VIESMANN

Gas condensing boilers
87 to 1400 kW

Technical guide

Vitocrossal 300, CM3 | Vitocrossal 300, CT3B | Vitocrossal 300, CR3B

VITOCROSSAL 200 **Type CM2**

VITOCROSSAL 300 **Type CM3**

VITOCROSSAL 300 **Type CT3U**

VITOCROSSAL 300 **Type CT3B**

VITOCROSSAL 300 **Type CR3B**

5822 449 GB 5/2013

Index

5822 449 GB

Index (cont.)

Index (cont.)

5822 449 GB

1.1 Product description

Gas condensing boiler with MatriX radiant burner for natural gas E and LL, for open or balanced flue operation
For operation with a modulating boiler water temperature
Permissible operating temperature up to 95 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure 4 bar (0.4 MPa)

- CE designation: CE-0085BQ0021 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}, B_{23P}, C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}
- Standard seasonal efficiency [to DIN]: up to 97 % (H_s) [gross cv] / 108 % (H_i) [net cv].
- The stainless steel, corrosion-resistant Inox-Crossal heat exchanger ensures high operational reliability and a long service life.
- Inox-Crossal heat exchanger for highly effective heat transfer and high condensation rate.
- Self-cleaning effect through smooth stainless steel surface.
- Clean combustion through low combustion chamber loading and straight-through design.
- MatriX radiant burner for particularly quiet and environmentally responsible operation with a modulating range of 33 to 100 %.
- Either open flue or balanced flue operation.
- All hydraulic connections can be fitted from above.
- Easy to use Vitotronic control unit with plain text and graphic display.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- Multi boiler system with pre-assembled accessories on the hydraulic and flue gas side.

1.2 Operating conditions

Note
For water quality requirements, see page 48.

	Requirements
1. Heating water flow rate	None
2. Boiler return temperature (minimum value)	None
3. Low-end boiler water temperature	None
4. Lower boiler water temperature with frost protection	10 °C – ensured through the Viessmann control unit
5. Two-stage burner operation	None
6. Modulating burner operation	None
7. Reduced mode	None – total reduction is possible
8. Weekend setback	None – total reduction is possible

2.1 Product description

Gas condensing boiler with MatriX cylinder burner for natural gas E, LL and LPG, for open or balanced flue operation
For operation with a modulating boiler water temperature
Permissible operating temperature up to 95 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure 6 bar (0.6 MPa)

- CE designation: CE-0085BQ0021 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}, B_{23P}, C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}
- Condensing Unit with gas burner, 400 to 620 kW, as dual cascade up to 1240 kW.
- Standard seasonal efficiency [to DIN]: up to 97 % (H_s) [gross cv] / 108 % (H_i) [net cv].
- The stainless steel, corrosion-resistant Inox-Crossal heat exchanger ensures high operational reliability and a long service life.
- Inox-Crossal heat exchanger for highly effective heat transfer and high condensation rate.
- Self-cleaning effect through smooth stainless steel surface.
- Clean combustion through low combustion chamber loading and straight-through design.
- MatriX cylinder burner for environmentally responsible operation with a modulation range from 20 to 100 %.
- Either balanced flue or open flue operation.
- All hydraulic connections on the system side can be made from above.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- Easy to use Vitotronic control unit with plain text and graphic display.

2.2 Operating conditions

Note
For water quality requirements, see page 48.

		Requirements
1.	Heating water flow rate	None
2.	Boiler return temperature (minimum value)	None
3.	Lower boiler water temperature	None
4.	Reduced mode	None – total reduction is possible
5.	Weekend setback	None – total reduction is possible

3.1 Product description

Gas condensing boiler with MatriX radiant burner for natural gas E and LL
With two return connectors
For operation with a modulating boiler water temperature
Permissible operating temperature up to 95 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure 4 bar (0.4 MPa)

- CE designation: CE-0085BN0569 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].
- Stainless steel Inox-Crossal heat exchanger for efficient utilisation of condensing technology – self-cleaning effect through smooth stainless steel surfaces.
- Modulating MatriX gas burner with a wide modulation range (30 to 100 %) for particularly quiet, economical and environmentally responsible operation.
- Excellent controllability and reliable heat transfer due to wide water galleries and high water content.
- Second return connector for low return temperatures resulting in an especially intensive utilisation of condensing technology.
- Easy to use Vitotronic control unit with plain text and graphic display.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- A strong draught in the flue outlet enables long flue and ventilation air pipe runs.

3.2 Operating conditions

Note
For water quality requirements, see page 48.

	Requirements
1. Heating water flow rate	None
2. Boiler return temperature (minimum value)	None
3. Low-end boiler water temperature	None
4. Lower boiler water temperature with frost protection	10 °C – ensured through the Viessmann control unit
5. Two-stage burner operation	None
6. Modulating burner operation	None
7. Reduced mode	None – total reduction is possible
8. Weekend setback	None – total reduction is possible

4.1 Product description

Gas condensing boiler with MatriX cylinder burner for natural gas E and LL, for open or balanced flue operation
With two return connectors
For operation with a modulating boiler water temperature
Permissible operating temperature up to 95 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure 5.5 bar (0.55 MPa)

- CE designation: CE-0085AQ0257 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}, B_{23P}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}, C_{93}
- Condensing Unit with MatriX cylinder burner as two-boiler system up to 1260 kW.
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].
- The stainless steel, corrosion-resistant Inox-Crossal heat exchanger ensures high operational reliability and a long service life.
- Inox-Crossal heat exchanger for highly effective heat transfer and high condensation rate.
- Self-cleaning effect through smooth stainless steel surface.
- MatriX cylinder burner for particularly quiet and environmentally responsible operation with a modulating range of 33 to 100 %.
- Either open flue or balanced flue operation.
- Cascade with pre-assembled accessories on the hydraulic and flue gas side.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- Easy to use Vitotronic control unit with plain text and graphic display.

4.2 Operating conditions

Note
For water quality requirements, see page 48.

	Requirements
1. Heating water flow rate	None
2. Boiler return temperature (minimum value)	None
3. Low-end boiler water temperature	None
4. Lower boiler water temperature with frost protection	10 °C – ensured through the Viessmann control unit
5. Two-stage burner operation	None
6. Modulating burner operation	None
7. Reduced mode	None – total reduction is possible
8. Weekend setback	None – total reduction is possible

Vitocrossal 300, type CT3B, 187 to 635 kW

5.1 Product description

Gas condensing boiler for natural gas E, LL and LPG
With two return connectors
Boiler also available in sections
For operation with a modulating boiler water temperature
Permissible operating temperature up to 100 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure

- Vitocrossal 300 with 187 to 314 kW - 4 bar (0.4 MPa)
- Vitocrossal 300 with 408 to 635 kW - 5.5 bar (0.55 MPa)
- Up to 314 kW with MatriX radiant burner for natural gas E and LL
- CE designation: CE-0085AQ0257 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].
- The stainless steel, corrosion-resistant Inox-Crossal heat exchanger ensures high operational reliability and a long service life.
- Inox-Crossal heat exchanger for highly effective heat transfer and high condensation rate.
- Self-cleaning effect through smooth stainless steel surface.
- Clean combustion through low combustion chamber loading and straight-through design.
- MatriX radiant burner up to 314 kW for particularly quiet and environmentally responsible operation, with a modulation range from 33 to 100 %.
- With either ELCO or Weishaupt pressure-jet gas burner.
- Two return connectors for hydraulic connection optimised for condensing technology.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- Easy to use Vitotronic control unit with plain text and graphic display.

5.2 Operating conditions

Note
For water quality requirements, see page 48.

	Requirements
1. Heating water flow rate	None
2. Boiler return temperature (minimum value)	None
3. Low-end boiler water temperature	None
4. Lower boiler water temperature with frost protection	10 °C – ensured through the Viessmann control unit
5. Two-stage burner operation	None
6. Modulating burner operation	None
7. Reduced mode	None – total reduction is possible
8. Weekend setback	None – total reduction is possible

Vitocrossal 300, type CR3B, 787 to 1400 kW

6.1 Product description

Gas condensing boiler for natural gas E, LL and LPG
With two return connectors
Also available in sections
For operation with a modulating boiler water temperature
Permissible operating temperature up to 100 °C
Permissible safety temperature up to 110 °C
Permissible operating pressure 6 bar (0.6 MPa)

- CE designation: CE-0085AU0315 in accordance with the Gas Appliances Directive.
- Boiler categories: B_{23}
- Standard seasonal efficiency [to DIN]: up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv].
- The stainless steel, corrosion-resistant Inox-Crossal heat exchanger ensures high operational reliability and a long service life.
- Inox-Crossal heat exchanger for highly effective heat transfer and high condensation rate.
- Self-cleaning effect through smooth stainless steel surface.
- Clean combustion through low combustion chamber loading and straight-through design.
- With either ELCO or Weishaupt pressure-jet gas burner.
- Two return connectors for hydraulic connection optimised for condensing technology.
- Hydraulically straightforward connection, no minimum flow rate, no low loss header necessary, particularly low pressure drop on the water side.
- Easy to use Vitotronic control unit with plain text and graphic display.

6.2 Operating conditions

Note
For water quality requirements, see page 48.

	Requirements
1. Heating water flow rate	None
2. Boiler return temperature (minimum value)	None
3. Low-end boiler water temperature	None
4. Lower boiler water temperature with frost protection	10 °C – ensured through the Viessmann control unit
5. Two-stage burner operation	None
6. Modulating burner operation	None
7. Reduced mode	None – total reduction is possible
8. Weekend setback	None – total reduction is possible

5822 449 GB

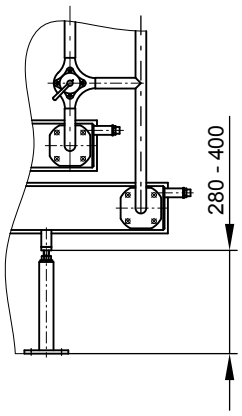
7.1 Specification

Accessories for heating circuits

Divicon heating circuit distribution
For boilers up to 314 kW

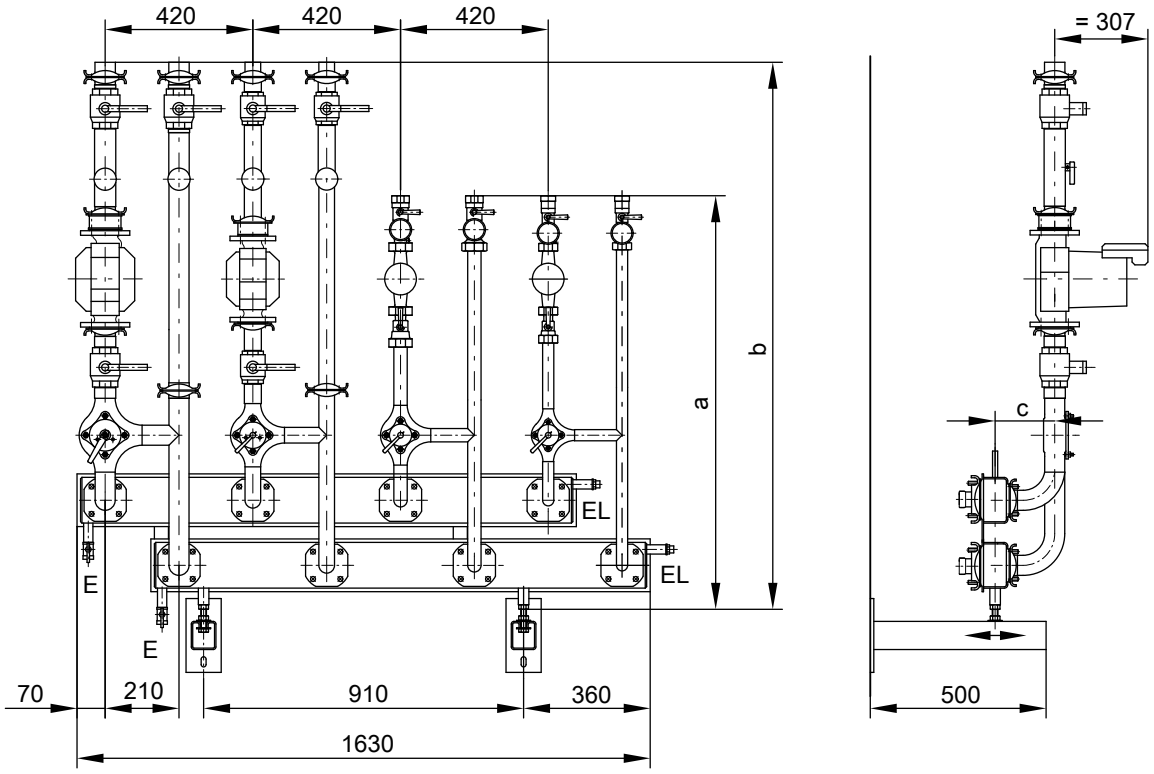
Specification

Design and function
- 1 to 4 heating circuits can be connected to the flow distributor and return collector.
- Free connections are closed via dummy flanges (part of the standard delivery).
- The flow distributor and return collector can optionally be arranged on the r.h. or the l.h. side of the boiler.
- Thermal insulation for the Divicon heating circuit distributor is part of the standard delivery.



Divicon heating circuit distributor, installed adjacent to the boiler
for Vitocrossal 200 and 300
Do not use the prefabricated pipe connections for these boilers. The Divicon heating circuit distributor can also be placed near the boiler (as an alternative to wall mounting) by using the separate adjustable feet and on-site pipe connections.

Divicon heating circuit distributor, wall mounted
for Vitocrossal 200 and 300



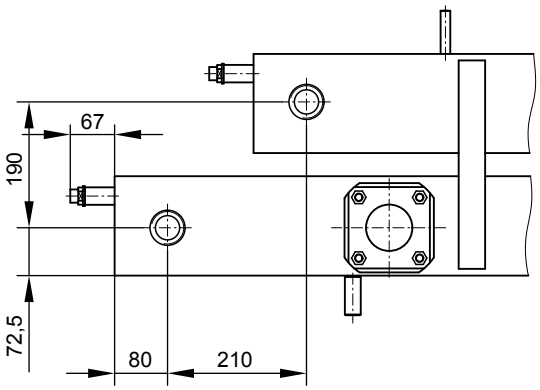
E Drain
EL Air vent valve

Dimensions

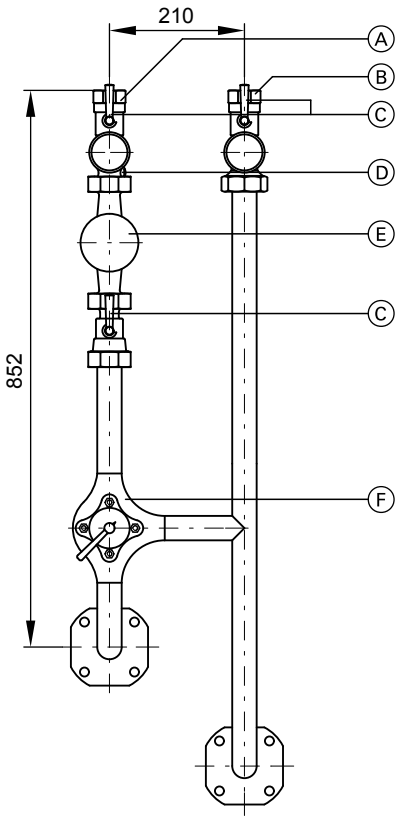
Rated boiler heating output	kW	87 to 187	246 to 314
a (DN 25 + DN 32)	mm	1186	1196
b (DN 40 + DN 50)	mm	1586	1606
c	mm	170	173

Connections for an additional consumer (e.g. DHW cylinder)
2 pipe connectors G 1½ (male thread) on the back of the flow distributor and return manifold.

Installation accessories (cont.)



Heating circuit connections
Heating circuit connection DN 25 and DN 32 (shown with mixer)

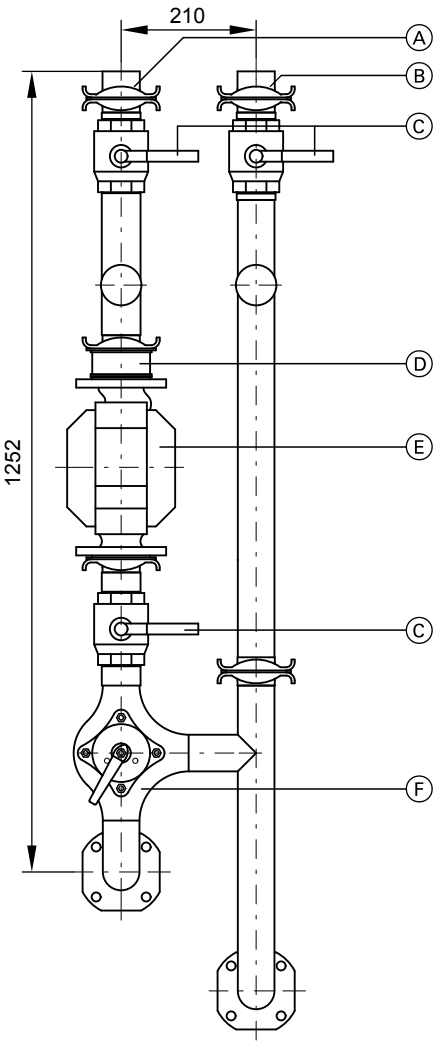


Ⓐ Heating flow
Ⓑ Heating return
Ⓒ Ball valve
Ⓓ Check valve
Ⓔ Circulation pump
Ⓕ 3-way mixer

Wilo heating circuit pumps, differential pressure-dependent
(Adjustable from proportional pressure to constant pressure)

Motor protection
Integral motor protection in terminal boxes for all differential pressure settings. Contact breaking capacity for central fault message 1 A, 250 V~.

Heating circuit connection DN 40 and DN 50 (shown with mixer)



Ⓐ Heating flow
Ⓑ Heating return
Ⓒ Ball valve
Ⓓ Check valve
Ⓔ Circulation pump
Ⓕ 3-way mixer

Heating output which can be connected to the heating circuit connections at (ΔT = 20 K)

Heating circuit connection	kW
DN 25	40
DN 32	70
DN 40	140
DN 50	170

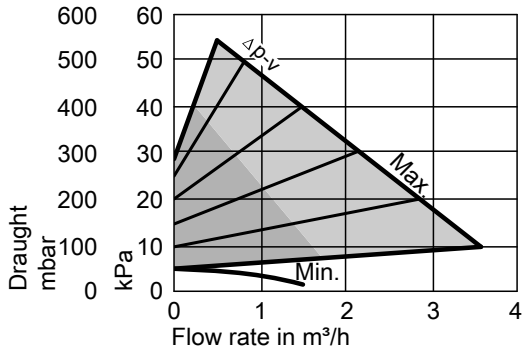
7

Installation accessories (cont.)

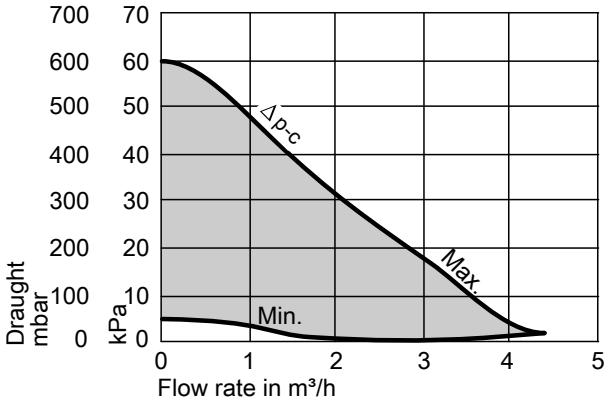
230 V~, 50 Hz

Heating circuit connection		DN	25	32	40	50
Pump type			Stratos PICO 25/1-6	Stratos PICO 30/1-6	Stratos 40/1-8	Stratos 50/1-8
Speed range	n	min^{-1}	1200-4230	1200-4230	1400-4800	1400-4800
Power consumption	P_1	W	3-40	3-40	12-310	12-310
Current	I	A	max. 0.35	max. 0.35	0.22-1.37	0.22-1.37

Head
Heating circuit pump DN 25 and DN 32

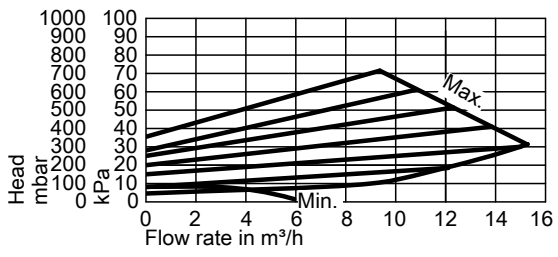


Proportional pressure

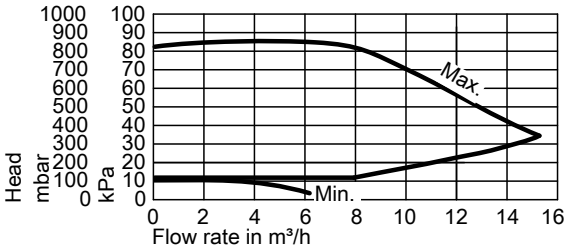


Constant pressure

Head
Heating circuit pump DN 40 and DN 50

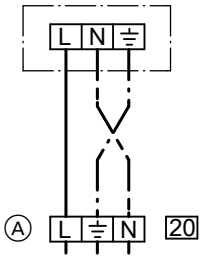


Proportional pressure



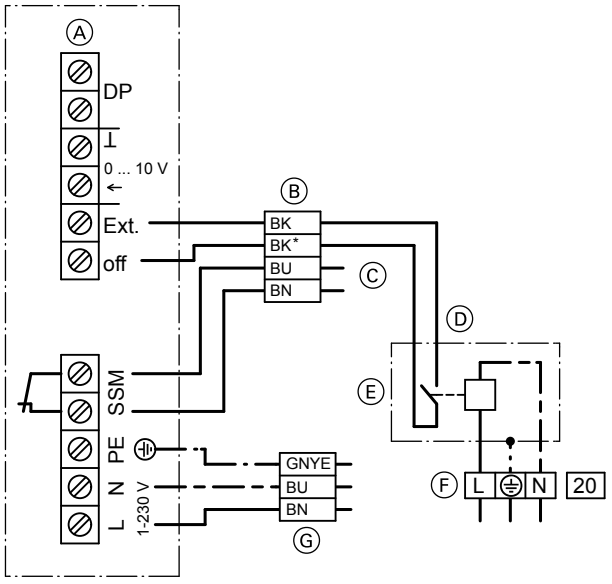
Constant pressure

Electrical connection
Heating circuit pump DN 25 and DN 32



Ⓐ Connecting cable with plug-in connection

Electrical connection
Heating circuit pump DN 40 and DN 50



Ⓐ Terminals in the pump
Ⓑ 4-core cable for starting/stopping a pump and for pump fault message
Ⓒ Central fault message facility
Ⓓ External starting/stopping of the pump

Installation accessories (cont.)

Ⓔ Connection via the contactor in the control panel or contactor relay, part no. 7814 681
Ⓕ Plug [20] for connection to the Vitotronic
Ⓖ 3-core cable for power supply to the pump

Colour coding to DIN IEC 60757
BK Black
BK* Black wire with imprint

BN Brown
BU Blue
GNYE Green/yellow

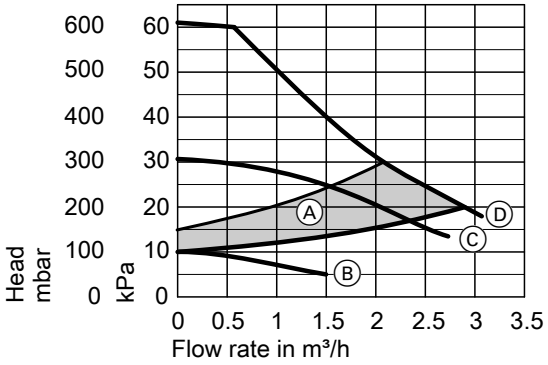
Grundfos heating circuit pumps, differential pressure-dependent
(Adjustable from proportional pressure to constant pressure)

Motor protection
The motor and the electrical equipment are protected against thermal overload. No external motor protection is required.

230 V~, 50 Hz

Heating circuit connection		**DN**	**25**	**32**	**40**	**50**
Pump type			Alpha 2 25-60	Alpha 2 32-60	MAGNA UPE 40-120	MAGNA UPE 50-60
Speed range	n	min^{-1}	–	–	900-3580	680-1970
Power consumption	P_1	W	5-45	5-45	25-445	32-335
Current	I	A	0.05-0.38	0.05-0.38	0.16-2.0	0.2-1.51

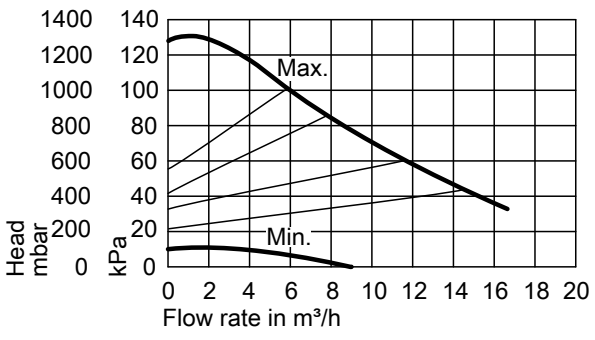
Head
Heating circuit pump DN 25 and DN 32



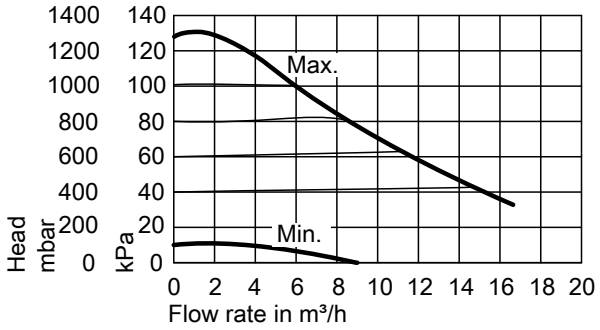
Ⓐ Operating range in differential pressure-dependent mode

Operation in stages
Ⓑ Stage 1
Ⓒ Stage 2
Ⓓ Stage 3

Head
Heating circuit pump DN 40

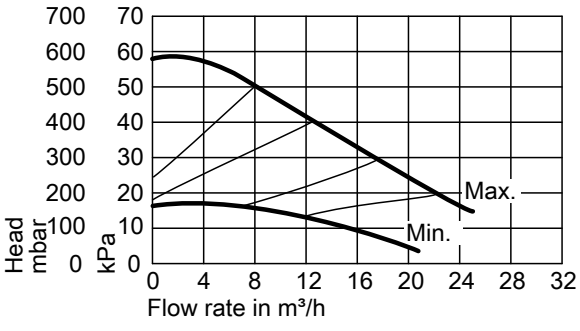


Proportional pressure



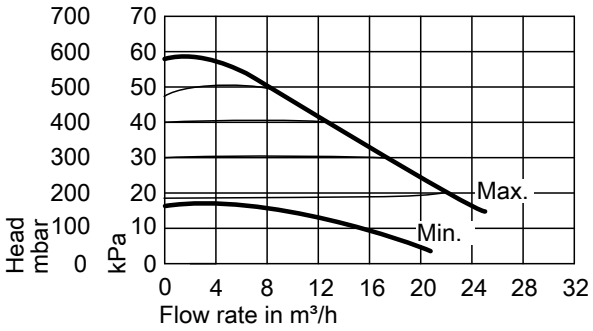
Constant pressure

Head
Heating circuit pump DN 50



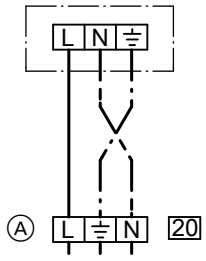
Proportional pressure

Installation accessories (cont.)



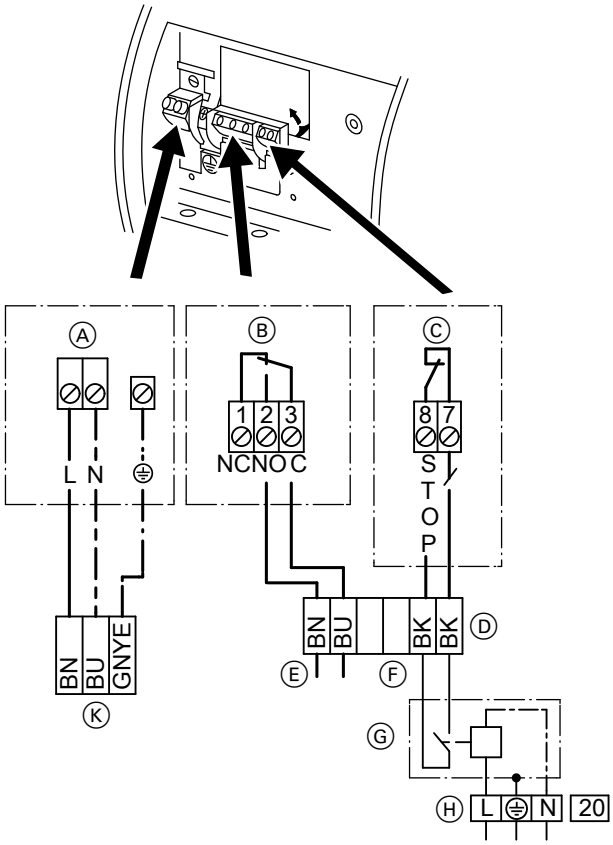
Constant pressure

Electrical connection
Heating circuit pump DN 25 and DN 32



Ⓐ Connecting cable with plug-in connection

Electrical connection
Heating circuit pump DN 40 and DN 50



Ⓐ Power supply
Ⓑ Signal output
Ⓒ ON/OFF
Ⓓ Cable for starting/stopping a pump and pump fault message (4-core)
Ⓔ Central fault message facility
Ⓕ External starting/stopping of the pump
Ⓖ Connection via the contactor in the control panel or contactor relay, part no. 7814 681
Ⓗ Plug 20 for connection to the Vitotronic
Ⓚ 3-core cable for power supply to the pump

Colour coding to DIN IEC 60757

BK	Black
BK*	Black wire with imprint
BN	Brown
BU	Blue
GNYE	Green/yellow

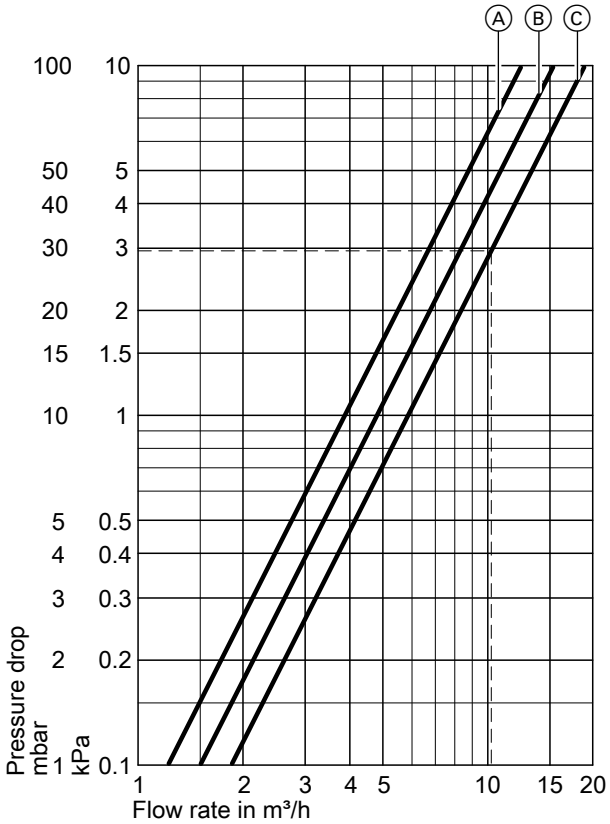
7

Installation accessories (cont.)

Residual head

Residual head of the heating circuits
Deduct the pressure drop of the mixer and the boiler circuit (boiler, pipework, flow distributor and return collector) from the pump head. The total water volume of all heating circuits should be taken into consideration in the boiler circuit.

