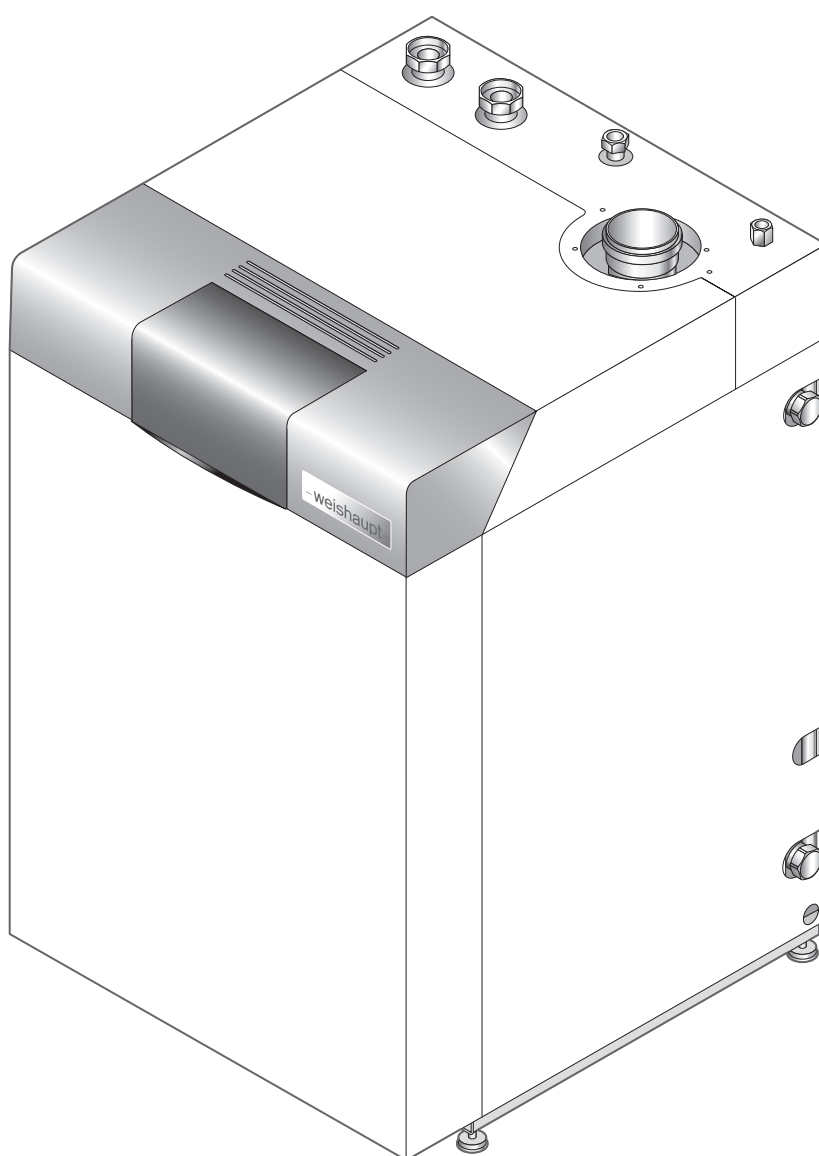


–weishaupt–

manual

Installation and operating instruction



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Translation of original
operating instructions

1 User instructions

This manual forms part of the equipment and must be kept on site.

Carefully read the manual prior to working on the appliance.

1.1 Target group

The manual is intended for the operator and qualified personnel. They should be observed by all personnel working with the appliance.

Work on the appliance must only be carried out by personnel who have the relevant training and instruction.

In accordance with EN 60335-1 the following requirements apply

This appliance can be used by children 8 years and above as well as by persons with limited physical, sensory or mental capacities or lack of experience and knowledge, provided they are supervised or have been instructed regarding the safe use of the appliance and understand the resulting danger. Children must not play with the appliance. Cleaning and operator maintenance must not be carried out by children without supervision.

1.2 Symbols

 DANGER	Immediate danger with high risk. Non observance can lead to serious injury or death.
 WARNING	Danger with medium risk. Non observance can lead to environmental damage, serious injury or death.
 CAUTION	Danger with low risk. Non observance can cause damage to the equipment and injury to personnel.
	Important information
	Requires direct action
	Result after an action
	Itemisation
	Range of values

1 User instructions

1.3 Guarantee and Liability

Guarantee and liability claims for personal and equipment damage are excluded, if they can be attributed to one or more of the following causes:

- non approved application,
- non-observance of the manual,
- operation with faulty safety equipment,
- continual operation despite a fault,
- improper installation, commissioning, operation and service,
- repairs, which have been carried out incorrectly,
- the use of non original Weishaupt parts,
- force majeure,
- unauthorised modifications made to the appliance,
- the installation of additional components, which have not been tested with the appliance,
- changes to the combustion chamber,
- unsuitable fuels,
- defects in the inlet lines,
- on non diffusion tight heating circuits without system separation.

2 Safety

2.1 Designated application

The appliance is suitable for:

- Warm water heating circuits in closed systems to EN 12828,
- a flow rate of maximum 1500 l/h.

The combustion air must be free from aggressive compounds (e. g. Halogens). If the combustion air in the boiler room is contaminated, increased cleaning and servicing will be required. In this case the appliance should be operated room air independent.

The appliance should only be used in enclosed rooms.

The installation room must comply with local regulations.

Improper use could:

- endanger the health and safety of the user or third parties,
- cause damage to the appliance or other material assets.

2.2 What to do if flue gas can be smelled

- ▶ Switch off appliance and turn off the system.
- ▶ Open doors and windows.
- ▶ Notify your heating contractor or Weishaupt Customer Service.

2.3 Safety measures

Safety relevant fault conditions must be eliminated immediately.

Components, which show increased wear and tear or whose design lifespan is or will be exceeded prior to the next service should be replaced as a precaution [ch. 9.2].

The design lifespan of the components is listed in the service plan.

2.3.1 Normal operation

- All labels on the appliance must be kept in a legible condition.
- Stipulated settings, service and inspection work should be carried out at regular intervals.
- Only operate the appliance with its cover closed.
- Do not touch moving parts during operation.

2.3.2 Electrical connection

For work carried out on live components:

- Observe the accident prevention instructions DGUV Regulation 3 and adhere to local directives,
- tools in accordance with EN 60900 should be used.

2.4 Disposal

Dispose of all materials and components in a safe and environmentally friendly way at an authorised location. Observe local regulations.

3 Product description

3 Product description

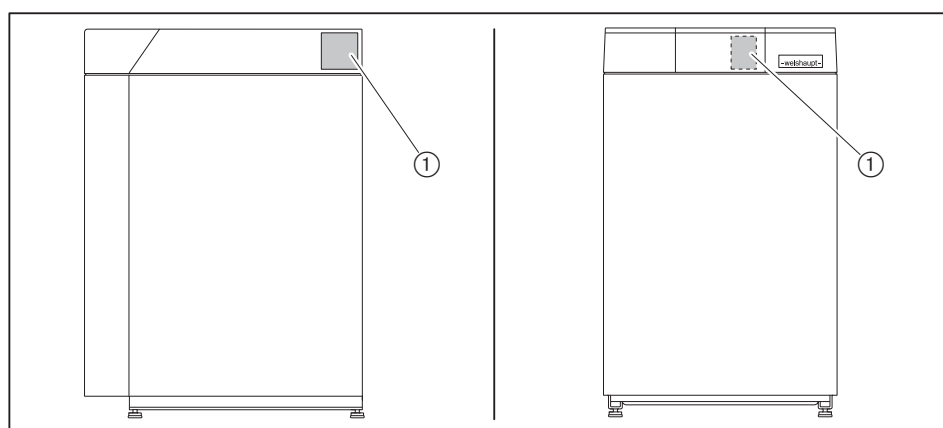
3.1 Type key

Example: WTC-OB 18-B VERS. W-PEA

WTC	Range: Weishaupt Thermo Condens
O	Fuel: Oil
B	Type of construction: floor standing
18	Ratings size: 18 kW
B	Construction
VERS. W	Version: heating mode and DHW mode
VERS. H	Version: heating mode only
PEA	Speed controlled circulation pump (efficiency class A)
0	Without circulation pump

3.2 Serial number

The serial number on the name plate identifies the product. This is required by Weishaupt's customer service department.

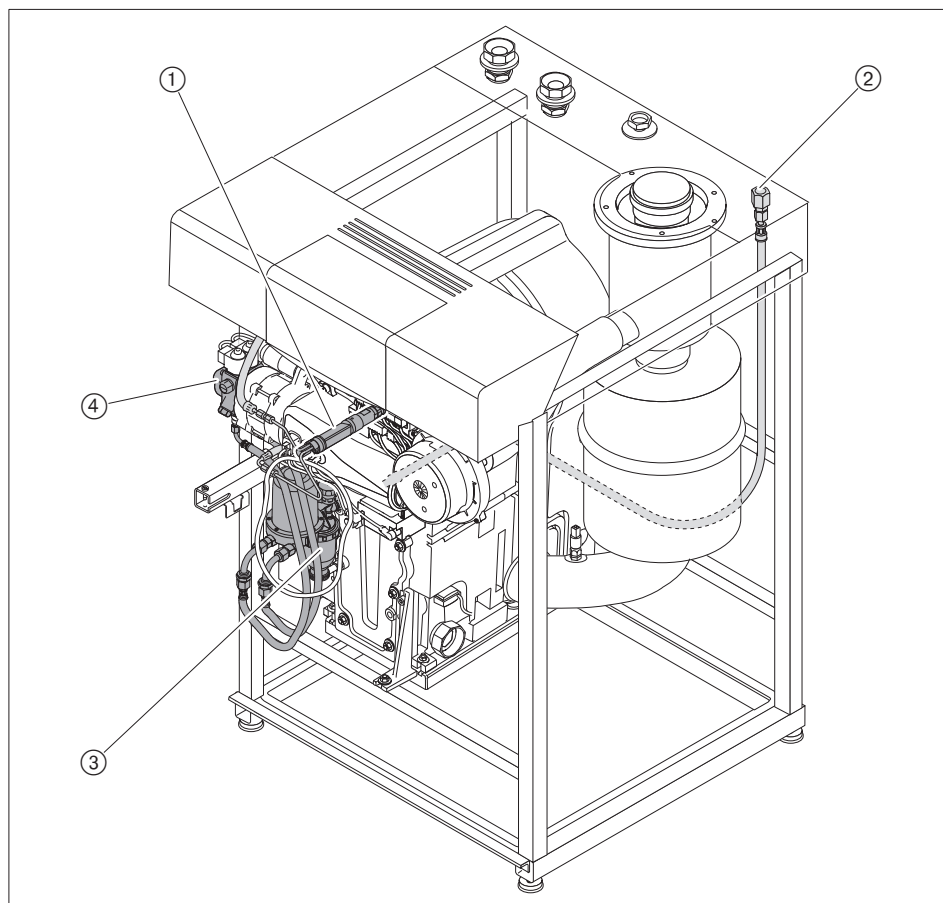


① Name plate

Ser.No. _____

3.3 Function

3.3.1 Oil carrying parts

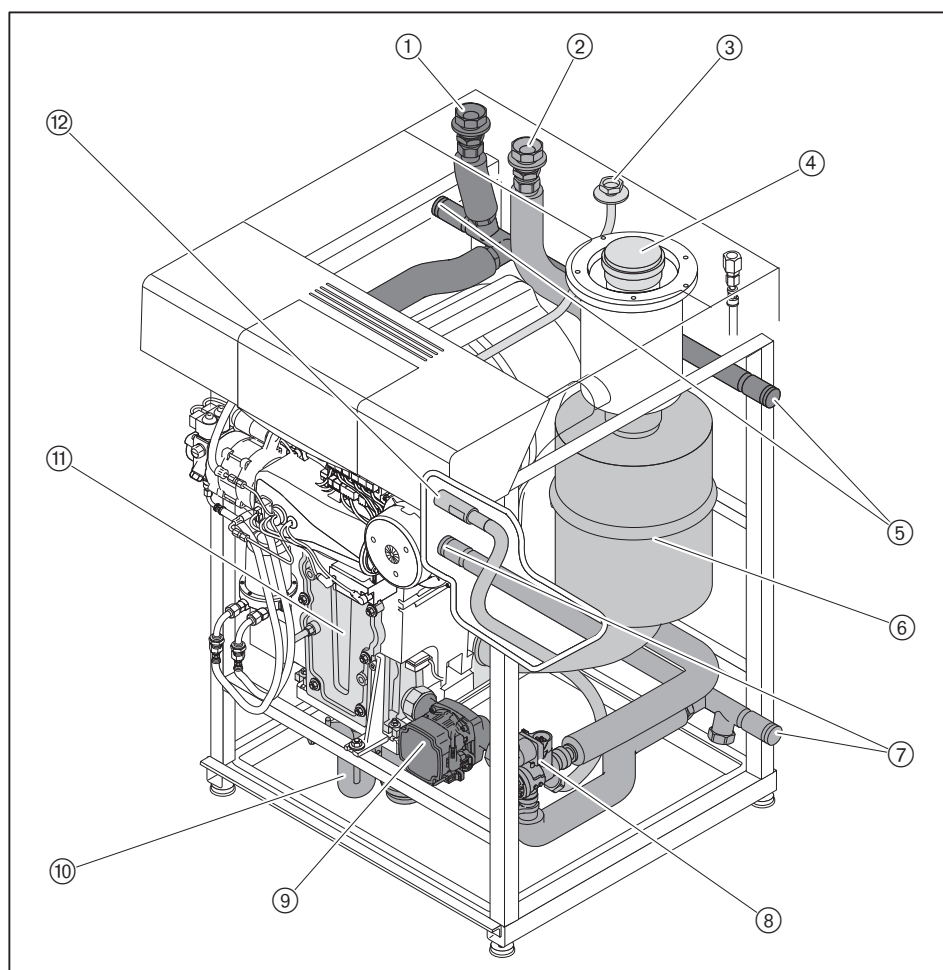


- ① Nozzle body
- ② Connect oil supply
- ③ Oil filter vent combination
- ④ Oil pump

3 Product description

3.3.2 Water and flue gas carrying parts

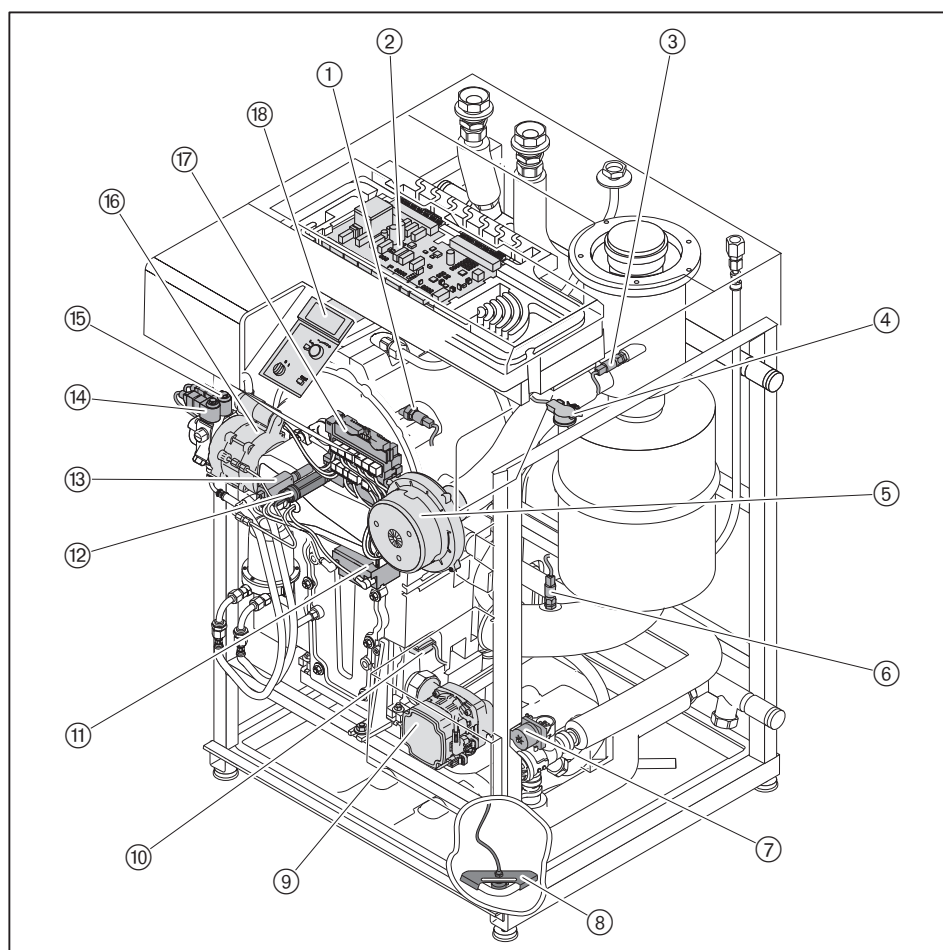
Image: WTC-OB 18-B VERS. W-PEA



- ① Heating circuit flow
- ② Heating circuit return
- ③ Safety valve connection
- ④ Flue gas connection
- ⑤ DHW circuit flow
- ⑥ Flue gas sound attenuator
- ⑦ DHW circuit return
- ⑧ Three way valve
- ⑨ Speed controlled circulation pump
- ⑩ Siphon
- ⑪ Heat exchanger
- ⑫ Connection inlet and outlet tap / expansion vessel

3.3.3 Electrical components

Image: WTC-OB 18-B VERS. W-PEA



- ① Flow sensor
- ② Boiler electronics WCM-OB-CPU with electrical connection and appliance fuse
- ③ Combustion air sensor
- ④ Combustion chamber pressure sensor
- ⑤ Speed controlled fan
- ⑥ Flue gas sensor
- ⑦ Actuator three way valve
- ⑧ Level switch
- ⑨ Speed controlled circulation pump
- ⑩ System pressure sensor/return flow sensor
- ⑪ Ignition unit (with fixing plate for setting gauge)
- ⑫ Oil preheating
- ⑬ Flame sensor
- ⑭ Stage 2 oil solenoid valve
- ⑮ Stage 1 oil solenoid valve
- ⑯ Pump motor
- ⑰ Burner connection console
- ⑱ Boiler control panel WCM-CUI

3 Product description

3.3.4 Safety and monitoring functions

Flow sensor eSTB

The fuel supply is shut off and the fan and the pump run-on are activated if the temperature exceeds 95 °C (W12). The appliance restarts automatically if the temperature drops below the target supply value for 1 minute.

The fuel supply is shut off and the fan and the pump run-on are activated if the temperature exceeds 105 °C. The system goes to lockout (F11). This locking function of the supply sensor replaces the water deficiency safety function in accordance with EN 12828.

Flue gas sensor

The fuel supply will be switched off and the fan and pump run-on activated if the flue gas temperature exceeds the values defined in parameter 33 (factory setting 120 °C) (F13). On proximity to the safety temperature stage 1 is started, at 5 K difference (115 °C) the burner shuts down (W16).

Differential temperature flow / return

The boiler is switched off if the difference between the supply temperature and return flow temperature exceeds a preset value (W15). The installation goes to lockout after 30 warnings with (F15).

System pressure sensor

If the system pressure drops below the value of parameter 39, a warning message is issued (W36). If the system pressure drops below 0.5 bar, the appliance shuts down (F36). If the pressure increases above 0.5 bar, the appliance automatically restarts.

Combustion chamber pressure sensor

The appliance shuts down if the combustion chamber pressure exceeds the predetermined value (W19). The installation goes to lockout after 3 warnings with (F19). When approaching the specified value, a service message appears in the display, the spanner icon flashes intermittently (twice briefly, long pause).

Level switch

The level switch is used to monitor leakage from water and oil carrying components in the appliance. If the termination well is filled with liquid, the burner shuts down (W25).

3.3.5 Program sequence

Oil preheating

At heat demand ①, the heat exchanger ② heats the oil in the nozzle assembly. The display shows an H. When a temperature of approx. 45 °C is reached, the temperature switch ③ closes.

Pre-purge

The fan ④ starts and runs to the pre-purge speed.

Ignition

The ignition ⑤ and the pump motor ⑥ are switched on.

Stage 1 ⑦ and stage 2 ⑧ solenoid valves open (burner starts with stage 2).

A flame ⑨ is formed. Oil preheating ② is switched off.

Flame stabilisation

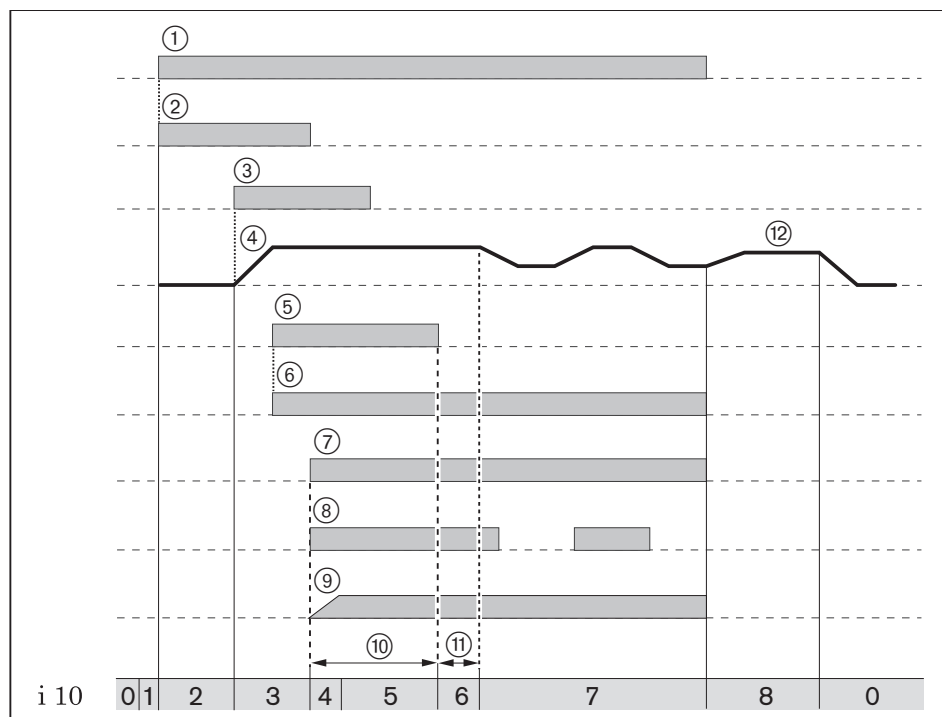
Ignition is switched off once the safety time and post-ignition phase ⑩ has elapsed. The flame stabilisation time ⑪ follows.

Operation

The burner is in operation. The flame sensor monitors the flame. The boiler electronics active the solenoid valve for stage 2 ⑧ depending on heat demand.

Post-purge

If there is no longer a heat demand, the solenoid valves close and stop the fuel supply. Following the post-purge phase ⑫ the fan switches off.



i 10 Operating phase [ch. 6.3.1]

3 Product description

3.4 Technical data

3.4.1 Approval data

Method of installation	B ₂₃ , B ₃₃ , C ₁₃ ⁽¹⁾ , C ₃₃ , C ₅₃ , C ₆₃ ⁽²⁾ , C ₉₃
DIN CERTCO	3R279/...
VKF	22349

⁽¹⁾ France and Belgium only

⁽²⁾ Not for Belgium

Basic standards	EN 267: 2011 EN 303-1: 2003 EN 303-2: 2003 EN 15034: 2007 EN 15035: 2007 Additional standards, see EU conformity certification.
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3.4.2 Electrical data

Mains voltage / mains frequency	230 V/50 Hz
Consumption	max 350 W
Power consumption without circulation pump	max 140 W
Power consumption standby	4 W
Internal appliance fuse	T6.3H, IEC 127-2/5
Fuse	max 16 A
Type of protection	IP 42D

3.4.3 Ambient conditions

Temperature in operation	+3 ... +30 °C
Temperature during transport / storage	-10 ... +60 °C
relative humidity	max 80 %, no dew point

3.4.4 Fuels

- Fuel oil EL low-sulphur (max 50 mg/kg sulphur)
to DIN 51603-1 or similar national standards,
- fuel oil EL A Bio 10 low-sulphur (max 50 mg/kg sulphur)
to DIN 51603-6 or similar national standards.

Addition of ash-forming additives is prohibited.

3.4.5 Emissions

Sound levels

Dual number noise emission values

Measured sound power level L_{WA} (re 1 pW)	57 dB(A) ⁽¹⁾
Uncertainty value K_{WA}	4 dB(A)
Measured sound pressure level L_{pA} (re 20 µPa)	50 dB(A) ⁽²⁾
Uncertainty value K_{pA}	4 dB(A)

⁽¹⁾ Determined to ISO 9614-2.

⁽²⁾ Determined at 1 metre distance from the front of the appliance.

The measured noise levels plus uncertainty values form the upper limit value, which could occur when measuring.

3.4.6 Rating

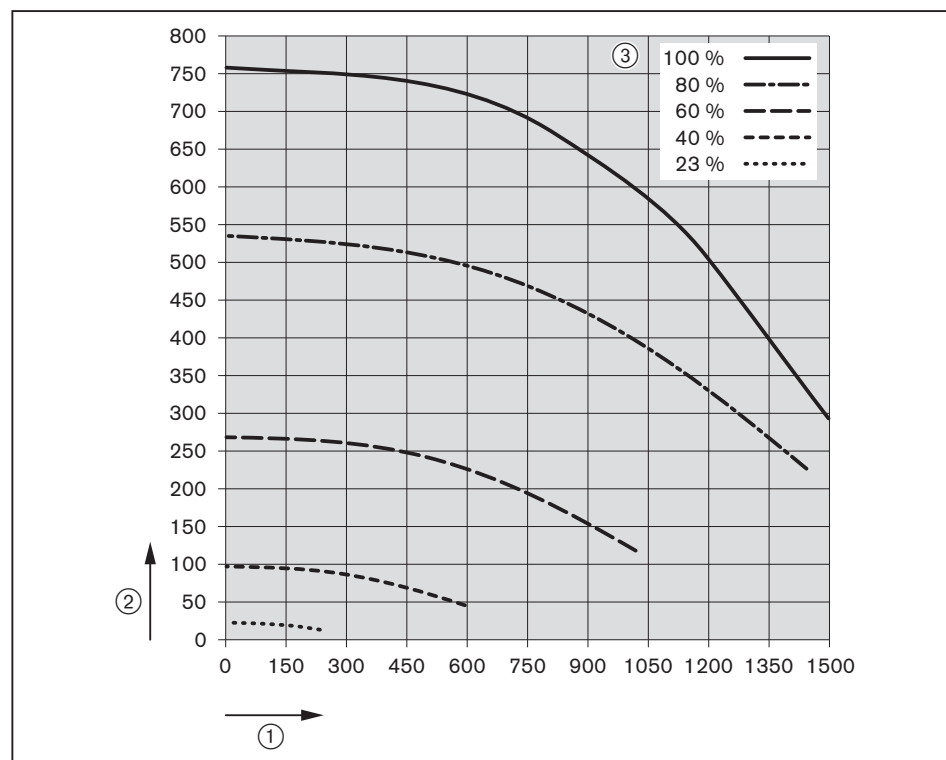
	Stage 1	Stage 2
Combustion heat rating Q_B	11.6 kW	17.6 kW
Boiler capacity at 80/60 °C	11.3 kW	17.2 kW
Boiler capacity at 50/30 °C	12.2 kW	18.3 kW
Condensate quantity at 50/30 °C	0.8 l/h	1.0 l/h

3 Product description

3.4.7 Hydraulic data

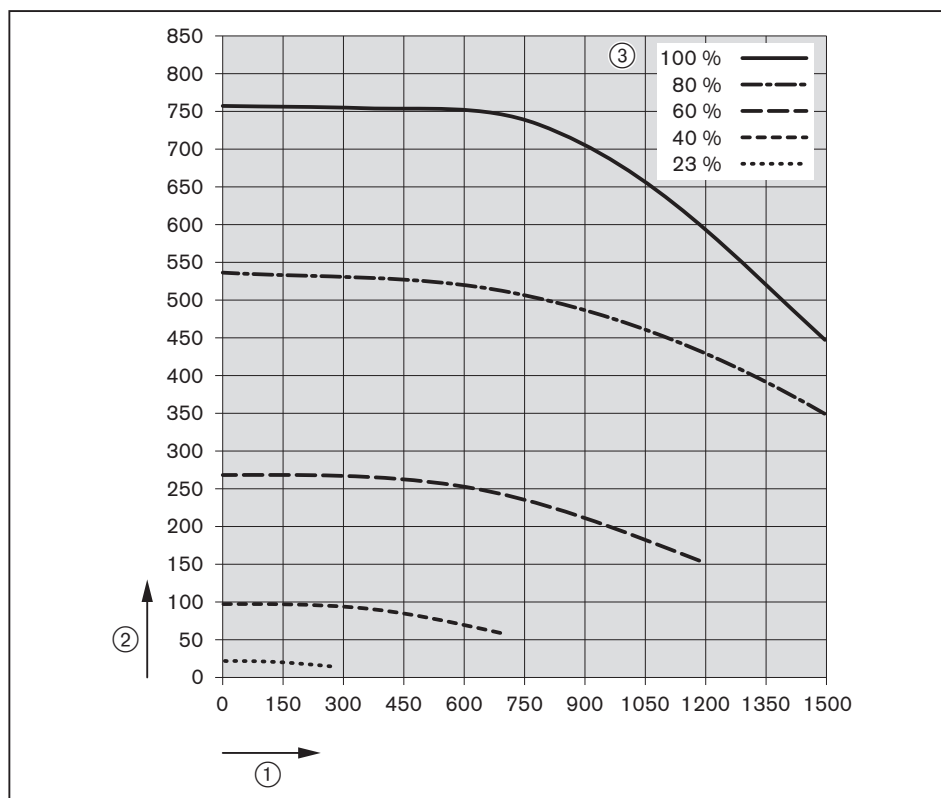
Water content version H	11 litres
Water content version W and H-0	13 litres
Boiler temperature	max 85 °C
Operating pressure	max 3 bar
Throughput limit	1500 l/h

Resulting supply pressure version W-PEA



- ① Throughput [l/h]
- ② Resulting supply pressure [mbar]
- ③ Circulation pump capacity

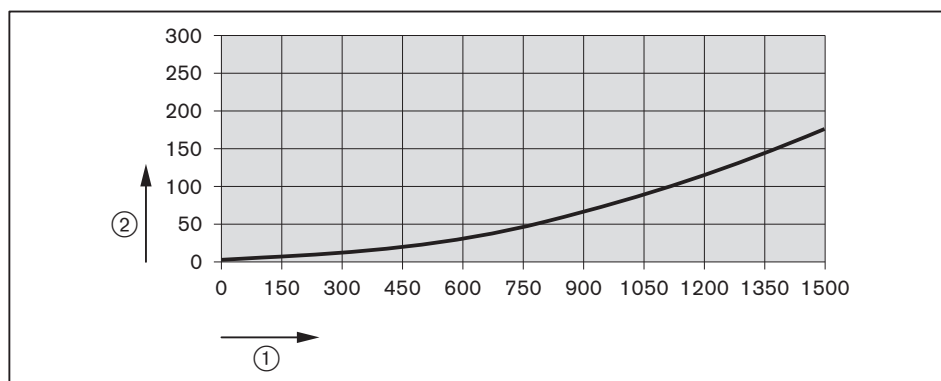
Resulting supply pressure version H-PEA



- ① Throughput [l/h]
- ② Resulting supply pressure [mbar]
- ③ Circulation pump capacity

Pressure loss version H-0

Observe the pressure loss of the appliance and the maximum flow rate limit when determining the hydraulic layout of the heating system.



