

Service instructions

for contractors

VIESMANN

Vitoflame 300

Type VHG

Oil burner

with oil pre-heating

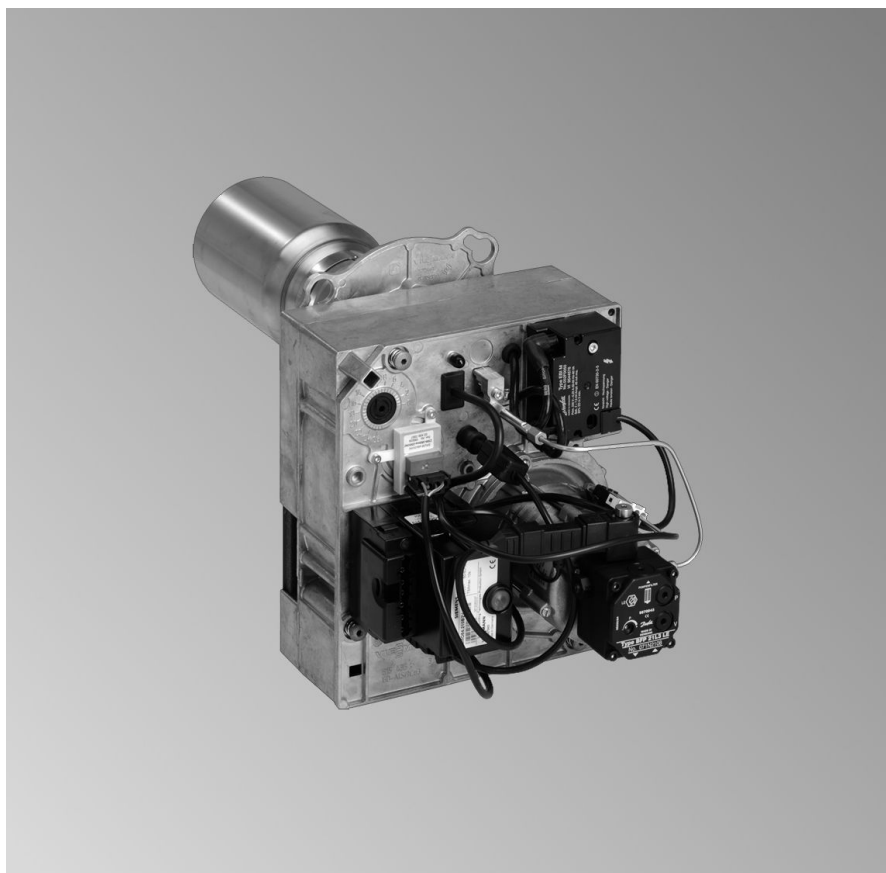
for Vitoladens 300-T

Rated output 40 and 50 kW

For applicability, see the last page



VITOFLAME 300



Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

This symbol warns against the risk of material losses and environmental pollution.

Note

Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.

- Work on gas equipment must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,

- the Code of Practice of relevant trade associations.
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards.

If you smell gas



Danger

Escaping gas can lead to explosions which may lead to serious injury.

- Do not smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

If you smell flue gas



Danger

Flue gas can lead to life-threatening poisoning.

- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors in the living space.

Safety instructions (cont.)

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.



Please note

Electronic modules can be damaged by electrostatic discharges. Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components that fulfil a safety function can compromise the safe operation of your heating system. Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts



Please note

Spare and wearing parts that have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications or conversions can compromise safety and may invalidate our warranty. For replacements, use only original spare parts supplied or approved by Viessmann.

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Steps – commissioning, inspection and maintenance

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Further details regarding the individual steps

Commissioning the heating system

To obtain optimum combustion values, the burner must be adjusted with the boiler heated (min. 60 °C).

Ⓢ: The limits of the Swiss Clean Air Act LRV 92 must be maintained.



Service instructions boiler control unit

Note

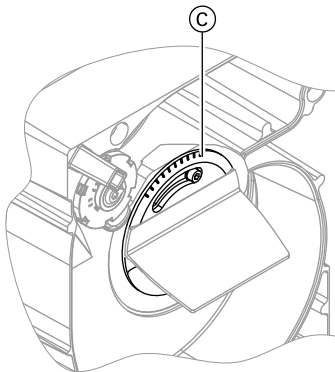
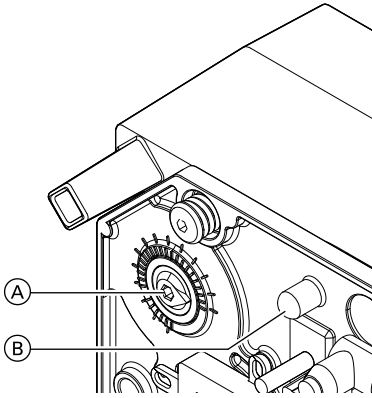
The Vitoflame 300 oil burner features very good combustion values which are achieved without the use of fuel oil additives (combustion improvers). The use of combustion improvers, which leave residues, is not acceptable.

1. Check the heating system pressure and the oil level in the tank.
2. Open the shut-off valves in the oil lines on the oil tank and on the filter.
3. Fill the oil suction line and the filter with fuel oil using a manual oil suction pump **before** switching the burner ON.
4. Switch ON the main isolator (outside the installation room).
5. Switch ON system ON/OFF switch at the control unit.
If the fault indicator lamp on the control unit illuminates, press the reset button on the burner (see page 22).

Adjusting the air volume

The air volume is preset at the factory. Re-adjust the air volume if required. Starting up the burner may require some fine adjustment. **Before** making adjustments, check whether the inlet air routing Ⓢ (inside the casing, pos. no. 034 on page 35) is set to position "7.5" (factory setting).

Further details regarding the individual steps (cont.)



1. Check static burner pressure at test nipple (B); to do so, remove the plastic cap.

Note

The actual static burner pressure must not vary from the standard values.

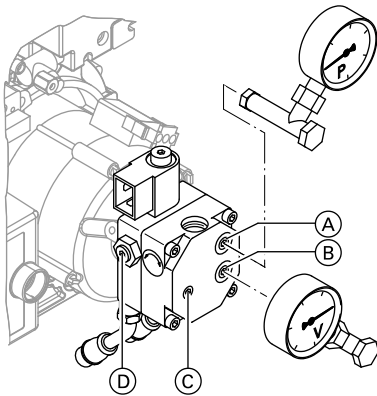
For standard values for burner settings, see page 43.

2. If required, adjust static burner pressure at air damper (A):
 - Turn anti-clockwise
 - higher static burner pressure
 - more air
 - lower CO₂ content,
 - Turn clockwise
 - lower static burner pressure
 - less air
 - higher CO₂ content.

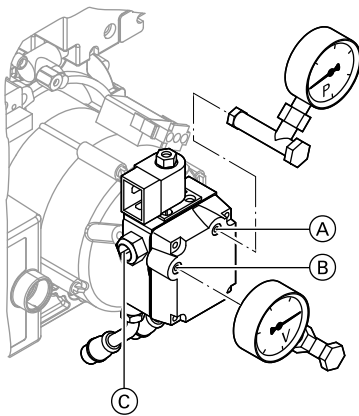
Adjusting the oil pressure and checking the vacuum

The oil pressure is preset at the factory according to the oil throughput. Adjust the oil pressure, if required.

Further details regarding the individual steps (cont.)



Oil pump; make: Danfoss, type BFP 31



Oil pump; make: Suntec, type ALE 35

1. Switch OFF the main isolator and safeguard against unauthorised reconnection.
2. Unscrew plug "P" (A) from the oil pump.

3. Unscrew plug "V" (B) from the oil pump; as you do so, oil may escape from the pump.

4. Insert a pressure gauge (range 0 - 25 bar) and a vacuum gauge (range 0 - 1 bar). Seal the pressure and vacuum gauges only with copper or aluminium gaskets or with O-rings. Never use tape to seal these joints.

5. Start the burner.
The solenoid valve opens.

6. Read off the oil and vacuum pressures of the pump on the relevant gauge (vacuum should be max. 0.3 bar given a height differential of 3 m between the oil pump and the bottom of the tank).
Where vacuum measures higher than 0.3 bar, check the filter for contamination or check the pipe run.