Boiler circuit pressure drop
(Boiler + pipework + flow distributor and return collector + heating circuit connection without mixer)



Ⓐ DN 65: Vitocrossal 300, 87 to 142 kW,
Ⓑ DN 65: Vitocrossal 300, 187 and 248 kW,
Ⓒ DN 80: Vitocrossal 300, 314 kW,

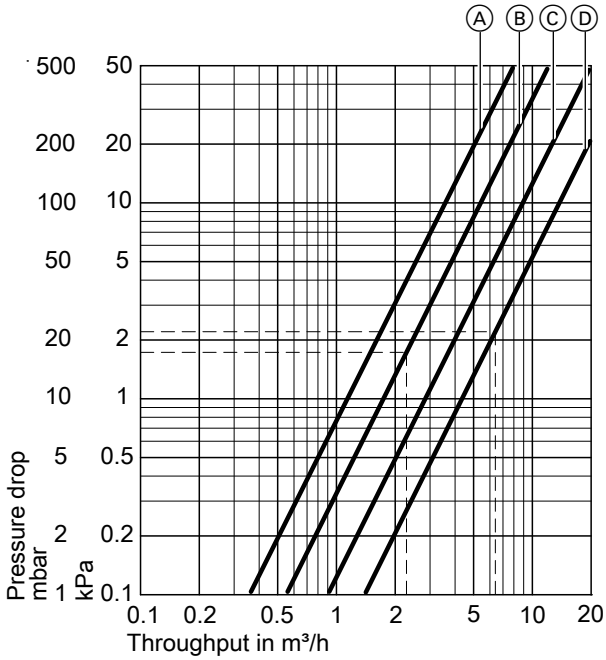
Example for calculating the residual head

Heating system with:
– Divicon heating circuit distributor DN 80

– Heating circuit 1:	1 heating circuit connection DN 25 without mixer,	heating output 35 kW,	flow rate 1.5 m³/h
– Heating circuit 2:	1 heating circuit connection DN 32 with mixer,	heating output 60 kW,	flow rate 2.5 m³/h
– Heating circuit 3:	1 heating circuit connection DN 50 with mixer,	heating output 150 kW,	flow rate 6.5 m³/h
			Total flow rate 10.5 m³/h

Boiler circuit pressure drop
Boiler + pipe connections + flow distributor and return collector + heating circuit connection (except mixer) (see diagram) = 30 mbar (3 kPa)

Mixer pressure drop



Ⓐ DN 25
Ⓑ DN 32
Ⓒ DN 40
Ⓓ DN 50

Note
For the pressure drop of the pipe connections between the boiler and distributor, 6 bends (90°) and 5 m pipe length are factored in. If considerably different lengths and shapes are used on-site, calculate and factor in the additional pressure drop levels.

Mixer pressure drop
(see diagram)

Mixer	DN	32	50
Pressure drop	mbar	18	22
	kPa	1.8	2.2

Sum of the boiler circuit pressure drop and heating circuit connection pressure drop
Heating circuit 1: 30 mbar (3 kPa)
Heating circuit 2: 30 mbar + 18 mbar = 48 mbar (4.8 kPa)

Installation accessories (cont.)

Heating circuit 3: 30 mbar + 22 mbar = 52 mbar (5.2 kPa)

Residual head of the individual heating circuits
With Wilo circulation pump

Heating circuit		1	2	3
Head of the circulation pump (adjustable)	mbar	100 to 400	100 to 280	100 to 760
	kPa	10 to 40	10 to 28	10 to 76
Pressure drop, boiler circuit + heating circuit connection	mbar	30	48	52
	kPa	3	4.8	5.2
Residual head (adjustable)	mbar	70 to 370	52 to 232	48 to 708
	kPa	7 to 37	5.2 to 23.2	4.8 to 70.8

With Grundfos circulation pump

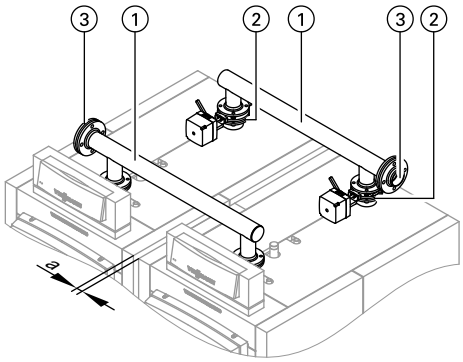
Heating circuit		1	2	3
Head of the circulation pump (adjustable)	mbar	100 to 400	100 to 260	150 to 520
	kPa	10 to 40	10 to 26	15 to 52
Pressure drop, boiler circuit + heating circuit connection	mbar	30	48	52
	kPa	3	4.8	5.2
Residual head (adjustable)	mbar	70 to 370	52 to 212	98 to 468
	kPa	7 to 37	5.2 to 21.2	9.8 to 46.8

Vitocontrol control panel
(On request)
Control panel for regulating the heating system in conjunction with a Divicon heating circuit distributor.
The control panel comprises all components required for the control and monitoring of the heating system.

The system is designed so that other equipment can be installed next to the control equipment of 1 to 4 boilers, such as: Vitotronic 300-K (type MW1B), Vitotronic 200-H (type HK1B or HK3B), pump control units, measuring devices, time switches etc.

Hydraulic system pipework for two-boiler system

For two-boiler systems up to 622 kW with Vitocrossal 200, type CM2



Dim. a: 35 mm (boiler clearance with fitted thermal insulation)

Rated output in kW		Int. dia.
Single boiler	Dual-boiler system	
87	174	
115	230	DN 50/65
142	284	
186	372	
246	492	DN 65/80
311	622	

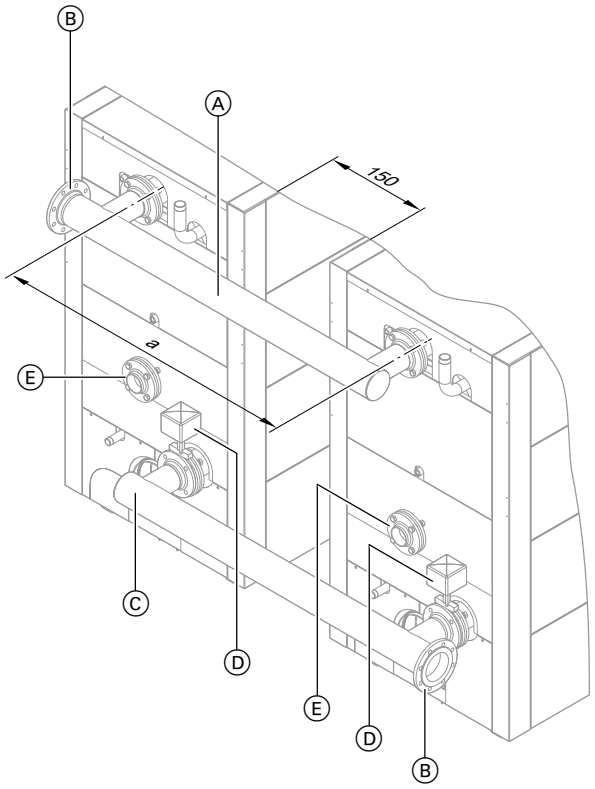
① Flow manifold and return collector
② Motorised butterfly valves
③ Mating flanges with gaskets

7

5822 449 GB

Installation accessories (cont.)

For two-boiler systems up to 1260 kW with Vitocrossal 300, type CT3U



Ⓐ Flow manifold
Ⓑ Mating flanges with gaskets
Ⓒ Return collector
Ⓓ Motorised butterfly valves
Ⓔ Boiler return connector 2

Dim. a: 1550 mm

Rated heating output in kW		Nominal diameter
Single boiler	Two-boiler system	
400	800	
500	1000	DN 100/125
630	1260	

Note
If using hydraulic system pipework part no. Z006 033, seal the second return connectors Ⓔ with blank flanges.
If the second return connectors Ⓔ are used on site, install butterfly valves Ⓓ to the flow connectors.

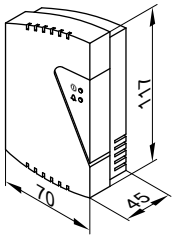
CO limiter for Vitocrossal 300, type CM3

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.
- 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



7

8.1 Delivery, handling and siting

Delivery

We deliver the equipment to site on a vehicle with crane and will unload the equipment, subject to there being no special hindrance.

Handling and siting

A sufficient number of lifting eyes is provided on each boiler, to which lifting gear may be attached.
Vitocrossal 300, type CT3B, with 187 to 635 kW can be delivered in sections upon request. The front part of the combustion chamber can then be removed for easier handling (chargeable option; please state when ordering).
The Vitocrossal 300, type CR3B boilers can be supplied with a split combustion chamber and heat exchanger for individual handling. The linear base rails simplify handling. Our experts can undertake the handling and siting on prepared foundations upon request (chargeable option).

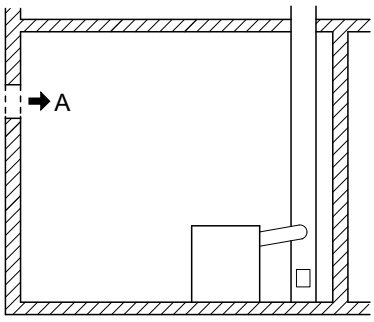
The boilers may be placed onto concrete without special foundations. However, to facilitate cleaning of the boiler room it is advisable to position the boiler on a plinth.
For recommended minimum wall clearances for installation and maintenance work, see the datasheet of the respective boiler.
Anti-vibration boiler supports may be used if structure-borne noise attenuation is required.

Installation location

General requirements
The installation room must meet the standards laid down by the Fire Regulations of the respective country. In rooms where air contamination through halogenated hydrocarbons may occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories etc., the boiler may only be installed if adequate measures can be taken to provide a supply of uncontaminated combustion air. If in doubt, please contact us.
Boilers should not be installed in areas subject to dusty or very humid conditions. The installation room must be kept free from frost and must be adequately ventilated. If these instructions are not observed, any consequential boiler damage directly related to any of these causes is excluded from our warranty. These boilers are particularly suitable for installation in attics. They require no high chimneys as they are operated with a pressurised combustion chamber.

Requirements of the Muster-Feuerungsverordnung [Sample Combustion Ordinance - Germany]
Requirements for installation rooms are listed in the "Sample Combustion Ordinance". The Building Regulations of each country apply.

Combustion air supply
For open flue combustion equipment with a total rated heating output in excess of 50 kW, the combustion air supply is deemed to have been verified if the combustion equipment is located in rooms that provide an aperture or duct leading outdoors. The cross-section of the aperture must be at least 150 cm^2 and must be 2 cm^2 larger for each additional kW above 50 kW rated heating output. Pipes must be sized to provide equivalent flow rates. The required cross-section may be split over a maximum of 2 apertures or pipes.



$$A = 150\ cm^2 + 2\ \frac{cm^2}{kW} \times (\Sigma \dot{Q}_n - 35\ kW)$$

$\Sigma \dot{Q}_n$ = sum of all rated heating outputs in kW

Combustion air apertures and pipes must not be closed or blocked if installed safety equipment cannot adequately ensure that the combustion equipment can only be operated when the aperture is open. The required cross-section must not be blocked by any closure or grille. An adequate combustion air supply can also be assured by other means.

Installation locations for combustion equipment
Only install combustion equipment for gaseous or liquid fuels with a total rated heating output in excess of 50 kW in areas meeting the following conditions:
- Not used for other purposes, except the installation of heat pumps, CHP modules or permanently installed internal combustion engines as well as the storage of fuels
- No openings leading to other rooms, except doorways
- Doors tight and self-closing
- Ventilation facility

The burner and the fuel supply of the combustion equipment must be able to be shut down at any time by an emergency stop switch installed outside the installation room. Provide a sign adjacent to the emergency stop switch that reads "EMERGENCY STOP SWITCH – COMBUSTION".
As an alternative to these requirements for installation rooms, combustion equipment may also be installed in other rooms subject to one of the following conditions:
- The utilisation of these rooms makes this necessary and the combustion equipment can be safely operated.
- These rooms are located in a stand-alone building, which is only used for the operation of the combustion equipment and as a fuel store.

Further requirements regarding the installation of combustion equipment
Fuel lines must be equipped with a device directly upstream of gas combustion equipment installed in boiler rooms which meets the following conditions:
- It automatically shuts off the fuel supply in case of an external thermal load in excess of 100 °C.
- It is designed so that up to a temperature of 650 °C and over a period of at least 30 minutes, not more than 30 l/h (measured as air flow rate) can flow through or out of the fuel line.

Combustion equipment for LPG (propane, butane and their mixtures) may only be installed in rooms whose floor is more than 1 m below ground level at every point, subject to the following conditions:
- The combustion equipment is equipped with a flame monitoring device.
- It is ensured that LPG cannot escape from the fuel lines inside the installation room in dangerous quantities or will be extracted safely via a mechanical ventilation system, even if the combustion equipment has been switched off.

Combustion equipment must be installed at a sufficient distance from combustible materials and fitted furniture, or be shielded from them, to ensure the temperature on such materials/furniture does not exceed 85 °C when the combustion equipment is delivering the rated heating output. Alternatively, maintain a distance of at least 40 cm.

Safety equipment for the installation room for Vitocrossal 300, type CM3

Viessmann boilers 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).

8.2 System design

Performance limits in regulations

In many regulations, the conditions to be met are subject to the rated boiler heating output. For this, the output at TF/TR 80/60 °C is decisive.
However, the output levels given in this technical guide relate to the specification at TF/TR 50/30 °C (type CM2, CM3, CT3U and CR3B) and 40/30 °C (type CT3B), which is now commonly applied to condensing boilers.

The rated heating outputs at both TF/TR can be found in the table on page 21.

Flow temperatures

To keep distribution losses to a minimum, we recommend that the:
- Heat distribution system and the
- DHW heating is designed for a max. of 70 °C (flow temperature).

On boilers supplied with a boiler control unit, the max. boiler water temperature is limited to 75 °C. The flow temperature may be increased by adjusting the temperature controller.

Pump controlled pressure maintaining systems

In heating systems with automatic pressure maintaining systems, and in particular pump controlled systems with integral deaeration, we recommend the installation of a diaphragm expansion vessel for individual boiler protection. This reduces the frequency and level of pressure fluctuations. This contributes considerably to improved operational reliability and longer service life of the system components. Failure to observe these recommendations may result in damage to the boiler or to other system components.

Furthermore ensure that only pump controlled pressure maintaining systems that are sealed against corrosion and protected against oxygen ingress into the heating water are used. Otherwise damage to the system through oxygen corrosion can result. Pump controlled pressure maintaining systems with atmospheric deaeration through cyclical pressure release create a central post-ventilation of the heating system. However, this does not represent oxygen removal in the sense of corrosion protection as described in VDI 2035 Sheet 2.

Boiler output (kW)	Diaphragm expansion vessel Capacity in litres
up to 300	50
up to 500	80
up to 1000	140
up to 2000	300
up to 5000	800
up to 10,000	1600

Safety temperatures

Viessmann boilers correspond to EN 303 and DIN 4702 and all are type-tested. They are suitable for installation in sealed heating systems to EN 12828. Permiss. flow temperatures (= safety temperatures): up to 110 °C. Max. achievable flow temperature: approx. 15 K below the safety temperature.

High limit safety cut-out of the boiler control unit

Delivered condition	Adjustable to
110 °C	100 °C

For the Vitocrossal, the high limit safety cut-out must be changed over to 100 °C.

Note
Once changed, the hydraulic-mechanical high limit safety cut-out cannot be reset to the higher value.

Requirements through heat load

The requirements of EN 12831 relating to the heat load calculation are met by the weather-compensated control units. To reduce the heat-up load, the night setback is reduced in the case of low outside temperatures. The flow temperature will be raised for a limited time to reduce the heat-up time after a setback phase.

Selection of rated heating output

Select boilers according to the required heat load. The efficiency of low temperature and condensing boilers is stable in a wide range of boiler loads. Therefore, the heating output for low temperature boilers, condensing boilers and multi boiler systems may be higher than the calculated heat load of the building.
The output of condensing boilers is substantially influenced by the return temperature and the condensation gain which depends on that temperature. Lower condensation can be caused particularly in winter, when a high heating output is required, and therefore higher return temperatures result. We therefore recommend that the rated heating output is selected in line with the heating output data at T_F/T_R 80/60 °C.

The following table compares the rated heating outputs at various flow and return temperatures.

Selection of rated heating output

Temperature flow/return (T_F/T_R)	Rated heating output in kW												
40/30 °C	–	–	–	187	248	314	408	508	635	–	–	–	–
50/30 °C	87	115	142	186	246	311	400	500	620	787	978	1100	1400
80/60 °C	80	105	130	170	225	285	370	460	575	720	895	1006	1280

8.3 Water connection

Heating connections

Existing systems
Flush the heating system thoroughly to remove dirt and sludge deposits before connecting a condensing boiler to an existing heating system.
Otherwise, this dirt and sludge will be deposited inside the boiler and can lead to local overheating, noise and corrosion. Boiler damage caused by such deposits are excluded from our warranty. Where necessary, install dirt traps.

Boiler circuit pumps
These boilers do not require boiler circuit pumps, due to their design, their large water content and the low internal pressure drop on the heating water side.

Heating return
Route the return water from all consumers or heating circuits via the return connectors into the condensing boiler. The Vitocrossal 300 is equipped with two return connectors. If only one heating circuit is installed, connect this to connector "KR 1".

If several heating circuits are installed, connect the heating circuits with the lowest temperature level (e.g. underfloor heating system) to connector "KR 1". Connect at least 15 % of the rated heating output to connector "KR 1". This achieves optimum boiler efficiency. If several heating circuits with identical temperature levels are installed, connect these to connector "KR 1".

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 (DIN 4726) that are permeable to oxygen. We supply a separate heat exchanger for this purpose.

Connection for the utilisation of condensing technology

- Only install suitable 3-way mixing devices in heating circuits, because the utilisation of condensing technology demands low return temperatures. Avoid 4-way mixers.

The high efficiency of the Vitocrossal condensing boilers or condensing units with the Vitotrans 300 can be further enhanced by the following measures:

- Design the heating circuits for the lowest possible temperatures, preferably 40/30 °C or 50/40 °C.
- If several heating circuits with different temperature levels are intended to be used, connect the heating circuits with the lowest temperatures to connector "KR 1" of the Vitocrossal 300.
- Reduce the water flow in the heating circuits with variable speed pumps, or pumps whose speed is regulated subject to the flow and return temperatures.
- Measures taken to limit the return temperature may lead to increases in efficiency.
- Never install overflow valves between the heating flow and return.

8

Heating circuit pumps

Heating circuit pumps in heating systems with rated heating output > 25 kW must be equipped or designed in such a way that the power consumption will be matched automatically to the operational delivery demand in at least three stages, if no safety concerns relating to the **boiler** make demands to the contrary.

System accessories

Hydraulic system pipes
For two-boiler systems up to 622 kW with Vitocrossal 200, type CM2 or up to 1260 kW with Vitocrossal 300, type CT3U, see page 17.

Divicon heating circuit distribution
Pre-assembled heating circuit distributor for connecting up to 4 heating circuits (in single boiler systems) to the Vitocrossal 300, 87 to 314 kW or Vitocrossal 200, 87 to 311 kW. The Divicon pipe connections should be provided on site.

See from page 11.

Prefabricated flue gas header
For two-boiler systems up to 622 kW with the Vitocrossal 200, type CM2, or up to 1260 kW with the Vitocrossal 300, type CT3U, see page 45.

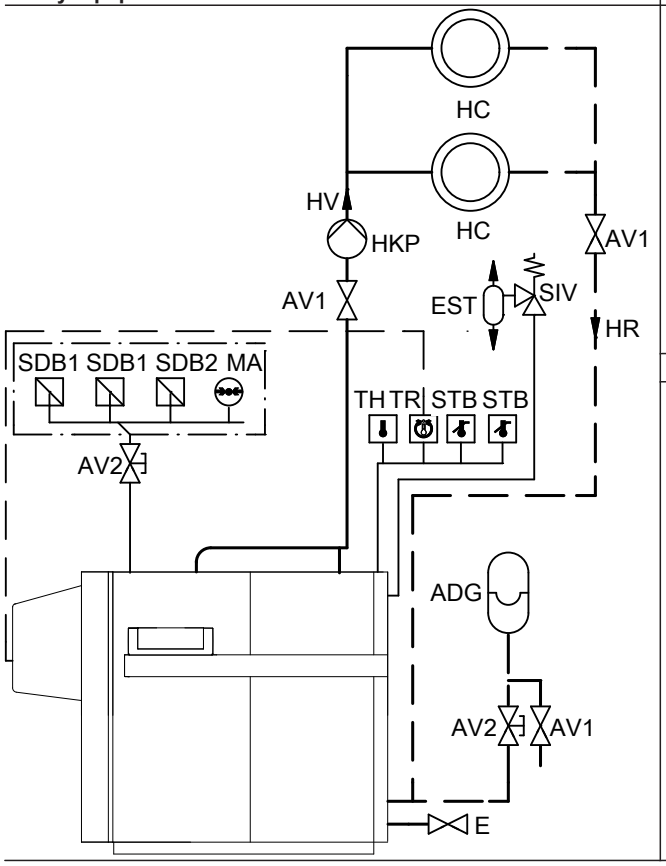
Sample applications

See technical guide system examples.

8.4 Safety equipment

The EN 12828 applies to the design of hot water heating systems with permissible safety temperatures up to 110 °C. This standard contains safety requirements laid down for boilers and boiler systems.

Safety equipment to EN 12828



Required safety equipment	
ADG	Sealed expansion vessel
AV 1	Shut-off valve
AV 2	Shut-off valve (protected against unintentional closing e.g. cap valve)
E	Drain
EST	Flash trap
MA	Pressure gauge
SDB 1	Safety pressure limiter max.
SDB 2	Safety pressure limiter min.
SIV	Safety valve
STB	High limit safety cut-out
TH	Thermometer
TR	Temperature controller
Further legends	
HC	Heating circuit
HKP	Heating circuit pump
HR	Heating water return
HV	Heating water flow

General information

Low water indicator
EN 12828 specifies that boilers must be equipped with a low water indicator (water level limiter, minimum pressure limiter or flow rate controller).

- Minimum pressure switch for CM2, CM3 and CT3B to 314 kW
- Minimum pressure limiter for CT3U, CR3B and CT3B from 400 kW
- Water level limiter in certain installation configurations, e.g. in attic heating centres or where there is no static water column, install a water level limiter instead of a minimum pressure limiter/switch.

Maximum pressure limiter
Required for every boiler in a system if the rated boiler heating output > 300 kW.

Minimum pressure limiter
For safe operation, a minimum operating pressure of 0.5 bar (0.05 MPa) is essential. This can be ensured by using a minimum pressure switch or limiter.

Safety valve
In accordance with EN 12828 for hot water heating systems with a safety temperature of max. 110 °C and in accordance with their type approval, these boilers must be equipped with a type-tested safety valve. This must be designated in accordance with TRD 721 as follows:

- "H" up to 3.0 bar (0.3 MPa) permissible set pressure and max. 2700 kW heating output
- "D/G/H" for all other operating conditions

The connection line between the boiler and the safety valve may not be fitted with shut-off devices. Pumps, fittings or restrictions must not be present in this pipework.

Flash trap
For boilers above 300 kW, install a flash trap with discharge pipe and drain line near the safety valve. The discharge pipe must lead outdoors. Any extracted steam must not endanger anyone.
The discharge pipe on the safety valve should be constructed so as to prevent the possibility of increases in pressure. Arrange the outlet point of the drain line so that any water expelled by the safety valve can be safely observed and drained off.
A flash trap may not be required, if each heat source is furnished with an additional high limit safety cut-out and pressure limiter.

Safety accessories selection table for the Vitocrossal

This table indicates the safety accessories required for the boiler to EN 12828. (x = required, – = not required)

Rated boiler heating output	≤ 300 kW	> 300 kW
Safety temperature (High limit safety cut-out setting*1, STB as part of the standard delivery of the boiler control unit)	110 °C	110 °C
Temperature controller Standard delivery of the boiler control unit	x	x
Boiler thermometer Standard delivery of the boiler control unit	x	x
Pressure gauge Pressure gauge (as separate accessory) or as part of the fitting assembly with accessories or the safety equipment block (only up to 142 kW)	x	x
Safety valve A 3 bar (0.3 MPa) safety valve is part of the safety equipment block (applicable up to 142 kW)	x	x
Minimum pressure limiter*2 As low water indicator	x	x
Maximum pressure limiter	–	x
Fitting assembly with accessories (With pressure gauge, lockable shut-off valve, drain and two connectors for safety pressure limiters)	–	x*3
Flash trap	–	x*4
High limit safety cut-out*5 (additional)	–	x
Safety pressure limiter*5 (Additional) (maximum pressure limiter)	–	x

8.5 Fuels

Vitocrossal boilers are suitable for the combustion of natural gas, town gas and LPG to EN 437 "Test gases, test pressures", or in accordance with local regulations.

*1 *In its delivered condition, the high limit safety cut-out (STB) of the Vitotronic is set to 110 °C and may need to be adjusted.*

*2 *For the Vitocrossal 200, 87 to 314 kW and the Vitocrossal 300, 87 to 142 kW, a minimum pressure switch can be used as a low water indicator (accessories).*

*3 *Option; accessories to EN 12878 for the installation of the high limit safety cut-out.*

*4 *See Vitoset pricelist.*

*5 *EN 12828 specifies that a flash trap may **not** be required, if each heat source is furnished with an additional high limit safety cut-out and pressure limiter. (Components are available as "flash trap replacement set" in Accessories.)*

Fuel suitability for the Viessmann Matrix burner

Vitocrossal 200/300	Type	CM2	CM2	CM3	CT3U	CT3B
Rated heating output	kW	87 to 311	400 to 620	87 to 142	400 to 630	187 to 314
Fuel						
– Natural gas E (H)		x	x	x	x	x
– Natural gas LL		x	x	x	x	x
– LPG P		—	x	—	—	—

8.6 Burner

Suitable burners

Pressure-jet gas burner
The burner must be tested to EN 676 and CE-designated in accordance with Directive 2009/142/EC.

Burner versions

Vitocrossal 200/300	Type	CM2	CM2	CM3	CT3U	CT3B	CR3B
Rated heating output	kW	87 to 311	400 to 620	87 to 142	400 to 630	187 to 635	187 to 1400
Viessmann burner							
– MatriX radiant burner		x	—	x	—	x to 314 kW	—
– MatriX cylinder burner		—	x	—	x	—	—
Third party burners (see pricelist)							
– Supplied by ELCO		—	—	—	—	x	—
– Supplied by Weishaupt		—	—	—	—	x	x
Balanced flue operation		x	x	—	x	—	—
Draught with Viessmann burner	Pa	70	70	70	70	70	—
In balanced flue operation, the draught is dependent on the pressure drop in the ventilation air pipe.	mbar	0.7	0.7	0.7	0.7	0.7	—

Burner from other manufacturers
Pressure-jet gas burners are available from ELCO and Weishaupt; see pricelist. Delivery by the burner manufacturers. Further suitable burners on request.

Application range
The boiler operates with positive pressure in the combustion chamber. Use a burner which is suitable for the pressure drop on the hot gas side and the draught from the flue pipe (see the datasheet for the boiler concerned). The material of the burner head must be suitable for operating temperatures of at least 500 °C.

Burner versions
You may use multi stage or variable (modulating) burners.

Burner installation

The boiler door is supplied as part of the standard delivery for boilers with a Viessmann burner.

When using third party burners:
- For the **Vitocrossal 300, type CT3B**, the circle of burner fixing holes and the blast tube aperture match the dimensions of many well known burner makes. If the dimensions vary from the standard supplied, first drill the fixing holes in the burner plate and then cut out the blast tube aperture, before mounting the burner plate on the boiler door.
- For the **Vitocrossal 300, type CR3B**, the burner aperture corresponds to EN 303-1. Use the burner plate (part of the standard delivery) to mount the burner.

Burner plates may be factory fitted on request (chargeable option). If this is required, please state the burner make and type when ordering.
A drilled burner plate is part of the standard delivery when purchasing a third party burner from ELCO or Weishaupt.
Please check with the manufacturer if using a burner whose blast tube diameter is larger than the blast tube aperture. For further details, see the datasheet.

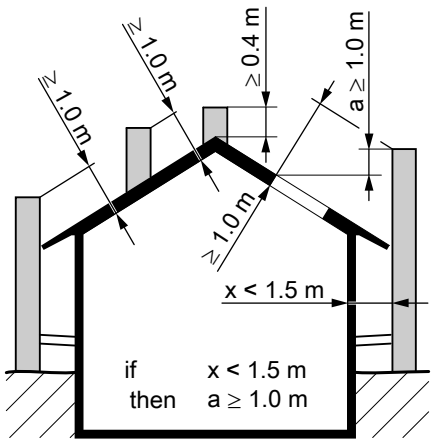
8.7 Flue gas routing

Flue systems

Requirements for flue systems are contained in the Sample Combustion Ordinance and in the TRGI [Germany].
Accordingly, the following are required:

- The flue system must be sized in accordance with the internal cross-section and height, and if required also according to the thermal resistance and the internal surface, to ensure that the flue gases will be extracted to the outside under all operating conditions and so that no dangerous pressures can be created in any rooms.
- Flue gases from combustion equipment fired by liquid or gaseous fuels can be piped into chimney stacks or into flue pipes.
- Flue pipes mounted on the side of buildings must be at least 20 cm away from windows.
- Outlet points from chimneys or flue pipes must meet the following conditions:
  - They must protrude at least 40 cm above the roof ridge or must be at least 1 m away from the roof surface.
  - They must protrude at least 1 m above roof structures and openings to rooms, if their distance from chimneys and flue pipes is less than 1.5 m.
  - They must protrude at least 1 m above unprotected structural parts made from combustible material, except roof coverings, or they must be at least 1.5 m away from such structures.
  - Further alternative requirements may apply if a risk or unacceptable disturbance is expected.
- For combustion equipment with a combustion heating output of 1 MW or more, the flue outlet must protrude at least 3 m above the highest point of the roof ridge and must be at least 10 m above ground level.
- With a roof slope of less than 20°, relate the height of the boiler flue connection to a fictitious roof ridge, the height of which should be calculated on the assumption of a roof slope of 20°.

We recommend you seek advice from your local flue gas inspector.



Flue systems for condensing boilers

The Vitocrossal cools the flue gases down to the condensing range, depending on the heating water return temperature. They then leave the system with a relative humidity of 100 %. Subject to system conditions, the flue gas temperature can reach up to 110 °C. The low flue gas temperature and the resulting low updraught plus the additional condensation of the flue gases inside the flue system make it a necessity for the flue system manufacturer to calculate the flue, which must also be made from suitable materials.
In addition, special requirements apply to the design and positioning of the flue system of condensing combustion systems.
If installing the Vitocrossal in an attic, (type B33 to TRGI 2008), the flue can be routed as a vertical roof outlet (see stainless steel flue systems in the Vitoset pricelist).
Condensing boilers must be connected to tested and approved flue pipes. Flue pipes must have Building Regulations approval.

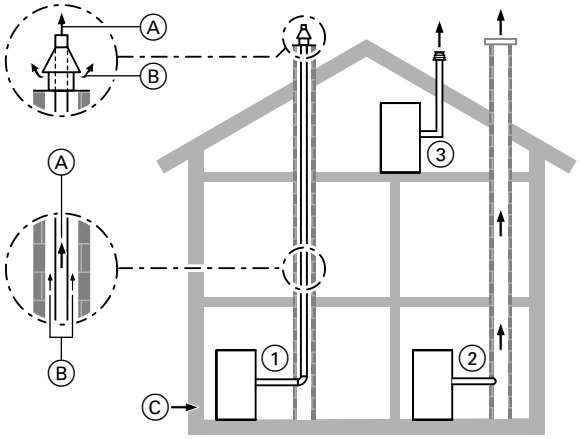
Flue gas temperature sensor
According to the "Guideline for flue pipe approval" point 3.12, only components which are approved parts of the flue pipe system may be connected to or be incorporated into flue pipes serving condensing boilers. Therefore, apertures for the installation of flue gas temperature sensors must form part of the manufacturer's system design and should be tested together with the flue pipe. **Subsequent drilling and fitting of third party components is not permitted.**

The Vitocrossal condensing boilers may also be connected to moisture-resistant chimneys. According to EN 13384, the chimney manufacturer must provide a calculated verification, giving due consideration to the flue gas values of the boiler (see specification in the respective datasheet).
The flue pipes must be raised above roof level inside an existing or a newly constructed chimney (casing without internal pipe). We would recommend contacting a flue pipe manufacturer during the design stage because of the size and design of the chimney.

Installation options for the Vitocrossal flue system

8

Open flue operation



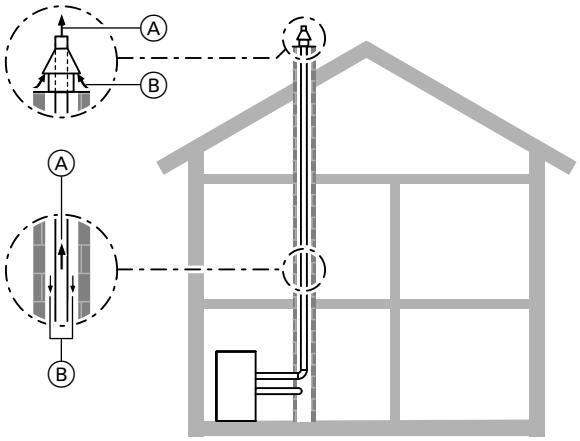
Routing through a shaft (type B_{23} to TRGI 2008)
The boiler ① draws combustion air from the installation room, and expels flue gas through the flue pipe via the roof (balanced flow).
For a detailed description, see from page 31.

Connection to a moisture-resistant chimney (MR chimney, type B_{23} to TRGI 2008)
The boiler ② draws combustion air from the installation room and expels the flue gas through a moisture-resistant chimney via the roof.

Vertical outlet where no shaft is available (type B_{23} to TRGI 2008)
The boiler ③ draws combustion air from the installation room (attic), and expels flue gas through the flue pipe via the roof.
For a detailed description, see page 34.

