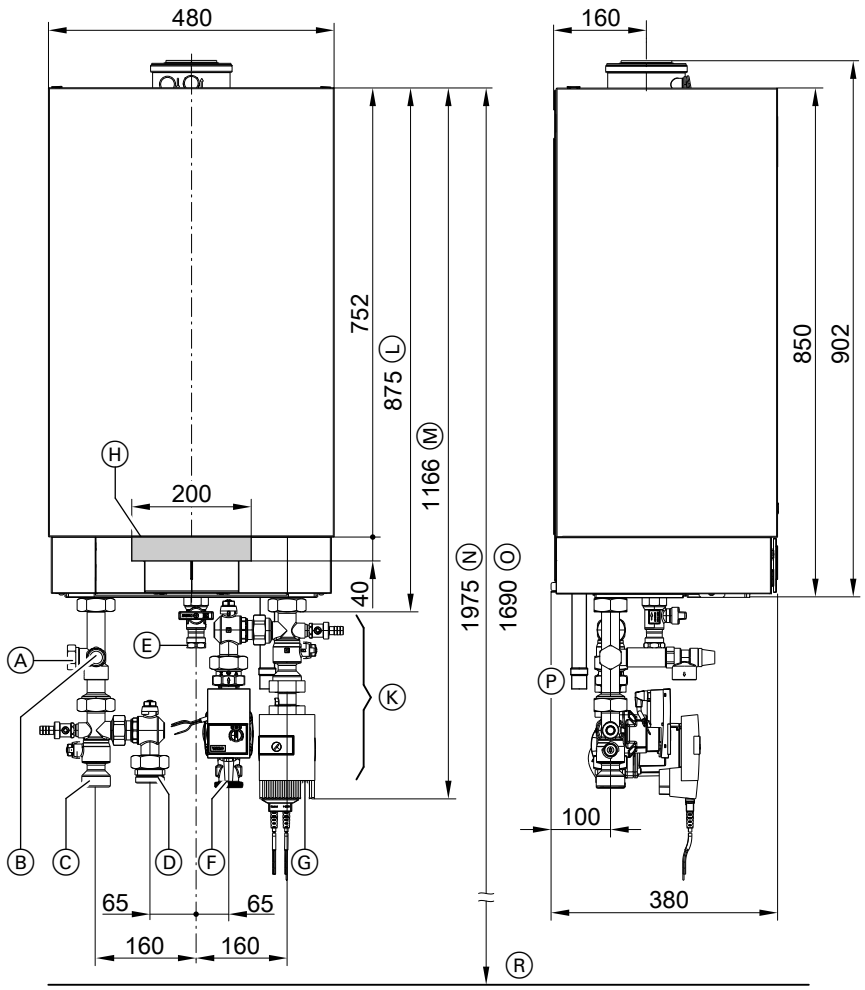
Vitodens 200-W, 45 and 60 kW

Multi boiler systems
For further details regarding multi boiler systems, see page 34.

[*2] *Calculation values for sizing the flue system to EN 13384.*
Flue gas temperatures as actual gross values at 20 °C combustion air temperature.

The flue gas temperature at a return temperature of 30 °C is significant for the sizing of the flue system.
The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

Vitodens 200-W (cont.)



Ⓐ Expansion vessel connection G 1
Ⓑ Safety valve
Ⓒ Heating flow G 1½
Ⓓ Cylinder flow G 1½
Ⓔ Gas connection R ¾
Ⓕ Cylinder return G 1½
Ⓖ Heating return G 1½
Ⓗ Cable entry area at the back
Ⓚ Connection sets (accessories)
Shown without thermal insulation (standard delivery)
Ⓛ Without connection sets
Ⓜ With connection sets
Ⓝ Recommended dimension for a single boiler system
Ⓞ Recommended dimension for a multi boiler system
Ⓟ Condensate drain
Ⓡ Top edge finished floor

Note
*The heating circuit connection set **must** be ordered separately.*

Note
Lay all required power cables on site and route them into the boiler in area Ⓗ.

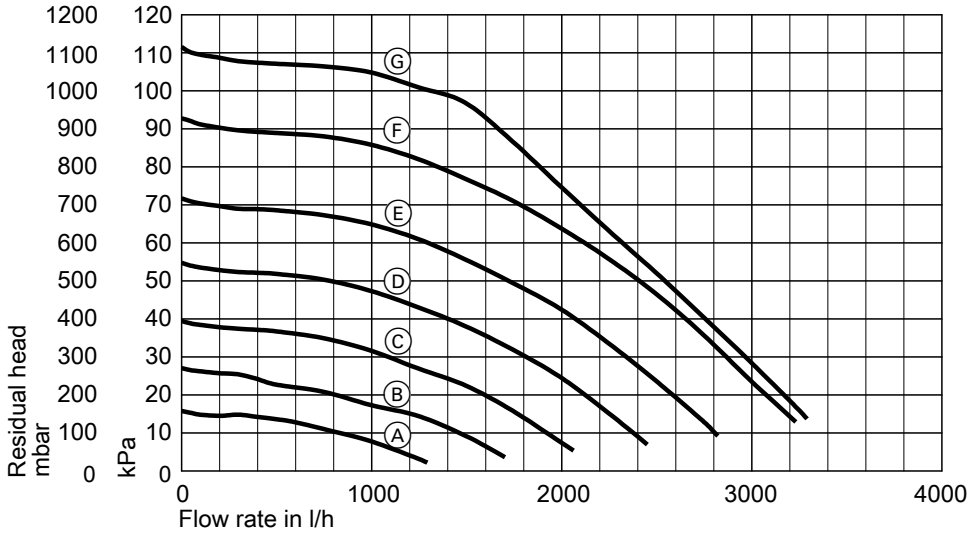
Variable speed high efficiency circulation pump in the heating circuit connection set (accessories)
The highly efficient circulation pump uses significantly less power compared to conventional pumps.
Matching the pump rate of the circulation pump to the individual system conditions reduces the power consumption of the heating system.

Circulation pump VI Para 25/1-11

Rated voltage	V~		230
Power consumption	W	Max.	140
		Min.	8

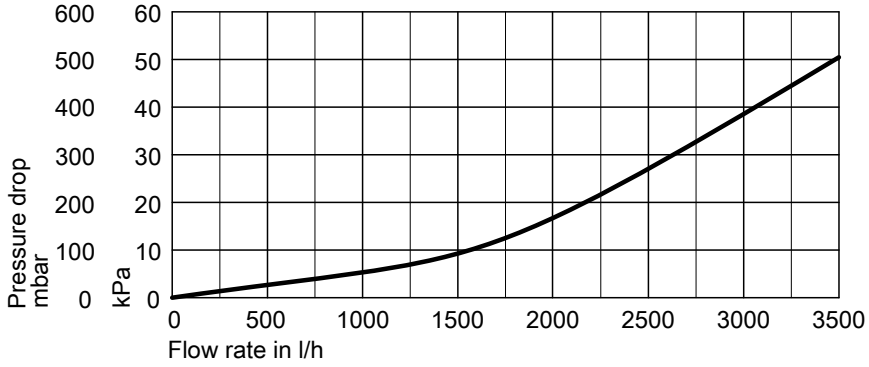
Vitodens 200-W (cont.)

Residual head of the circulation pump



Curve	Pump rate, circulation pump
Ⓐ	40 %
Ⓑ	50 %
Ⓒ	60 %
Ⓓ	70 %
Ⓔ	80 %
Ⓕ	90 %
Ⓖ	100 %

Pressure drop on the heating water side
For sizing an on-site circulation pump

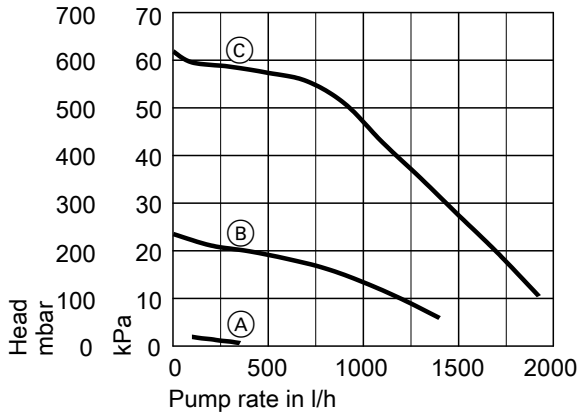


Circulation pump in the connection set for DHW cylinders

Pump type			VI Yonos Para 25/6
Voltage	V~		230
Power consumption	W	Max.	45
		Min.	3

Vitodens 200-W (cont.)

Circulation pump head

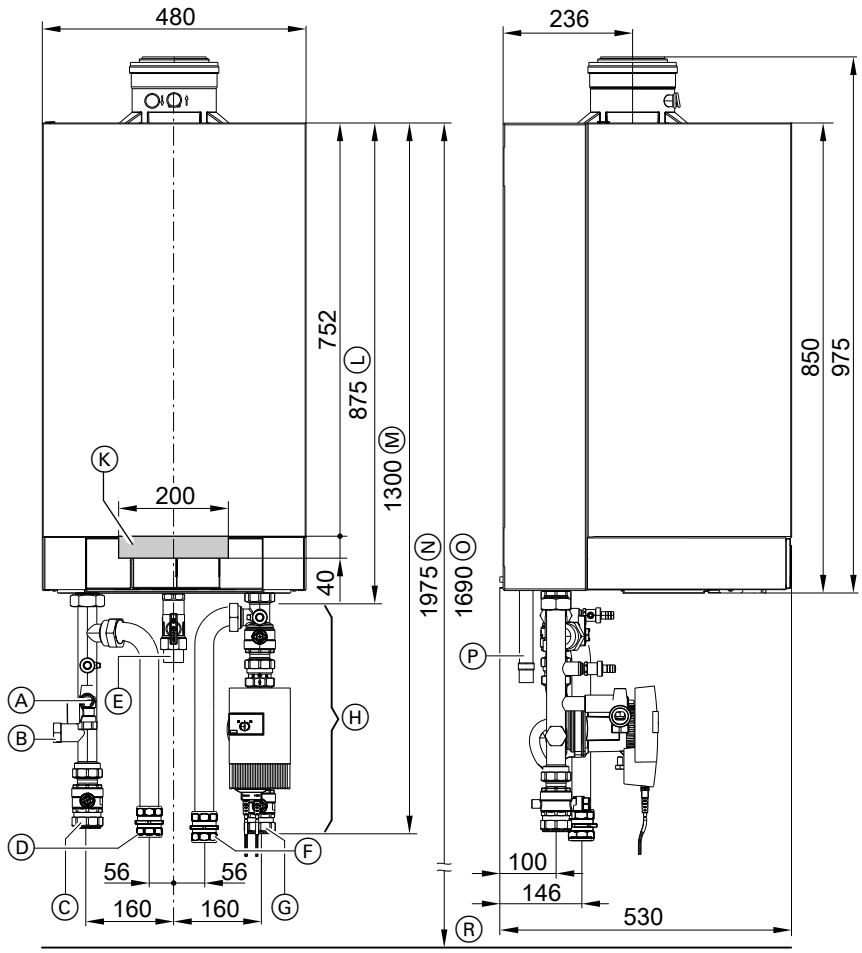


Ⓐ Stage 1
Ⓑ Stage 2
Ⓒ Stage 3

Note
When the heating circuit and circulation pumps are operated in parallel for cylinder heating (no DHW priority control), we recommend the installation of a DHW cylinder in the secondary side (downstream from the low loss header) of the heating system.

Vitodens 200-W, 80 and 100 kW

Multi boiler systems
For further details regarding multi boiler systems, see page 34.



Ⓐ Safety valve
Ⓑ Expansion vessel connection G1
Ⓒ Boiler flow ∅ 42 mm
Ⓓ Cylinder flow ∅ 35 mm
Ⓔ Gas connection R 1
Ⓕ Cylinder return ∅ 35 mm
Ⓖ Boiler return ∅ 42 mm
Ⓗ Connection sets (accessories)
Shown without thermal insulation (standard delivery)
Ⓚ Cable entry area at the back
Ⓛ Without connection set (accessories)
Ⓜ With connection set (accessories)
Ⓝ Recommended dimension (single boiler system)
Ⓞ Recommended dimension (multi boiler system)
Ⓟ Condensate drain
Ⓡ Top edge finished floor

Note
*The heating circuit connection set **must** be ordered separately.*

Note
Lay all required power cables on site and route them into the boiler in area Ⓚ.

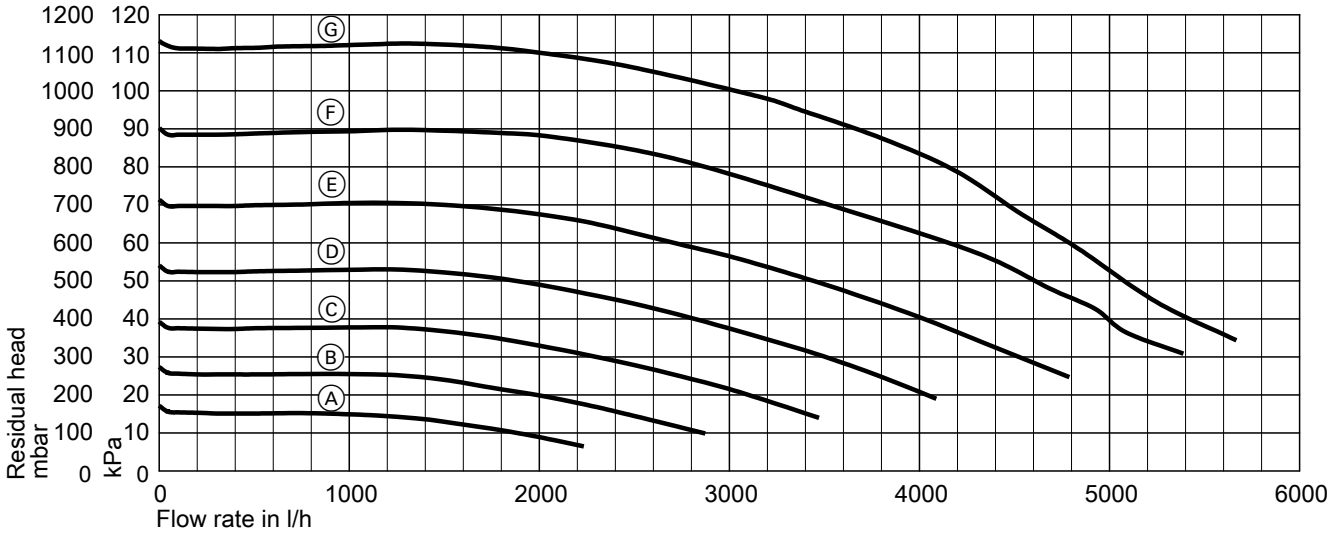
Variable speed high efficiency circulation pump in the heating circuit connection set (accessories)
The highly efficient circulation pump uses significantly less power compared to conventional pumps.
Matching the pump rate of the circulation pump to the individual system conditions reduces the power consumption of the heating system.

Circulation pump VI Para 25/1-12

Rated voltage	V~		230
Power consumption	W	Max.	310
		Min.	16

Vitodens 200-W (cont.)

Residual head of the circulation pump



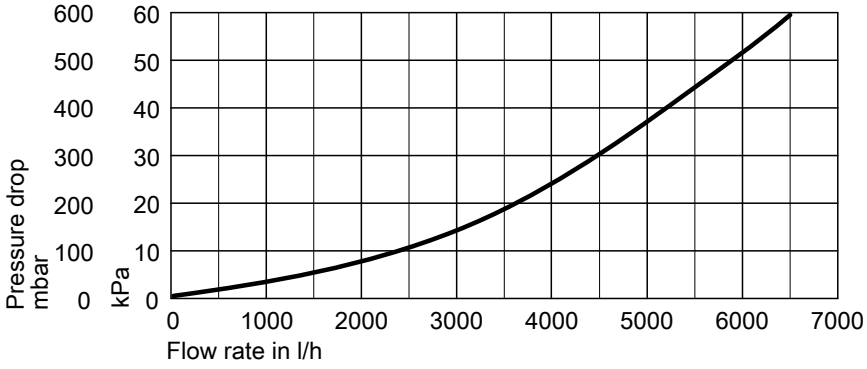
Curve	Pump rate, circulation pump
Ⓐ	40 %
Ⓑ	50 %
Ⓒ	60 %
Ⓓ	70 %
Ⓔ	80 %
Ⓕ	90 %
Ⓖ	100 %

Note

Observe information regarding the use of a low loss header (see page 47).
If the residual head of the circulation pump available as an accessory is insufficient to overcome the following system pressure drop values, install an additional, external circulation pump on site.
In such cases, use a low loss header.

Pressure drop on the heating water side

For sizing an on-site circulation pump (when connecting to a DHW cylinder connection set)

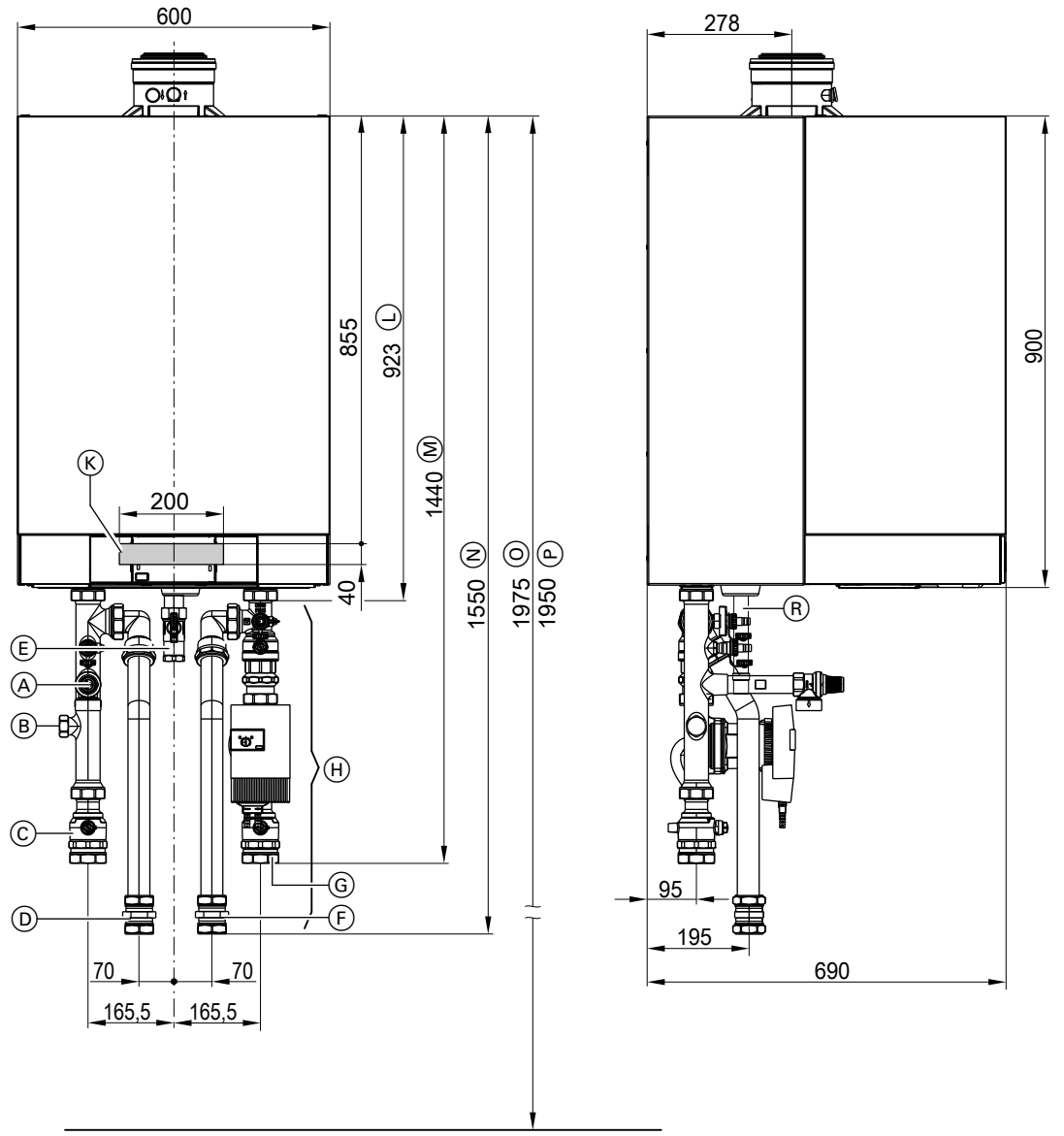


Note

When the heating circuit and circulation pumps are operated in parallel for cylinder heating (no DHW priority control), we recommend the installation of a DHW cylinder in the secondary side (downstream from the low loss header) of the heating system.

Vitodens 200-W, 125 and 150 kW

Multi boiler systems
For further details regarding multi boiler systems, see page 34.



Ⓐ Safety valve
Ⓑ Expansion vessel connection G1
Ⓒ Boiler flow ∅ 54 mm
Ⓓ Cylinder flow ∅ 42 mm
Ⓔ Gas connection R 1
Ⓕ Cylinder return ∅ 42 mm
Ⓖ Boiler return ∅ 54 mm
Ⓗ Connection sets (accessories)
Shown without thermal insulation (standard delivery)

Ⓚ Cable entry area at the back
Ⓛ Without connection set (accessories)
Ⓜ With heating circuit connection set (accessories)
Ⓝ With DHW cylinder connection set (accessories)
Ⓞ Recommended dimension (single boiler system without mounting frame)
Ⓟ Recommended dimension (multi boiler system or single boiler system with mounting frame)
Ⓡ Condensate drain

Note
*The heating circuit connection set **must** be ordered separately.*

Note
Lay all required power cables on site and route them into the boiler in area Ⓚ.

Variable speed high efficiency circulation pump in the heating circuit connection set (accessories)
The highly efficient circulation pump uses significantly less power compared to conventional pumps.
Matching the pump rate of the circulation pump to the individual system conditions reduces the power consumption of the heating system.

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Vitodens 200-W (cont.)

Circulation pump VI Para 30/1-12

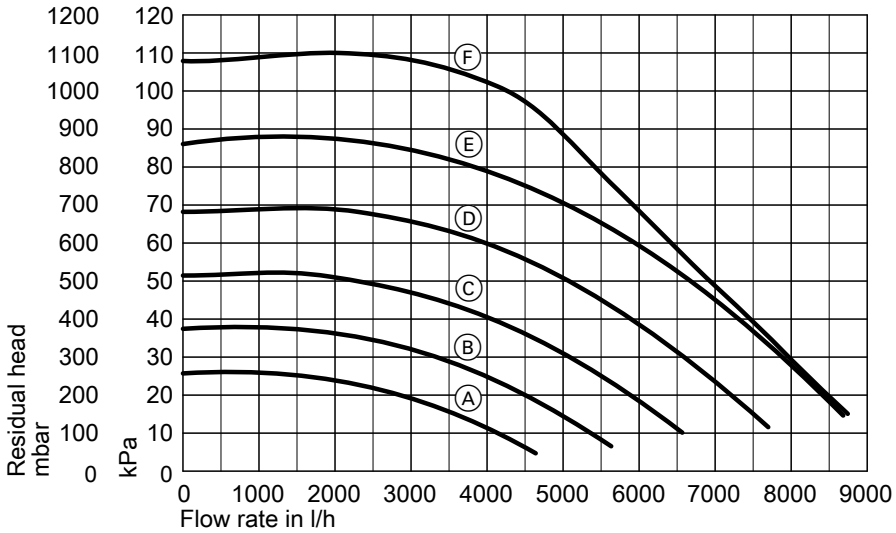
Rated voltage	V~		230
Power consumption	W	Max.	310
		Min.	16

Variable speed (Δp constant or Δp variable), fully wired.

Note

For operation in multi boiler systems select speed control Δp constant.