7. If necessary, adjust the oil pressure at oil pump pressure setting screw (C).
Turn clockwise → pressure rises;
turn anti-clockwise → pressure falls.
For standard values for burner settings, see page 43.

Note

*Only for Danfoss oil pump:
The LE nozzle shut-off function must be adjusted at LE setting screw (D) (LE = ON), located on the l.h. side of the oil pump.*

8. Check the actual emission values after adjusting the oil pressure.

Further details regarding the individual steps (cont.)

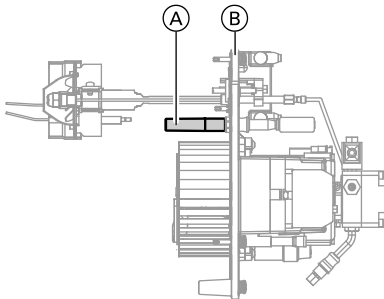
9. Switch OFF the main isolator and safeguard against unauthorised reconnection.
10. Remove the pressure and vacuum gauges.
11. Insert plugs "P" (A) and "V" (B).
Check the plug seal rings for damage and replace, if required.
12. Start the burner and check the plugs for leaks.

Checking the burner and entering the actual values into the report

Note

In the case of balanced flue operation, observe the information regarding burner settings on page 41.

Cleaning and testing the flame monitor

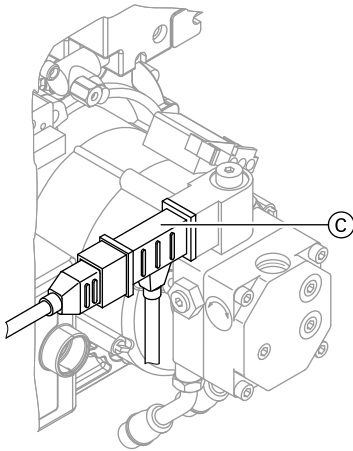


1. Pull flame monitor (A) from burner cover (B).
2. Clean the flame monitor.
To do so, remove push-on restrictor (see page 10) and replace it when you have finished.

Safety check	Response
Burner start with darkened flame monitor	Fault shutdown at the end of the safety time
Burner start with flame monitor lit from an outside source	Fault shutdown after max. 40 s



Further details regarding the individual steps (cont.)



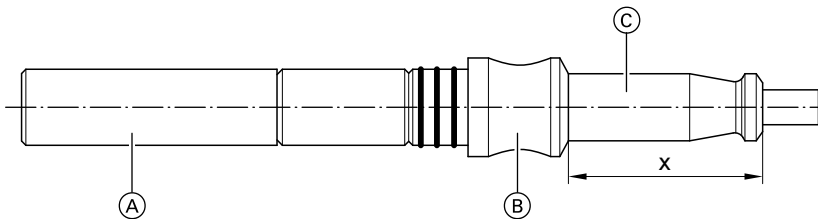
3. Push flame monitor (A) into burner cover (B) (see page 10).

Safety check	Response
Burner operation with simulated flame blow-off: pull plug (C) from the solenoid valve during operation and leave in this condition	Restart followed by a fault shut-down at the end of the safety time

Fitting and adjusting the flame monitor

Before fitting, check whether slider sleeve (B) is pushed as far forward as it will go (x = max.).

Push-on restrictor (A) must sit on flame monitor (C).



Cleaning the burner

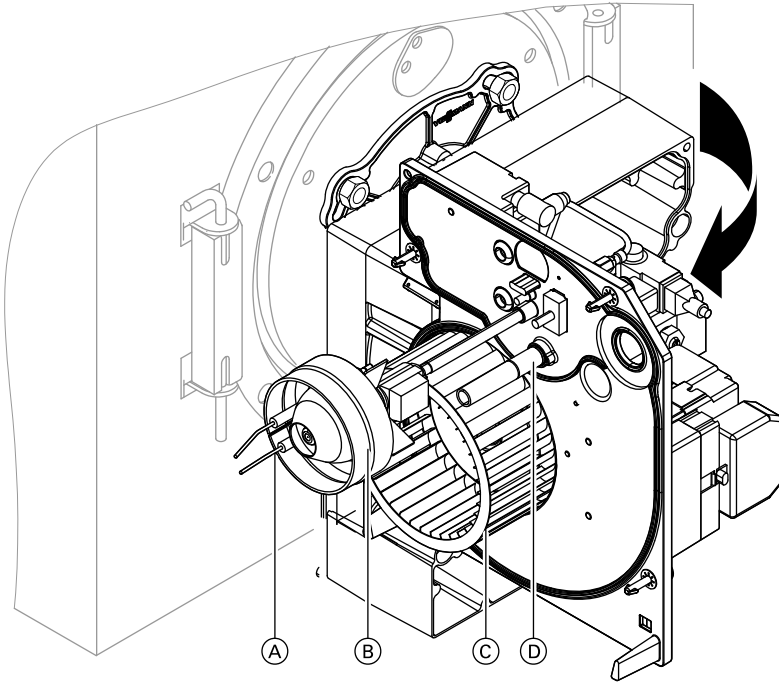


For cleaning the combustion chamber and hot gas flues, see boiler service instructions.

1. Set the burner into its maintenance position.

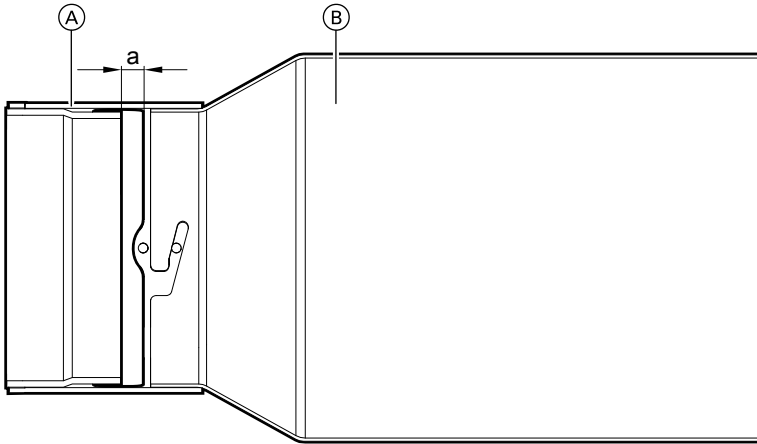
2. Clean casing, flame tube, mixing assembly (B), ignition electrodes (A), flame monitor (D) and impeller (C).

Further details regarding the individual steps (cont.)



Further details regarding the individual steps (cont.)

Checking recirculation gap



Ⓐ Adaptor pipe and dosing ring

Ⓑ Flame tube

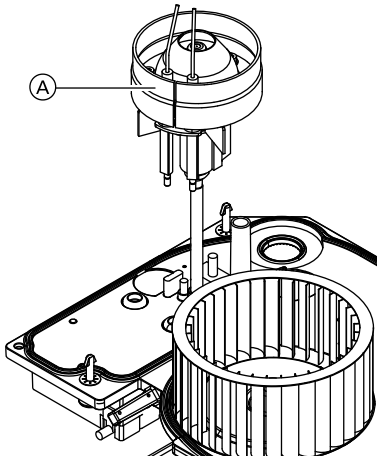
1. Measure existing recirculation gap "a".
If it deviates from dimension "a", adjust set dimension "a".

Rated burner output kW	Set dimension a mm
40	3
50	6

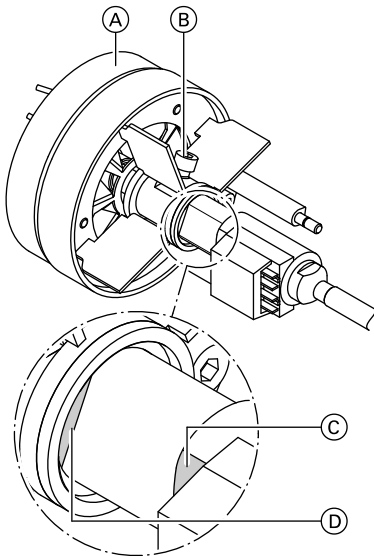
2. Adjust recirculation gap "a".
To do so, turn blast tube connection setting screw (Ⓐ in diagram on page 16).
 - Turn anti-clockwise: recirculation gap "a" widens
 - Turn clockwise: recirculation gap "a" narrows

Further details regarding the individual steps (cont.)