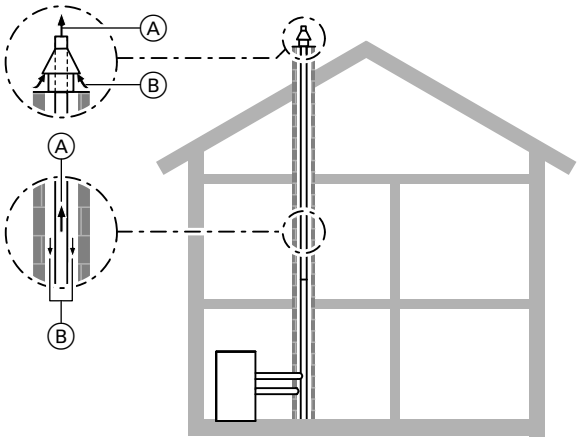
Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air

Balanced flue operation



Routing through a shaft (type C_{33} to TRGI 2008)
The boiler draws combustion air from the atmosphere through the annular gap inside the shaft (chimney) and expels the flue gas to the outside through the flue pipe via the roof.
For a detailed description, see page 36.

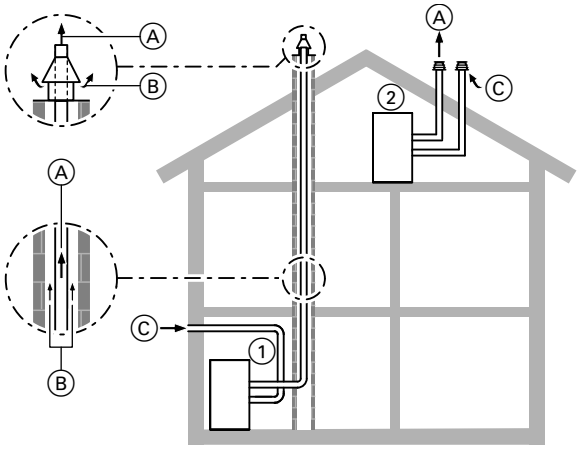
Ⓐ Flue gas
Ⓑ Ventilation air



Connection to a room sealed balanced flue (type C_{43} to TRGI 2008)

The boiler draws combustion air from the atmosphere through the annular gap inside the room sealed balanced flue and expels the flue gas to the outside through the moisture-resistant internal pipe via the roof.

Ⓐ Flue gas
Ⓑ Ventilation air

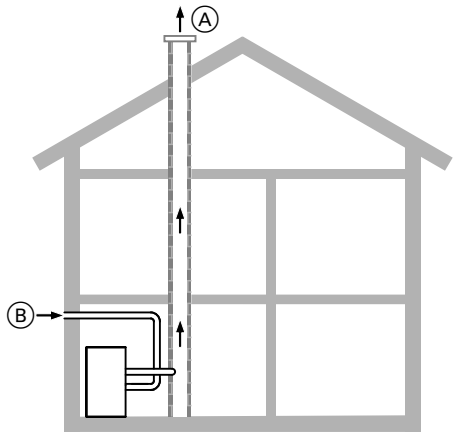


Separate ventilation air and flue gas routing (type C_{53} to TRGI 2008)

① The boiler draws combustion air from the atmosphere via a separate ventilation air line, and expels flue gas to the outside through the flue pipe via the roof.
For a detailed description, see page 35.

② The boiler draws combustion air from the atmosphere via a separate ventilation air line via the roof, and expels flue gas to the outside through the flue pipe via the roof (only if the boiler is installed in an attic).
For a detailed description, see page 37.

Ⓐ Flue gas
Ⓑ Secondary ventilation
Ⓒ Ventilation air



Separate ventilation air and flue gas routing (type C_{83} to TRGI 2008)

The boiler obtains combustion air from the atmosphere via a separate ventilation air line through an external wall, and expels flue gas through a moisture-resistant chimney via the roof.

Ⓐ Flue gas
Ⓑ Ventilation air

8.8 Flue system for the Vitocrossal, 87 to 635 kW

Due to the low flue gas temperature and the resulting low updraught forces as well as the condensation of the flue gases inside the flue system, a pressure sealed, corrosion-proof flue system suitable for the Vitocrossal, 87 to 635 kW is offered as an accessory.
The flue gases are expelled from the flue system with positive pressure. The flue system meets the size requirements of the Vitocrossal, is made from suitable materials, and is both tested & CE-designated.

Certificate no. 0036 CPD 9184 001
Skoberne
Ostendstr. 1
D-64319 Pfungstadt

According to CE designation to EN 14471, the plastic (PPs) flue pipe can be used up to a flue gas temperature of 120 °C (type B).

The plastic flue pipes are group B flue pipes (max. permissible flue gas temperature 120 °C). Flue pipes in buildings must only be run inside dedicated, longitudinally ventilated shafts or ducts which meet the requirements for domestic chimney stacks to DIN V 18160-1 (issue December 2001), section 4.4 to 4.9, or have a fire rating of 90 minutes (F90/L90) and offer the stated minimum internal shaft dimensions.

At least one inspection port for checking and cleaning as well as for checking the pressure must be provided in the flue system.
If the flue pipe is inaccessible from the roof, a second inspection port must be provided in the attic behind the chimney cleaning hatch.
Safeguard the draining of the condensate from the flue pipe (when routed horizontally) **to the boiler** with a **fall of at least 3°**. We also recommend using fixing clamps to support/suspend the connection line, spaced 1 metre apart.
The flue system must protrude clear of the roof.
Where the flue pipe is to be installed in an existing chimney, seal any apertures with appropriate materials and clean the inside of the chimney.
This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.

Note
A flue gas temperature protection in conjunction with the Vitocrossal is not required, as the maximum permissible flue gas temperature of 120 °C (flue pipe type B) will not be exceeded under any operating or fault conditions.
Subject to shaft size, install spacers every 2 to 5 m and at each profiled piece of the flue pipe (e.g. inspection piece or bend).

Design information (cont.)

CE designation for the PPs flue systems for the Vitocrossal

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

ZERTIFIKAT

Industrie Service

0036 CPD 9184 001
Revision 03

Gemäß der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 über die Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedsstaaten für Bauprodukte (Bauproduktenrichtlinie), ergänzt um die Richtlinie 93/68/EWG des Rates vom 22. Juli 1993 wird bestätigt, dass für die

System-Abgasanlage mit einer Innenschale aus starren und flexiblen Rohren und Formstücken aus PP

Ausführungen	
starr, ohne Außenschale	**EN 14 471 T120 H1 O W 2 O20 XXX**
starr, mit Kunststoffaußenschale	**EN 14 471 T120 H1 O W 2 O00 XXX**
starr, mit metallischer Außenschale	**EN 14 471 T120 H1 O W 2 O00 XXX**
flexibles Rohr mit mineralischem Schacht	**EN 14 471 T120 H1 O W 2 O00 E E L0**

für Details der Klassifizierung siehe Seite 2

hergestellt von

Skoberne GmbH
Ostendstraße 1
64319 Pfungstadt

in den Herstellwerken

Skoberne GmbH **Ostendstraße 1** **64319 Pfungstadt**	**Arkema GmbH** **Am Bahnhof** **25630 Ehringshausen**

- eine **erstmalige Typprüfung**, durchgeführt von TÜV SÜD Industrie Service GmbH, Bericht Nr. A 1614-00/06, A 1614-02/09, A 1614-03/09, A 1614-04/09, A 1614-05/10, A 1614-06/10, A 1614-07/10 und A 1614-09/12 sowie
- eine **werkseigene Produktionsüberwachung**

vorliegt.

Die benannte Stelle TÜV SÜD Industrie Service GmbH hat die Erstprüfung des Werkes und der werkseigenen Produktionsüberwachung durchgeführt und führt weiterhin die ständige Überwachung, Beurteilung und Abnahme der werkseigenen Produktionsüberwachung durch.

Dieses Zertifikat bestätigt, dass alle Anforderungen für die Zertifizierung der werkseigenen Produktionsüberwachung entsprechend Anhang ZA der Norm

EN 14 471: 2005-08

erfüllt werden.

Das Zertifikat wurde erstmalig am 2007-02-27 ausgestellt und ist gültig, solange die genannte Norm, die Herstellbedingungen und die werkseigene Produktionsüberwachung nicht wesentlich geändert sowie die Bedingungen des Zertifizierungsvertrags eingehalten werden.

München, 2012-02-06

.....
J. Steiglechner

TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, D-80686 MÜNCHEN

TÜV®

Seite 2 des Zertifikates Nr.
0036 CPD 9184 001
Rev. 03

Industrie Service

System-Abgasanlage	EN 14 471
starr, ohne Außenschale	
≤ DN 250, weiß, grau	T120 H1 O W 2 O20 I E L
≤ DN 160, schwarz	T120 H1 O W 2 O20 E E L
starr, mit Kunststoff-außenschale	
≤ DN 80, weiß	T120 H1 O W 2 O00 I E L1
starr, mit metallischer Außenschale	
≤ DN 250, weiß, grau, schwarz	T120 H1 O W 2 O00 E E L0
flexibles Rohr mit mineralischem Schacht	
DN 60, DN 80, DN 110	T120 H1 O W 2 O00 E E L0

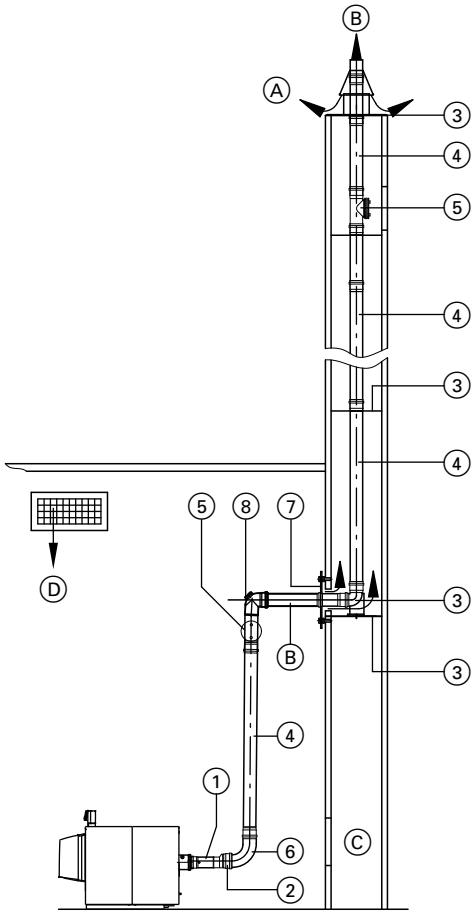
TÜV SÜD INDUSTRIE SERVICE GMBH, WESTENDSTRASSE 199, D-80686 MÜNCHEN

Open flue operation with the Vitocrossal 200 and Vitocrossal 300

A flue pipe between the gas condensing boiler and the shaft, as well as for routing through the shaft (type B_{23} to TRGI 2008, point 2.3.2), is required for **open flue** operation with the Vitocrossal 200 and 300.

System size flue pipe Ø 125, 150, 200 and 250 mm.
A boiler flue connection must be ordered for the connection to the Vitocrossal.

For routing through shafts or ducts with longitudinal ventilation that meet the requirements for domestic chimneys to DIN V 18160-1, or have a fire rating of 90 min (F90/L90).

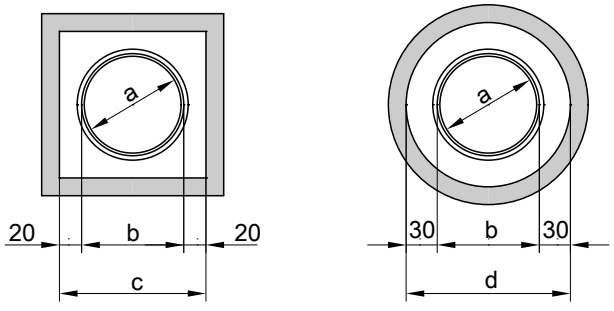


For system size diameter 125, 150, 200 and 250 mm

①	**Boiler flue connection** (order separately)
②	**Extension** Required for system sizes 150, 200 and 250 mm
③	**Basic shaft unit** comprising – Support bend – Support rail – Shaft cover – Spacers (5 pce)
	Spacers (3 pce)
④	**Pipe** – 2 m long (2 pce = 4 m long) – 2 m long (1 pce) – 1 m long (1 pce) – 0.5 m long (1 pce)
⑤	**Straight inspection piece** (1 pce)
⑥	**Flue bend** 87° (1 pce) 45° (2 pce)
⑦	**Ventilation bezel** (1 pce)
	Flue bend (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)
⑧	**Inspection bend** 87° (1 pce)
	Reducer (corresponding to the system size)

Ⓐ Secondary ventilation
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Ventilation air/ventilation air aperture

Minimum clearance for secondary ventilation between the internal cross-section of the shaft and the female connection



System size	External dimension (Ø mm)	Minimum internal shaft dimension Ⓓ (mm)	
a	b	c rectangular mm	d round Ø mm
100	128	170 x 170	190
125	145	185 x 185	205
150	184	224 x 224	244
200	227	267 x 267	287
250	273	313 x 313	333

Design information (cont.)

Calculating the max. pipe lengths and pipe diameters of the PPs flue system when using MatriX radiant burners

Vitocrossal 200 with 87 to 311 kW and Vitocrossal 300 with 87 to 314 kW for open flue operation

Rated heating output range	System size	Max. flue height *6
80 to 87 kW	DN 100	16 m
	DN 125	30 m
105 to 115 kW	DN 125	20 m
	DN 150	30 m
130 to 142 kW	DN 125	10 m
	DN 150	30 m
170 to 187 kW (186 kW)	DN 150	30 m
225 to 248 kW (246 kW)	DN 150	10 m
	DN 200	30 m
285 to 314 kW (311 kW)	DN 200	30 m

Assumptions:
- Length of the connection piece 2 m
- 3 bends with 87° (including support bends)
- The diameter of the connection piece is identical to that of the flue pipe system size

Note
*With the **Vitocrossal 200 and 300** with MatriX burner, a draught of 70 Pa is available at the flue outlet.*

Vitocrossal 300 with 400 to 630 kW and Vitocrossal 300 with 408 to 635 kW for open flue operation

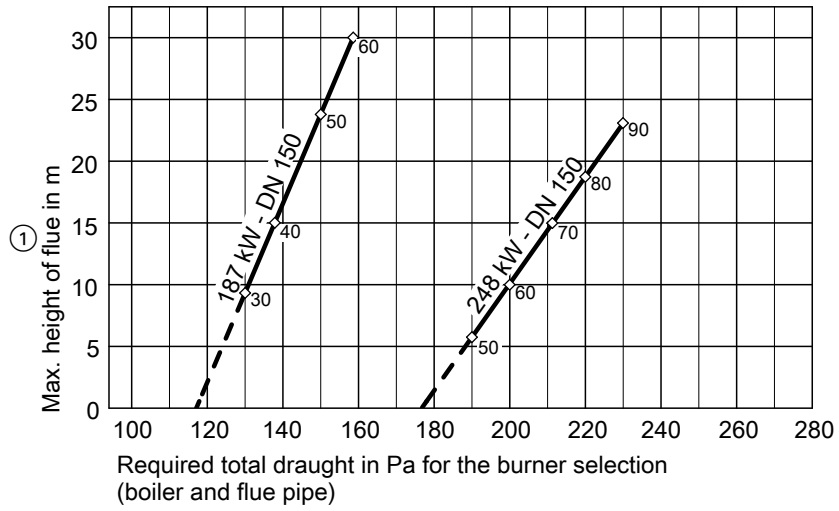
Rated heating output range	System size	Max. flue height *6
370 to 408 kW (400 kW)	DN 200	16 m
370 to 408 kW (400 kW)	DN 250	30 m
460 to 508 kW (500 kW)	DN 250	30 m
575 to 635 kW (630 kW)	DN 250	30 m

Assumptions:
- Length of the connection piece 2 m
- 3 bends with 87° (including support bends)
- The diameter of the connection piece is identical to that of the flue pipe system size

Note
*For a **Vitocrossal 200** with MatriX cylinder burner, a draught of 70 Pa is available at the flue outlet.*

Calculating the max. pipe lengths, pipe diameters and total burner draught in the flue system when using third party burners

Vitocrossal 300 with 187 to 635 kW

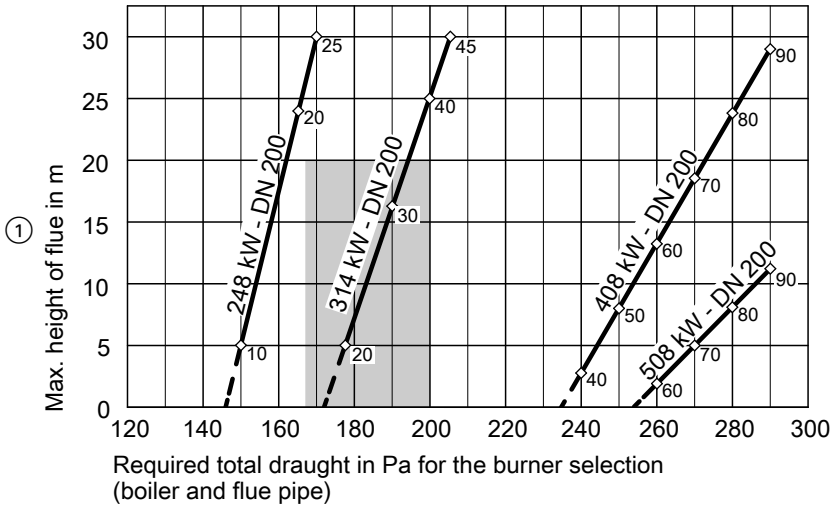


System size DN 150

① Measured from the height of the flue outlet on the boiler to the top edge of the flue system.

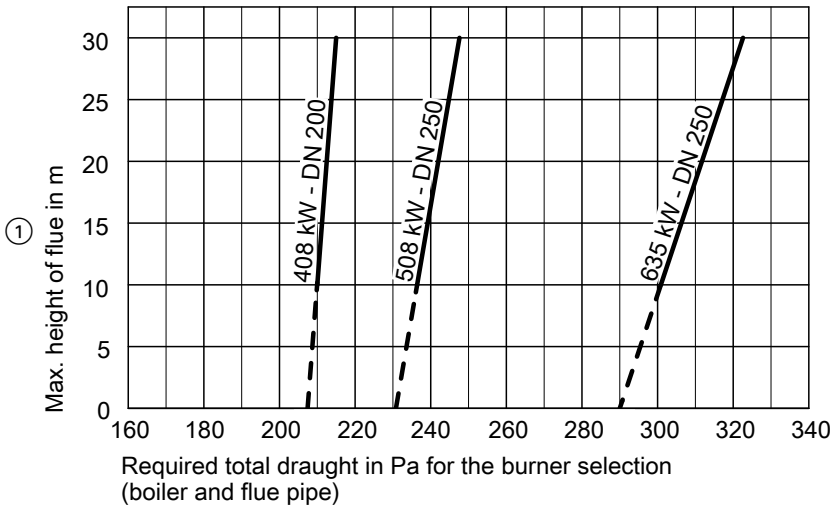
*6 *Measured from the height of the flue outlet on the boiler to the top edge of the flue system*

Design information (cont.)



System size DN 200

① Measured from the height of the flue outlet on the boiler to the top edge of the flue system.



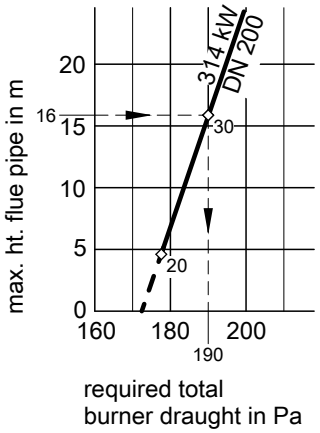
System size DN 250

① Measured from the height of the flue outlet on the boiler to the top edge of the flue system.

Assumptions:
- Length of the connection piece 2 m
- 3 bends with 87° (including support bends)
- Diameter of the connection piece DN 200

Example:
Vitocrossal 300 with 314 kW; height of the flue pipe 16 m. The following diagram illustrates how to read the required total draught (boiler and flue system) from the above diagram.

Design information (cont.)



- At a flue height of 16 m, the intersection with the performance/diameter curve results in a required draught at the flue outlet of 30 Pa.
- Dropping the "plumb line" onto the axis below results in a required total burner draught of 190 Pa.

For vertical roof outlets when the Vitocrossal 200 and 300 are installed in attics

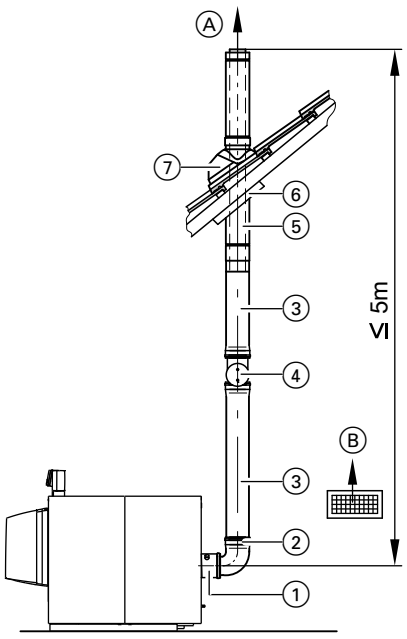
Only use the roof outlet if the ceiling of the installation room is also part of the roof structure. In constructing the roof outlet, maintaining a minimum distance to combustible materials is not required.

Secondary ventilation ensures that no temperatures in excess of 85 °C occur on any surface around the roof outlet.

According to TRGI 2008, a minimum distance of 100 mm must be maintained between the flue pipe (connection piece) and combustible materials.

Max. extended pipe length 6 m with the max. number of bends

- 87° 2 pce
- 45° 2 pce



Ⓐ Flue gas
Ⓑ Ventilation air/ventilation air aperture

For a different number of bends, either deduct from or add to the extended pipe length 1 m for 87° bends or 0.75 m for 45° bends. Install an inspection port for checking and cleaning the flue pipe inside the installation room.

Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guidelines (see page 43). Insert the roof outlet from above and push onto the flat roof collar.

Note

Install the flue system so that it is free of load and torque stress. If the flues are > 5 m, provide braces on site.

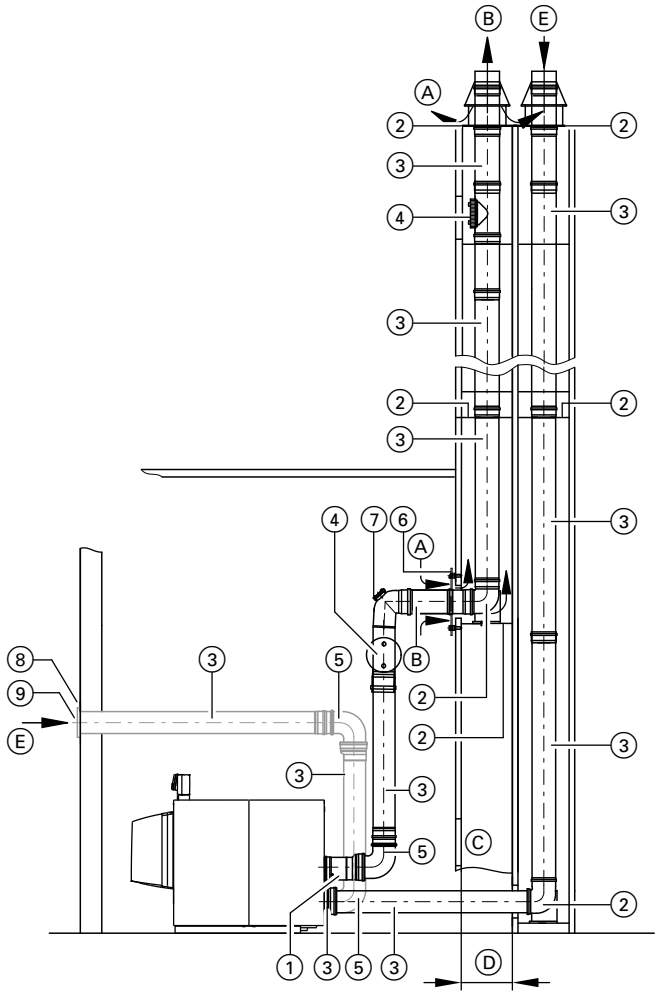
①	**Boiler flue connection** (order separately)
②	**Flue bend** 87° (1 pce) 45° (2 pce)
③	**Pipe** – 2 m long (2 pce = 4 m long) – 2 m long (1 pce) – 1 m long (1 pce) – 0.5 m long (1 pce)
④	**Inspection piece, straight** (1 pce)
⑤	**Roof outlet** (system size 100) with fixing clamp Length 1.2 m (below the roof 0.2 m and 1 m above the roof line) Colour: black or terracotta
⑥	**Universal cover plate**
⑦	**Universal roof tile** (colour black or terracotta) or **Flat roof collar**
	Reducer DN 125/100 (order with a Vitocrossal 300, 87 to 115 kW, and install next to the coaxial roof outlet)
	Above roof extension 0.5 or 1 m long (available on request)

5822 449 GB

Balanced flue operation with the Vitocrossal 200

For **balanced** flue operation, the Vitocrossal 200 requires a flue pipe between the gas condensing boiler and the shaft as well as for routing through the shaft (type C_{53} to TRGI 2008).
System size flue pipe ∅ 125, 150, 200 and 250 mm.

For routing through shafts or ducts with longitudinal ventilation that meet the requirements for domestic chimneys to DIN V 18160-1, or have a fire rating of 90 min (L90).



Ⓐ Secondary ventilation
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Minimum internal shaft dimension (see page 31)
Ⓔ Ventilation air

If the ventilation air supply is routed separately, use individual components in the corresponding size for flue pipes.
A boiler flue connection must be ordered for the connection to the Vitocrossal.

For system size diameter 125, 150, 200 and 250 mm

①	**Boiler flue connection** (order separately)
	Reducer
	Extension
②	**Basic shaft unit** comprising – Support bend – Support rail – Shaft cover – Spacers (5 pce)
	Spacers (3 pce)
③	**Pipe** – 2 m long (2 pce = 4 m long) – 2 m long (1 pce) – 1 m long (1 pce) – 0.5 m long (1 pce)
④	**Inspection piece** Straight (1 pce)
⑤	**Flue bend** 87° (1 pce) 45° (2 pce)
⑥	**Ventilation bezel** (1 pce)
	Flue bend (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)
⑦	**Inspection bend** 87° (1 pce)
⑧	**Ventilation bezel** (for ventilation air routing)
⑨	**Ventilation air damper** (for ventilation air routing)

Combustion air supply via vertical pipes

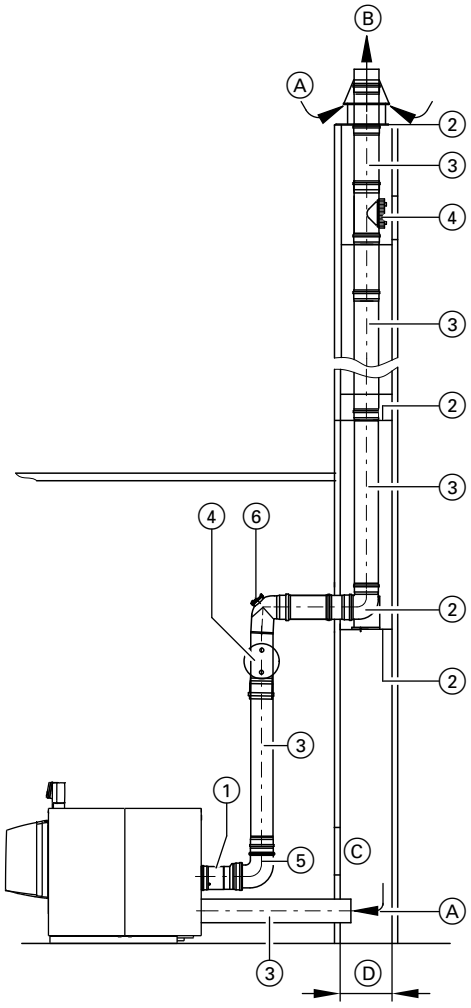
Rated heating output range in kW	System size		Max. height in m Balanced flue
	Flue system	Ventilation air routing	
Vitocrossal 200, type CM2			
80 to 87	DN 125	DN 150	17
80 to 87	DN 150	DN 150	30
105 to 115	DN 150	DN 150	25
105 to 115	DN 200	DN 150	30
130 to 142	DN 150	DN 150	15
130 to 142	DN 200	DN 150	27
130 to 142	DN 200	DN 200	30
170 to 186	DN 200	DN 150	11
170 to 186	DN 200	DN 200	28
225 to 246	DN 200	DN 200	11
285 to 311	DN 250	DN 250	30
Vitocrossal 300, type CT3U			
370 to 400	DN 250	DN 250	30
460 to 500	DN 250	DN 250	18
575 to 630	DN 250	DN 250	5

Design information (cont.)

Combustion air supply via horizontal pipes

Rated heating output range in kW	System size		Max. height/length in m	
	Flue system	Ventilation air routing	Flue	Ventilation air line
Vitocrossal 200, type CM2				
80 to 87	DN 125	DN 150	25	11
80 to 87	DN 150	DN 150	30	30
105 to 115	DN 125	DN 150	10	5
105 to 115	DN 150	DN 150	30	30
130 to 142	DN 150	DN 150	28	11
130 to 142	DN 200	DN 150	30	30
170 to 186	DN 200	DN 150	30	10
170 to 186	DN 200	DN 200	30	30
225 to 246	DN 200	DN 200	26	6
285 to 311	DN 250	DN 250	30	30
Vitocrossal 300, type CT3U				
370 to 400	DN 250	DN 250	30	30
460 to 500	DN 250	DN 250	25	15
375 to 630	DN 250	DN 250	8	5

For routing through shafts or ducts with longitudinal ventilation that meet the requirements for domestic chimneys to DIN V 18160-1, or have a fire rating of 90 min (L90).



Ⓐ Ventilation air
Ⓑ Flue gas
Ⓒ Inspection port
Ⓓ Minimum internal shaft dimension (see page 31)

The details apply subject to the following assumptions:
- Length of the connection piece (flue): 2 m and 3 x 87° bends (including support bends)
- Length of the connection piece (ventilation air line): 2.5 m and 2 x 87° bends

Note
With the Vitocrossal 200 with MatriX radiant burner, a draught of 70 Pa is available for the balanced flue system.

Minimum distance for secondary ventilation between the internal cross-section of the shaft and the female connection, see page 31.
For **balanced** flue operation, the Vitocrossal 200 requires a flue pipe between the gas condensing boiler and the shaft (chimney) (type C_{33} to TRGI 2008).
System size flue pipe ∅ 125, 150, 200 and 250 mm.
If the ventilation air supply is routed separately, use individual components of the flue pipe size ∅ 150 or 200 mm.
A boiler flue connection must be ordered for the connection to the Vitocrossal.

For system size diameter 125, 150, 200 and 250 mm

①	**Boiler flue connection** (order separately)
	Extension
②	**Basic shaft unit** comprising – Support bend – Support rail – Shaft cover – Spacers (3 pce)
	Spacers (3 pce)
③	**Pipe** – 2 m long (2 pce = 4 m long) – 2 m long (1 pce) – 1 m long (1 pce) – 0.5 m long (1 pce)
④	**Inspection piece** Straight (1 pce)
⑤	**Flue bend** 87° (1 pce) 45° (2 pce)
	Flue bend (for use in corbelled chimneys) 30° (2 pce) 15° (2 pce)
⑥	**Inspection bend** 87° (1 pce)
	Reducer

Combustion air inlet through the annular gap (angular)

Rated heating output range in kW	System size, flue system	Min. internal shaft dimension	Max. flue height in m
Vitocrossal 200, type CM2			
80 to 87	DN 125	200 x 200	17
80 to 87	DN 150	250 x 250	30
105 to 115	DN 150	250 x 250	30
130 to 142	DN 150	250 x 250	21
130 to 142	DN 200	300 x 300	30
170 to 186	DN 200	300 x 300	25
225 to 311	DN 250	350 x 350	30
Vitocrossal 300, type CT3U			
370 to 400	DN 250	350 x 350	24
460 to 500	DN 250	350 x 350	9
460 to 500	DN 250	400 x 400	18
575 to 630	On request		

Combustion air inlet through the annular gap (circular)

Rated heating output range in kW	System size, flue system	Min. internal shaft dimension	Max. flue height in m
Vitocrossal 200, type CM2			
80 to 87	DN 125	220	17
80 to 87	DN 150	250	30
105 to 115	DN 150	250	26
130 to 142	DN 150	250	15
130 to 142	DN 200	300	30
170 to 186	DN 200	300	17
225 to 311	DN 250	350	21
Vitocrossal 300, type CT3U			
370 to 400	DN 250	400	27
460 to 500	DN 250	400	11
575 to 630	On request		

For vertical roof outlets where the Vitocrossal 200 up to 142 kW is installed in the attic (type C_{53} to TRGI 2008)

Only use the roof outlet if the ceiling of the installation room is also part of the roof structure. In constructing the roof outlet, maintaining a minimum distance to combustible materials is not required.
Secondary ventilation ensures that no temperatures in excess of 85 °C occur on any surface around the roof outlet.
According to TRGI 2008, a minimum distance of 100 mm must be maintained between the flue pipe (connection piece) and combustible materials.
Max. extended pipe length 6 m with the max. number of bends

- 87° 2 pce
- 45° 2 pce

For a different number of bends, either deduct from or add to the extended pipe length 1 m for 87° bends or 0.75 m for 45° bends.