Residual head of the circulation pump

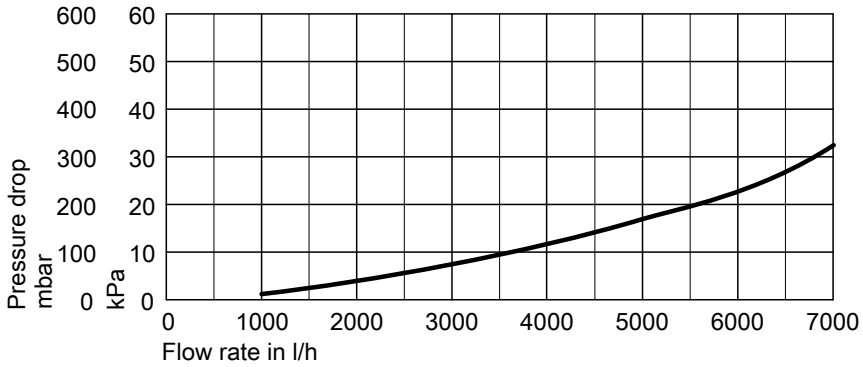


Curve	Pump rate, circulation pump
Ⓐ	50 %
Ⓑ	60 %
Ⓒ	70 %
Ⓓ	80 %
Ⓔ	90 %
Ⓕ	100 %

Vitodens 200-W (cont.)

Note
Observe information regarding the use of a low loss header (see page 47).
If the residual head of the circulation pump available as an accessory is insufficient to overcome the following system pressure drop values, install an additional, external circulation pump on site.
In such cases, use a low loss header.

Pressure drop on the heating water side
For sizing an on-site circulation pump (when connecting to a DHW cylinder connection set)



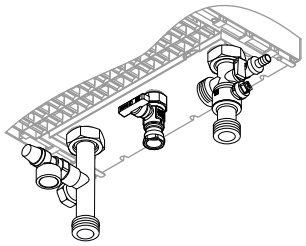
Note
When the heating circuit and circulation pumps are operated in parallel for cylinder heating (no DHW priority control), we recommend the installation of a DHW cylinder in the secondary side (downstream from the low loss header) of the heating system.

2.1 Product description

Installation accessories for the Vitodens 200-W, 45 and 60 kW

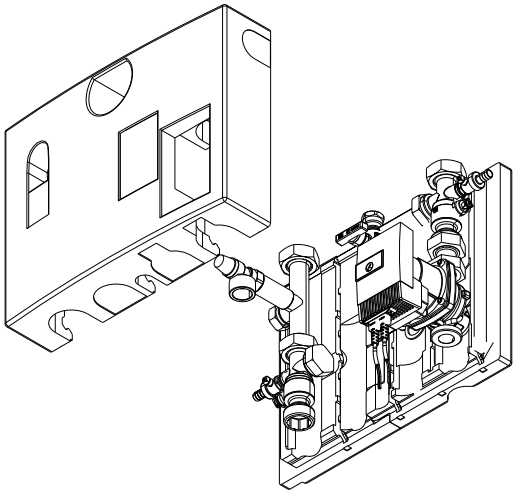
Heating circuit connection set without circulation pump

Part no. 7245 738
Connections G 1½
Comprising:
- Tee with ball valve
- Boiler drain & fill valve
- Safety valve
- Gas shut-off valve with integral thermally activated safety shut-off valve
- Connection G1 for pressure expansion vessel



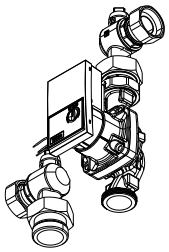
Heating circuit connection set with variable speed high efficiency circulation pump

Part no. 7501 311
Connections G 1½
Comprising:
- Circulation pump
- 2 tees with ball valve
- Non-return valve
- 2 boiler drain & fill valves
- Safety valve
- Gas shut-off valve with integral thermally activated safety shut-off valve
- Thermal insulation
- Connection G1 for pressure expansion vessel



DHW cylinder connection set

Part no. ZK00 657
Connections G 1½
Comprising:
- Circulation pump
- 2 ball valves
- Non-return valve
- Cylinder temperature sensor



Ball valve

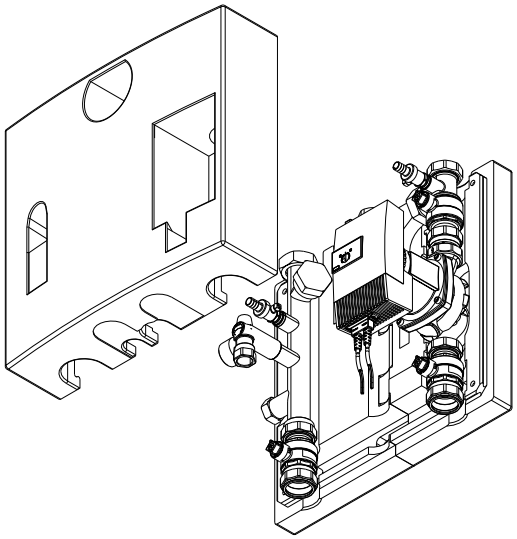
Part no. 7247 373
1 pce G 1¼ with gasket and union nut.

Installation accessories (cont.)

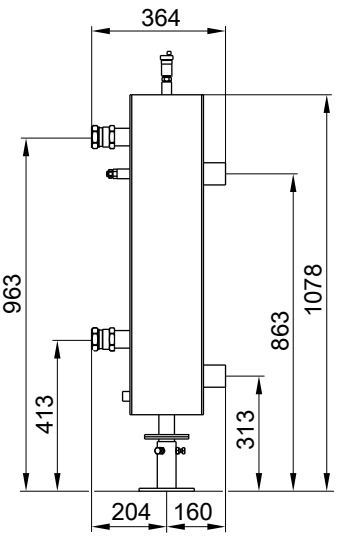
Installation accessories for the Vitodens 200-W, 80 and 100 kW

Heating circuit connection set with variable speed high efficiency circulation pump

Part no. 7501 318
Comprising:
- Circulation pump
- 2 ball valves with adaptors Ø 42 mm (locking ring fitting)
- Tee with ball valve
- Non-return valve
- Boiler drain & fill valve
- Safety valve
- Gas shut-off valve with integral thermally activated safety shut-off valve
- Thermal insulation
- Connection G1 for pressure expansion vessel



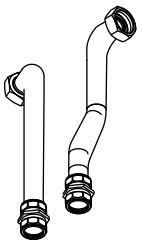
Low loss header
For flow rate up to 8 m^3/h
Part no. Z007 743
Comprising:
- Low loss header with integral sensor well (50 mm long)
- Thermal insulation
- Immersion temperature sensor for low loss header
- Quick-action air vent valve
- 2 adaptors Ø 42 mm (locking ring fitting)



Mounting panel for low loss header
- For floor mounting
  Part no. 7346 787
- For wall mounting
  Part no. 7346 788

DHW cylinder connection set

Part no. 7348 934
Connections: Ø 35 mm (locking ring fitting)
Comprising:
- Connecting lines for flow and return
- Fittings
- Cylinder temperature sensor



Installation accessories for the Vitodens 200-W, 125 and 150 kW

Heating circuit connection set with variable speed high efficiency circulation pump

Part no. 7501 321
Comprising:
- Circulation pump
- 2 ball valves with adaptors Ø 54 mm (locking ring fitting)
- Tee with ball valve
- Non-return valve
- Boiler drain & fill valve
- Safety valve
- Gas shut-off valve with integral thermally activated safety shut-off valve
- Thermal insulation
- Connection G1 for pressure expansion vessel

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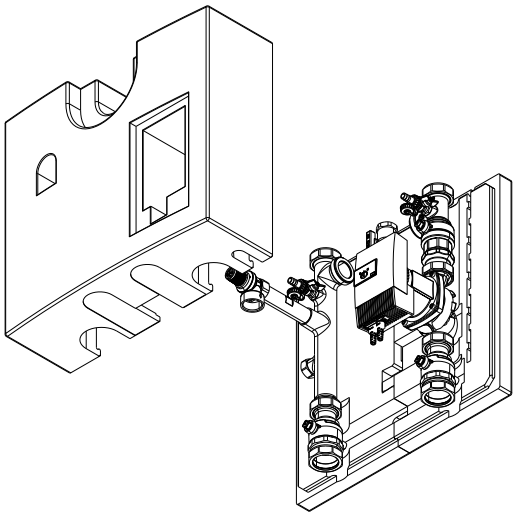
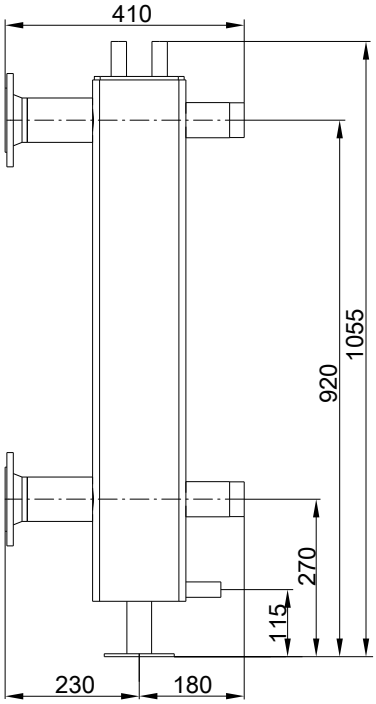
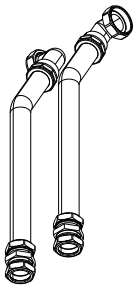


Low loss header
For flow rate up to 12.9 m^3/h
Connection DN 65
Part no. ZK00 658
Comprising:
- Low loss header with integral sensor well
- Thermal insulation
- Immersion temperature sensor for low loss header
- Quick-action air vent valve
- Ball valve with hose nozzle for draining or blow-down
- 2 adaptors Ø 54 mm (locking ring fitting)



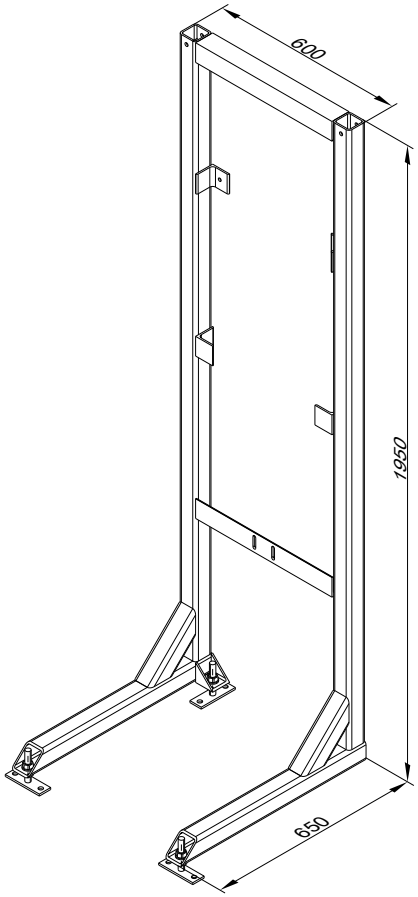
DHW cylinder connection set

Part no. 7501 325
Connections: Ø 42 mm (locking ring fitting)
Comprising:
- Connecting lines for flow and return
- Fittings
- Cylinder temperature sensor



Mounting frame

Part no. 7502 558
For self-supporting boiler installation in a room.
With adjustable feet for levelling and securing to the floor.



Service accessories for automatic hydraulic balancing
See separate datasheet.

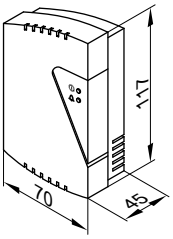
CO limiter

Part no. 7499 330
A monitoring device that safely shuts down the boiler in the event of carbon monoxide being released.
Wall mounting in the ceiling area near the boiler.
Can be used for boilers built from 2004 onwards.

Components:
- Casing with integrated CO sensor, relay and displays for operation and alarm.
- Fixing materials.

Installation accessories (cont.)

- Power cable (2.0 m long).
- Connecting cable, relay for burner shutdown (2.0 m long).



Specification

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

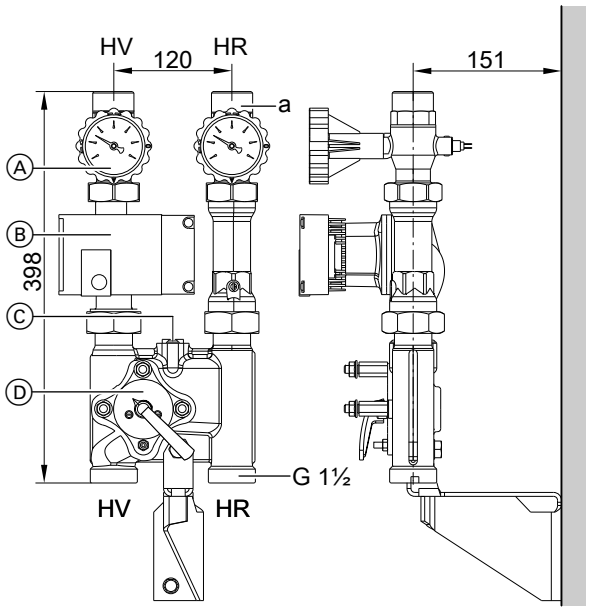
2

Divicon heating circuit distributor

Layout and function

- Available with R ¾, R 1 and R 1¼ connections.
- With heating circuit pump, check valve, ball valves with integral thermometers and 3-way mixer or without mixer.
- Quick and simple installation due to pre-assembled unit and compact design.
- All-round thermal insulation shells for low radiation losses.
- High efficiency pumps and optimised mixer curve ensure low electricity costs and precise control characteristics.
- The bypass valve for hydraulic balancing of the heating system is available as an accessory and is provided as a threaded component for inserting into the prepared hole in the cast body.
- Individually wall mounted or with a double or triple manifold.
- Also available as a kit. For further details see the Viessmann pricelist.

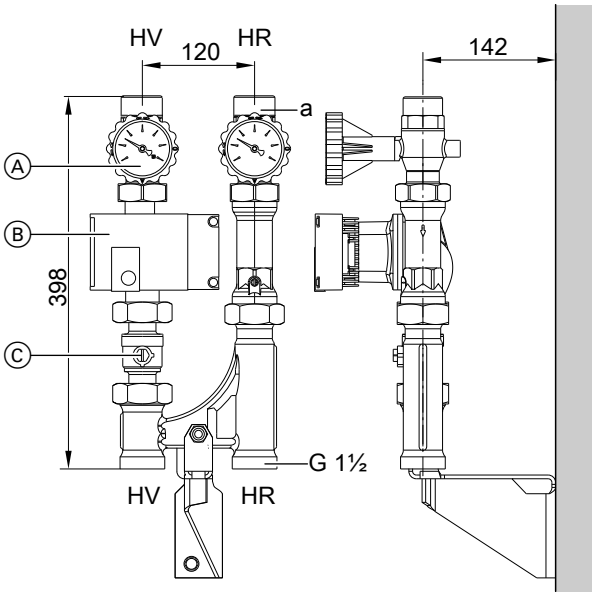
For part numbers in conjunction with the different circulation pumps, see the Viessmann pricelist.
The dimensions of the heating circuit distributor are the same, with or without mixer.



Divicon with mixer (wall mounting, shown without thermal insulation or mixer drive extension kit)

HR Heating return
HV Heating flow
Ⓐ Ball valves with thermometer (as programming unit)
Ⓑ Circulation pump
Ⓒ Bypass valve (accessories)
Ⓓ Mixer-3

Heating circuit connection	R	¾	1	1¼
Flow rate (max.)	m^3/h	1.0	1.5	2.5
a (female)	Rp	¾	1	1¼
a (male)	G	1¼	1¼	2



Divicon without mixer (wall mounting, shown without thermal insulation)

HR Heating return
HV Heating flow
Ⓐ Ball valves with thermometer (as programming unit)
Ⓑ Circulation pump
Ⓒ Ball valve

Heating circuit connection	R	¾	1	1¼
Flow rate (max.)	m^3/h	1.0	1.5	2.5
a (female)	Rp	¾	1	1¼
a (male)	G	1¼	1¼	2

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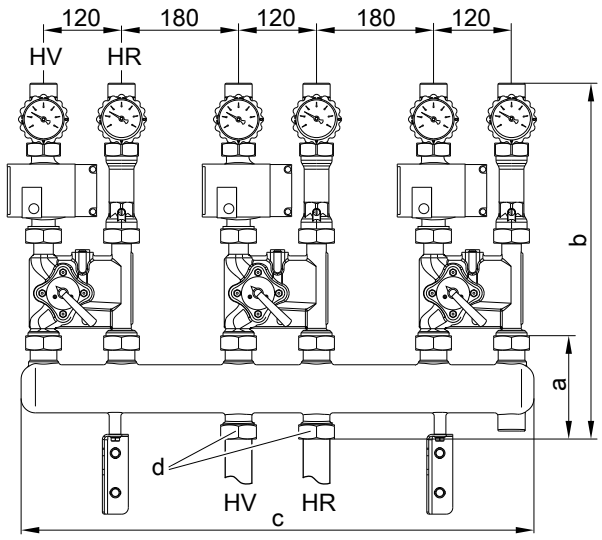
Installation accessories (cont.)

Installation example: Divicon with triple manifold

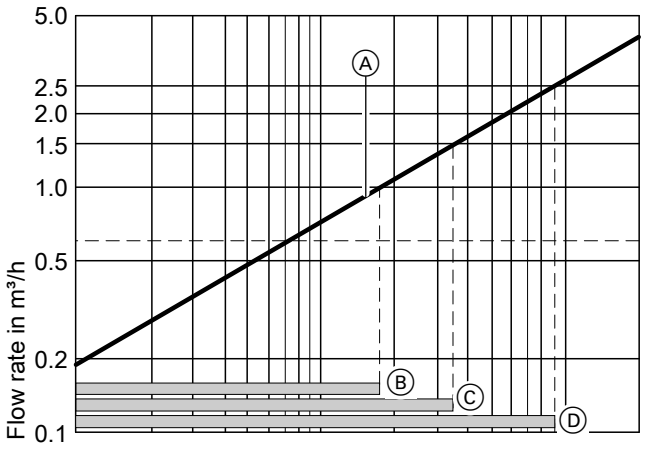


(shown without thermal insulation)

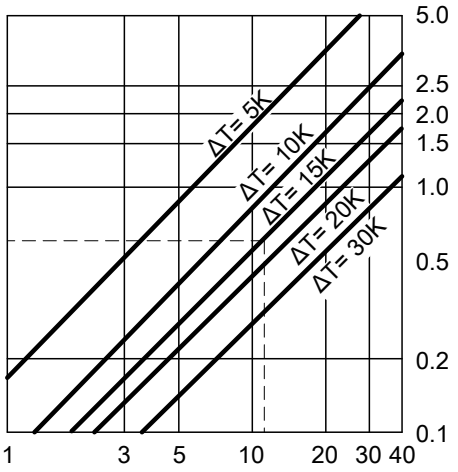
Dimensions	Manifold with heating circuit connection	
	R ¾ and R 1	R 1¼
a	135	183
b	535	583
c	784	784
d	G 1¼	G 2

HR Heating return
HV Heating flow

Determining the required nominal diameter



Mixer control characteristics



Heating circuit output in kW

Ⓐ Divicon with mixer-3
The operating ranges marked Ⓑ to Ⓓ provide optimum control characteristics with the Divicon mixer:
Ⓑ Divicon with mixer-3 (R ¾)
Application range: 0 to 1.0 m³/h
Ⓒ Divicon with mixer-3 (R 1)
Application range: 0 to 1.5 m³/h
Ⓓ Divicon with mixer-3 (R 1¼)
Application range: 0 to 2.5 m³/h

Example:
Heating circuit for radiators with an heating output of $\dot{Q}$ = 11.6 kW
Heating system temperature 75/60 °C (ΔT = 15 K)

$$\dot{Q} = \dot{m} \cdot c \cdot \Delta T \qquad c = 1.163 \ \frac{Wh}{kg \cdot K} \qquad \dot{m} \triangleq \dot{V} \ (1\ kg \approx 1\ dm^3)$$

$$\dot{V} = \frac{\dot{Q}}{c \cdot \Delta T} = \frac{11600\ W \cdot kg \cdot K}{1.163\ Wh \cdot (75\text{-}60)\ K} = 665 \ \frac{kg}{h} \triangleq 0.665 \ \frac{m^3}{h}$$

c Specific thermal capacity
$\dot{m}$ Mass flow rate
$\dot{Q}$ Heating output
$\dot{V}$ Flow rate

Select the smallest possible mixer within the application limit with the value $\dot{V}$.

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Result of this example: Divicon with mixer-3 (R ¾)

Circulation pump curves and pressure drop on the heating water side
The residual pump head results from the differential between the selected pump curve and the pressure drop curve of the respective heating circuit distributor or further components (pipe assembly, distributor etc.).
The following pump graphs show the pressure drop curves of the different Divicon heating circuit distributors.
Maximum flow rate for Divicon:
- with R ¾ = 1.0 m^3/h
- with R 1 = 1.5 m^3/h
- with R 1¼ = 2.5 m^3/h

Example:
Flow rate $\dot{V}$ = 0.665 m^3/h

Selected:
- Divicon with mixer R ¾
- Wilo Yonos Para 25/6 circulation pump, variable differential pressure operating mode and set to maximum delivery head
- Pump rate 0.7 m^3/h

Head of the relevant pump curve:	48 kPa
Divicon pressure drop:	3.5 kPa
Residual head:	48 kPa – 3.5 kPa = 44.5 kPa.

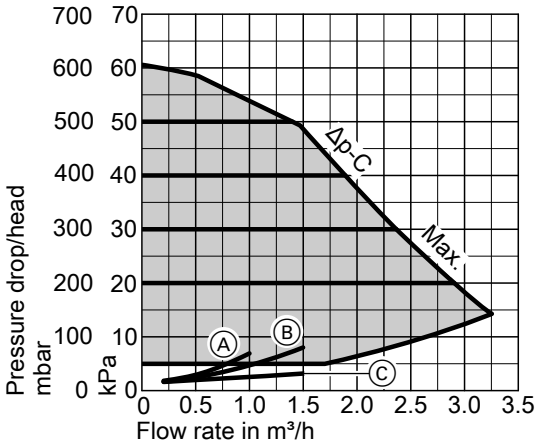
Note
For further components (pipe assembly, distributor, etc.) determine the pressure drop and deduct it from the residual head.

Differential pressure-dependent heating circuit pumps
According to the [German] Energy Saving Ordinance (EnEV), circulation pumps in central heating systems must be sized in accordance with current technical rules.
Ecodesign Directive 2009/125/EC requires high efficiency circulation pumps to be used throughout Europe from 1 January 2013, if the pumps are not installed in the heat source.

Design information
The use of differential pressure-dependent heating circuit pumps requires heating circuits with variable pump rates. These include, for example, single and twin line heating systems with thermostatic valves and underfloor heating systems with thermostatic or zone valves.

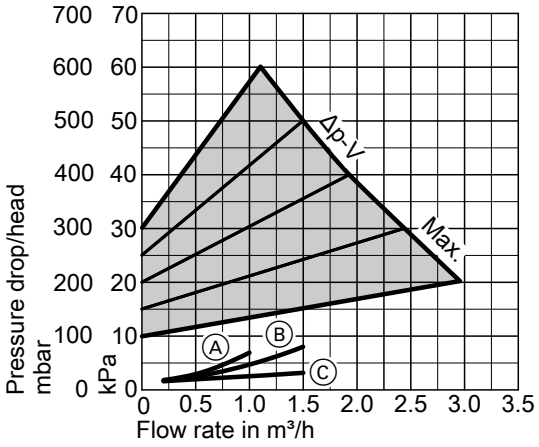
Wilo Yonos Para 25/6
- Very economical HE pump (compliant with Energy Label A)

Operating mode: Constant differential pressure



Ⓐ Divicon R ¾ with mixer
Ⓑ Divicon R 1 with mixer
Ⓒ Divicon R ¾ and R 1 without mixer

Operating mode: Variable differential pressure

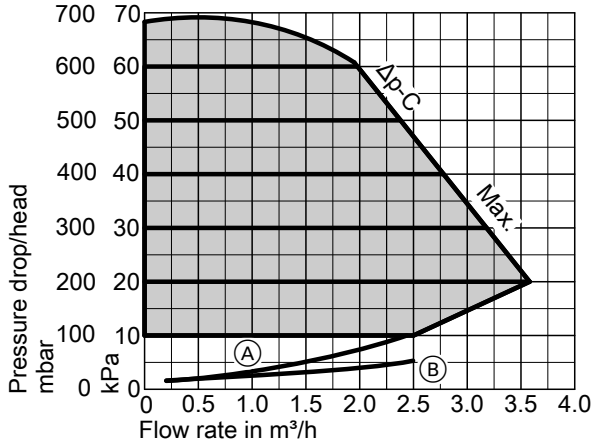


Ⓐ Divicon R ¾ with mixer
Ⓑ Divicon R 1 with mixer
Ⓒ Divicon R ¾ and R 1 without mixer

Installation accessories (cont.)