- ① Throughput [l/h]
- ② Pressure loss [mbar]

3 Product description

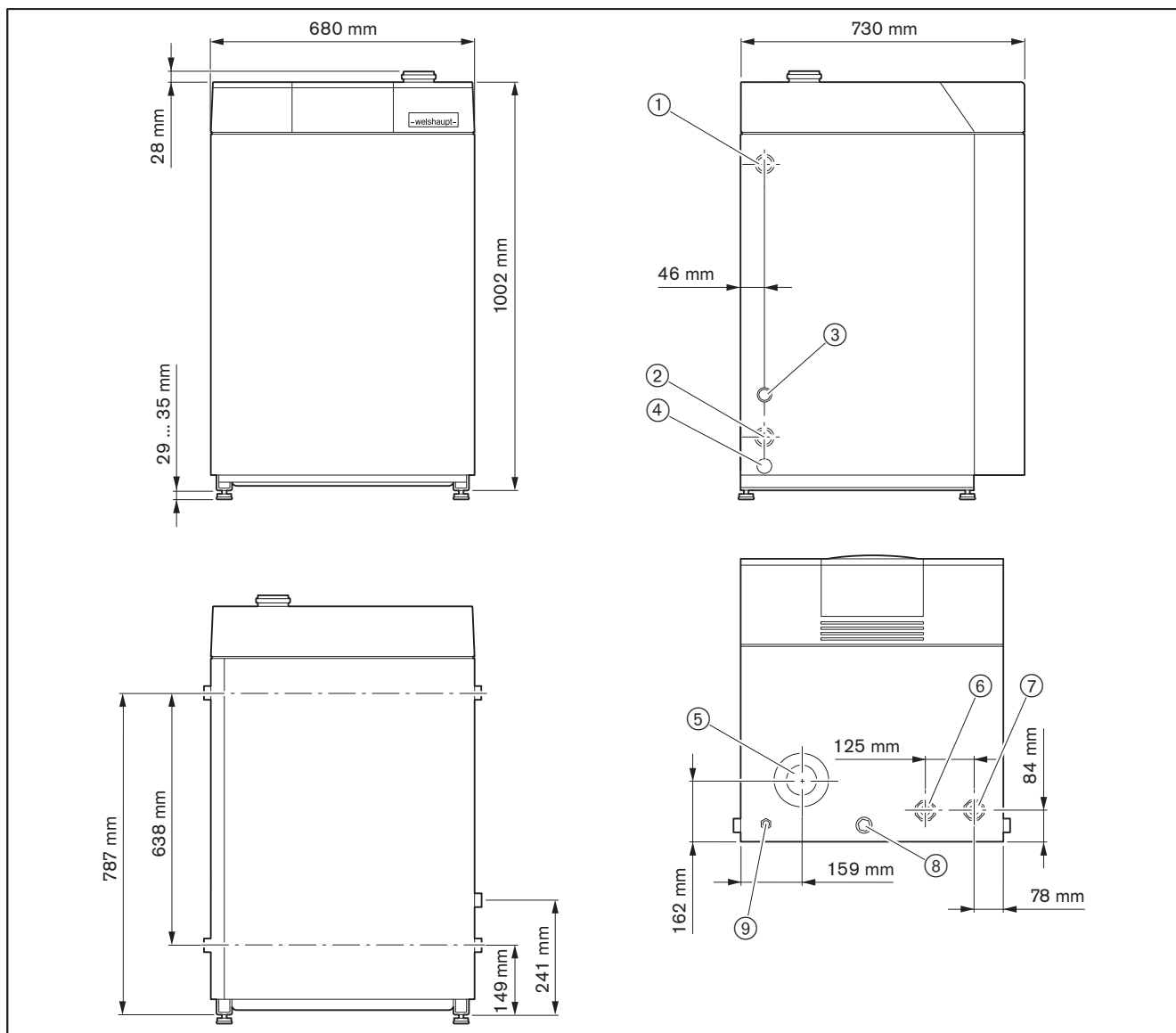
3.4.8 Flue gas system data

	Stage 1	Stage 2
Residual supply pressure at flue gas outlet	40 Pa	60 Pa
Flue gas mass flow rate	4.8 g/s	7.1 g/s
Flue gas temperature at 80/60 °C	56 °C	58 °C
Flue gas temperature at 50/30 °C	34 °C	39 °C

3.4.9 EnEV Product Characteristics

Boiler efficiency factor at 100 % capacity and at medium boiler temperature 70 °C	97.6 % H _i (92.1 % H _s)
Boiler efficiency factor at 30 % capacity and at return temperature 30 °C	104.7 % H _i (98.8 % H _s)
Standby loss at 50 K above room temperature	1.2 %; 215 W
Standby loss at 30 K above room temperature	0.7 %; 115 W

3.4.10 Dimensions



- ① Flow fresh water storage G1
- ② Return fresh water storage G1
- ③ Inlet and outlet tap / expansion vessel G $\frac{3}{4}$
- ④ Condensate outlet
- ⑤ Supply air/flue gas DN 125/80
- ⑥ Heating circuit return G1 $\frac{1}{2}$
- ⑦ Heating circuit flow G1 $\frac{1}{2}$
- ⑧ Safety valve G $\frac{3}{4}$
- ⑨ Oil supply G3/8

3.4.11 Weight

Weight empty approx. 107 kg

4 Installation

4 Installation

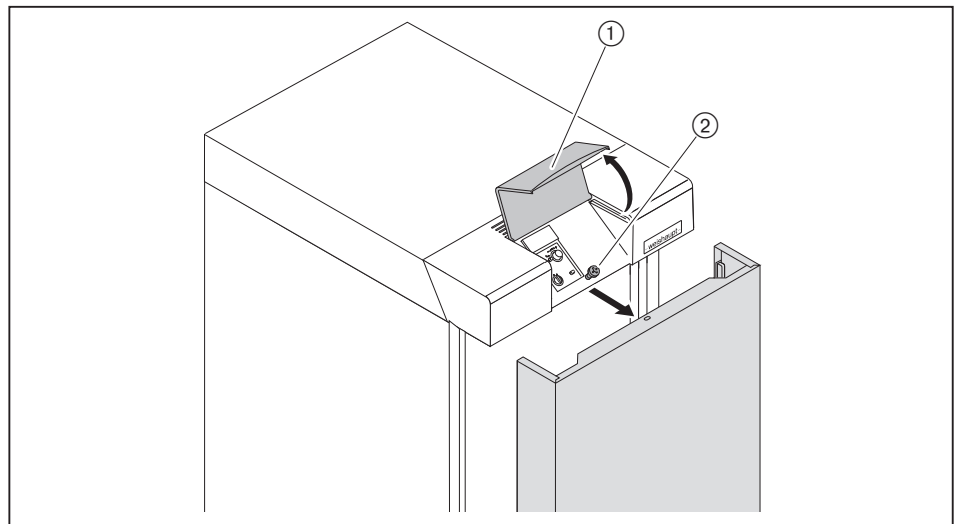
4.1 Installation conditions

- ▶ Prior to installation ensure that:
 - the minimum distance is maintained [ch. 4.2],
 - the condensate can drain away,
 - the transport route is free and stable [ch. 3.4.11],
 - the footprint is stable and level,
 - the space for the hydraulic connection is sufficient,
 - the installation location is frost free and dry.

4.2 Installing the appliance

Removing front panel

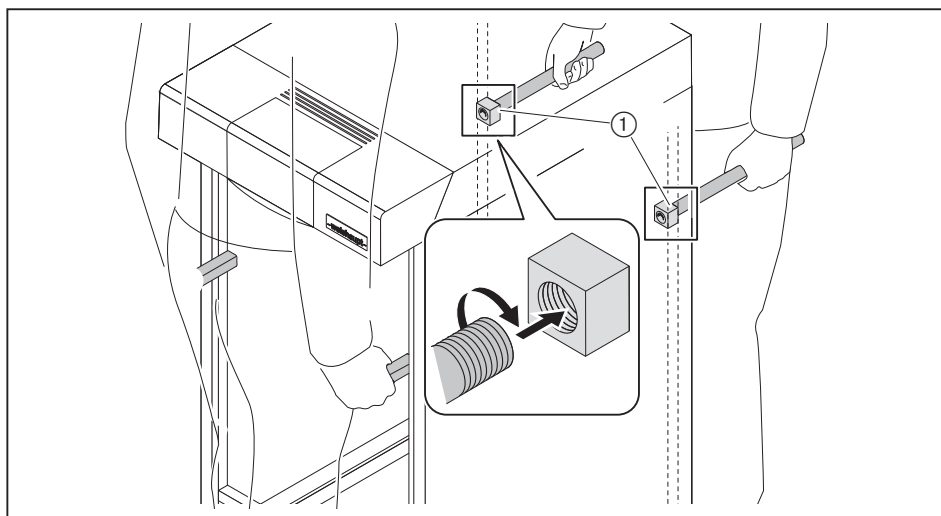
- ▶ Open flap ① on boiler control panel.
- ▶ Undo screw ② and remove front panel.



Transport

The following carrying handles can be used for transport.

- Screw $\frac{3}{4}$ " pipes to the transport points ①.



Minimum clearance

Observe minimum distance to the wall for service work.

front	50 cm
side	2 cm

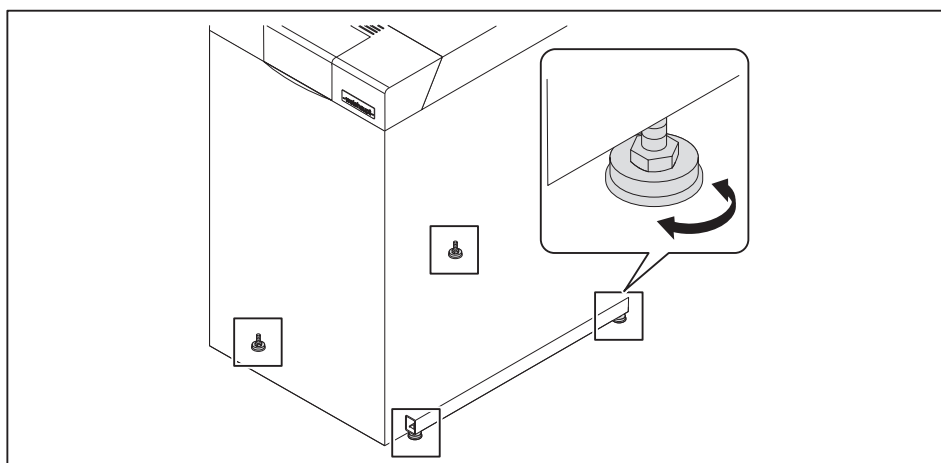
Adjustment



If it is necessary to raise the condensate drain, a appliance foot extension kit (accessory) can be installed.

Foot screw adjustment range: 0 ... 15 mm

- Level horizontally using the foot screws.



5 Installation

5 Installation

5.1 Requirements for the heating water



In support of VDI guideline 2035 the following requirements are applicable for heating water.

- Untreated fill and top-up water must be of domestic water quality (colourless, clear and without any sedimentation).
- The fill and top-up water must be pre-filtered (mesh max 25 µm).
- The pH value must be 8.5 ± 0.5 .
- There must be no oxygen enrichment of the heating water (max 0.02 mg/l).
- With non-diffusion resistant system components, the appliance must be decoupled from the heating circuit by means of a separator.

5.1.1 Water hardness

The permissible water hardness is determined in proportion to the fill and top up water quantity.

- Determine from the diagram below whether water treatment measures are necessary.

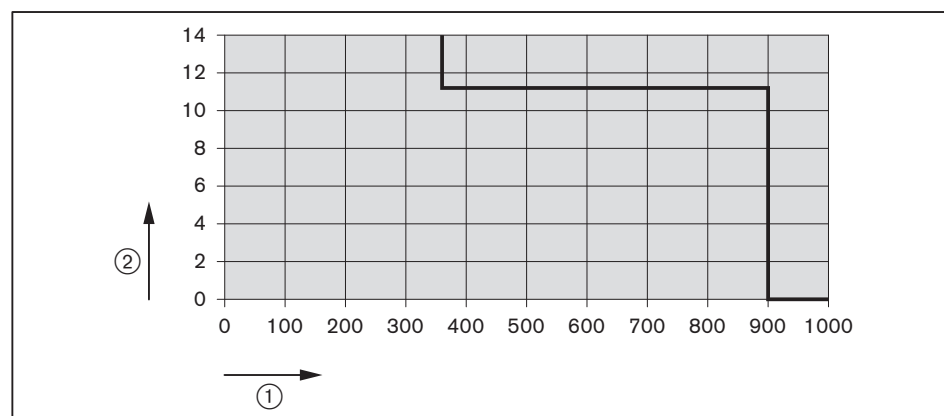
If the fill and top up water lies in the upper range of the limit curve:

- treat the fill and top-up water.

If the fill and top up water lies in the lower range of the limit curve, treatment is not necessary.



- Record the fill and top-up water quantities in a system logbook.



- ① Fill and top up water quantity [litres]
- ② Total hardness [°dH]

5.1.2 Fill water quantity

If information about the fill water quantity is not available, the following table can be used to estimate the quantity.

For systems with buffer vessels, the buffer content must be taken into account.

Heating system	Estimated fill water quantity ⁽¹⁾	
	55/45 °C	70/55 °C
Pipe and steel radiators	37 l/kW	23 l/kW
Cast iron radiators	28 l/kW	18 l/kW
Panel radiators	15 l/kW	10 l/kW
Air conditioning	12 l/kW	8 l/kW
Convectors	10 l/kW	6 l/kW
Underfloor heating	25 l/kW	25 l/kW

⁽¹⁾ based on the heating requirements of the building.

5.1.3 Treat the fill and top-up water

De-ionisation (recommended by Weishaupt)

- De-ionise the fill and top-up water completely.
(Recommendation: mixed bed procedure)

When the heating water has been entirely de-ionised, additional top-up water up to 10 % of the system contents may be untreated. Higher quantities of top-up water must be de-ionised.

- Check the pH value (8.5 ± 0.5) of the de-ionised water:
 - after the commissioning,
 - after approx. 4 weeks of operation,
 - during the annual servicing.
- If necessary, increase the pH value of the heating water by the addition of Trisodium Phosphate.

Softening (cation exchanger)



CAUTION

Damage to the appliance due to raised pH value

Softening the water by means of cation exchange leads to self alkalisation of the heating water. Corrosion can damage the appliance.

- Following the softening of the water by means of cation exchanger the pH value has to be stabilised.

- Soften the fill and top-up water.
- Stabilise the pH value.
- Check pH value of (8.5 ± 0.5) during the annual servicing.

Stabilisation of hardness



CAUTION

Damage to the appliance due to inappropriate inhibitors

Corrosion and scale could damage the appliance.

- Only use inhibitors when the manufacturer can guarantee the following:
 - the requirements relating to the heating water are fulfilled,
 - the heat exchanger in the appliance will not be attacked by corrosion,
 - there will be no formation of sludge in the heating system.

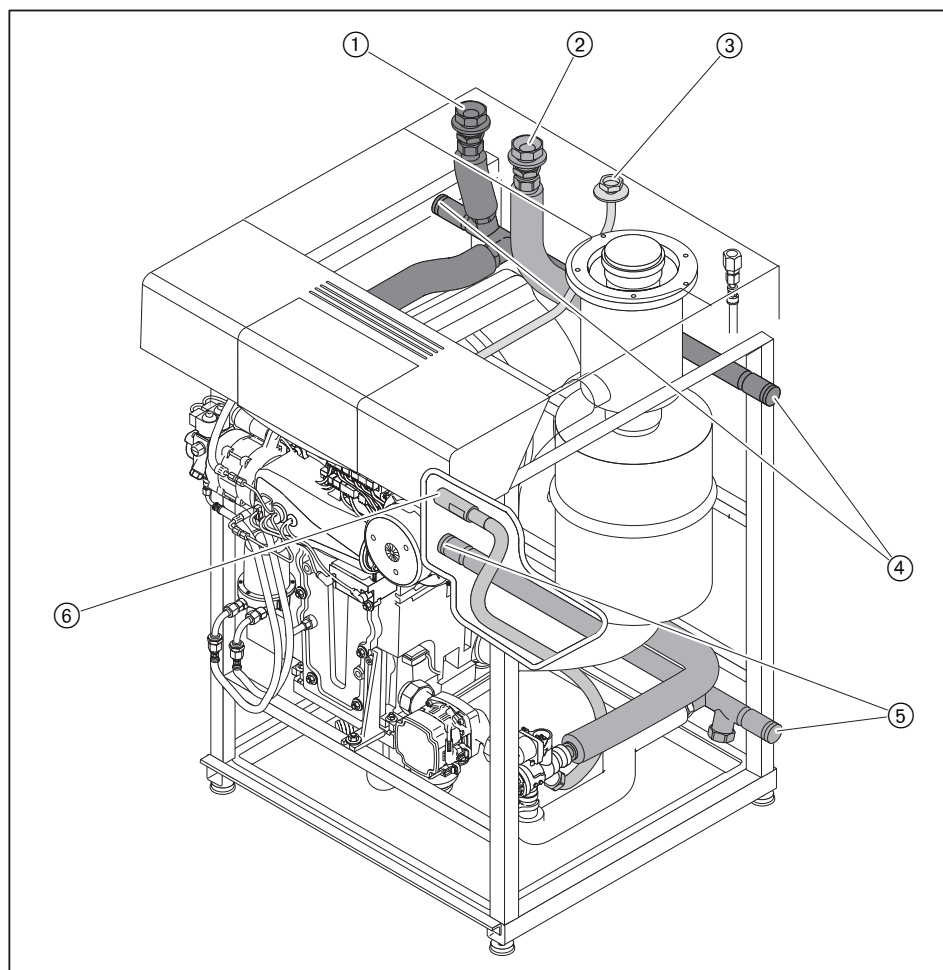
- Treat the fill and top-up water with inhibitors.
- Check the pH value (8.5 ± 0.5) according to the instructions provided by the manufacturer of the inhibitors.

5 Installation

5.2 Hydraulic connection

- ▶ Flush the heating system with at least twice the total system content.
- ✓ Contaminants are removed.
- ▶ Close flow and return (install shut off devices).
- ▶ Fit safety valve.
- ▶ Fit inlet and outlet tap.
- ▶ Fit expansion vessel.
- ▶ If necessary fit sludge separator in the return line.

Image: WTC-OB 18-B VERS. W-PEA



- ① Heating circuit flow G1 1/2
- ② Heating circuit return G1 1/2
- ③ Safety valve G3/4
- ④ DHW circuit flow G1
- ⑤ DHW circuit return G1
- ⑥ Inlet and outlet tap / expansion vessel G3/4

Filling with water



Contamination of drinking water

Topping up without system separator can contaminate the drinking water. A direct connection between heating and drinking water is not permitted.

- ▶ Top up heating water via system separator.



Damage to the appliance due to unsuitable fill water

Corrosion and scale could damage the system.

- ▶ Adhere to the requirements for the heating water and the local directives [ch. 5.1].

During the filling of the system, the three-way valve installed should be in the central position. The valve as delivered is in the central position. When the boiler is switched on, the valve departs from the central position after approx. 20 seconds. In order for the valve to reach the central position once again, it is essential to re-activate the boiler and wait for 7 seconds. Switch off the boiler once again before the 20 seconds have expired.

The system pressure must be a minimum of 1.3 bar.

- ▶ Open shut off devices.
- ▶ Undo cap on quick action vent valve.
- ▶ Gradually fill the heating system using the inlet tap whilst observing the system pressure.
- ▶ Vent the system
- ▶ Check soundness and system pressure.

5 Installation

5.3 Condensate connection



Danger of poisoning by escaping flue gas

Flue gas can escape if the siphon is not filled. Inhalation leads to dizziness, nausea and eventually death.

- Check the fill level of the siphon at regular intervals and replenish if necessary, in particular when the system has been shut down for longer periods or has been operated at high return temperatures $> 55\text{ }^{\circ}\text{C}$.

The condensate generated during the heating operation is discharged to the sewage system via an integrated siphon.

Observe work sheet DWA-A 251 and local regulations, if required, fit a neutralisation system.

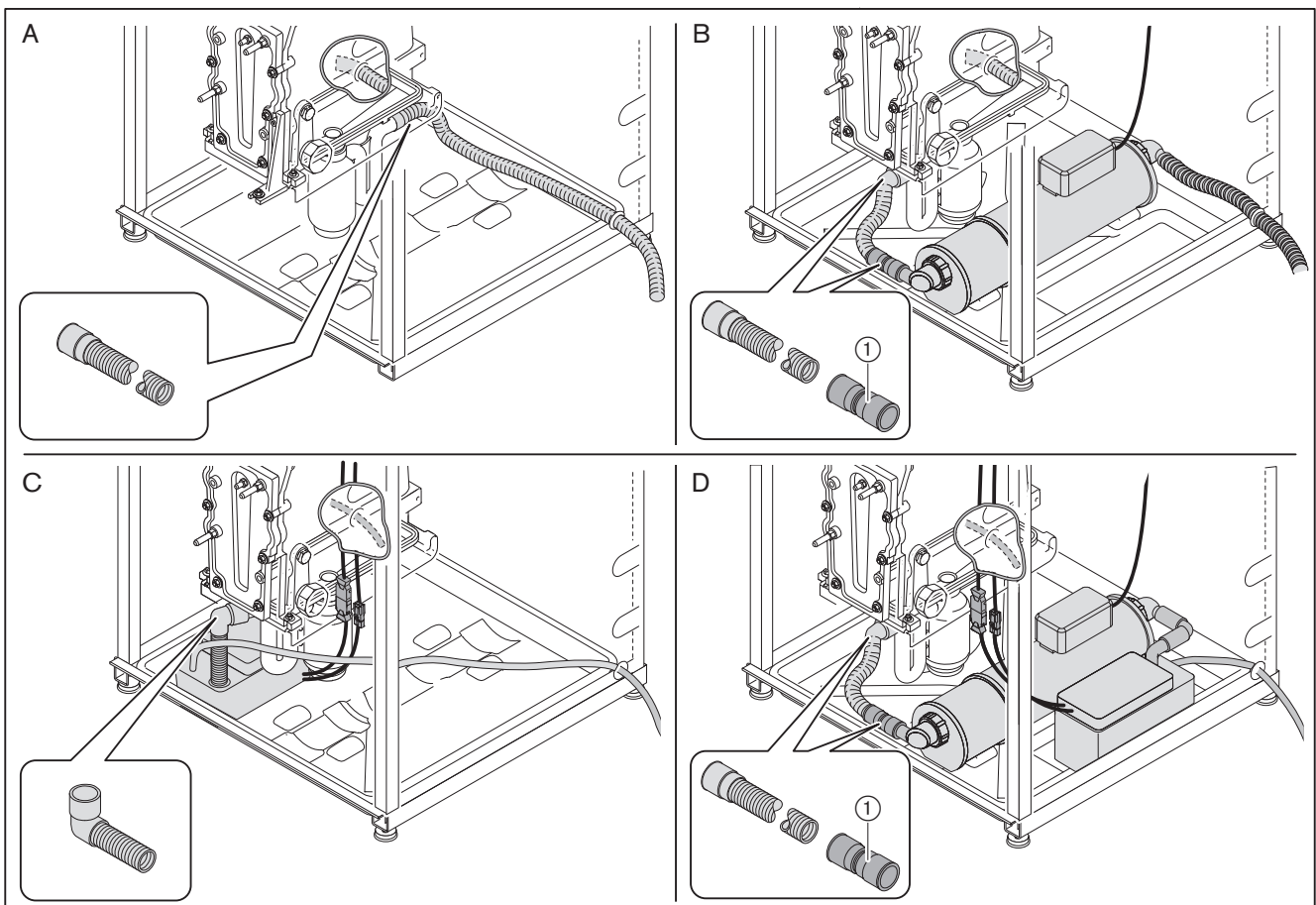


If it is necessary to raise the condensate drain, a appliance foot extension kit (accessory) can be installed.

If the discharge point of the sewage system is above the condensate outlet:

- Installing condensate lift pump.

Installation examples



A Standard

B with neutralisation system⁽¹⁾

C with condensate lift pump

D with condensate lift pump and neutralisation system⁽¹⁾

① Condensate hose sleeve DN 25

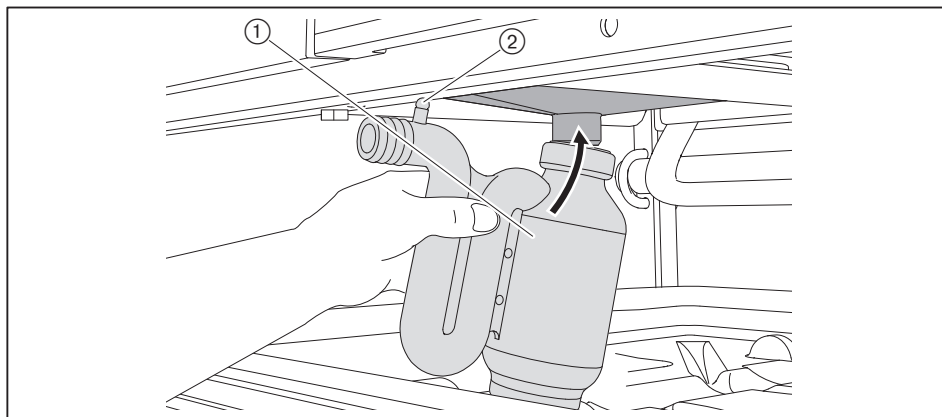
⁽¹⁾ Rotate termination well by 180° .

Install siphon

- Install siphon ①, while pressing the termination well slightly downwards.

If there is another siphon downstream of the condensing boiler:

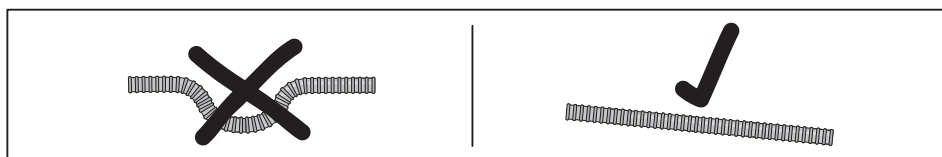
- Remove cap ② from the ventilation opening using a knife.



Install condensate hose



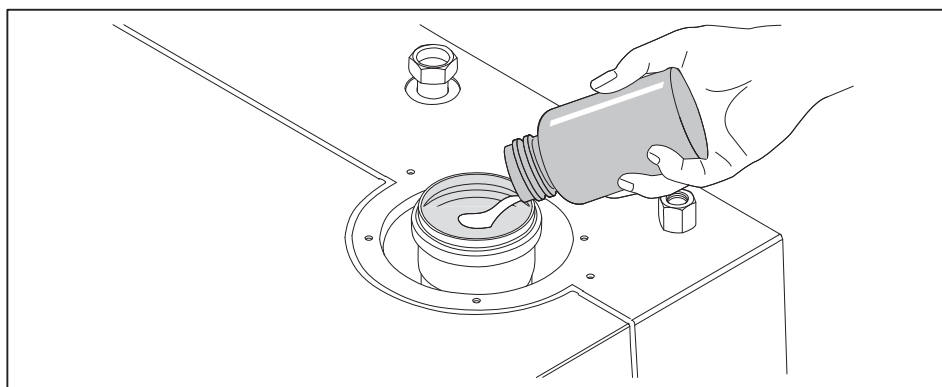
Place condensate hose in such a way that it is not possible for water bags to form (siphon effect) and the condensate can drain away unimpeded.



- Fit condensate hose to siphon, see installation examples.
- If necessary fit condensate hose sleeve.
- Run condensate hose to condensate outlet pipe.

Filling the siphon

- Fill the siphon with water via the flue gas outlet or inspection opening, until water flows from the condensate hose.



Damage to boiler due to the accumulation of condensate

An accumulation of condensate can cause faults or damage the appliance.

If there is another siphon downstream of the appliance:

- Install a connection piece with breather opening between the two siphons.

5 Installation

5.4 Oil supply

Observe EN 12514-2, DIN 4755, TRÖI and local regulations.

The oil supply is intended for single pipe suction operation.

An oil filter vent combination is integrated in the appliance.

Oil line

Use a 6 x 1 mm (4 mm internal) line as the supply line to the condensing boiler. an oversized supply line size leads to an accumulation of air due to low flow velocity.

Check conditions for oil supply



WARNING

Oil leakage caused by excessive flow pressure

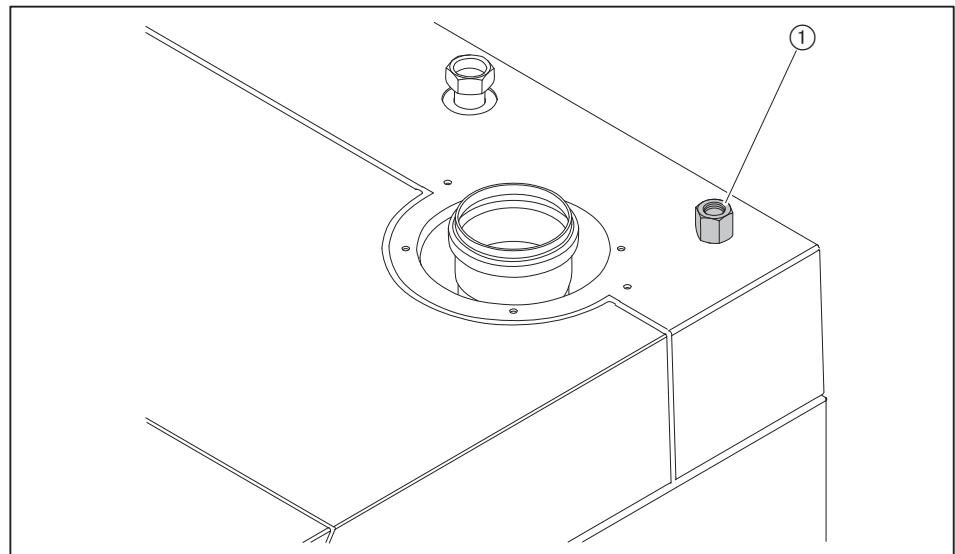
The oil filter vent combination could be damaged, oil can escape and cause environmental damage.

- Do not exceed flow pressure of max. 0.7 bar.

Suction resistance	max 0.4 bar
Supply pressure	max 0.7 bar
Supply temperature	max 60 °C

Connect oil line

- Connect oil line to oil connection ① of the appliance.



Purge oil supply and ensure it is tight



CAUTION

Oil pump seized due to running dry

Pump could be damaged.

- Fill oil supply with oil and purge, if necessary use parameter 73 (program Pr2). [ch. 7.2].

- Ensure oil supply is tight.

5.5 Air supply / flue gas duct

Air supply duct

The combustion air can be supplied:

- from the installation room (room air dependent operation),
- through concentric piping systems (room air independent operation),
- through separate air duct in the room (ducted air intake).