Nozzle replacement

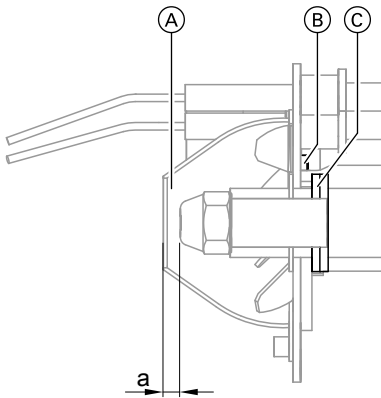


1. Plug the burner cover into the burner casing, with the blast tube connection pointing upwards. This prevents air-locks being created when nozzles are replaced.
2. Turn fixing screw (B) through two full turns to undo.
3. Remove mixing assembly (A) from the blast tube connection.
4. Replace the nozzle (whilst holding the blast tube connection).
For the make and type of nozzle, see standard values for burner settings on page 43.

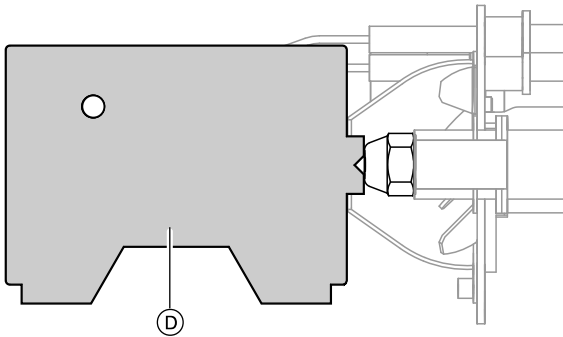


5. Push mixing assembly (A), with surface (D) in the annular groove, as far as it will go over recess (C) of the oil preheater, onto the blast tube connection. Retighten fixing screw (B).

Further details regarding the individual steps (cont.)



6. Use burner setting gauge **D** to check distance "a" between nozzles with reference to the table on page 15.



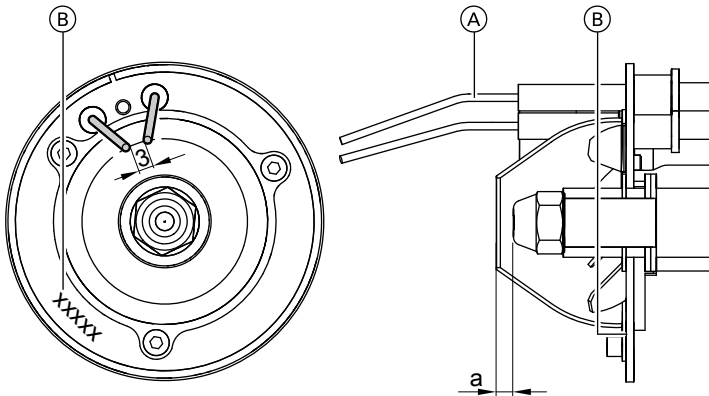
Further details regarding the individual steps (cont.)

Checking and adjusting the mixing assembly

Check ignition electrodes (A) for wear, contamination and size (see fig.) and replace, if required.

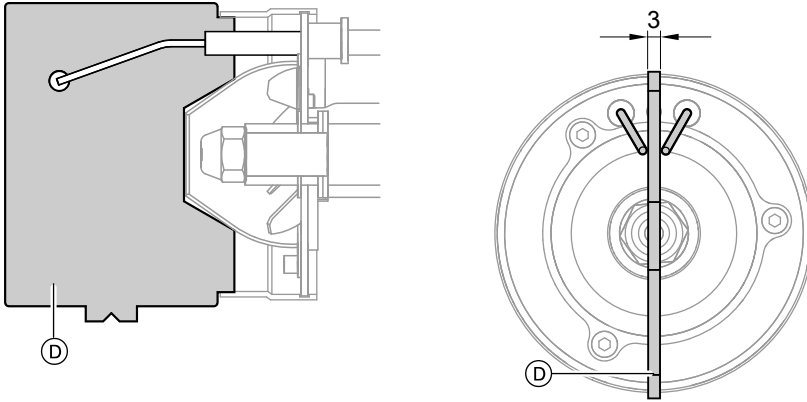
Note

To check the distance between the ignition electrodes, use burner setting gauge (D).



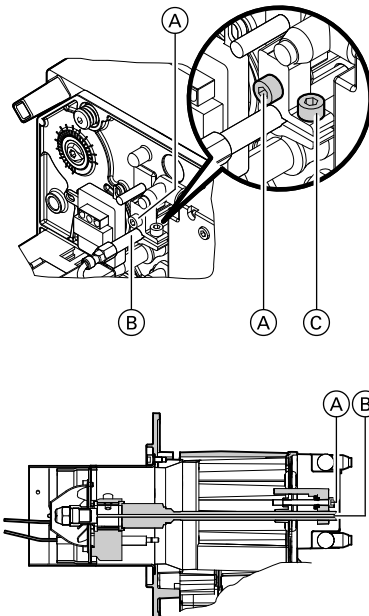
Rated heating output	kW	40	50
Designation (B)		VHG II-1	VHG II-2
Dimension a	mm	4.5	4.5

Further details regarding the individual steps (cont.)



Checking the 0-point adjustment of the blast tube connection

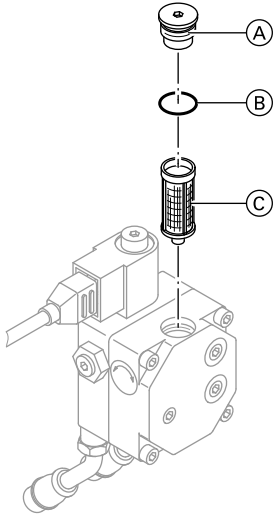
This adjustment is **only** required if optimum combustion characteristics are not achieved with the standard values for burner settings (see page 43).



1. Fit the burner cover on the burner casing.
2. With blast tube connection setting screw (A), set the scale for blast tube connection adjustment to dimension 2 mm = 0 point.
3. Undo locking screw (C).
4. Push blast tube connection (B) as far forward as possible.
5. Retighten clamping screw (C).
6. Adjust the blast tube connection in accordance with the standard values for burner settings on page 43. For the dimensions for adjusting the recirculation gap, see page 12.

Further details regarding the individual steps (cont.)

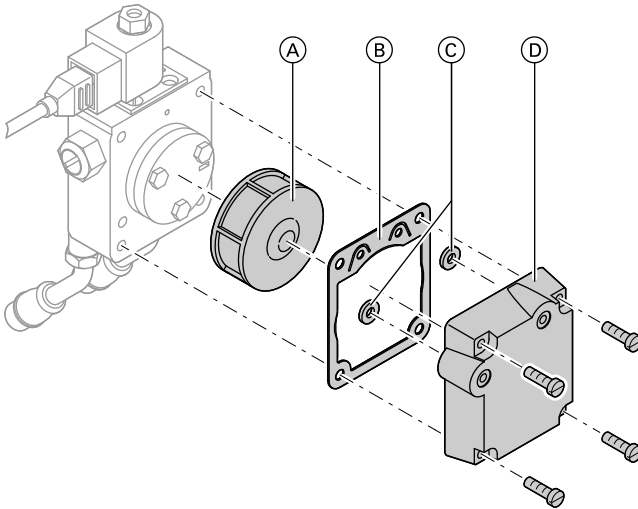
Cleaning or, if required, replacing the oil pump filter



Oil pump; make: Danfoss, type BFP 31

- (A) Filter plug
- (B) O-ring (replace)
- (C) Filter (replace)

Further details regarding the individual steps (cont.)