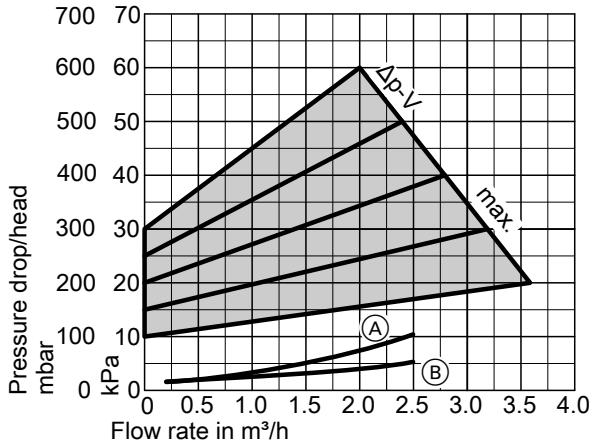
Wilo Stratos Para 25/1-7
- Very economical HE pump (compliant with Energy Label A)

Operating mode: Constant differential pressure



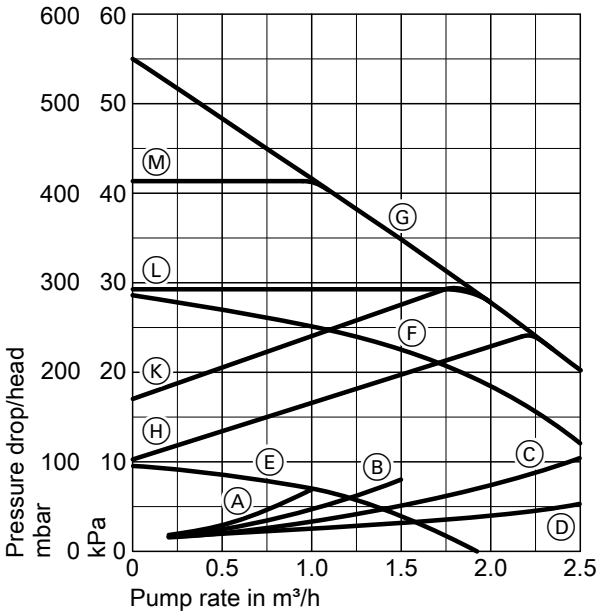
Ⓐ Divicon R 1¼ with mixer
Ⓑ Divicon R 1¼ without mixer

Operating mode: Variable differential pressure



Ⓐ Divicon R 1¼ with mixer
Ⓑ Divicon R 1¼ without mixer

Grundfos Alpha 2-60
- Very economical HE pump (compliant with Energy Label A)
- With power consumption display
- With Autoadapt function (automatic matching to the pipework)
- With night setback function



Ⓐ Divicon R ¾ with mixer
Ⓑ Divicon R 1 with mixer
Ⓒ Divicon R 1¼ with mixer
Ⓓ Divicon R ¾, R 1 and R 1¼ without mixer
Ⓔ Stage 1
Ⓕ Stage 2
Ⓖ Stage 3
Ⓗ Min. proportional pressure
Ⓚ Max. proportional pressure
Ⓛ Min. constant pressure
Ⓜ Max. constant pressure

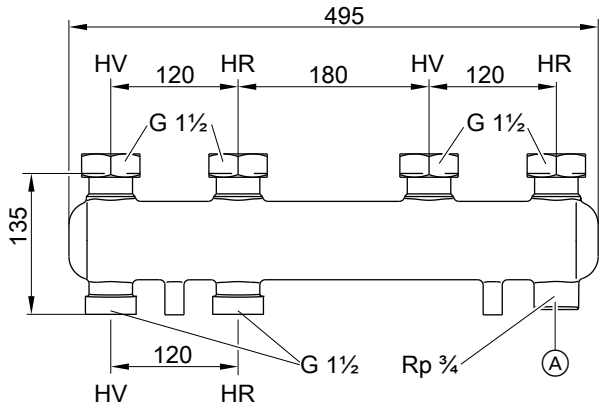
Bypass valve

Part no. 7464 889
For hydraulic balancing of the heating circuit with mixer. To be inserted into the Divicon.

Installation accessories (cont.)

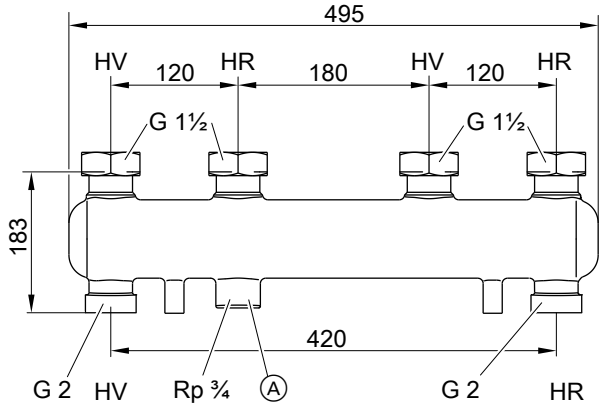
Manifold
With thermal insulation.
For wall mounting with separately ordered wall mounting bracket.
The connection between boiler and manifold must be made on site.

For 2 Divicon
Part no. 7460 638 for Divicon R ¾ and R 1.



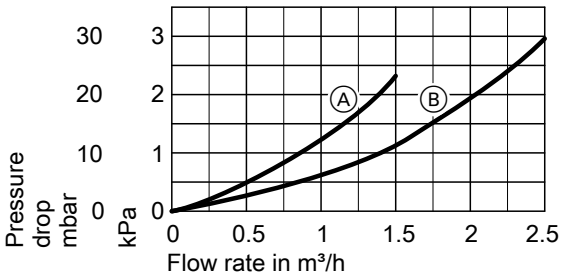
Ⓐ Connection option for expansion vessel
HV Heating water flow
HR Heating water return

Part no. 7466 337 for Divicon R 1¼.



Ⓐ Connection option for expansion vessel
HV Heating water flow
HR Heating water return

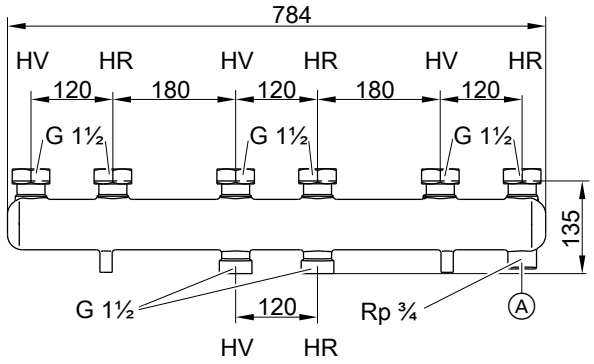
Pressure drop



Ⓐ Manifold for Divicon R ¾ and R 1
Ⓑ Manifold for Divicon R 1¼

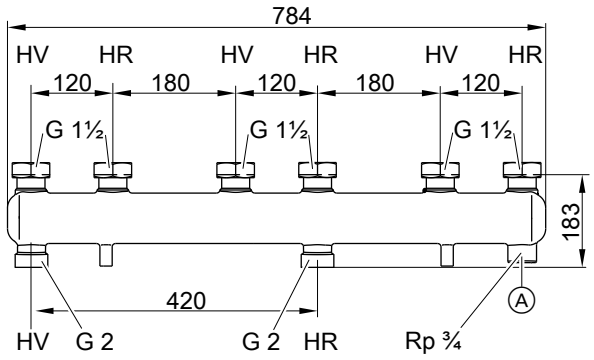
Installation accessories (cont.)

For 3 Divicon
Part no. 7460 643 for Divicon R ¾ and R 1.



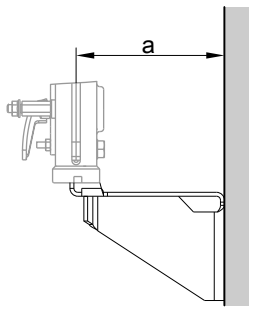
Ⓐ Connection option for expansion vessel
HV Heating water flow
HR Heating water return

Part no. 7466 340 for Divicon R 1¼



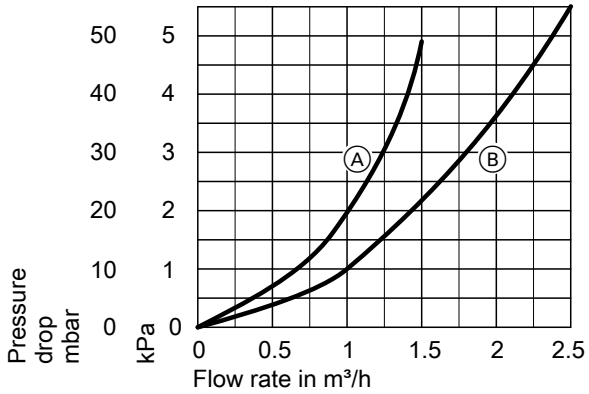
Ⓐ Connection option for expansion vessel
HV Heating water flow
HR Heating water return

Wall mounting bracket
Part no. 7465 894
For individual Divicon.
With screws and rawl plugs.



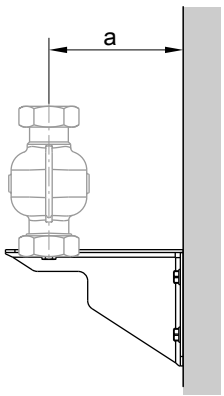
For Divicon		With mixer	Without mixer
a	mm	151	142

Pressure drop



Ⓐ Manifold for Divicon R ¾ and R 1
Ⓑ Manifold for Divicon R 1¼

Part no. 7465 439
For manifold.
With screws and rawl plugs.



For Divicon		R ¾ and R 1	R 1¼
a	mm	142	167

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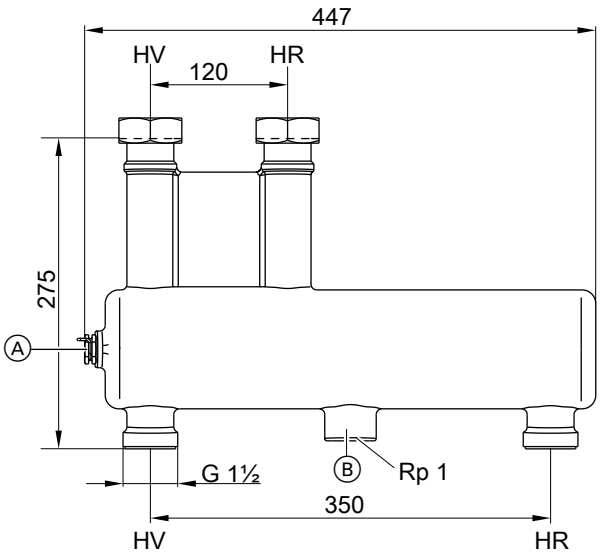
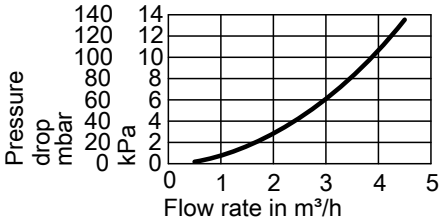
Installation accessories (cont.)

Low loss header

Part no. 7460 649
Max. flow rate 4.5 m^3/h.
With thermal insulation and integral sensor well.
The connection between boiler and low loss header must be made on site.

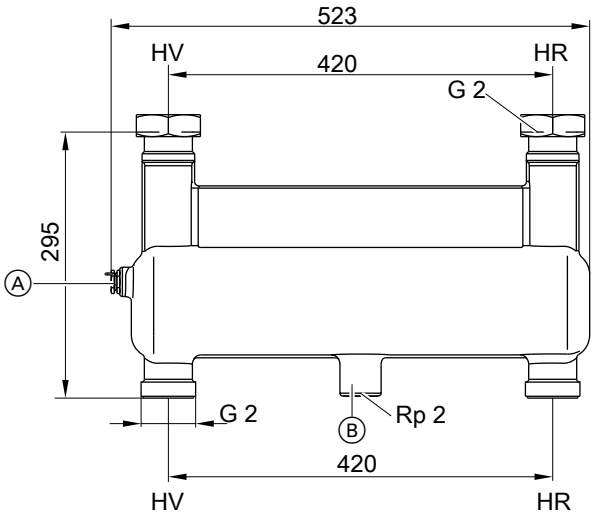


Pressure drop

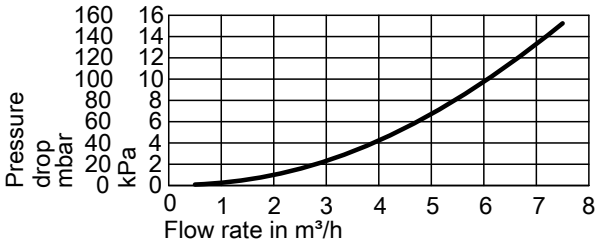


Ⓐ Sensor well
Ⓑ Optional blow-down
HV Heating water flow
HR Heating water return

Part no. 7460 648
Max. flow rate 7.5 m^3/h.
With thermal insulation and integral sensor well.
The connection between boiler and low loss header must be made on site.



Pressure drop



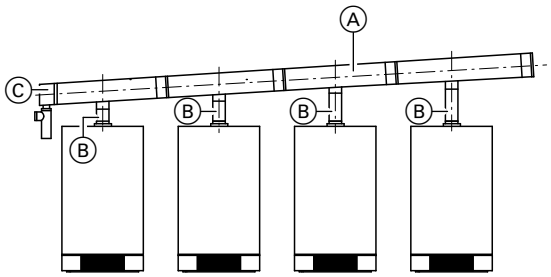
Installation accessories for multi boiler systems

Hydraulic cascades
See page 34.

Installation accessories (cont.)

Flue gas cascade (positive pressure)

Comprising:
- Flue gas header
- End piece with condensate drain and siphon



Ⓐ Flue gas header
Ⓑ End piece with siphon

- **Two-boiler system installed in series**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 675**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 676**
  - For the Vitodens 200-W, 125 to 150 kW: **Part no. ZK00 677**
- **3-boiler system installed in series**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 678**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 679**
  - For the Vitodens 200-W, 125 to 150 kW: **Part no. ZK00 680**
- **4-boiler system installed in series**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 681**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 682**
  - For the Vitodens 200-W, 125 to 150 kW: **Part no. ZK00 683**
- **6-boiler system installed in series**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 684**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 685**
  - For the Vitodens 200-W, 125 to 150 kW: **Part no. ZK00 686**
- **8-boiler system installed in series**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 687**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 688**
- **4-boiler system installed in block formation**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 689**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 690**
- **6-boiler system installed in block formation**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 691**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 692**
- **8-boiler system installed in block formation**
  - For the Vitodens 200-W, 45 and 60 kW: **Part no. ZK00 693**
  - For the Vitodens 200-W, 80 to 100 kW: **Part no. ZK00 694**

For further technical details regarding the flue gas cascades, see the technical guide to Vitodens flue systems.

DHW cylinder

3.1 Product description

For details regarding DHW cylinders, see the technical guide to the Vitodens up to 35 kW, or separate datasheets.

Design information

4.1 Positioning, installation

Siting conditions for open flue operation (appliance type B)

(Type B_{23} and B_{33})

In rooms where **air contamination from halogenated hydrocarbons** may occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories, etc., operate the Vitodens only as a room sealed system.
If in doubt, please contact us.
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 discharge pipe for the safety valve in the installation room.
The maximum ambient temperature of the system should not exceed 35 °C.
If these instructions are not observed, any consequential appliance damage directly related to any of these causes is excluded from our warranty.

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

Vitodens 200-W from 60 kW and multi boiler systems
Install boilers from 50 kW in accordance with the Combustion Order (FeuVo) [Germany] [or local regulations] in a separate installation room. Fit the mains isolator outside the installation room.

Combustion air apertures
Gas equipment with a total rated heating output in excess of 50 kW must be provided with combustion air apertures leading to the outside. The cross-section should be at least 150 cm^2 and should be 2 cm^2 larger for each kW above 50 kW rated heating output. This cross-section may not be split over more than 2 apertures (observe FeuVo and TRGI 2008 point 5.5.4 [or local regulations]).

Example:
Vitodens 200-W, 3 × 60 kW
Total rated heating output 180 kW
150 cm^2 + 130 × 2 cm^2 = 410 cm^2 or 2 × 205 cm^2 .
The combustion air apertures should measure at least 410 cm^2 or 2 × 205 cm^2.

Multi boiler systems with flue systems under positive pressure
The Vitodens 200-W multi boiler systems with common pressurised flue systems are designed for **open** flue operation (type B).
For further details, see the technical guide on flue systems for the Vitodens.

Installation room (up to 50 kW)

Permissible:
- Boiler installation on the same floor
- Adjacent rooms with interconnected room air supply (larders, basements, utility rooms etc.)
- Attic rooms, but only with adequate minimum chimney height to DIN 18160 – 4 m above inlet (negative pressure operation).

Not permissible:
- Stairwells and communal hallways; exception: Detached and two-family houses of low height (top edge of floor in the top storey < 7 m above ground level)
- Bathrooms and toilets without outside windows with shaft ventilation
- Rooms where explosive or flammable materials are stored
- Rooms that are ventilated mechanically or via individual duct systems to DIN 18117-1.

Observe all local fire regulations.

Connection on the flue gas side
(For further details, see the technical guide "Flue systems for the Vitodens")
The connection 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, packaging or similar, need to be taken/observed.
The surface temperatures of the Vitodens and the flue system never exceed 85 ºC.

Extractors
When installing appliances with extraction to the outside (cooker hoods, extractor fans etc.), ensure that air extraction will not create negative pressure inside the installation room. A return flow of flue gases could otherwise result if the ventilation system and the Vitodens are operated simultaneously. In such cases, install an **interlock circuit**.
For this, the internal extension H2 (accessories) can be used. This switches the extractors off when the burner is started.

Safety equipment for the installation room
Viessmann heat sources are tested and approved in accordance with all safety regulations and are therefore fail-safe. Unpredictable, external factors may, in the rarest of cases, lead to the potentially harmful escape of carbon monoxide (CO). For this case, we recommend using a CO limiter. This can be ordered as a separate accessory (part no. 7499 330).

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Installation conditions for room sealed operation (appliance type C)

The Vitodens can be installed as appliance type C_{13x}, C_{33x}, C_{43x}, C_{53x}, C_{63x}, C_{83x} or C_{93x} to TRGI 2008, for **room sealed** operation **independent** of the size and ventilation of the installation room.
It may, for example, be installed in recreation rooms, in other living spaces, 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 long panes) where the balanced flue pipe can be routed directly through the roof. Since the flue pipe connection piece for room sealed 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 systems for the Vitodens").
The installation area must be safe from the risk of frost.
Provide a condensate drain and a discharge pipe for the safety valve in the installation room.
Electrical interlocks for extractors (extractor hoods, etc.) are not required with room sealed operation.

Vitodens 200-W from 60 kW
In accordance with the Combustion Order (FeuVo) [Germany] boilers from 50 kW must be installed in a separate room [observe local regulations]. Fit the mains isolator outside the installation room.

Appropriate ventilation air and extract air apertures are required in accordance with TRGI (see the technical guide on flue systems for the Vitodens).

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

Safety equipment for the installation room
Viessmann heat sources are tested and approved in accordance with all safety regulations and are therefore fail-safe. Unpredictable, external factors may, in the rarest of cases, lead to the potentially harmful escape of carbon monoxide (CO). For this case, we recommend using a CO limiter. This can be ordered as a separate accessory (part no. 7499 330).

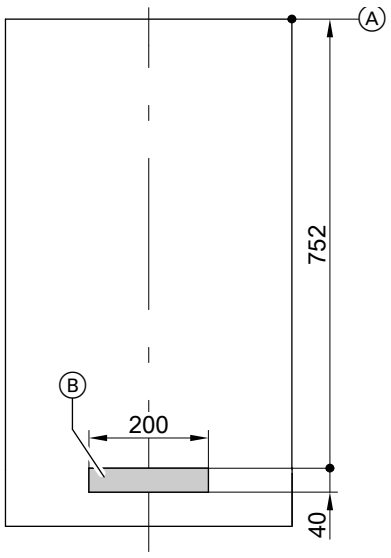
Operation of the Vitodens in wet areas

The Vitodens is approved for installation in wet areas (IP rating: IP X 4D, splashproof)

When installing the Vitodens in wet areas, observe the safety zones and minimum wall clearances according to VDE 0100 [or local regulations]. The Vitodens 200-W may be installed in **safety zone 1**.

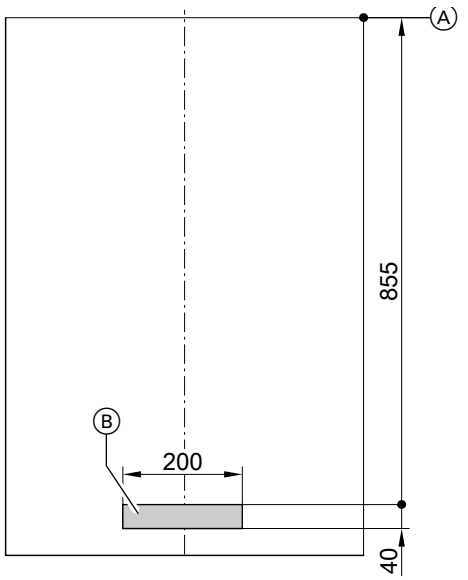
Electrical connection

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



Vitodens 200-W, 45 to 100 kW

Ⓐ Reference point Vitodens top edge
Ⓑ Area for power cables



Vitodens 200-W, 125 to 150 kW

Ⓐ Reference point Vitodens top edge
Ⓑ Area for power cables

Recommended leads/cables

NYM 3 G 1.5 mm²	**2-core min. 0.75 mm²**	**4-core 1.5 mm² or 3-core 1.5 mm² without green/yellow wire**
– Power cables (also for accessories) – DHW circulation pump	– 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 – Vitocomfort 200 – Wireless base station – Radio clock receiver	– Vitotrol 100, type UTDB-RF (230 V) – Vitotrol 100, type UTA

Interlock switch
Install an interlock for open flue operation if an extractor (e.g. cooker hood) is fitted any room that is part of the interconnected combustion air supply.
For this, the internal extension H2 (accessories) can be used. This switches the extractors off when the burner is started.

Power supply for accessories
The power supply for accessories can be provided directly at the control unit.
This connection is switched by the system ON/OFF switch.
If the total system current exceeds 6 A, connect one or more extensions directly to the mains supply via an ON/OFF switch.

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

Additional requirements when installing boilers operated with LPG in rooms below ground level
According to TRF 1996 Vol. 2 – valid as of 1 September 1997 – an external safety solenoid valve is no longer required when installing the Vitodens below ground level.
However, the high safety standard derived from the use of an external safety solenoid valve has proved to be valuable. We therefore recommend the installation of an external safety solenoid valve when installing the boiler in rooms below ground level. This requires the internal H1 extension.

Gas connection

Gas installations must only be carried out by a registered gas fitter authorised by the relevant gas supply utility.
Connect and size the mains gas according to TRGI 2008 or TRF 1996 [or local regulations].
Ⓐ Connect the mains gas according to ÖVGW-TR Gas (G1) and the regionally applicable Building Regulations.
Maximum test pressure 150 mbar (15 kPa).
We recommend installing a gas filter to DIN 3386 into the gas line.

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

Sizing recommendation, gas flow switch
In supply areas with H_{IB} below 8.6 kWh/m^3 and gas appliances compliant with category I_{2N}, determine a fictitious rated heat input. This fictitious rated heat input results from the rated heat input (Q_{NB}) of the appliance, multiplied by a factor of 1.23 (ratio H_{IB} 8.6/7.0). Select the gas flow switch and size the pipework to TRGI 2008 [or local regulations] using this fictitious rated heat input.