Ventilation air system

If the ventilation air supply is routed separately, use individual components in the corresponding system size for flue pipes.

The details apply subject to the following assumptions:

- Length of the connection piece: 2 m and 3 x 87° bends (including support bends)
- The flue diameter equals that of the flue system size
- Diameter of the ventilation air line: DN 150, 200 or 250, max. length 1.5 m
- Average roughness of the internal shaft wall 1.5 mm

Note

With the Vitocrossal 200 with MatriX radiant burner, a draught of 70 Pa is available for the balanced flue system.

Combustion air inlet through the annular gap:
Prior to installation, the relevant flue gas inspector should check that the shaft to be used is suitable and approved for this purpose.
Shafts that were previously connected to oil or solid fuel boilers must be thoroughly cleaned by a chimney sweep. Loose deposits (in particular sulphur and soot deposits) must not remain on the inside of the chimney. Running a balanced flue pipe through the shaft is then not required.
Close off and seal any other connection apertures with appropriate materials.
This does not apply to any cleaning or inspection apertures that are provided with chimney cleaning covers and that are identified with an appropriate test mark.

Install an inspection port for checking and cleaning the flue pipe inside the installation room.

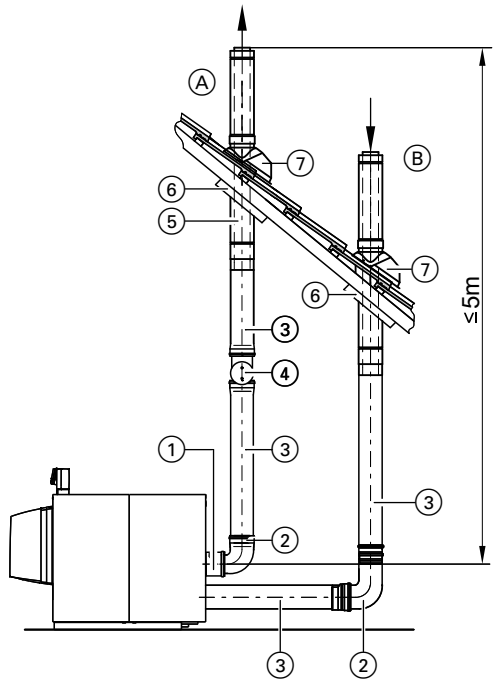
Vertical flat roof outlet

Integrate the flat roof collar into the roof skin according to the flat roof guidelines (see page 43). Insert the roof outlet from above and push onto the flat roof collar.

Note

- *The ceiling opening should provide a diameter of at least 185 mm. Secure the roof outlet on site with a clamp after the installation has been completed.*
- *Install the flue system free of load and torque stress.*
- *If the flues are longer than 5 m, provide braces on site.*

Design information (cont.)



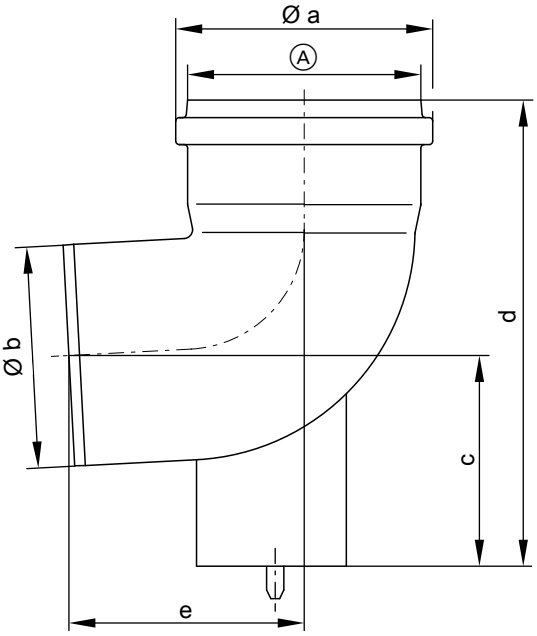
Ⓐ Flue gas
Ⓑ Ventilation air

①	**Boiler flue connection** (order separately)
②	**Flue bend** 87° (1 pce) 45° (2 pce)
③	**Pipe (Ø 150 mm)** – 2 m long (2 pce = 4 m long) – 2 m long (1 pce) – 1 m long (1 pce) – 0.5 m long (1 pce)
④	**Inspection piece, straight** (1 pce)
⑤	**Roof outlet** Colour: black, with fixing clamp
⑥	**Universal cover plate**
⑦	**Universal roof tile** (colour black or terracotta) or **Flat roof collar**
	Above roof extension 0.5 m long (available on request)
	Reducer (to be ordered with the system and to be fitted near the balanced flue roof outlet)

Individual components of the plastic flue system

Standard shaft section
(comprising)

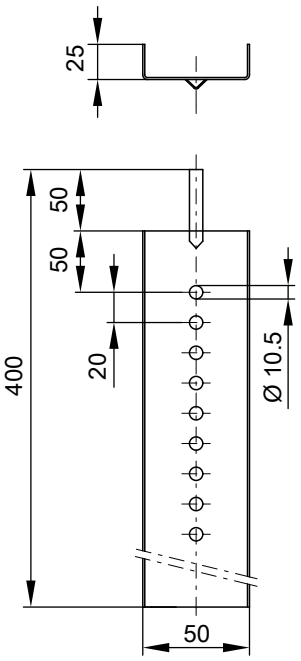
Support bend



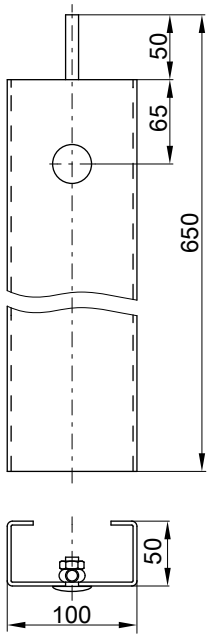
Ⓐ System size 125, 150, 200 or 250

System size Ø mm	Dimension [mm] a	b	c	d	e
125	145	125	120	264	147
150	184	160	137	296	163
200	227	200	153	490	310
250	273	250	326	670	385

Support rail

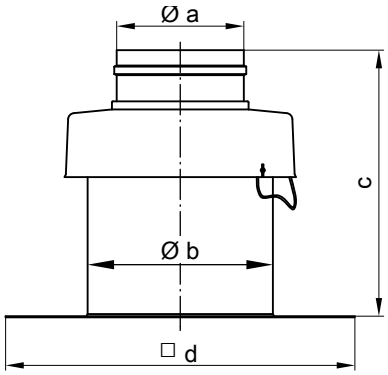


System size 125, 150 and 200



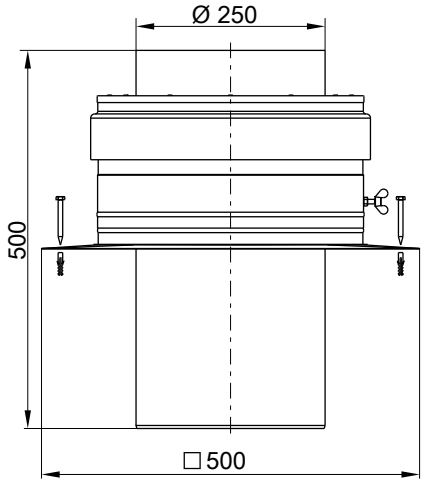
System size 250

Shaft cover
(Fixing material for securing the shaft cover onto the cover panel is part of the standard delivery)



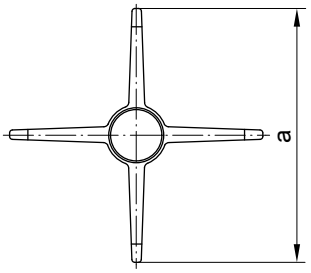
System size 125, 150 and 200

System size Ø mm	Dimension [mm] a	b	c	d
125	126	185	257	350
150	161	228	258	350
200	202	260	261	280

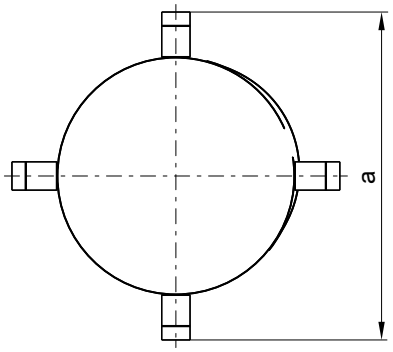


System size 250

Spacers (3 pce)



System size 125, 150 and 200

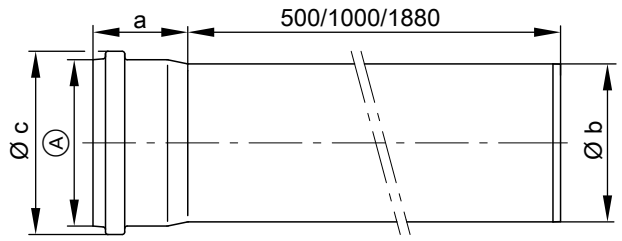


System size 250

System size Ø mm	Dimension [mm] a
125	402
150	402
200	734
250	751

Design information (cont.)

Pipe

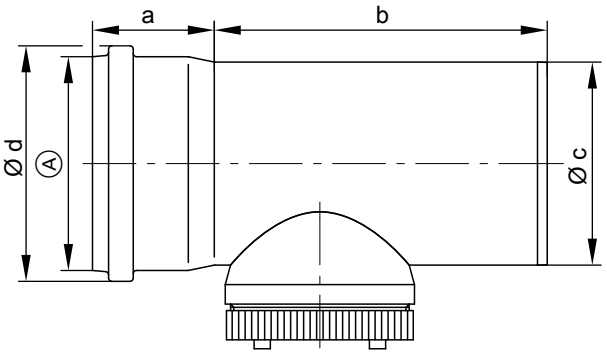


Ⓐ System size 125, 150, 200 or 250

System size ∅ mm	Dimension [mm] a	b	c
125	75	125	145
150	83	160	184
200	122	200	227
250	103	250	273

Pipe, 2 m long (2 pce, from ∅ 200 mm 1 pce)
Pipe, 2 m long (1 pce)
Pipe, 1 m long (1 pce)
Pipe, 0.5 m long (1 pce)
(These pipes may be shortened if required)

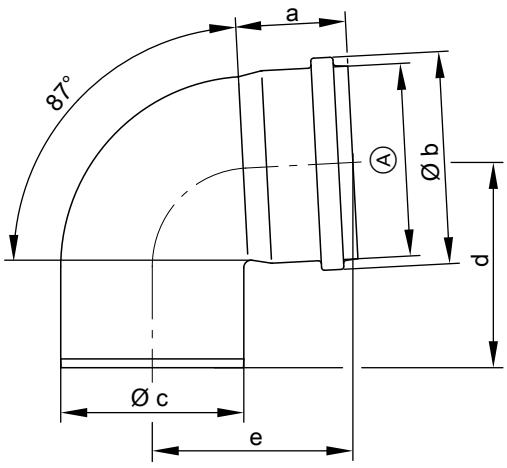
Plain inspection piece (straight)



Ⓐ System size 125, 150, 200 or 250

System size ∅ mm	Dimension [mm] a	b	c	d
125	75	205	125	145
150	83	225	160	184
200	122	300	200	227
250	103	600	250	273

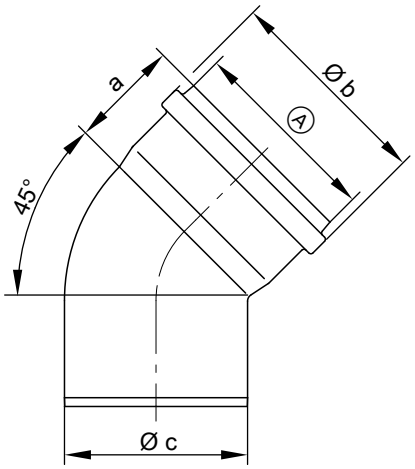
Plain bend (87°)



Ⓐ System size 125, 150, 200 or 250

System size ∅ mm	Dimension [mm] a	b	c	d	e
125	75	145	125	150	150
150	83	184	160	170	170
200	122	227	200	350	310
250	103	273	250	402	390

Plain bend (45°)



Ⓐ System size 125, 150, 200 or 250

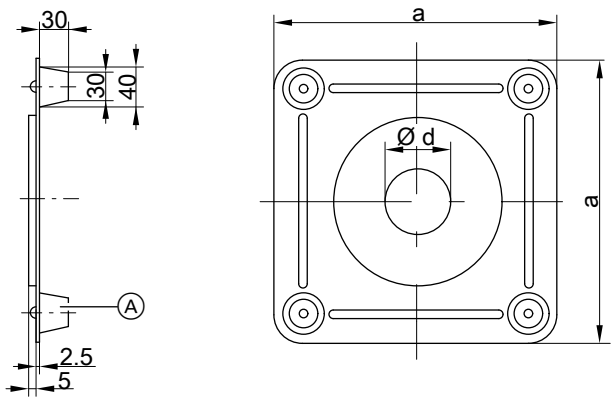
System size ∅ mm	Dimension [mm] a	b	c
125	75	145	125
150	83	184	160
200	122	227	200
250	103	273	250

Plain bend (30°)
Plain bend (15°)

5822 449 GB

Design information (cont.)

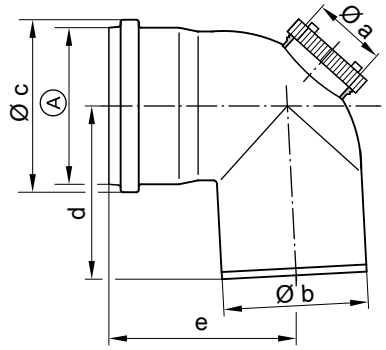
Ventilation bezel



Ⓐ Spacer

System size Ø mm	Dimension [mm] a	Ø d
125	300	125
150	300	160
200	300	200
250	400	250

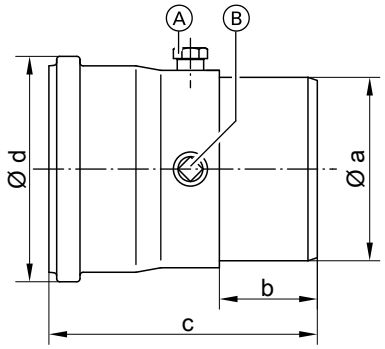
Inspection bend (87°)



Ⓐ System size 125, 150 or 200

System size Ø mm	Dimension [mm] a	b	c	d	e
125	100	125	145	148	148
150	100	160	184	163	159
200	100	200	227	310	350
250	154	250	273	410	390

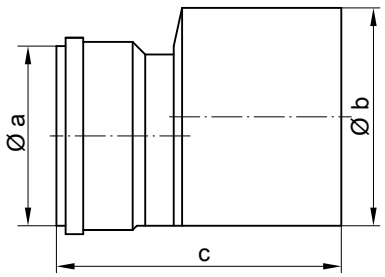
Boiler flue connection (order separately)



Ⓐ Test port
Ⓑ Optional connection for a flue gas high limit safety cut-out

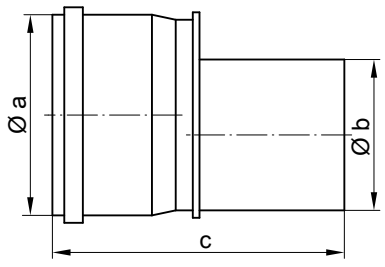
Boiler flue connection Ø mm	Dimension [mm] a	b	c	d
125/125	125	—	275	145
200/150	200	150	270	184
200/200	200	—	270	227
250/200	250	150	310	227
250/250	250	180	310	273

Reducer



Reducer Ø mm	Dimension [mm] a	b	c
125/100	100	125	170
150/125	125	150	205
200/150	150	200	270
250/200	200	250	310

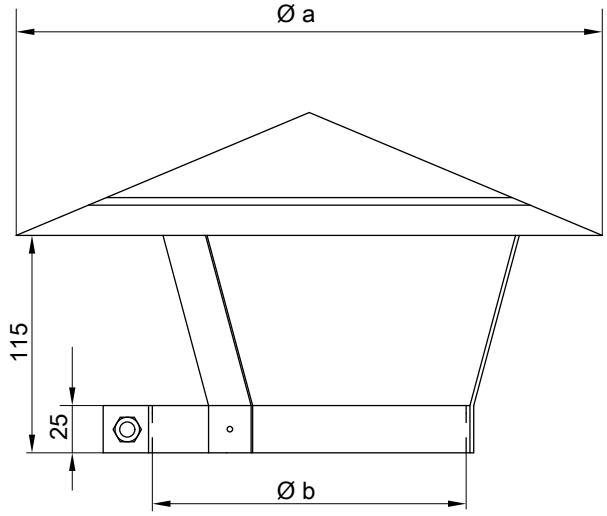
Extension



Design information (cont.)

Extension ∅ mm	Dimension [mm] a	b	c
125/150	150	125	210
150/200	200	150	310
200/250	250	200	300

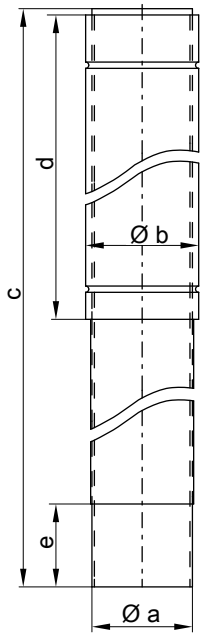
Cowl, roof outlet



Cowl ∅ mm	Dimension [mm] a	b (clamping area)
150	310	170-180
200	410	225-235

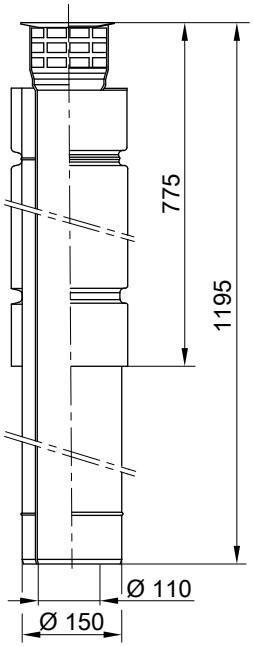
Note
Only use if the flue pipe is being used as a ventilation air line.

Roof outlet

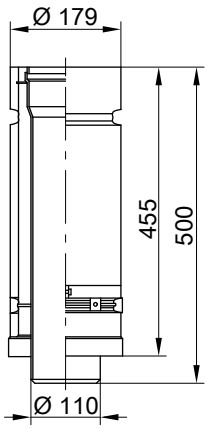


Roof outlet ∅ mm	Dimension [mm] a	b	c	d	e
150	160	180.4	1513	859	132
200	200	230.4	1500	834	128

Balanced flue roof outlet



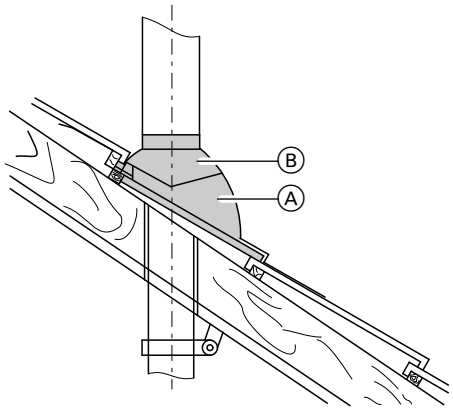
Above roof extension



5822 449 GB

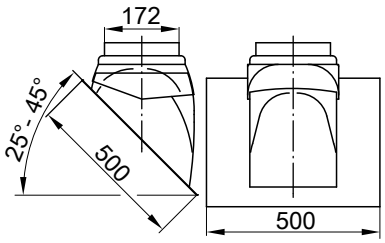
Design information (cont.)

Universal roof tile (suitable for 25 to 45° roof pitch)

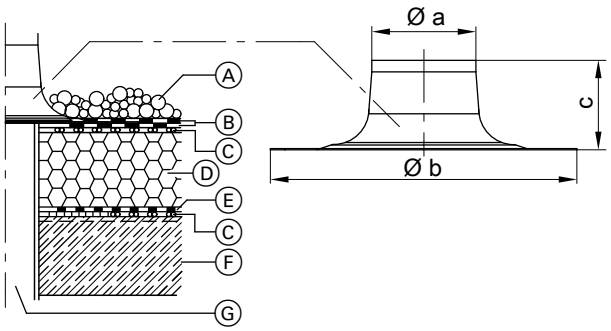


Ⓐ Universal roof tile
Ⓑ Pipe outlet for universal roof tile

Pipe outlet for universal roof tile



Flat roof collar



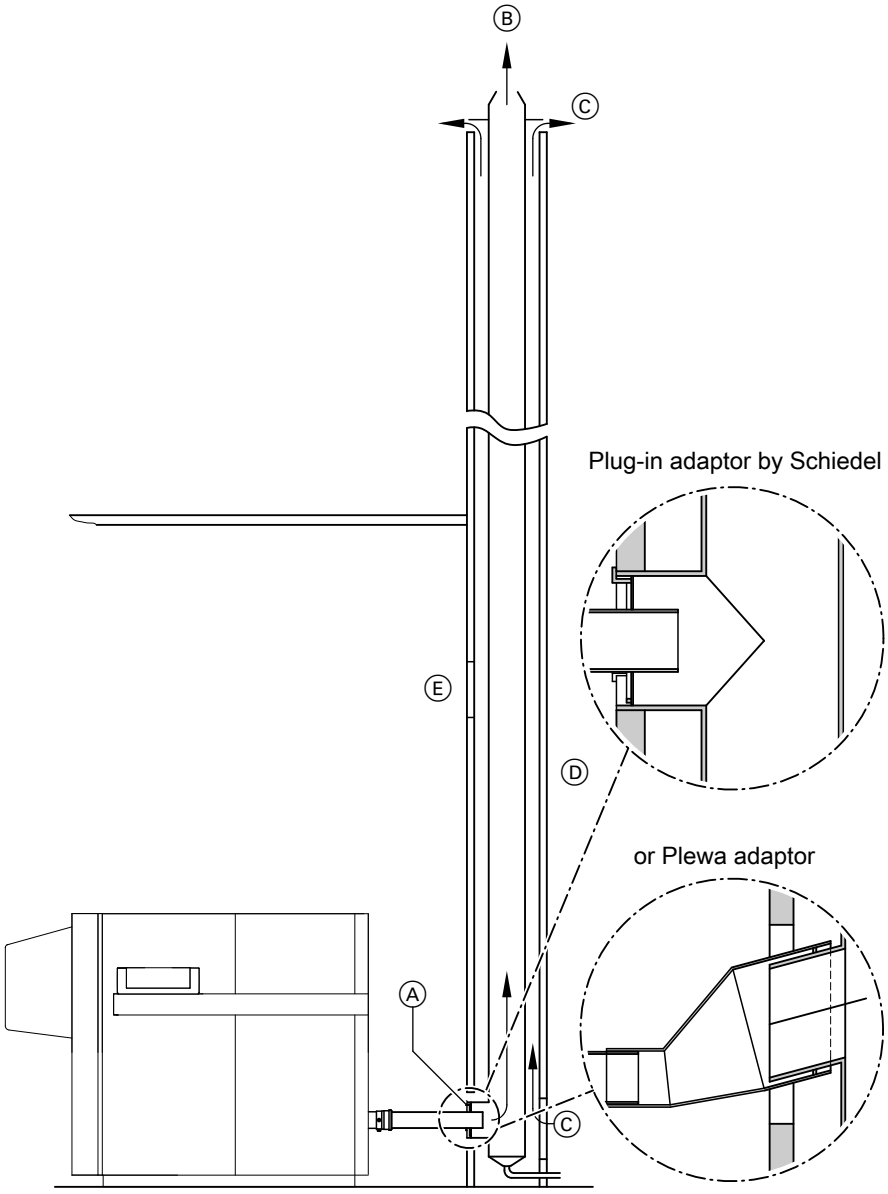
Roof construction according to the flat roof directive

Ⓐ Gravel ballast layer
Ⓑ Insulation layer
Ⓒ Aeration layer
Ⓓ Thermal insulation
Ⓔ Insulation
Ⓕ Ceiling
Ⓖ Roof outlet

System size Ø mm	Dimension [mm] a	b	c
100	170	470	250
150	170	450	254
200	220	500	254

Design information (cont.)

Connection with plastic flue pipe (PPs) to a moisture-resistant chimney (MR chimney, negative pressure)



Ⓐ Adaptor
Ⓑ Flue gas
Ⓒ Secondary ventilation
Ⓓ MR chimney
Ⓔ Inspection port

The Vitocrossal condensing boilers may be connected to a moisture-resistant chimney if the chimney manufacturer can provide a calculated verification to EN 13384.
A flue pipe that is pressure sealed, moisture-resistant and approved by the building inspectorate should be used as the connection piece. This adaptor from the flue pipe to the MR chimney is available, for example, from Plewa individually on request or from Schiedel by quoting reference "Schiedel Steck-Adaptor".

Addresses:
Plewa-Werke GmbH
D-54662 Speicher/Eifel

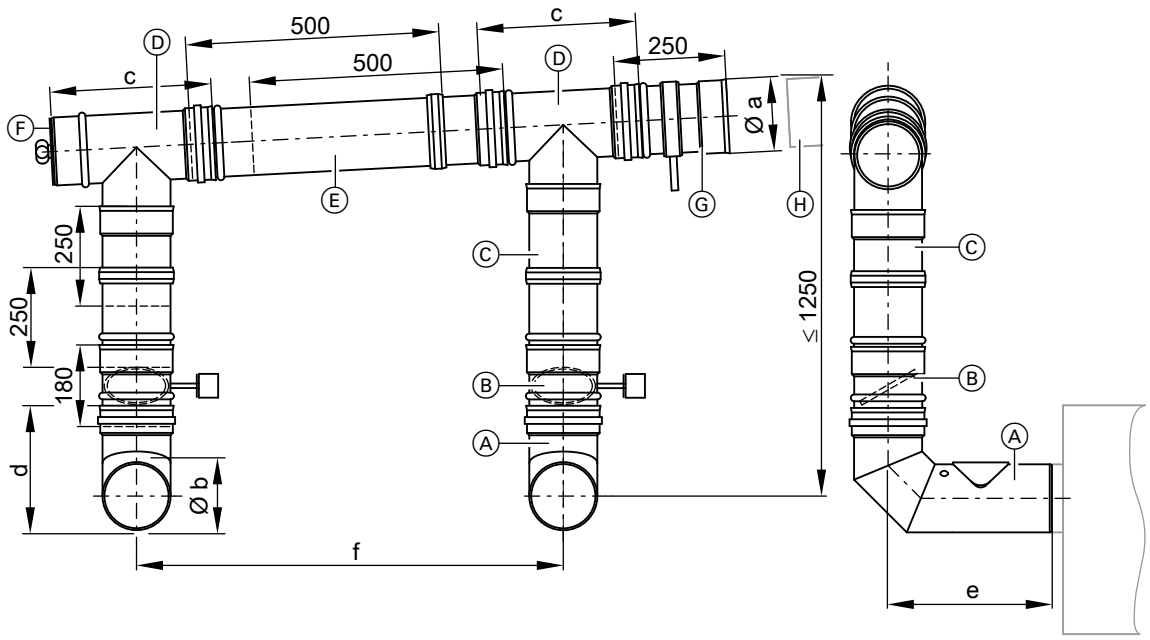
Wienerberger GmbH
Oldenburger Allee 26
D-30659 Hannover

Schiedel GmbH & Co.
Hauptverwaltung
Lerchenstrasse 9
D-80995 Munich

Stainless steel flue gas header for two-boiler system

For two-boiler systems up to 622 kW with the Vitocrossal 200, type CM2, 87 to 311 kW

Connection to the flue system, optional outlet on the l.h. or r.h. side.



Example: outlet on the r.h. side

Ⓐ Boiler flue connection with test ports and inspection port
Ⓑ Motorised flue gas damper
Ⓒ Sliding element, 250 mm
Ⓓ Tee connector
Ⓔ Sliding element, 500 mm
Ⓕ Inspection cover
Ⓖ Flue pipe with condensate drain
Ⓗ Flue system

Dimensions

Nominal diameter	mm	200	250	300
a	mm	200	250	300
b	mm	150	200	200
c	mm	350	400	400
d	mm	279	328	328
e	mm	333	368	368
f	mm	820	860	860
f max.	mm	1130	1220	1220

Selection table for the max. draught 70 Pa

Rated heating output (kW)	Diameter of the effective vertical flue pipe up to 30 metres (in mm)
2x87, 2x115, 2x142	∅ 200
2x186, 2x246	∅ 250
2x311	∅ 300

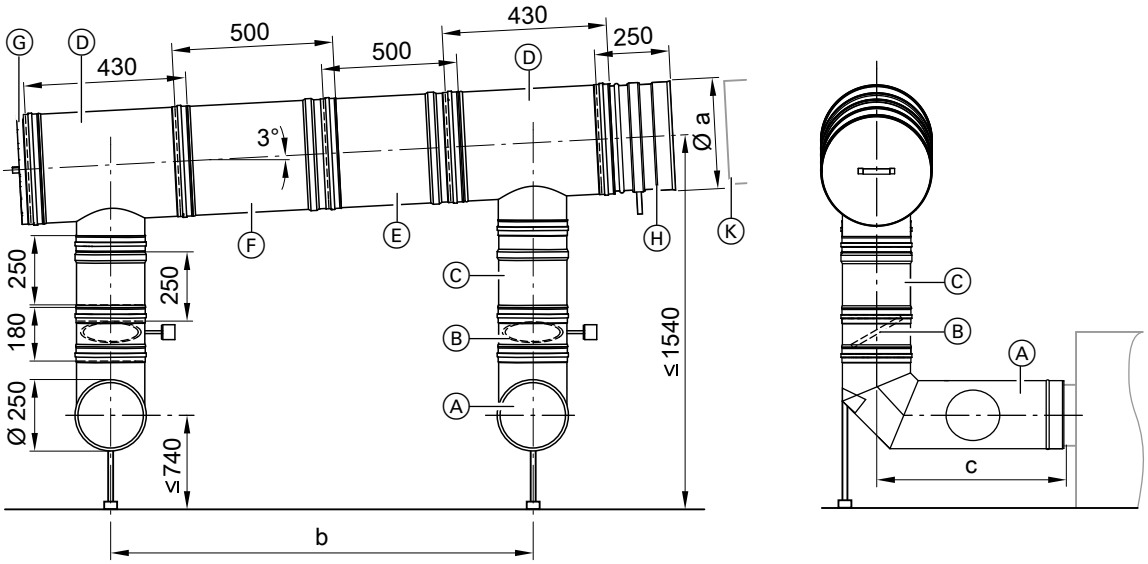
Use a flue pipe with the same diameter as that of the flue gas header.

Design information (cont.)

For two-boiler systems up to 1240 kW with the Vitocrossal 200, type CM2, 400 to 620 kW

Connection to the flue system, optional outlet on the l.h. or r.h. side.

8



Example: outlet on the r.h. side

Ⓐ Boiler flue connection with test ports and inspection port
Ⓑ Motorised flue gas damper
Ⓒ Sliding element, 250 mm
Ⓓ Tee connector
Ⓔ Sliding element, 500 mm
Ⓕ Straight length, 500 mm
Ⓖ Inspection cover
Ⓗ Flue pipe with condensate drain
Ⓚ Flue system

Dimensions

Nominal diameter	mm	300	350	400
a	∅ mm	300	350	400
b	mm	1550		
b max.	mm	1680		
c	mm	703		

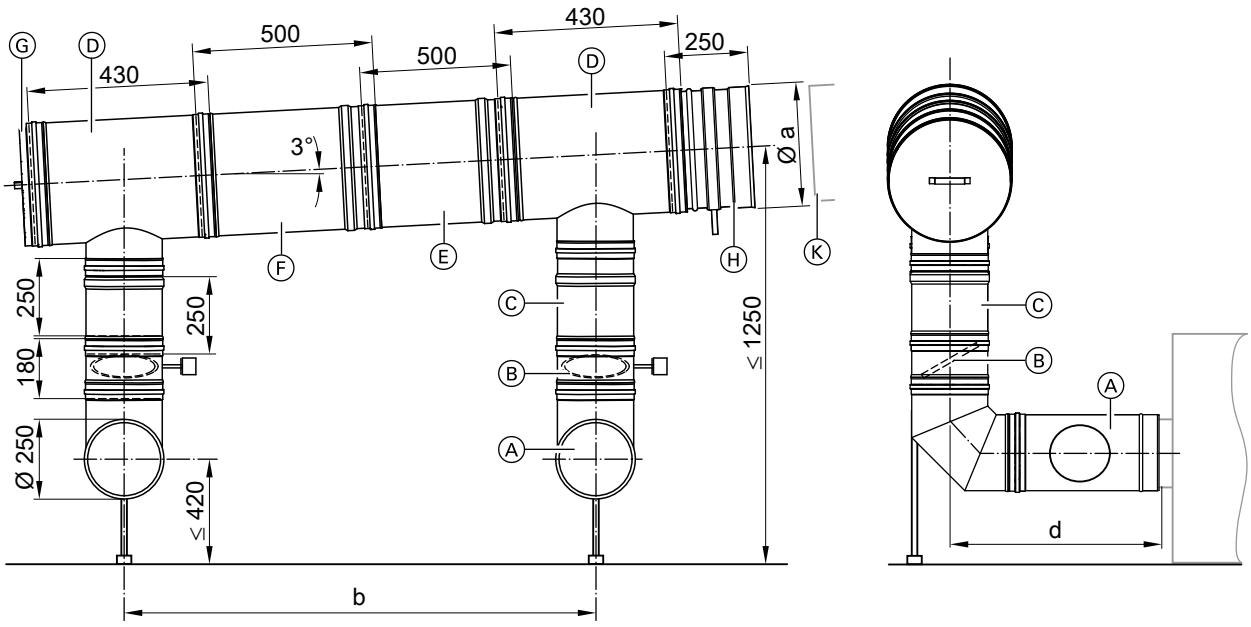
Selection table for the max. draught 70 Pa

Rated heating output (kW)	Diameter of the effective vertical flue pipe up to 30 metres (in mm)
2x400	∅ 300
2x500	∅ 350
2x620	∅ 400

Use a flue pipe with the same diameter as that of the flue gas header.