Oil pump; make: Suntec, type ALE 35

(A) Filter (clean or replace)

(B) Flat gasket (replace)

(C) O-rings (replace)

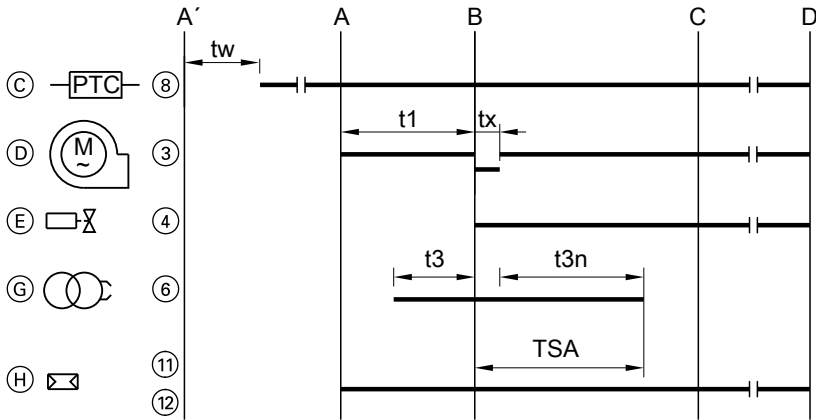
(D) Lid

Operating and service documents

1. Complete and detach the customer registration card:
 - Hand the system user this part for safekeeping.
 - Retain the heating contractor's part.
2. File all parts lists, operating and service instructions in the folder and hand this over to the system user.
The installation instructions are no longer required after the installation and, therefore, do not need to be retained.

Combustion controller LMO 54.210 B2V

Program sequence during commissioning



- A' Start of oil preheat time
- A Start-up
- B Time of flame formation
- C Operating position
- D Controlled shutdown
- ③-⑫ Plug-in terminals on the combustion controller

- Ⓒ Oil preheater
- Ⓓ Burner motor
- Ⓔ Solenoid valve on the oil pump
- Ⓖ HF ignition unit
- Ⓗ Flame monitor

tw	Oil preheat time	up to 2 min ^{*1}
t1	Pre-flush time	min. 16 s
tx	Burner motor shutdown time	max. 0.35 s

t3	Pre-ignition time	min. 15 s
t3n	Re-ignition time	max. 10 s
TSA	Start-up safety time	max. 10 s

Flame monitor sensor current

- min. required 70 µA.
- max. permissible without flame 5.5 µA.
- max. possible with flame 100 µA.

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*1 Subject to the temperature of the fuel oil supplied.

Combustion controller LMO 54.210 B2V (cont.)

Undervoltage

If the mains voltage is lower than 165 V~, the combustion controller initiates a safety shutdown.

The system restarts when the mains voltage is above approx. 175 V~.

Note

If the power supply is 2 × 127 V and the flashing code is red: if it flashes 10 × (see page 25), contact your local Viessmann sales office.

Controlled intermittent operation

After a maximum of 24 hours non-stop operation, the combustion controller implements an automatic safety shutdown with subsequent restart.

Control sequence in case of faults

If a fault shutdown occurs, the fuel valve outputs and the ignition system are immediately shut down (<1 s).

Cause	Response
After a power failure	Restart
After falling below the undervoltage level	Restart
If there is a premature, faulty flame signal during the pre-flush time t1	Fault shutdown at the end of the pre-flush time t1
If there is a premature, faulty flame signal during the oil preheat time tw	Starting will be inhibited after a fault shutdown of max. 40 s
If the burner does not light within the safety time TSA	Fault shutdown at the end of the safety time TSA
If the flame fails during operation	Max. 3 restarts, then fault shutdown
No heating or oil preheater enabling within 10 min	Troubleshooting

Troubleshooting

After a fault shutdown, the combustion controller remains locked out (non-modifiable fault shutdown) and the red lamp lights up.

This state is also maintained if the power supply fails.

Combustion controller LMO 54.210 B2V (cont.)

Resetting the combustion controller

The system can be immediately reset after a fault shutdown. Hold down the reset button for approx. 1 s (<3 s).

Ignition sequence

If the flame fails within the safety time, the system re-ignites, but only until the end of the maximum safety time at the longest. This allows several ignition attempts within the safety time; see program sequence on page 19.

Repeat limitation

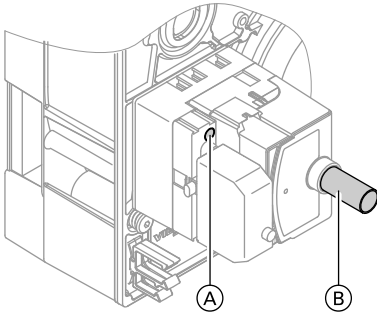
For flame failure during operation, up to three re-ignition attempts can be made. The fourth flame failure during operation triggers a fault shutdown. The count of these repeats begins with every controlled start-up (through temperature or pressure regulators, thermostat or pressure limiters or safety limiters).

Function and fault displays through indicator lamps (LED)

In standard mode, operating conditions are displayed by colour code through LED indicator (A) (see the following table).

The red indicator illuminates permanently after a fault shutdown. In this condition, the optical fault cause display can be activated (see sequence diagram on page 23).

Combustion controller LMO 54.210 B2V (cont.)

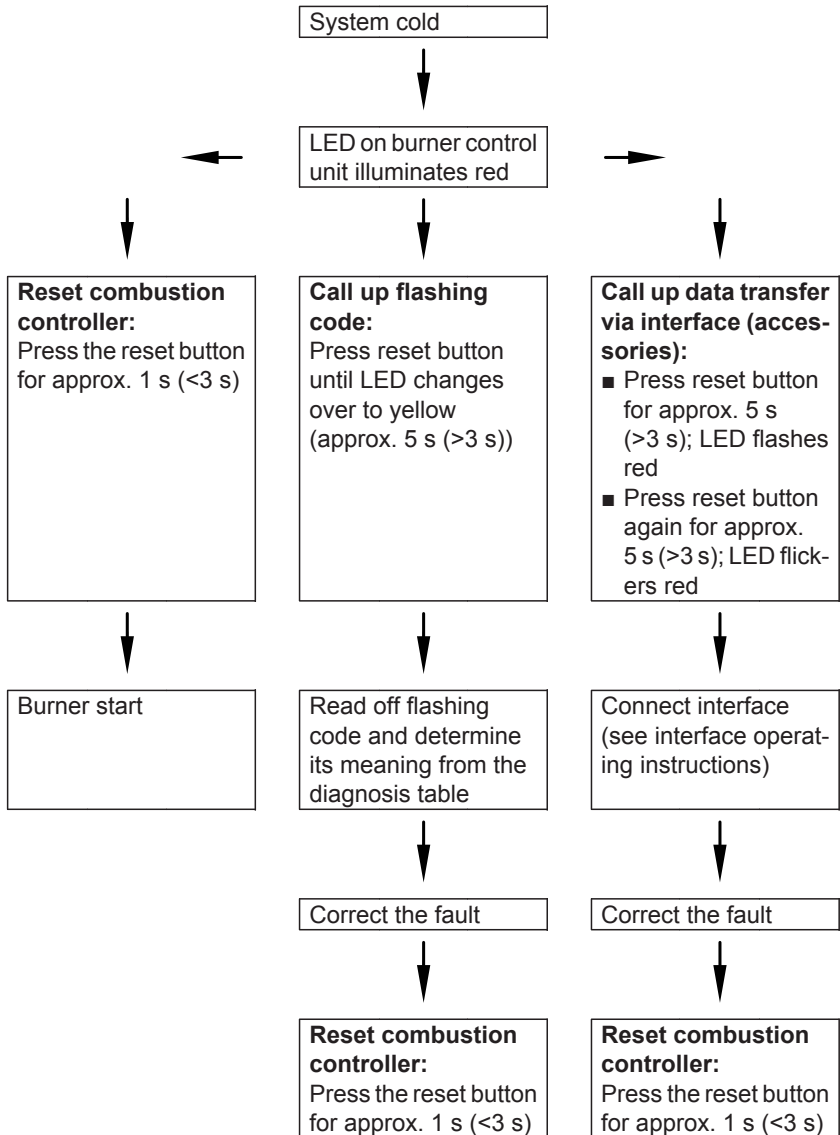


1. Press reset button (B) for approx. 5 s (>3 s).
2. A flashing code will then be displayed. The number of flashing signals in a sequence will indicate the type of fault. For explanations, see the table from page 25.
3. To reset the burner and exit the fault display, press the reset button for approx. 1 s (<3 s).