Rated heating output range of the Vitodens kW	Gas flow switch
12.0-45.0	GS 10
12.0-60.0	GS 16
20.0-80.0	GS 16
20.0-100.0	GS 16
32.0-150.0	not required

The selection recommendation for the gas flow switch does not waive the requirement for correctly sizing the pipework, including the gas flow switch.

Minimum clearances

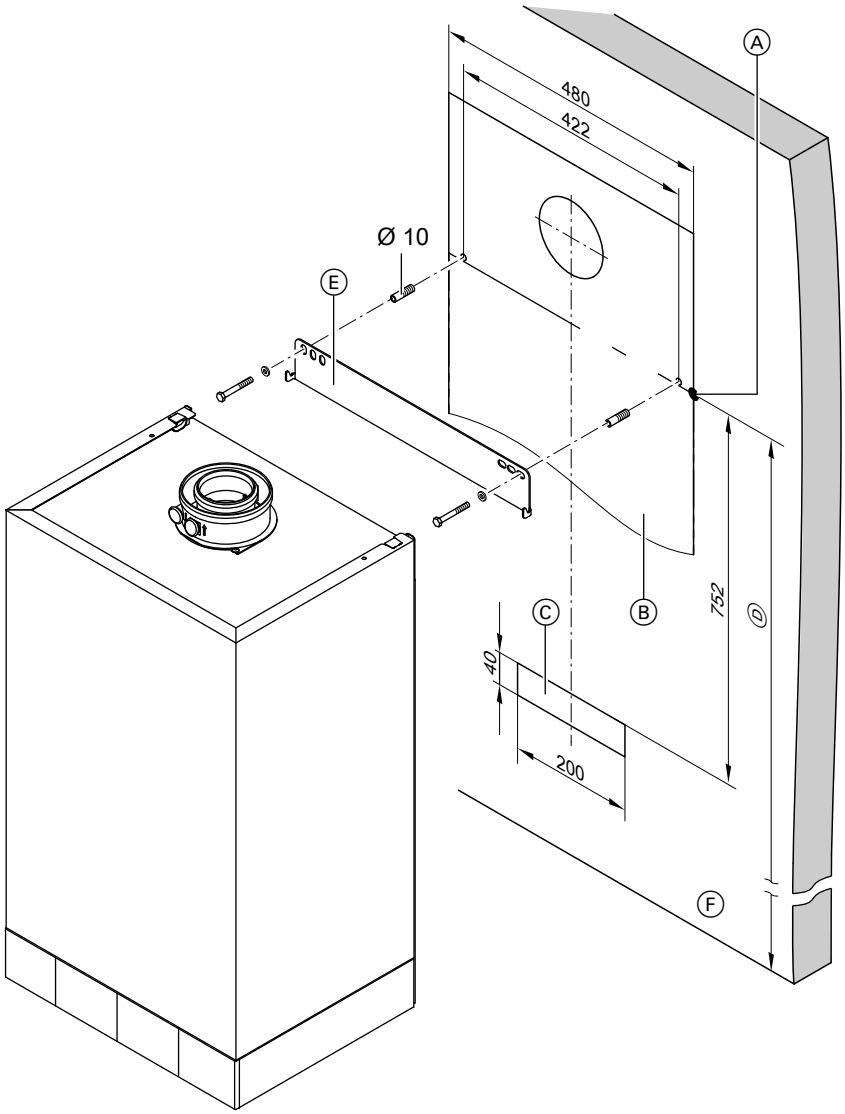
Maintain a clearance of 700 mm in front of the Vitodens or the DHW cylinder for maintenance purposes.

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

Installing the Vitodens 200-W, 45 to 100 kW directly onto a wall (single boiler)

The enclosed screws and rawl plugs are only suitable for concrete. For other construction materials, use fixing materials that are suitable for 100 kg loads.

An installation template is supplied with the Vitodens 200-W to mark the position of the screws for the wall mounting bracket and the location of the flue pipe on the wall.
Connection sets for the connection of the heating circuits and one DHW cylinder must be ordered separately.



Ⓐ Reference point Vitodens top edge
Ⓑ Vitodens installation template
Ⓒ Area for power cables.
Allow cables to protrude approx. 1200 mm from the wall.
Ⓓ Recommended dimension: 1975 mm
Ⓔ Wall mounting bracket
Ⓕ Top edge finished floor

Installation in front of a wall with a self-supporting mounting frame (single boiler)
The Vitodens can be mounted on the self-supporting mounting frame.

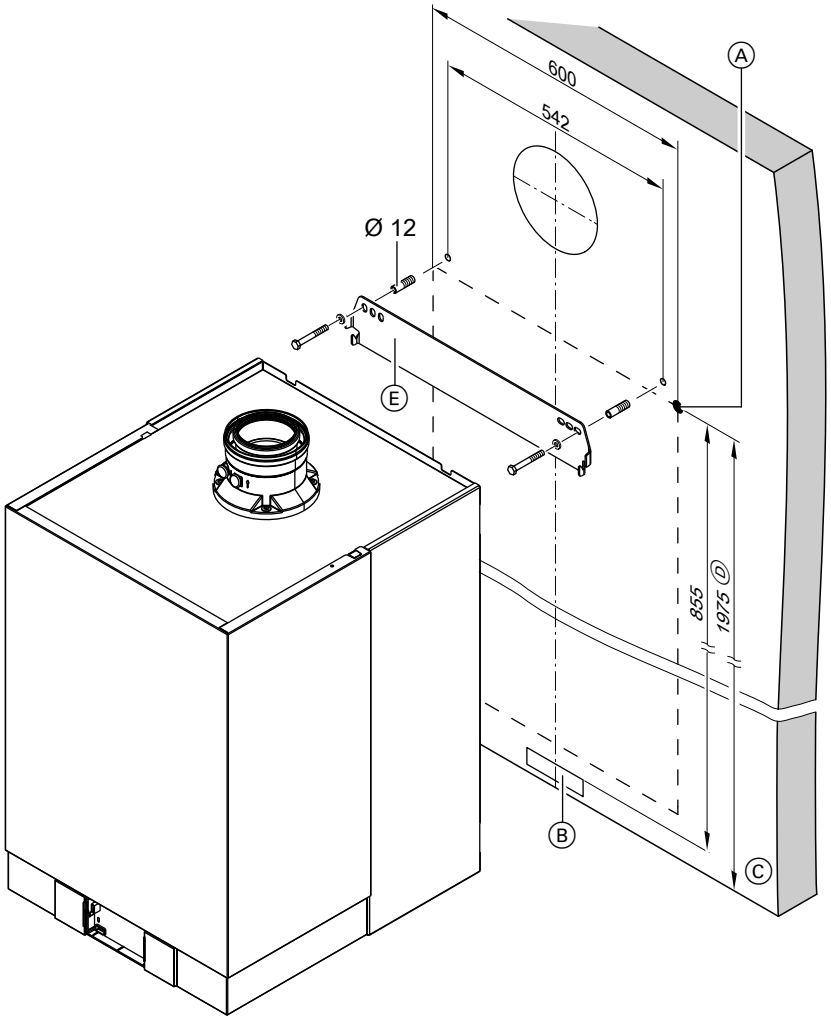
The mounting panel supplied with the boiler cannot then be used.

Installing the Vitodens 200-W, 125 to 150 kW directly onto a wall (single boiler)

The enclosed screws and rawl plugs are only suitable for concrete. For other construction materials, use fixing materials that are suitable for 145 kg loads.

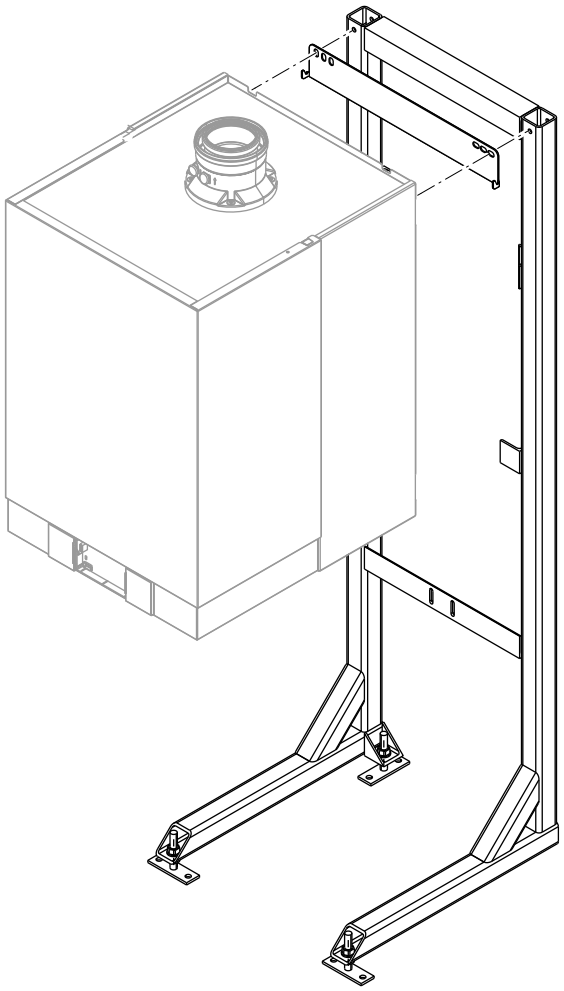
The mounting frame (accessories) is recommended for installing the Vitodens (see page 34).

Connection sets for the connection of the heating circuits and one DHW cylinder must be ordered separately.



Ⓐ Reference point Vitodens top edge
Ⓑ Area for power cables.
Allow cables to protrude approx. 1200 mm from the wall.
Ⓒ Top edge finished floor
Ⓓ Recommended dimension: 1975 mm
Ⓔ Wall mounting bracket

Installation with mounting frame (single boiler)
The Vitodens can be installed freestanding in any room by using the mounting frame available as an accessory. The boiler can be levelled by means of adjustable feet.



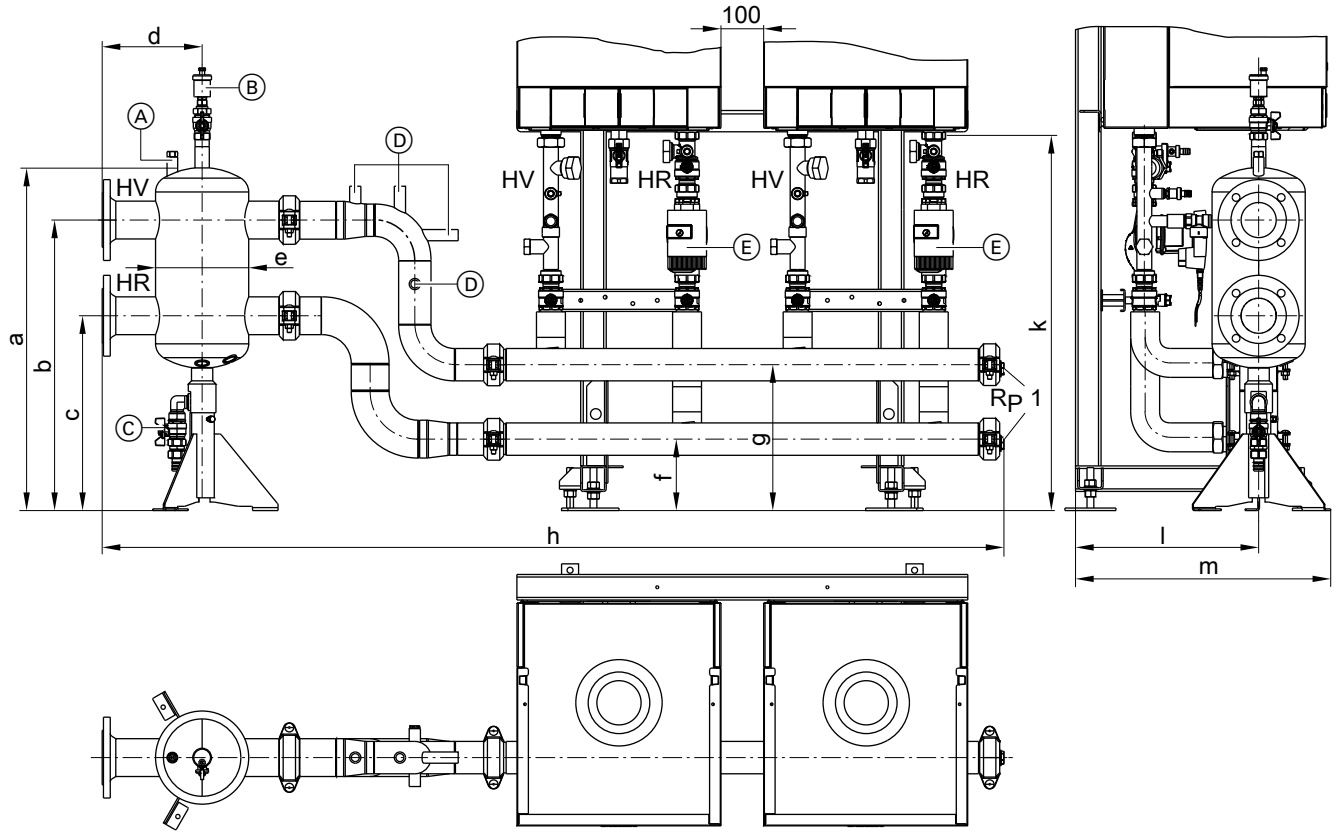
Pre-installation, multi boiler system

Hydraulic cascade
Flow and return collectors, optionally with low loss header, for multi boiler systems of 2 to 8 boilers in series or 4 to 8 boilers arranged in a block formation. Heating circuit connections can be either on the right or left.

Mounting accessories for supporting the mounting frames against a wall or ceiling are part of the standard delivery.
Order the low loss header or the heating circuit connecting kit as separate accessories.

Design information (cont.)

Hydraulic cascade with low loss header



Shown without the thermal insulation supplied

Ⓐ Sensor well for flow temperature sensor
Ⓑ Air vent valve
Ⓒ Drain
Ⓓ Connectors for safety equipment Rp ½
Ⓔ Connection accessories with circulation pump
HR Heating return
HV Heating flow

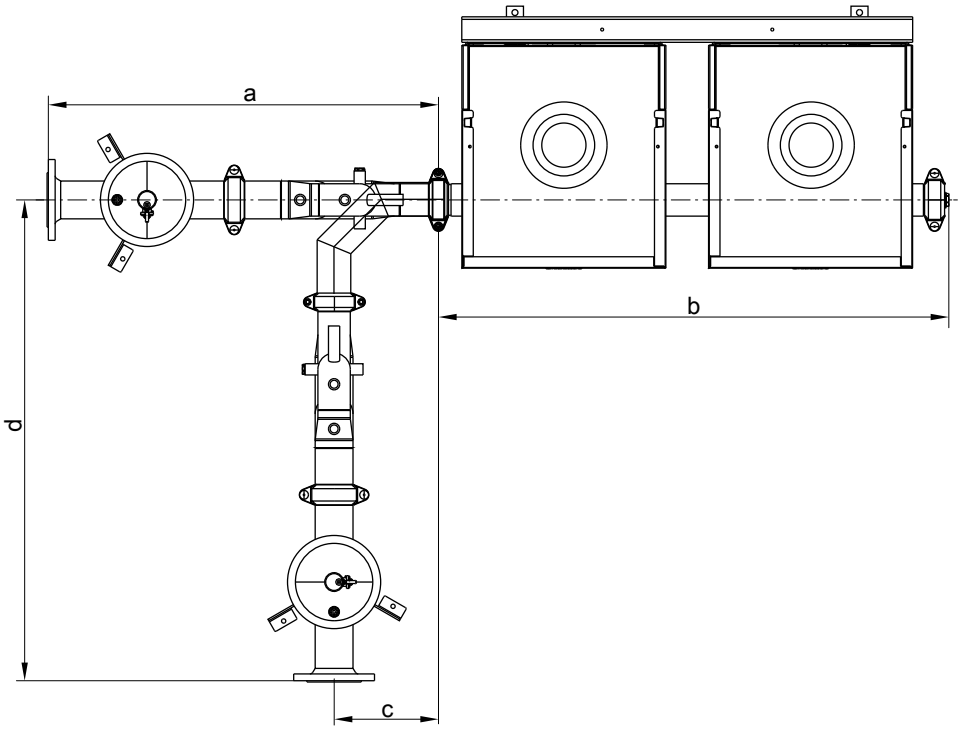
Boiler	**Number**	**2x45 kW** **2x60 kW**	**2x80 kW** **2x100 kW**	**3x45 kW** **3x60 kW**	**3x80 kW** **3x100 kW**	**4x45 kW** **4x60 kW** **4x80 kW** **4x100 kW**	**6x45 kW** **6x60 kW**	**6x80 kW** **6x100 kW**	**8x45 kW** **8x60 kW**	**8x80 kW** **8x100 kW**
Heating circuit connection	PN6/DN	80	80	80	80	100	100	100	100	100
Boiler connection	G	1½	1½	1½	1½	1½	1½	1½	1½	1½
Max. **flow rate**	m^3/h	6.9	12.1	10.3	18.1	24.1	20.6	36.2	27.6	48.2
Dimensions a	mm	805	805	805	805	1044	1044	1044	1044	1044
b	mm	688	688	688	688	860	860	860	860	860
c	mm	460	460	460	460	520	520	520	520	520
d	mm	235	235	235	235	250	250	250	250	250
e	mm	219	219	219	219	300	300	300	300	300
f	mm	168	168	168	168	168	168	168	168	168
g	mm	343	343	343	343	343	343	343	343	343
h	mm	2125	2125	2707	2707	3382	4544	4659	5706	5821
k	mm	882	882	882	882	882	882	882	882	882
l	mm	430	430	430	430	430	430	430	430	430
m	mm	595	595	595	595	595	595	595	595	595

Design information (cont.)

Boiler		Number	2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
Heating circuit connection		PN6/DN	100	100	150	150
Boiler connection		G	2	2	2	2
Max. **flow rate**		m^3/h	17.2	25.8	34.4	51.6
Dimensions	a	mm	1218	1218	1218	1218
	b	mm	972	972	972	972
	c	mm	520	520	520	520
	d	mm	380	380	380	380
	e	mm	419	419	419	419
	f	mm	168	168	168	168
	g	mm	343	343	343	343
	h	mm	2461	3159	3974	5372
	k	mm	1025	1025	1025	1025
	l	mm	520	520	520	520
	m	mm	710	710	710	710

Boiler		Num-ber	(2x2) 45 kW (2x2) 60 kW	(2x2) 80 kW (2x2) 100 kW	(2x3) 80 kW (2x3) 100 kW	(2x4) 45 kW (2x4) 60 kW	(2x4) 80 kW (2x4) 100 kW
Heating circuit connection		PN6/DN	80	100	100	100	100
Boiler connection		G	1½	1½	1½	1½	1½
Max. **flow rate**		m^3/h	13.8	24.1	36.2	27.6	48.2
Dimensions	a	mm	805	1044	1044	1044	1044
	b	mm	683	860	860	860	860
	c	mm	458	520	520	520	520
	d	mm	235	250	250	250	250
	e	mm	219	300	300	300	300
	f	mm	168	168	168	168	168
	g	mm	343	343	343	343	343
	h	mm	2220	2335	2917	3382	3497
	k	mm	882	882	882	882	882
	l	mm	–	–	–	–	–
	m	mm	–	–	–	–	–

Installation in corners, with a low loss header



Design information (cont.)

Boiler		Number	2x45 kW 2x60 kW	2x80 kW 2x100 kW	3x45 kW 3x60 kW	3x80 kW 3x100 kW	4x45 kW 4x60 kW 4x80 kW 4x100 kW	6x45 kW 6x60 kW	6x80 kW 6x100 kW	8x45 kW 8x60 kW	8x80 kW 8x100 kW
Heating circuit connection		PN6/DN	65	65	65	65	100	100	100	100	100
Dimensions	a	mm	927	927	927	927	1022	1022	1137	1022	1137
	b	mm	1198	1198	1780	1780	2360	3522	3522	4684	4684
	c	mm	277	277	277	277	277	277	277	277	277
	d	mm	1204	1204	1204	1204	1299	1299	1414	1414	1414

Boiler		Number	2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
Heating circuit connection		PN6/DN	100	100	100	100
Dimensions	a	mm	1022	1022	1022	1022
	b	mm	1439	2137	2952	4350
	c	mm	277	277	277	277
	d	mm	1299	1299	1299	1299

Low loss header
- DN 65/80
  Part no. Z010 305
- DN 80/100
  Part no. Z010 306
- DN 100/100
  Part no. Z010 307
- DN 100/150
  Part no. ZK00 674

Comprising:
- Low loss header with integral sensor well
- Thermal insulation
- Connection lines for hydraulic cascades with Rp ½ connections for safety and control equipment
- Air vent valve
- Drain valve

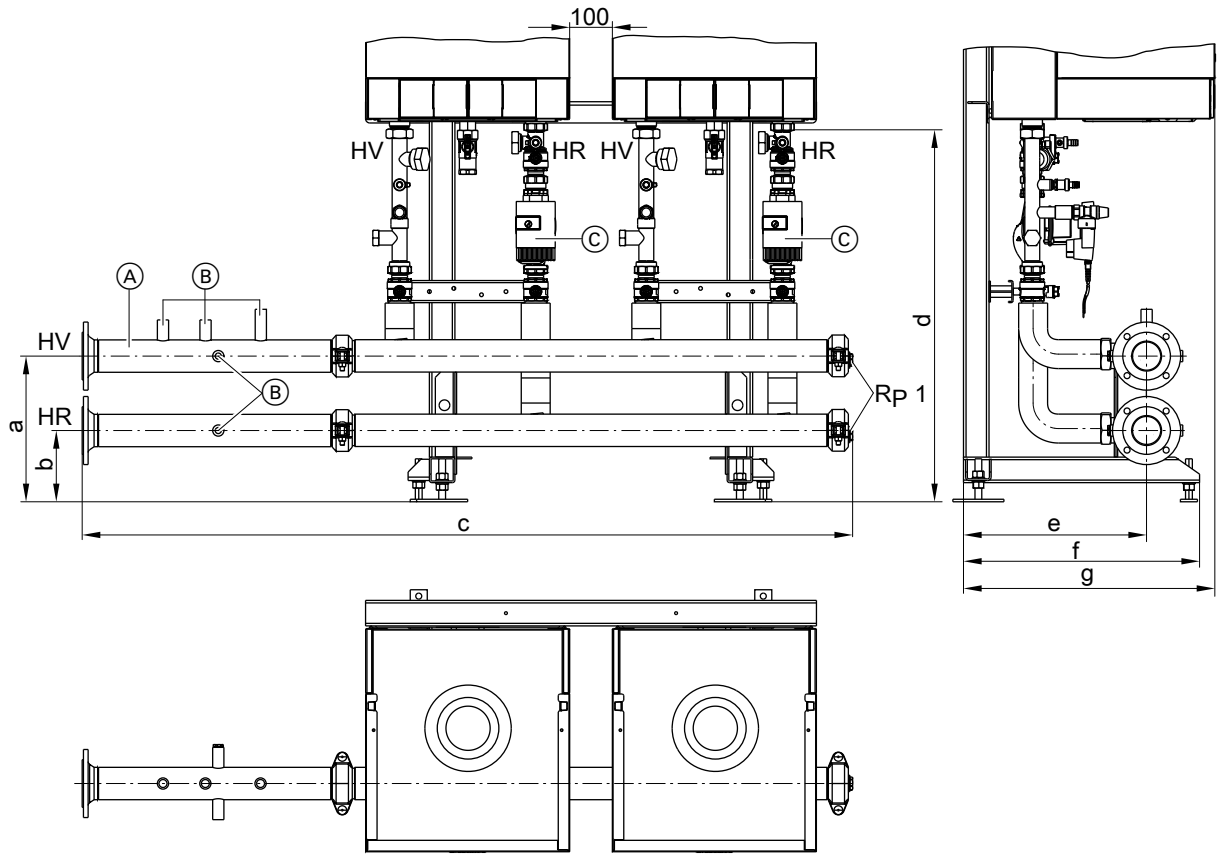
90° pipe bend for installation in corners
For corner installation of multi boiler system and low loss header
- DN 65
  Part no. 7164 976
- DN 80
  Part no. 7164 977
- DN 100
  Part no. 7164 978

Comprising:
- 2 pipe bends
- Thermal insulation

4

Design information (cont.)