For two-boiler systems up to 1260 kW with Vitocrossal 300, type CT3U

Connection to the flue system, optional outlet on the l.h. or r.h. side.



Example: outlet on the r.h. side

Ⓐ Boiler flue connection with test ports and inspection port
Ⓑ Motorised flue gas damper with electrical power cables
Ⓒ Sliding element, 250 mm
Ⓓ Tee connector
Ⓔ Sliding element, 500 mm
Ⓕ Straight length, 500 mm
Ⓖ Inspection cover
Ⓗ Flue pipe with condensate drain
Ⓚ Flue system

Dimensions

Nominal diameter	mm	300	350	400
a	∅ mm	300	350	400
b	mm	1550		
b_{max}	mm	1680		
d	mm	703		

Selection table for the max. draught 70 Pa

Rated heating output (kW)	Diameter of the effective vertical flue pipe up to 30 metres (in mm)
2x400	∅ 300
2x500	∅ 350
2x630	∅ 400

Note
The boiler flue connection must be kept free of load and torque stress during the installation on site of the flue gas header through the use of support elements (floor, wall and/or ceiling supports). Accessories on request.

Use a flue pipe with the same diameter as that of the flue gas header.
Secure the boiler flue connection with a floor connector and keep free of load or torque stresses.

Note
Details refer to open flue operation.

8.9 Sound insulation

The burner/boiler systems, circulation pumps and other drives used in heating systems generate noise.
This noise is transferred from the installation room via floorboards, ceiling and walls to neighbouring rooms and via the flue system as well as the ventilation air and extract air apertures into other rooms and into the open, where it may be perceived as a nuisance. To avoid this happening, additional protective measures may be required which should be considered at the design stage.
Subsequent measures to reduce noise development frequently require extensive effort and expenditure.

Attenuating airborne noise

Frequently, modern burners are equipped with silencer hoods or noise-attenuated ventilation air inlet housings. Additional silencer hoods may be used where more stringent anti-noise measures are required. These measures may be implemented later with minimum effort. Silencer hoods are offered for various levels of sound insulation and are generally designed and built in accordance with specific system conditions (boiler type, fuel supply, building characteristics).
For larger systems it may be necessary to route the ventilation air through a sound-insulated channel, in order to avoid excess noise outside the building. Flue gas silencers are generally only required where higher sound insulation measures are called for. Whether or not a flue gas silencer is required can be predicted only with some difficulty, because of the complexity of the creation and propagation of flame noise, the interaction between the burner, boiler and the flue system as well as the operating mode (flue system operating with positive or negative pressure).

It is advisable, therefore, to assess the noise emission into the neighbourhood in considering the sound power level measured at the flue system terminal. It should be considered at the engineering stage whether flue gas silencers might be necessary. It is thus important that sufficient space for the flue gas silencer is available behind the boiler. In accordance with EN 13384, the pressure drop of the flue gas silencer on the flue gas side will be required for calculating the flue system.

Structure-borne noise attenuation

Anti-vibration supports for the boiler are an economical and effective measure. For this purpose, anti-vibration supports are offered. When sizing such supports, take the entire operating weight of the boiler system and, when using linear anti-vibration brackets, the condition of the supporting surface into consideration. Effective structure-borne noise attenuation is particularly important when installing boilers in attics. Compensators may be used to physically separate the combustion equipment from the building. These should be installed as near as possible to the boiler in the flow, return and safety line. Also insulate any braces or brackets, if installed, against sound/vibration transmission to the building. Detailed information on reducing noise emissions from combustion equipment in heating systems can be found in the Information Sheet No. 10 of the BDH (Bundesverband der Deutschen Heizungsindustrie e. V.) [Germany].

8.10 Standard values for water quality

The service life of any boiler as well as that of the complete heating system is influenced by the quality of the water. In any event, the cost of a water treatment facility is less than the cost of repairing damage to your heating system.
Observing the following requirements is necessary to safeguard your warranty rights. The warranty excludes damage due to corrosion and scaling.

The following is a summary of essential water quality requirements. A mobile water treatment system can be hired from Viessmann for filling and commissioning.

Heating systems with rated operating temperatures in excess of 100 °C (VDI 2035)

Prevent excessive scale build-up (calcium carbonate) on the heating surfaces. For heating systems with operating temperatures up to 100 °C, VDI guideline 2035 sheet 1 "Prevention of heating system damage – scaling in DHW and hot water heating systems" applies [in Germany], together with the following standard values (see also the full explanations in the original guideline).

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)

The standard values assume the following:

- The volume of fill and top-up water will not exceed three times the water content of the heating system during its service life.
- The specific system volume is less than 20 l/kW heating output. In multi boiler systems, apply the output of the smallest boiler.
- All measures to prevent corrosion on the water side in accordance with VDI 2035 sheet 2 have been implemented.

Soften the fill and top-up water in heating systems operating under the following conditions:

- The total of alkaline earths in the fill and top-up water exceeds the standard value.
- Higher fill and top-up water volumes are expected.
- The specific system volume is greater than 20 l/kW heating output. In multi boiler systems, apply the output of the smallest boiler.

5822 449 GB

When engineering 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 amount of fill and top-up water. Enter the volume of fill water and the water hardness into the boiler service instructions.
- For systems with a specific system volume in excess of 20 l/kW heating output (in multi boiler systems apply the output of the smallest boiler), apply the requirements of the next higher category of total output (in accordance with the table). In the case of severe excess (> 50 l/kW), soften the water down to a total of alkaline earths of ≤ 0.02 mol/m^3

For systems with system boilers with a total heating output < 50 kW and total of alkaline earths in the fill and top-up water > 3.0 mol/m^3, implement one of the following measures:
- Preferably soften the fill and top-up water.
- Install a filter or separating facility in the heating flow.

Operating information:
- Commission the system step by step, starting with the lowest boiler output and a high heating water flow rate. This prevents a 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 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. after repairs or after system expansion, and for all amounts of top-up water.
- Check, clean and activate filters, dirt traps and other blow-down or separating facilities in the heating water circuit more frequently after commissioning or new installations; later on do so subject to requirements in line with the water treatment applied (e.g. water softening).

The build-up of limescale deposits on the heating surfaces will be minimised if these instructions are observed.
Any limescale deposits that have formed because of a failure to observe the requirements to VDI Directive 2035 will in most cases already have caused a reduction in the service life of the installed heating equipment. Removing the limescale deposits is one option for restoring operational viability. This measure must be carried out by a specialist. Inspect the heating system for possible damage prior to returning it into use. It is essential that the faulty operating parameters are corrected to prevent excessive scale from forming again.

Prevention of damage through corrosion on the water side

The corrosion resistance of ferrous materials on the heating water side of heating systems and heat generators depends on the absence of oxygen in the heating water. The oxygen introduced into the heating system with the first fill and subsequent top-ups reacts with the system materials without causing damage.
The characteristic blackening of the water after a certain time in operation indicates that there is no more free oxygen present. The technical rules and in particular VDI Guideline 2035-2 therefore recommend that heating systems are designed and operated so that a constant ingress of oxygen into the heating water is prevented.
During operation, oxygen can normally only enter due to:
- Open expansion vessels receiving a flow
- Negative pressure in the system
- Gas-permeable components

Correctly sized sealed systems operating at the correct pressure – e.g. systems with diaphragm expansion vessel – offer good protection against the ingress of airborne oxygen into the system. In all operating states and at all points in the heating system, including the intake side of the pump, the pressure must be higher than the surrounding atmospheric pressure. The pre-charge pressure of the diaphragm expansion vessel should be checked at least during the annual service. See also chapter 2.1 "General design information" for details regarding pressure maintaining systems and corrosion. The use of permeable components, e.g. permeable plastic pipes in underfloor heating systems, should be avoided. Provide system separation if such components are nevertheless used. This must separate the water flowing through the plastic pipes from other heating circuits, e.g. from the boiler, by the provision of a corrosion-resistant heat exchanger.

No further anti-corrosion measures are required for sealed hot water heating systems, subject to the above points being observed. However, take additional precautions where there is a risk of oxygen ingress, e.g. by adding oxygen binder sodium sulphite (5 - 10 mg/l into the excess). The pH value of the heating water should be between 8.2 and 9.5.
Different conditions apply to systems that include aluminium components.
Where chemicals are used as part of the corrosion protection, we recommend that the manufacturer of the chemicals issues a certificate of suitability of the additives with regard to the boiler materials and the materials of the other heating system components. We recommend you refer questions regarding water treatment to an appropriate specialist.
Further details can be found in the VDI Guideline 2035-2.

8.11 Frost protection

An antifreeze additive 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.

8.12 Condensate and neutralisation

Drain the acidic condensate created during the 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 3 and 4. 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 gas condensing boilers into the public sewage system.
The composition of condensate drained from the Vitocrossal 300 condensing boiler meets the requirements of Code of Practice DWA-A 251 "Condensate from condensing boilers – Introduction of condensate from gas or oil combustion equipment into the public sewage system and small sewage treatment plants".
According to the Code of Practice DWA-A 251, a condensate volume of 0.14 kg per kWh of fuel should be assumed for gas combustion.

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.

Gas combustion above 200 kW
Condensate from this type of system should generally be neutralised. After leaving the Vitocrossal, the condensate is neutralised in the neutralising system through a neutralising agent, and its pH value is raised from 6.5 to approx. 9.
Any condensate treated as described may be introduced into the public sewage system. The neutralising agent will be gradually consumed by the condensate. Since the consumption of neutralising agent depends on the operating mode of the system, determine the required top-up volume during the first year of operation by regular checks. Establish the consumption through inspections over a longer period of time.

Design notes regarding condensate drain pipe

The condensate drain pipe to the sewer connection must be freely accessible for inspection. It must be installed with a fall, include a stench trap, and provide a suitable facility for sampling. The bottom drain should be located below the anti-flooding level of the flue gas collector.
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. Install a U-bend in the condensate drain to prevent flue gases from escaping. 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

Local water regulations and/or specific technical circumstances may prescribe designs, which 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.

Neutralising systems

Matching neutralising systems are available for **Vitocrossal condensing boilers**:
- Granulate neutralising system with optional condensate lifting system and a maximum neutralisation output of 70 l/h
- Granulate neutralising system with optional condensate lifting system and a maximum neutralisation output of 210 l/h

For specifications regarding neutralising systems and accessories, see the datasheet "Boiler accessories".

8.13 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 as well as the details in the datasheet.
It is only designed for the heating up of heating water.

Commercial or industrial usage for a purpose other than the heating up of heating water shall be deemed inappropriate.

Intended use presupposes that a fixed installation in conjunction with permissible components designed for this purpose has been carried out.

Every other use will be deemed to be inappropriate. Any resulting losses are excluded from the manufacturer's liability.

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

Intended use also includes the adherence to maintenance and inspection intervals.

Control units

9.1 Overview of boiler control units and control panels

A matching boiler control unit is part of the standard delivery of all Viessmann boilers. This control unit has been specially developed for energy saving and environmentally responsible operation.

The temperature sensors are precisely matched to the boiler characteristics.

Control units (cont.)

The Vitocontrol control panels with weather-compensated Vitotronic 300-K control unit (type MW1B) for 1 to 4 boilers and 2 heating circuits with mixers, and additional Vitotronic 200-H (type HK1B or HK3B) for 1 or up to 3 heating circuits with mixers, can be supplied for the Vitocrossal 300.

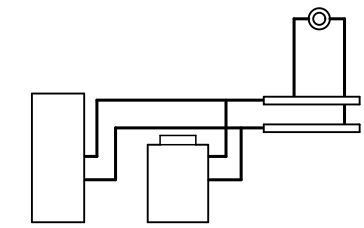
The following control units are available for these condensing boilers.

Assignment of control units to the boilers

Vitotronic	**100**		**200**	**300**		**300-K**
Type	**GC1B**	**GC4B**	**GW1B**	**GW2B**	**GW4B**	**MW1B**
Boiler						
Vitocrossal 200, type CM2, 87 to 311 kW	x		x	x		x
Vitocrossal 200, type CM2, 400 to 620 kW		x			x	x
Vitocrossal 300, type CM3	x		x	x		x
Vitocrossal 300, type CT3U	x		x	x		x
Vitocrossal 300, type CT3B	x		x	x		x
Vitocrossal 300, type CR3B	x		x	x		x

Single boiler systems

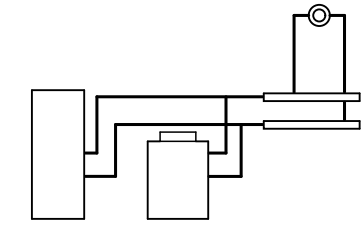
Vitotronic 100, type GC1B



Digital boiler control unit:
- For constant boiler water temperature
  or
  For weather-compensated operation in conjunction with a Vitocontrol control panel and integral Vitotronic 200-H heating circuit control unit
  or
  For weather-compensated operation in conjunction with an external control unit.
- For two-stage or modulating burners.
- With cylinder temperature controller.
- Control of a cylinder loading system with mixer assembly possible (only as an alternative to the control of a constant return temperature raising facility with a regulated 3-way mixing valve).
- With boiler protection function subject to boiler version.
- With integral diagnostic system and additional functions.
- With capability to communicate via LON (LON communication module is an accessory).

According to the Energy Savings Ordinance [Germany], a weather-compensated or room temperature-dependent control unit with time program for reduced mode must be installed downstream.

Vitotronic 100, type GC4B

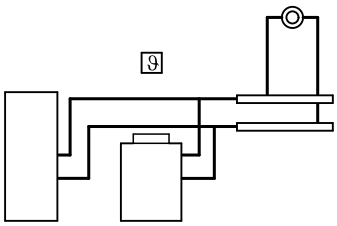


Digital boiler control unit:
- For constant boiler water temperature.
  or
  For weather-compensated operation in conjunction with a Vitocontrol control panel and integral Vitotronic 200-H heating circuit control unit.
  or
  For weather-compensated operation in conjunction with an external control unit.
- For a modulating burner.
- With cylinder temperature controller.
- Optional control of a primary store system with mixer assembly.
- With integral diagnostic system and additional functions.
- With capability to communicate via LON (LON communication module is an accessory).

According to the Energy Savings Ordinance [Germany], a weather-compensated or room temperature-dependent control unit with time program for reduced mode must be installed downstream.

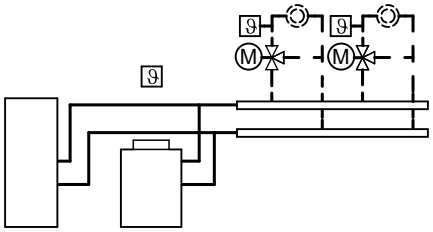
Control units (cont.)

Vitotronic 200, type GW1B



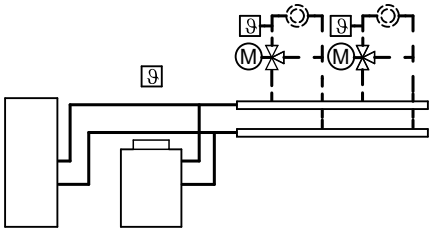
Weather-compensated, digital boiler control unit:
- For single boiler systems.
- For two-stage or modulating burners.
- Programming unit featuring a plain text and graphic display.
- With cylinder temperature controller.
- Control of a cylinder loading system with mixer assembly possible (only as an alternative to the control of a constant return temperature raising facility with a regulated 3-way mixing valve).
- With boiler protection function subject to boiler version.
- With integral diagnostic system and additional functions.
- With capability to communicate via LON (LON communication module is an accessory).

Vitotronic 300, type GW2B



Weather-compensated, digital boiler control unit:
- For single boiler systems.
- For one system circuit and up to two heating circuits with mixers (a further 32 Vitotronic 200-H heating circuit control units can be connected via LON). An extension kit (accessories) is required for each heating circuit with mixer.
- For two-stage or modulating burners.
- With programming unit featuring a plain text and graphic display.
- With cylinder temperature controller.
- Control of a cylinder loading system with mixer assembly possible (only as an alternative to the control of a constant return temperature raising facility with a regulated 3-way mixing valve).
- With boiler protection function subject to boiler version.
- With integral diagnostic system and additional functions.
- With capability to communicate via LON (LON communication module is an accessory).

Vitotronic 300, type GW4B



Weather-compensated, digital boiler control unit:
- For single boiler systems.
- For one system circuit and up to two heating circuits with mixers (a further 32 Vitotronic 200-H heating circuit control units can be connected via LON). An extension kit (accessories) is required for each heating circuit with mixer.
- For a modulating burner.
- With programming unit featuring a plain text and graphic display.
- With cylinder temperature controller.
- Optional control of a primary store system with mixer assembly.
- With integral diagnostic system and additional functions.
- With capability to communicate via LON (LON communication module is an accessory).

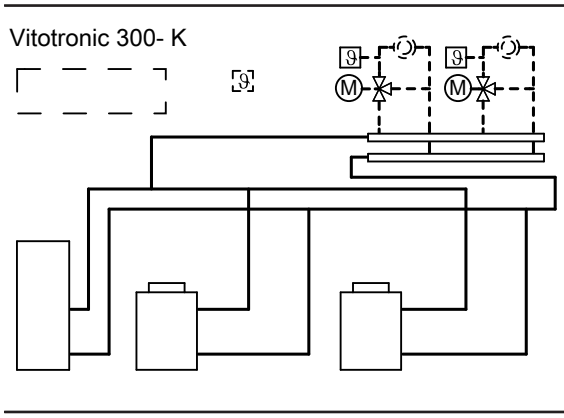
Multi boiler systems

Every boiler in a multi boiler system must be equipped with a Vitotronic 100 (type GC1B or GC4B). The Vitotronic 300-K (type MW1B) is supplied with one boiler (see pricelist) and should be installed separately.
The LON communication module must be fitted into the Vitotronic 100. See pricelist.

In multi boiler systems with external control unit, the load-dependent burner and boiler control as well as the cylinder temperature control must be implemented by the higher ranking (external) control unit.

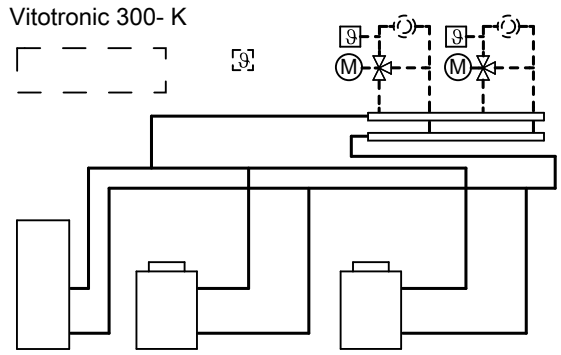
Control units (cont.)

Vitotronic 100, type GC1B



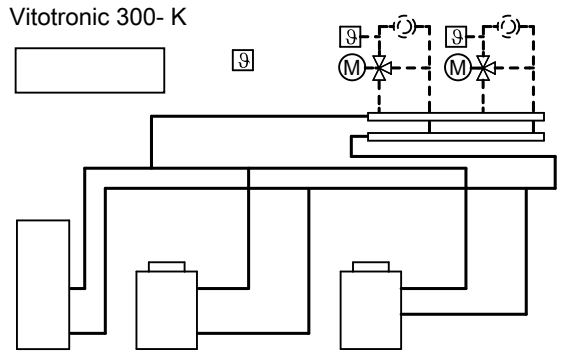
Digital boiler control unit:
- For every boiler in a multi boiler system with Viessmann Vitotronic 300-K cascade control unit (supplied with one boiler)
  or
- For every boiler in a multi boiler system with Vitocontrol control panel and integral weather-compensated Vitotronic 300-K cascade control unit
  or
- For every boiler in a multi boiler system with external weather-compensated cascade control unit with cylinder thermostat.
- For two-stage or modulating burners.
- With boiler protection function subject to boiler version.
- With integral diagnostic system and additional functions.
- With communication capability via LON (LON communication module is part of the standard delivery).

Vitotronic 100, type GC4B



Digital boiler control unit:
- For every boiler in a multi boiler system with Viessmann Vitotronic 300-K cascade control unit (supplied with one boiler).
  or
- For every boiler in a multi boiler system with Vitocontrol control panel and integral weather-compensated Vitotronic 300-K cascade control unit.
  or
- For every boiler in a multi boiler system with external weather-compensated cascade control unit with cylinder temperature controller.
- For a modulating burner.
- With integral diagnostic system and additional functions.
- With communication capability via LON (LON communication module is part of the standard delivery).

Vitotronic 300-K, type MW1B



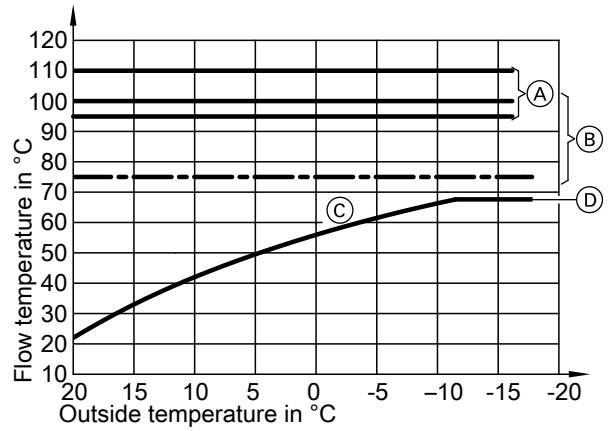
Weather-compensated, digital cascade and heating circuit control unit:
- For multi boiler systems.
- With boiler sequence strategy.
- For up to two heating circuits with mixers (a further 32 Vitotronic 200-H heating circuit control units can be connected via LON).
  An extension kit is required for each heating circuit with mixer.
- In conjunction with the Vitotronic 100, type GC1B:
  – For two-stage or modulating burners.
  – With cylinder temperature controller.
    or
    Control of a cylinder loading system with mixer assembly (only available as an alternative to the control of a constant return temperature raising facility with a regulated 3-way mixing valve).
  – With boiler protection functions subject to system version.
- In conjunction with the Vitotronic 100, type GC4B:
  – For a modulating burner.
  – With cylinder temperature controller.
    or
    Control of a cylinder loading system with mixer assembly.
- With integral diagnostic system and additional functions.
- With programming unit featuring a plain text and graphic display.
- With capability to communicate via LON (a LON communication module and terminators are part of the standard delivery)

Control panel installation

Note

Use the installation kit for control panel installation (accessories) when fitting the programming unit in the control panel door

Switching points



Ⓐ Setting options of the high limit safety cut-out of the Vitotronic boiler control units (delivered condition 110 °C; can be changed to 100 or 95 °C)
For the Vitocrossal 200, type CM2, 400 to 620 kW, the high limit safety cut-out is set permanently to 110 °C.
Ⓑ Setting options of the temperature controller (boiler water temperature) for the Vitotronic boiler control units (delivered condition 95 °C)
Ⓒ Selected heating curve
Ⓓ Set maximum boiler water temperature

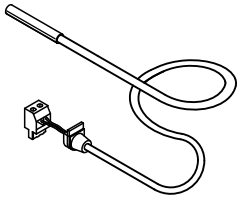
9.2 Components in the delivered condition

Allocation to control unit types

Vitotronic	100		200	300		300-K
Type	GC1B	GC4B	GW1B	GW2B	GW4B	MW1B
Components						
Boiler water temperature sensor	x	x	x	x	x	
Cylinder temperature sensor			x	x	x	x
Outside temperature sensor			x	x	x	x
Contact temperature sensor (see accessories)						x
LON communication module (see accessories) ***Note*** *For the Vitotronic 100, only in multi boiler systems*	x	x				x
LON cable (see accessories)						x
Terminator (see accessories)						x

For the Vitocrossal 200, type CM2 in conjunction with the Vitotronic 100, type GC4B and Vitotronic 300, type GW4B
The boiler water temperature sensors are included as part of the standard boiler delivery and are connected to the burner control unit.

Boiler water temperature sensor

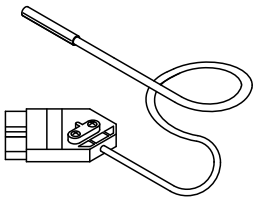


Specification

Lead length	3.7 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 +130 °C
– During storage and transport	−20 to +70 °C

Boiler water temperature sensor in conjunction with the Vitotronic 100, type GC4B and Vitotronic 300, type GW4B

Dual temperature sensor for connection to the burner control unit of the Vitocrossal 200, type CM2 400 to 620 kW.

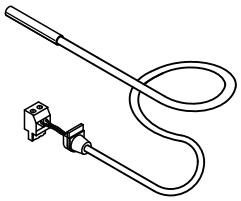


Specification

Cable length	2.2 m, fully wired
IP rating	IP 32 to EN 60529, ensure through design/installation
Sensor type	Viessmann dual sensor NTC 10 kΩ/20 kΩ, at 25 °C
Permissible ambient temperature	
– during operation	0 to +125 °C
– during storage and transportation	−30 to +70 °C

Cylinder temperature sensor

Part no. 7426463



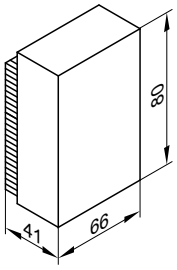
Specification

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	
– During operation	0 to +90 °C
– During storage and transport	–20 to +70 °C

Outside temperature sensor

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

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



Specification

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

9.3 Vitotronic 100, type GC1B, part no. 7498 901

Specification

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

Standard unit:
- ON/OFF switch
- Test key
- Emissions test switch
- Optolink laptop interface
- Temperature controller
  TR 1168
  or
  TR 1107
- High limit safety cut-out
  STB 1169
  or
  STB 115408
- Fuses

Control units (cont.)

- Operating and fault display
- Plug connection chamber:
  - Connection of external equipment via system plug
  - Connection of three-phase consumers via additional contactors

Programming unit
- High contrast display with large fonts for easy operation.
- User prompts with pictographs.
- Operating keys:
  - Navigation
  - Confirmation
  - Settings/menu
- Settings:
  - Boiler water temperature
  - Codes
  - Actuator tests
  - Test mode

  Only in conjunction with single boiler systems:
  - DHW temperature
  - Operating program
- Indicators:
  - Boiler water temperature
  - DHW temperature (only in single boiler systems)
  - Operating data
  - Diagnostic details
  - Maintenance and fault messages

Functions
- Control of the boiler water temperature (= system flow temperature) to the specified value.
- Electronic maximum boiler water temperature limit.
- Pump anti-seizing protection.
- Integral diagnostic system.
- Flue gas temperature monitoring in connection with flue gas temperature sensor.
- Maintenance display.
- External fault message facility can be connected.
- With boiler protection function subject to boiler/system version:
  - ThermControl start-up system
  - Flow rate reduction for downstream heating circuits
  - Shunt pump control
  - Control of a constant return temperature raising facility with regulated 3-way mixing valve (only as an alternative to the control of a cylinder loading system with mixer assembly)

Single boiler systems:
- Adaptive cylinder temperature controller with priority control (heating circuit pump off).
- Auxiliary function for DHW heating (short term heating to a higher temperature).
- Control of solar DHW heating and central heating backup in conjunction with solar control module, type SM1.
- Control of a cylinder loading system with mixer assembly (only as an alternative to control of a constant return temperature raising facility with regulated 3-way mixing valve).
- Functions via external contacts:
  - External demand with set minimum boiler water temperature
  - External changeover of stepped/modulating burners
- Additional functions via EA1 extension (accessories):
  - External demand through default set boiler water temperature via 0 to 10 V input
  - 3 digital inputs for the following functions:
    External blocking
    External blocking with fault message input
    Fault message input
- Additional functions via AM1 extension (accessories):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for flue gas/water heat exchanger
    Circulation pump for neutralising system

Multi boiler systems with Vitotronic 300-K cascade control unit:
- Functions via external contacts:
  - External blocking
  - Start boiler externally as the last one in the boiler sequence
  - External changeover of stepped/modulating burners
- Additional functions via AM1 extension (accessories):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for flue gas/water heat exchanger
    Circulation pump for neutralising system

Multi boiler systems with third party control unit:
- Functions via external contacts:
  - Boiler enable/butterfly valve control
  - External demand, burner stage 1
  - External demand, burner stage 2
  - External changeover of stepped/modulating burners
- Additional functions via EA1 extension (accessories):
  - External demand through default set boiler water temperature and boiler enable via 0 to 10 V input

  Note
  An EA1 extension must be connected to ***every*** *Vitotronic 100.*

- Additional functions via AM1 extension (accessories):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for flue gas/water heat exchanger
    Circulation pump for neutralising system

Control characteristics
- P-characteristics with two-point output when using a burner with multiple stages
  PI characteristics with three-point output for modulating burners, if installed
- Temperature controller for limiting the boiler water temperature:
  95 °C, adjustable to 100, 110 °C
- Adjusting the high limit safety cut-out:
  110 °C, adjustable to 100 °C
- Maximum boiler water temperature limit:
  20 up to 127 °C (lower switching point subject to boiler/boiler coding card)
- Setting range of the set DHW temperature:
  10 to 60 °C, adjustable between 10 and 95 °C

Boiler coding card
For matching to the boiler (supplied with the boiler).

Setting the operating programs
Frost protection monitoring for the boiler and DHW cylinder is enabled in all operating programs.
The following operating programs can be selected:
- Single boiler systems:
  - Heating and DHW
  - Only DHW
  - Standby mode
- Multi boiler systems:
  - Heating
  - Standby mode

Summer mode (only in single boiler systems)
("DHW only")
The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).
The respective lower boiler water temperature of each boiler is maintained if required.

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 x 6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529 Ensure through design/ installation
Mode of operation	Type 1B to EN 60 730-1
Permissible ambient temperature	
– During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	−20 to +65 °C
Rated relay output breaking capacity	
[20] Primary pump, cylinder loading system (only in single boiler systems) or Circulation pump, flue gas/water heat exchanger or Switching output	4(2) A, 230 V~
[21] Circulation pump for cylinder heating	4(2) A, 230 V~
[29] Shunt pump/boiler circuit pump	4(2) A, 230 V~
[50] Central fault message	4(2) A, 230 V~
[52] Butterfly valve or Motor, 3-way mixing valve, constant return temperature raising or Motor, 3-way mixing valve, cylinder loading system	0.2 (0.1) A, 230 V~
Total	Max. 6 A, 230 V~
[41] Burner	6(3) A, 230 V~
[90] Burner, 2-stage	1 (0.5) A, 230 V~
[90] Burner, modulating	0.2 (0.1) A, 230 V~

Delivered condition

- Control with integral programming unit
- Boiler water temperature sensor
- 1 bag with technical documentation
- Only in conjunction with multi boiler systems:
  LON communication module and a connecting cable (7 m long) for data exchange between control units

Heating system with DHW cylinder
Only in connection with single boiler systems; order separately:
- Cylinder temperature sensor and circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly and cylinder temperature sensor

Communication
Communication with other control units, e.g. with the Vitotronic 200-H, requires the LON communication module (accessories).

9.4 Vitotronic 100, type GC4B, part no. 7441 811

Specification

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
- Fuses
- Operating and fault display

Control units (cont.)