LED colours	Operating condition
constant yellow	Oil preheater active, oil preheat time t_w
yellow flashing	Ignition phase pre-purge, ignition activated
constant green	Operation, flame stable
green flashing	Operation, poor flame stability
yellow-red flashing alternately	Undervoltage (< 165 V)
constant red	Fault, burner locked out
flashing red	Fault code display (for explanations, see from page 25)
green-red alternately	Extraneous light before burner start
red flickering	Interface diagnosis For diagnosis with interface adaptor (accessories)

Combustion controller LMO 54.210 B2V (cont.)

Burner fault sequence diagram



Combustion controller LMO 54.210 B2V (cont.)



Diagnosis

Fault	Flash- ing code red	Cause	Measures
Burner does not start (no fault display), indicator does not illuminate	—	No voltage	Check fuse or connector [150] in the control unit, the electrical connections, the setting of the ON/OFF switch on the control unit and the main isolator
	—	High limit safety cut-out activated	Press the reset button at the boiler control unit
Burner does not start (with fault display), indicator illuminates	10 x	Faulty electrical connection, wires "L 1" and "N" interchanged or faulty combustion controller	Check the electrical connection. If phases are correctly connected, replace combustion controller.
Burner does not start (with fault display)	2 x	Motor faulty	Replace motor
	2 x	Coupling between motor and oil pump faulty	Replace coupling
	2 x	Oil pump seized or stiff	Clean or, if required, replace oil pump
	2 x	Timer faulty	Replace timer
	8 x	Oil pre-warmer faulty	Replace the oil pre-warmer
Burner starts, but no flame is formed	2 x	Ignition electrodes poorly adjusted	Adjust correctly (see page 15)
	2 x	Ignition electrodes damp and contaminated	Clean ignition electrode block
	2 x	Insulation body of ignition electrodes cracked	Replace ignition electrode block
	2 x	Ignition transformer faulty	Replace ignition transformer
	2 x	Ignition cable faulty	Replace ignition cable
	2 x	Pump does not supply oil	Install pressure and vacuum gauges at the pump and check build-up of pressure (see following paragraph)

Diagnosis (cont.)

Fault	Flash- ing code red	Cause	Measures
Burner starts; flame extinguishes during the start phase	2 ×	Timer faulty. Pressure-jet burner motor does not stop briefly when solenoid valve is switched on.	Check timer is working; replace if required.
Pump does not supply oil	2 ×	Shut-off valves closed at filter or in oil line	Open valves
	2 ×	Filter blocked	Clean filter (pre-filter and pump filter), replace if necessary
	2 ×	Coupling between motor and pump faulty	Replace coupling
	2 ×	Leak in suction line or filter cup	Tighten connections. Check oil lines and connections for leaks, and tighten if required.
	2 ×	Oil flow and return hoses interchanged	Connect correctly acc. to instructions on pump
	2 ×	Vacuum in suction line too high (in excess of 0.3 bar)	Check cross-section of oil lines. Replace filter. Check the external oil valve.
	2 ×	External anti-lift valve faulty	Check and, if required, replace the external anti-lift valve
Burner starts, but no oil is injected	2 ×	Solenoid coil faulty	Replace solenoid coil
	2 ×	Oil pump faulty	Replace oil pump
	2 ×	Nozzle blocked	Replace nozzle
Extraneous light during the pre-purge phase	4 ×	Oil pump solenoid valve fails to close	Replace oil pump
	4 ×	Flame monitor faulty (dark current >5.5 µA)	Replace flame monitor
	4 ×	Ignition electrodes badly adjusted or worn	Check the ignition electrodes and replace, if required.

Diagnosis (cont.)

Fault	Flash- ing code red	Cause	Measures
Burner starts and flame builds, but burner cuts out after safety time expires	2 x	Flame monitor contaminated	Clean flame monitor
	2 x	Flame monitor receives insufficient light	Clean sensor plate
	2 x	Flame monitor faulty	Replace flame monitor
	2 x	Combustion controller faulty	Replace combustion controller
	2 x	Carbon deposits on the flame tube or mixing assembly	Clean flame tube and mixing assembly
Flame extinguishes during operation	7 x	Air in suction line	Seal line and filter
	7 x	Nozzle faulty	Replace nozzle
	7 x	Burner incorrectly adjusted	Adjust pre-settings correctly (see page 43)
	7 x	Sensor plate contaminated	Clean sensor plate
Ignition switches ON during operation	7 x	Flame monitor contaminated	Clean flame monitor
	7 x	Sensor plate contaminated	Clean sensor plate
	7 x	Nozzle contaminated or faulty	Replace nozzle
	7 x	In balanced flue operation, flue gas is drawn in as well	Check flue system



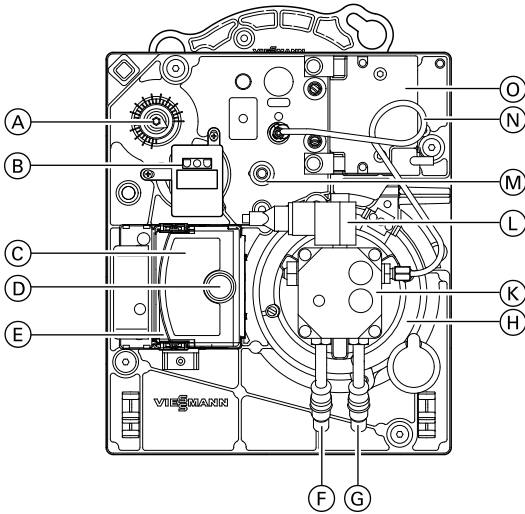
Diagnosis (cont.)

Fault	Flash- ing code red	Cause	Measures
Flame pulsates or tears off	—	Fan pressure too high	Check the static burner pressure via the test nipple on top of the fan casing (U-shaped pressure gauge). Adjust the air damper or blast tube connection so, that the lower static burner pressure (see "Standard values for burner settings", page 43) is not exceeded.
	—	Excessive oil through-put	Adjust the oil pressure correctly (see page 43)
	—	Recirculation gap "a" set incorrectly	Set recirculation gap "a" (see page 12)
	—	Condensate backup in flue gas heat exchanger	Clean siphon and neutralising system
	—	Heating surfaces of boiler or flue gas heat exchanger dirty	Clean heating surfaces of boiler or flue gas heat exchanger
Burner sooty; higher CO concentration in flue gas	—	Too little or too much air	Adjust correctly. Check and clean impeller. Check ventilation of installation room.
	—	Nozzle faulty	Replace nozzle, install correct nozzle (see page 43)
	—	Flue gas in the combustion air supply	Check flue gas system for tightness
	—	Insufficient combustion air supply	Check combustion air supply
	—	In balanced flue operation, flue gas is drawn in as well	Check flue system

Diagnosis (cont.)