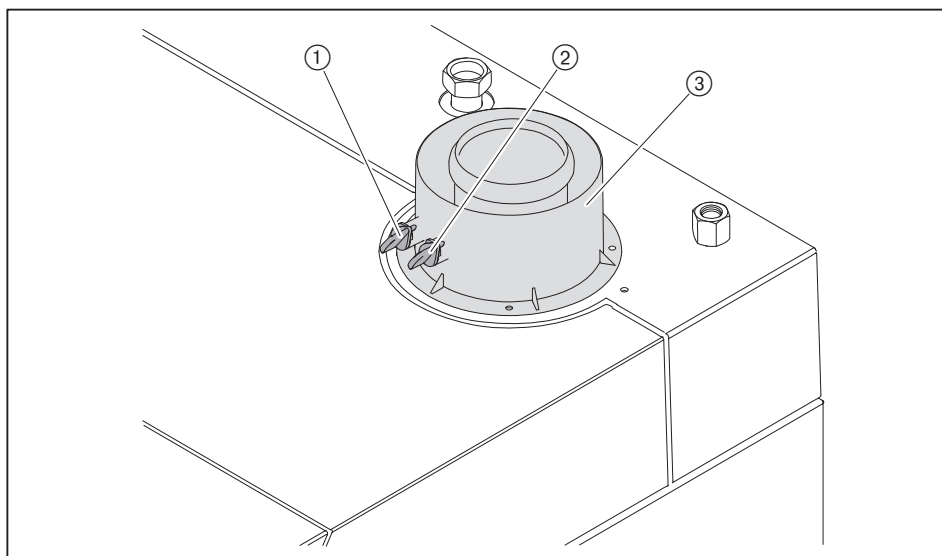
Flue gas system

Local and building regulations must be observed when designing the flue gas ducting.

Only approved flue gas systems may be used.

If the appliance is connected to a chimney, this must be damp proof.

- Install the flue gas system at the flue gas connection.



- ① Measuring point in supply air annular gap
- ② Flue gas test point
- ③ Boiler connection piece (accessory)

The flue gas system must be sound:

- carrying out soundness test of the flue gas system.



If a plastic flue gas system is connected, which is not approved for flue gas temperatures of up to 120 °C, the shut-off temperature of the flue gas path (P 33) must be reduced accordingly.

5 Installation

5.6 Electrical connection



Risk of electric shock

Working on the device when voltage is applied can lead to electric shock.

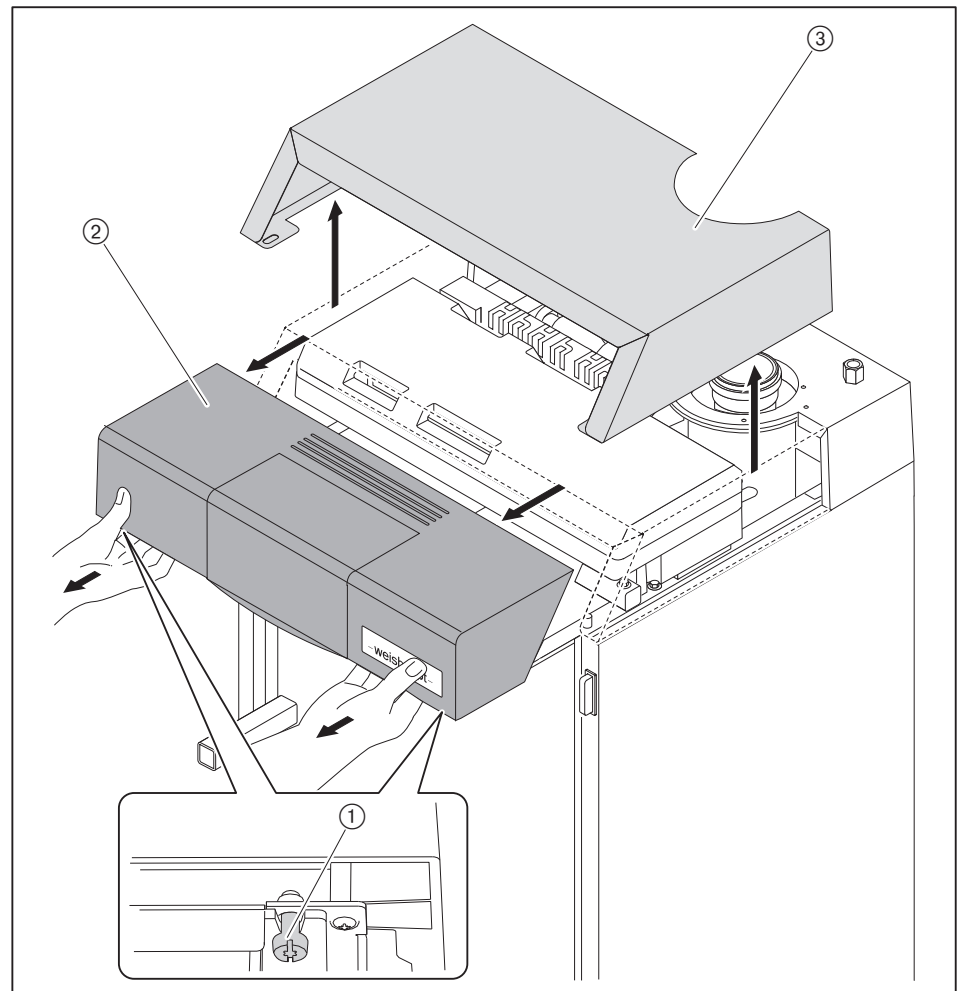
- ▶ Isolate the device from the power supply prior to starting any work.
- ▶ Safeguard against accidental restart.

The electrical connection must only be carried out by qualified electricians. Observe local regulations.



Lay the bus line and external sensor cable separately and preferentially shielded, connecting the screen only on one side to earthing strip.

- ▶ Remove front panel [ch. 4].
- ▶ Undo screws ① and pull operating unit ② forward.
- ▶ Remove top panel ③.

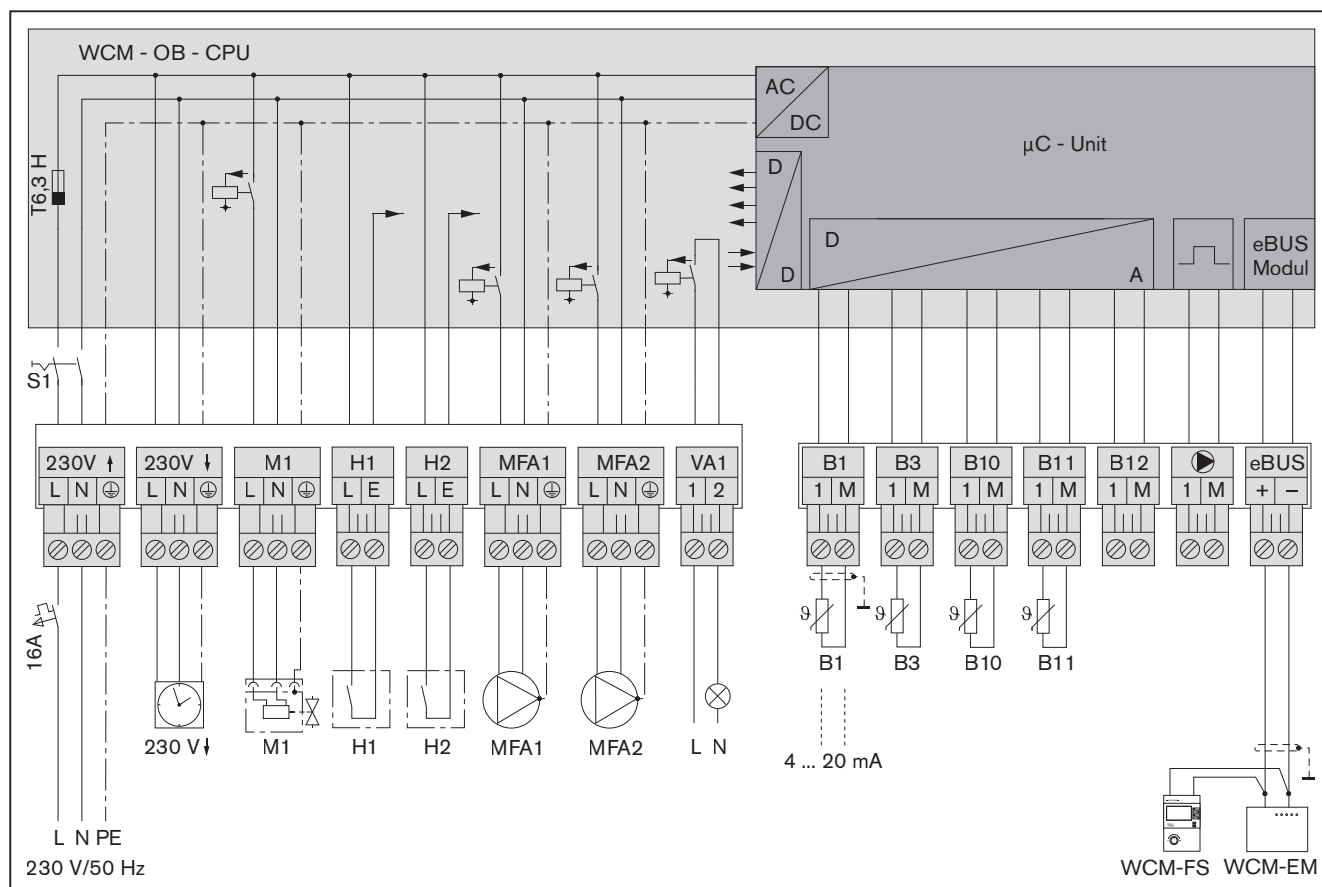


- ▶ Guide the lines from the rear of the appliance through the recess to the wiring duct.
- ▶ Assign the inputs and outputs according to application [ch. 6.10].
- ▶ Connect the cables according to the wiring diagram, in the process pay particular attention to the correct phase location of the voltage supply.

5.6.1 Wiring diagram

Observe the instructions for the electrical installation [ch. 5.6].

The maximum total current from all external loads must not exceed 4.5 A.



Plug	Colour	Connection	Description
230V ↑	black	Voltage supply 230 V AC / 50 Hz	–
230V ↓	grey	Voltage output 230 V AC	max 3 A (AC1)
M1	white	Anti syphon valve / booster pump Relay output 230 V AC	max 3 A (AC1)
H1	turquoise	Input 230 V AC	–
H2	red	Input 230 V AC	–
MFA1	purple	Relay output 230 V AC	max 3 A (AC1)
MFA2	purple	Relay output 230 V AC	max 3 A (AC1)
VA1	orange	Potential free relay output	230 V AC/max 3 A (AC1)
B1	Green	External sensor Temperature remote control 4 ... 20 mA	NTC 600 Ω [ch. 6.6]
B3	yellow	DHW sensor	NTC 12 kΩ
B10	white	Buffer sensor top	NTC 5 kΩ
B11	white	Buffer sensor bottom/ de-couple sensor	NTC 5 kΩ
B12	white	Reserve (not used)	–
◐	dark blue	Reserve (not used)	–
eBUS	light blue	WCM components (FS, EM, SOL, COM)	–

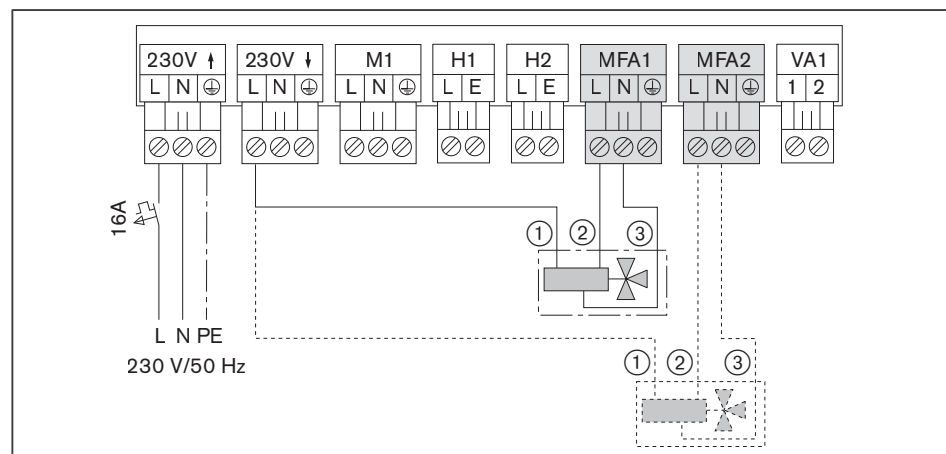
5 Installation

5.6.2 Connect external three way valve

Observe the instructions for the electrical installation [ch. 5.6].

Control via output MFA1 or MFA2

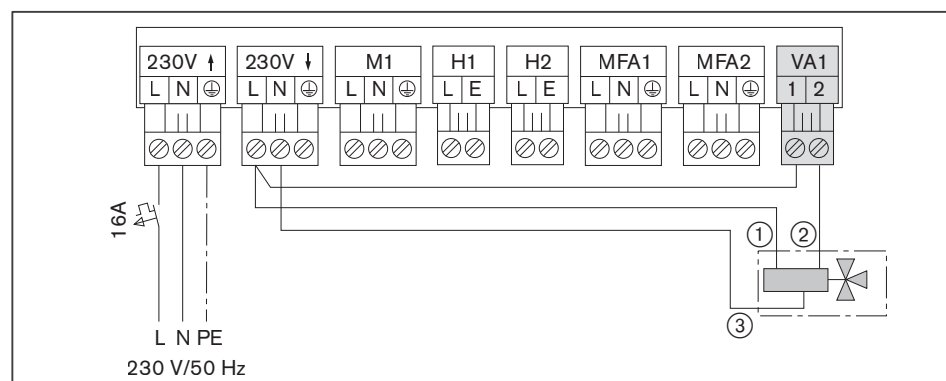
- Connect three way valve to wiring diagram whilst observing actuator manual.
- Set parameter 13 or 14 to 4 .



- ① brown
- ② black
- ③ blue

Control via output VA1

- Connect three way valve to wiring diagram whilst observing actuator manual.
- Set parameter 15 to 4 .

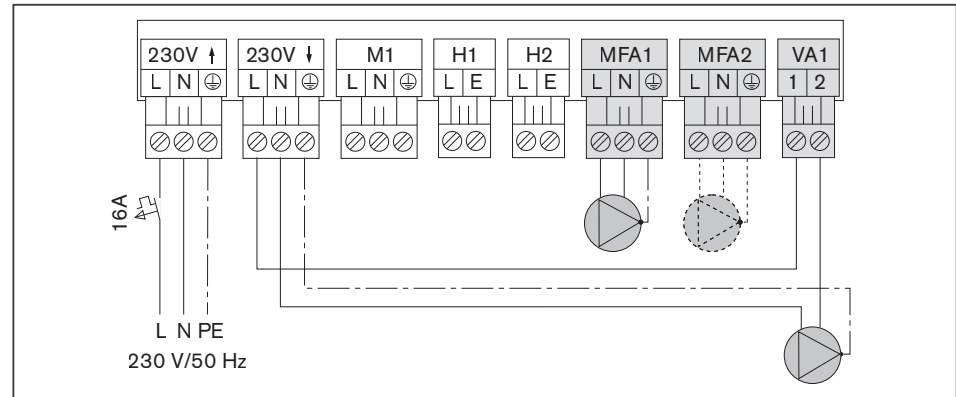


- ① brown
- ② black
- ③ blue

5.6.3 Connect external pump

Observe the instructions for the electrical installation [ch. 5.6].

- Connect pump to output MFA1, MFA2 or VA1 according to the wiring diagram.
- Set parameter 13, 14 or 15 to the desired function.



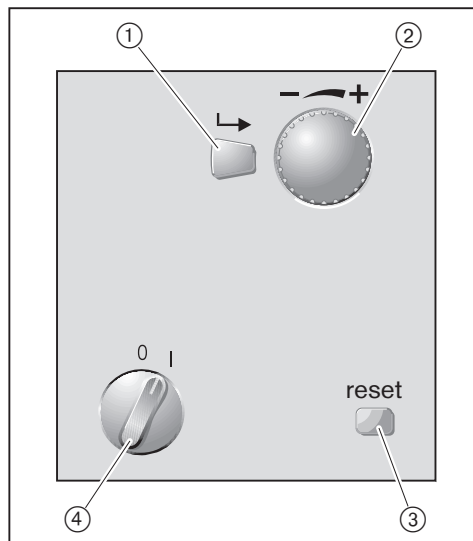
6 Operation

6 Operation

6.1 Operating interface

6.1.1 Operating panel

► Open flap on boiler control panel.



①	[Enter]	select; confirm entry
②	Dial knob	navigation through parameter structure; changing values
③	[reset]	Resetting fault conditions (the system will be re-started if there is no fault).
④	Switch S1	0: appliance OFF 1: appliance ON

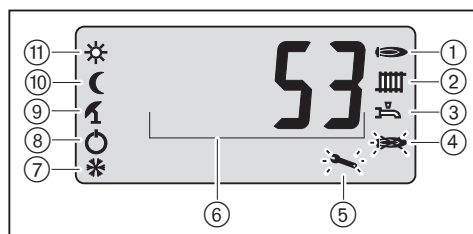
6.1.2 Display

The display shows the current operating statuses and operating data.

Symbols are shown or hidden depending on the system variation.

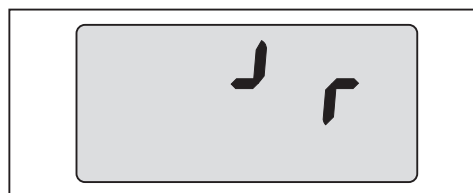


If a remote control (e. g. WCM-FS) is connected, the temperature control is carried out by the remote control. Symbols ⑨ ... ⑪ are hidden. If the communication between the electronics and the remote control fails, the symbols for emergency operation are displayed.

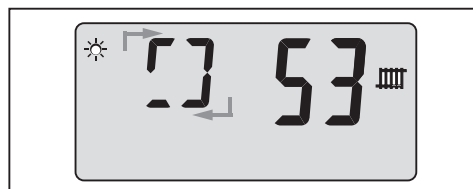


- ① Burner in operation
- ② Heating operation activated
Symbol flashes: boiler frost protection activated
- ③ DHW operation activated
Symbol flashes: DHW frost protection activated
- ④ Fault
- ⑤ Servicing indication; commissioning program activated
- ⑥ Flow temperature (standard display); parameters and values
- ⑦ Frost protection activated
- ⑧ Standby
- ⑨ Summer setting activated (no heating operation)
- ⑩ Heating at night setback value
- ⑪ Heating at setpoint value

Display sensor interruption or sensor short circuit



Display burner rapid cycle interlock [ch. 6.6]



Flame monitor

A light emitting diode on the flame sensor indicates the current operating status.

LED off	Flame sensor not activated
LED flashing	no flame
LED continuously illuminated	Flame present

6 Operation

6.2 User level

Various information can be called up and values set in the User level.

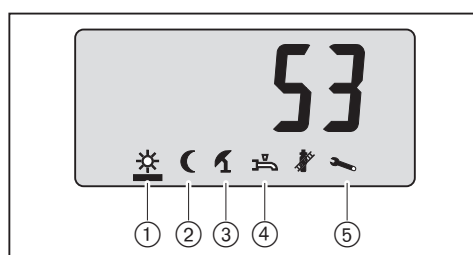
Symbols are shown or hidden depending on the system variation.



If a remote control (e. g. WCM-FS) is connected, the temperature control is carried out by the remote control. Symbols ① ... ④ are hidden. If the communication between the electronics and the remote control fails, the symbols for emergency operation are displayed.

6.2.1 User level display

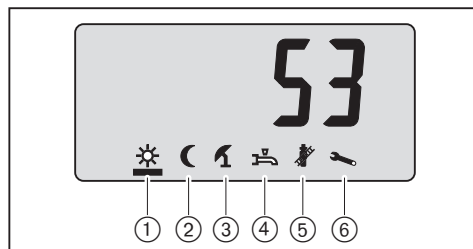
- ▶ Turn dial knob.
- ✓ Tool bar appears.
- ▶ Turn dial knob.
- ✓ Selection cursor alternates between the symbols.



	without external sensor	with external sensor
①	Flow temperature (---: Standby)	Flow temperature (---: Standby)
②	Flow temperature (---: Standby)	Flow temperature (---: Standby)
③	Operating mode: S: Summer mode W: Winter mode	External temperature
④	DHW temperature (---: DHW operation off)	DHW temperature (---: DHW operation off)
⑤	Operating phase [ch. 6.3.1]	Operating phase [ch. 6.3.1]

6.2.2 User level settings

- ▶ Turn dial knob.
- ✓ Tool bar appears.
- ▶ Turn dial knob.
- ✓ Selection cursor alternates between the symbols.
- ▶ Press [ENTER].
- ✓ Value set will be shown flashing.
- ▶ Change values using the dial knob and confirm with [Enter].



without external sensor

	Setting	Range	Factory setting
①	Normal flow temperature setpoint	Setback flow temperature setpoint ... maximum flow temperature (parameter 31) ---: Standby	60
②	Setback flow temperature setpoint	Minimum flow temperature (parameter 30) ... normal flow temperature setpoint	30
③	Operating mode	S: Summer W: Winter	W
④	DHW setpoint value	30 °C ... 65 °C ---: DHW operation off	50
⑤	Manual start up chimney sweep function	minimum load ... maximum load	–
⑥	Heating engineer level	–	–

with external sensor

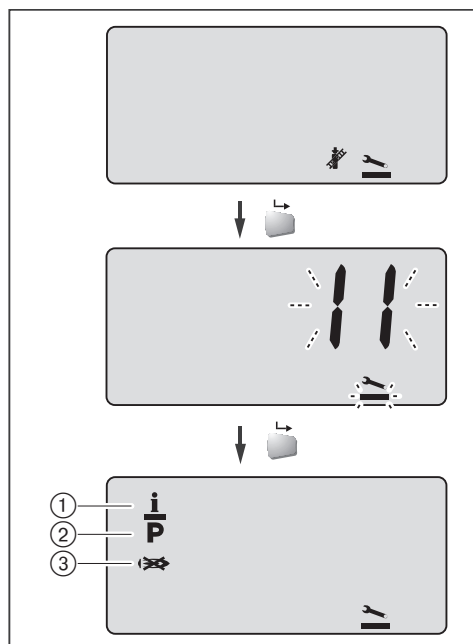
	Setting	Range	Factory setting
①	Normal room temperature	Setback room temperature ... 35 °C ---: Standby	22
②	Setback room temperature	10 °C ... normal room temperature	15
③	Summer setting switch over temperature	10 ... 30 °C	20
④	DHW setpoint value	30 °C ... 65 °C ---: DHW operation off	50
⑤	Manual start up chimney sweep function	minimum load ... maximum load	–
⑥	Heating engineer level	–	–

6 Operation

6.3 Heating engineer level

Activate heating engineer level

- ▶ Turn dial knob.
- ✓ Tool bar appears.
- ▶ Turn the dial knob and set the selection cursor below the spanner symbol.
- ▶ Press [ENTER].
- ▶ Turn the dial knob and set Code 11 .
- ▶ Confirm code with [Enter].
- ✓ Tool bar of heating engineer level appears.



- ① Info level
- ② Parameter level
- ③ Fault memory

- ▶ Turn the dial knob and set the selection cursor below the required level.
- ▶ Press [ENTER].
- ✓ Level will be activated.

Exit heating engineer level

- ▶ Turn the dial knob until ESC appears.
- ▶ Press [ENTER].

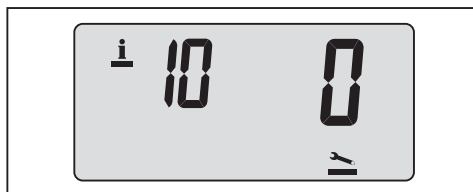


6.3.1 Info level

Display system values (i)

- ▶ Activate Info level [ch. 6.3].
- ▶ Turn dial knob.
- ✓ System values can be read.

Depending on system variation, specific values are shown or hidden.



Info	System	Unit
i 10	Operating phase 1: standby check fan 2 (H): oil preheating 3: pre-purge / pre-ignition 4: safety time 5: post-ignition 6: flame stabilisation 7: controller enable 8: post-purge 9: forced ventilation	–
i 11	Rating	kW
i 12 ⁽¹⁾	Average external temperature	°C
i 13	Flow setpoint (single appliance) Load setpoint (cascade operation)	°C %
i 15	Input signal temperature remote control (4 ... 20 mA)	mA
i 16	Current combustion chamber pressure	mbar
i 17	Saved combustion chamber pressure at stage 1	mbar
i 18	Saved combustion chamber pressure at stage 2	mbar
i 19	System pressure	bar

⁽¹⁾ can be reset

Info	Actuators	Unit
i 20	Three way valve setting H: Heating operation W: DHW	–
i 21	Solenoid valve control 0: Off 1: Solenoid valve 1 2: Solenoid valve 1 + 2	–
i 22	Setpoint speed PEA pump	%
i 23	Fan speed (temperature compensated) (Due to the temperature compensation, the value may deviate from the fan speed P 77 and P 78 set.)	x10 rpm
i 24	Oil preheating control 0: Off 1: On	–

6 Operation

Info	Actuators	Unit
i 25	Power consumption ignition module (min 70 %)	%
i 28	return signal temperature switch oil preheating 0: no return signal 1: return signal present	–
Info	Sensors	Unit
i 30	Flow temperature	°C
i 31	Flue gas temperature	°C
i 32	Flame signal 0: no flame signal 1: flame signal present	–
i 33	External temperature	°C
i 34	DHW temperature B3	°C
i 35	DHW outlet temperature B12	°C
i 36	Return temperature	°C
i 37	Combustion air temperature	°C
i 38	Buffer temperature top B10	°C
i 39	Buffer temperature bottom B11 De-couple temperature B11	°C
Info	System info	Unit
i 40	Burner starts (1 ... 999 x 1000)	x 1000
i 41	Burner starts (0 ... 999)	–
i 42	Burner operating hours (1 ... 999 x 1000)	h x 1000
i 43	Burner operating hours (0 ... 999)	h
i 44	Software version WCM-CPU	–
i 45 ⁽¹⁾	Time since last servicing [ch. 9.3]	h x 10
i 46	Oil meter (1 ... 999 x 1000 l), no calibration approval	l x 1000
i 47	Oil meter (0 ... 999 l), no calibration approval	l
i 48 ⁽¹⁾	Flame failure counter (0 ... 999)	–
i 49	Software version WCM-CUI	–
ESC	Exit level	

⁽¹⁾ can be reset

Reset system values

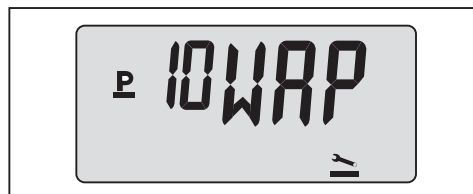
- Select desired value.
- Press [Enter] for 2 seconds.
- ✓ Values will be reset.

6.3.2 Parameter level

Display parameter (P)

- ▶ Activate parameter level [ch. 6.3].
- ▶ Turn dial knob.
- ✓ System values can be read.

Depending on system variation, specific parameters are shown or hidden.



Change values

- ▶ Press [ENTER].
- ✓ Value set will be shown flashing.
- ▶ Change values using the dial knob.
- ▶ Save the value with the [Enter].

Parameters	Basic configuration	Setting range	Factory setting
P 10	Unit configuration	[ch. 7.2]	
P 11	Operating mode	–: no flue gas damper A: flue gas dampers (P 15, 16, 17 are hidden).	–
P 12	Unit address	1: single unit A ... E: cascade DDC system (1, A sets P 71 to 1)	1
P 13	Function variable output MFA1	0: operating retransmission 1: forward reporting of faults 2: feeder pump upstream of hydraulic de-couple 3: heating circuit pump without WCM-FS 4: DHW load pump; three way valve 5: DHW circulation pump without WCM-FS via DHW re-release or via button (P 17 to 4) 6: DHW circulation pump with WCM-FS via circulation program 7: heating circuit pump with WCM-FS #1	1
P 14	Function variable output MFA2	0: operating retransmission 1: forward reporting of faults 2: feeder pump upstream of hydraulic de-couple 3: heating circuit pump without WCM-FS 4: DHW load pump; three way valve 5: DHW circulation pump without WCM-FS via DHW re-release or via button (P 17 to 4) 6: DHW circulation pump with WCM-FS via circulation program 7: heating circuit pump with WCM-FS #1	1

6 Operation

Parameters	Basic configuration	Setting range	Factory setting
P 15	Function variable output VA1	0: operating retransmission 1: forward reporting of faults 2: feeder pump upstream of hydraulic de-couple 3: heating circuit pump without WCM-FS 4: DHW load pump; three way valve 5: DHW circulation pump without WCM-FS via DHW release or via button (P 17 to 4) 6: DHW circulation pump with WCM-FS via circulation program 7: heating circuit pump with WCM-FS #1	1
P 16	Function input H1	0: heating circuit release 1: heating circuit setback/normal 3: standby with frost protection	0
P 17	Function input H2	0: DHW release 1: DHW setback/normal 2: heating operation with special level 3: burner lockout function 4: DHW circulation via button (when P 13, P 14, or P 15 on 5)	0
P 18	Special level heating operation (only when P 17 on 2)	8 °C ... P 31	60
P 19	DHE load pump upstream/downstream of hydraulic de-couple [ch. 6.7.6]	0: upstream of de-couple 1: downstream of de-couple	0

Parameters	Weather compensation	Setting range	Factory setting
P 20	External sensor adjustment	-4 ... 4 K	0
P 21 ⁽¹⁾	Building evaluation	0: lightweight construction 1: sturdy construction	0
P 22 ⁽¹⁾	Heating characteristics rate of rise [ch. 6.7.2]	2.5 ... 40 ---: deactivation	12.5
P 23	System frost protection [ch. 6.9]	-10 ... 10 °C	5

⁽¹⁾ Settings are only effective if no WCM-FS is connected or if it fails.

Parameters	Heat exchanger	Setting range	Factory setting
P 30	Minimum flow temperature	8 °C ... (P 31 - P 32)	8
P 31	Maximum flow temperature	(P 30 + P 32) ... (85 °C - P 32)	75
P 32	Switching differential flow temperature	±1 ... 15 K	7
P 33	Switch-off temperature flue gas duct	80 ... 120 °C	120
P 34	Burner rapid cycle interlock [ch. 6.6]	1 ... 15 min ---: deactivation	5
P 35	Temperature differential end rapid cycle interlock [ch. 6.6]	3 ... 30 K ---: deactivation	5

Parameters	Heat exchanger	Setting range	Factory setting
P 36	Burner capacity stage 1 for: oil meter calculation	10 ... 70 kW	11.5
P 37	Burner capacity stage 2 for: oil meter calculation	10 ... 70 kW	17.5
P 38	Operating mode	0: stage 1 + 2 1: stage 1 2: stage 2	0
P 39	minimum system pressure (for warning message)	0.5 ... 3.0 bar	1.0
Parameters	Circulation pump	Setting range	Factory setting
P 40	Pump operation mode heating operation	0: pump run-on 1: pump continuous run	0
P 41	Pump run-on time heating operation	1 ... 60 min	5
P 42 ⁽²⁾	Pump capacity burner stage 1	23 % ... 100 %	60
P 43 ⁽²⁾	Pump capacity burner stage 2	23 % ... 100 %	60
P 44 ⁽²⁾	Pump capacity burner Off	23 % ... 100 %	35
P 45 ⁽²⁾	Pump capacity DHW	23 % ... 100 %	70
P 46 ⁽²⁾	Function speed controlled pump	---: no speed controlled pump 1: capacity pump ~ capacity WTC (P 42 ... P 44) 2: capacity pump ~ dependent on flow and return temperature (differential temperature control)	1
P 47	Optimisation de-couple control flow/de-couple temperature (only if de-couple sensor fitted)	1 ... 7 K	4
P 48	Optimisation of differential temperature control flow/return temperature (only when P 46 on 2)	5 ... 30 K	20
P 49	Idleness differential temperature control (only when P 46 on 2)	1 ... 62 s	5

⁽²⁾ With de-couple control, the parameter is hidden and a fixed value is stored.