- Plug connection chamber:
  - Connection of external equipment via system plug
  - Connection of three-phase consumers via additional contactors
- Temperature controller/high limit safety cut-out, integrated into the burner control unit:
  EN 14597 and EN 60730-2-5

Programming unit
- Easy operation through high contrast display with large fonts.
- User prompts with pictographs.
- Operating keys:
  - Navigation
  - Confirmation
  - Settings/menu
- Settings:
  - Boiler water temperature
  - Codes
  - Actuator tests
  - Test mode

  Only in conjunction with single boiler systems:
  - DHW temperature
  - Operating program
- Indicators:
  - Boiler water temperature
  - DHW temperature (only in single boiler systems)
  - Operating data
  - Diagnostic details
  - Maintenance and fault messages

Functions
- Control of the boiler water temperature (= system flow temperature) to the specified value.
- Pump anti-seizing protection.
- Integral diagnostic system.
- Maintenance display.
- External fault message facility can be connected.
- Electronic maximum limiter of the boiler water temperature, integrated into the burner control unit.
- Flue gas temperature monitoring in conjunction with flue gas temperature sensor, integrated into the burner control unit.

Single boiler systems:
- Adaptive cylinder temperature controller with priority control (heating circuit pump off).
- Auxiliary function for DHW heating (short term heating to a higher temperature).
- Control of solar DHW heating and central heating backup in conjunction with solar control module, type SM1.
- Control of a cylinder loading system with mixer assembly.
- Functions via external contacts:
  - External demand with set minimum boiler water temperature
  - External burner blocking
- Additional functions by means of the EA1 extension (accessories):
  - External demand through default set boiler water temperature via 0 to 10 V input
  - 3 digital inputs for the following functions:
    External blocking
    External blocking with fault message input
    Fault message input
- Additional functions via AM1 extension (accessories, part no. 7452 092):
  Control of circulation pump for neutralising system if output 20 is already assigned at the control unit.

Multi boiler systems with Vitotronic 300-K cascade control unit:
- Functions via external contacts:
  - External blocking
  - Start boiler externally as the last one in the boiler sequence

Multi boiler systems with third party control unit:
- Functions via external contacts:
  - Boiler enable/butterfly valve control
  - Blocking the external boiler/starting the external boiler in the boiler sequence
- Additional functions by means of the EA1 extension (accessories):
  - External demand through default set boiler water temperature and boiler enable via 0 to 10 V input

Note
An EA1 extension must be connected to ***every*** *Vitotronic 100.*

- Additional functions via AM1 extension (accessories, part no. 7452 092):
  Control of circulation pump for neutralising system if output 20 is already assigned at the control unit.

Control characteristics
- PI characteristics with three-point output for modulating burners
- Maximum boiler water temperature limit:
  20 up to 127 °C (lower switching point subject to boiler/boiler coding card)
- Setting range of the set DHW temperature:
  10 to 60 °C, adjustable to 10 to 95 °C

Boiler coding card
For matching to the boiler (supplied with the boiler).

Setting the operating programs
Frost protection monitoring for the boiler and DHW cylinder is enabled in all operating programs.
The following operating programs can be selected:
- Single boiler systems:
  - Heating and DHW
  - Only DHW
  - Standby mode
- Multi boiler systems:
  - Heating
  - Standby mode

Summer mode (only in single boiler systems)
("DHW only")
The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 x 6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529 Ensure through design/ installation
Mode of operation	Type 1B to EN 60 730-1
Permissible ambient temperature	
– during operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transportation	−20 to +65 °C

Control units (cont.)

Rated relay output breaking capacity		
20	Primary pump, cylinder loading system (only in single boiler systems) or Switching output	4(2) A, 230 V~
21	Circulation pump for cylinder heating (only in single boiler systems)	4(2) A, 230 V~
29	Boiler circuit pump	4(2) A, 230 V~
50	Central fault message facility	4(2) A, 230 V~
52	Motorised butterfly valve or Motorised 3-way mixing valve, cylinder loading system (only in single boiler systems)	0.2(0.1) A, 230 V~
Total		max. 6 A, 230 V~
41	Burner	6(3) A, 230 V~

Delivered condition

- Control with integral programming unit
- 1 bag with technical documentation
- Only in conjunction with multi boiler systems:
  LON communication module and a connecting cable (7 m long) for data exchange between control units

Heating system with DHW cylinder
Only in connection with single boiler systems; order separately:
- Cylinder temperature sensor and circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly and cylinder temperature sensor

Communication
Communication with other control units, e.g. with the Vitotronic 200-H, requires the LON communication module (accessories).

9

9.5 Vitotronic 200, type GW1B, part no. 7498 902

Specification

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

Standard unit:
- ON/OFF switch
- Test key
- Emissions test switch
- Optolink laptop interface
- Temperature controller
  TR 1168
  or
  TR 1107
- High limit safety cut-out
  STB 1169
  or
  STB 115408
- Fuses
- Operating and fault display
- Plug connection chamber:
  – Connection of external equipment via system plug
  – Connection of three-phase consumers via additional contactors

Programming unit
- Straight forward operation:
  – Plain text display with graphic ability
  – Large font and black/white depiction for good contrast
  – Context-sensitive help
- Operating keys:
  – Navigation
  – Confirmation
  – Help and additional information
  – Menu
- Settings:
  – Set room temperatures
  – DHW temperature
  – Operating program
  – Time programs for central heating, DHW heating and DHW circulation pump
  – Economy mode
  – Party mode
  – Holiday program
  – Heating curves
  – Codes
  – Actuator tests
- Indicators:
  – Boiler water temperature
  – DHW temperature
  – Operating data
  – Diagnostic details
  – Maintenance and 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

Control units (cont.)

Functions
- Weather-compensated control of the boiler water temperature (= system flow temperature).
- Electronic maximum and minimum flow temperature limit.
- Demand-dependent heating circuit pump and burner shutdown (not for burners in boilers with a lower boiler water temperature limit).
- Adjustment of a variable heating limit.
- Pump anti-seizing protection.
- Integral diagnostic system.
- Flue gas temperature monitoring in connection with flue gas temperature sensor.
- Maintenance display.
- Adaptive cylinder temperature controller with priority control (heating circuit pump off).
- Auxiliary function for DHW heating (short term heating to a higher temperature).
- Control of solar DHW heating and central heating backup, plus graphic illustration of the solar yield in conjunction with the solar control module, type SM1.
- Control of a cylinder loading system with mixer assembly (only as an alternative to control of a constant return temperature raising facility with regulated 3-way mixing valve).
- External fault message facility can be connected.
- With boiler protection functions subject to boiler version:
  - ThermControl start-up system
  - Flow rate reduction for downstream heating circuits
  - Shunt pump control
  - Control of a constant return temperature raising facility with regulated 3-way mixing valve (only as an alternative to the control of a cylinder loading system with mixer assembly)
- Functions via external contacts:
  - External operating program changeover
  - External blocking
  - External demand with set minimum boiler water temperature
  - External changeover of stepped/modulating burners
- Additional functions via extension EA1 (accessories):
  - External demand through default set boiler water temperature via 0 to 10 V input
  - Switching a feed pump to a substation
    or
    Signalling of reduced mode (reduction of the heating circuit pump speed) via a potential-free output
  - 3 digital inputs for the following functions:
    External blocking with fault message input
    Fault message input
    Brief operation of the DHW circulation pump
- Additional functions via extension AM1 (accessories):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for flue gas/water heat exchanger
    Circulation pump for neutralising system
    Heating circuit pump

The requirements of EN 12831 for calculating the heat load are met. To reduce the heat-up load, the reduced room temperature will be raised in the case of low outside temperatures. The flow temperature will be raised for a limited time to reduce the heat-up time after a setback phase.
According to the Energy Saving Ordinance [Germany], the temperature in each room must be individually controlled, for example by thermostatic valves.

Control characteristics
- P-characteristics with two-point output when using a burner with multiple stages
  PI characteristics with three-point output when using a modulating burner
- Temperature controller for limiting the boiler water temperature: 95 °C, adjustable to 100, 110 °C
- Adjusting the high limit safety cut-out: 110 °C, adjustable to 100 °C
- Heating curve setting range:
  - Slope: 0.2 to 3.5
  - Level: −13 to 40 K
  - Maximum limit of the flow temperature: 10 to 127 °C
  - Minimum limit of the flow temperature: 1 to 127 °C
- Setting range of the set DHW temperature: 10 to 60 °C, adjustable between 10 and 95 °C

Boiler coding card
For matching to the boiler (supplied with the boiler).

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

Shortest switching interval: 10 min
Power reserve: 14 days

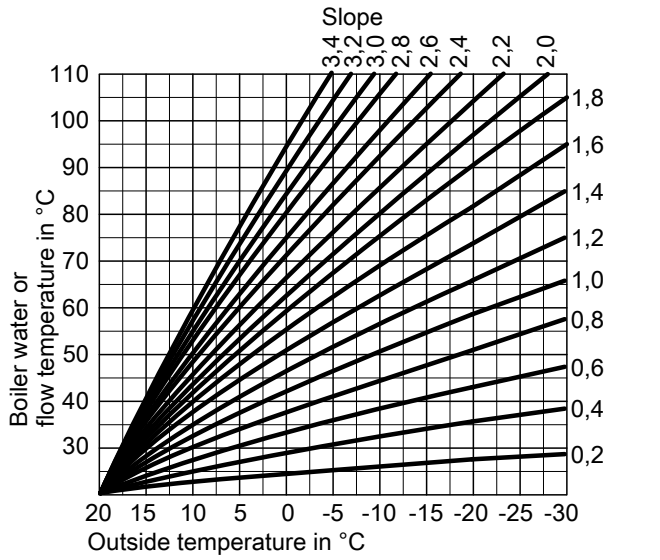
Setting the operating programs
Frost protection monitoring (see frost protection function) for the heating system is enabled in all operating programs.
The following operating programs can be selected:
- Heating and DHW
- Only DHW
- Standby mode

Optional external operating program changeover.

Frost protection function
- The frost protection function is switched on if the outside temperature drops below approx. +1 °C, i.e. the heating circuit pump is switched on and the boiler water is maintained at a lower temperature (see chapter "Operating conditions with Vitotronic boiler control units").
- "Standby mode":
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C. This means that the heating circuit pump and burner are switched off.
- "Heating and DHW"
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C. This means the heating circuit pump is switched off and the lower boiler water temperature for the relevant boiler is maintained if required (see chapter "Operating conditions with Vitotronic boiler control units").

Summer mode
("DHW only")
The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).
The respective lower boiler water temperature of each boiler is maintained if required.

Heating curve setting (slope and level)
The Vitotronic controls the boiler water temperature (= system flow temperature) in weather-compensated mode.
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 curve matches the boiler water temperature to these conditions.
The upper boiler water temperature is limited by the temperature controller and the electronic maximum limiter.



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 x 6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529 Ensure through design/ installation
Mode of operation	Type 1B to EN 60 730-1
Permissible ambient temperature	
– During operation	0 to+40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	−20 to +65 °C
Rated relay output breaking capacity	
[20] Heating circuit pump or Primary pump, cylinder loading system or Circulation pump, flue gas/water heat exchanger or Switching output	4(2) A, 230 V~
[21] Circulation pump for cylinder heating	4(2) A, 230 V~
[28] DHW circulation pump	4(2) A, 230 V~
[29] Shunt pump/boiler circuit pump	4(2) A, 230 V~
[50] Central fault message	4(2) A, 230 V~
[52] Motor, 3-way mixing valve, constant return temperature raising or Motor, 3-way mixing valve, cylinder loading system	0.2 (0.1) A, 230 V~
Total	Max. 6 A, 230 V~
[41] Burner	6(3) A, 230 V~
[90] Burner, 2-stage	1 (0.5) A, 230 V~
[90] Burner, modulating	0.2 (0.1) A, 230 V~

Delivered condition

- Control with integral programming unit
- Outside temperature sensor
- Boiler water temperature sensor
- Cylinder temperature sensor
- Bag with technical documentation

Heating system with DHW cylinder
Order separately:

- Circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly

Communication
The LON communication module (accessories) is required for communication with other control units.

9.6 Vitotronic 300, type GW2B, part no. 7498 903

Specification

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

Standard unit:
- ON/OFF switch
- Test key
- Emissions test switch
- Optolink laptop interface
- Temperature controller
  TR 1168
  or
  TR 1107
- High limit safety cut-out
  STB 1169
  or
  STB 115408
- Fuses
- Operating and fault display
- Plug connection chamber:
  – Connection of external equipment via system plug
  – Connection of three-phase consumers via additional contactors

Programming unit
- Straight forward operation:
  – Plain text display with graphic ability
  – Large font and black/white depiction for good contrast
  – Context-sensitive help
- Operating keys:
  – Navigation
  – Confirmation
  – Help and additional information
  – Menu

Control units (cont.)

9

- Settings:
  - Set room temperatures
  - DHW temperature
  - Operating program
  - Time programs for central heating, DHW heating and DHW circulation pump
  - Economy mode
  - Party mode
  - Holiday program
  - Heating curves
  - Codes
  - Actuator tests
- Advertisements
  - Boiler water temperature
  - DHW temperature
  - Operating data
  - Diagnostic details
  - Maintenance and 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 boiler water temperature (= system flow temperature) and flow temperature.
- Electronic maximum and minimum limitation of the flow temperature in heating circuits with mixer.
- Demand-dependent heating circuit pump and burner shutdown (not for burners in boilers with a lower boiler water temperature limit).
- Adjustment of a variable heating limit.
- Pump anti-seizing protection.
- Integral diagnostic system.
- Flue gas temperature monitoring in connection with flue gas temperature sensor.
- Maintenance display.
- 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 solar DHW heating and central heating backup plus graphic illustration of the solar yield in conjunction with the solar control module, type SM1.
- Control of a cylinder loading system with mixer assembly (only as an alternative to control of a constant return temperature raising facility with regulated 3-way mixing valve).
- External fault message facility can be connected.
- Screed drying program for the heating circuits with mixer.
- With boiler protection functions subject to boiler version:
  - ThermControl start-up system
  - Shunt pump control
  - Control of a constant return temperature raising facility with regulated 3-way mixing valve (only as an alternative to the control of a cylinder loading system with mixer assembly)
- Functions via external contacts:
  - External operating program changeover/External mixer open
  - External blocking/External mixer closed
  - External demand with set minimum boiler water temperature
  - External changeover of stepped/modulating burners
- Additional functions via extension EA1 (accessories):
  - External demand through default set boiler water temperature via 0 to 10 V input
  - Switching a feed pump to a substation
    or
    Signalling of reduced mode (reduction of the heating circuit pump speed) via a potential-free output
  - 3 digital inputs for the following functions:
    External operating program changeover, separate for heating circuits 1 to 3
    External blocking with fault message input
    Fault message input
    Brief operation of the DHW circulation pump
- Additional functions via extension AM1 (accessories):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for flue gas/water heat exchanger
    Circulation pump for neutralising system
    Heating circuit pump

The requirements of EN 12831 for calculating the heat load are met. To reduce the heat-up load, the reduced room temperature will be raised in the 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, for example by thermostatic valves.

Control characteristics

- P-characteristics with two-point output when using a burner with multiple stages
  PI characteristics with three-point output when using a modulating burner
- Temperature controller for limiting the boiler water temperature: 95 °C, adjustable to 100, 110 °C
- Adjusting the high limit safety cut-out: 110 °C, adjustable to 100 °C
- Setting range for heating curves:
  - Slope: 0.2 to 3.5
  - Level: −13 to 40 K
  - Maximum limit of the flow temperature: 10 to 127 °C
  - Minimum limit of the flow temperature: 1 to 127 °C
- Differential temperature for heating circuits with mixer: 0 to 40 K
- Setting range of the set DHW temperature: 10 to 60 °C, adjustable between 10 and 95 °C

Boiler coding card

For matching to the boiler (supplied with the boiler).

Time switch

Digital time switch (integrated into the programming unit)

- Individual day and seven-day program, annual calendar
- Automatic summer/wintertime changeover
- Automatic function for DHW heating and DHW circulation pump
- The default settings for time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are set at factory
- Switching times are individually programmable, i.e. up to four time phases per day

5822 449 GB

Shortest switching interval: 10 min
Power reserve: 14 days

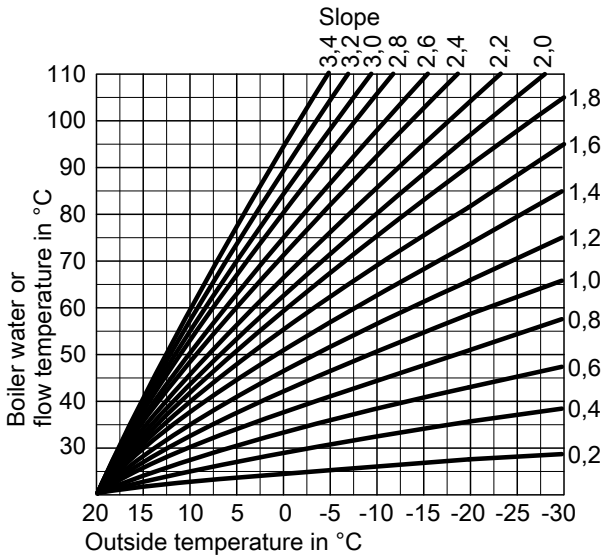
Setting the operating programs
Frost protection monitoring (see frost protection function) for the heating system is enabled in all operating programs.
The following operating programs can be selected:
- Heating and DHW
- Only DHW
- Standby mode

External operating program changeover possible, for all heating circuits together or separately.

Frost protection function
- The frost protection function is switched on if the outside temperature drops below approx. +1 °C, i.e. the heating circuit pump is switched on and the boiler water is maintained at a lower temperature (see chapter "Operating conditions with Vitotronic boiler control units").
- "Standby mode":
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C. This means that the heating circuit pump and burner are switched off.
- "Heating and DHW"
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C. This means the heating circuit pump is switched off and the lower boiler water temperature for the relevant boiler is maintained if required (see chapter "Operating conditions with Vitotronic boiler control units").

Summer mode
("DHW only")
The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).
The respective lower boiler water temperature of each boiler is maintained if required.

Heating curve setting (slope and level)
The Vitotronic controls the boiler water temperature (= system flow temperature) and the flow temperature of the heating circuits with mixer in weather-compensated mode. The boiler water temperature is automatically regulated to between 0 and 40 K above the highest 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 curve matches the boiler water temperature and the flow temperature to these operating conditions.
The upper boiler water temperature is limited by the temperature controller and the electronic maximum limiter.



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 x 6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529 Ensure through design/ installation
Mode of operation	Type 1B to EN 60 730-1
Permissible ambient temperature	
– During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	−20 to +65 °C
Rated relay output breaking capacity	
[20] Heating circuit pump or Primary pump, cylinder loading system or Circulation pump, flue gas/water heat exchanger or Switching output	4(2) A, 230 V~
[21] Circulation pump for cylinder heating	4(2) A, 230 V~
[28] DHW circulation pump	4(2) A, 230 V~
[29] Shunt pump/boiler circuit pump	4(2) A, 230 V~
[50] Central fault message	4(2) A, 230 V~
[52] Mixer motor, extension kit, mixer Motor, 3-way mixing valve, constant return temperature raising or Motor, 3-way mixing valve, cylinder loading system	0.2 (0.1) A, 230 V~
Total	Max. 6 A, 230 V~
[41] Burner	6(3) A, 230 V~
[90] Burner, 2-stage	1 (0.5) A, 230 V~
[90] Burner, modulating	0.2 (0.1) A, 230 V~

Delivered condition

- Control with integral programming unit
- Outside temperature sensor
- Boiler water temperature sensor
- Cylinder temperature sensor
- Bag with technical documentation

Heating system with DHW cylinder
Order separately:
- Circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly

Heating system with heating circuit with mixer
A mixer extension kit (accessories) is required for each heating circuit with mixer.

Communication
The LON communication module (accessories) is required for communication with other control units.

9.7 Vitotronic 300, type GW4B, part no. 7441 813

Specification

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
- Fuses
- Operating and fault display
- Plug connection chamber:
  - Connection of external equipment via system plug
  - Connection of three-phase consumers via additional contactors
- Temperature controller/high limit safety cut-out, integrated into the burner control unit:
  EN 14597 and EN 60730-2-5

programming unit
- Straight forward operation:
  - Plain text display with graphic ability
  - Large font and black/white depiction for good contrast
  - Context-sensitive help
- Operating keys:
  - Navigation
  - Confirmation
  - Help and additional information
  - Menu
- Settings:
  - Set room temperatures
  - DHW temperature
  - Operating program
  - Time programs for central heating, DHW heating and DHW circulation pump
  - Economy mode
  - Party mode
  - Holiday program
  - Heating curves
  - Codes
  - Actuator tests
- Indicators:
  - Boiler water temperature
  - DHW temperature
  - Operating data
  - Diagnostic details
  - Maintenance and 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 boiler water temperature (= system flow temperature) and flow temperature.
- Electronic maximum and minimum limitation of the flow temperature in heating circuits with mixer.
- Demand-dependent heating circuit pump and burner shutdown.
- Setting of a variable heating limit.
- Pump anti-seizing protection.
- Integral diagnostic system.
- Flue gas temperature monitoring in conjunction with flue gas temperature sensor, integrated into the burner control unit.
- Maintenance display.
- 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 solar DHW heating and central heating backup plus graphic illustration of the solar yield in conjunction with the solar control module type SM1.
- Control of a cylinder loading system with mixer assembly.
- External fault message facility can be connected.
- Screed drying program for the heating circuits with mixer.

5822 449 GB

- Functions via external contacts:
  - External operating program changeover/External mixer open
  - External blocking/External mixer closed
  - External demand with set minimum boiler water temperature
  - External burner blocking
- Additional functions by means of the EA1 extension (accessories):
  - External demand through default set boiler water temperature via 0 to 10 V input
  - Switching a feed pump to a substation
    or
    Signalling of reduced mode (reduction of the heating circuit pump speed) via a potential-free output
  - 3 digital inputs for the following functions:
    External operating program changeover, separate for heating circuits 1 to 3
    External blocking with fault message input
    Fault message input
    Brief operation of the DHW circulation pump
- Additional functions via AM1 extension (accessories, part no. 7452 092):
  - Control of up to two circulation pumps, if output [20] is already assigned at the control unit:
    Circulation pump for neutralising system
    Heating circuit pump

The requirements of EN 12831 for calculating the heat load are met. To reduce the heat-up load, the reduced room temperature will be raised in the 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 [German] Energy Saving Ordinance, the temperature in each room must be individually controlled, e.g. by means of thermostatic valves.

Control characteristics
- PI characteristics with three-point output when using a modulating burner
- Setting range for heating curves:
  - Slope: 0.2 to 3.5
  - Level: −13 to 40 K
  - Maximum limit of the flow temperature: 10 to 127 °C
  - Minimum limit of the flow temperature: 1 to 127 °C
- Differential temperature for a heating circuit with mixer: 0 to 40 K
- Setting range of the set DHW temperature:
  10 to 60 °C, adjustable to 10 to 95 °C

Boiler coding card
For matching to the boiler (supplied with the boiler).

Time switch
Digital time switch (integrated into the programming unit)
- Individual day and seven-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 time phases per day

Shortest switching interval: 10 min
Power reserve: 14 days

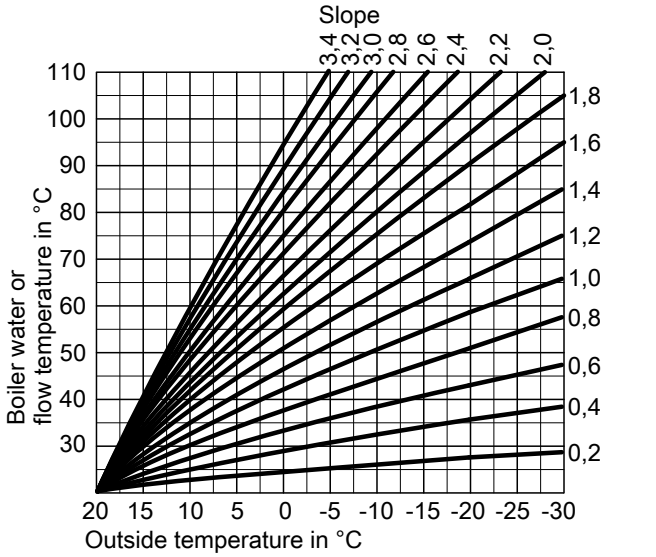
Setting the operating programs
Frost protection monitoring (see frost protection function) for the heating system is enabled in all operating programs.
The following operating programs can be selected:
- Heating and DHW
- Only DHW
- Standby mode

External operating program changeover possible, for all heating circuits together or separately.

Frost protection function
- The frost protection function is switched on if the outside temperature falls below approx. +1 °C, i.e. the heating circuit pump is switched on and the boiler water is maintained at a lower temperature (see chapter "Operating conditions with Vitotronic boiler control units").
- "Standby mode":
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C, i.e. the heating circuit pump and burner are switched off.
- "Heating and DHW"
  The frost protection function is switched off if the outside temperature rises above approx. +3 °C. This means the heating circuit pump is switched off and the lower boiler water temperature for the relevant boiler is maintained if required (see chapter "Operating conditions with Vitotronic boiler control units").

Summer mode
("DHW only")
The burner starts only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).
The respective lower boiler water temperature of each boiler is maintained if required.

Heating curve setting (slope and level)
The Vitotronic controls the boiler water temperature (= system flow temperature) and the flow temperature of the heating circuits with mixer in weather-compensated mode. The boiler water temperature is automatically regulated to between 0 and 40 K above the highest 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 curve matches the boiler water temperature and the flow temperature to these operating conditions.
The upper boiler water temperature is limited by the temperature controller and the electronic maximum limiter.



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 x 6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529 Ensure through design/ installation
Mode of operation	Type 1B to EN 60730-1

Control units (cont.)

Permissible ambient temperature		
– during operation		0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transportation		−20 to +65 °C
Rated relay output breaking capacity		
20	Heating circuit pump or Primary pump, cylinder loading system or Circulation pump, flue gas/water heat exchanger or Switching output	4(2) A, 230 V~
21	Circulation pump for cylinder heating	4(2) A, 230 V~
28	DHW circulation pump	4(2) A, 230 V~
29	Shunt pump/boiler circuit pump	4(2) A, 230 V~
50	Central fault message facility	4(2) A, 230 V~
52	Mixer motor, extension kit, mixer Motor, 3-way mixing valve, cylinder loading system	0.2 (0.1) A, 230 V~
Total		max. 6 A, 230 V~
41	Burner	6(3) A, 230 V~

Delivered condition

- Control with integral programming unit
- Outside temperature sensor
- Cylinder temperature sensor
- Bag with technical documentation

Heating system with DHW cylinder
Order separately:
- Circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly

Heating system with heating circuit with mixer
A mixer extension kit (accessories) is required for each heating circuit with mixer.

Communication
The LON communication module (accessories) is required for communication with other control units.

9.8 Vitotronic 300-K, type MW1B, part no. 7498 906

Specification

Construction
The control unit comprises a standard unit, electronic modules and a programming unit.

Standard unit:
- ON/OFF switch
- Emissions test switch
- Optolink laptop interface
- Fuse/MCB
- Operating and fault display
- Plug connection chamber:
  - Connection of external equipment via system plug
  - Connection of three-phase consumers via additional contactors

Programming unit
- Straight forward operation:
  - Plain text display with graphic ability
  - Large font and black/white depiction for good contrast
  - Context-sensitive help
- Operating keys:
  - Navigation
  - Confirmation
  - Help and additional information
  - Extended menu
- Settings:
  - Boiler sequence
  - Set room temperatures
  - DHW temperature
  - Operating program
  - Time programs for central heating, DHW heating and DHW circulation pump
  - Economy mode
  - Party mode
  - Holiday program
  - Heating curves
  - Codes
  - Actuator tests

Control units (cont.)

- Indicators:
  - Common flow temperature
  - DHW temperature
  - 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 cascade control of the system flow temperature in a multi boiler system with up to four boilers with Vitotronic 100, type GC1B or GC4B (modulating), and the flow temperature of two heating circuits with mixer.
- The boilers are controlled by the Vitotronic 100, type GC1B or GC4B, according to a freely selectable boiler sequence strategy.
- Electronic maximum and minimum limitation of the flow temperature in heating circuits with mixer.
- Demand-dependent heating circuit pump shutdown.
- Adjustment of a variable heating limit.
- Pump anti-seizing protection.
- 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 solar DHW heating and central heating backup plus graphic illustration of the solar yield in conjunction with the solar control module, type SM1.
- Control of a cylinder loading system with mixer assembly (only as an alternative to control of a constant return temperature raising facility with regulated 3-way mixing valve).
- External fault message facility can be connected.
- Screed drying program for the heating circuits with mixer.
- With boiler protection functions subject to system version:
  - Distribution pump control
    or
  - Shunt pump control
    or
  - Control of a constant return temperature raising facility with regulated 3-way mixing valve (only as an alternative to the control of a cylinder loading system with mixer assembly)
- Functions via external contacts:
  - External operating program changeover/External mixer open
  - External blocking/External mixer closed
  - External demand with minimum set flow temperature
- Additional functions via extension EA1 (accessories):
  - External demand by setting a default flow temperature via 0 to 10 V input
  - Switching a feed pump to a substation
    or
    Signalling reduced mode (reduction of the heating circuit pump speed) via a potential-free output
  - 3 digital inputs for the following functions:
    External operating program changeover, separate for heating circuits 1 to 3
    External blocking with fault message input
    Fault message input
    Brief operation of the DHW circulation pump

The requirements of EN 12831 for calculating the heat load are met. To reduce the heat-up load, the reduced room temperature will be raised in the 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, for example by thermostatic valves.

Control characteristics

- P characteristics with three-point output
- Setting range for heating curves:
  - Slope: 0.2 to 3.5
  - Level: −13 to 40 K
  - Maximum limit of the flow temperature: 10 to 127 °C
  - Minimum limit of the flow temperature: 1 to 127 °C
- Differential temperature for a heating circuit with mixer: 0 to 40 K
- Setting range of the set DHW temperature:
  10 to 60 °C, adjustable between 10 and 95 °C

Time switch

Digital time switch (integrated into the programming unit)

- Individual day and seven-day program, annual calendar
- Automatic summer/wintertime changeover
- Automatic function for DHW heating and DHW circulation pump
- The default settings for time, day and standard switching times for central heating, DHW heating and the DHW circulation pump are set at factory
- Switching times are individually programmable, i.e. up to four time phases 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.
The following operating programs can be selected:

- Heating and DHW
- Only DHW
- Standby mode

External operating program changeover possible, for all heating circuits together or separately.

Frost protection function

- The frost protection function is switched on if the outside temperature drops below approx. +1 °C. This means that the heating circuit pumps are started and the flow temperature is maintained at a minimum temperature of 10 °C.
- The frost protection function is switched off if the outside temperature rises above approx. +3 °C, i.e. the heating circuit pumps stop.

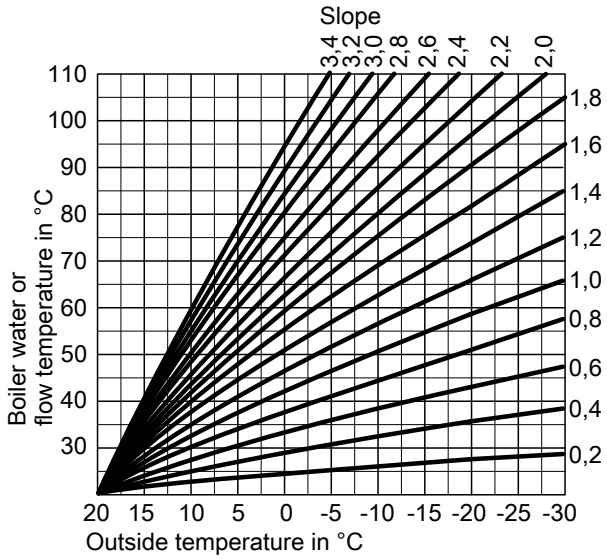
Summer mode

("DHW only")

Control units (cont.)

The burners start only when the DHW cylinder needs reheating (controlled by the cylinder temperature controller).
The respective lower boiler water temperature of each boiler is maintained if required.

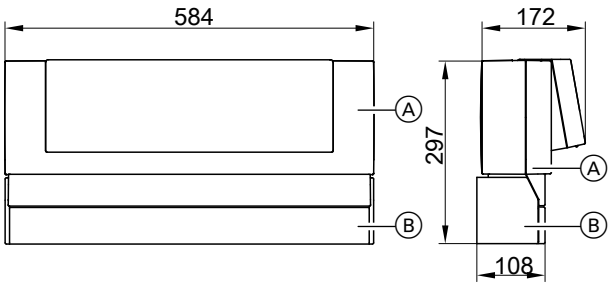
Heating curve setting (slope and level)
The Vitotronic regulates the system flow temperature and the flow temperature of the heating circuits with mixer in weather-compensated mode. For this, the system flow temperature is automatically regulated to between 0 and 40 K (delivered condition 8 K) above the highest currently required set flow temperature of the heating circuits with mixer.
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 flow temperature of the heating circuits with mixer to these operating conditions.
The upper flow temperature of the heating circuits with mixer is limited by the temperature controller and the electronic maximum boiler water temperature limiter of the Vitotronic 100, type GC1B.