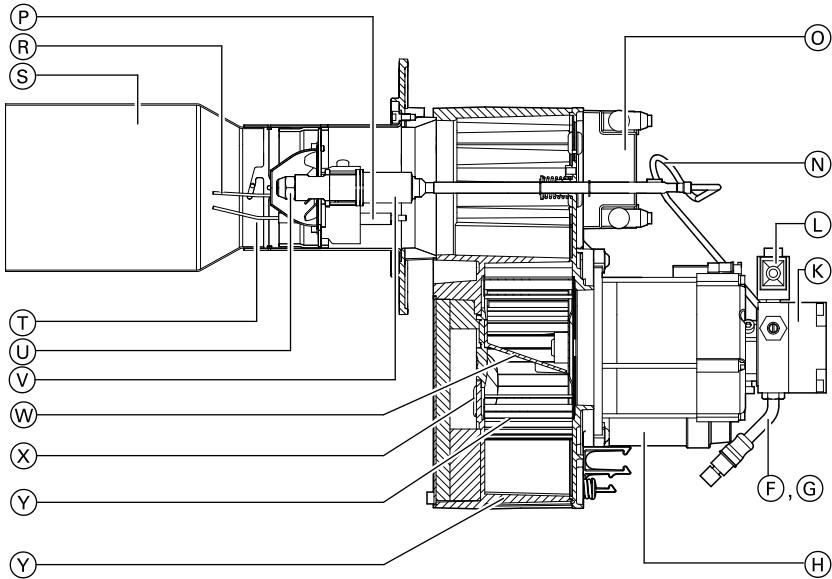
Fault	Flash- ing code red	Cause	Measures
Soot in flame tube	—	Air gap between dosing ring and adaptor pipe too great	Remove mixing assembly and pull brass ring slightly apart; fit smaller nozzle if required (see page 43)
CO ₂ content too low	—	Incorrect setting	Check setting (see page 43)
Excessive flue gas temperature	—	Excessive oil throughput	Match oil throughput to rated boiler output
	—	Boiler and flue gas heat exchanger dirty	Clean boiler and flue gas heat exchanger; correct burner settings
	—	Air in flue gas heat exchanger	Vent flue gas heat exchanger
Burner operates, constant red flickering light on the combustion controller	—	No fault, interface diagnosis	Press reset button >3 s

Component overview



- | | |
|---------------------------------|----------------------|
| (A) Air regulating valve | (H) Fan motor |
| (B) Timer | (K) Oil pump |
| (C) Combustion controller | (L) Solenoid valve |
| (D) Reset button with extension | (M) Flame monitor |
| (E) Connection panel | (N) Oil line |
| (F) Return line | (O) HF ignition unit |
| (G) Suction line | |

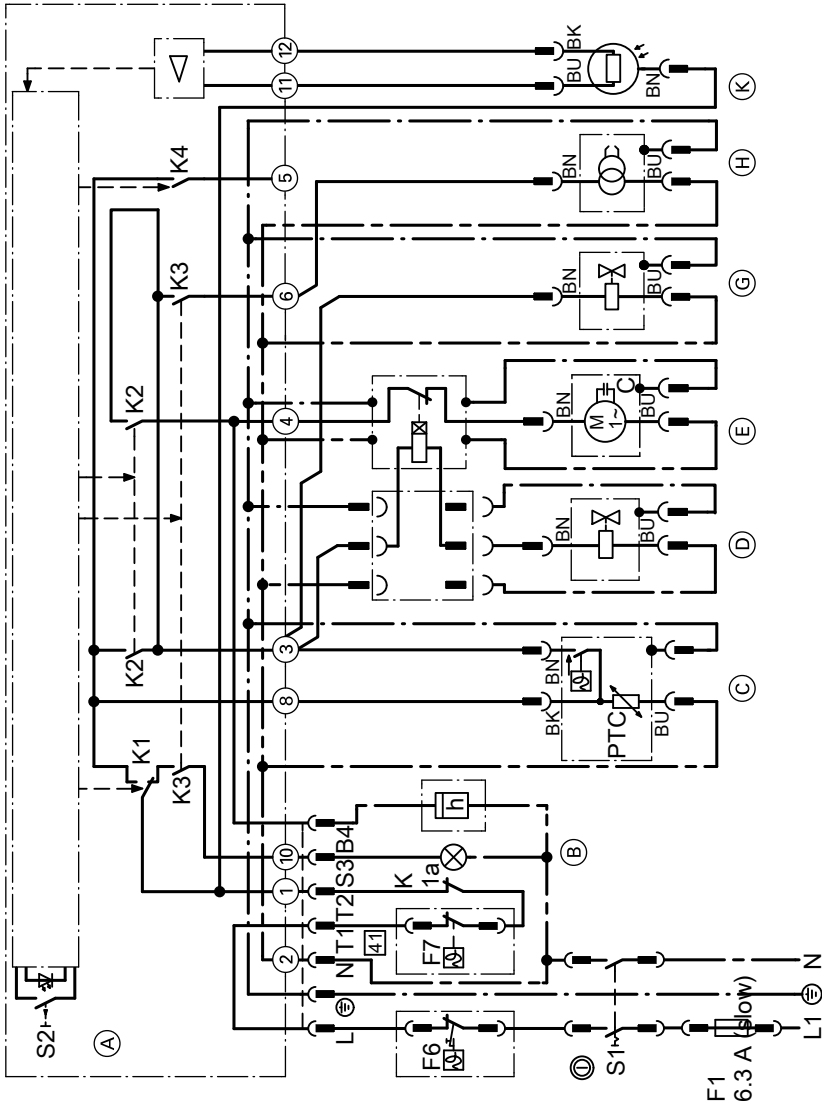
Component overview (cont.)



- (F) Return line
- (G) Suction line
- (H) Fan motor
- (K) Oil pump
- (L) Solenoid valve
- (N) Oil line
- (O) HF ignition unit
- (P) Ignition cable
- (R) Ignition electrodes

- (S) Flame tube
- (T) Mixing assembly
- (U) Oil burner nozzle
- (V) Blast tube connection with oil pre-heater
- (W) Air routing
- (X) Inlet air aperture
- (Y) Impeller
- (Z) Burner casing

Connection and wiring diagram



Connection and wiring diagram (cont.)

Note

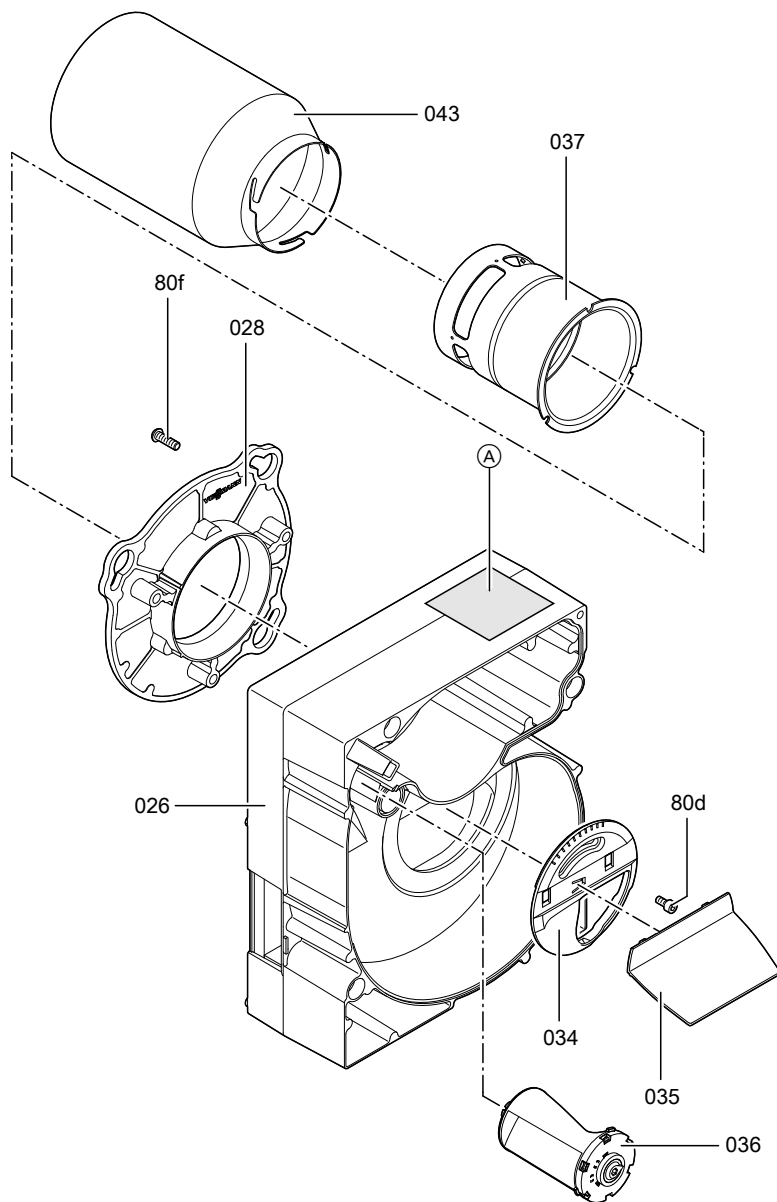
This wiring diagram only applies in conjunction with Viessmann products.