6 Operation

Parameters	DHW	Setting range	Factory setting
P 50	Temperature increase during DHW operation	5 ... 30 K	15
P 51	Switching differential DHW	-3 ... -10 K	-5
P 52	Maximum DHW operating time	10 ... 60 min ---: deactivation	50
P 53 ⁽¹⁾	Reduction value DHW operation in setback mode	-5 ... -40 K	-15
P 54	Circulating pump run-on	0 ... 20 min (when P 13, P 14, or P 15 on 5 and P 17 on 4)	2

⁽¹⁾ Settings are only effective if no WCM-FSis connected or if it fails.

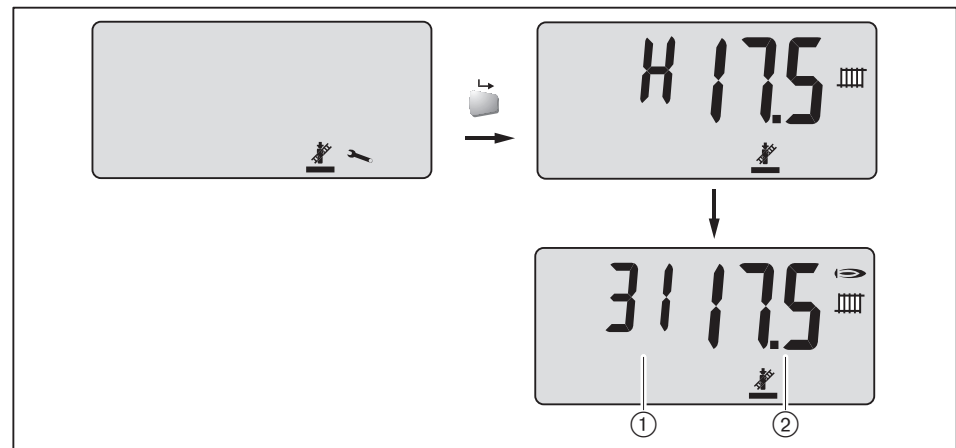
Parameters	Heat exchanger	Setting range	Factory setting
P 62	Post-purge phase	0 ... 250 s	30
P 63	Ignition current threshold	0 ... 100	70

Parameters	System + Servicing	Setting range	Factory setting
P 70	Service interval [ch. 9.3]	100 ... 500 h x 10 ---: deactivation	250
P 71	eBus feed (only when P 12 on b ... E)	0: not activated 1: activated	1
P 73	Commissioning programs [ch. 6.11]	Pr1: vent system on water side Pr2: purge oil lines Pr3: set stage 1 Pr5: set stage 2 Pr7: switch on fan Pr8: release combustion chamber pressure for storing OFF: end program	—
P 77	Stage 2 fan speed	350 ... 860 1/min x 10	⁽³⁾
P 78	Stage 1 fan speed	270 ... 780 1/min x 10	⁽³⁾
ESC	Exit level		

⁽³⁾ Factory pre-set.

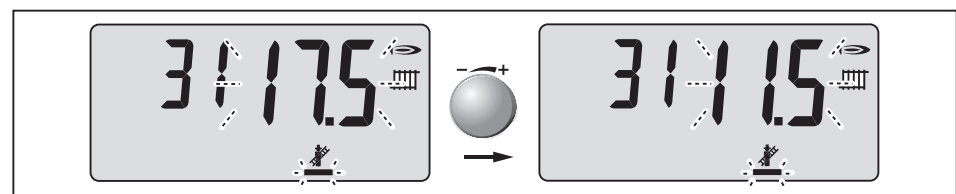
6.4 Manual start up

- ▶ Turn dial knob.
 - ✓ Tool bar appears.
 - ▶ Set the selection cursor below the chimney sweep symbol.
 - ▶ Press [ENTER].
 - ✓ The appliance starts according to the program sequence [ch. 3.3.5].
- An **H** is shown in the display during oil preheating. Following the flame formation, the display indicates the current flow temperature and the maximum capacity (stage 2) will start.



- ① Flow temperature
- ② Capacity [kW]

- ▶ Press [ENTER].
- ▶ Set capacity required using dial knob.
- ✓ The capacity started remains activated for 15 minutes.



Exit manual capacity setting

- ▶ Press [ENTER].
- ✓ You will exit manual capacity setting.
- ✓ The last capacity set will remain activated for 2 minutes.



The time sequence of 2 minutes can be restarted by turning the dial knob in the heating engineer level within this time. This provides the possibility of calling up system values in the info level at the relevant capacity.

Display system values

- ▶ Activate info level [ch. 6.3].
- ✓ System values of the capacity most recently set can be displayed.

6 Operation

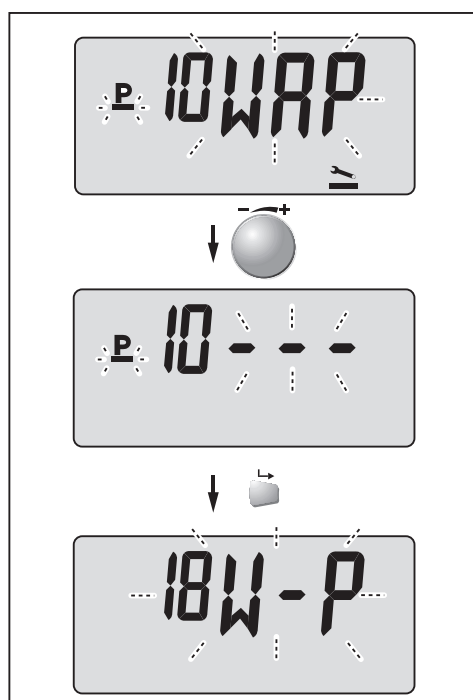
6.5 Start manual configuration

Manual configuration is used to match the settings with unit version. All sensors and actuators are re-entered during this process [ch. 7.2].

- ▶ Activate parameter level [ch. 6.3].
- ▶ Select parameter 10 .
- ✓ Current configuration appears.
- ▶ Press [ENTER].
- ▶ Turn the dial knob until --- appears.
- ▶ Press [ENTER].
- ✓ New configuration is located and displayed flashing.
- ▶ Press [ENTER].
- ✓ The configuration is stored.

Example

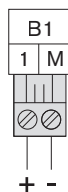
External sensor has been removed.



6.6 Control options

Temperature remote control 4 ... 20 mA

- Connect analogue signal 4 ... 20 mA to input B1, observe the polarity [ch. 5.6.1].
- ✓ Signal is interpreted as flow setpoint.
- ✓ In the configuration, t_f is displayed.



6 mA	Minimum flow temperature (P 30)
20 mA	Maximum flow temperature (P 31)
4 ... 6 mA	burner off
< 4 mA	Signal fault (after approx. 15 minutes W89)

A maximum of six extension modules (WCM-EM #2 ... 7) can be installed if a control signal is connected at input B1.

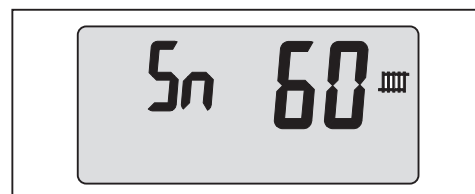
Heating operation with special level

When contact H2 is closed, the system heats up to the temperature level preset in parameter 18. Higher target values of additional heating circuits will be taken into consideration. DHW operation is generally given priority. When the contact is open, the temperature is determined according to the existing control variation.

This function is also effective in the Summer mode.

- Set parameter 17 to 2.

When the heating operation with special level is activated, S_n and the current flow temperature will be displayed.



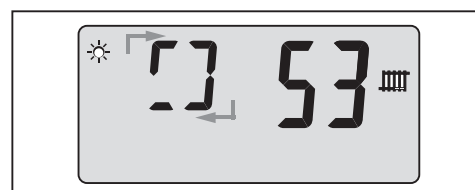
Burner rapid cycle interlock heating operation

The burner rapid cycle interlock prevents the burner from starting too often.

There is a distinction between 2 burner rapid cycle interlocks:

Timed burner rapid cycle interlock	Following a controlled shutdown, the burner will only re-start when the time set in parameter 34 has elapsed.
Dynamic burner rapid cycle interlock	Following a controlled shutdown, the burner will only re-start when the difference between flow and return temperature drops below the value of parameter 35. Dynamic burner rapid cycle interlock is limited to maximum 60 minutes.

When the burner rapid cycle interlock is activated, a rotating rectangle and the current flow temperature are displayed.



The burner rapid cycle interlock can be cancelled using the [reset] key.

6 Operation

6.7 Control options

6.7.1 Constant flow temperature

No additional sensors or thermostats are required for this control.

The flow temperature is controlled at the value set in the user level [ch. 6.2.2].

A timer is required to carry out a time-controlled switch-over between normal and setback temperature.

6.7.2 Weather compensated control

An external sensor (NTC 600) is required for weather compensated control.

- Mount the external sensor to the north side or the north-west side of the building, half way up (min 2.5 m).

Avoid direct solar radiation and heat up by external heat sources.

- If necessary carry out a temperature adjustment of the external sensor via parameter 20.

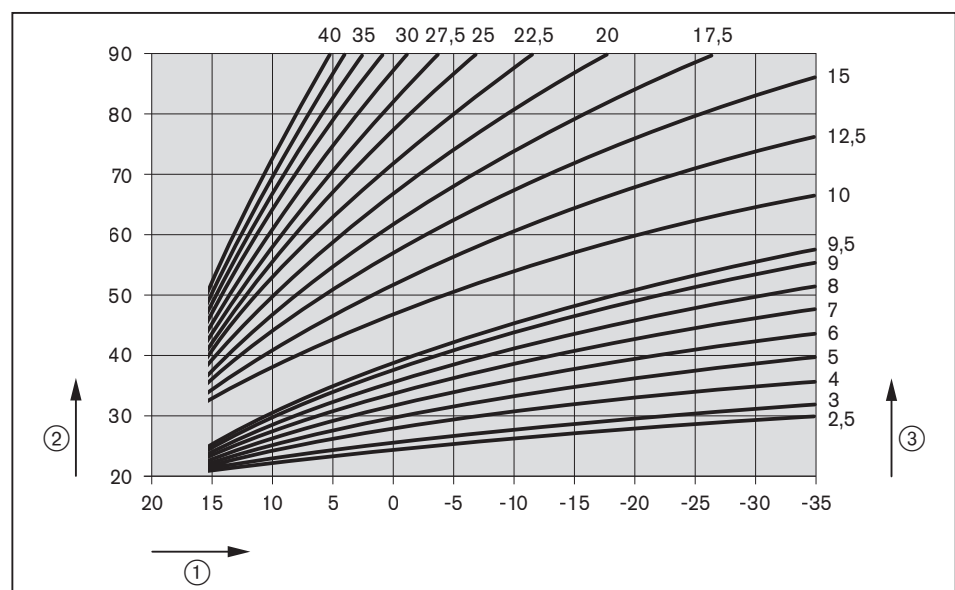
If a remote control station (WCM-FS) is connected, the settings for the temperature control are undertaken via the remote control station (see user manual WCM-FS).

The current flow temperature is calculated from the:

- average and current external temperature,
- gradient (parameter 22),
- room setpoint temperature.

A higher flow temperature is required to achieve the desired room temperature, when external temperatures are lower. The gradient determines how much the change in external temperature affects the flow setpoint temperature and adjusts the heating curve to the building.

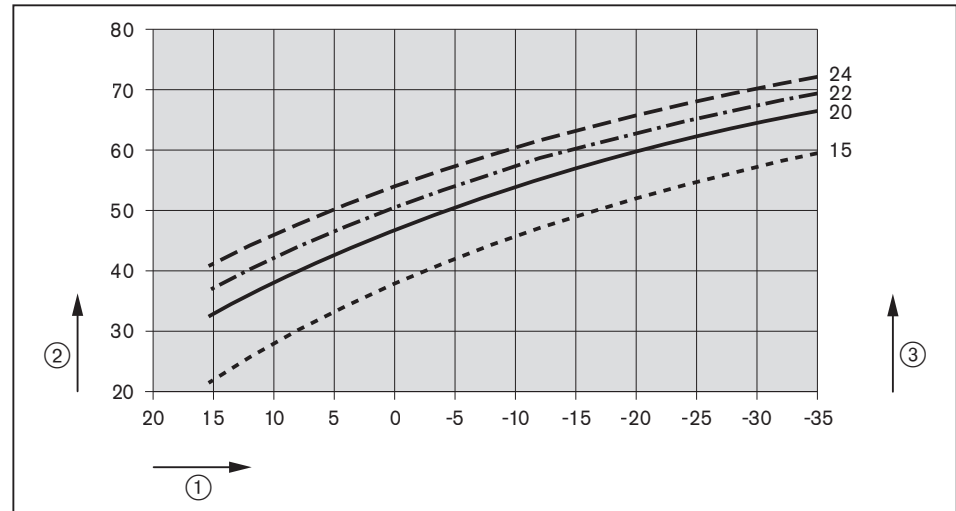
	Room temperature too cold	Room temperature too warm
Cold external temperature	► Increase gradient.	► Decrease gradient.
Mild external temperature	► Increase normal and setback room temperature.	► Reduce normal and setback room temperature.



- ① External temperature [°C]
- ② Flow temperature [°C]
- ③ Gradient (at normal room temperature 20 °C)

A change in the normal room temperature or setback room temperature by 1 °C leads to a parallel translation of the heating characteristic by approx. 1.5 ... 2.5 °C.

Example: at gradient 10



- ① External temperature [°C]
- ② Flow temperature [°C] at gradient 10
- ③ Normal and setback room temperature [°C]

A timer is required to carry out a time-controlled switch-over between normal room temperature and setback room temperature.

6.7.3 DHW operation

The DHW operation takes priority over heating operation.

DHW preparation is carried out when the temperature in the water heater drops below the DHW setpoint value minus switch differential (parameter 51).

A setback level can be set for the DHW temperature via the deduction value (parameter 53), this requires a timer.

The maximum DHW operating time can be set via parameter 52.

For version H, an external three-way valve and a hot water load pump can be connected via outputs MFA1, MFA2 and VA1.

The DHW sensor is connected to input B3.

6 Operation

6.7.4 Buffer control with one sensor

This type of control makes sense, when only the top part of the buffer is to be filled. The loading of the bottom part of the buffer is carried out by an external heat source.

DHW release is initiated via sensor B3, the heating operation release via sensor B10.

► Connect buffer sensor to input B10.

Switch-on criteria	B10 < flow setpoint - switching differential (P 32)
Switch-off criteria	B10 > flow setpoint + switching differential (P 32)

Additionally, a three-way valve can be installed at output MFA 1 or MFA 2 for DHW operation.

Weishaupt energy storage (WES)

If the WTC is operated in conjunction with WES, the following parameter settings are recommended:

- P 32: 4 K
- P 41: 2 min
- P 42: 50 %
- P 43: 60 %
- P 44: 35 %
- P 45: 50 %
- P 50: 8 K

6.7.5 Buffer control with two sensors

► Observe buffer sensor installation manual (Print No. 831613xx).

This type of control should be used, if the appliance is to load a larger buffer area.

DHW release is initiated via sensor B3, the heating operation release via sensors B10 and B11.

► Connect buffer sensor at the top at input B10.

► Connect buffer sensor at the bottom at input B11.

Switch-on criteria	B10 < flow setpoint - switching differential (P 32) and B11 < flow setpoint - switching differential (P 32)
Switch-off criteria	B11 > flow setpoint + switching differential (P 32)

Additionally, a three-way valve can be installed at output MFA 1 or MFA 2 for DHW operation.

Weishaupt energy storage (WES)

If the WTC is operated in conjunction with WES, the following parameter settings are recommended:

- P 32: 2 K
- P 41: 2 min
- P 42: 50 %
- P 43: 60 %
- P 44: 35 %
- P 45: 50 %
- P 50: 8 K

6.7.6 De-couple control

The appliance modulates the capacity in heating operation based on the de-couple temperature.

With this control option, the pump modulates between the de-couple sensor B11 and the flow sensor depending on the differential temperature. The function can be adapted to the conditions of the system via parameter 47.

DHW loading can be achieved via a three-way valve upstream of the hydraulic de-couple, as control in DHW operation reacts to the internal flow sensor.

- Connect de-couple sensor to input B11.

Switch-on criteria	B11 < flow setpoint - switching differential (P 32)
Switch-off criteria	B11 > flow setpoint + switching differential (P 32)

The pump run-on time following DHW operation is 5 minutes.

DHW load pump

The DHW load pump can be installed hydraulically upstream or downstream of the de-couple.

DHW load pump upstream of de-couple:

- Set parameter 19 to 0.

The appliance modulates the capacity in DHW operation to the flow sensor.

The pump is operated with the capacity according to parameter 45.

DHW load pump downstream of de-couple:

- Set parameter 19 to 1.

The appliance modulates the capacity in DHW operation to the de-couple sensor.

The pump is operated between de-couple sensor B11 and flow sensor depending on the differential temperature.

6 Operation

6.8 Circulation pump

6.8.1 General information

The appliance (version W) is equipped with a speed controlled pump, which feeds the heating and DHW circuits via a three-way valve.

Heating operation

The pump remains activated as long as heat demand prevails. When no more heat is needed, the pump runs for the specified run-on time (ROT) preset in parameter 41 .

The pump can be set to continuous operation using parameter 40 .

Pump control logic

Without remote control, e. g. WCM-FS or WCM-EM.

Operating mode	Standby/Summer			
Control option	with external sensor		without external sensor	
Setting P 40	1	0	1	0
Pump operation	ROT, Off	ROT, Off	Continuous operation	ROT, Off

Operating mode	Winter ⁽¹⁾			
Control option	with external sensor		without external sensor	
Setting P 40	1	0	1	0
Pump operation	Continuous operation	Continuous operation	Continuous operation	Continuous operation

⁽¹⁾ Function in setback operation. In normal operation, the pump runs continuously and independently of P 40 .

DHW operation

► Set pump rating via parameter 45.

The pump run-on time following DHW is 5 minutes (can not be adjusted)

6.8.2 Speed controlled pump

Standard control

With this type of control, the pump capacity is assigned to the required burner stage. When the burner is off, the pump operates at the capacity set in parameter 44.

- ▶ Set parameter 46 to 1.
- ▶ Set pump capacity for the respective burner stage via parameters 42 and 43.

Differential temperature control

With this control option, the pump modulates between flow sensor and return sensor depending on the differential temperature.

- ▶ Set parameter 46 to 2.
- ▶ Set differential temperature via parameter 48.
- ▶ Set inertia via parameter 49.

De-couple control

With this control option, the pump modulates between de-couple sensor and flow sensor depending on the differential temperature. The control differential can be matched to system specific requirements using parameter 47.

- ▶ Connect de-couple sensor to input B11.

6.9 Frost protection

Boiler frost protection

Flow temperature $< 8\text{ }^{\circ}\text{C}$:

- burner is operated at minimum load,
- pump is in operation.

Supply temperature $> 8\text{ }^{\circ}\text{C}$ plus switching differential (parameter 32):

- burner switches off,
- pump run-on is activated (parameter 41).

Boiler frost protection also has a reaction on outputs MFA1 and VA1 if set as a feed pump (parameter 13, 14, 15).

When boiler frost protection is activated, the symbol  flashes in the display.

System frost protection (with external sensor)

External temperature $<$ system frost protection (parameter 23):

pump is activated every 5 hours. The power on time corresponds to the run-on time of the pump (parameter 41).

External temperature $<$ system frost protection (parameter 23) minus 5 Kelvin: continuous pump operation is activated.

External temperature $>$ system frost protection (parameter 23): continuous pump operation is deactivated.

The system frost protection also has a reaction on the outputs MFA1 and VA1 if set as a heating circuit pump (parameter 13, 14, 15).

With buffer control, the system frost protection has no affect on the boiler circuit pump.

DHW frost protection(version W)

DHW temperature $< 8\text{ }^{\circ}\text{C}$:

- burner is operated at minimum load,
- pump is in operation.

DHW temperature $> 8\text{ }^{\circ}\text{C}$ plus half switching differential (parameter 51): burner switches off.

The DHW frost protection also has a reaction on outputs MFA1 and VA1 if they are set as circulation or DHW pumps (parameter 13, 14, 15).

When DHW frost protection is activated, the symbol  is flashing in the display.

6.10 Inputs/outputs

The inputs and outputs can be configured for various functions.

Output MFA1, MFA2 and VA1

Setting parameters 13, 14, 15	Description
0: Forward reporting of operation	The contact closes as soon as heat demand is present.
1: forward reporting of faults	The contact closes as soon as a fault occurs or when a warning is triggered for at least 4 minutes.
2: external feeder pump	The output is activated in the same way as an internal heating circuit pump (for heating and DHW).
3: external heating circuit pump without WCM-FS	The output is activated during heating operation.
4: DHW pump; three way valve	The output is activated during DHW operation.
5: DHW circulation pump without WCM-FS	The output is activated during the release of DHW, or time controlled via button.
6: DHW circulation pump via WCM-FS	The output is activated subject to the circulation program of the WCM-FS.
7: Heating circuit pump via WCM-FS	The output is activated when heating is demanded via WCM-FS #1.

Input H1

Setting parameter 16	Description
0: Release of heat exchanger in heating operation	The release is given for heating operation when the input is closed. The WTC is disabled for heating operations when the input is open.
1: Heating circuit setback / normal ⁽¹⁾	The normal setpoint is effective when the input is closed. The setback value is effective when the input is open.
2: standby with frost protection	The system is in standby when the input is closed. The operating modes DHW and heating are disabled. Frost protection is activated. Systems with external WCM-FS- or WCM-EMheating circuits are also disabled.

⁽¹⁾ Settings are only effective if no WCM-FS is connected or if it fails.

Input H2

Setting parameter 17	Description
0: Release of heat exchanger in DHW operation	The release is given for heating operation when the input is closed. The WTC is disabled for hot water operation when the input is open.
1: DHW setback / normal ⁽¹⁾	The normal setpoint is effective when the input is closed. The setback value is effective when the input is open.
2: heating operation with special level	[ch. 6.6]
3: burner lockout function	The appliance switches off when the input is closed. Frost protection is not activated. The display shows $\overline{W}24$, when the contact is closed.
4: DHW circulation via buttons	Activation of a circulation pump, time can be set via parameter 54. Only when P 13, 14, 15 on 5.

⁽¹⁾ Settings are only effective if no WCM-FS is connected or if it fails.

6 Operation

6.11 Commissioning programs (parameter 73)

General information:

- Parameter 73 is activated for only 8 minutes after switching on the appliance. If necessary switch on the appliance again,
- all programs can be terminated by pressing the [reset] button or via OFF. Afterwards parameter 73 can no longer be selected. Only after switching on again can the parameter be selected again,
- the programs are terminated if faults or warning occur.

The following programs are available:

Program	Description
Pr1	Vent system on the water side
Pr2	Purge oil lines
Pr3	Set stage 1
Pr5	Set stage 2
Pr7	Switch on fan
Pr8	Release combustion chamber pressure for storing
OFF	Exit program

Pr1: vent system on the water side

The circulation pumps and the three-way valve are activated alternatively in order to vent the system.

Pr2: purge oil lines

If an electrical anti syphon valve is fitted to the oil storage tank, the valve can be opened by program Pr2 during manual purging of the oil supply.

Pr3: set stage 1

Burner starts in accordance with the programme sequence and drives to stage 1.

Pr5: set stage 2

Burner starts in accordance with the programme sequence and drives to stage 2.

Pr7: switch on fan

Program is used to cool down the burner prior to servicing.

Pr8: release combustion chamber pressure for storing

During initial commissioning, the current combustion chamber pressures (i 17 and i 18) are automatically stored when exiting program Pr3 and Pr5.

The combustion chamber pressures are only stored again when program Pr8 has been released.



Before the combustion chamber pressures are stored again, the heat cell must be cleaned.

The combustion chamber pressures must be stored again when:

- the combustion chamber pressure sensor has been replaced,
- a large change in load has occurred,
- changes to the flue gas system have been made.

► Select Pr8.

► Press [ENTER].

✓ The combustion chamber pressures are released once for storing.

OFF: end program

Ends the active program and exits parameter 73.

6 Operation

6.12 Special system parameters

System parameters can be set in the heating engineer level. In rare cases it may be necessary to more closely adapt the WTC to the heating system using the WCM Diagnostic Software.



For remote control with WCM-FS, the eBUS-Adapter WEAmust be supplied with voltage via separate mains adapter.

Parameter	Description	Setting range	Unit	Factory setting
A0.1	System pressure and return sensor	☒ / ☐	–	☒
A0.2 ⁽¹⁾	Combustion chamber sensor	☒ / ☐	–	☒
A0.3 ⁽¹⁾	Water jacket temperature sensor	☒ / ☐	–	☐
A4	Switch differential stage 2 off	-50 ... 70	%	0
A5	Switch differential stage 2 on	-170 ... -50	%	-100
A6	Symm. switch differential DHW/buffer	0 ... 10	K	2
A7	minimum pump capacity	1 ... 100	%	23
A15 ⁽¹⁾	max temp differential flow/return temp.	20 ... 60	K	50
A17 ⁽¹⁾	combustion air temperature adjustment	50 ... 150	%	100
A21	forced partial load capacity	1 ... 2	–	1
A22	forced partial load capacity period	0 ... 250	s	240
A23 ⁽¹⁾	flame stabilisation capacity	1 ... 2	–	2
A26 ⁽¹⁾	pre-purge speed	40 ... 100	%	100
A27 ⁽¹⁾	ignition capacity	1 ... 2	–	2
A28 ⁽¹⁾	flame stabilisation time	–	s	10
A29 ⁽¹⁾	option without oil preheating during operation	0 / 1	–	1
A32 ⁽¹⁾	Fan adjustment ignition speed	90 ... 100	%	100
A35 ⁽¹⁾	activation SV stage 2 (at fan speed)	10 ... 95	%	65
A36 ⁽¹⁾	de-activation SV stage 2 (at fan speed)	10 ... 95	%	60
A38 ⁽¹⁾	permissible combustion chamber pressure increase stage 1	0.1 ... 6.0	mbar	0.4
A39 ⁽¹⁾	permissible combustion chamber pressure increase stage 2	0.1 ... 6.0	mbar	0.8
A40	change-over valve control period	0.1 ... 10.0	s	0.8
A41 ⁽¹⁾	Post-purge speed	40 ... 100	%	70
A43	max flue damper run time	3 ... 25	s	25

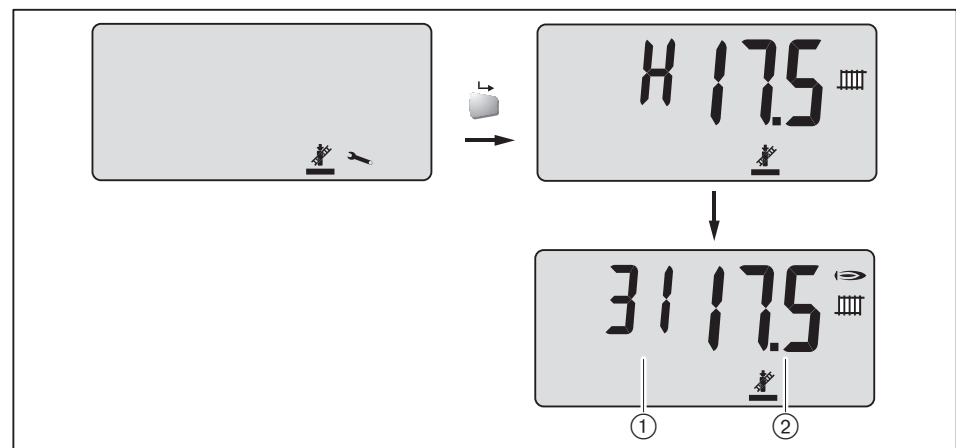
⁽¹⁾ Parameter is safety relevant. Alterations are only permitted following consultation with the Weishaupt service department.

6.13 Chimney sweep

The function is used for flue gas measurement. During the chimney sweep function, the appliance runs at maximum capacity.

Activate chimney sweep function

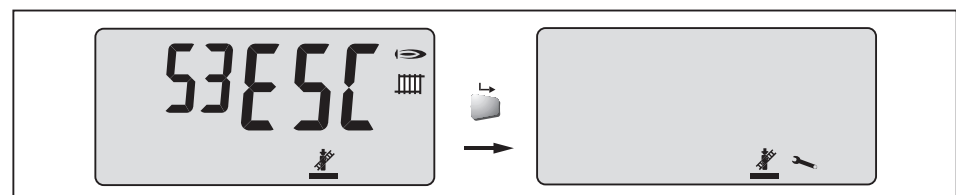
- ▶ Turn dial knob.
- ✓ Tool bar appears.
- ▶ Set the selection cursor below the chimney sweep symbol.
- ▶ Press [Enter]
- ▶ The appliance starts according to the program sequence [ch. 3.3.5].
An **H** is indicated in the display during the preheating phase. The display then shows the current supply temperature following flame formation. The chimney sweep function remains activated for 25 minutes.



- ① Flow temperature
- ② Capacity [kW]

Deactivate chimney sweep function

- ▶ Turn dial knob.
- ✓ **ESC** appears.
- ▶ Press [ENTER].
- ✓ Chimney sweep function is deactivated.



The standard display re-appears after approx. 90 seconds.

7 Commissioning

7.1 Prerequisite

Commissioning must only be carried out by qualified personnel.

Only correctly carried out commissioning ensures the operational safety.

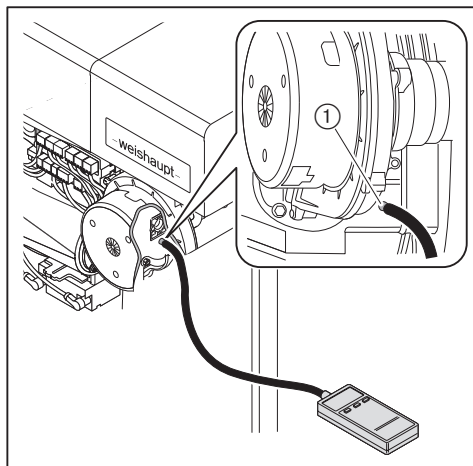
- ▶ Prior to commissioning ensure that:
 - all assembly and installation work has been carried out correctly,
 - the appliance and heating system have been filled with media and vented,
 - the siphon has been filled with water,
 - an adequate supply of fresh air is guaranteed,
 - flue gas ducts and combustion air ducts are unimpeded,
 - all regulating, control and safety devices are functioning and set correctly,
 - a heat demand is available.

Additional system-related tests could be necessary. Please observe the operating guidelines for the individual components.

7.1.1 Connect measuring devices

Pressure measuring device for mixing pressure

- Open pressure test point for mixing pressure ① and connect pressure measuring device.



Oil pressure measuring devices on oil pump

- Vacuum gauge for suction resistance/supply pressure.
- Pressure gauge for pump pressure.



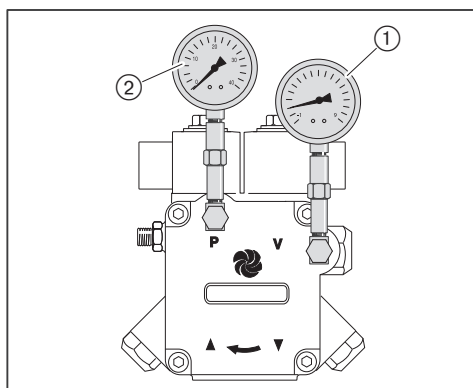
WARNING

Oil leakage from oil pressure measuring devices due to constant load

Oil pressure measuring devices could be damaged and cause environmental pollution through leakage.

- Remove oil measuring devices once commissioning is complete.

- Close fuel shut off devices.
- Remove closing plug on the pump.
- Connect vacuum gauge ① and pressure gauge ②.