Specification

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
Mode of operation	Type 1B to EN 60 730-1
Permissible ambient temperature	
– During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	−20 to +65 °C
Rated relay output breaking capacity	
20 Heating circuit pump or Primary pump, cylinder loading system	4(2) A, 230 V~
21 Circulation pump for cylinder heating	4(2) A, 230 V~
28 DHW circulation pump	4(2) A, 230 V~
29 Shunt pump/distribution pump	4(2) A, 230 V~
50 Central fault message	4(2) A, 230 V~
52 Mixer motor, extension kit, mixer or Motor, 3-way mixing valve, constant return temperature raising or Motor, 3-way mixing valve, cylinder loading system	0.2 (0.1) A, 230 V~
Total	Max. 6 A, 230 V~

Dimensions



Ⓐ Vitotronic 300-K
Ⓑ Mounting bracket

Delivered condition

- Control with integral programming unit
- LON communication module with 2 terminators
- Outside temperature sensor
- Flow temperature sensor
- Cylinder temperature sensor
- Mounting bracket
- Bag with technical documentation

The control unit is delivered with one of the boilers of the multi boiler system (see pricelist) and is fitted with the mounting bracket either to the wall or the side of the boiler.

Heating system with DHW cylinder

Order separately:
- Circulation pump with check valve for regulating the cylinder temperature
  or
- Vitotrans 222 cylinder loading system with mixer assembly

Heating system with heating circuit with mixer
A mixer extension kit (accessories) is required for each heating circuit with mixer.

9.9 Control unit accessories

Allocation of accessories according to control unit type

	Single boiler system					Multi boiler system		
Vitotronic	**100**		**200**	**300**		**100**		**300-K**
Type	**GC1B**	**GC4B**	**GW1B**	**GW2B**	**GW4B**	**GC1B**	**GC4B**	**MW1B**
Accessories								
Vitotrol 200A			x	x	x			x
Vitotrol 300A			x	x	x			x
Vitotrol 200 RF			x	x	x			x
Vitotrol 300 RF			x	x	x			x
Wireless base station			x	x	x			x
Wireless outside temperature sensor			x	x	x			x
Wireless repeater			x	x	x			x
Room temperature sensor				x	x			x
Contact temperature sensor	x	x	x	x	x	x	x	x
Immersion temperature sensor	x	x	x	x	x	x	x	x
Sensor well	x	x	x	x	x	x	x	x
Cylinder temperature sensor (immersion temperature sensor)	x	x						
Flue gas temperature sensor	x	x	x	x	x	x	x	
Mixer extension kit				x	x			x
Mixer motor				x	x			x
Immersion thermostat				x	x			x
Contact thermostat				x	x			x
Radio clock receiver			x	x	x			x
Plug-in adaptor for external safety equipment	x	x	x	x	x	x	x	
Contactor relay	x	x	x	x	x	x	x	x
Mating plugs [41] and [90]	x	x	x	x	x	x	x	
Mounting kit for installation in control panel								x
Solar control module, type SM1	x	x	x	x	x			x
EA1 extension	x	x	x	x	x			x
Vitocom 100, type LAN1, in conjunction with Vitodata 100 and Vitotrol app			x	x	x			
Vitocom 100, type LAN1, in conjunction with Vitodata 100								x
Vitocom 100, type GSM2	x	x	x	x	x			
Vitocom 200, type LAN2	x	x	x	x	x			
Vitocom 300, type LAN3	x	x	x	x	x			x
LON cable	x	x	x	x	x	x	x	x
LON plug	x	x	x	x	x	x	x	x
LON plug-in connector	x	x	x	x	x	x	x	x
LON socket	x	x	x	x	x	x	x	x
Terminator	x	x	x	x	x	x	x	x
LON communication module	x	x	x	x	x	x	x	x

Information regarding Vitotrol 200A and 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 three remote controls can 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

- Indications:
  - Room temperature
  - Outside temperature
  - Operating condition
- Settings:
  - Set room temperature for standard mode (day temperature)

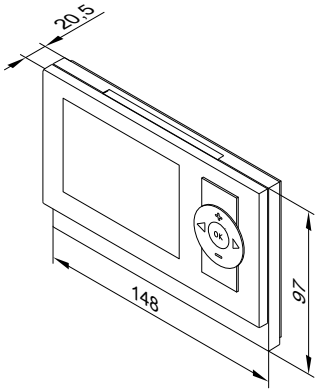
Note
The set room temperature for reduced mode (night temperature) is set at the control unit.

– 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 corrects the flow temperature if necessary.

  The captured room temperature is dependent on the installation site:
  – Main living room on an internal wall opposite radiators.
  – Not on shelves or in recesses.
  – Never install immediately by a door or heat source (e.g. direct sunlight, fireplace, TV set, etc.).

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



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	
– during operation	0 to +40 °C
– during storage and transportation	−20 to +65 °C
Setting range of the set room temperature for standard mode	3 to 37 °C

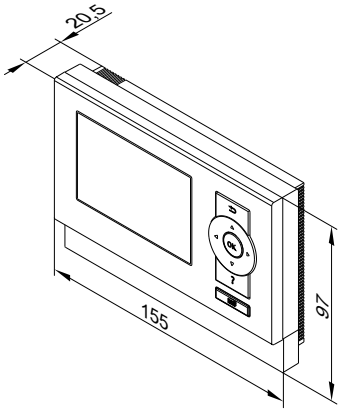
Vitotrol 300A

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 (day temperature) and reduced mode (night temperature)
  – Set DHW temperature
  – Operating program, switching times for heating circuits, DHW heating and DHW circulation pump plus further settings via plain text menu on the display
- Party and economy mode can be enabled via the menu
- Integral room temperature sensor for room temperature hook-up (only for one heating circuit with mixer)

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

  The recorded 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 cable immediately next to 230/400 V cables.
- LV plug included in 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	
– During operation	0 to +40 °C
– During storage and transport	−20 to +65 °C
Setting range for set room temperature	3 to 37 °C

Information regarding the Vitotrol 200 RF and Vitotrol 300 RF

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

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

Note
*The wireless remote controls **cannot** be combined with wired remote controls.*

Vitotrol 200 RF

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

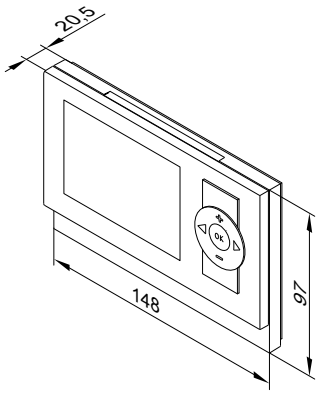
    Note
    The set room temperature for reduced mode (night temperature) is set at the control unit.

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

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

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

Note
Observe the "Wireless accessories" technical guide.



Specification

Power supply via 2 AA batteries 3 V	
Radio frequency	868.3 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	
– During operation	0 to +40 °C
– During storage and transport	−20 to +65 °C
Setting range of the set room temperature for standard mode	3 to 37 °C

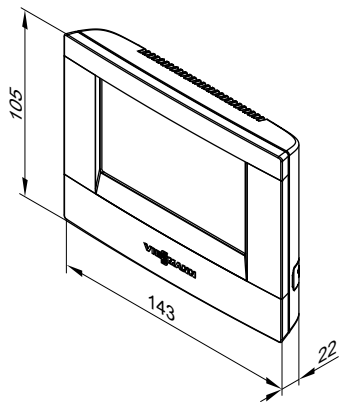
Vitotrol 300 RF with table-top dock

Part no. Z011 410
Wireless subscriber.
- Displays:
  - Room temperature
  - Outside temperature
  - Operating condition
  - Graphic illustration of solar yield in conjunction with the solar control module, type SM1
  - Wireless signal reception quality
- Settings:
  - Set room temperature for standard mode (day temperature) and reduced mode (night 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
- Two rechargeable NiMH batteries for operating outside the table-top dock

Control units (cont.)



Vitotrol 300 RF

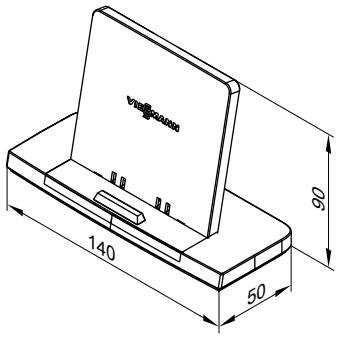


Table-top dock

Specification

Power supply via plug-in power supply unit 230 V~/5 V⎓	
Power consumption	2.4 W
Radio frequency	868.3 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	
– During operation	0 to +40 °C
– During 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.

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

Installation location:

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

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

Note

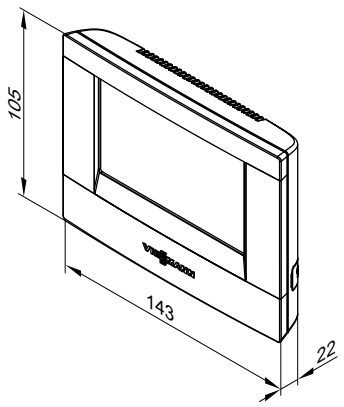
Observe the "Wireless accessories" technical guide.

Standard delivery:

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

5822 449 GB

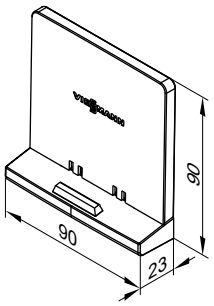
Control units (cont.)



Vitotrol 300 RF

Specification

Power supply via power supply unit 230 V~/4 V for fitting into a plaster box	
Power consumption	2.4 W
Radio frequency	868.3 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	
– During operation	0 to +40 °C
– During storage and transport	−25 to +60 °C
Setting range of the room temperature	3 to 37 °C



Wall mounting bracket

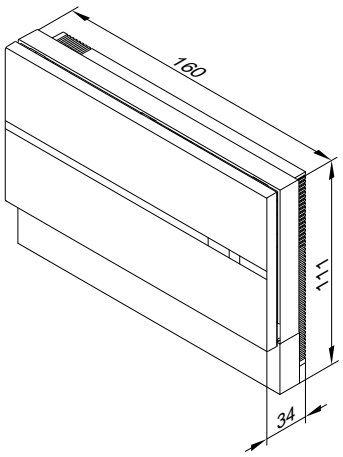
Wireless base station

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

For up to 3 wireless remote control units. 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.



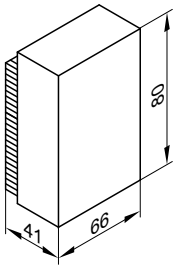
Specification

Power supply via KM BUS	
Power consumption	1 W
Radio frequency	868.3 MHz
Safety category	III
IP rating	IP 20 to EN 60529 Ensure through design/installation
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transportation	−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 location:
- North or north-western wall of the building
- 2 to 2.5 m above the ground, for multi storey buildings in the upper half of the second floor

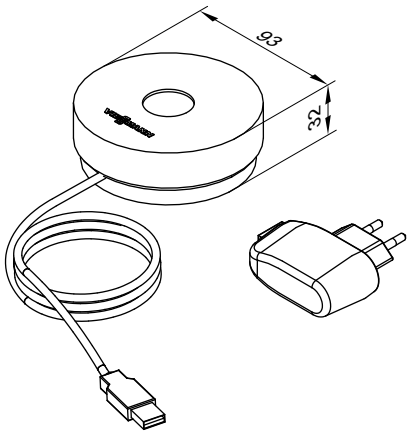


Specification

Power supply via PV cells and energy store	
Radio frequency	868.3 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 repeater to increase the wireless range and for use in areas where wireless communication is difficult. Observe the "Wireless accessories" technical guide.
No more than one wireless repeater per Vitotronic control unit.
- For preventing over-diagonal angle of penetration of the radio signals through steel reinforced concrete ceilings/floors and/or multiple walls.
- For circumventing large metallic objects situated between the wireless components.

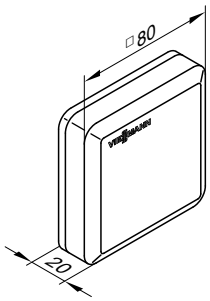


Specification

Power supply	via plug-in power supply unit 230 V~/5 V−
Power consumption	0.25 W
Radio frequency	868.3 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	
– During operation	0 to +55 °C
– During 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

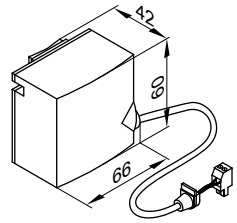


Specification

Safety category	III
IP rating	IP 30 acc. to EN 60529 Ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– during operation	0 to +40 °C
– during storage and transportation	−20 to +65 °C

Contact temperature sensor

Part no. 7426 463
To capture the temperature on a pipe.



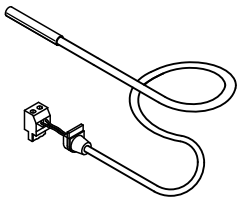
Secured with a tie.

Specification

Lead length	5.8 m, fully wired
IP rating	IP 32D to EN 60529 Ensure through design/installation
Sensor type	Viessmann NTC 10 kΩ at 25 °C
Permissible ambient temperature	
– During operation	0 to +120 °C
– During storage and transport	–20 to +70 °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	
– During operation	0 to +90 °C
– During storage and transport	−20 to +70 °C

Sensor well

Part no. 7816 035
G½ x 100 mm.

With retaining clip.

Sensor well

Part no. 7817 326
G½ x 150 mm.

With retaining clip.

Sensor well

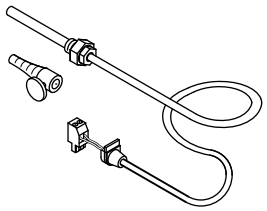
For part no., see pricelist
For cylinder temperature sensor; with Viessmann DHW cylinders part of the standard delivery.

Flue gas temperature sensor

Part no. 7452 531
For flue gas temperature scanning, flue gas temperature monitoring and service display, if the set temperature has been exceeded. With threaded cone.

Installation on the flue pipe. The distance from the boiler must be approx. 1.5 times the flue pipe diameter, measured from the boiler back edge to the chimney.

- Condensing boilers with Viessmann balanced flue system:
  Order the balanced flue pipe with connector for the flue gas temperature sensor separately.
- For condensing boilers with on-site flue pipe:
  The aperture required for the flue pipe installation must be designed and approved on site. Install the flue gas temperature sensor into a stainless steel sensor well (on-site).



Specification

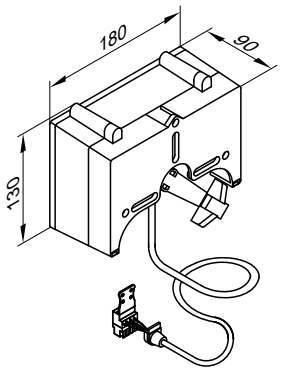
Cable length	3.5 m, fully wired
IP rating	IP 60 to EN 60529; ensure through design/installation
Sensor type	Viessmann NTC 20 kΩ, at 25 °C
Permissible ambient temperature	
– During operation	0 to +250 °C
– During storage and transport	−20 to +70 °C

Mixer extension kit

Part no. 7441 998

Components:
- Mixer motor with connecting cable (4.0 m long) for Viessmann mixer DN 20 to 50 and R ½ to 1¼ (not for flanged mixers) and plug
- Flow temperature sensor as contact temperature sensor with connecting cable (5.8 m long) and plug
- Plug for heating circuit pump

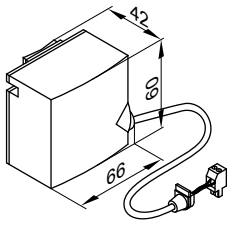
Mixer motor



Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	4 W
Safety category	II
IP rating	IP 42 to EN 60529, ensure through design/installation
Permissible ambient temperature	
– During operation	0 to +40 °C
– During 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	
– During operation	0 to +120 °C
– During storage and transport	–20 to +70 °C

Mixer motor for flanged mixers

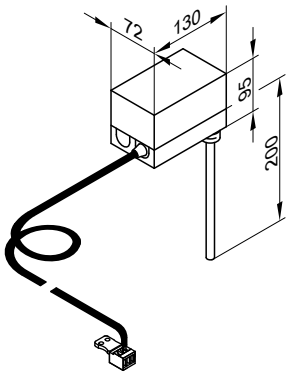
- **Part no. 9522 487**
  DN 40 and 50, without system plug and connecting cable
- **Part no. Z004344**
  DN 65 to 100, without system plug and connecting cable

For specification, see the "Mixer and mixer motors" datasheet.

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.

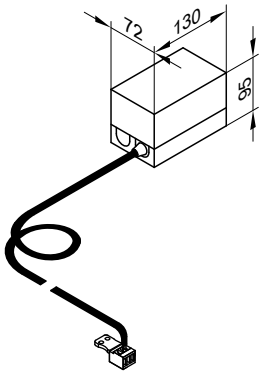


Specification

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.

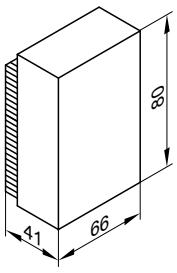


Specification

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

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.



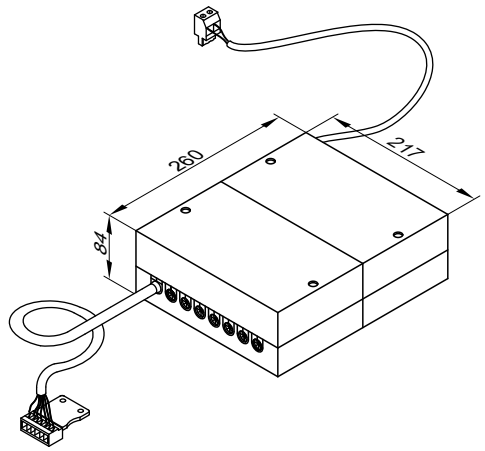
Plug-in adaptor for external safety equipment

Part no. 7164 404
KM BUS subscriber
With cables/leads (3.0 m long) and plugs [145] and [150].

Up to 4 additional pieces of safety equipment may be connected, for example:
- Low water indicator
- Minimum pressure limiter
- Maximum pressure limiter
- Additional high limit safety cut-out

The plug-in adaptor enables the fault (plain text) to be displayed in the relevant control unit.
Two plug-in adaptors can be linked together via the KM BUS and connected to the control unit. This makes it possible to connect 7 additional safety features.

Control units (cont.)



Specification

IP rating	IP 20D to EN 60529; ensure through design/installation
Permissible ambient temperature	
– During operation	0 to +40 °C
– During storage and transport	−20 to +65 °C

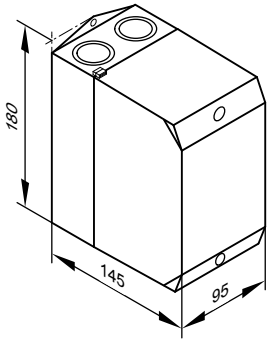
9

Contactor relay

Part no. 7814 681
Contactor in small casing.
With 4 N/C and 4 N/O contacts.
With terminal strip for earth conductors.

Specification

Coil voltage	230 V~/50 Hz
Rated current (I_{th})	AC1 16 A
	AC3 9 A

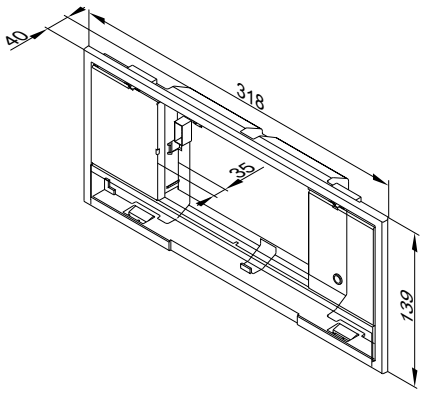


Mating plugs 41 and 90

Part no. 7408 790
Required for an on-site burner without mating plug.

Mounting kit for control panel fitting

Part no. 7452 236
To install the programming unit section of the control unit in the front door of the control panel (if the control unit is to be installed in a control panel).
A cut-out inside the front door of the control panel measuring 305 x 129 mm is required for its installation.



Components:
- Mounting frame
- Dummy cover for installation in the control unit

- Connecting cable (5.0 m long)
- Elbow plug for connecting cable

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 two consumers via a collector array.
- Second temperature differential controller.
- Thermostat function for reheating or utilising excess heat.
- Solar circuit pump speed control via pulse pack control or solar circuit pump with PWM input (Grundfos).
- Suppression of DHW cylinder reheating by the heat source, 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 litre capacity).

Order immersion temperature sensor, part no. 7438 702, if the following functions are required:
- For DHW circulation diversion in systems with 2 DHW cylinders.
- For return changeover between the heat generator and the heating water buffer cylinder.
- For heating additional consumers.

Construction

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

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

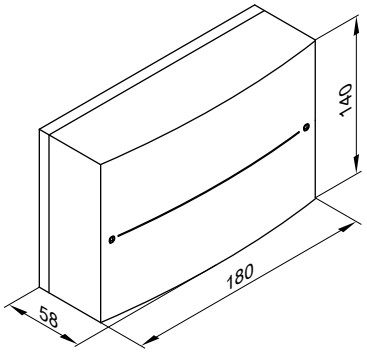
Cable length	2.5 m
IP rating	IP 32 to EN 60529, ensure through design/installation
Sensor type	Viessmann NTC 20 kΩ, at 25 °C
Permissible ambient temperature	
– During operation	−20 to +200 °C
– During storage and transport	−20 to +70 °C

Cylinder temperature sensor
For connection inside the appliance.
On-site extension of the connecting lead:
- 2-core lead, length max. 60 m with a cross-section of 1.5 mm^2 (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	
– During operation	0 to +90 °C
– During storage and transport	−20 to +70 °C

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

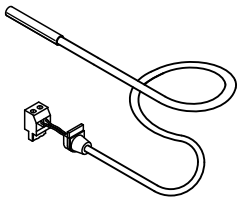
Specification



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	
– During operation	0 to +40 °C use in the living space or boiler room (standard ambient conditions)
– During 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

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	
– During operation	0 to +90 °C
– During storage and transport	−20 to +70 °C

EA1 extension

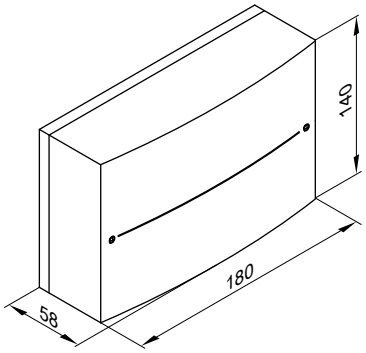
Part no. 7452 091
Function extension inside enclosure for wall mounting.

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

1 switching output (floating changeover contact)
- Switching a feed pump to a substation
- Signalling reduced mode for a heating circuit

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

3 digital inputs
- External operating mode changeover for 1 to 3 heating circuits (only with control units for weather-compensated mode)
- External blocking with central fault message
- Fault messages
- Brief operation of the DHW circulation pump (only with control units for weather-compensated mode)



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	
– During operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	–20 to +65 °C

Vitocom 100, type LAN1

For part no., see the current pricelist
For remote control of a heating system via internet and IP networks (LAN) with DSL router.
Storage combi boiler.
For system operation with **Vitotrol app** or **Vitodata 100**.

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

The Vitotrol app supports the following terminal devices:
- Terminal devices with Apple iOS operating system version 5.0 and 6.0.
- Terminal devices with Google Android operating system V. 4.0 and higher.

Note
*For further 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 using the email client function.
  – Forwarding messages via SMS to mobile phone/smartphone or fax (via chargeable internet service Vitodata 100 fault management).
- **Telecontrol**:
  Selecting operating programs, set values, time programs and heating curves.

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

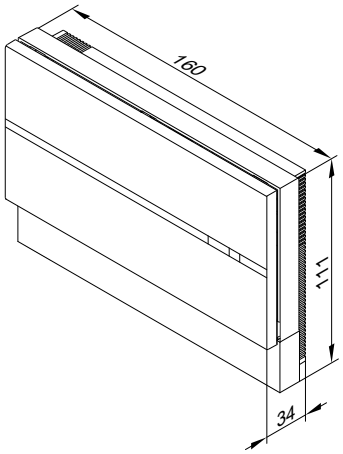
Configuration:
Configuration takes place automatically.
If the DHCP service is enabled, no further adjustments on the DSL router are required.

Standard delivery:
- Vitocom 100, type LAN1 with LAN socket.
- With or without LON communication module for fitting into the Vitotronic control unit.
- Connecting cables for LAN and communication module.
- Power cable with plug-in power supply unit.
- Vitodata 100 fault management for 3 years.

On-site requirements:
- The 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 limits).
- DSL router with dynamic IP address (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	
– During operation	0 to +55 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	–20 to +85 °C

Vitocom 100, type GSM2

For part no., see the 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.
Storage combi boiler.

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

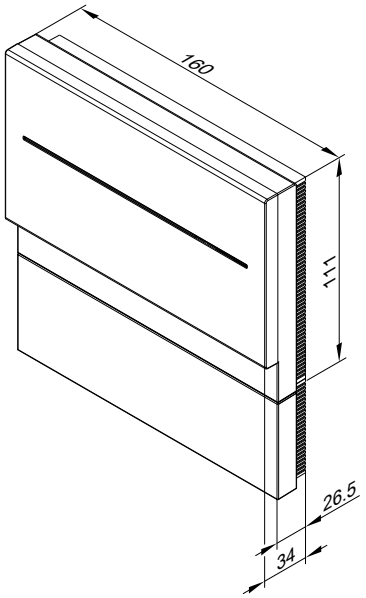
Note
*For further information, see **www.vitocom.info**.*

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	
– During operation	0 to +50 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During storage and transport	–20 to +85 °C
On-site connection	Digital input: Floating contact

Vitocom 200, type LAN2

For part no., see the current pricelist

- **Type LAN2**
  For remote monitoring, telecontrol and remote setting of all heating circuits in a heating system via IP networks (LAN)
  As internet data transfer establishes a permanent connection ("always online"), access to the heating system is particularly fast.

Storage combi boiler.
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.
- Selecting operating programs, set values and time programs.
- Calling up of system information.
- Displaying messages on the Vitotrol app user interface.

The Vitotrol app supports the following terminal devices:
- Terminal devices with Apple iOS operating system version 5.0 and 6.0.
- Terminal devices with Google Android operating system V. 4.0 and higher.

Note
*For further 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 using the email client function.
  – Forwarding messages via SMS to mobile phone/smartphone or fax (via chargeable internet service Vitodata 100 fault management).
  – Monitoring additional appliances via the inputs and output of the Vitocom 200.
- **Telecontrol**:
  Selecting operating programs, set values, time programs and heating curves.

Note
- *Telecommunication costs for data transfer are not included in the price of the device.*
- *For further 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 phones/smartphones, by email to terminal devices with email client function or by fax to fax machines.
  – Monitoring additional appliances via the inputs and output of the Vitocom 200.
- **Telecontrol**:
  Selecting operating programs, set values, time programs and heating curves.
- **Remote setup**:
  – Configuring the Vitocom 200 parameters.
  – Remote setup of Vitotronic control parameters via coding addresses.

Note
- *In addition to the telecom charges for the actual data transfer, user fees for the Vitodata 300 must be taken into account.*
- *For further information, see **www.vitodata.info**.*

Configuration

Type LAN2
- With dynamic IP addressing (DHCP) the Vitocom 200 is configured automatically. The DSL router requires no further settings.
  Observe the network settings of the DSL router.
- The inputs of the Vitocom 200 are configured at the Vitodata 100 or Vitodata 300 user interface.
- The Vitocom 200 is connected to the Vitotronic control unit via LON.
  For the LON, the Vitocom 200 requires no configuration.

5822 449 GB

Control units (cont.)

On-site requirements:

Type LAN2
- DSL router with available LAN socket and dynamic IP address (DHCP).
- Internet connection with flat rate data (**without** time or volume limits).
- LON communication module must be installed in the Vitotronic unit.

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

Standard delivery:

Type LAN2
- Vitocom 200, type LAN2 with LAN socket.
- With or without LON communication module for fitting into 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 3 years.

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

Accessories:

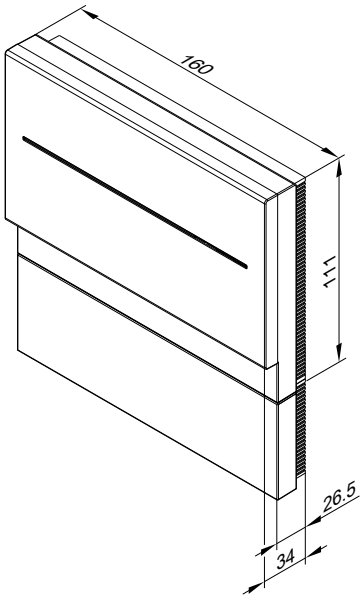
EM201 extension module

Part no.: Z012 116
- 1 relay output for switching external appliances (contact breaking capacity 230 V~, max. 2 A).
- No more than 1 extension module EM201 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	
– During operation	0 to +50 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– During 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, type LAN3

For part no., see the current pricelist

- **Type LAN3**
  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 of messages by email to end devices with email client functionality.
  - 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**:
  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 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**:
  - Adjusting 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

Type LAN3
- In the case of dynamic IP addressing (DHCP), the IP configuration of the Vitocom 300 occurs automatically. The DSL router requires no separate settings.
- 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. For the LON, the Vitocom 300 requires no configuration.

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:

Type LAN3
- 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 unit.

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.
- Including or excluding 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.

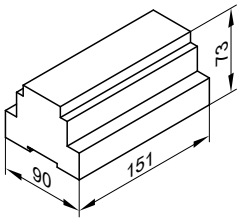
Accessories:

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: For Vitocom 300 and max. 1 x EM301 extension module	7143 434
3 rows: For Vitocom 300 and max. 2 x EM301 extension module	7143 435
EM301 extension module – Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5. – 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 external contact 24 V–, 7 mA – With LED indicator – N/C or N/O contact – Alarm N/C or alarm N/O – 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.	Z012 117
Uninterrupted power supply unit (UPS) Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5.	7143 432

Control units (cont.)

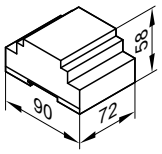
Accessories	Part no.
Additional rechargeable battery pack for UPS – Mounting rail installation TS35 to EN 50022, 35 x 15 and 35 x 7.5. – **Recommended** with 1 Vitocom 300, 1 extension module and all inputs allocated. – **Required** from 1 Vitocom 300 and 2 extension modules.	7143 436
Extension of the connecting cable **Run distance 7 to 14 m** – 1 connecting cable (7 m long) and 1 LON coupling RJ45.	7143 495 and 7143 496
Spacing 14 to 900 m with plug-in connector – 2 LON plug-in connectors RJ45 and – 2-core cable, CAT5, screened, solid cable, AWG 26-22, 0.13 to 0.32 mm², external diameter, 4.5 to 8 mm or 2-core cable, CAT5, screened, flexible cable, AWG 26-22, 0.14 to 0.36 mm², external diameter, 4.5 to 8 mm.	7199 251 and on site
Installation spacing 14 to 900 m with socket – 2 connecting cables (7 m long) and – 2 LON sockets RJ45, CAT6. – 2-core cable, CAT5, screened or JY(St) Y 2 x 2 x 0.8.	7143 495 and 7171 784 on site

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	
– during operation	0 to +50 °C Installation in living spaces or boiler rooms (standard ambient conditions)
– during storage and transportation	−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):

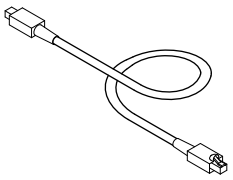


Rated voltage	100 to 240 V~
Rated frequency	50/60 Hz
Rated current	0.8 to 0.4 A
Output voltage	24 V–
Max. output current	2 A
Safety category	II to EN 61140
IP rating	IP 20 to EN 60529; ensure through design/installation
Potential separation primary/secondary	SELV to EN 60950
Electrical safety	EN 60335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

LON connecting cable for data exchange between control units

Part no. 7143 495

Cable length 7 m, fully wired.



Extension of the connecting cable

- Installation distance 7 to 14 m:
  - 2 connecting cables (7.0 m long)
    Part no. 7143 495
  - 1 LON coupling RJ45
    Part no. 7143 496
- Installation distance 14 to 900 m with plug-in connectors:
  - 2 LON plug-in connectors
    Part no. 7199 251
  - 2-core cable, CAT5, screened or JY(St) Y 2 x 2 x 0.8
    on site
- Installation distance 14 to 900 m with junction boxes:
  - 2 connecting cables (7.0 m long)
    Part no. 7143 495
  - 2-core cable, CAT5, screened or JY(St) Y 2 x 2 x 0.8
    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

Part no. 7172 173
(Only for single boiler systems)

PCB for data exchange with the heating circuit control units Vitotronic 200-H, Vitocom 100, type LAN1, Vitocom 200 and Vitocom 300, and for connection to a higher ranking building management system.

Vitogate 200, type EIB

Part no. Z009 466
The Vitogate 200 type EIB gateway is designed to hook up Vitotronic control units with integral LON communication module (accessory) to KNX/EIB systems.