- 41 Burner plug at the control unit
- F1 Fuse in the control unit
- F6 High limit safety cut-out
- F7 Control thermostat
- S1 ON/OFF switch on the control unit
- S2 Reset button
- K1-K4 Relay contacts
- K1a Control unit relay contact
- ③-⑫ Plug-in terminals at the combustion controller
- Ⓐ Combustion controller (for program sequence, see page 19)
- Ⓑ Fault display in the control unit
- Ⓒ Oil preheater
- Ⓓ Solenoid valve on the oil pump
- Ⓔ Burner motor
- Ⓖ Solenoid valve for external connection via adaptor
- Ⓗ HF ignition unit
- Ⓚ Flame monitor

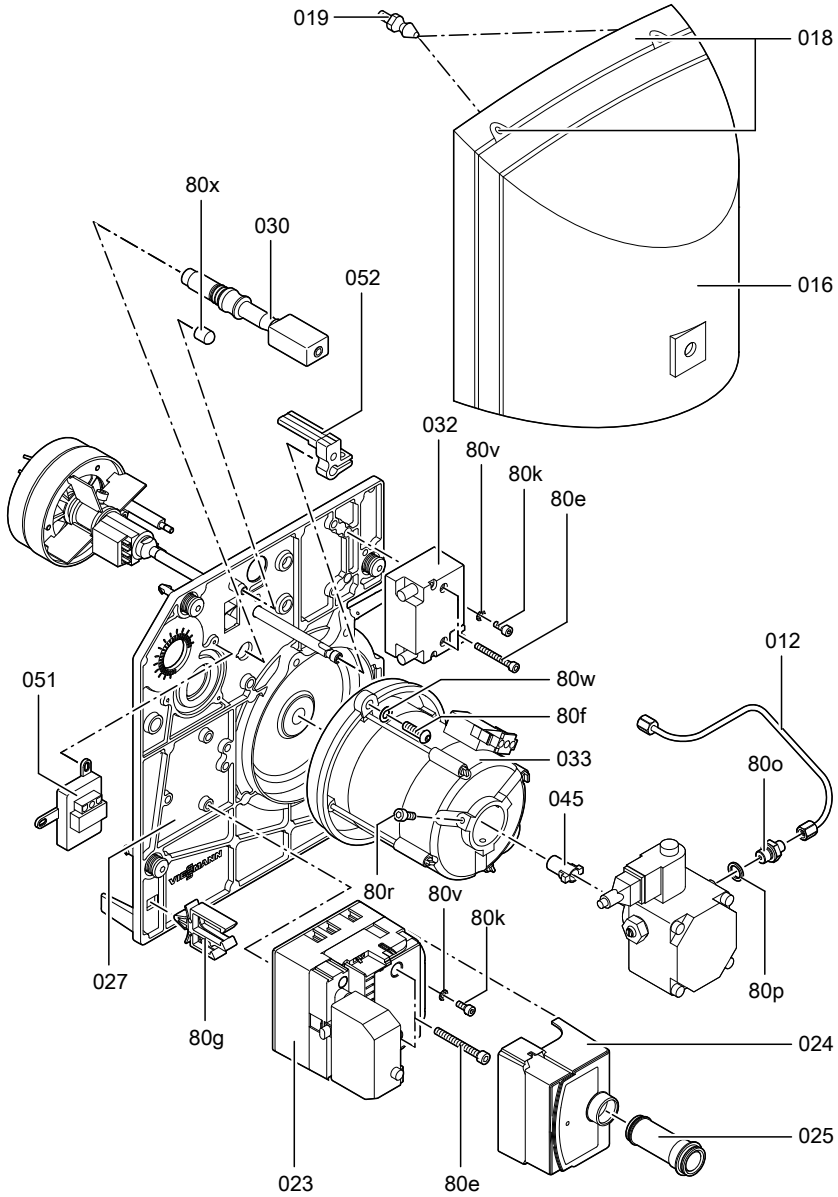
Colour coding to DIN IEC 60757

BK	black
BN	brown
BU	blue

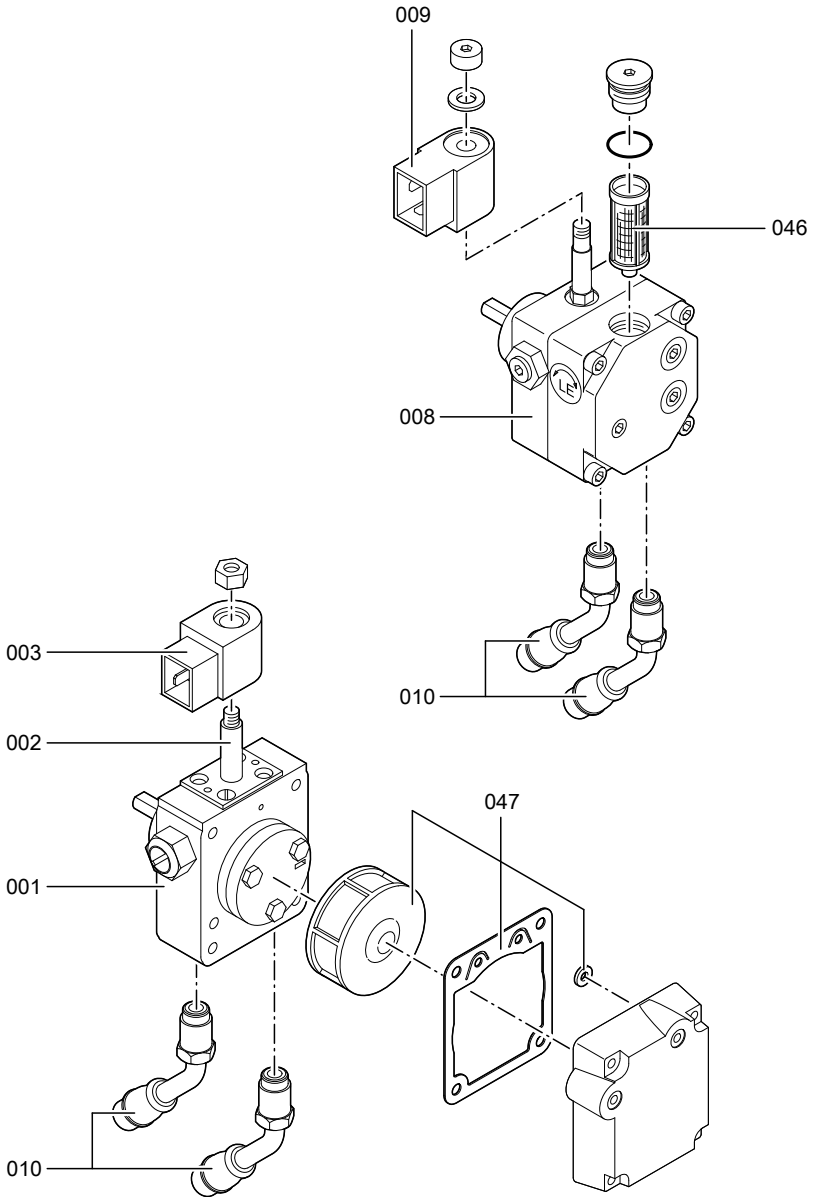
Parts list (cont.)