7 Commissioning

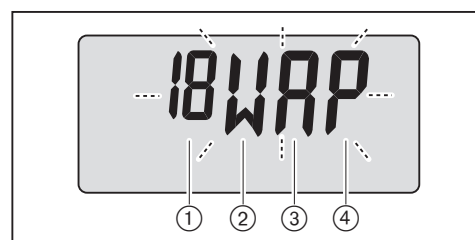
7.2 Adjust condensing boiler

- ▶ During commissioning, make sure that:
 - maximum possible water throughput is ensured,
 - heat up at stage 1 is carried out with low flow temperatures.
- ▶ Open fuel shut off devices.
- ▶ Unplug plugs H1 and H2 [ch. 5.6].
- ✓ An automatic start of the appliance is prevented.

1. Configuring the system

- ▶ Switch on system at switch S1 [ch. 6.1.1].

On activation of the voltage supply the WTC recognises the boiler type, all connected sensors and actuators. The configuration recognised is indicated by a flashing display approx. 20 seconds.



①	Appliance type	18: WTC-OB 18 P1: buffer control with one sensor ⁽¹⁾ P2: buffer control with two sensors ⁽¹⁾ P3: de-couple control ⁽¹⁾
②	Version	H: heating operation W: heating and DHW operation
③	External sensor	A: external sensor -: no external sensor t: temperature remote control
④	Pump	P: speed controlled pump -: no pump

⁽¹⁾ If the control option is linked up the display will appear in ca. 7 seconds.

- ▶ Press [ENTER].
- ✓ The configuration is stored.

If the [Enter] key is not pressed within 20 seconds, the configuration will be stored automatically after 24 hours. The configuration can also be started manually [ch. 6.5]. A configured boiler indicates the configuration saved whenever the power supply is switched on.

The boiler must be reconfigured if sensors or actuators are replaced [ch. 6.5]. Automatic configuration is only performed during the initial commissioning.

2. Setting the parameters

- ▶ Activate parameter level [ch. 6.3].
- ▶ Select individual parameters and adapt to the requirements of the system.

3. Carry out commissioning programs (parameter 73)

The commissioning programs facilitate professional commissioning during which:

- the system is vented on the water side,
- the electrical anti siphon valve is activated to purge the oil lines,
- stage 1 and stage 2 are set.

General information:

- Parameter 73 is activated for only 8 minutes after switching on the appliance. If necessary switch on the appliance again,
- all programs can be terminated by pressing the [reset] button or via OFF. Afterwards parameter 73 can no longer be selected. Only after switching on again can the parameter be selected again,
- the programs are terminated if faults or warning occur.



Carry out programs Pr1 ... Pr5 successively to commission.

Pr1: vent system on the water side

- ▶ Select parameter 73.
- ▶ Press [ENTER].
- ▶ Turn dial knob until Pr1 is displayed.
- ▶ Press [ENTER].
- ✓ Pr1 is activated.

The circulation pumps and the three-way valve are activated alternatively in order to vent the system.

Program Pr1 must be run for at least 20 minutes. Pr1 continues to run in the background until fuel is released (Pr3)(maximum 2 hours).

Pr2: purge oil lines

If an electrical anti syphon valve is fitted to the oil storage tank, the valve can be opened by program Pr2 during manual purging of the oil supply.

- ▶ Press [ENTER].
- ▶ Turn dial knob until Pr2 is displayed.
- ▶ Press [ENTER].
- ✓ Pr2 is activated.

The anti siphon valve on the oil storage tank is switched on.

Fuel shut off device must be open.

- ▶ Fill oil supply with oil and purge.
- ▶ Ensure oil supply is tight.

7 Commissioning

Pr3: set stage 1

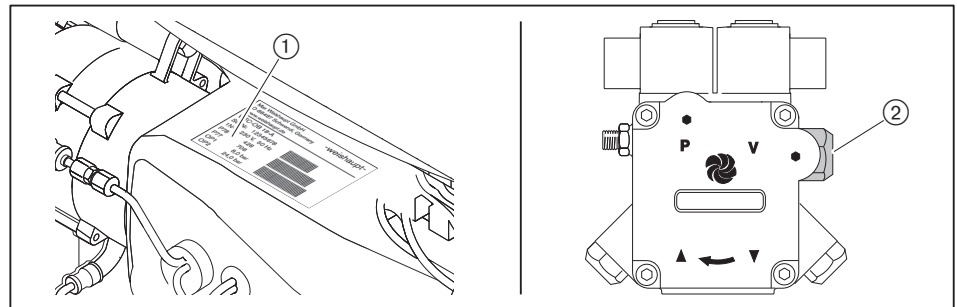


Risk of electric shock

Touching the ignition device can lead to electric shock.

- ▶ Do not touch ignition device during the ignition process.

- ▶ Press [ENTER].
- ▶ Turn dial knob until Pr3 is displayed.
- ▶ Press [ENTER].
- ✓ Pr3 is activated.
Burner starts in accordance with the programme sequence and drives to stage 1.
- ▶ Read pump pressure (OP1) on the name plate ① and if necessary adjust using the pressure regulating screw ②.

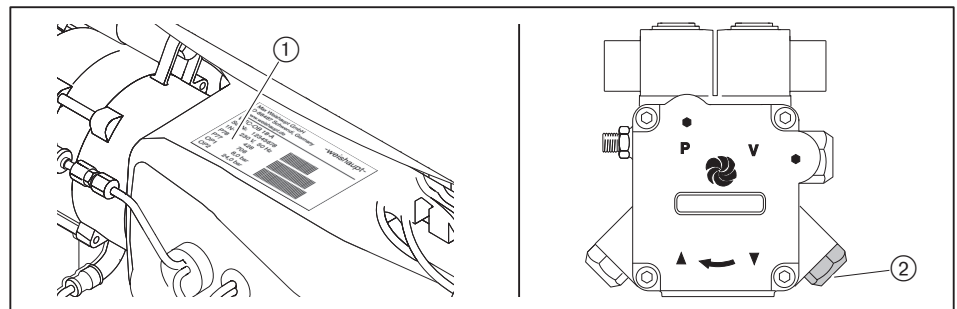


The mixing pressure at stage 1 must not drop below 6 mbar.

- ▶ Check combustion values
- ▶ Determine combustion limit and set excess air using parameter 78 , see [ch. 7.6].

Pr5: set stage 2

- ▶ Press [ENTER].
- ▶ Turn dial knob until Pr5 is displayed.
- ▶ Press [ENTER].
- ✓ Pr5 is activated.
Burner starts in accordance with the programme sequence and drives to stage 2.
- ▶ Read pump pressure (OP2) on the name plate ① and if necessary adjust using the pressure regulating screw ②.



- ▶ Check combustion values
- ▶ Determine combustion limit and set excess air using parameter 77 , see [ch. 7.6].
- ▶ Exit commissioning programs using OFF .

4. Concluding work



WARNING

Oil leakage from oil pressure measuring devices due to constant load

Oil pressure measuring devices could be damaged and cause environmental pollution through leakage.

► Remove oil measuring devices once commissioning is complete.

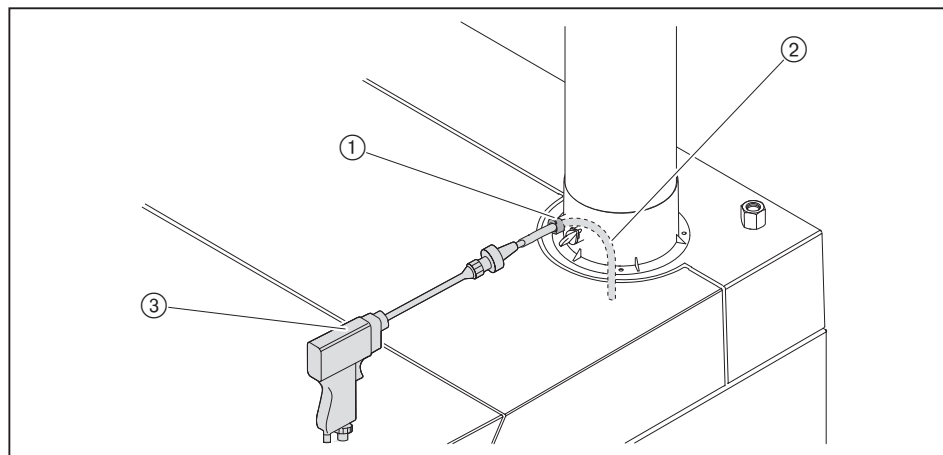
- Switch off system at switch S1 and plug in plugs H1 and H2.
- Remove measuring devices.
- Close the test points and close covers.
- Check tightness of water and oil carrying components.
- Enter combustion values and settings in the commissioning record.
- Inform the operator about the use of the equipment.
- Hand the installation and operating manual to the operator and inform him that this must be kept on site.
- Point out to operator that the installation should be serviced annually.

7.3 Check soundness of flue gas system

For room air independent operation, the soundness of the flue gas system must be checked by means of an O₂ measurement.

- Guide the hose ② via the measuring point in the supply air annular gap ① into the appliance.
- Seal the measuring point in the supply air annular gap.
- Connect the measuring probe ③ to the hose.
- Fit front panel.
- Manually drive to capacity [ch. 6.4].
- Carry out O₂ measurement at maximum load.
- Adhere to a measuring period of at least 5 minutes.

It is admissible for the O₂ content to fall short of the measured values of the ambient air by 0.2 % at the most.



7 Commissioning

7.4 Check rating

7.4.1 Delivery status



The table shows the delivery status. The burner must be set during commissioning.

	Stage 1	Stage 2
Burner capacity ⁽¹⁾	approx. 11.5 kW	approx. 17.5 kW
Mixing head	ME 1.17 B	
Pump pressure ⁽²⁾	7.5 bar	18.0 bar
Oil nozzle	0.30 80°SR Danfoss	
Fan speed ⁽³⁾	4400 1/min (rpm)	6700 1/min (rpm)
Mixing pressure ⁽⁴⁾	6.9 mbar	16.5 mbar

⁽¹⁾ Different values are possible due to tolerances.

⁽²⁾ -0.1 / +0.2 bar

⁽³⁾ ±50 1/min

⁽⁴⁾ ±0.5 mbar

7.4.2 Changing capacity

If required, the capacity can be altered by changing the pump pressure.

Pump pressure setting



The stages must not be operated outside the pump pressure ranges specified.

Stage 1	Stage 2
7.5 ... 10.0 bar	12.0 ... 18.0 bar

Burner capacity

		0.30 gph
Pump pressure [bar]		kW ⁽¹⁾
Stage 1	7.5	11.6
	8.0	12.1
	9.0	12.8
	10.0	13.5
Stage 2	12.0	14.7
	13.0	15.3
	14.0	15.9
	15.0	16.4
	16.0	16.9
	17.0	17.3
	18.0	17.8

⁽¹⁾ Different values are possible due to tolerances.

The capacity values were determined at a test bed, they do not correspond with the Weishaupt slide rule.

7.5 Readjustment of combustion

If necessary, the combustion values can subsequently be corrected.



Parameter 73 can only be activated within 8 minutes of switching on the appliance. Switch on the appliance once again, if necessary.

Pr3: set stage 1

- ▶ Activate parameter level [ch. 6.3].
 - ▶ Select parameter 73.
 - ▶ Press [ENTER].
 - ▶ Turn dial knob until Pr3 is displayed.
 - ▶ Press [ENTER].
 - ✓ Pr3 is activated.
- Burner starts in accordance with the programme sequence and drives to stage 1.



The mixing pressure at stage 1 must not drop below 6 mbar.

- ▶ Check combustion values
- ▶ Determine combustion limit and set excess air using parameter 78, see [ch. 7.6].

Pr5: set stage 2

- ▶ Press [ENTER].
 - ▶ Turn dial knob until Pr5 is displayed.
 - ▶ Press [ENTER].
 - ✓ Pr5 is activated.
- Burner starts in accordance with the programme sequence and drives to stage 2.
- ▶ Check combustion values
 - ▶ Determine combustion limit and set excess air using parameter 77, see [ch. 7.6].

End program

- ▶ Select parameter 73.
- ▶ Press [ENTER].
- ▶ Turn dial knob until OFF is displayed.
- ▶ Press [ENTER].
- ✓ Program is terminated.

7 Commissioning

7.6 Check combustion

Determine excess air

- ▶ Slowly reduce O₂ content until the combustion limit is reached (CO content approx. 100 ppm or smoke number approx. 1).
- ▶ Measure and document O₂ content.
- ▶ Read air number (λ).

Increase air number to ensure sufficient excess air:

- by 0.1 (equates to 10 % excess air),
- by more than 0.1 for more difficult conditions, such as:
 - dirty combustion air,
 - fluctuating chimney draught.

Example

$$\lambda + 0.1 = \lambda^*$$

- ▶ Set air number (λ^*), do not exceed CO content of 50 ppm.
- ▶ Measure and document O₂ content.

8 Shutdown

For breaks in operation:

- ▶ Switching off the appliance.
- ▶ Close fuel shut off devices.
- ▶ If there is a risk of frost drain the system.

9 Servicing

9.1 Notes on servicing



Risk of electric shock

Working on the device when voltage is applied can lead to electric shock.

- ▶ Isolate the device from the power supply prior to starting any work.
- ▶ Safeguard against accidental restart.



Danger of poisoning by escaping flue gas

Flue gas can escape if the siphon is not filled. Inhalation leads to dizziness, nausea and eventually death.

- ▶ Check the fill level of the siphon at regular intervals and replenish if necessary, in particular when the system has been shut down for longer periods or has been operated at high return temperatures > 55 °C.



Danger of getting burned on hot components

Hot components can lead to burns.

- ▶ Allow components to cool, if necessary with the aid of parameter 73 (program Pr7).

Servicing must only be carried out by qualified personnel.

Inspect the system at least once a year, carry out servicing and any repairs as necessary.

Clean the heat cell at least every 2 years. Weishaupt recommends annual cleaning.

Components, which show increased wear and tear or whose design lifespan is or will be exceeded prior to the next service should be replaced as a precaution [ch. 9.2].



Weishaupt recommends a service contract is entered into to ensure regular inspections.

The following components must only be replaced and must not be repaired:

- boiler electronics WCM-OB-CPU,
- flame sensor,
- oil solenoid valves,
- safety valve.

Prior to every servicing

- ▶ Inform the operator about the extent of service work to be carried out.
- ▶ Switch off mains switch of installation and safeguard against accidental reactivation.
- ▶ Close fuel shut off devices.
- ▶ Remove front panel [ch. 4].



Carry out servicing in accordance with the enclosed inspection card (Print No. 837567xx).

Following servicing



Risk of electric shock

Touching the ignition device can lead to electric shock.

- ▶ Do not touch ignition device during the ignition process.

-
- ▶ Check tightness of oil carrying components.
 - ▶ Check soundness of flue gas and condensate carrying components.
 - ▶ Check tightness of water carrying components.
 - ▶ Check tightness of air carrying components.
 - ▶ Refit front panel.
 - ▶ Check combustion values via `Pr3` and `Pr5` , if necessary readjust [ch. 7.5].
 - ▶ Enter combustion values and settings in the commissioning record.
 - ▶ Resetting the service display [ch. 9.3].

9 Servicing

9.2 Components

In addition to the servicing steps listed in the inspection card, the following components must be tested for their design lifespan.

Components, which show increased wear and tear or whose design lifespan is or will be exceeded prior to the next service should be replaced as a precaution.

- ▶ Check the design lifespan of the components.
- ▶ Replace components as necessary

Components	Design lifespan
Boiler electronics WCM-OB-CPU	360 000 burner starts
Oil solenoid valve	250 000 burner starts or 10 years
Oil hoses	5 years

9.3 Servicing display

The time interval to the next service can be set. A flashing spanner will appear in the display when the set interval has expired. *Customer service* is displayed, if the remote control station WCM-FS is used.

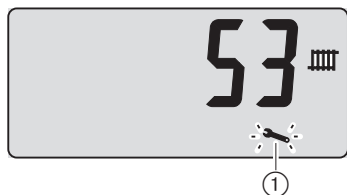
Setting the service interval

- ▶ Activate parameter level [ch. 6.3].
- ▶ Set service interval via parameter 70.

Resetting the service display

The service display ① must be reset after servicing:

- ▶ Activate info level [ch. 6.3].
- ▶ Select *i 45* in the Info level.
- ▶ Press [Enter] for 2 seconds.
- ✓ Service display and timer are reset.



Service display combustion chamber pressure

During burner operation, the combustion chamber pressure is monitored continuously. If the combustion chamber pressure exceeds the predetermined value, a service message will appear in the display. The spanner icon flashes intermittently (twice briefly, long pause).

For cause and remedy, see chapter Error code (F19).

9 Servicing

9.4 Service positions

9.4.1 Service position A

Observe notes on servicing [ch. 9.1].

Removing

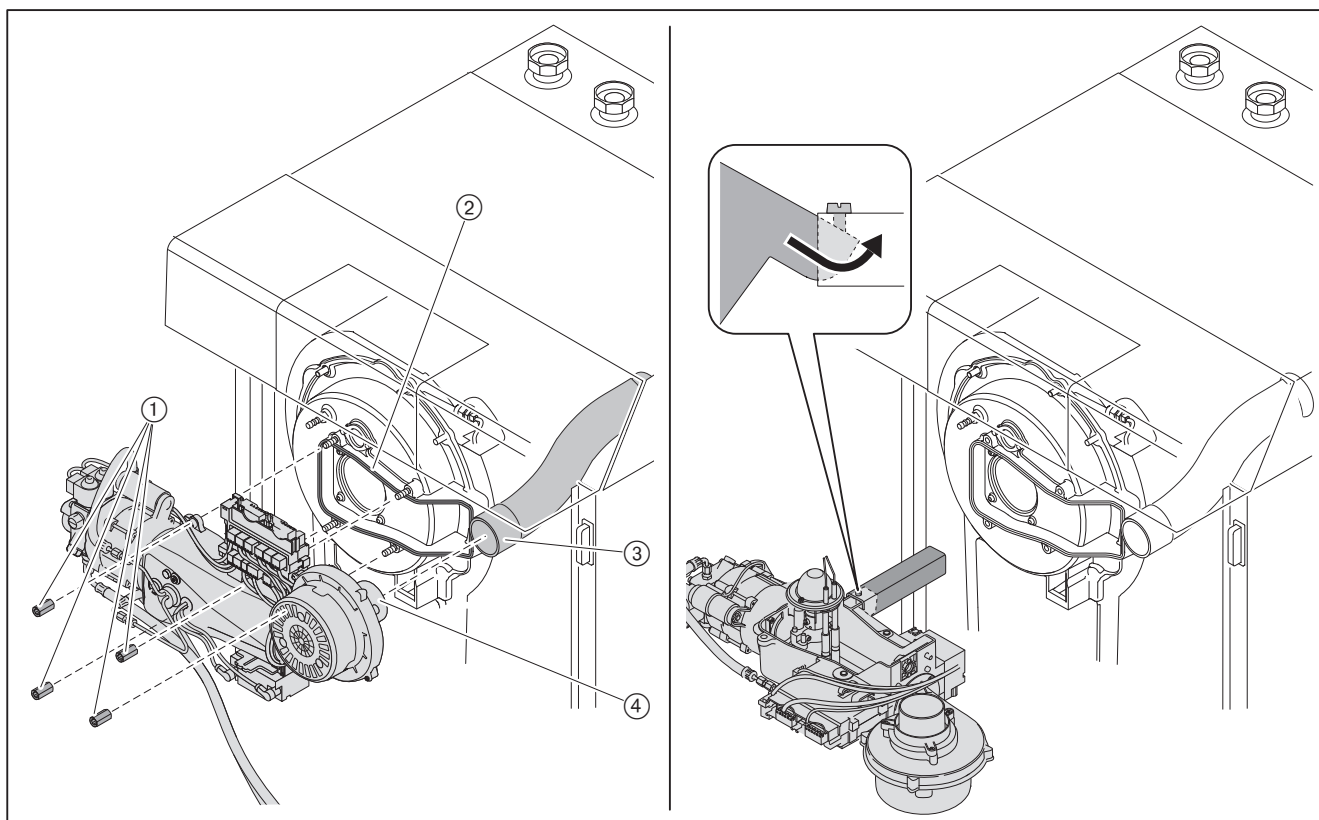
- ▶ Remove air hose ③ from intake manifold ④, if necessary squeeze air hose to release.
- ▶ Remove hexagonal nuts ① and remove burner.
- ▶ Turn the burner and place it into the service position.



The burner can be hung on the left or right.

Refitting

- ▶ Refit burner in reverse order and:
 - ensure correct seating of gasket ② on burner housing,
 - refit air hose ③ to the intake manifold ④.



- ▶ Check mixing head [ch. 9.7]

9.4.2 Service position B

Observe notes on servicing [ch. 9.1].

Removing

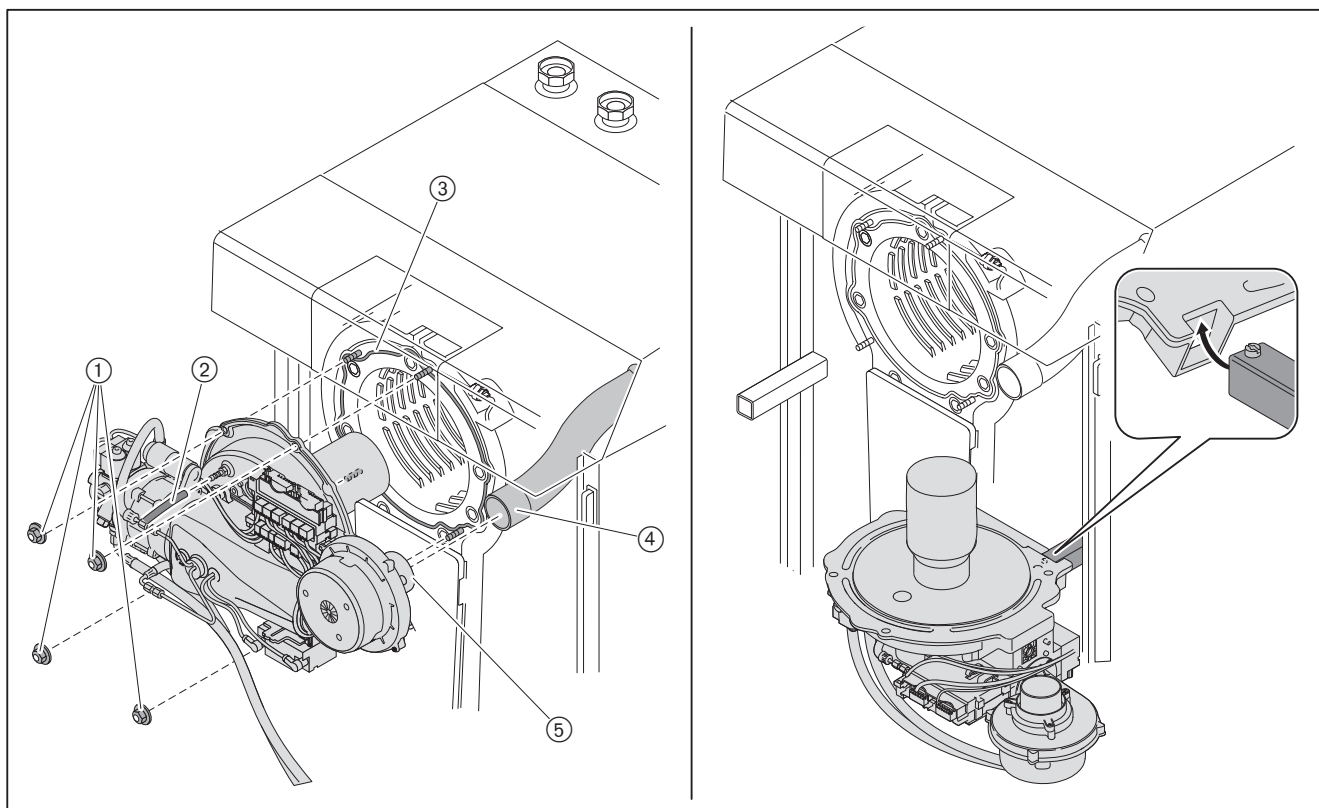
- ▶ Remove air hose ④ from intake manifold ⑤, if necessary squeeze air hose to release.
- ▶ Remove hose ② from threaded socket.
- ▶ Remove disc nuts ① and remove burner complete with boiler door.
- ▶ Turn the burner and place it into the service position.



The burner can be hung on the left or right.

Refitting

- ▶ Refit burner in reverse order and:
 - ensure correct seating of gasket ② on burner housing,
 - refit air hose ③ to the intake manifold ④,
 - connect hose ② to threaded socket.



9 Servicing

9.5 Cleaning the heat cell

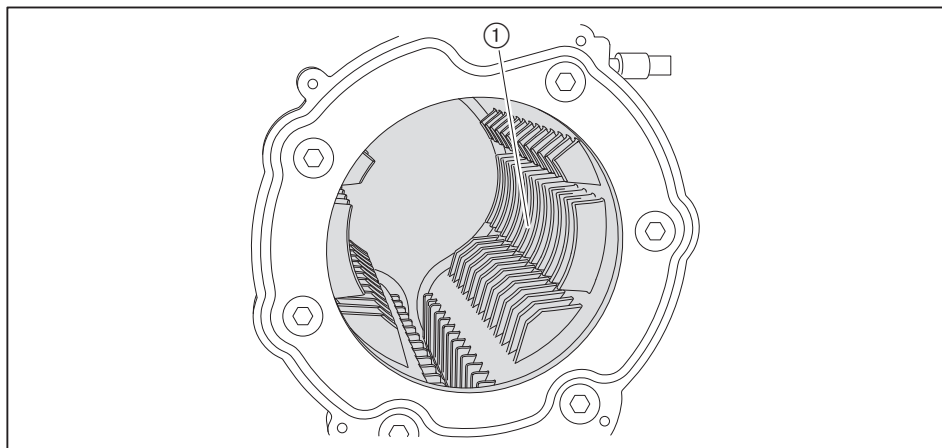
Observe notes on servicing [ch. 9.1].



When cleaning use only plastic brushes (no metal brushes). Make sure that no residues can enter any existing condensate lift pump and / or neutralisation device.

Cleaning the combustion chamber

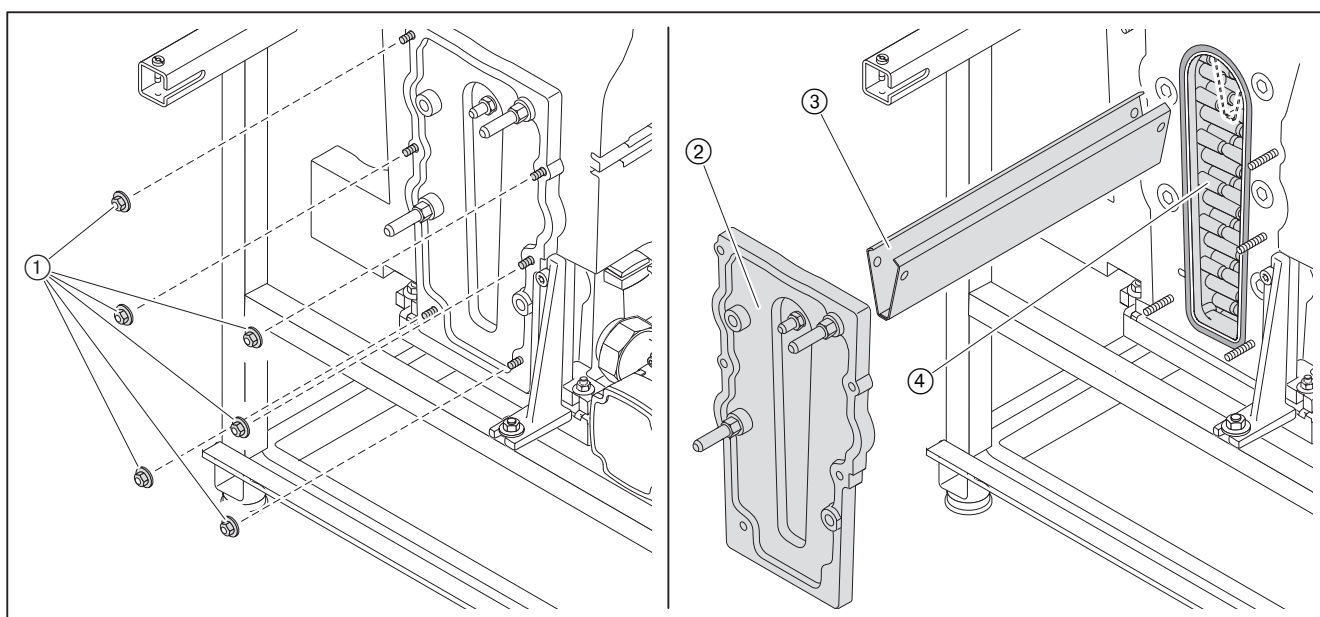
- ▶ Place burner into service position B [ch. 9.4.2].
- ▶ Check combustion chamber ① for soiling and clean if necessary.



- ▶ Refit the burner [ch. 9.4.2].

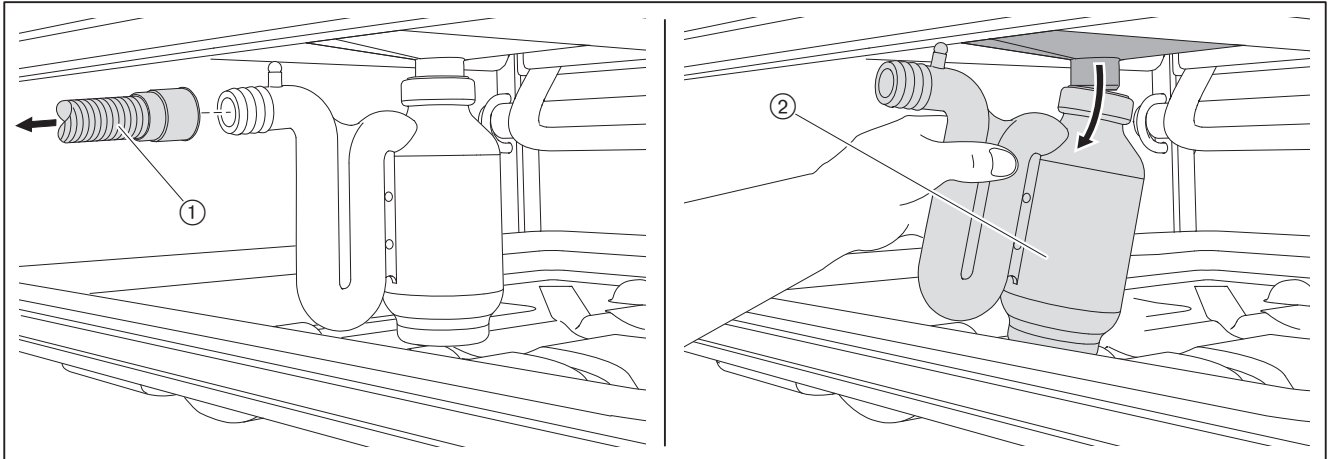
Cleaning the heat exchanger

- ▶ Remove insulation.
- ▶ Remove disc nuts ①.
- ▶ Remove service cover ②.
- ▶ Remove turbulator ③.
- ▶ Check the heat exchanger ④ for contamination and clean, if necessary
- ▶ Check gasket ⑤ and replace if necessary.