Hydraulic cascade without low loss header



Shown without the thermal insulation supplied

Ⓐ Heating circuit connecting kit
Ⓑ Connectors for safety equipment Rp ½
Ⓒ Connection accessories with circulation pump
HR Heating return
HV Heating flow

Boiler	**Number**	**2x45 kW** **2x60 kW**	**2x80 kW** **2x100 kW**	**3x45 kW** **3x60 kW**	**3x80 kW** **3x100 kW**	**4x45 kW** **4x60 kW** **4x80 kW** **4x100 kW**	**6x45 kW** **6x60 kW**	**6x80 kW** **6x100 kW**	**8x45 kW** **8x60 kW**	**8x80 kW** **8x100 kW**
Heating circuit connection	PN6/DN	65	65	65	65	80	80	100	80	100
Boiler connection	G	1½	1½	1½	1½	1½	1½	1½	1½	1½
Max. **flow rate**	m^3/h	6.9	12.1	10.3	18.1	24.1	20.6	36.2	27.6	48.2
Dimensions a	mm	343	343	343	343	343	343	343	343	343
b	mm	168	168	168	168	168	168	168	168	168
c	mm	1808	1808	2390	2390	3050	4212	4212	5374	5374
d	mm	882	882	882	882	882	882	882	882	882
e	mm	430	430	430	430	430	430	430	430	430
f	mm	555	555	555	555	555	555	555	555	555
g	mm	440	590	440	590	590	590	590	590	590

Design information (cont.)

Boiler		Number	2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
Heating circuit connection		PN6/DN	80	80	100	100
Boiler connection		G	2	2	2	2
Max. **flow rate**		m^3/h	17.2	25.8	34.4	51.6
Dimensions	a	mm	343	343	343	343
	b	mm	168	168	168	168
	c	mm	2129	2827	3527	4925
	d	mm	1025	1025	1025	1025
	e	mm	520	520	520	520
	f	mm	710	710	710	710
	g	mm	755	755	755	755

Boiler		Number	(2x2) 45 kW (2x2) 60 kW	(2x2) 80 kW (2x2) 100 kW	(2x3) 80 kW (2x3) 100 kW	(2x4) 45 kW (2x4) 60 kW	(2x4) 80 kW (2x4) 100 kW
Heating circuit connection		PN6/DN	80	100	100	100	100
Boiler connection		G	1½	1½	1½	1½	1½
Max. **flow rate**		m^3/h	13.8	24.1	36.2	27.6	48.2
Dimensions	a	mm	343	343	343	343	343
	b	mm	168	168	168	168	168
	c	mm	1888	1888	2470	3050	3050
	d	mm	882	882	882	882	882
	e	mm	–	–	–	–	–
	f	mm	–	–	–	–	–
	g	mm	–	–	–	–	–

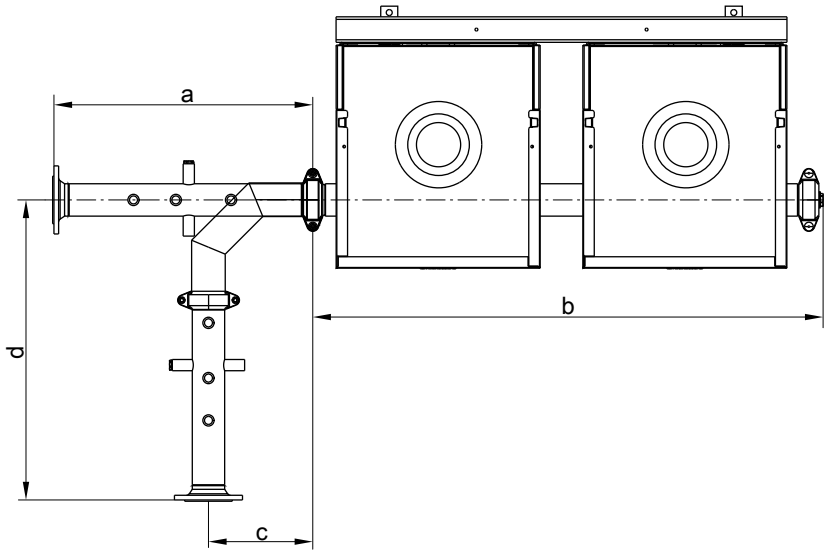
Heating circuit connecting kit

- DN 65
  Part no. 7453 093
- DN 80
  Part no. 7453 094
- DN 100
  Part no. 7453 095

Comprising:

- Connection lines for hydraulic cascades with Rp ½ connections for safety and control equipment
- Thermal insulation

Corner installation of multi boiler system and heating circuit connecting kit



Design information (cont.)

Boiler		Number	2x45 kW 2x60 kW	2x80 kW 2x100 kW	3x45 kW 3x60 kW	3x80 kW 3x100 kW	4x45 kW 4x60 kW 4x80 kW 4x100 kW	6x45 kW 6x60 kW 6x80 kW 6x100 kW	8x45 kW 8x60 kW 8x80 kW 8x100 kW
Heating circuit connection		PN6/DN	65	65	65	65	80	100	100
Dimensions	a	mm	610	610	610	610	690	690	690
	b	mm	1198	1198	1780	1780	2360	3522	4684
	c	mm	277	277	277	277	277	277	277
	d	mm	887	887	887	887	967	967	967

Boiler		Number	2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
Heating circuit connection		PN6/DN	100	100	100	100
Dimensions	a	mm	690	690	690	690
	b	mm	1439	2137	2952	4350
	c	mm	277	277	277	277
	d	mm	967	967	967	967

90° pipe bend for installation in corners
For corner installation of multi boiler system and heating circuit connecting kit
- DN 65
  Part no. 7164 976
- DN 80
  Part no. 7164 977
- DN 100
  Part no. 7164 978

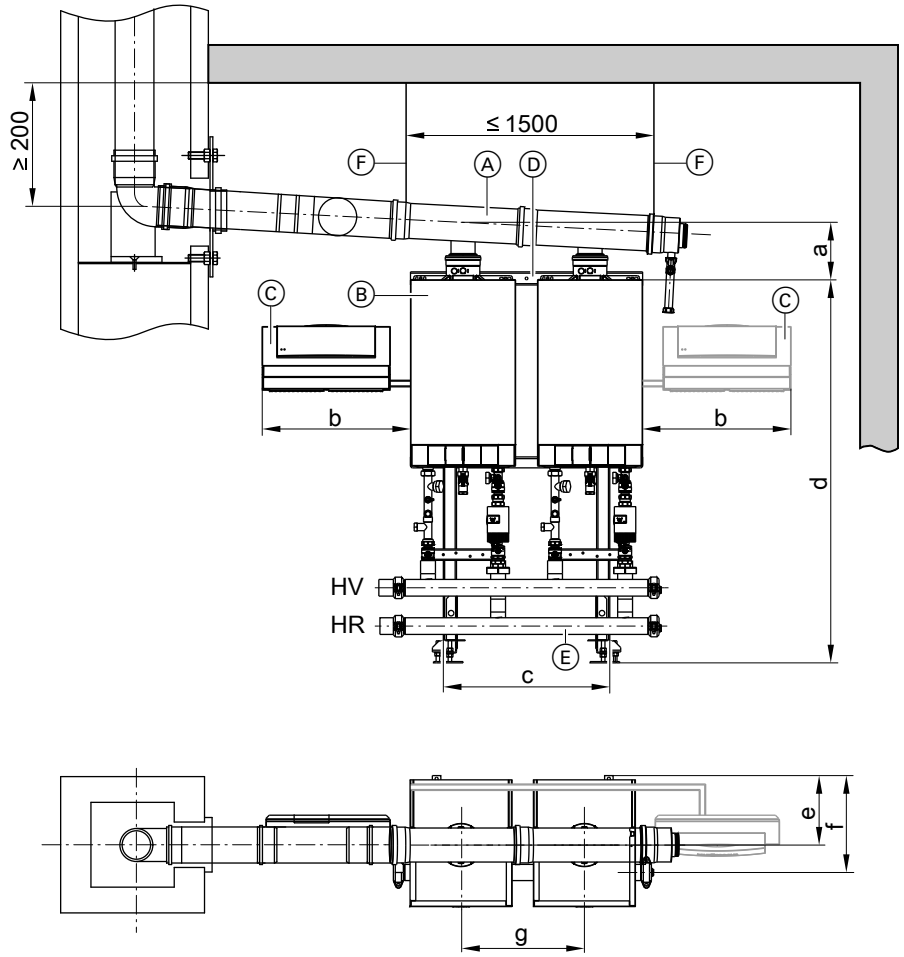
Comprising:
- 2 pipe bends
- Thermal insulation

4

5822 432 GB

Design information (cont.)

Installation in series with flue gas cascade



Shown without the thermal insulation supplied

Ⓐ Flue gas cascade
Ⓑ Vitodens
Ⓒ Vitotronic 300-K (can be fitted either to the left or the right)
The total length of all BUS cables (on site) should not exceed 50 m.
Ⓓ Self-supporting mounting frame
Ⓔ Hydraulic cascade
Ⓕ Ceiling mounting for flue gas cascade
HR Heating return
HV Heating flow

Note
Secure the flue gas cascade with suitable means.
Suspension from the ceiling is recommended. Observe the max. distance between fixing points Ⓕ.

For details regarding the flue gas cascade, see page 26 and the technical guide on flue systems. A flue gas non-return device is integrated into each boiler.
For further details regarding the hydraulic cascade, see page 34.

Number of boilers		2x45 kW 2x60 kW	2x80 kW 2x100 kW	3x45 kW 3x60 kW	3x80 kW 3x100 kW	4x45 kW 4x60 kW	4x80 kW 4x100 kW	6x45 kW 6x60 kW	6x80 kW 6x100 kW	8x45 kW 8x60 kW	8x80 kW 8x100 kW
a	mm	176	176	207	207	237	237	387	387	447	447
b	mm	678	678	678	678	678	678	678	678	678	678
c	mm	760	760	760	760	760	760	760	760	760	760
d	mm	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
e	mm	220	302	220	302	220	302	220	302	220	302
f	mm	430	430	430	430	430	430	430	430	430	430
g	mm	580	580	580	580	580	580	580	580	580	580

Number of boilers		2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
a	mm	331	367	403	474
b	mm	617	617	617	617
c	mm	880	880	880	880
d	mm	1950	1950	1950	1950

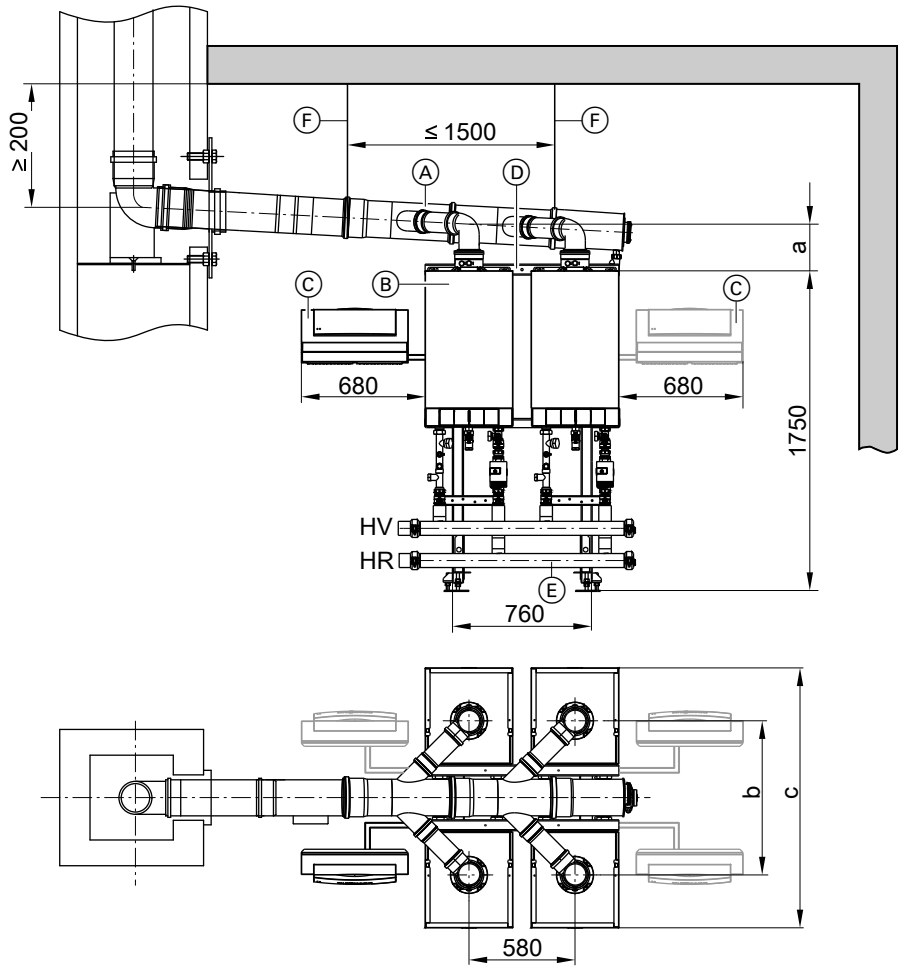
Design information (cont.)

Number of boilers		2x125 kW 2x150 kW	3x125 kW 3x150 kW	4x125 kW 4x150 kW	6x125 kW 6x150 kW
e	mm	344	344	344	344
f	mm	520	520	520	520
g	mm	700	700	700	700

Multi boiler system standard delivery
- Vitodens 200-W (2 to 8 boilers)
- Cascade control unit Vitotronic 300-K
- Cascade communication module for each boiler
- Immersion temperature sensor
- Self-supporting mounting frame
- Hydraulic cascade with thermal insulation
- Connection accessories with HE circulation pump and thermal insulation

Accessories (subject to order)
- Low loss header with connection lines and thermal insulation
  or
- Heating circuit connecting kit with thermal insulation

Installation in block formation with flue gas cascade



Shown without the thermal insulation supplied

Ⓐ Flue gas cascade
Ⓑ Vitodens
Ⓒ Vitotronic 300-K (can be fitted either to the left or the right)
The total length of all BUS cables (on site) should not exceed 50 m.
Ⓓ Self-supporting mounting frame
Ⓔ Hydraulic cascade
Ⓕ Ceiling mounting for flue gas cascade
HR Heating return
HV Heating flow

Note
Secure the flue gas cascade with suitable means.
Suspension from the ceiling is recommended. Observe the max. distance between fixing points Ⓕ.

For details regarding the flue gas cascade, see page 26 and the technical guide on flue systems. A flue gas non-return device is integrated into each boiler.
For further details regarding the hydraulic cascade, see page 34.

Boiler		(2x2) 45 kW (2x2) 60 kW	(2x2) 80 kW (2x2) 100 kW	(2x3) 80 kW (2x3) 100 kW	(2x4) 45 kW (2x4) 60 kW	(2x4) 80 kW (2x4) 100 kW
a	mm	176	176	207	176	237
b	mm	680	843	843	680	843
c	mm	1350	1422	1422	1350	1422

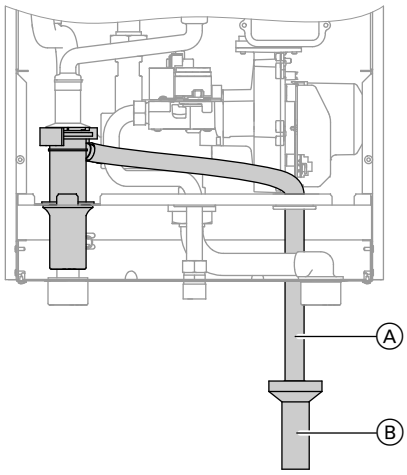
Multi boiler system standard delivery
- Vitodens 200-W (4 to 8 boilers)
- Cascade control unit Vitotronic 300-K
- Cascade communication module for each boiler
- Immersion temperature sensor
- Hydraulic cascade with thermal insulation
- Self-supporting mounting frame
- Connection accessories with HE circulation pump and thermal insulation

Accessories (subject to order)
- Low loss header with connection lines and thermal insulation
  or
- Heating circuit connecting kit with thermal insulation

4.2 Condensate connection

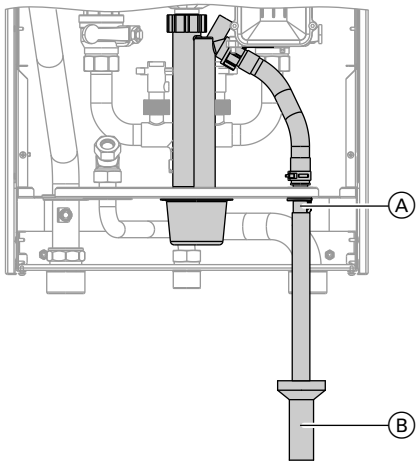
Route the condensate drain pipe with a constant fall.
Route the condensate from the flue system (if equipped with a drain) together with the boiler condensate directly or (if installed) via a neutralising system (accessory) to the public sewage system.

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



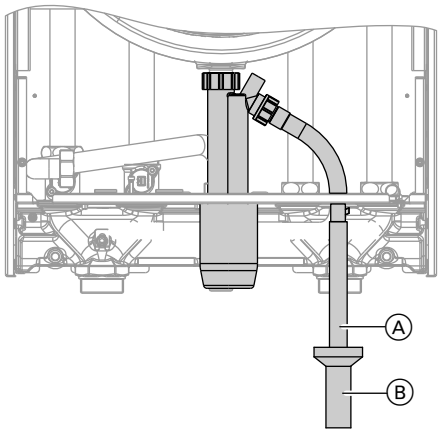
Vitodens 200-W, 45 and 60 kW

Ⓐ Drain hose (Vitodens standard delivery)
Ⓑ Drain outlet kit (accessory)



Vitodens 200-W, 80 and 100 kW

Ⓐ Drain hose (Vitodens standard delivery)
Ⓑ Drain outlet kit (accessory)



Vitodens 200-W, 125 and 150 kW

Ⓐ Drain hose (Vitodens standard delivery)
Ⓑ Drain outlet kit (accessory)

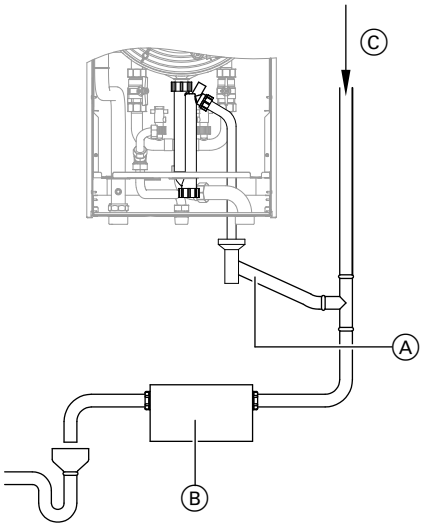
Condensate drain and neutralisation

Drain the condensate created during heating operation in the condensing boiler and in the flue pipe, in accordance with appropriate regulations. With gas combustion, the condensate will have a pH value between 4 and 5.
The Code of Practice DWA-A 251 on "Condensate from condensing boilers", which is generally based on the local waste water regulations [in Germany], determines conditions for draining condensate from condensing boilers into the public sewer system.
The composition of condensate drained from Vitodens condensing boilers meets the requirements specified in Code of Practice DWA-A 251.
The condensate drain pipe to the sewer connection must be freely accessible for inspection.
It must be installed with a continuous fall and must contain a stench trap. Also provide a suitable facility for extracting samples.
Condensate drain pipes must only be made from corrosion-resistant materials (e.g. reinforced hoses).
Never use any zinc-plated materials or those containing copper for pipes, connection pieces, etc.
A siphon is installed in the condensate drain to prevent flue gases escaping.
Local 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 heating output of 200 kW, the condensate from a gas condensing boiler can generally be introduced into the public sewage system without prior neutralisation.
Also ensure that your domestic drainage systems are made from materials that are resistant to acidic condensate.

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

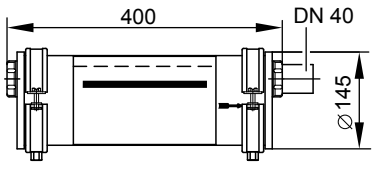
Neutralising system



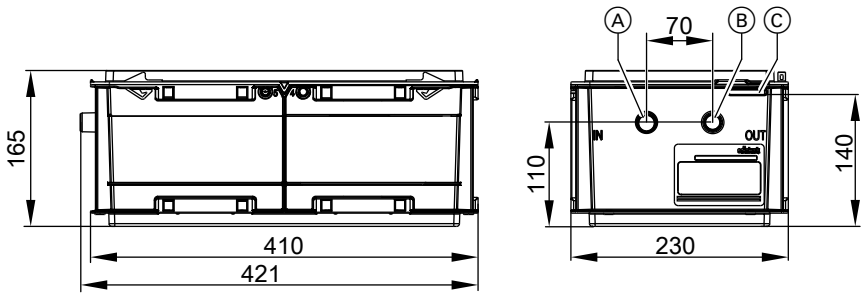
Ⓐ Condensate drain
Ⓑ Neutralising system
Ⓒ Ventilation via the roof

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

Neutralising system for single boiler systems with 45 and 60 kW
Part no. 9535 742



Neutralising system for single boiler systems from 80 kW and multi boiler systems
Part no. 7441 823



Ⓐ Inlet (DN 20)
Ⓑ Drain (DN 20)
Ⓒ Overflow aperture

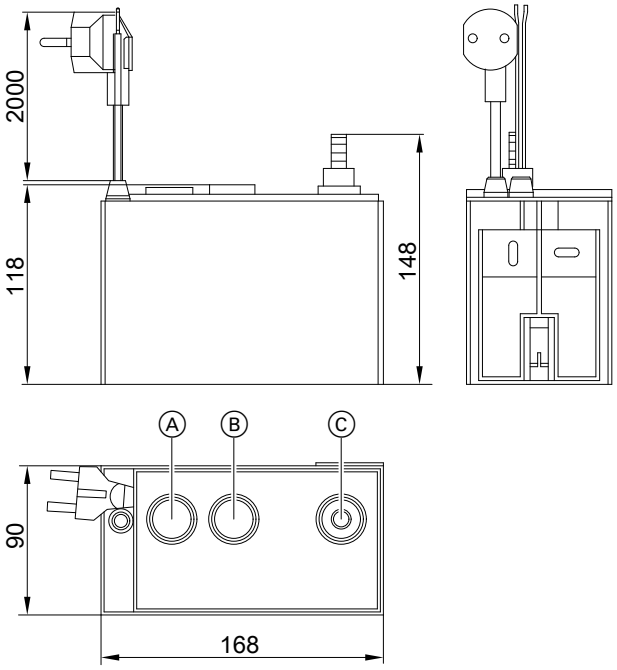
Condensate lifting system

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 ∅ 24 mm connection apertures for condensate inlet

The standard delivery comprises:
- 6 m long drain hose ∅ 14 x 2 mm
- Non-return valve

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



Ⓐ Condensate inlet
Ⓑ Condensate inlet with drain plug
Ⓒ Condensate drain

4.3 Hydraulic connection

General information

System design
Viessmann condensing boilers can generally be installed in any fully pumped hot water heating system (sealed unvented system).
Connection sets with an integral circulation pump are available as accessories.
Minimum system pressure 1.0 bar (0.1 MPa).
The boiler water temperature is limited to 82 ºC.
To keep distribution losses as low as possible, we recommend sizing the heat distribution system for a maximum flow temperature of 70 °C.

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

Heating circuits
For heating systems with plastic pipes, we recommend the use of impermeable pipes to prevent the diffusion of oxygen through the pipe walls.
Provide system separation in heating systems with plastic pipes that are permeable to oxygen (DIN 4726). A separate heat exchanger for this purpose is available.
Install a dirt separator in underfloor heating systems. See Viessmann Vitoset pricelist.
Underfloor heating systems and heating circuits with very large water content (>15 l/kW) should be connected to the condensing boiler via a 3-way mixer. See technical guide "Control of underfloor heating systems" or the relevant sample applications.
Install a temperature limiter in the flow of the underfloor heating circuit to restrict the maximum temperature. Observe the requirements of DIN 18560-2 [or local regulations].