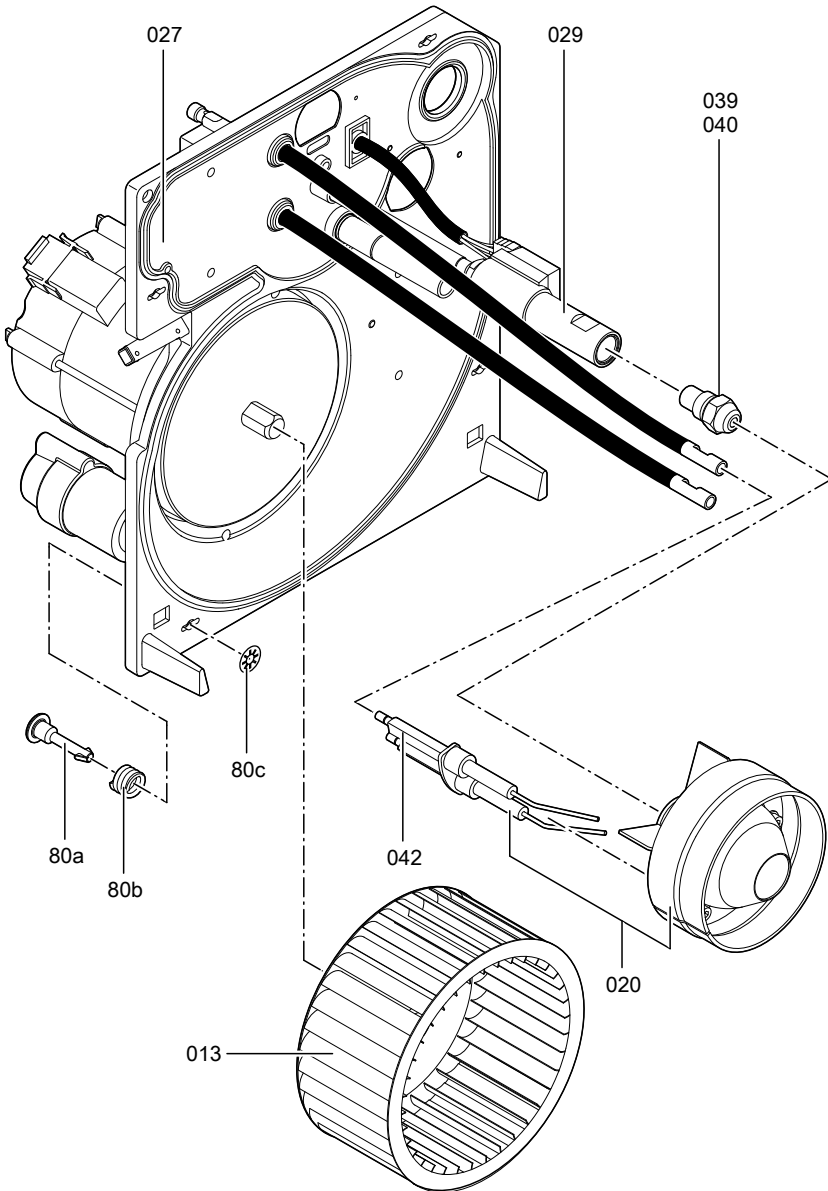
Parts list (cont.)



Parts list (cont.)



Parts list (cont.)



Report

Setting and test values			Commissioning	Maintenance/service
Oil pressure	actual	<i>bar</i>		
	adjusted	<i>bar</i>		
Vacuum	actual	<i>bar</i>		
	after maintenance	<i>bar</i>		
Soot value	actual			
	after maintenance			
Carbon dioxide content CO ₂	actual	<i>% by vol.</i>		
	adjusted	<i>% by vol.</i>		
Carbon monoxide content CO	actual	<i>ppm</i>		
	adjusted	<i>ppm</i>		
Oxygen content O ₂	actual	<i>% by vol.</i>		
	adjusted	<i>% by vol.</i>		
Gross flue gas temperature	actual	<i>°C</i>		
	adjusted	<i>°C</i>		
Flue gas loss	actual	<i>%</i>		
	adjusted	<i>%</i>		
Draught	actual	<i>hPa</i>		
	adjusted	<i>hPa</i>		
Distance between nozzles (external) see page 15	actual	<i>mm</i>		
	adjusted	<i>mm</i>		
Air damper setting	actual			
	adjusted			

Specification

Specification

Rated boiler output	kW	40	50
Burner type		VHG II-1	VHG II-2
Type test no. to EN 267		5G999/03S	
Voltage	V	230	
Frequency	Hz	50	
Power consumption comprising 4 ignition processes per hour	W	340	
Motor speed	rpm	2800	
Version		Single stage	
Oil pump rate	l/h	45	
Connections Suction and return lines on the supplied oil hoses	R (female thread)	$\frac{3}{8}$	

Standard values for burner settings

Notes regarding burner settings for balanced flue operation

The burner must be adjusted with the ventilation air and flue pipes fully connected. Once it has been adjusted, no further pipes may be connected and existing pipes may not be removed or altered.

If using room sealed or coaxial ventilation air and flue systems

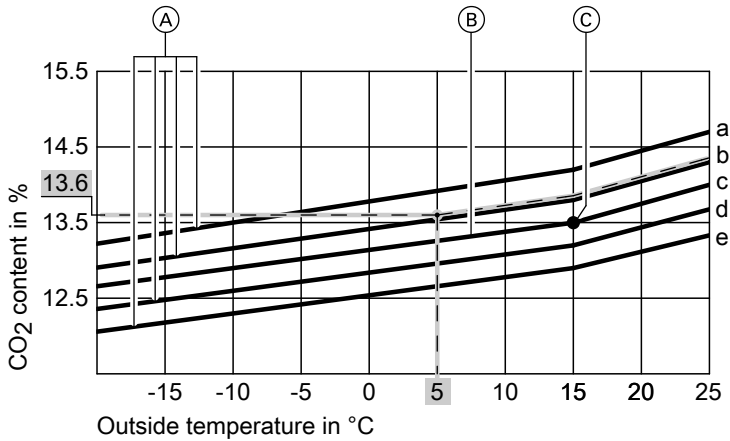
When making the adjustments, also take account of the **average** local air pressure.

To make burner settings, the boiler water temperature must be at least 60 °C.

If using separate or parallel ventilation air and flue systems

If, at the time when burner settings are made, the outside air temperature is not +15 °C, we recommend adjusting the CO₂ value by adjusting the air volume (for adjustment procedure, see page 6; standard values for air damper and blast tube connection settings can vary slightly on account of geodetic height, air pressure and temperature) in accordance with the table below.

Standard values for burner settings (cont.)



(A) Actual air pressure

(B) Assumed average air pressure

(C) Reference point outside temperature/CO₂ content

Assumptions regarding the table:

- Length of the ventilation air line (∅ 80 mm) in the building: 5 m
- Boiler room temperature: 18 to 22 °C

Air pressure at geodetic height	m	up to 300	up to 600	up to 1000
a	mbar	940	905	860
b	mbar	960	925	880
c	mbar	980	945	900
d	mbar	1000	965	920
e	mbar	1020	985	940

Example:

Actual system conditions:

Geodetic height 600 m above sea level

Outside temperature 5 °C

Air pressure 925 mbar

Result: adjust CO₂ content to 13.6%.

Note

Check that the service instructions are applicable for the burner concerned (see notes on applicability, page 48 and the serial no. on the burner type plate).

Standard values for burner settings (cont.)

Rated heating output	kW	40	50	
Oil burner nozzle				
Make: Danfoss ^{*2}	Type	80°S-LE	80°S-LE	
	Gph	0.85	1.10	1.00
Oil pressure approx. ^{*3}	bar	12.9 - 15.9	11.9 - 14.9	16.0 - 19.0
Oil throughput	kg/h	3.7	4.6	4.6
	l/h	4.4	5.4	5.4
Air damper setting		6.5	12.0	12.0
Air inlet aperture setting		7.5		
Static burner pressure ^{*4}	mbar	12	12	12
Blast tube connection setting	mm	3	6	6

^{*2} The requirements for the certificate of environmental excellence were verified only with the nozzles specified.

^{*3} Due to nozzle tolerances and varying oil characteristics, the oil pressure may vary from the values shown.

^{*4} To check the burner settings.

Keyword index

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Applicability

from serial no.

7199 246 7 00001 _ _ _

7199 247 7 00001 _ _ _

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