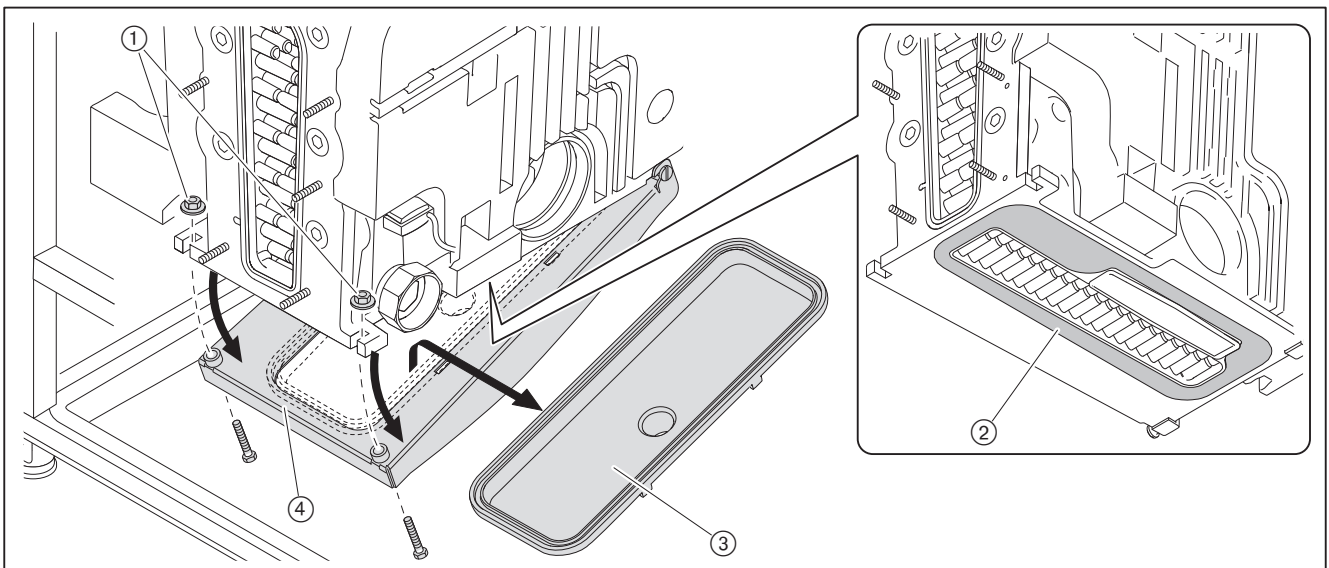
Cleaning the siphon

- ▶ Remove condensate hose ①
- ▶ Remove siphon ②, while pressing the termination well slightly downwards.
- ▶ Clean siphon.



Cleaning the condensate pan

- ▶ Remove disc nuts ①.
- ▶ Slowly lower the condensate pan bracket ④.
- ▶ Remove the condensate pan ③.
- ▶ Clean the condensate pan.
- ▶ Check the sealing surface and seal ② on the underside of the heat exchanger, clean if necessary.
- ▶ If required, coat seal ② with Centrocerin (alternatively pH neutral detergent) and press down on the heat exchanger.



Refitting

- ▶ Install condensate pan, ensuring correct alignment of the seal.
- ▶ Fit siphon and condensate hose.
- ▶ Fill siphon with water via the heat exchanger and check for leaks.
- ▶ Fit turbulator.
- ▶ Fit service cover, ensuring sealing surfaces are clean and the seal is seated correctly.

9.6 Set nozzle distance

Observe notes on servicing [ch. 9.1].

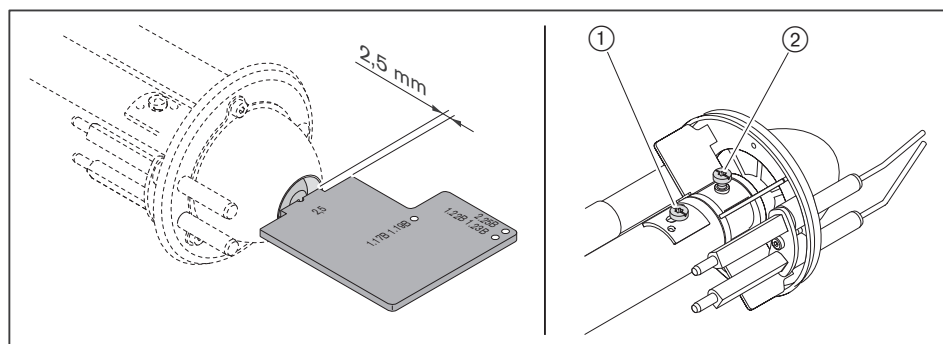


The nozzle distance must be set to 2.5 mm.

- ▶ Place burner into service position A [ch. 9.4.1].
- ▶ Insert setting gauge and check dimension A (2.5 mm).

If the value measured deviates from dimension A:

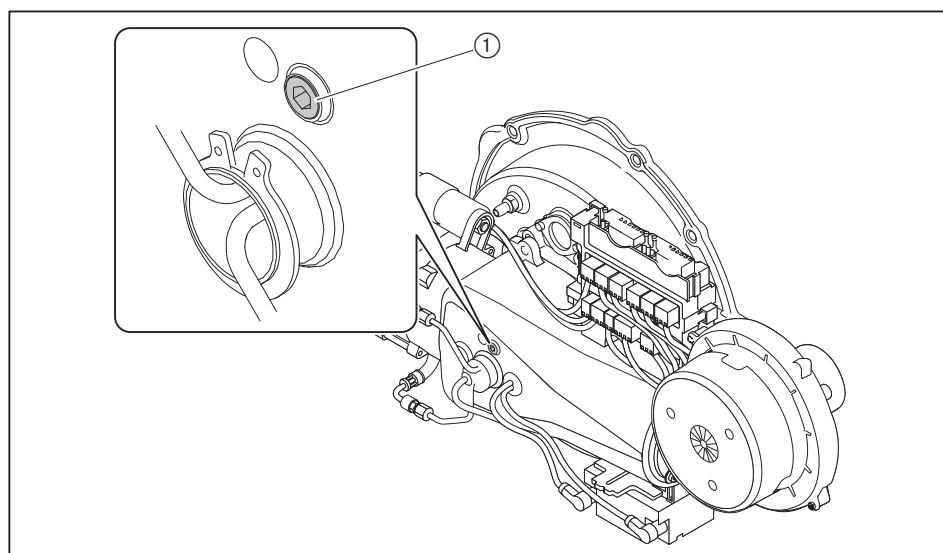
- ▶ Undo screw ① on the guide tube and screw ② on the mixing head.
- ▶ Set nozzle distance by moving the nozzle body, whereby the mixing head must touch the guide tube.
- ▶ Tighten screws ① and ②.



9.7 Check mixing head

The correct installation of the mixing head can be checked using the indicating bolt.

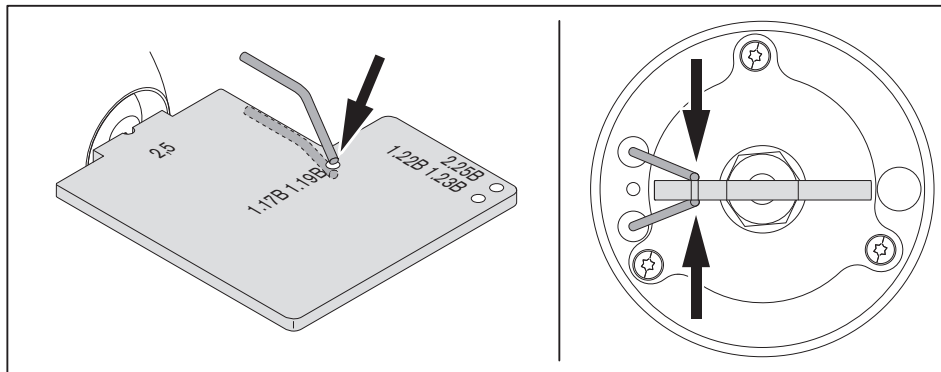
- ▶ Check indicating bolt ①.
- ✓ If the indicating bolt is flush with the burner housing, the mixing head has been installed correctly.



9.8 Set ignition electrodes

Observe notes on servicing [ch. 9.1].

- ▶ Place burner into service position A [ch. 9.4.1].
- ▶ Set ignition electrodes with the help of the setting gauge, paying attention to the type of mixing head [ch. 7.4.1].

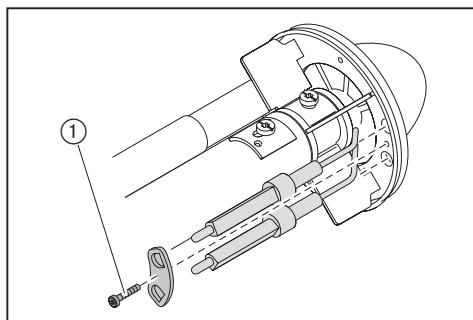


9.9 Removing and refitting ignition electrodes

Observe notes on servicing [ch. 9.1].

Removing

- ▶ Place burner into service position A [ch. 9.4.1].
- ▶ Unplug ignition cable.
- ▶ Remove screw ① and remove ignition electrodes from mixing head.



Refitting

- ▶ Refit ignition electrodes in reverse order.
- ▶ Set ignition electrodes [ch. 9.8]

9 Servicing

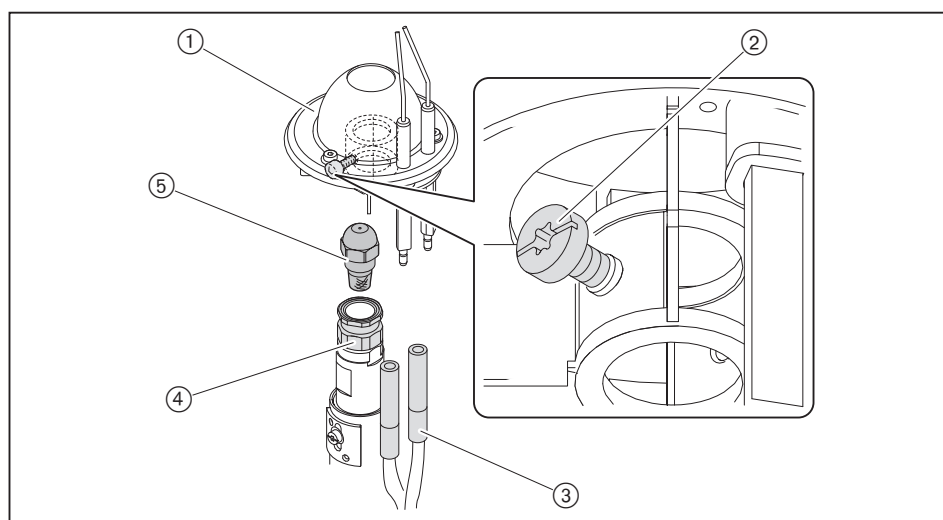
9.10 Replace oil nozzle

Observe notes on servicing [ch. 9.1].



Do not clean nozzles, always fit new nozzles.

- ▶ Place burner into service position A [ch. 9.4.1].
- ▶ Unplug ignition cable ③.
- ▶ Undo screw ② and remove mixing head ①.
- ▶ Counter-hold on the nozzle body ④ using a spanner and remove nozzle ⑤.
- ▶ Fit new nozzle ensuring it is seated tightly.
- ▶ Fit mixing head up to stop and secure.
- ▶ Plug in ignition cable.
- ▶ Check nozzle distance [ch. 9.6].
- ▶ Check setting of ignition electrodes [ch. 9.8].

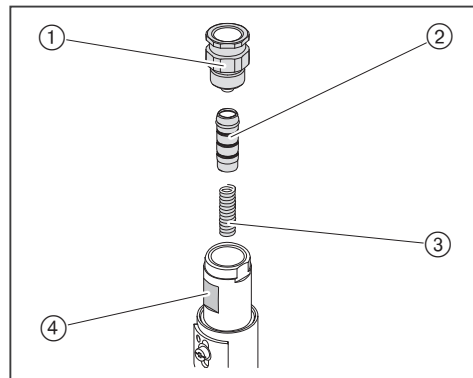


9.11 Removing and refitting nozzle shut off

Observe notes on servicing [ch. 9.1].

Removing

- ▶ Remove nozzle.
- ▶ Counter-hold the nozzle assembly ④ using a spanner and remove nozzle holder ①.
- ▶ Remove valve piston ② and compression spring ③ using a suitable tool (e. g. pliers), do not damage valve piston and O ring.



Refitting

Do not refit damaged valve pistons, replace as necessary.

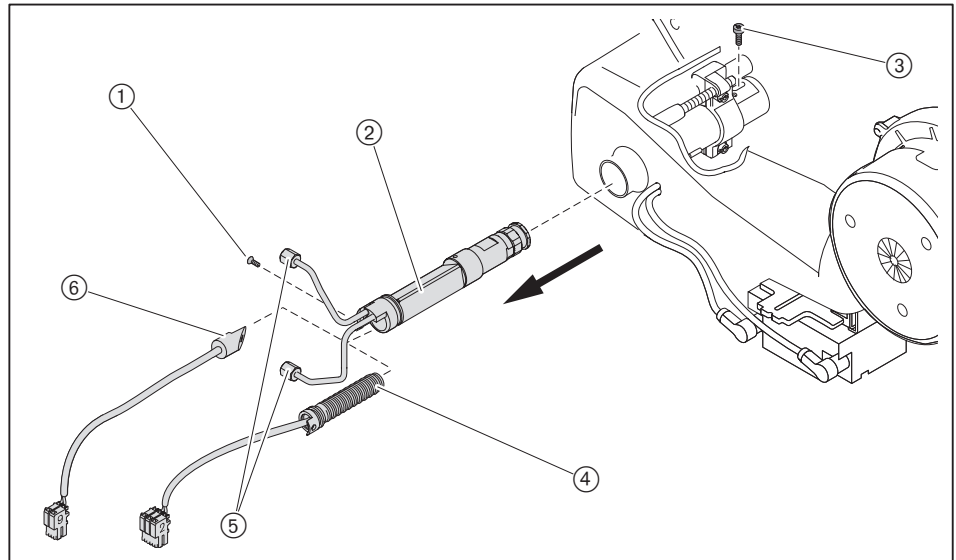
- ▶ Refit nozzle shut off in reverse order.
- ▶ Check nozzle distance.
- ▶ Set ignition electrodes

9 Servicing

9.12 Removing heat exchanger and temperature switch

Observe notes on servicing [ch. 9.1].

- ▶ Unplug plug number 2 and 9.
- ▶ Undo oil lines ⑤.
- ▶ Remove screw ③ and remove nozzle assembly ②.
- ▶ Remove nozzle [ch. 9.10].
- ▶ Remove screw ① and temperature switch ⑥.
- ▶ Remove heat exchanger ④ using a suitable tool (e. g. pliers).

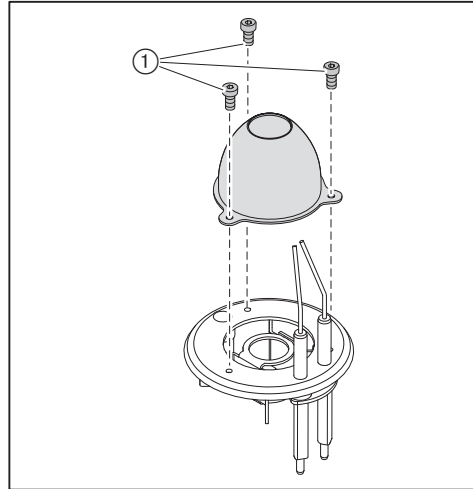


9.13 Removing and refitting air nozzle

Observe notes on servicing [ch. 9.1].

Removing

- Place burner into service position A [ch. 9.4.1].
- Remove screws ① and remove air nozzle.



Refitting

- Refit air nozzle in reverse order.
- Set nozzle distance [ch. 9.6]
- Set ignition electrodes [ch. 9.8]

9 Servicing

9.14 Removing and refitting oil pump

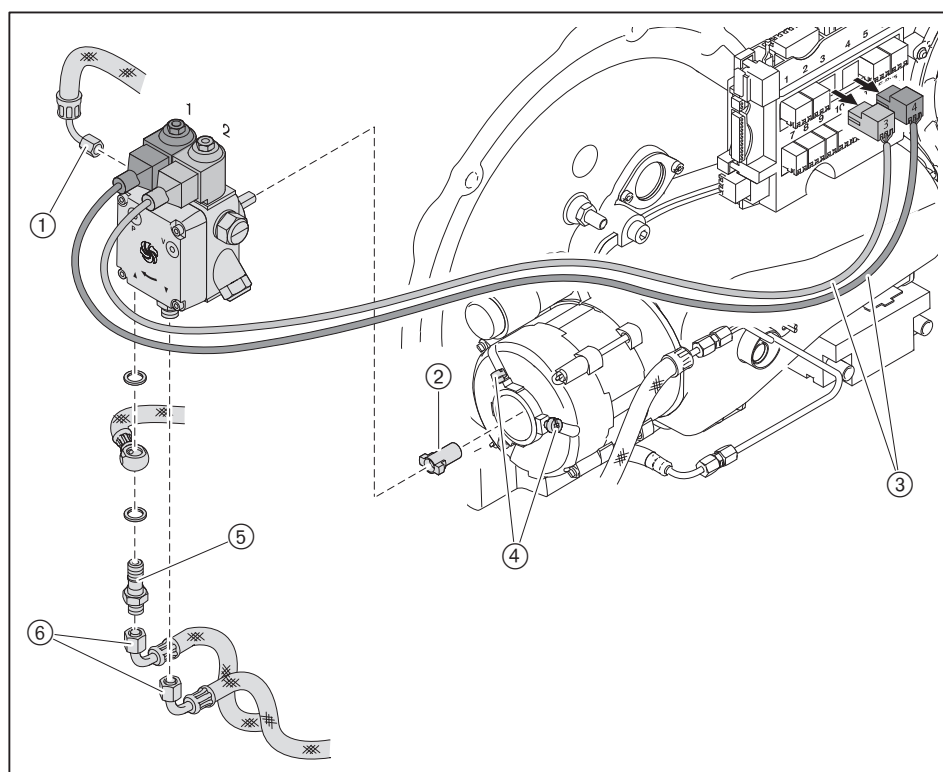
Observe notes on servicing [ch. 9.1].

Removing

- ▶ Unplug plug number 3 and 4.
- ▶ Remove oil hoses ⑥, screwed union ⑤ and oil hose ①.
- ▶ Undo screws ④ and remove oil pump.

Refitting

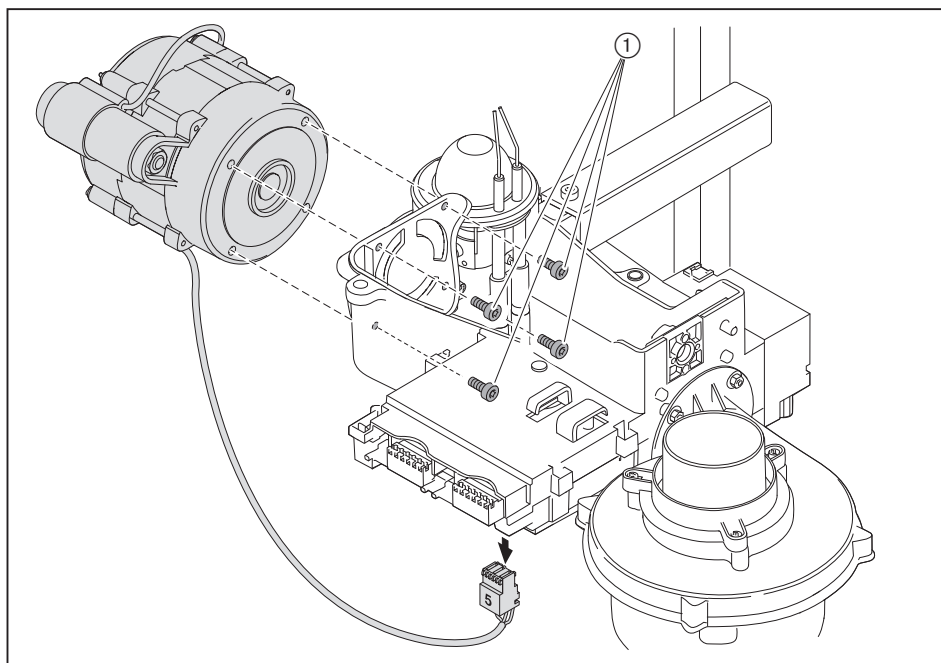
- ▶ Install oil pump in reverse order and:
 - ensure correct alignment of coupling ② and sealing rings,
 - ensure correct allocation of plug cables ③.



9.15 Remove pump motor

Observe notes on servicing [ch. 9.1].

- ▶ Remove the oil pump [ch. 9.14].
- ▶ Place burner into service position A [ch. 9.4.1].
- ▶ Unplug plug number 5.
- ▶ Remove screws ① and motor.



9 Servicing

9.16 Removing and refitting fan

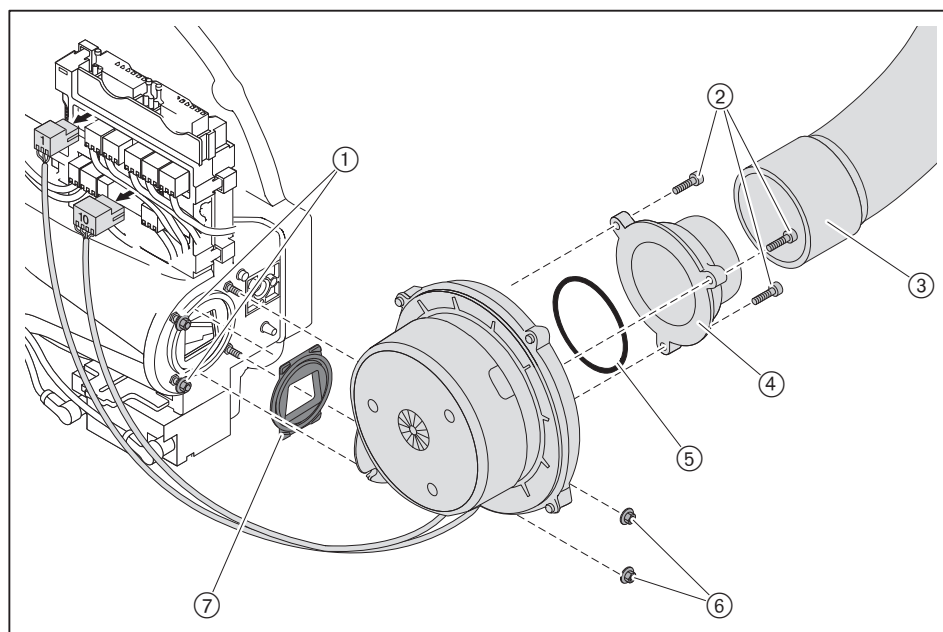
Observe notes on servicing [ch. 9.1].

Removing

- ▶ Unplug plug number 1 and 10.
- ▶ Remove nuts ① and nuts ⑥.
- ▶ remove fan and seal ⑦.
- ▶ Remove screws ②, intake manifold ④ and O ring ⑤.

Refitting

- ▶ Refit fan in reverse order, ensuring:
 - correct seating of O rings and seal,
 - refit air hose ③ to the intake manifold.

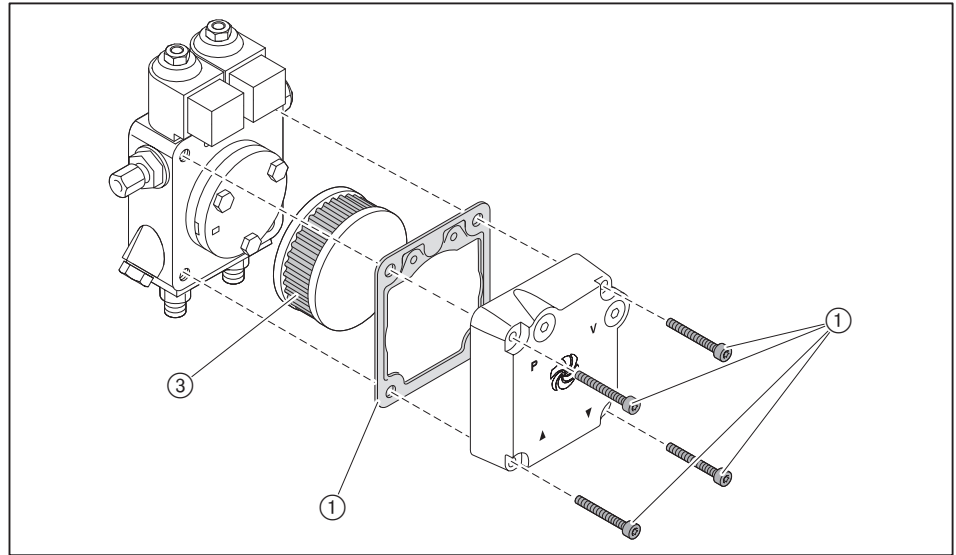


9.17 Removing and refitting oil pump filter

Observe notes on servicing [ch. 9.1].

Removing

- ▶ Close fuel shut off devices.
- ▶ Remove bolts ①.
- ▶ Remove pump cover.
- ▶ Replace filter ③ and gasket ②.



Refitting

- ▶ Refit filter in reverse order ensuring sealing surfaces are clean.

9 Servicing

9.18 Removing and refitting oil filter insert

Observe notes on servicing [ch. 9.1].

Removing

- ▶ Place oil filter vent combination into service position.
- ▶ Close fuel shut off device ①.
- ▶ Open clamping ring ③.
- ▶ Replace filter insert ②.

Refitting

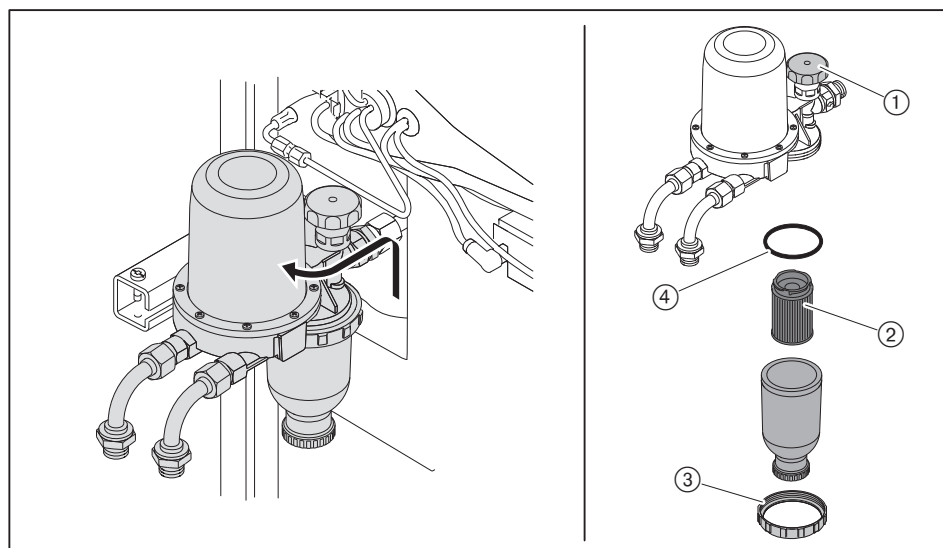
- ▶ Refit filter insert in reverse order, ensuring:
 - sealing surfaces are clean and the O ring ④ is seated correctly,
 - if necessary replace O ring.



Oil pump seized due to running dry

Pump could be damaged.

- ▶ Fill oil supply with oil and purge, if necessary use parameter 73 (program Pr2). [ch. 7.2].



Oil level in the filter cup

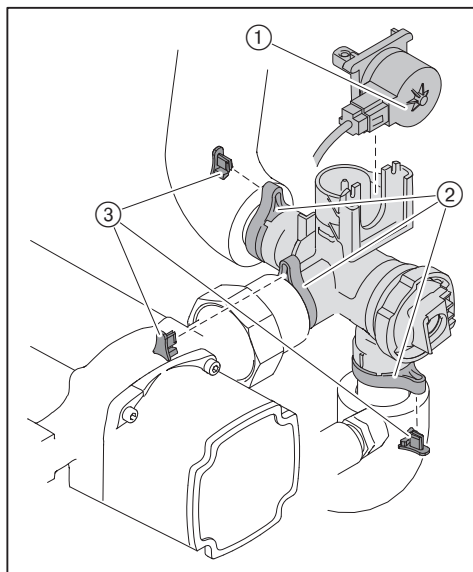
Due to various factors (e.g. filter resistance, pressure conditions), the oil level in the filter cup can drop to the lower edge of the filter element. Reliable operation of the system is nevertheless guaranteed, as the interior of the filter insert is completely filled with oil.

9.19 Removing and refitting three way valve

Observe notes on servicing [ch. 9.1].

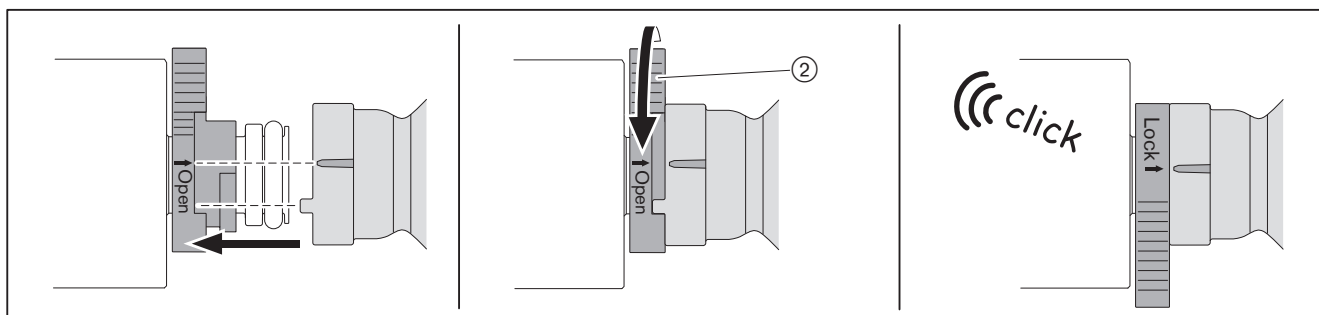
Removing

- ▶ Close water side shut off devices to the heating system.
- ▶ Drain the appliance on the water side.
- ▶ Remove actuator ① upwards.
- ▶ Remove bayonet fixings ③.
- ▶ Undo bayonet catches ②.
- ▶ Remove three way valve.



Refitting

- ▶ Fit three way valve as shown.
- ▶ Close bayonet catches ② until they click into place.
- ▶ Fit bayonet fixings and actuator.



10 Troubleshooting

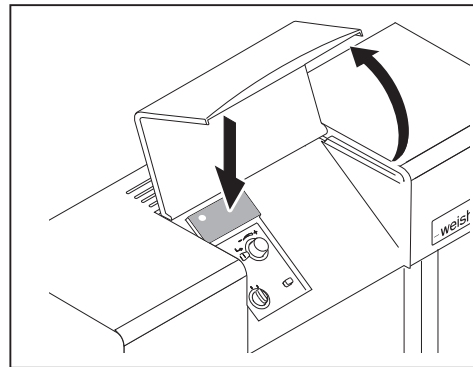
10.1 Procedures for fault conditions

- Check prerequisites for operation:
 - Voltage supply available.
 - Heating switch is set to On.
 - Remote control station set correctly.

The appliance electronics detect irregularities from the appliance and displays them flashing.

The following conditions can occur:

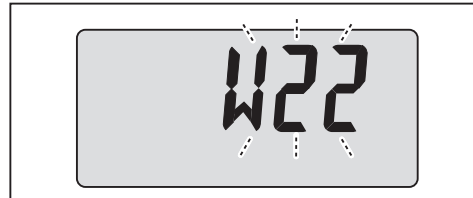
- Warning
- Fault



Warnings

A warning is indicated with a **W** and a number in the display. The signal will extinguish automatically as soon as the cause of the warning has been eliminated. The system does not lock out during a warning.