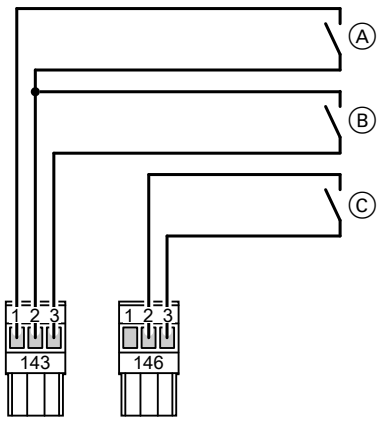
For specification and accessories, see the data communication technical guide.

9.10 On-site connections

Connection of on-site control units to the Vitotronic 100, type GC1B, in single boiler systems

Control via contacts:

Operation with a two-stage burner



Ⓐ Burner stage 1 "on"
Ⓑ Burner stage 2 "on"
Ⓒ External load-dependent starting

Ⓐ, Ⓑ and Ⓒ are floating contacts of the higher ranking control unit.

External burner start – burner stage 1

Contact at terminals "1" and "2" of plug 143
- Contact closed:
  Burner stage 1 is switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter (see the Vitotronic 100 service instructions), if it is set below that of mechanical thermostat "🌡".
- Contact open:
  Burner stage 1 is switched OFF.

External burner start – burner stage 1 and 2

Contact at terminals "2" and "3" of plug 143
- Contact closed:
  Both burner stages are switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter, if it is set below that of mechanical control thermostat "🌡".
  Burner stage 2 is switched OFF 2 K sooner.
- Contact open:
  Burner stages 1 and 2 are switched OFF.

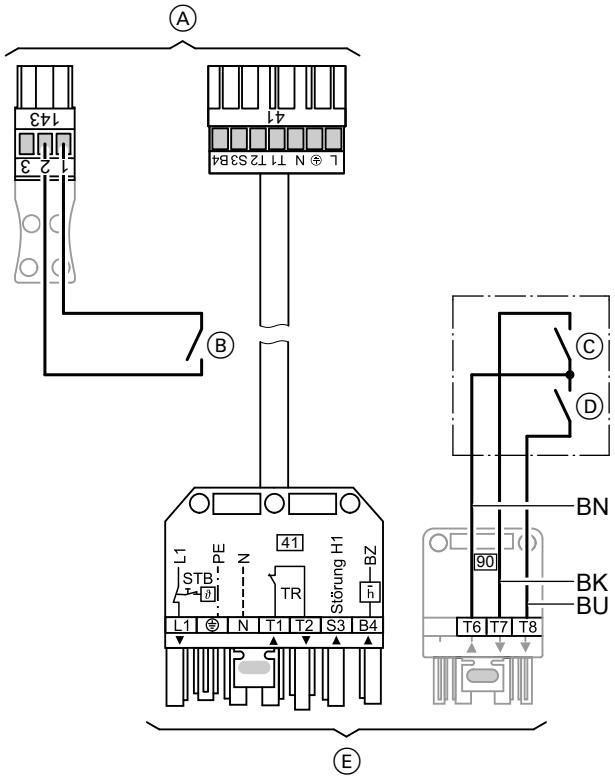
External starting subject to load
The burner is started, subject to load, when the zero volt contact across terminals "2" and "3" at plug-in connector 146 closes.
The boiler will be constantly operated at the set temperature.
The boiler water temperature is limited via the maximum set boiler water temperature or via the mechanical control thermostat.
The set value is adjusted via code "9b".

5822 449 GB

Settings at the Vitotronic 100
- Code "01:1" (delivered condition)
- The cylinder temperature control is activated when the cylinder temperature sensor is connected.
- The high limit safety cut-out settings and other settings depend on the system equipment level along with safety equipment to EN 12828 or EN 12953.

High limit safety cut-out	110 °C	100 °C
Temperature controller	100 °C	87 °C
Coding address "06" for electronic maximum temperature limiter (Vitotronic 100)	95 °C	85 °C
Maximum temperature of the on-site control unit	90 °C	80 °C

Operation with a modulating burner



Ⓐ Plug to the control unit
Ⓑ Burner stage 1 (base load) "on"
Ⓒ Reduce burner output (modulation controller)
Ⓓ Increase burner output (modulation controller)
Ⓔ Plug to the burner

Colour coding to DIN IEC 60757
BK Black
BN Brown
BU Blue

External burner start – burner stage 1

Contact at terminals "1" and "2" of plug [143]
- Contact closed:
  Burner stage 1 is switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter (see the Vitotronic 100 service instructions), if it is set below that of mechanical thermostat "".
- Contact open:
  Burner stage 1 is switched OFF.

Modulating burner connection:
- Burner stage 1 [41] of the Vitotronic 100
- Plug [90] from the Vitotronic 100 via modulation controller (on-site) to plug [90] on the burner.

Settings at the Vitotronic 100
- Code "01:1" (delivered condition)
- The cylinder temperature control is activated when the cylinder temperature sensor is connected.
- The high limit safety cut-out settings and other settings depend on the system equipment level along with safety equipment to DIN EN 12828 or DIN EN 12953.

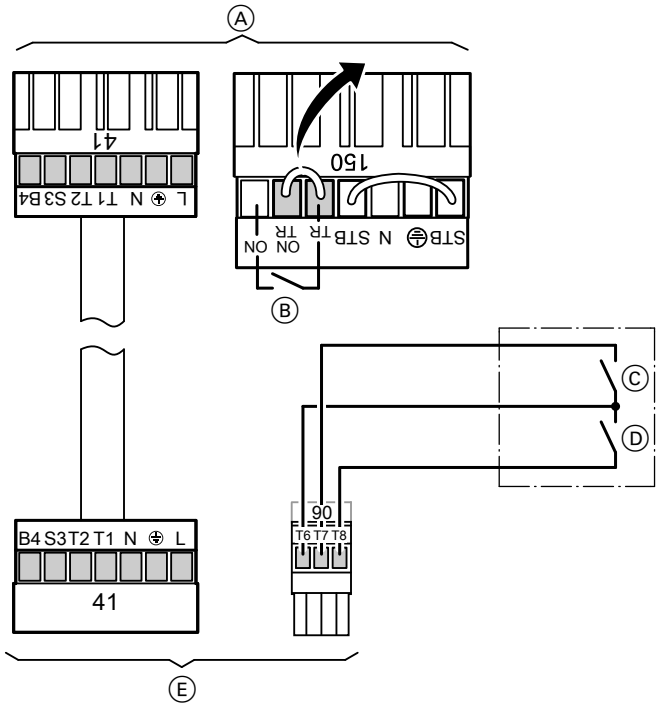
High limit safety cut-out	110 °C	100 °C
Temperature controller	100 °C	87 °C
Coding address "06" for electronic maximum temperature limiter (Vitotronic 100)	95 °C	85 °C
Maximum temperature of the on-site control unit	90 °C	80 °C

Connection of on-site control units to the Vitotronic 100, type GC4B, in single boiler systems

Control via contacts:

Control units (cont.)

External control with a modulating burner



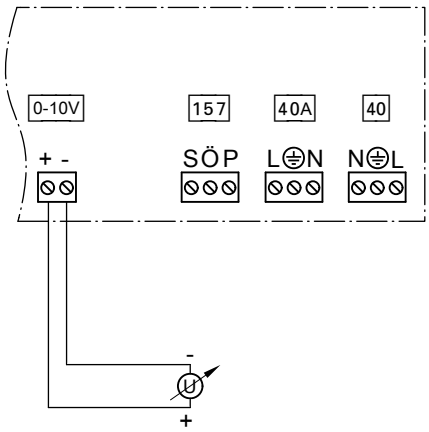
Ⓐ Plug to the control unit
Ⓑ Burner base load
(floating contact for switching 230 V~)
Ⓒ T6, T7: Reduce burner output (modulation controller closed)
(floating contact for switching 230 V~)
Ⓓ T6, T8: Increase burner output (modulation controller open)
(floating contact for switching 230 V~)
Ⓔ Plug to the burner

Contact Ⓑ at plug 150 closed	Contact Ⓑ at plug 150 open
Burner on (base load). The on-site modulation controller regulates the load-dependent modulation. The boiler water temperature is restricted by the electronic maximum temperature limiter.	Burner off.

Connection of on-site control units to EA1 extension in single boiler systems

Control via 0 – 10 V input:

External demand via 0 – 10 V input
Connection to the 0 – 10 V input on the **EA1 extension**.
In conjunction with a two-stage or modulating burner.
Code "01:1" for single boiler system (delivered condition).



The 0 - 10 V hook-up provides an additional set boiler water temperature:
0 - 1 V is taken as "no default for set boiler water temperature".
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C

The set default range can be changed in code 1E:
1 V ≙ Set value 30 °C
10 V ≙ Set value 120 °C

Note
Ensure DC separation between the negative pole and the earth conductor of the on-site voltage source.

Digital data inputs DE1 to DE3

Functions:
- External blocking
- External blocking with fault message input
- Fault message input

The hooked-up contacts must correspond to safety category II.

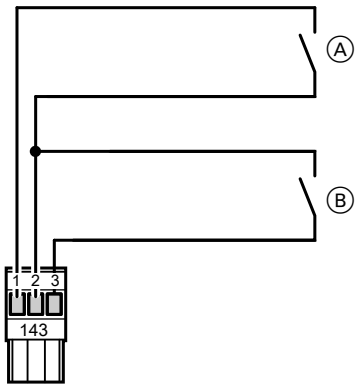
Input function assignment

Select the input functions via the codes on the boiler control unit:
- DE1: Coding address "5d"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Set flow temperature for external demand
- The set flow temperature can be selected with code 9b.

Additional functions for single boiler systems with Vitotronic 200, type GW1B or Vitotronic 300, type GW2B or GW4B

Plug 143



Ⓐ External heating program changeover/mixer "open"
Ⓑ External blocking/mixer "close"

Ⓐ and Ⓑ are floating contacts.

External heating program changeover/mixer "open"
Closing contact Ⓐ can change the manually selected heating program or open the connected mixers.
In coding address "9A", the external function mixer "open" can be allocated to the individual heating circuits.
In coding address "91", the external heating program changeover can be allocated to the heating circuits.

Heating programs

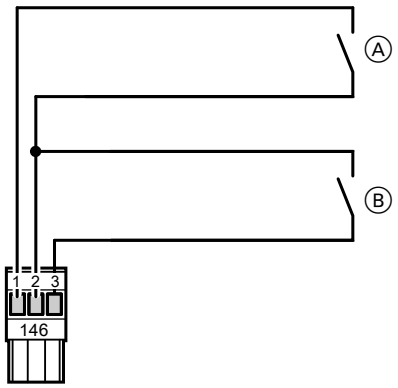
Symbol	Explanation
⏻	Central heating OFF and DHW OFF
	Central heating OFF and DHW ON
	Central heating ON and DHW ON

Subject to the setting of coding address "d5", the system can be switched over from all three manually adjustable heating programs ⏻, and (contact open), to either ⏻ or (contact closed).

External blocking/mixer "close"
Closing contact Ⓑ causes the burner to shut down or the mixer to be closed.
In coding address "99" you select which heating circuits are affected by the function external blocking or mixer "close".

Note
The frost protection of the relevant boiler or heating circuit is no longer effective during the controlled shutdown or when the mixer "Closes", The lower boiler water temperature or flow temperature will no longer be maintained.

Plug 146



Ⓐ ■ For GW1B and GW2B, external changeover of stepped/modulating burner
■ For GW4B, external burner blocking
Ⓑ External demand

Ⓐ and Ⓑ are floating contacts.

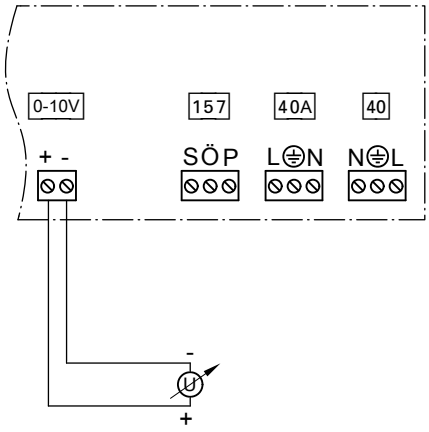
External demand
Closing contact Ⓑ starts the burner of the boiler depending on load. The boiler water temperature is limited via the maximum set boiler water temperature or via the mechanical temperature controller.
The set value is selected in coding address "9b".

External changeover of multi stage/modulating burners
■ Contact Ⓐ open:
Modulating operation
■ Contact Ⓐ closed:
Two-stage operation
Set coding address "02" accordingly.

Additional functions for single boiler systems with Vitotronic 200, type GW1B or Vitotronic 300, type GW2B or GW4B via EA1 extension

Connection of on-site control units for weather-compensated mode to the extension EA1

External demand via 0 – 10 V input
Connection to the 0 – 10 V input on the **extension EA1**.
In conjunction with a two-stage or modulating burner.



The 0 - 10 V hook-up provides an additional set boiler water temperature:
0 - 1 V is taken as "no default for set boiler water temperature".
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
The set default range can be changed in code 1E:
1 V ≙ Set value 30 °C
10 V ≙ Set value 120 °C

Note
Ensure DC separation between the negative pole and the earth conductor of the on-site voltage source.

Digital data inputs DE1 to DE3

Functions:
- External changeover of the operating status, separate for heating circuits 1 to 3
- External blocking with fault message input
- Fault message input
- Brief operation of the DHW circulation pump

The hooked-up contacts must correspond to safety category II.

Input function assignment

Select the input functions via the codes on the boiler control unit:
- DE1: Coding address "5d"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Set flow temperature for external demand
- The set flow temperature can be selected with code 9b.

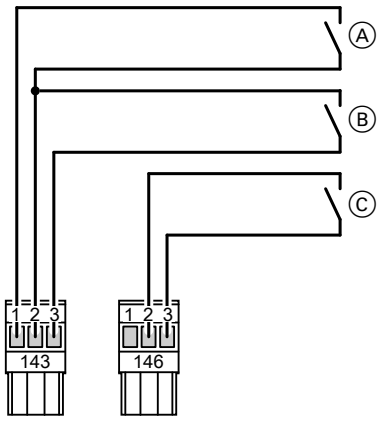
Output 157

Connections:
- Switching a feed pump to a substation
- Signalling reduced mode for a heating circuit

Function assignment
Select the function of output 157 via coding address "5C".

Additional functions for multi boiler systems with Vitotronic 300-K, type MW1B or Vitotronic 100, type GC1B or GC4B via LON

Plugs 143 and 146 at the Vitotronic 300-K



Ⓐ External heating program changeover/mixer "open"
Ⓑ External blocking/mixer "closed"
Ⓒ External demand

Ⓐ, Ⓑ and Ⓒ are floating contacts.

External heating program changeover/mixer "open"
Closing contact Ⓐ can change the manually selected heating program or open the connected mixers.
In coding address "9A", the external function mixer "open" can be allocated to the individual heating circuits.
In coding address "91", the external heating program changeover can be allocated to the heating circuits.

Heating programs

Symbol	Explanation
⏻	Central heating OFF and DHW OFF
🚿	Central heating OFF and DHW ON
🛏🚿	Central heating ON and DHW ON

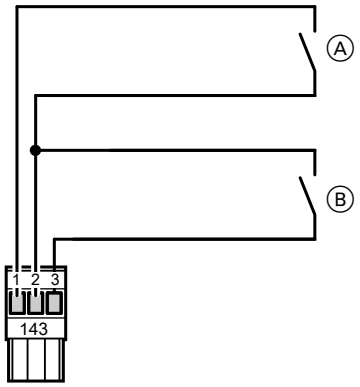
Subject to the setting of coding address "d5", the system can be switched over from all three manually adjustable heating programs ⏻, 🚿 and 🛏🚿 (contact open), to either ⏻ or 🛏🚿 (contact closed).

External blocking/mixer "closed"
Closing contact Ⓑ causes the burner to shut down or the mixer to be closed.
In coding address "99" you select which heating circuits are affected by the function external blocking or mixer "close".

Note
The frost protection of the relevant boiler or heating circuit is no longer effective during the controlled shutdown or when the mixer "Closes", The lower boiler water temperature or flow temperature will no longer be maintained.

External demand
Closing contact Ⓒ starts the burner or boiler subject to load.
The boiler water temperature is limited via the maximum set boiler water temperature or via the mechanical control thermostat.
The set value is selected in coding address "9b".

Plug 143 at Vitotronic 100, type GC1B and GC4B



Ⓐ Boiler blocking
Ⓑ Start boiler as the last one in the boiler sequence

Ⓐ and Ⓑ are floating contacts.

Boiler blocking

■ Contact Ⓐ closed:
The boiler is blocked and will be removed from the boiler sequence. This means the butterfly valve is closed and the boiler circuit pump is stopped. The heat demand has to be met by the other boilers.

Note
*The heating system is **not** protected against frost if all boilers are blocked or when no other boilers area ready for operation.*

■ Contact Ⓐ open:
The boiler is reinstated into the current boiler sequence.

Start boiler as the last one in the boiler sequence

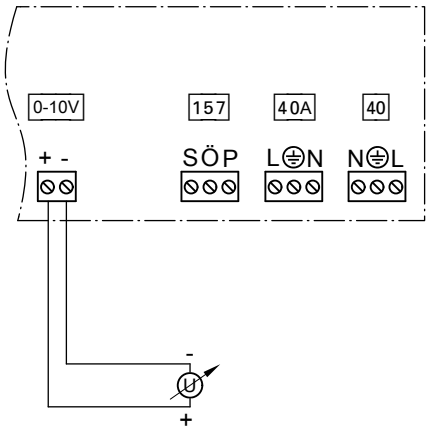
■ Contact Ⓑ closed:
The boiler is started as the last one in the boiler sequence.
The heat demand of the heating system is met by the other boilers.
This boiler is started if the output of the other boilers is insufficient.
■ Contact Ⓑ open:
The boiler is reinstated into the current boiler sequence.

9

Connection of on-site control units to EA1 extension in multi boiler systems with on-site cascade control unit

Control via 0 – 10 V input:

External demand via 0 – 10 V input
Connection to the 0 – 10 V input at **EA1 extension** on **each** Vitotronic 100 (accessories).
In conjunction with two-stage or modulating burners.
Set code "01:3".



Enable boiler without an additional enable contact

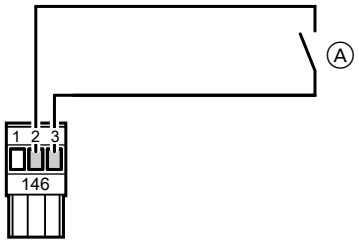
0 to 1 V
■ Boiler blocked.
■ Butterfly valve closed.
■ Boiler circuit pump or shunt pump off.

1 to 10 V
■ Boiler water temperature default
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
■ Boiler enabled; held at minimum temperature.
■ Butterfly valve open.
■ Boiler circuit pump or shunt pump enabled.

Note
Only for low temperature boilers:
*On the lead boiler, the voltage must be **higher than 1 V**.*

Note
Ensure DC separation between the negative pole and the earth conductor of the on-site voltage source.

Enable boiler with an additional enable contact
0 - 1 V ≙ "No default set boiler water temperature"
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C



Ⓐ Boiler enable
(floating contact)

Note
*This contact must **always** be closed on the lead boiler.*

Contact	Closed	Open
Ⓐ	Boiler enabled; held at minimum temperature. The butterfly valve opens.	The butterfly valve is closed after approx. 5 min. External burner start not possible.

Digital data inputs DE1 to DE3

Functions:
■ External blocking
■ External blocking with fault message input
■ Fault message input

The hooked-up contacts must correspond to safety category II.

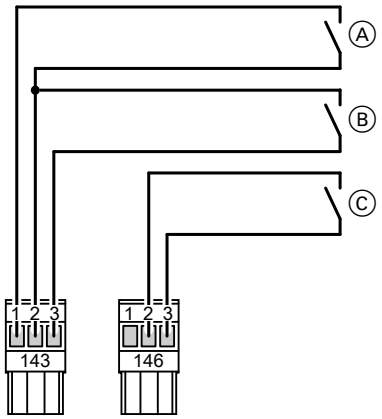
Input function assignment

Select the input functions via the codes on the boiler control unit:
- DE1: Coding address "5d"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Boiler sequence control with on-site cascade control unit — connections to the Vitotronic 100, type GC1B

Control via contacts:

Operation with a two-stage burner



Ⓐ Burner stage 1 "on"
Ⓑ Burner stage 2 "on"
Ⓒ Boiler enable
Butterfly valve "Open" or "Closed"

Ⓐ, Ⓑ and Ⓒ are floating contacts of the higher ranking control unit.

The connections on plugs 143 and 146 are required when connecting an external control unit. The cylinder temperature and the load-dependent cascade control must be controlled by an external control unit.

Note
*An "enable boiler" contact is essential for multi-boiler systems. This contact **must** always be closed on the lead boiler.*

External burner start – burner stage 1

Contact at terminals "1" and "2" of plug 143
- Contact closed:
  Burner stage 1 is switched ON.
  Burner stage 2 is switched ON only for maintaining the minimum temperature.
  The boiler water temperature is limited by the electronic maximum temperature limiter (see the Vitotronic 100 service instructions), if it is set below that of mechanical thermostat "".
- Contact open:
  Burner stage 1 is switched OFF.

External burner start – burner stage 1 and 2

Contact at terminals "2" and "3" of plug 143
- Contact closed:
  Both burner stages are switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter, if it is set below that of mechanical control thermostat "".
  Burner stage 2 is switched OFF 2 K sooner.
- Contact open:
  Burner stages 1 and 2 are switched OFF.

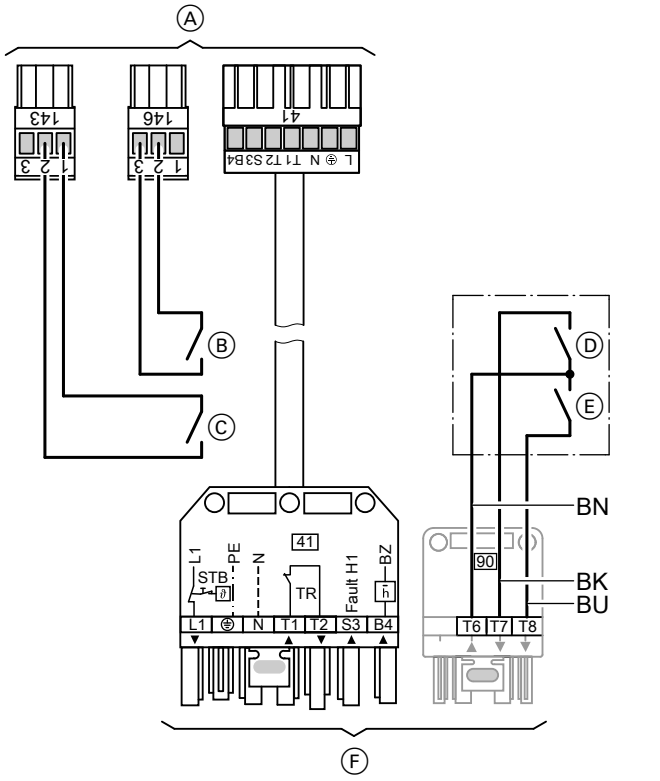
Enable boiler, butterfly valve

Contact at terminals "2" and "3" of plug 146
- Contact closed:
  Initially, the preheat function for lag boilers is activated.
  After the preheat function has expired, the minimum boiler water temperature will be maintained and the burner stages can be controlled externally.
- Contact open:
  The butterfly valve is closed after approx. 5 min.
  Burner stages cannot be switched ON externally; a minimum temperature will not be maintained.

Settings at the Vitotronic 100
Code "01:3".
The high limit safety cut-out settings and other settings depend on the system equipment level along with safety equipment to DIN EN 12828 or DIN EN 12953.

High limit safety cut-out	**110 °C**	**100 °C**
Temperature controller	100 °C	87 °C
Coding address "06" for electronic maximum temperature limiter (Vitotronic 100)	95 °C	85 °C
Maximum temperature of the on-site control unit	90 °C	80 °C

Operation with a modulating burner



Ⓐ Plug to the control unit
Ⓑ Enable boiler; butterfly valve open or closed
Ⓒ Burner stage 1 (base load) "on"
Ⓓ Reduce burner output (modulation controller)
Ⓔ Increase burner output (modulation controller)
Ⓕ Plug to the burner

Colour coding to DIN IEC 60757
BK Black
BN Brown
BU Blue

The connections on plugs 143 and 146 are required when connecting an external control unit. The cylinder temperature and the load-dependent cascade control must be controlled by an external control unit.

Note
*An "enable boiler" contact is essential for multi-boiler systems. This contact **must** always be closed on the lead boiler.*

External burner start – burner stage 1

Contact at terminals "1" and "2" of plug 143
- Contact closed:
  Burner stage 1 is switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter (see the Vitotronic 100 service instructions), if it is set below that of mechanical thermostat "⏻".
- Contact open:
  Burner stage 1 is switched OFF.

External burner start – burner stage 1 and 2

Contact at terminals "2" and "3" of plug 143
- Contact closed:
  Both burner stages are switched ON.
  The boiler water temperature is limited by the electronic maximum temperature limiter, if it is set below that of mechanical control thermostat "⏻".
  Burner stage 2 is switched OFF 2 K sooner.
- Contact open:
  Burner stages 1 and 2 are switched OFF.

Modulating burner connection:
- Burner stage 1 41 of the Vitotronic 100
- Plug 90 from the Vitotronic 100 via modulation controller (on-site) to plug 90 on the burner.

Enable boiler, butterfly valve

Contact at terminals "2" and "3" of plug 146
- Contact closed:
  The burner stages can be externally switched.
- Contact open:
  The butterfly valve is closed after approx. 5 min.
  Burner stages cannot be started externally.

Settings at the Vitotronic 100
Code "01:3".
The high limit safety cut-out settings and other settings depend on the system equipment level along with safety equipment to DIN EN 12828 or DIN EN 12953.

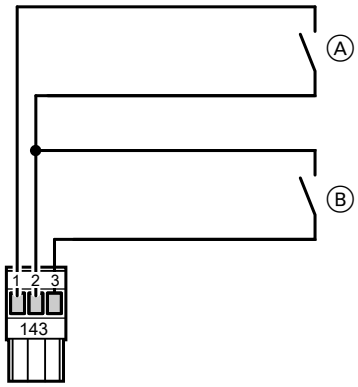
High limit safety cut-out	**110 °C**	**100 °C**
Temperature controller	100 °C	87 °C
Coding address "06" for electronic maximum temperature limiter (Vitotronic 100)	95 °C	85 °C
Maximum temperature of the on-site control unit	90 °C	80 °C

Boiler sequence control with on-site cascade control unit — connections to the Vitotronic 100, type GC4B

Control via contacts:

Operation with a modulating burner
Connection on **plug** 143.
The cylinder temperature and the load-dependent cascade control must be controlled by an external control unit.

Note
*An boiler enable contact is essential for multi boiler systems. This contact **must** always be closed on the lead boiler.*

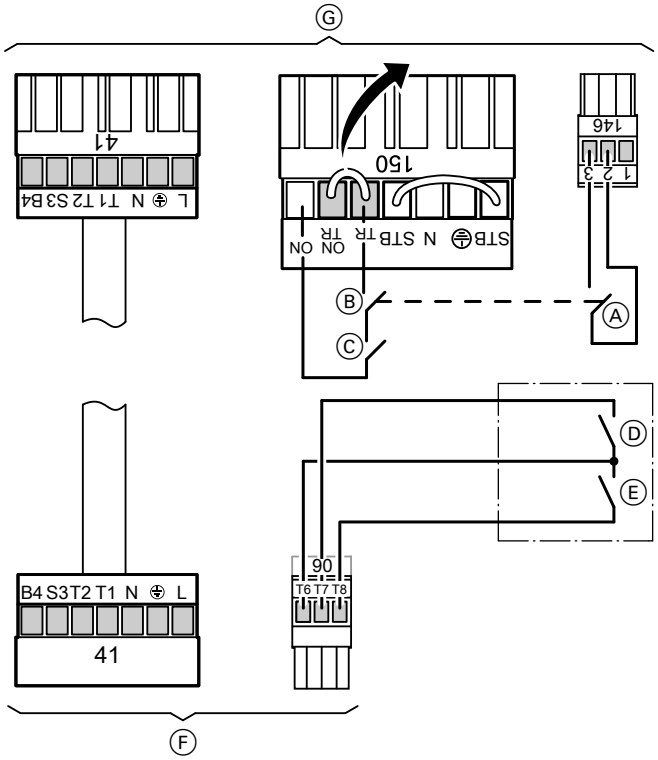


Ⓐ Blocking the boiler externally
(floating contact for switching LV)
Ⓑ Start the boiler externally as the last one in the boiler sequence
(floating contact for switching LV)

Contact	Closed	Open
Ⓐ	– The boiler is blocked and has been removed from the boiler sequence. – Butterfly valve is closed and the boiler circuit pump stops. – The other boilers provide the required heating.	The boiler is integrated into the current boiler sequence.
Ⓑ	This boiler is started if the other boilers in the heating system cannot provide sufficient heat.	The boiler is integrated into the current boiler sequence.

External control of the modulating burner
Make connections at plug 146 and 150.

Note
The contact at terminals 2 and 3 of plug 146 is always required to prevent boiler damage.
*This contact **must always** be closed on the lead boiler.*



Ⓐ/Ⓑ Boiler enable from on-site modulation controller (butterfly valve open)
Ⓐ Floating contact for switching LV
Ⓑ Floating contact for switching 230 V~
Ⓒ Burner base load
(floating contact for switching 230 V~)
Ⓓ T6, T7: Reduce burner output (modulation controller closed)
(floating contact for switching 230 V~)
Ⓔ T6, T8: Increase burner output (modulation controller open)
(floating contact for switching 230 V~)
Ⓕ Plug to the burner
Ⓖ Plug to the control unit

Note
If the boiler is enabled via a contactor, the conditions of safety category II and the operation of safety LV (SELV) must be ensured.

Contact	Closed	Open
Ⓐ/Ⓑ	Boiler enabled. The butterfly valve opens.	The butterfly valve is closed after approx. 5 s. External burner start not possible.
Ⓒ	Burner on (base load). An on-site modulation controller regulates the load-dependent modulation. The boiler water temperature is restricted by the electronic maximum temperature limiter.	Burner off.

Hook-up of on-site control units via LON

The Vitotronic control units are equipped with an open standard LON interface. With standard LONWORKS network variables (SNVT). This universal, decentralised network for automated building control systems not only allows communication between Vitotronic control units, but also the hook-up of on-site systems and devices from various manufacturers.

It enables, for example, individual room control units or building management systems to be directly connected to Vitotronic control units. Further information can be found in the LON manual; see www.viessmann.de\lon.

10.1 Important safety regulations and requirements

General information

The boiler is built to comply with TRD 702 and EN 303, 677, 483/297, and is used in heating systems to EN 12828. Observe the operating conditions stated in these guidelines. The appliance complies with EN 677 regarding the stated rated heating outputs and the requirements laid down for heating equipment. During installation and commissioning of this boiler, observe all local Building Regulations and rules concerning combustion systems, as well as the following standards, regulations and directives:

- **EN 12828:** Heating systems in buildings – Design of hot water heating systems.
- **EN 13384:** Flue systems – thermal and flow calculations.
- **DIN 4753:** DHW systems for DHW and process water.
- **DIN 1988:** Technical Regulations for Drinking Water Installations (TRWI).
- **EN 298:** Burner control units for gas burners and boilers with or without fans.
- **EN 676:** Pressure-jet gas burners.
- **DVGW-TRGI 2008:** Technical rules for gas installations.
- **DVGW Code of Practice G 260/I and II:** Technical rules for gas quality.

Gas installation

The gas installation should be carried out by a registered installer in accordance with the technical connection requirements stipulated by the gas supply utility. Operate the system in accordance with the above conditions.

Pipe connections

All pipe connections to the boiler should be made free of load and torque stress.

Electrical installation

Carry out the electrical connection and installation in accordance with VDE Guidelines (DIN VDE 0100 and DIN VDE 0116), local regulations and the technical connection requirements laid down by your power supply utility.

- **DIN VDE 0100:** Installation of HV systems with rated voltages up to 1000 V.
- **DIN VDE 0116:** Electrical equipment for combustion systems.

Operating instructions

According to EN 12828, paragraph 5 and EN 12170/12171, the system installer must provide operating instructions for the whole system.

Flue system

Use flue pipes for condensing boilers which are approved by the building inspectorate.

Fill and top-up water

- **VDI 2035:** Prevention of damage through corrosion and scaling in hot water heating systems with rated operating temperatures up to 100 °C.

Checks as part of the Building Regulations approval procedure

As part of the Building Regulations approval procedure, condensing combustion equipment is tested by the flue gas inspector [where applicable] for adherence to Building Regulations and any generally recognised technical rules. The State Building Regulations, their implementation orders and the combustion equipment orders, as well as the general building approvals and permits of the higher supervisory authority, in individual cases, are part of the Building Regulations requirements.

Keyword index

5822 449 GB

Keyword index

Subject to technical modifications.

Viessmann Werke GmbH&Co KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

5822 449 GB