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

Safety valve
A safety valve in accordance with TRD 721 is part of the heating circuit connection set (accessories) (opening pressure 4 bar) (0.4 MPa).
Route the discharge pipe in accordance with EN 12828 into a drain outlet (drain outlet kit available as an accessory). The drain outlet incorporates a siphon as a stench trap.

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

Attic heating centre
The installation of a low water indicator specified as compulsory to EN 12828 is not required when installing the Vitodens in an attic heating centre.
The Vitodens condensing boilers are protected against water shortage in accordance with EN 12828.

Water quality/Frost protection
Unsuitable fill and top-up water increases the level of deposits and corrosion and may lead to the boiler damage.
Observe VDI 2035 regarding quality and amount of heating water, including fill and top-up water.
- Flush the heating system thoroughly before filling.
- Only fill with water of potable quality.
- Fill and top-up water with a water hardness in excess of the following values must be softened, e.g. with the small softening system for heating water (see the Viessmann Vitoset pricelist):

Total permissible hardness of the fill and top-up water

Total heating output	Specific system volume		
kW	< 20 l/kW	≥ 20 l/kW to < 50 l/kW	≥ 50 l/kW
≤ 50	≤ 3.0 mol/m³ (16.8 °dH)	≤ 2.0 mol/m³ (11.2 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 50 to ≤ 200	≤ 2.0 mol/m³ (11.2 °dH)	≤ 1.5 mol/m³ (8.4 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 200 to ≤ 600	≤ 1.5 mol/m³ (8.4 °dH)	≤ 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)
> 600	< 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)	< 0.02 mol/m³ (0.11 °dH)

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

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

Operating information:
- Commission the system step by step, starting with the lowest boiler output and a high heating water flow rate. This prevents localised concentration of limescale deposits on the boiler heating surfaces.
- In multi boiler systems, start all boilers simultaneously to prevent the entire limescale deposit settling in the heat transfer area of just one boiler.
- During expansion or repair work, only drain the necessary pipework sections.
- Where water treatment is required, treat even the first fill of the heating system prior to commissioning. This also applies to any subsequent filling, e.g. when adding top-up water or after a repair, or for any system expansion.
- Check, clean and activate filters, dirt traps and other blow-down or separating facilities in the heating water circuit more frequently after the commissioning or in case of new installations, later on subject to the water treatment applied (e.g. water softening).

Installation examples
For installation examples for the Vitodens 200-W, see "System examples".

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Expansion vessels

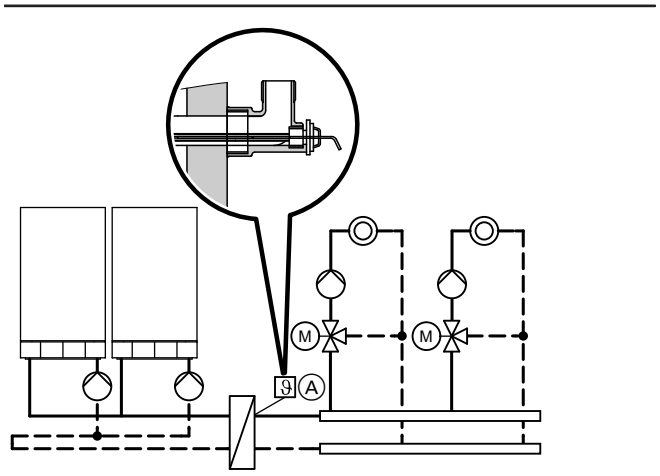
In accordance with EN 12828, water heating systems must be equipped with a pressure expansion vessel.

The size of the expansion vessel is subject to the heating system specification and should be checked in each case.

Multi boiler systems

We recommend the installation of a low loss header in multi boiler systems. For this, order the low loss header that is available as an accessory. See page 34 and the Viessmann pricelist.
Losses resulting from the use of third party low loss headers are excluded from our liability.
On-site safety equipment should comply with EN 12828.

As an alternative to the low loss header, a suitably sized plate heat exchanger may be used to provide system separation. In that case, the flow temperature sensor should be arranged on the secondary side of the plate heat exchanger. See the following system example.



Ⓐ Flow temperature sensor

Information on the plate heat exchanger

- Provide air vent valves (e.g. quick-action air vent valves) on the primary side (boiler side) and the secondary side (heating circuit side) of the plate heat exchanger.
- Flush existing heating systems thoroughly before fitting the plate heat exchanger. The use of a sludge separator is recommended.
- Fit the flow temperature sensor into the flow connector on the secondary side, as shown. Connection elbows with integral sensor well are available as accessories.
- Set the circulation pumps in the boiler connection sets to ΔP constant and max. pump rate.
- The connection of several plate heat exchangers is not recommended.

Sizing the plate heat exchanger:

- The pressure drop in the plate heat exchanger must be lower than the lowest pressure drop of connected heating circuits.
- Fit a dirt trap on the secondary side of the plate heat exchanger.
- When sizing, take the temperature differential of the plate heat exchanger into account (max. flow temperature in a multi boiler system with Vitodens 200-W: 82 °C)

Low loss header

Application

Design rules for system hydraulics:

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

The low loss header separates the heat source (boiler circuit) from the downstream heating circuits.
Install a low loss header if the maximum flow rate in an individual system design is greater than the values shown in the table below.

Boiler	Max. flow rate l/h
Vitodens 200-W, 45 and 60 kW	3500
Vitodens 200-W, 80 and 100 kW	5700
Vitodens 200-W, 125 kW	7165
Vitodens 200-W, 150 kW	8600

We recommend installing a low loss header if the minimum flow rates listed in the table below cannot be guaranteed.

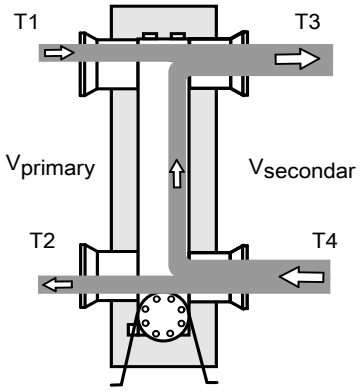
Boiler	Min. flow rate l/h
Vitodens 200-W, 45 and 60 kW	450
Vitodens 200-W, 80 and 100 kW	1300
Vitodens 200-W, 125 and 150 kW	3600

For installation schemes in conjunction with low loss headers, see the relevant sample application in the "System examples" document.

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 diagram; alternatively the variable speed pump can be adjusted accordingly.

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

Principle of operation



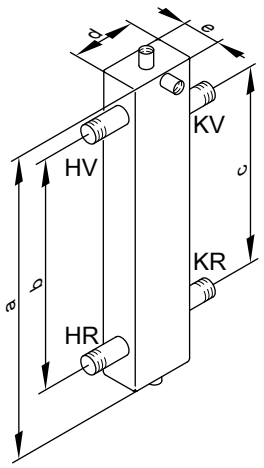
$V_{primary}$	Heating water volume, boiler circuit (approx. 10 - 30 % less than $V_{secondary}$)
$V_{secondary}$	Heating water volume, heating circuit
T_1	Flow temperature, boiler circuit
T_2	Return temperature, boiler circuit
T_3	Flow temperature, heating circuit
T_4	Return temperature, heating circuit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

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

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

Low loss header in conjunction with Divicon heating circuit distributor
For description and specification, see page 20.

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



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

Flow rate Max.		**m³/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

Low loss header with distributor/manifold for multi boiler systems with Vitodens 200-W
For description and specification, see page 34.

4.4 Intended use

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

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

Commercial or industrial usage for a purpose other than heating the building or DHW does not comply with regulations.

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

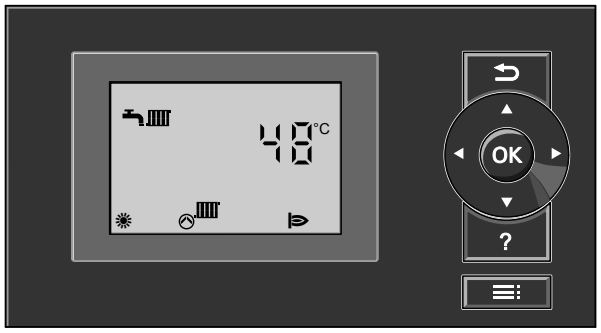
Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and results in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended function (e.g. if the flue gas and ventilation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

5.1 Vitotronic 100, type HC1B, for constant temperature operation

Layout and functions

Modular structure
The control unit is integrated into the boiler.
The control unit comprises a standard unit, electronics modules and a programming unit.

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



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

Functions
- Electronic boiler control unit for operation at a constant boiler water temperature
- Room temperature-dependent operation requires a Vitotrol 100, type UTA, UTDB or UTDB-RF (according to EnEV [Germany])
- Frost protection monitoring for the heating system
- Pump anti-seizing protection
- Integral diagnostic system
- Cylinder temperature controller with priority control
- 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 EA1 extension)
- Connection of the circulation pump for cylinder heating on the main PCB

Control characteristics
PI characteristics with modulating output.

Setting the heating programs
The heating system frost protection (see frost protection function) applies to all heating programs.
The following heating programs can be selected:
- Heating and DHW
- Only DHW
- Standby mode

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

Summer mode
Operating program "🚿"
The burner starts only when the DHW cylinder needs to be heated up.

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
The standard delivery includes the DHW cylinder connection set.

Specification

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

Specification Vitotronic 100, type HC1B

Rated voltage	230 V~	Mode of operation	Type 1B to EN 60730-1
Rated frequency	50 Hz	Permissible ambient temperature	
Rated current	6 A		
Safety category	I		

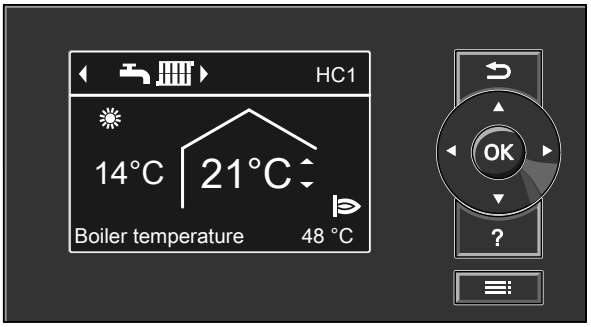
– Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +65 °C
Electronic temperature limiter setting (heating mode)	82 °C (change not possible)
Electronic high limit safety cut-out setting	100 °C (change not possible)
DHW temperature setting range	10 to 68 °C

5.2 Vitotronic 200, type HO1B, for weather-compensated operation

Layout and functions

Modular structure
The control unit is integrated into the boiler.
The control unit comprises a standard unit, electronics modules and a programming unit.

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



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 and additional information
  - Menu
- Setting the:
  - Room temperature
  - Reduced room temperature
  - DHW temperature
  - Operating 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
  - Operating data
  - Diagnostic details
  - Fault messages
- Available languages:
  - Deutsch
  - Bulgarian
  - Czech
  - Danish
  - English
  - Spanish
  - Estonian
  - French
  - Croatian
  - Italian
  - Latvian
  - Lithuanian
  - Hungarian
  - Dutch
  - Polish
  - Russian
  - Romanian
  - Slovenian
  - Finnish
  - Swedish
  - Turkish

Functions
- Weather-compensated control of the boiler water and/or flow temperature
- Control of one heating circuit without mixer and two heating circuits with mixer
- Electronic maximum and minimum temperature limit
- Demand-dependent heating circuit pump and burner shutdown control
- Adjustment of a variable heating limit
- Pump anti-seizing protection
- Frost protection monitoring for the heating system
- Integral diagnostic system
- Maintenance display
- Cylinder temperature controller with priority control
- In conjunction with solar control module, type SM1:
  - Control of solar DHW heating and central heating backup
  - Graphical representation 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 EA1 extension)
- Connection of the circulation pump for cylinder heating on the main PCB

The requirements of DIN EN 12831 for calculating the heat load are met. To reduce the heat-up output, 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 phase.

According to the Energy Saving Ordinance [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
Digital time switch (integrated into the programming unit)
- Individual day and seven-day program
- Automatic summer/wintertime changeover
- Automatic function for DHW heating and DHW circulation pump
- Time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are factory-set
- Switching times are individually programmable, i.e. up to four switching periods per day

Shortest switching interval: 10 minutes
Power reserve: 14 days

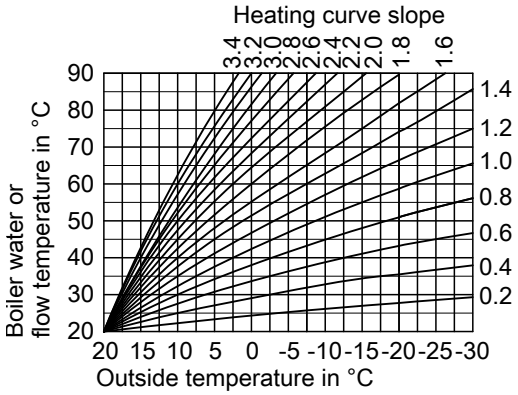
Setting the operating programs
The heating system frost protection (see frost protection function) applies to all heating programs.
The following heating programs can be selected:
- Heating and DHW
- Only DHW
- Standby mode

External heating program changeover in conjunction with EA1 extension.

Frost protection function
- The frost protection function will be started when the outside temperature drops below approx. +1 °C.
  With frost protection, the heating circuit pump is switched ON and the boiler water is maintained at a lower temperature of approx. 20 °C.
  The DHW cylinder will be heated to approx. 20°C.
- The frost protection function will be stopped when the outside temperature rises above approx. +3 °C.

Summer mode
Operating program "🚿"
The burner starts only when the DHW cylinder needs to be heated up.

Adjusting the heating curves (slope and level)
The Vitotronic 200 controls the boiler water temperature (= flow temperature of the heating circuit without mixer) **and** the flow temperature of the heating circuits with mixer (in conjunction with the extension kit for one heating circuit with mixer) in weather-compensated mode. The boiler water temperature is automatically boosted by between 0 and 40 K higher than the currently required set flow temperature (delivered condition 8 K).
The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.
Adjusting the heating curves matches the boiler water temperature and the flow temperature to these operating conditions.
Heating curves:
The upper boiler water temperature is limited by the temperature limiter and the temperature set at the electronic maximum thermostat.
The flow temperature cannot exceed the boiler water temperature.



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

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

Specification

Sensor type	Viessmann NTC, 10 kΩ at 25 °C
Permissible ambient temperature	
– during operation	0 to +130 °C
– during storage and transport	–20 to +70 °C

Cylinder temperature sensor
The standard delivery includes the DHW cylinder connection set.

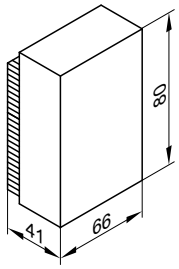
Specification

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

Outside temperature sensor

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

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



Specification

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

Specification Vitotronic 200, type HO1B

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A
Safety category	I
Permissible ambient temperature	
– Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +65 °C
Electronic temperature limiter setting (heating mode)	82 °C (no change possible)
Electronic high limit safety cut-out setting	100 °C (no change possible)
DHW temperature setting range	10 to 68 °C
Heating curve setting range	
Slope	0.2 to 3.5
Level	–13 to 40 K

5.3 Vitotronic 300-K, type MW2B for multi boiler systems

Cascade control unit for the Vitodens 200-W with a Vitotronic 100

Weather-compensated, digital cascade and heating circuit control unit
- For multi boiler systems with Vitodens 200-W
- With boiler sequence strategy
- For up to two heating circuits with mixers (extension for heating circuits 2 and 3 required as accessory).
  Up to a further 32 Vitotronic 200-H heating circuit control units can be connected via the LON BUS (LON communication module required; accessory)
- For modulating operation in conjunction with the Vitotronic 100, type HC1B
- With cylinder temperature controller or control unit of a primary store system with mixer assembly
- Capable of communicating via LON BUS (LON communication module and terminators available as accessories)
- With integral diagnostic system

Note
To improve the resilience against interference/faults, the components of a control unit should be connected to the same phase.

Design and function

Modular design
The control unit comprises a standard unit, electronics modules and a programming unit.
Standard unit:
- ON/OFF switch
- Emissions test switch
- Optolink laptop interface
- Operating and fault display
- Plug connection chamber
  - Connection of external equipment via system plug
  - Connectors are plugged directly into the front of the open control unit
  - Connection of three-phase consumers via additional contactors

Programming unit:
- Easy operation thanks to:
  - Plain text display with graphic ability
  - Large font and black/white depiction for good contrast
  - Context-sensitive help
- With digital time switch
- Operating keys for:
  - Navigation
  - Confirmation
  - Help and additional information
  - Extended menu
- Adjustment of:
  - 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

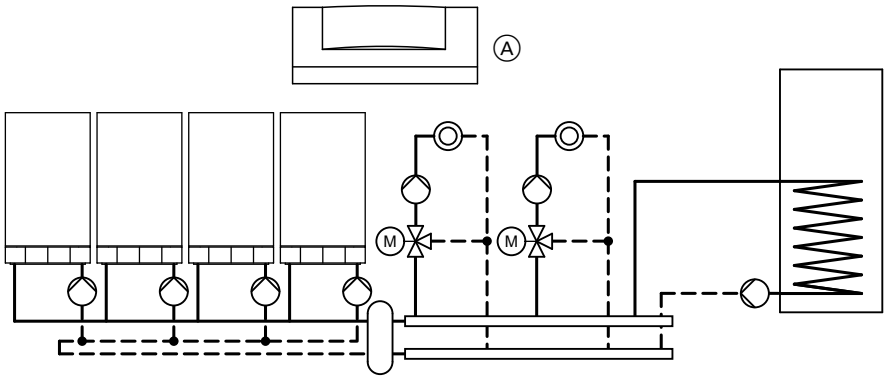
Control units (cont.)

- Display of:
  - Flow temperature
  - DHW temperature
  - Information
  - Operating data
  - Diagnostic details
  - Fault messages
- Available languages:
  - German
  - Bulgarian
  - Czech
  - Danish
  - English
  - Spanish
  - Estonian
  - French
  - Croatian
  - Italian
  - Latvian
  - Lithuanian
  - Hungarian
  - Dutch
  - Polish
  - Russian
  - Romanian
  - Slovenian
  - Finnish
  - Swedish
  - Turkish

Functions
- Weather-compensated control of the system/boiler water temperature in a multi boiler system with Vitodens 200-W with Vitotronic 100, type HC1B (modulating) and the flow temperature of the heating circuits with mixers
- Control of boilers (with a Vitotronic 100, type HC1B) in accordance with a freely selectable boiler sequence strategy
- Electronic maximum temperature limit
- Demand-dependent heating circuit pump shutdown
- Adjustment of a variable heating limit
- Pump anti-seizing protection
- Central fault message
- Integral diagnostic system
- Adaptive cylinder temperature control with priority control (heating circuit pump off, mixer closed)
- Auxiliary function for DHW heating (short-term heating to a higher temperature)
- Control of a primary store system with a regulated 3-way mixing valve
- Screed drying, for underfloor heating systems

The requirements of DIN EN 12831 for calculating the heat load are met. To reduce the heat-up output, 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 phase.
According to the Energy Saving Ordinance [Germany], the temperature in each room must be individually controlled, e.g. through thermostatic radiator valves.

DHW heating in a multi boiler system



Ⓐ Vitotronic 300-K

Control characteristics
- PI characteristics with three-point output
- Setting range for heating curves:
  - Slope: 0.2 to 3.5
  - Level: –13 to 40 K
  - Max. limit: 1 to 127 °C
  - Min. limit: 1 to 127 °C
  - Differential temperature for a heating circuit with mixer: 0 to 40 K
- Set DHW temperature setting range:
  Between 10 and 60 °C, adjustable to between 10 and 95 °C (available temperature limited by the max. boiler flow temperature).

Time switch
Digital time switch (integrated into the programming unit)
- Individual day and 7-day program, annual calendar
- Automatic summer/wintertime changeover
- Automatic function for DHW heating and DHW circulation pump
- Time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are factory-set
- Switching times are individually programmable, i.e. up to four switching periods per day

Shortest switching interval: 10 min
Power reserve: 14 days

Setting the operating programs
Frost protection monitoring (see frost protection function) for the heating system is enabled in all operating programs.
You can select the following operating programs with the program selectors:
- Heating and DHW
- DHW only
- Standby mode

Optional external changeover of operating program for all heating circuits together or for selected heating circuits only.

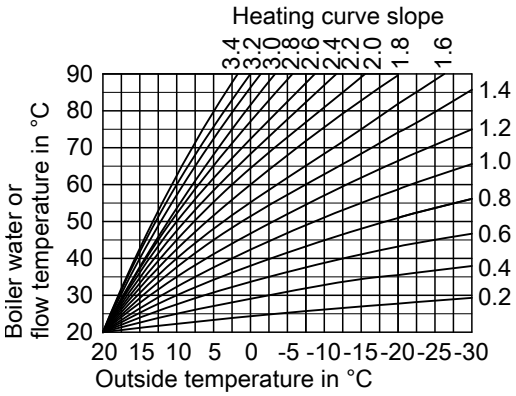
Control units (cont.)

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
("DHW only")
One or more burners start when the DHW cylinder needs to be heated up (controlled by the cylinder temperature controller).

Heating curve setting (slope and level)
Subject to heating system:
- The Vitotronic controls the flow temperature of up to 2 heating circuits with mixers in weather-compensated mode
- The Vitotronic automatically regulates the system/flow temperature to 0 to 40 K (delivered condition 8 K) higher than the currently highest set flow temperature

The flow temperature required to reach a specific room temperature depends on the heating system and the thermal insulation of the building to be heated.
Adjusting the heating curves matches the system flow temperature and the heating circuit flow temperature to these operating conditions.

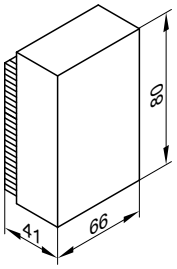


The upper flow temperature is limited by the temperature controller "⏱" and the electronically set maximum temperature of the Vitotronic 100 boiler control units, type HC1B.

Outside temperature sensor

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

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



Specification

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

Immersion temperature sensor
To capture the common flow temperature of the multi boiler system. Inserted into the sensor well of the low loss header or secured with a tie.

Specification

Cable length	5.8 m, fully wired
IP rating	IP 32 to EN 60529
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +90 °C
– Storage and transport	–20 to +70 °C

Cylinder temperature sensor

Specification

Cable length	5.8 m, fully wired
IP rating	IP 32 to EN 60529
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– Operation	0 to +90 °C
– Storage and transport	–20 to +70 °C

Specification, Vitotronic 300-K

Rated voltage:	230 V ~
Rated frequency:	50 Hz
Rated current:	6 A
Power consumption:	10 W
Safety category:	I
IP rating:	IP 20 D to EN 60529, ensure through design/installation
Function:	Type 1B to EN 60730-1
Permissible ambient temperature	
– Operation:	0 to +40 °C for use in the living space or boiler room (standard ambient conditions)
– Storage and transport:	–20 to +65 °C
Rated relay output breaking capacity:	
– Heating circuit pumps or heat exchanger set [20]:	4(2) A, 230 V~
– Circulation pump for cylinder heating [21]:	4(2) A, 230 V~

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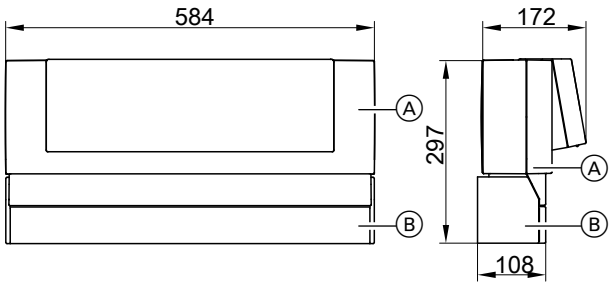
– DHW circulation pump [28]: 4(2) A, 230 V~
– Distribution pump [29]: 4(2) A, 230 V~
– Central fault message [50]: 4(2) A, 230 V~
– Motor, 3-way mixing valve, cylinder loading system
or
Mixer motor [52]: 0.2(0.1) A, 230 V~
– Overall max. 6 A 230 V~

Dimensions



Ⓐ Vitotronic 300-K
Ⓑ Mounting bracket

Delivered condition Vitotronic 300-K

- Programming unit with backlit display and plain text prompts
- Cascade communication module (corresponding to the number of Vitodens)
- Outside temperature sensor
- Flow temperature sensor
- Cylinder temperature sensor
- Mounting bracket

The control unit is fitted to the wall with a mounting panel.
To control the heating circuits with mixers, the extension for heating circuits 2 and 3 is required (accessories).