Example



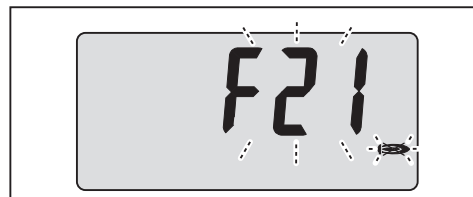
If a warning appears more than once, the system should be checked by qualified personnel.

- Read and rectify the warning [ch. 10.3].

Faults

A fault is indicated with an **F** and a number in the display. If a fault occurs, the system goes to lockout.

Example



Faults must only be rectified by qualified personnel.

- Read and rectify the fault [ch. 10.4].

Resetting



Damage resulting from incorrect fault repair

Incorrect fault repair can cause damage to the equipment and injure personnel.

- ▶ Do not carry out more than 2 lockout resets successively.
- ▶ Faults must be rectified by qualified personnel.

-
- ▶ Reset the fault using the reset button and wait for a few seconds.
 - ✓ The system is reset.
-



If a fault occurs, the appliance can change over to forced ventilation (duration approx. 30 seconds). The appliance cannot be reset during this time.

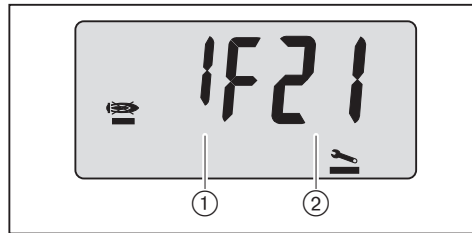
10 Troubleshooting

10.2 Fault memory

The last 16 faults and the system status at the time of the faults are recorded in the fault history.

Display faults

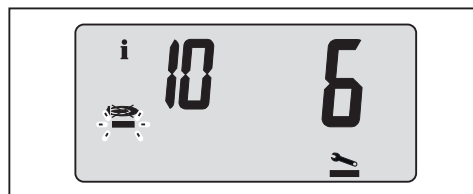
- ▶ Activate the fault level [ch. 6.3].
- ✓ The most recent fault will be displayed as fault 1.
- ▶ Turn dial knob.
- ✓ Fault 1 ... 16 can be selected.



- ① Faults 1 ... 16
- ② Fault code

Interrogating system status

- ▶ Select fault with dial knob.
- ▶ Press [ENTER].
- ✓ System status when fault occurred is displayed.
- ▶ Turn dial knob to interrogate information.



Info	System	Unit
i 10	Operating phase 1: standby check fan 2 (H): oil preheating 3: pre-purge / pre-ignition 4: safety time 5: post-ignition 6: flame stabilisation 7: controller enable 8: post-purge 9: forced venting	–
i 11	Rating	kW
i 14	Burner running time up to fault	s
i 16	Combustion chamber pressure	mbar
i 20	Three way valve setting H: Heating operation W: DHW	mA
i 21	Solenoid valve control 0: Off 1: Solenoid valve 1 2: Solenoid valve 1 + 2	–
i 30	Flow temperature	°C
i 31	Flue gas temperature	°C
i 33	External temperature	°C
i 34	DHW temperature B3	°C
i 37	Combustion air temperature	°C
i 40	Burner starts since the most recent fault	–
ESC	Exit level	

10 Troubleshooting

10.3 Warning codes

The following faults must only be rectified by qualified personnel:

Warning codes	Cause	Rectification
W12	Temperature at flow sensor > 95 °C (system goes to lockout after 12 warnings with F12)	▶ Check the water flow ▶ Check function of the pumps ▶ Vent unit on the water side
W15	Temperature differential between flow and return to high (system goes to lockout after 30 warnings with F15)	▶ Check function of pump, if necessary increase pump capacity ▶ Ensure system circulation
W16	Flue gas temperature too high (parameter 33 - 5 K) (system goes to lockout after 10 warnings with F16)	▶ Wait for cooling (10 minutes) ▶ Check heat cell
W17	Combustion air temperature too high (after repeated warnings system goes to lockout with F17)	▶ Wait for cooling (10 minutes) ▶ Check the heat insulation ▶ Check combustion air sensor, replace if necessary ▶ Flow sensor and combustion air sensor mixed up, check electrical connections
W19	Combustion chamber pressure too high (system goes to lockout after 3 warnings with F19)	▶ Check heat cell, if necessary clean [ch. 9.5] ▶ Check flue gas system ▶ Check the condensate drain ▶ Check combustion chamber pressure sensor, if necessary replace ▶ Check combustion for pulsation, if necessary increase mixing pressure
W22	Flame failure during operation (system goes to lockout after 5 warnings with F22)	▶ Check oil nozzle, if necessary replace [ch. 9.10] ▶ Check oil supply ▶ Check oil pump, if necessary replace [ch. 9.14] ▶ Check flame sensor (USB-readout unit KLC Com, Order No.: 90012181), if necessary replace ▶ Clean the light tube end piece, if necessary check burner setting. ▶ Check soundness of flue gas system [ch. 7.3]. ▶ Check the condensate drain ▶ Check burner setting ▶ Set nozzle distance [ch. 9.6] ▶ Check mixing head [ch. 9.7]
W24	Input H2 is closed, parameter 17 on 3 (burner lockout function)	▶ Check components connected to input H2 [ch. 6.10]
W25	Alarm condensate lift pump	▶ Check condensate lift pump
	Level switch has been triggered	▶ Check termination well, if necessary clean or drain ▶ Check level switch
W27	Combustion chamber pressure sensor defective	▶ Check sensor and cable, if necessary replace
W28	System pressure sensor/return flow sensor defective	▶ Check sensor and cable, if necessary replace (drain appliance prior to replacing)
W33	External sensor defective	▶ Check the sensor and cable and replace if necessary
W34	DHW sensor (B3) defective	▶ Check the sensor and cable and replace if necessary

The following faults must only be rectified by qualified personnel:

Warning codes	Cause	Rectification
W35	DHW outlet sensor (B12) defective	► Check the sensor and cable and replace if necessary
W36	System pressure too low (see parameter 39)	► Check system pressure and top up
W42	No control signal from circulation pump	► Check the connection ► Check circulation pump
W43	Fan speed at stage 2 operation not achieved	► Check burner setting ► Check the fan and cable and replace if necessary [ch. 9.16] ► Rectify electromagnetic disturbance source (sensor cable)
W61	Coded plug BCC not plugged in	► Plug in coded plug ► Transferring data from coded plug to boiler electronics WCM-OB-CPU: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <code>bcc</code> ▪ Confirm with [Enter]
W80	Communication to the cascade manager or WCM-Sol is faulty	► Check the connection ► Check the cascade manager ► Check address of parameter 12 ► Check eBus feed
W81	Communication to WCM-FS#1 is faulty	► Check the connection ► Replace remote control station
W82	Communication to EM#2 or WCM-FS#2 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station
W83	Communication to EM#3 or WCM-FS#3 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station
W84	Communication to EM#4 or WCM-FS#4 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station
W85	Communication to EM#5 or WCM-FS#5 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station
W86	Communication to EM#6 or WCM-FS#6 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station
W87	Communication to EM#7 or WCM-FS#7 is faulty	► Check address ► Check the connection ► Replace the extension module ► Replace remote control station

10 Troubleshooting

The following faults must only be rectified by qualified personnel:

Warning codes	Cause	Rectification
W88	Communication to EM#8 or WCM-FS#8 is faulty	▶ Check address ▶ Check the connection ▶ Replace the extension module ▶ Replace remote control station
W89	Temperature remote control is faulty	▶ Test the setpoint signal [ch. 6.6] ▶ Check the connection

10.4 Fault codes

The following faults must only be rectified by qualified personnel:

Fault codes	Cause	Rectification
F11	Temperature at supply sensor > 105 °C	▶ Check the water flow ▶ Check function of the pumps ▶ Vent unit on the water side
F12	Temperature at supply sensor > 95 °C	▶ Check the water flow ▶ Check function of the pumps ▶ Vent unit on the water side
F13	Flue gas temperature is too high (see parameter 33)	▶ Check heat cell
F15	Temperature differential between flow and return too high (see also W15)	▶ Check function of pump, if necessary increase pump capacity ▶ Ensure system circulation
F16	Flue gas temperature too high (see also W16) (parameter 33 - 5 K)	▶ Wait for cooling (10 minutes) ▶ Check heat cell
F17	Combustion air temperature too high	▶ Wait for cooling (10 minutes) ▶ Check the heat insulation ▶ Check combustion air sensor, replace if necessary ▶ Flow sensor and combustion air sensor mixed up, check electrical connections
F19	Combustion chamber pressure too high (see also W19)	▶ Check heat cell, if necessary clean [ch. 9.5] ▶ Check flue gas system ▶ Check the condensate drain ▶ Check combustion chamber pressure sensor, if necessary replace ▶ Check combustion for pulsation, if necessary increase mixing pressure
F21	No flame formation at burner start	▶ Check oil nozzle, if necessary replace [ch. 9.10] ▶ Check oil supply ▶ Check oil pump, if necessary replace [ch. 9.14] ▶ Check the ignition unit and replace if necessary ▶ Check flame sensor (USB-readout unit KLC Com, Order No.: 90012181), if necessary replace ▶ Clean the light tube end piece, if necessary check burner setting. ▶ Check solenoid valve, if necessary replace ▶ Check burner setting ▶ Set nozzle distance [ch. 9.6] ▶ Check mixing head [ch. 9.7]

The following faults must only be rectified by qualified personnel:

Fault codes	Cause	Rectification
F22	Flame failure during operation (see also W22)	▶ Check oil nozzle, if necessary replace [ch. 9.10] ▶ Check oil supply ▶ Check oil pump, if necessary replace [ch. 9.14] ▶ Check flame sensor (USB-readout unit KLC Com, Order No.: 90012181), if necessary replace ▶ Clean the light tube end piece, if necessary check burner setting. ▶ Check soundness of flue gas system [ch. 7.3]. ▶ Check the condensate drain ▶ Check burner setting ▶ Set nozzle distance [ch. 9.6] ▶ Check mixing head [ch. 9.7]
F23	Flame simulation, e. g. reflection of ignition spark through oil film in combustion chamber	▶ Find and eliminate extraneous light source ▶ Check flame sensor (USB-readout unit KLC Com, Order No.: 90012181), if necessary replace ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F30	Flow sensor defective	▶ Check the sensor and cable and replace if necessary
F31	Flue gas sensor defective	▶ Check the sensor and cable and replace if necessary
F36	System pressure < 0.5 bar	▶ Check system pressure and top up
F37	Combustion air sensor defective	▶ Check the sensor and cable and replace if necessary
F38	Buffer sensor (B10) defective	▶ Check the sensor and cable and replace if necessary
F39	Buffer sensor/de-couple sensor (B11) defective	▶ Check the sensor and cable and replace if necessary
F41	Flue gas damper is not operating	▶ Check the flue gas damper
F43	Specified fan speed is not achieved	▶ Check the fan and cable and replace if necessary [ch. 9.16] ▶ Rectify electromagnetic disturbance source (sensor cable)
F44	Fan standby defective	▶ Check fan, if necessary replace [ch. 9.16] ▶ Rectify electromagnetic disturbance source
F47	Ignition faulty	▶ Check the ignition unit and replace if necessary
F50	Electronic fault	▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F51	Data record error condensing boiler	▶ Reset the parameters that were previously changed ▶ Interrupt the voltage supply temporarily, reset appliance if necessary ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.

10 Troubleshooting

The following faults must only be rectified by qualified personnel:

Fault codes	Cause	Rectification
F52	Data record error burner	▶ Interrupt the voltage supply temporarily, reset appliance if necessary ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F53	Supply voltage or power frequency outside the tolerance limits	▶ Check mains supply ▶ Interrupt the voltage supply temporarily ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F54	Electronic fault	▶ Interrupt the voltage supply temporarily ▶ Rectify electromagnetic disturbance source ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F55	Memory fault	▶ Interrupt the voltage supply temporarily ▶ Rectify electromagnetic disturbance source ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F56	Negative component test	▶ Interrupt the voltage supply temporarily ▶ Check plug cable for burner mains voltage ▶ Check ignition unit ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly. ▶ Short to ground on the pump motor or oil solenoid valve stage 1
F57	Communication boiler electronics WCM-OB-CPU and boiler control panel WCM-OB-CUI faulty	▶ Check the connection ▶ Check plug cables of sensors ▶ Plug of combustion chamber pressure sensor twisted ▶ Interrupt the voltage supply temporarily ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F58	[reset] button defective	▶ Interrupt the voltage supply temporarily ▶ Check [reset] button ▶ Replace boiler control panel WCM-OB-CUI
F59	Internal communication error	▶ Interrupt the voltage supply temporarily ▶ Reset appliance, replace boiler electronics WCM-OB-CPU if occurring repeatedly.
F60	Data record error boiler electronics WCM-OB-CPU	▶ Transferring data from coded plug to boiler electronics WCM-OB-CPU: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <i>bcc</i> ▪ Confirm with [Enter]
F61	Coded plug BCC not plugged in	▶ Plug in coded plug

The following faults must only be rectified by qualified personnel:

Fault codes	Cause	Rectification
F62	Data record error BCC	► Replace coded plug ► Transferring data from coded plug to boiler electronics WCM-OB-CPU: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <code>bcc</code> ▪ Confirm with [Enter]
F63	Different data records Incorrect coded plug BCC plugged in	► Check coded plug, if necessary replace ► Transferring data from coded plug to boiler electronics WCM-OB-CPU: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <code>bcc</code> ▪ Confirm with [Enter]
F64	Data transfer was not performed properly	► Transferring data from coded plug to boiler electronics WCM-OB-CPU: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <code>bcc</code> ▪ Confirm with [Enter]
F65	Data transfer was not performed properly (e. g. [Enter] key was not pressed within 8 seconds)	► Transfer data from coding plug to boiler electronics WCM-OB-CPU again: ▪ switch off appliance using switch S1. ▪ Press and hold keys [Enter] and [reset] simultaneously and switch on appliance ▪ The display shows <code>bcc</code> ▪ Confirm with [Enter]
	Incorrect coded plug BCC plugged in	► Check coded plug, if necessary replace
F70	Oil preheating not released	► Check heat exchanger and temperature switch, if necessary replace [ch. 9.12]
nocon	Connection boiler electronics WCM-OB-CPU and boiler control panel WCM-OB-CUI incorrect	► Check the connection ► Replace boiler control panel WCM-OB-CUI

10 Troubleshooting

10.5 Operating problems

The following faults must only be rectified by qualified personnel:

Observation	Cause	Rectification
Oil pump makes severe mechanical noise	Oil pump sucks air	► Ensure oil supply is tight
	High vacuum in oil line	► Clean filter ► Check oil supply
Flame tube/air nozzle has heavy soot deposit	Oil nozzle defective	► Replace oil nozzle [ch. 9.10]
	Nozzle distance incorrect	► Check nozzle distance, adjust if necessary [ch. 9.6]
	Incorrect combustion air quantity	► Adjust burner
	Incorrect air outlet on mixing head	► Check seat of light tube end piece
Combustion pulsating or burner booming	Nozzle distance incorrect	► Check nozzle distance, adjust if necessary [ch. 9.6]
	Wrong oil nozzle	► Check nozzle type [ch. 7.4.1]
	Capacity range of air nozzle exceeded	► Check air nozzle [ch. 7.4.1]
CO content too high	Nozzle distance too big	► Check nozzle distance, adjust if necessary [ch. 9.6]
Stability problems	Nozzle distance incorrect	► Check nozzle distance, adjust if necessary [ch. 9.6]
Mechanical noises	Condensate drainage is not guaranteed	► Check the condensate drain
Smell of flue gas	Siphon fill level insufficient	► Fill siphon [ch. 5.3]
Hydraulic noise during DHE operation	Three way valve does not switch correctly	► Install gravity brake from the supply to DHW tank in the return line
No DHW operation		
The burner starts, runs as far as operating phase 3, switches off and restarts After 10 abortive starts the system goes to lock out with F47	Ignition faulty	► Check the ignition unit and replace if necessary
Service indicator flashes after commissioning	Current combustion chamber pressures have not been re-measured and stored.	► Carry out commissioning using the commissioning program (parameter 73)

11 Technical documentation

11.1 Probe and sensor variables

DHW outlet sensor

Flow sensor

Flue gas sensor

Buffer sensor

De-couple sensor

Combustion air sensor

External sensor

DHW sensor (B3)

NTC 5 kΩ		NTC 600 Ω		NTC 12 kΩ	
°C	Ω	°C	Ω	°C	Ω
-20	48 180	-35	672	-15	71 800
-15	36 250	-30	668	-10	55 900
-10	27 523	-25	663	-5	44 000
-5	21 078	-20	657	0	35 500
0	16 277	-15	650	5	27 700
5	12 669	-10	642	10	22 800
10	9 936	-8	638	15	17 800
15	7 849	-6	635	20	14 800
20	6 244	-4	631	25	12 000
25	5 000	-2	627	30	9 800
30	4 029	0	623	35	8 300
35	3 267	2	618	40	6 600
40	2 665	4	614	45	5 400
45	2 185	6	609	50	4 500
50	1 802	8	605	55	3 800
55	1 494	10	600	60	3 200
60	1 245	12	595	65	2 700
65	1 042	14	590	70	2 300
70	876	16	585	75	2 000
75	740	18	580	80	1 700
80	628	20	575	85	1 500
85	535	22	570	90	1 300
90	457	24	565		
95	393	26	561		
100	338	28	556		
105	292	30	551		
110	254	35	539		

System pressure sensor

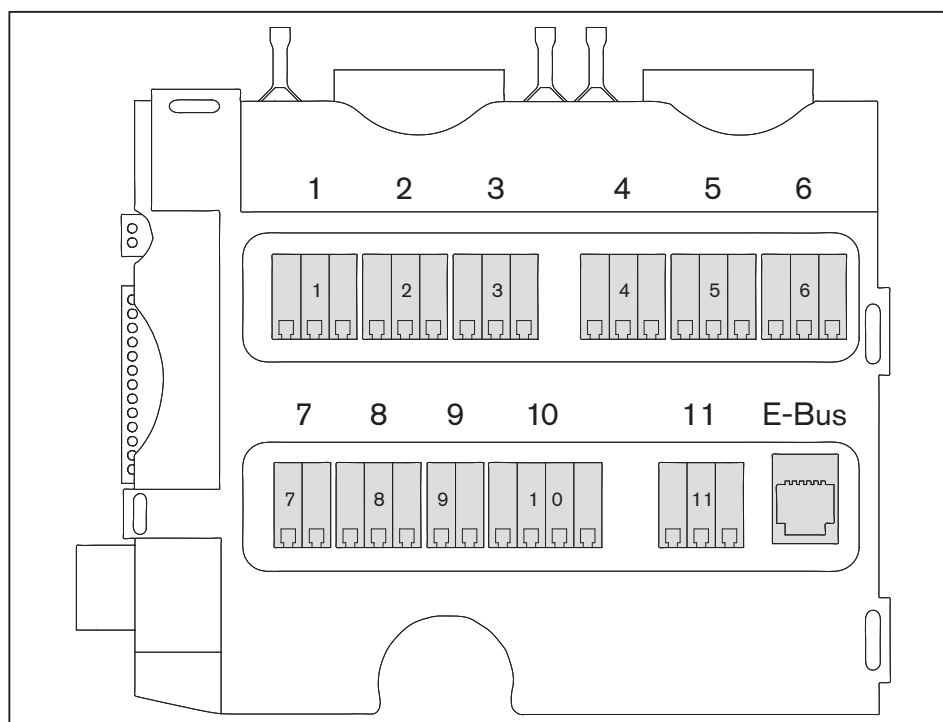
Return sensor

Combustion chamber pressure sensor

bar	Volt	°C	Volt	mbar	Volt
0	0.5	0	0.5	0	0.5
1	1.25	25	1.25	2.5	1.0
2	2.0	50	2.0	5.0	2.0
3	2.75	75	2.75	7.5	2.6
4	3.5	100	3.5	10.0	3.5

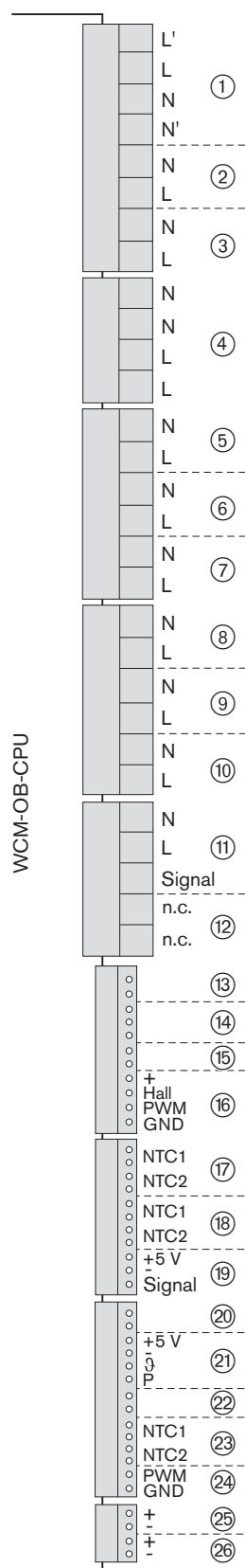
11.2 Wiring diagram

11.2.1 Burner connection console



- 1 Fan voltage supply
- 2 Heat exchanger oil preheating
- 3 Stage 2 oil solenoid valve
- 4 Stage 1 oil solenoid valve
- 5 Pump motor
- 6 Ignition unit
- 7 Reserve
- 8 Reserve
- 9 Oil preheater temperature switch
- 10 PWM signal fan return signal
- 11 Flame sensor

11.2.2 Boiler electronics WCM-OB-CPU



- ① Switch S1 (WCM-CUI)
- ② Condensate lift pump
- ③ Circulation pump voltage supply
- ④ Three way valve actuator (version W)
- ⑤ Fan voltage supply
- ⑥ Heat exchanger oil preheating
- ⑦ Stage 2 oil solenoid valve
- ⑧ Stage 1 oil solenoid valve
- ⑨ Pump motor
- ⑩ Ignition unit
- ⑪ Flame sensor
- ⑫ Reserve
- ⑬ Reserve
- ⑭ Reserve
- ⑮ Oil preheater temperature switch
- ⑯ PWM signal fan return signal
- ⑰ Flow sensor
- ⑱ Combustion air sensor
- ⑲ Combustion chamber pressure sensor
- ⑳ Alarm condensate lift pump / level switch
- ㉑ System pressure sensor/return flow sensor
- ㉒ Reserve (not used)
- ㉓ Flue gas sensor
- ㉔ PWM signal circulation pump
- ㉕ Remote control station (eBus FS)
- ㉖ WCM diagnostic (eBus PC)

12 Project planning

12 Project planning

12.1 Oil supply

Observe EN 12514-2, DIN 4755, TRÖI and local regulations.

General information relating to the oil supply

- Do not use cathode protection system with steel tanks.
- With oil temperatures $< 5^{\circ}\text{C}$, the separation of paraffin can cause oil lines, oil filters and nozzles to become blocked. Avoid placing oil tanks and pipelines in areas subject to frost.
- Observe the mesh aperture of the oil filter element of 20 ... 35 μm .
- Fit shut off device upstream of condensing boiler.

Oil line

Use a 6 x 1 mm (4 mm internal) line as the supply line to the condensing boiler. an oversized supply line size leads to an accumulation of air due to low flow velocity.

Suction resistance and supply pressure



Pump damage due to excessive suction resistance

A suction resistance greater than 0.4 bar can damage the pump.

- Reduce suction resistance – or – install oil supply pump or suction unit, whilst observing the maximum supply pressure at the oil filter.

The suction resistance depends on:

- suction line length and diameter,
- pressure loss of oil filter and other components,
- lowest oil level in the oil storage tank (max 3.5 m below the oil pump).



Oil leakage caused by excessive flow pressure

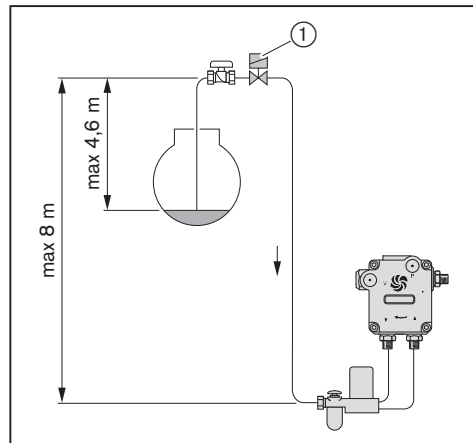
The oil filter vent combination could be damaged, oil can escape and cause environmental damage.

- Do not exceed flow pressure of max. 0.7 bar.

If the permissible suction resistance of the oil pump on the burner is exceeded, an additional oil supply pump, observe the maximum supply pressure of 0.7 bar.

Elevated oil level

- If the suction line is leaking the tank can be siphoned dry. An electric anti siphon valve ① can prevent this.
- Observe manufacturers instructions regarding pressure loss caused by anti siphon valve.
- The anti siphon valve must close with a delay and show a pressure relief towards the oil storage tank.
- Maintain height differences:
 - max 4.6 m between oil level and anti siphon valve,
 - on single pipe system max 8 m between anti siphon valve and automatic de-aerator.

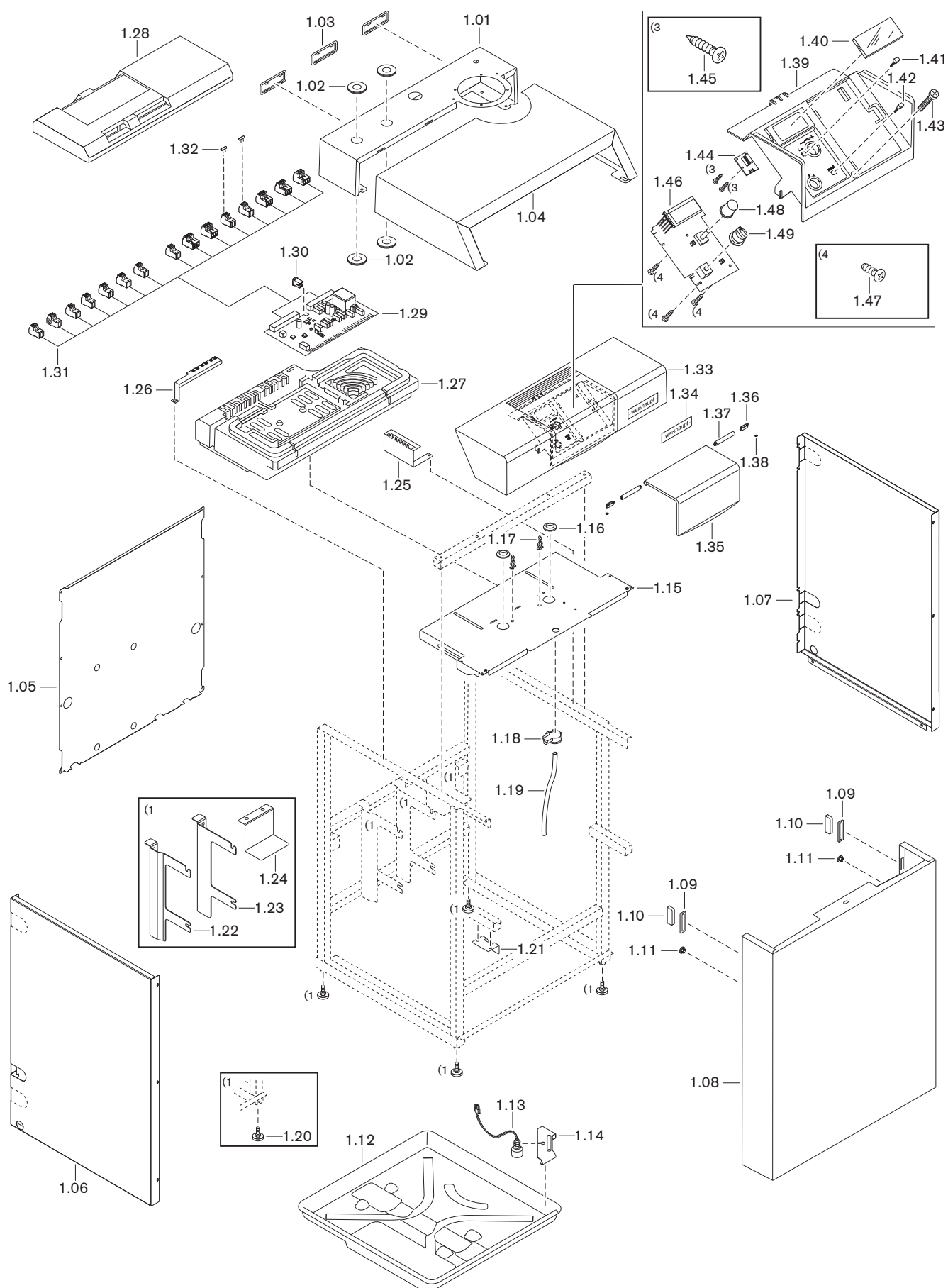


Oil level in the filter cup

Due to various factors (e.g. filter resistance, pressure conditions), the oil level in the filter cup can drop to the lower edge of the filter element. Reliable operation of the system is nevertheless guaranteed, as the interior of the filter insert is completely filled with oil.