An extension kit (accessories) is required for each heating circuit with mixer.
The LON communication module and BUS terminators are available as accessories to enable communication.

Heating system with DHW cylinder
Order the circulation pump with check valve or the Vitotrans 222 cylinder loading system separately.

5.4 Accessories for the Vitotronic

Allocation to control unit types

Vitotronic	**100**	**200**	**300-K**
Type	**HC1B**	**HO1B**	**MW2B**
Accessories			
Vitotrol 100, type UTA	x		
Vitotrol 100, type UTDB	x		
External extension H4	x		
Vitotrol 100, type UTDB-RF	x		
Vitotrol 200A		x	x
Vitotrol 300A		x	x
Vitotrol 200 RF		x	x
Vitotrol 300 RF		x	x
Wireless base station		x	x
Wireless outside temperature sensor		x	x
Wireless repeater		x	x
Room temperature sensor for Vitotrol 300A		x	x
Immersion temperature sensor	x	x	x
Mounting base for programming unit	x	x	
Radio clock receiver		x	x
KM BUS distributor	x	x	x
Extension kit for one heating circuit with mixer with integral mixer motor		x	

Control units (cont.)

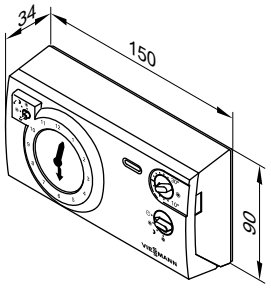
Vitotronic	100	200	300-K
Type	**HC1B**	**HO1B**	**MW2B**
Accessories			
Extension kit for one heating circuit with mixer for separate mixer motor		x	
Mixer motor		x	x
Extension for heating circuits 2 and 3 with mixer			x
Extension kit for one heating circuit with mixer			x
Immersion thermostat		x	x
Contact thermostat		x	x
Solar control module, type SM1	x	x	x
Internal H1 extension	x	x	
Internal H2 extension	x	x	
AM1 extension	x	x	
EA1 extension	x	x	x
Vitocom 100, type LAN1, in conjunction with Vitodata 100 and Vitotrol app		x	
Vitocom 100, type LAN1, in conjunction with Vitodata 100		x	x
Vitocom 100, type GSM2	x	x	x
LON cable		x	x
LON coupling		x	x
LON plug-in connector		x	x
LON socket		x	x
Terminator		x	x
LON communication module		x	x

Vitotrol 100, type UTA

Part no. 7170 149

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

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 mm^2 (without green/yellow) for 230 V~.



Specification

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

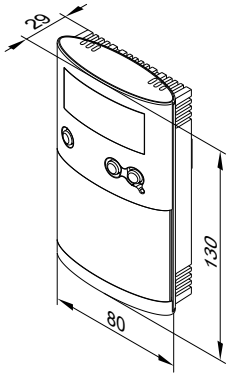
Vitotrol 100, type UTDB

Part no. Z007 691

Room temperature controller
- With switching output (two-point output)
- With digital time switch
- With individual and 7-day programs
- Operation with user prompts:
  – 3 preselected time programs, individually adjustable
  – Constant manual mode with adjustable set room temperature
  – Frost protection mode
  – Holiday program
- With selector keys for party and economy mode

Control units (cont.)

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



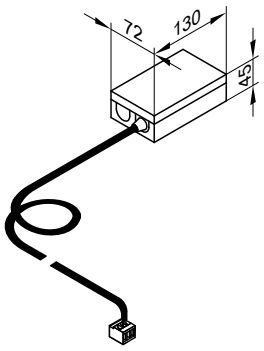
Specification

Rated voltage	3 V– Battery LR6/AA
Rated breaking capacity of the floating 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
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 lead
- With cable (0.5 m long) and plug for the connection to the control unit



Specification

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

Vitotrol 100, type UTDB-RF

Part no. Z007 692

Room temperature controller with integral wireless transmitter and one receiver

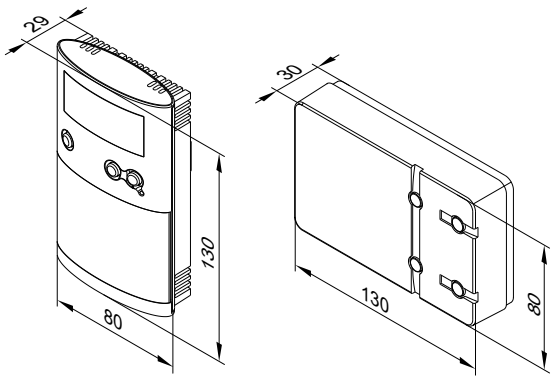
- With digital time switch
- With individual and 7-day programs
- Operation with user prompts:
  - 3 preselected time programs, individually adjustable
  - Constant manual mode with adjustable set room temperature
  - Frost protection mode
  - Holiday program
- With selector keys for party and economy mode

Installation in the main living room on an internal wall opposite radiators. Never install inside shelving units, in recesses, or immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Room temperature controller operation independent of mains power supply (two 1.5 V round alkaline 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

Control units (cont.)



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

Specification, receiver

Operating voltage	230 V~ ± 10 % 50 Hz
Rated breaking capacity of the floating contact	
– max.	6(1) A, 230 V~
– min.	1 mA, 5 V–
IP rating	IP 20 to EN 60529 ensure through appropriate design/installation
Safety category	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 on the Vitotrol 200A and Vitotrol 300A

One Vitotrol 200A or one Vitotrol 300A can be used for every heating circuit in a heating system.
The Vitotrol 200A can regulate one heating circuit; the Vitotrol 300A up to three heating circuits.
Up to two remote controls may be connected to the control unit.

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

Vitotrol 200A

Part no. Z008 341
KM BUS subscriber
- Indicators:
  - Room temperature
  - Outside temperature
  - Operating condition
- Settings:
  - Set room temperature for standard mode (normal room temperature)

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

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

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

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

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

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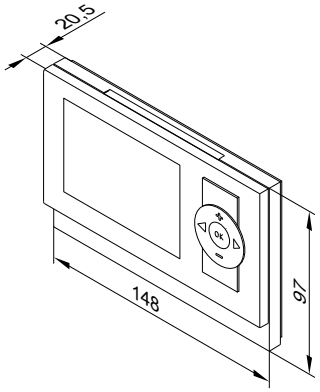


Specification

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

Vitotrol 300A

Part no. Z008 342

KM BUS subscriber

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

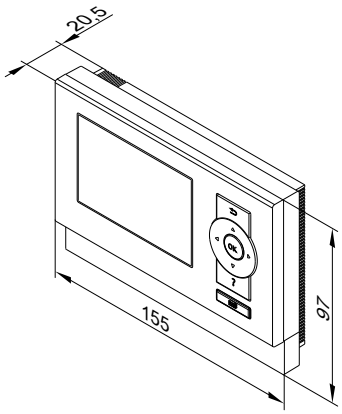
Installation site:

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

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

Connection:

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



Specification

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

Information on the Vitotrol 200 RF and Vitotrol 300 RF

Wireless remote control units with integral wireless transmitter for operation with the wireless base station.
One Vitotrol 200 RF or one Vitotrol 300 RF can be used for every heating circuit in a heating system.
The Vitotrol 200 RF can regulate one heating circuit; the Vitotrol 300 RF up to 3 heating circuits.

Up to 3 wireless remote control units can be connected to the control unit.

Note

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

Vitotrol 200 RF

Part no. Z011 219
Wireless subscriber
- Indicators:
  - Room temperature
  - Outside temperature
  - Operating condition
  - Wireless signal reception quality
- Settings:
  - Set room temperature for standard mode (normal room temperature)

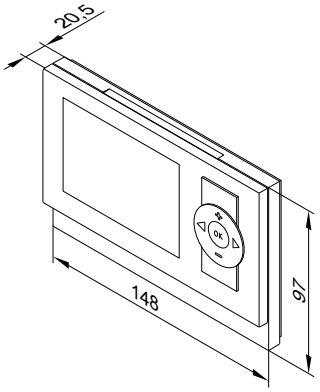
    Note
    The set room temperature for reduced mode (reduced room temperature) is set at the control unit.

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

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

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

Note
Observe the "Wireless accessories" technical guide.



Specification

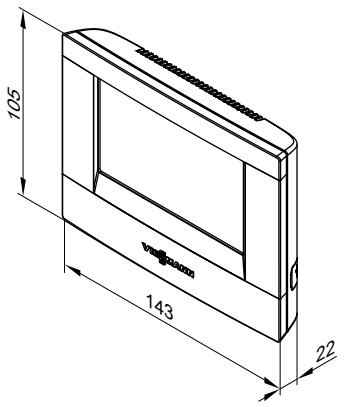
Power supply via 2 AA batteries 3 V	
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
Safety category	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	−20 to +65 °C
Setting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

Vitotrol 300 RF with table-top dock

Part no. Z011 410
Wireless subscriber
- Indicators:
  - Room temperature
  - Outside temperature
  - Operating condition
  - Graphic illustration of solar yield in conjunction with the solar control module, type SM1
  - Wireless signal reception quality
- Settings:
  - Set room temperature for standard mode (normal room temperature) and reduced mode (reduced room temperature)
  - Set DHW temperature
  - Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
  - Party and economy mode can be enabled via keys
- Integral room temperature sensor

Note
Observe the "Wireless accessories" technical guide.

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



Vitotrol 300 RF

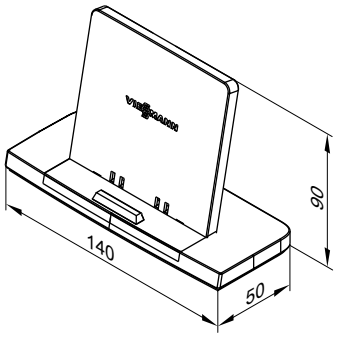


Table-top dock

Specification

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

Vitotrol 300 RF with wall mounting bracket

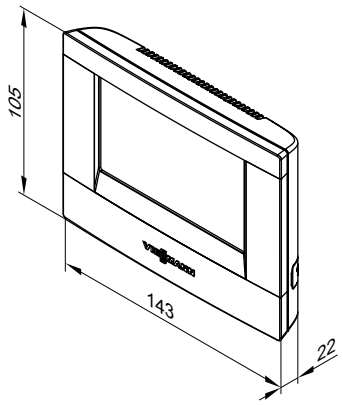
Part no. Z011 412
Wireless subscriber
- Indicators:
  - Room temperature
  - Outside temperature
  - Operating condition
  - Graphic illustration of solar yield in conjunction with the solar control module, type SM1
  - Wireless signal reception quality
- Settings:
  - Set room temperature for standard mode (normal room temperature) and reduced mode (reduced room temperature)
  - Set DHW temperature
  - Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
  - Party and economy mode can be enabled via the menu
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

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

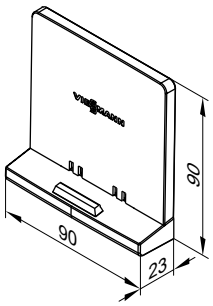
  The captured room temperature depends on the installation site:
  - Main living room on an internal wall opposite radiators
  - Not on shelves or in recesses
  - Never in the immediate vicinity of doors or close to heat sources (e.g. direct sunlight, fireplace, TV set, etc.)

Note
Observe the "Wireless accessories" technical guide.

Standard delivery:
- Vitotrol 300 RF
- Wall mounting bracket
- Power supply unit for fitting into a plaster box
- 2 rechargeable NiMH batteries for operating outside the wall mounting bracket



Vitotrol 300 RF



Wall mounting bracket

Specification

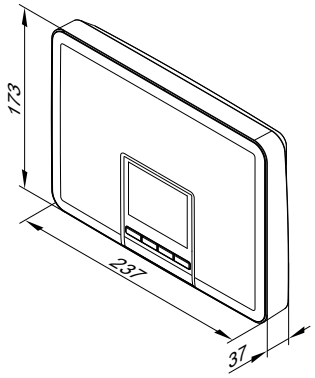
Power supply via power supply unit for installation in a plaster box	230 V~/4 V
Power consumption	2.4 W
Radio frequency	868 MHz
Wireless range	See "Wireless accessories" technical guide
Safety category	II
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature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

Vitocomfort 200

Part no. 7172 642
Wireless domestic control centre with mains power operation for regulating single rooms.
- Optimum room ambience by means of regulating the temperature and relative humidity in combination with a commercially available humidifier or dehumidifier
- Saving heating and power costs
- Enhanced security due to display of windows/doors (open/closed) and motion detectors
- Intuitive operation and monitoring at home or away by means of the Vitocomfort app
- Straight forward commissioning and easy retrofitting thanks to wireless components
- Full control over central heating and domestic hot water heating

Note
The data exchange between the domestic control centre and the Vitotronic control unit requires a wireless base station (accessory) or the integral wireless interface.

For further information, see the "Vitocomfort 200" technical guide.



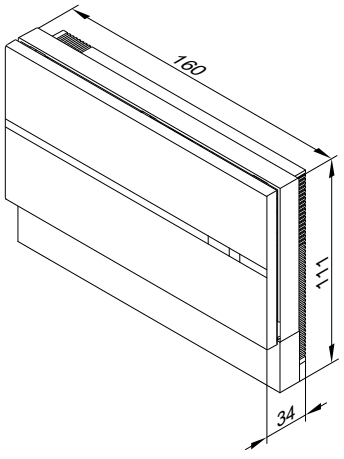
Wireless base station

Part no. Z011 413
KM BUS subscriber.

For communication between the Vitotronic control unit and the following wireless components:
- Vitotrol 200 RF wireless remote control
- Vitotrol 300 RF wireless remote control
- Wireless outside temperature sensor
- Vitocomfort 200 home automation

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

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



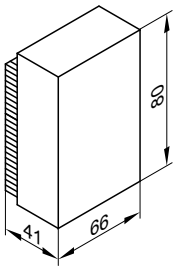
Specification

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

Wireless outside temperature sensor

Part no. 7455 213
Wireless subscriber
Wireless, light-activated outside temperature sensor with integral wireless transmitter for operation with the wireless base station and the Vitotronic control unit.

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



Specification

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

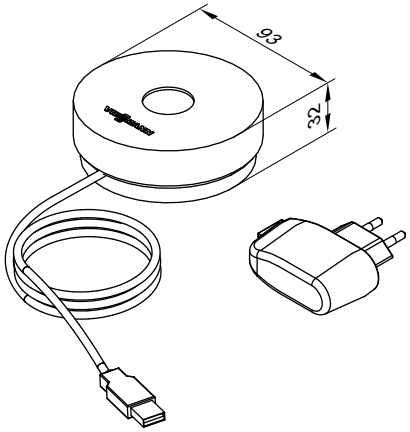
Wireless repeater

Part no. 7456 538

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

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

- To prevent the need for radio signals to penetrate steel reinforced concrete ceilings/floors and/or multiple walls at a strongly diagonal angle.
- For circumventing large metallic objects situated between the wireless components.



Specification

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

Room temperature sensor

Part no. 7438 537

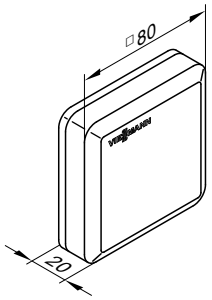
Separate room temperature sensor as supplement to the Vitotrol 300A; to be used if the Vitotrol 300A cannot be installed inside the main living room or in a suitable position where the unit could capture and adjust the temperature.

Installation in the main living room on an internal wall, opposite radiators. Never install inside shelving units, in recesses, 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 mm^2 (copper)
- Lead length from the remote control up to 30 m
- Never route this lead immediately next to 230/400 V cables

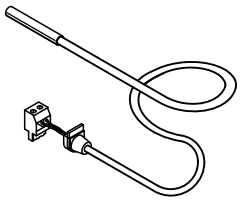


Specification

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

Immersion temperature sensor

Part no. 7438 702
To capture the temperature in a sensor well.

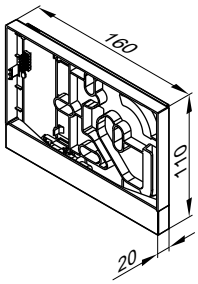


Specification

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

Mounting base for programming unit

Part no. 7299 408
To be able to freely position the programming unit of the control unit anywhere outside the appliance.

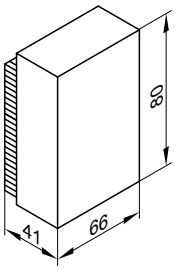


To be fitted directly to the wall or a surface box.
Distance from the boiler: Observe the lead length incl. plugs of 5 m.

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

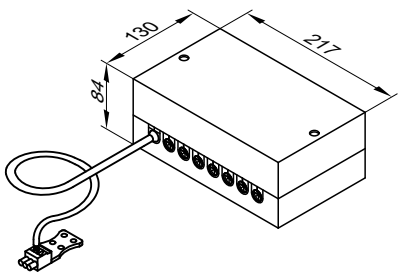
Radio clock receiver

Part no. 7450 563
For receiving the DCF 77 time signal (location: Mainflingen near Frankfurt/Main).
Radio controlled setting of time and date.
Install on an outside wall, facing the transmitter. The reception may be reduced by metallic elements in the building structure, e.g. steel reinforced concrete, neighbouring buildings and sources of 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 mm^2 (copper)
- Never route this lead immediately next to 230/400 V cables



KM BUS distributor

Part no. 7415 028
For the connection of 2 to 9 devices to the Vitotronic KM BUS.



Specification

Lead length	3.0 m, fully wired
Protection	IP 32 to EN 60529; safeguard through appropriate design and installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transport	-20 to +65 °C

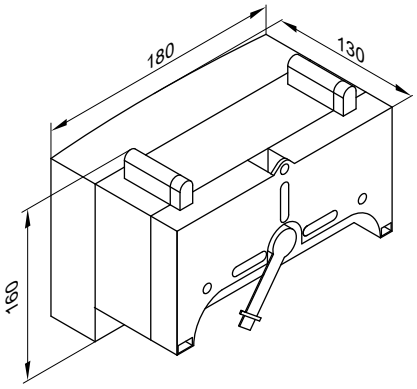
Mixer extension kit with integral mixer motor

Part no. 7301 063
KM BUS subscriber

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

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

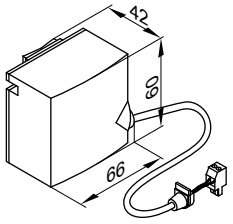
Mixer PCB with mixer motor



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
Safety category	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 [20]	2(1) A 230 V~
Torque	3 Nm
Runtime for 90 ° ◁	120 s

Flow temperature sensor (contact temperature sensor)



Secured with a tie.

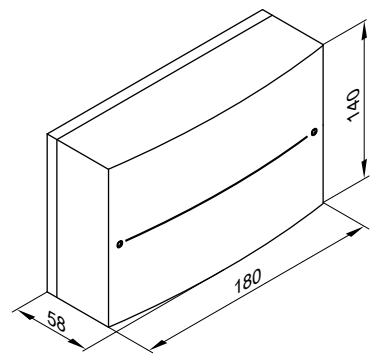
Specification

Lead length	2.0 m, fully wired
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

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

Mixer PCB

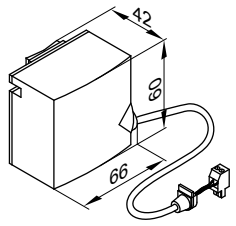


Specification

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 design/installation
Safety category	I
Permissible ambient temperature	
– During operation	0 to +40 °C
– During storage and transport	–20 to +65 °C
Rated relay output breaking capacity	
Heating circuit pump [20]	2(1) A 230 V~
Mixer motor	0.1 A 230 V~
Required runtime of the mixer motor for 90 ° ◁	approx. 120 s

5822 432 GB

Flow temperature sensor (contact temperature sensor)



Secured with a tie.

Specification

Cable length	5.8 m, fully wired
IP rating	IP 32D to EN 60529 Ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– During operation	0 to +120 °C
– During storage and transport	–20 to +70 °C

Vitotronic 300-K extension for heating circuits 2 and 3 with mixers

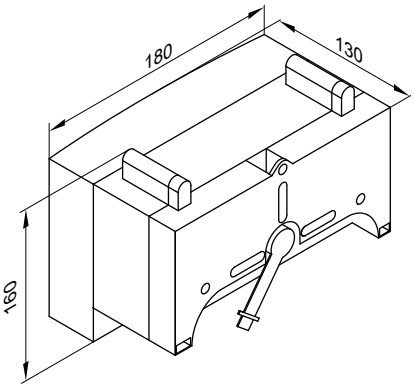
Part no. 7164 403
PCB for installation in the Vitotronic 300-K, type MW2B.
For controlling two heating circuits with mixer.

- With connections for mixer motors, flow temperature sensors (NTC 10 kΩ) and heating circuit pumps.
- Plug for mixer motor and heating circuit pump for each heating circuit.

Extension kit for one heating circuit with mixer in conjunction with Divicon heating circuit distributor

Part no. 7424 958
Components:
- Mixer PCB with mixer motor
- Flow temperature sensor (immersion sensor for installation in the Divicon)
- Connection plug for heating circuit pump, power supply, flow temperature sensor and KM BUS connection

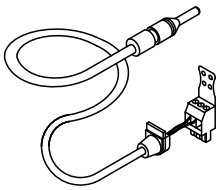
Mixer PCB



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	5.5 W
IP rating	IP 32 D to EN 60 529, 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 relay output breaking capacity	
Heating circuit pump [20]	2(1) A 230 V~
Runtime for 90 ° ◁	approx. 120 s

Flow temperature sensor (immersion sensor)



Specification

Lead length	0.9 m, fully wired
IP rating	IP 32 to EN 60529; ensure through appropriate design and 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

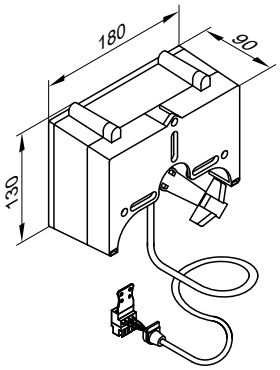
Extension kit for one heating circuit with mixer for the Vitotronic 300-K

Part no. 7441 998
Components:
- Mixer motor
- Flow temperature sensor (contact temperature sensor), lead length 5.8 m, fully wired
- Plug for connecting the heating circuit pump
- Terminals for connecting the mixer motor
- Connecting cable (4.0 m long)

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

Control units (cont.)

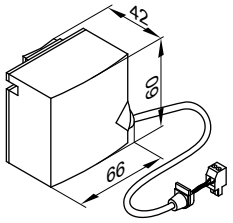
Mixer motor



Specification, extension kit

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	2.5 W
Safety category	I
IP rating	IP 32D to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C
– Storage and transport	–20 to +65 °C
Torque	3 Nm
Runtime for 90 ° ◁	120 s

Flow temperature sensor (contact sensor)



Secured with a tie.

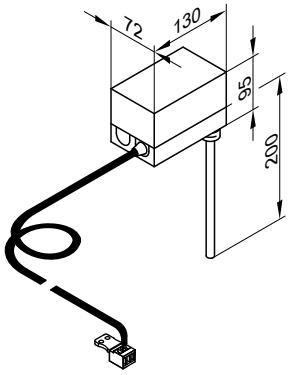
Specification

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

Mixer motors
See datasheet "Control unit accessories".

Immersion temperature controller

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.

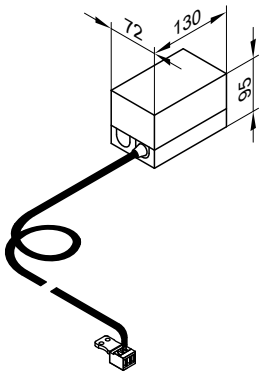


Specification

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

Contact temperature controller

Part no. 7151 729
May be used as a maximum temperature limiter for underfloor heating systems (only in conjunction with metal pipes).
The temperature limiter is installed into the heating flow and switches the heating circuit pump OFF if the flow temperature is too high.



Specification

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

Solar control module, type SM1

Part no. 7429 073

Specification

Functions
- With output statement and diagnostic system
- Operation and display via the Vitotronic control unit
- Heating of 2 consumers via a collector array
- 2nd temperature differential control
- Thermostat function for reheating or utilising excess heat
- Solar circuit pump speed control via pulse pack control or solar circuit pump with PWM input (make: Grundfos)
- DHW cylinder reheating by the heat source is suppressed subject to solar yield.
- Suppression of reheating for central heating by the heat source in the case of central heating backup
- Heat-up of the solar preheating stage (with DHW cylinders from 400 l capacity)

To implement the following functions, also order immersion temperature sensor, part no. 7438 702:
- For DHW circulation diversion in systems with 2 DHW cylinders
- For return changeover between the heat source and the heating water buffer cylinder
- For heating additional consumers

Design

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

Collector temperature sensor
For connection inside the appliance

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

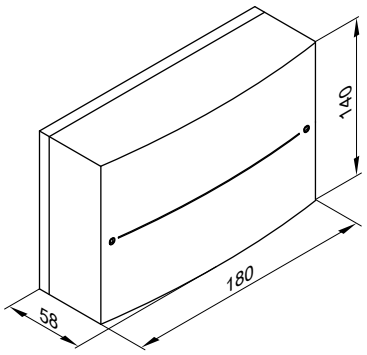
Cable length	2.5 m
IP rating	IP 32 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 20 kΩ at 25 °C
Permissible ambient temperature	
– Operation	−20 to +200 °C
– Storage and transport	−20 to +70 °C

Cylinder temperature sensor
For connection inside the appliance
On-site extension of the connecting lead:
- 2-core lead, length up to 60 m with a cross-section of 1.5 mm² (copper)
- Never route this lead immediately next to 230/400 V cables

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

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

Specification



Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	1.5 W
Safety category	I
IP rating	IP 20 to EN 60529; ensure through design/installation
Mode of operation	Type 1B to EN 60730-1
Permissible ambient temperature	

– Operation	0 to +40 °C use in the living space or boiler room (standard ambient conditions)
– Storage and transport	−20 to +65 °C
Rated relay output breaking capacity	
– Semi-conductor relay 1	1 (1) A, 230 V~
– Relay 2	1 (1) A, 230 V~
– Total	Max. 2 A

Internal extension H1

Part no. 7498 513
PCB for installation in the control unit.

Using the extension enables the following functions to be achieved:

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

Specification

Rated voltage	230 V~
Rated frequency	50 Hz

Internal extension H2

Part no. 7498 514
PCB for installation in the control unit.

Using the extension enables the following functions to be achieved:

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

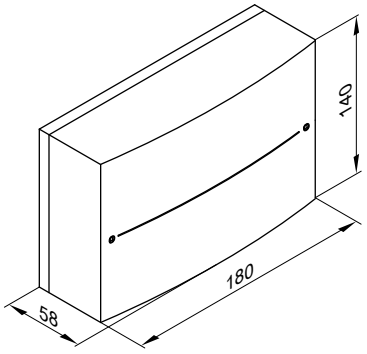
Specification

Rated voltage	230 V~
Rated frequency	50 Hz

AM1 extension

Part no. 7452 092
Function extension inside enclosure for wall mounting.

Using the extension enables up to two of the following functions to be achieved:
- Switching the DHW circulation pump (only with the Vitotronic 200, type HO1B)
- Switching the heating circuit pump for a directly connected heating circuit



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption	4 W
Rated relay output breaking capacity	2(1) A, 250 V~ each, total max. 4 A~
Safety category	I

IP rating	IP 20 D to EN 60529, ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +65 °C

EA1 extension

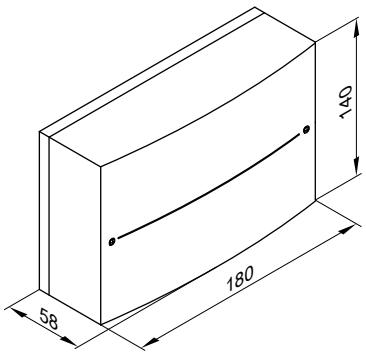
Part no. 7452 091
Function extension inside enclosure for wall mounting.

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

1 switching output (floating changeover contact)
- Central fault message issue (only with the Vitotronic 100, type HC1B and Vitotronic 200, type HO1B)
- Switching a feed pump to a substation
- Switching the DHW circulation pump (only with the Vitotronic 200, type HO1B)

1 analogue input (0 to 10 V)
- Specifying set boiler water temperature

3 digital inputs
- External heating program changeover for 1 to 3 heating circuits (only with the Vitotronic 200, type HO1B, and the Vitotronic 300-K, type MW2B)
- External blocking
- External blocking with central fault message
- Minimum boiler water temperature demand
- Fault messages
- Short term operation DHW circulation pump (only with the Vitotronic 200, type HO1B, and Vitotronic 300-K, type MW2B)
- Signalling reduced operation for one heating circuit (only for the Vitotronic 300-K, type MW2B)



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption	4 W
Rated breaking capacity of the relay output	2(1) A, 250 V~
Safety category	I
IP rating	IP 20 D to EN 60529, ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +65 °C

Vitocom 100, type LAN1

Part no. Z011 224
- With communication module
- For remote control of a heating system via internet and IP networks (LAN) with DSL router
- Compact device for wall mounting
- For system operation with the **Vitotrol app** or **Vitodata 100**

Functions when operating with Vitotrol app:
- Remote control of up to 3 heating circuits in one heating system
- Setting of operating programs, set values and time programs.
- Scanning system information
- Displaying messages on the Vitotrol app user interface

The Vitotrol app supports the following end devices:
- Terminal devices with Apple iOS operating system version 6.0
- Terminal devices with Google Android operating system Version 4.0 or higher

Note
*For more information, see **www.vitotrol-app.info**.*

Control units (cont.)

Functions when operating with Vitodata 100:

For all heating circuits in a heating system:
- **Remote monitoring**:
  - Forwarding messages via email to terminal devices with email client function
  - Forwarding messages via SMS to mobile phone/smartphone or fax (via chargeable internet service Vitodata 100 fault management).
- **Remote control**:
  Selecting operating programs, set values, time programs and heating curves.

Note
*For more information, see **www.vitodata.info**.*

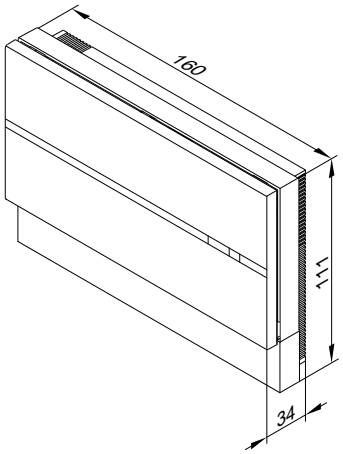
Configuration:
Configuration takes place automatically.
When the DHCP service is enabled, no adjustments have to be made on the DSL router.

Standard delivery:
- Vitocom 100, type LAN1 with LAN socket
- LON communication module for installation in the Vitotronic control unit
- Connecting cables for LAN and communication module LON
- Power cable with plug-in power supply unit
- Vitodata 100 fault management for a duration of 3 years

On-site requirements:
- The LON communication module must be installed in the control unit.
- Before commissioning, check the system requirements for communication via the IP networks (LAN).
- Internet connection with flat rate data (**without** time or volume restrictions).
- DSL router with dynamic IP addressing (DHCP).

Note
*For information on registering and using the Vitotrol app and Vitodata 100, see **www.vitodata.info**.*

Specification



Power supply via plug-in power supply unit	230 V~/5 V–
Rated current	250 mA
Power consumption	8 W
Safety category	II
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +55 °C Installation in living spaces or installation rooms (standard ambient conditions)
– Storage and transport	–20 to +85 °C

Vitocom 100, type GSM2

Part no.: See current pricelist
For remote monitoring and remote control of a heating system via mobile phone networks
For the transmission of messages and settings for operating programs by means of SMS
Compact device for wall mounting

Functions:
- Remote monitoring via SMS to 1 or 2 mobile phones
- Remote monitoring of additional systems via digital input (floating contact)
- Remote setup with mobile phone via SMS
- Operation with mobile phone via SMS

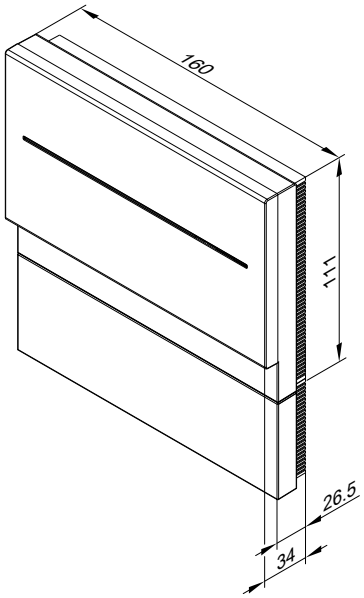
Note
*For more information, see **www.vitocom.info**.*

Configuration:
Mobile phones via SMS

Standard delivery:
- Vitocom 100 with integral mobile phone modem
- Connecting cable with Rast 5 system connectors for connection to the control unit KM BUS
- Mobile aerial (3.0 m long), magnetic base and adhesive pad
- Power cable with plug-in power supply unit (2.0 m long)

On-site requirements:
- Good reception for GSM communication with the selected mobile phone operator
- Total length of all KM BUS subscriber cables up to 50 m

Specification



Power supply via plug-in power supply unit	230 V~/5 V–
Rated current	1.6 A
Power consumption	5 W
Safety category	II
IP rating	IP 30 to EN 60529; ensure through design/installation
Mode of operation	Type 1B to EN 60730-1
Permissible ambient temperature	
– Operation	0 to +50 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– Storage and transport	–20 to +85 °C
On-site connection	Digital input: Floating contact

Vitocom 200, type LAN2

Part no.: See current pricelist

For remote monitoring, remote control and remote setup of all heating circuits in a heating system via IP networks (LAN)
As an internet data transfer establishes a permanent connection ("always online"), access to the heating system is particularly fast.

Compact device for wall mounting
For system operation with **Vitotrol app**, **Vitodata 100** or **Vitodata 300**

Functions when operating with Vitotrol app:
- Remote control of up to 3 heating circuits in one heating system
- Setting of operating programs, set values and time programs
- Scanning system information
- Displaying messages on the Vitotrol app user interface

The Vitotrol app supports the following end devices:
- Terminal devices with Apple iOS operating system version 6.0
- Terminal devices with Google Android operating system Version 4.0 or higher

Note
*For more information, see **www.vitotrol-app.info**.*

Functions when operating with Vitodata 100:

For all heating circuits in a heating system:
- **Remote monitoring**:
  - Forwarding messages via email to terminal devices with email client function
  - Forwarding messages via SMS to mobile phone/smartphone or fax (via chargeable internet service Vitodata 100 fault management)
  - Monitoring additional devices via the inputs and output of the Vitocom 200
- **Remote control**:
  Adjusting operating programs, set values, time programs and heating curves

Note
- *Telecommunication costs for data transfer are not included in the device price.*
- *For more information, see **www.vitodata.info**.*

Functions when operating with Vitodata 300:

For all heating circuits in a heating system:
- **Remote monitoring**:
  - Forwarding of messages by SMS to mobile phone/smartphone, by email to end devices with email client functionality or by fax to fax machines
  - Monitoring additional devices via the inputs and output of the Vitocom 200
- **Remote control**:
  Adjusting operating programs, set values, time programs and heating curves
- **Remote setup**:
  - Configuring Vitocom 200 parameters
  - Remote setup of Vitotronic control parameters via coding addresses

Note
- *Alongside the data transfer telecommunication costs, usage charges have to be taken into account for Vitodata 300.*
- *For more information, see **www.vitodata.info**.*

Configuration

- In the case of dynamic IP addressing (DHCP), the Vitocom 200 is configured automatically
  No adjustments have to be made on the DSL router
  Observe the network settings of the DSL router
- The Vitocom 200 inputs are configured via the Vitodata 100 or Vitodata 300 user interface
- The Vitocom 200 is connected to the Vitotronic control unit via LON.
  The Vitocom 200 does not need to be configured for the LON.

Control units (cont.)

On-site requirements:

- DSL router with free LAN socket and dynamic IP addressing (DHCP)
- Internet connection with flat rate data (**without** time or volume restrictions)
- LON communication module must be installed in the Vitotronic.

Note
*For more information, see **www.vitocom.info**.*

Standard delivery:

- Vitocom 200, type LAN2 with LAN socket
- LON communication module for installation in the Vitotronic control unit
- Connecting cables for LAN and communication module
- Power cable with plug-in power supply unit (2.0 m long)
- Vitodata 100 fault management for a duration of 3 years

Note
For standard delivery of packs with Vitocom, see pricelist.

Accessories:

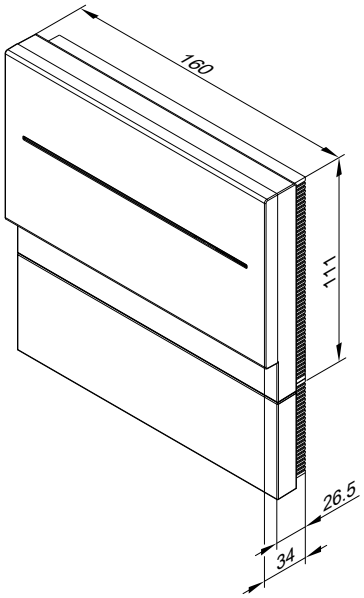
EM201 extension module

Part no.: Z012 116
- 1 relay output for actuating external devices (contact load 230 V~, max. 2 A)
- Max. 1 x EM201 extension module per Vitocom 200

Specification:

Power supply via plug-in power supply unit	230 V~/5 V–
Rated frequency	50 Hz
Rated current	250 mA
Power consumption	5 W
Safety category	III
IP rating	IP 30 to EN 60529; ensure through design/installation
Permissible ambient temperature	
– Operation	0 to +50 °C Installation in living spaces or installation rooms (standard ambient conditions)
– Storage and transport	–20 to +85 °C
On-site connections:	
– 2 digital inputs DI1 and DI2	Floating contacts, contact load 24 V−, 7 mA
– 1 digital output DO1	5 V–, 100 mA, for connecting the EM201 extension module

For further technical details and accessories, see the data communication technical guide.



Vitocom 300, type LAN3

Part no.: See current pricelist

For remote monitoring, telecontrol and remote setting of heating systems via IP networks (LAN).
As an internet data transfer establishes a permanent connection ("always online"), access to the heating system is particularly fast.

For heating systems with one or more heat sources, with or without heating circuits downstream
For system operation with **Vitodata 100** or **Vitodata 300**

Functions when operating with Vitodata 100:

For all heating circuits in a heating system:
- **Remote monitoring**:

– Forwarding messages via email to terminal devices with email client function
– Forwarding messages via SMS to mobile phone/smartphone or fax (via chargeable internet service Vitodata 100 fault management)
– Monitoring of additional devices via the inputs and outputs of the Vitocom and EM301 extension modules
■ **Remote control**:
Selecting operating programs, set values, time programs and heating curves

Note
■ *Telecommunication costs for data transfer are not included in the device price.*
■ *For more information, see **www.vitodata.info**.*

Functions when operating with Vitodata 300:

For all heating circuits in a heating system:
■ **Remote monitoring**:
– Forwarding of messages via SMS to mobile phone/smartphone, via email to end devices with email client functionality or via fax to fax machines
– Monitoring of additional devices via the inputs and outputs of the Vitocom 300
■ **Remote control**:
– Selecting operating programs, set values, time programs and heating curves
– Recording trends via datalogger
– Recording of energy consumption through integration of M BUS heat meters
■ **Remote setup**:
– Configuring Vitocom 300 parameters
– Remote setup of Vitotronic control parameters via coding addresses

Note
■ *Alongside the data transfer telecommunication costs, usage charges have to be taken into account for Vitodata 300.*
■ *For more information, see **www.vitodata.info**.*

Configuration

■ In the case of dynamic IP addressing (DHCP), the IP configuration of the Vitocom 300 occurs automatically.
No adjustments have to be made on the DSL router.
■ Observe the network settings of the DSL router.
■ The outputs and inputs of the Vitocom 300 and EM301 extension module are configured using the Vitodata 300 user interface.
■ The Vitocom 300 is connected to the Vitotronic control unit via LON.
The Vitocom 300 does not need to be configured for the LON.

Fault messages

Fault messages are reported to the Vitodata server. These messages are transmitted via the following communication services from the Vitodata server to the configured recipients:
■ Fax
■ SMS to mobile phones
■ Email to PC/laptop

On-site requirements:

■ DSL router with free LAN socket and dynamic IP addressing (DHCP)
■ Internet connection with flat rate data (**without** time or volume restrictions)
■ LON communication module must be installed in the Vitotronic appliance

Note
*For more information, see **www.vitocom.info**.*

Standard delivery:
■ Vitocom 300, type LAN3 with LAN socket
– Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5
– 2 digital inputs
– 1 digital output
– 1 relay output
– 1 M BUS interface
– 1 EM interface
– 2 LON connections
■ LAN cable, RJ45, 2 m long
■ LON communication module
■ LON cable, RJ45 – RJ45, 7 m long, for data exchange between the Vitotronic control unit and the Vitocom 300
■ Power supply unit for top-hat rail, mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5
■ Vitodata 100 fault management for a duration of 3 years

Note
For standard delivery of packs with Vitocom, see pricelist.

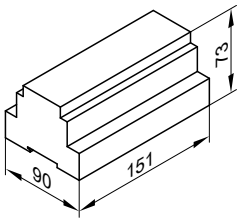
Accessories:

Accessories	Part no.
Wall mounting enclosure for installation of the Vitocom 300 and accessories if no control panel or electrical distribution panel is available.	
2 rows	7143 434
3 rows	7143 435
EM301 extension module	
– Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5.	Z012 117
– 8 analogue inputs: – 0 − 10 V– – 4 − 20 mA – Viessmann temperature sensors NTC 10 kΩ, NTC 20 kΩ, Ni500 or Pt500 – Pulse counter	
– 8 digital inputs: – For hooking up signals via floating contacts – 2-pole – Breaking capacity of the external contact 24 V–, 7 mA – With LED indicator – N/C or N/O contact – N/C or N/O alarm contact – Pulse counter	
– 2 digital outputs: – Floating relay contacts – 3-pole changeover contact – Max. 2 A, 230 V~ – With LED indicator	
Max. 3 x EM301 extension modules per Vitocom 300	
Uninterrupted power supply unit (UPS) Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5	7143 432
Additional rechargeable battery pack for UPS – Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5 – **Recommended** with 1 Vitocom 300, 1 extension module and all inputs allocated – **Required** from 1 Vitocom 300 and 2 extension modules	7143 436

Control units (cont.)

Accessories	Part no.
Extension of the connecting cable	
Installation spacing 7 to 14 m	
– 1 connecting cable (7 m long)	7143 495
and	and
1 LON coupling RJ45	7143 496
Installation spacing 14 to 900 m with plug-in connector	
– 2 LON plug-in connectors RJ45	7199 251
and	and
– 2-core cable, CAT5, screened, solid cable, AWG 26-22, 0.13 to 0.32 mm², external diameter, 4.5 to 8 mm	On site
or	
2-core cable, CAT5, screened, flexible cable, AWG 26-22, 0.14 to 0.36 mm², external diameter, 4.5 to 8 mm.	
Installation spacing 14 to 900 m with socket	
– 2 connecting cables (7 m long)	7143 495
and	and
– 2 LON sockets RJ45, CAT6	7171 784
– 2-core cable, CAT5, screened	On site
or	
JY(St) Y 2 x 2 x 0.8	

Vitocom 300 specification (standard delivery):

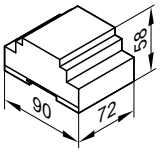


Rated voltage	24 V–
Rated current	710 mA
Rated output	17 W
Safety category	II to EN 61140
IP rating	IP 30 to EN 60529; ensure through design/installation
Mode of operation	Type 1B to EN 60730-1
Permissible ambient temperature	
– Operation	0 to +50 °C Installation in living spaces or installation rooms (standard ambient conditions)
– Storage and transport	−20 to +85 °C

On-site connections:

– 2 digital inputs DI1 and DI2	Floating contacts, contact breaking capacity 24 V–, 7 mA, for monitoring additional devices and third party systems, with LED indicator
– 1 digital output DO	Relay, contact breaking capacity 24 V–, max. 2 A, changeover contact
– 1 M BUS interface	For the connection of heat meters with M BUS interface to EN 1434-3
– 1 EM interface	For the connection of up to 3 x EM301 extension modules, with LED indicator

Specification, power supply unit (standard delivery):



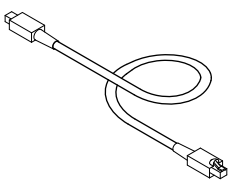
Rated voltage	100 to 240 V~
Rated frequency	50/60 Hz
Rated current	0.8 to 0.4 A
Output voltage	24 V–
Max. output current	2 A
Safety category	II to EN 61140
IP rating	IP 20 to EN 60529; ensure through design/installation
Potential separation primary/secondary	SELV to EN 60950
Electrical safety	EN 60335
Permissible ambient temperature	
– Operation	−20 to +55 °C Installation in living spaces or installation rooms (standard ambient conditions)
– Storage and transport	−25 to +85 °C

LON connecting cable for data exchange between control units

Vitotronic 300-K for the Vitotronic 200-H

Cable length 7 m, fully wired.

Part no. 7143 495



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Control units (cont.)

Extension of the connecting cable

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

Terminator (2 pce)

Part no. 7143 497
For terminating the LON BUS at the first and last control unit.

LON communication module

PCB for exchanging data with the Vitotronic 200-H, Vitocom 100 type LAN1, Vitocom 200 and for connecting to a higher ranking building management system.

- For installation in the Vitotronic 200
  Part no. 7179 113
- For installation in the Vitotronic 300-K
  Part no. 7172 174

Appendix

6.1 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 unvented heating systems with permissible flow temperatures (= safety temperatures) up to 100 °C to EN 12828. The maximum achievable flow temperature is approx. 15 K below the safety temperature.
Observe all engineering standards and statutory requirements applicable to the installation and operation of this system in your country.
Only qualified contractors should carry out the installation, the mains gas connection and the connection on the flue gas side, the commissioning and the electrical connection as well as general maintenance and repair work.
The installation of a condensing boiler may need to be notified to and approved by your local gas supply utility.
In some regions, permits may be required for the flue system and condensate drain into the public sewage system.
In some countries, the relevant flue gas inspector and water authorities must be informed prior to commencing the installation.
We recommend that maintenance and cleaning procedures are performed annually. As part of the maintenance procedure, check the correct function of the entire system. Remedy any faults.
Condensing boilers must only be operated with specially designed, tested and approved flue pipes.
Only an authorised contractor may convert this boiler for use in countries other than those stated on the type plate. That contractor must also arrange the acceptance in accordance with the statutes of the relevant country.

EnEV	Energy Saving Ordinance
1st BImSchV	First regulation for the implementation of the German Immissions Act (regulation regarding small and medium-sized combustion equipment)
FeuVo	Fire Regulations of the German Federal States
DIN 1986	Drainage system materials
DIN 1988	DHW pipe systems for properties
DIN 4753	Water heaters and DHW systems for DHW and process water
DIN 18160	Domestic chimneys
DIN 18380	Heating systems and central DHW heating systems (VOB)
DIN 57116	Electrical equipment for combustion systems
EN 677	Gas condensing boiler
EN 12828	Heating systems in buildings - design of hot water heating systems
EN 12831	Heating systems in buildings - process for calculating the standard heat load
EN 13384	Flue systems - thermal and flow technical calculations
DWA-A 251	Introduction of condensate from gas and oil combustion systems [into public sewers]
DVGW G 260	Gas condition
DVGW G 600	Technical rules for gas installations (TRGI)
DVGW G 688	Gas consumption equipment, condensing technology

Appendix (cont.)

DVGW/DVFG	Technical rules for LPG (TRF)
DVGW VP 113	Systems comprising combustion equipment and flues
VDI 2035	Prevention of damage in water heating installations - scale formation in DHW supply installations and water heating installations
VdTÜV 1466	Water quality datasheet

VDE regulations and the special regulations of local power supply utilities.

Keyword index

5822 432 GB

Keyword index

Subject to technical modifications.

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