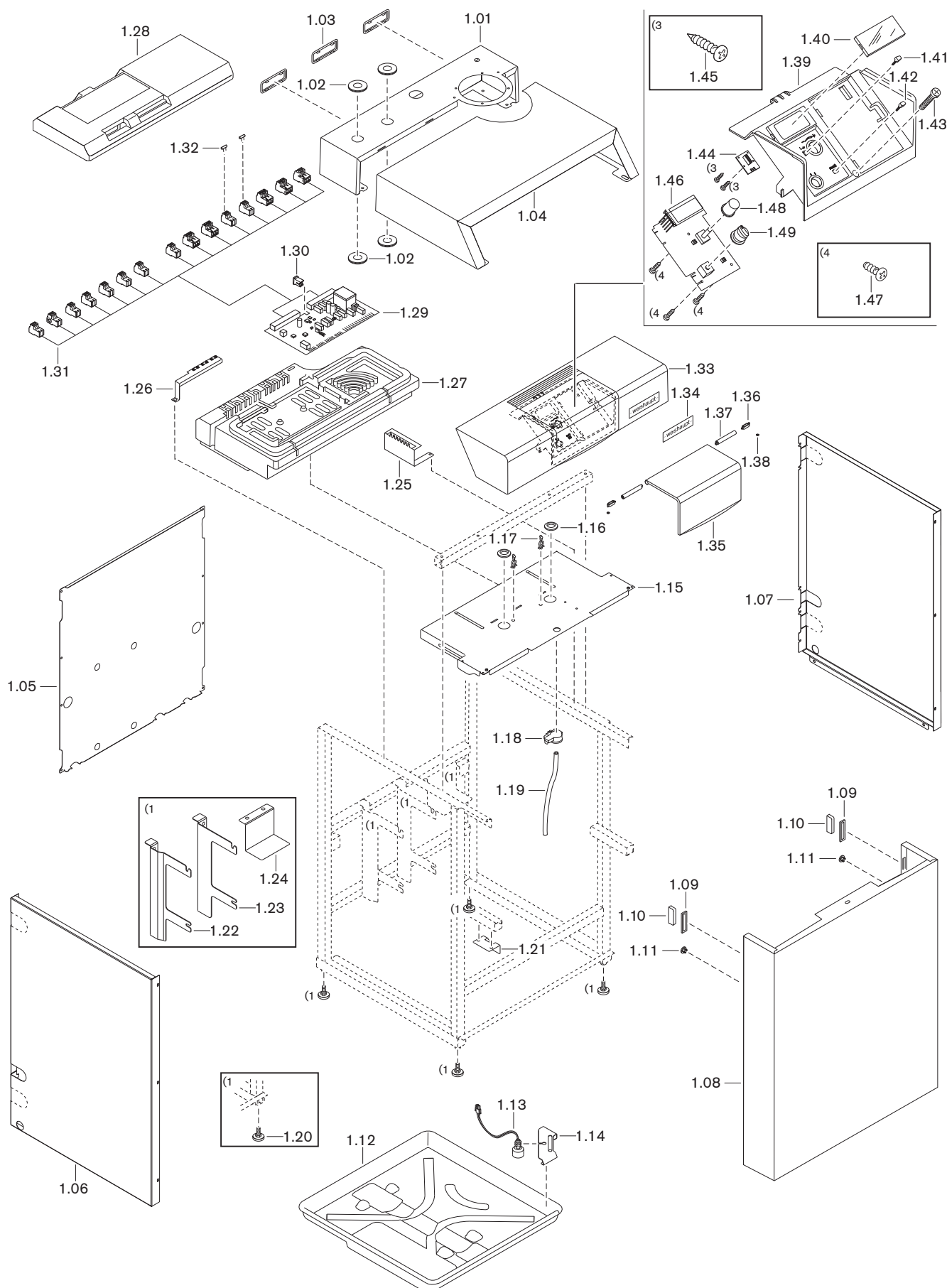
13 Spares

13 Spares



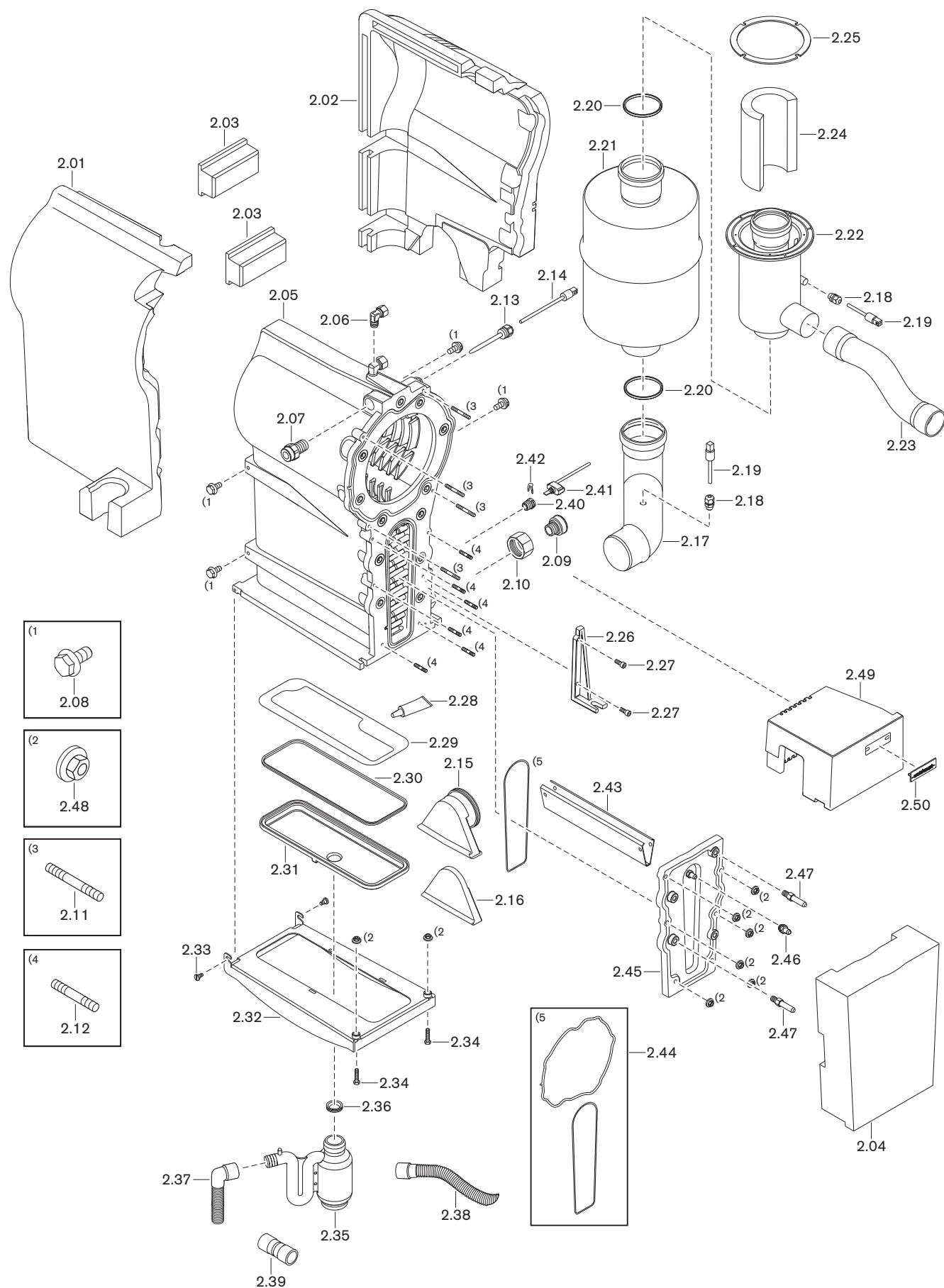
Pos.	Description	Order No.
1.01	Instrument panel	462 011 02 10 7
1.02	Washer Dm.34l x Dm.60A x 3	462 011 02 28 7
1.03	Edge trim plate	401 110 02 08 7
1.04	Top part	462 011 02 09 7
1.05	Rear panel	462 011 02 43 7
1.06	Side panel left	
	– version W / H-O	462 011 02 38 7
	– version H / KSK	462 011 02 39 7
1.07	Side panel right	
	– version W / H-O	462 011 02 40 7
	– version H / KSK	462 011 02 41 7
1.08	Front panel	462 011 02 42 2
1.09	Spacer	401 110 02 20 7
1.10	Magnetic fastener	499 223
1.11	Plug 6 mm	446 034
1.12	Termination well	462 011 02 27 7
1.13	Level switch	461 011 22 17 7
1.14	Level switch fixing plate	462 011 02 52 7
1.15	Operating unit fixing plate	462 011 22 01 7
1.16	Grommet Dm.l 24	481 011 02 23 7
1.17	Cable tie with rivet	481 011 22 11 7
1.18	Air pressure sensor type 400 0-10 mbar	462 011 30 16 2
1.19	Hose NW 6 x 2 Viton 0.6 m	750 421
1.20	Appliance foot	482 101 02 17 7
	– appliance foot extension kit (100 mm)	462 000 00 10 2
1.21	Oil filter-vent combination fixing plate	462 011 02 53 7
1.22	Suspension heat exchanger left	462 011 02 51 7
1.23	Suspension heat exchanger right	462 011 02 50 7
1.24	Sound attenuator fixing plate	462 011 02 44 7
1.25	PE terminal strip	462 011 22 03 7
1.26	Rail complete with EMC shielding	462 011 22 02 2
1.27	Insulation carrier boiler control	462 011 22 08 7
1.28	Cover insulation carrier boiler control	462 011 22 09 2
1.29	WCM-OB-CPU (boiler electronics)	462 011 22 56 2
	with connection plug	
	– Micro fuse T6.3H, IEC 127-2/5	483 011 22 45 7
1.30	Coded plug BCC	462 011 22 57 2

13 Spares



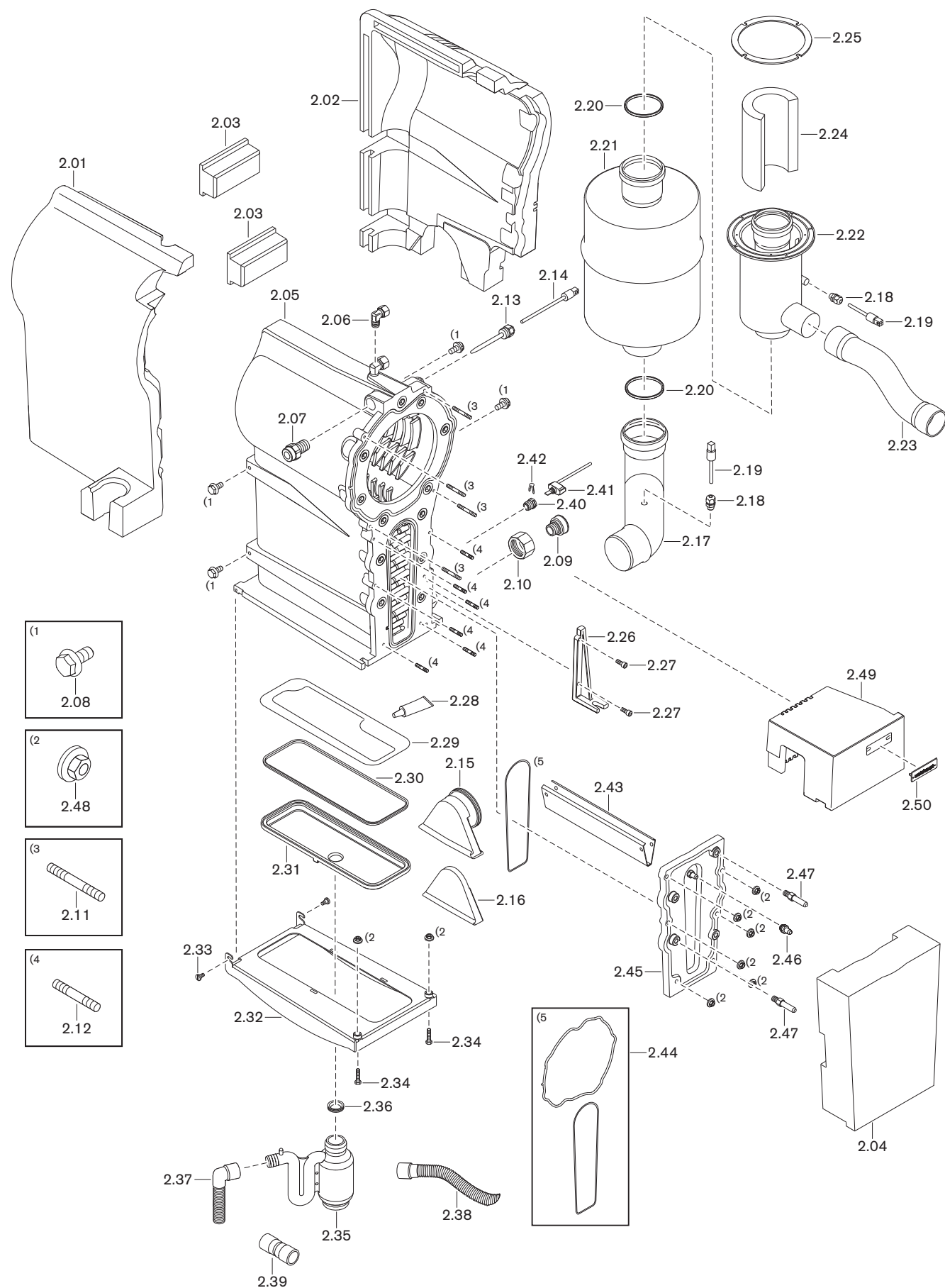
Pos.	Description	Order No.
1.31	Plug	
	– 230V black	716 275
	– 230V grey	716 284
	– M1 white	716 285
	– H1 turquoise	716 276
	– H2 red	716 286
	– MFA1 purple	716 277
	– MFA2 purple	716 287
	– VA1 orange	716 288
	– B1 green	716 280
	– B3 yellow	716 281
	– B10 white	716 289
	– B11 white	716 290
	– B12 white	716 291
	– Pump symbol dark blue	716 283
	– eBUS light blue	716 279
1.32	Jumper 2 pole	716 232
1.33	Operating panel (w/o. boiler control panel)	482 101 22 09 2
1.34	Name plate -weishaupt- 125 x 35	793 815
1.35	Flap operating panel	482 101 22 12 7
1.36	Attachment for soft closing hinge	482 101 22 11 7
1.37	Soft closing hinge	482 101 22 21 7
1.38	Locking washer Quicklock BQ3	431 803
1.39	Boiler control panel	482 101 22 13 7
1.40	LCD cover	482 101 22 14 7
1.41	Enter button	482 101 22 33 2
1.42	Reset button	481 011 22 19 2
1.43	Screw M5 x 35 ISO 7048	403 268
1.44	Printed circuit board KSF-FS	482 101 22 07 2
1.45	Screw PT KA22 x 6 H	409 368
1.46	WCM-OB-CUI	462 011 22 58 2
1.47	Screw PT KA30 x 10 H	409 367
1.48	Button WCM-CUI	482 101 22 15 7
1.49	On/Off switch knob	482 101 22 32 2

13 Spares



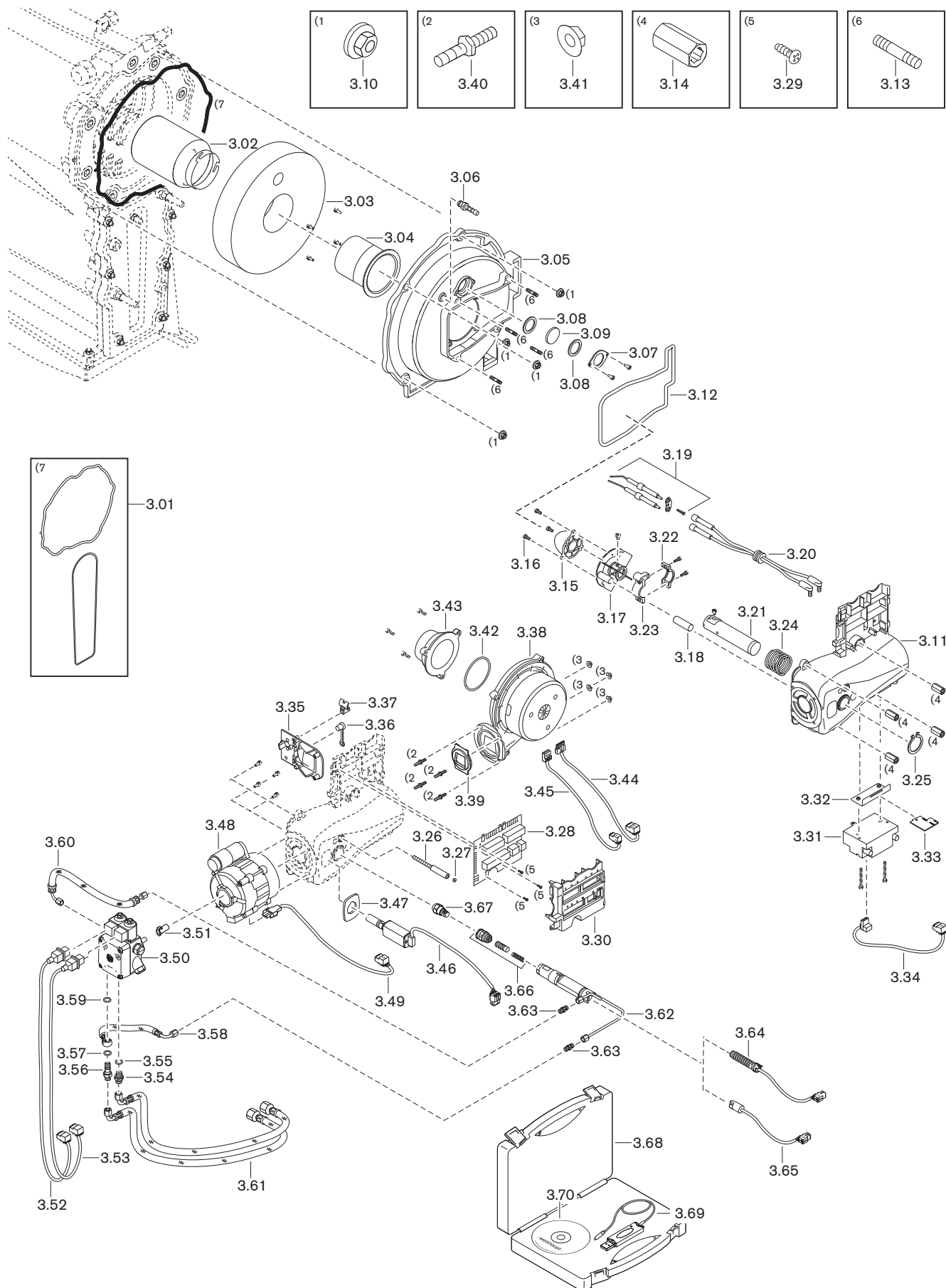
Pos.	Description	Order No.
2.01	Heat exchanger insulation left	462 011 30 62 7
2.02	Heat exchanger insulation right	462 011 30 61 7
2.03	Heat exchanger insulation rear	462 011 30 64 7
2.04	Heat exchanger insulation front	462 011 30 63 7
2.05	Heat cell	462 011 30 35 1
2.06	Angle compression fitting 12 x R3/8 Ms	462 011 30 32 7
2.07	Double nipple G1A x R3/4A 62 mm	462 011 30 36 7
2.08	Screw M8 x 16-8.8 DIN 6921	409 256
2.09	Connection socket R3/4A x 1 1/2	462 011 30 57 7
2.10	Union nut G 1 1/2 x 42.2 L=29	462 011 30 58 7
2.11	Stud bolt 6 x 30-A3K DIN 949-B	471 230
2.12	Stud screw M6Fo x 25 FL DIN 835	421 000
2.13	Immersion sleeve R 1/2	461 011 30 60 2
2.14	NTC double sensor 5k flow/STB	461 011 40 26 7
2.15	Condensate drainage aid with seal EPDM	462 011 30 77 7
2.16	Cage for condensate drainage aid	462 011 30 78 7
2.17	Flue gas pipe DN 80	462 011 31 11 7
2.18	Screwed union M12 x 1.5 IP68 EN 50262	730 608
2.19	Temperature sensor 2 x NTC5k	461 011 30 84 7
2.20	Gasket DN 80	669 252
2.21	Flue gas sound attenuator	462 011 31 10 7
2.22	Air intake PP centric DN 80	462 011 31 01 7
2.23	Air inlet hose DN 60 molded hose	462 011 31 03 7
2.24	Intake noise mat	462 011 31 04 7
2.25	Flange gasket KAS DN 125/80 PP	480 000 10 73 7
2.26	Heat exchanger bracket	462 011 30 33 7
2.27	Screw M6 x 25 DIN 912	402 371
2.28	Lubricant Centrocerin 50 ml	480 000 06 50 7
2.29	Cover WT condensate pan	462 011 30 71 7
2.30	Gasket condensate pan	462 011 30 52 7
2.31	Condensate pan with sound attenuating mat	462 011 30 45 2
2.32	Condensate pan bracket	462 011 30 51 2
2.33	Screw M6 x 5 DIN 923	403 319
2.34	Screw M6 x 35 DIN 933	401 359
2.35	Siphon with seal	462 011 30 46 2
2.36	Siphon seal	462 011 30 48 7
2.37	Condensate hose Dm.I 25 x 95 mm	462 011 30 65 7
2.38	Condensate hose 25 x 1000 mm	400 110 50 21 7
2.39	Condensate hose sleeve DN 25 75 mm	462 011 30 26 7
2.40	Nipple R1/2 x DI=15	462 011 30 08 7
2.41	Pressure/temp. sensor RPS 0-4 bar w. cable	462 011 30 22 2
	– Plug cable pressure/temperature sensor	462 011 30 23 7
2.42	Clip for pressure/temperature sensor	462 011 30 09 7

13 Spares



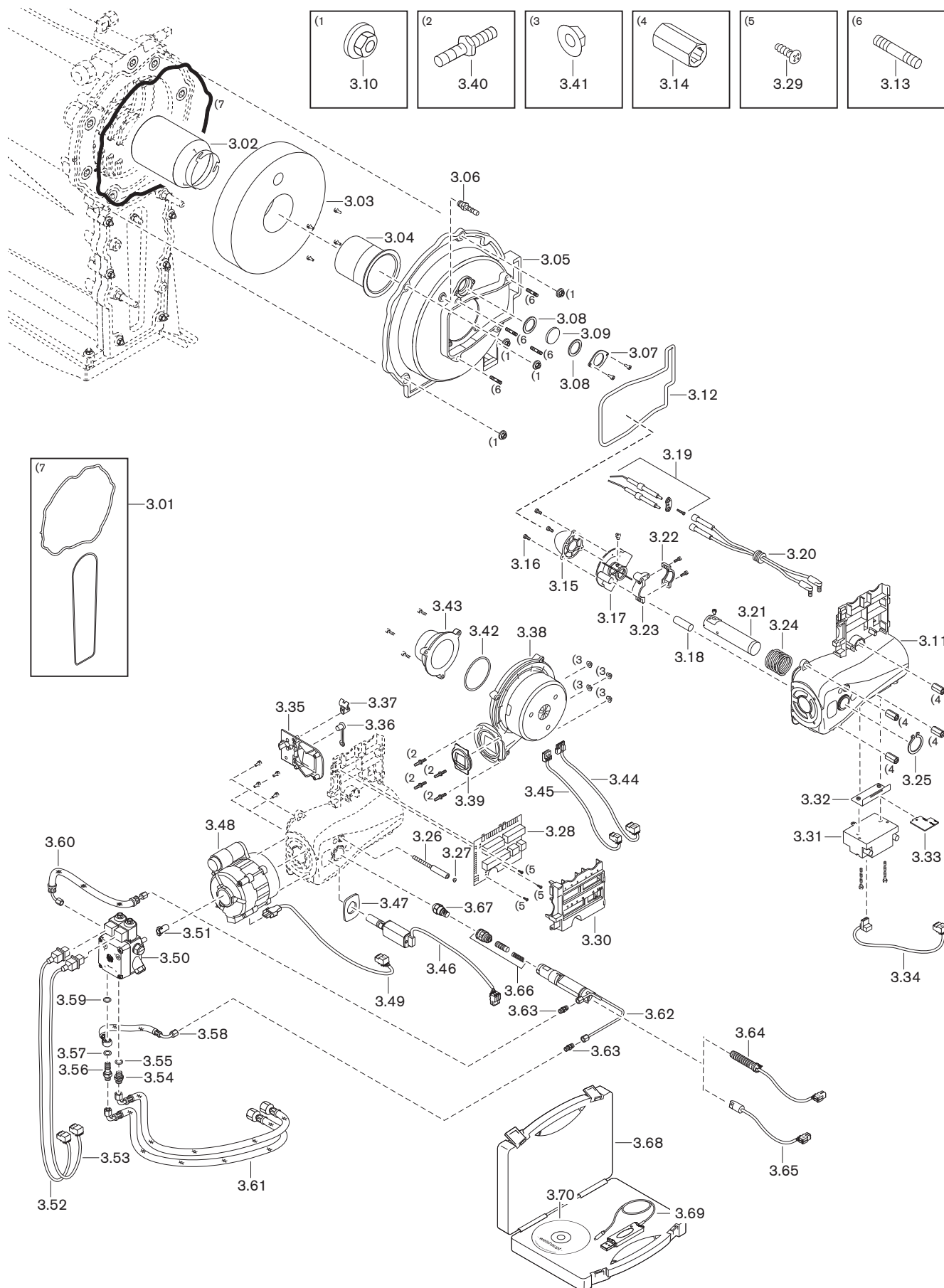
Pos.	Description	Order No.
2.43	Turbulator V form	462 011 30 50 7
2.44	Heat exchanger gasket set	462 011 30 47 2
2.45	Service cover complete	462 011 30 49 2
2.46	Pressure test nipple G 1/8 with seal	453 001
2.47	Stay bolt M10/Dm.10 x 60 mm	462 011 30 55 7
2.48	Combi hexagonal nut M6	412 508
2.49	Insulation Hydrobloc front part	462 011 40 13 7
2.50	Name plate -weishaupt-	793 814

13 Spares



Pos.	Description	Order No.
3.01	Heat exchanger gasket set	462 011 30 47 2
3.02	Flame tube MB 800	245 050 14 15 7
3.03	Boiler door insulation	246 050 01 12 7
3.04	Adapter pipe MB 800B	246 050 14 40 7
3.05	Boiler door	246 050 01 11 7
3.06	Treaded socket R 1/8 GES6	453 017
3.07	View port holder	246 050 01 03 7
3.08	Seal view port internal 26 x 35 x 2	481 401 30 11 7
3.09	View port glass	481 401 30 06 7
3.10	Disc nut M8	412 512
3.11	Burner housing	246 050 01 13 7
3.12	Burner housing gasket	246 050 01 06 7
3.13	Stud screw M8Fo x 25 DIN 835	421 070
3.14	Hexagonal nut M8 x 27	246 050 01 10 7
3.15	Air nozzle D17 MB 817	246 050 14 44 7
3.16	Screw M4 x 6 Combi-Torx-Plus 20IP	409 362
3.17	Centring washer MB 800B	246 050 14 14 2
3.18	Light tube end piece flame sensor KLC	246 050 14 41 7
3.19	Ignition electrode set MB 817B	246 050 14 30 2
3.20	Ignition cable complete	246 050 11 03 2
3.21	Guide tube with stop	246 050 14 13 2
3.22	Adjusting lever top part	241 110 10 07 7
3.23	Adjusting lever bottom part	241 110 10 06 7
3.24	Compression spring	490 239
3.25	Washer DIN 471 A28 x 1.5	435 402
3.26	Indicating bolt M6 x 90	241 110 10 09 7
3.27	Plug 5.25	241 110 10 08 7
3.28	Circuit board	246 050 12 11 2
3.29	Screw PT KA30 x 10 H	409 367
3.30	Cover plug console	246 050 12 01 7
3.31	Ignition unit EBI 4 HPM	461 011 30 76 7
3.32	Fixing plate ignition unit EBI	246 050 11 01 7
3.33	Setting gauge MB 800B / MB 900B	246 050 00 06 2
3.34	Plug cable No.6 ignition unit	246 050 12 06 2
3.35	Air damper passage	246 050 02 01 7
3.36	Protective cap DN6	232 300 01 04 7
3.37	Fixing binder	794 110
3.38	Radial fan with EC motor	652 252
3.39	Fan/burner housing gasket	246 050 01 07 7
3.40	Threaded bolt M4 x 10 SW8 Remform 4 x 12	420 821
3.41	Disc nut M4 A2K	412 511
3.42	O ring 63 x 3.0 NBR70 ISO 3601	445 163
3.43	Intake connection	246 050 02 02 7

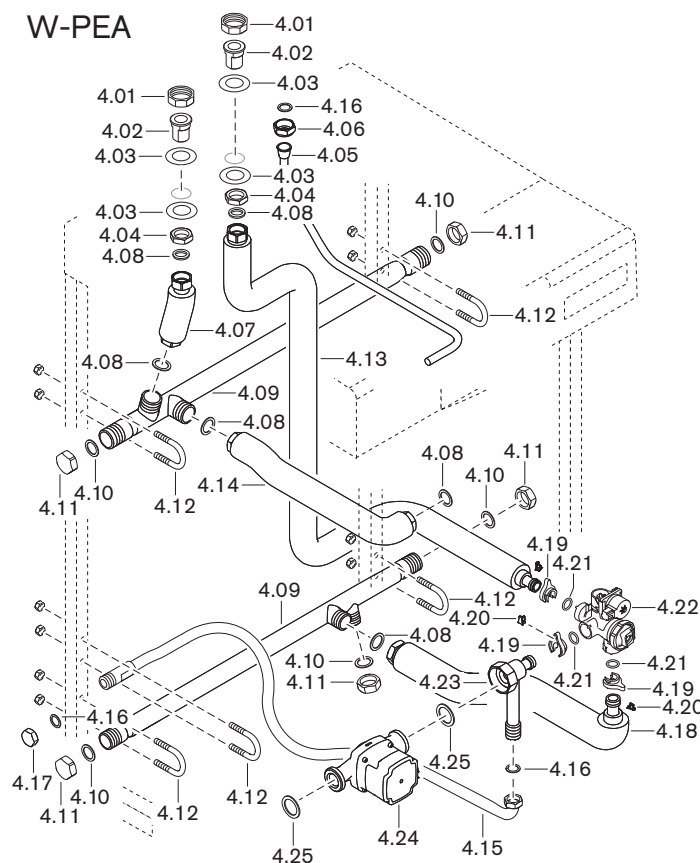
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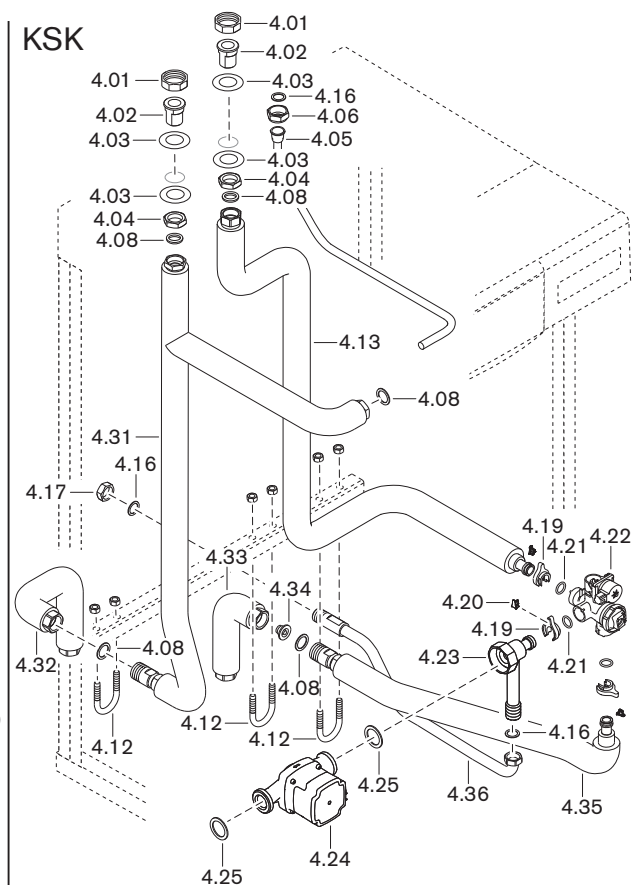
Pos.	Description	Order No.
3.44	Plug cable No. 1 fan/mains	246 050 12 01 2
3.45	Plug cable No.10 housing PWM/Hall	246 050 12 08 2
3.46	Flame sensor No.11 KLC 2002	246 050 12 18 2
3.47	Seal KLC sensor	246 050 12 07 7
3.48	Motor ECK02/H-2/1P 230V 50Hz 40W PB	652 099
	– Capacitor set 3.0 µF 420V	713 472
3.49	Plug cable No. 5 pump motor	246 050 12 05 2
3.50	Pump AT2 V 20D L6413 4P0700	601 918
	– Solenoid coil T80 Suntec 220-240V 50-60Hz	604 495
	– Filter set with cover seal	601 107
3.51	Plug coupling	652 135
3.52	Plug cable No. 4 solenoid valve 1	246 050 12 04 2
3.53	Plug cable No. 3 solenoid valve 2	246 050 12 03 2
3.54	Screwed union XGE06-LLR G1/8 A	452 291
3.55	Sealing ring A10 x 13.5 x 1 DIN 7603 Cu	440 027
3.56	Swivel screw G1/8 / M10 x 1	241 110 06 05 7
3.57	Sealing ring 10 x 14 x 1.5 DIN 7603 Cu	440 034
3.58	Pressure hose DN 4 leakage oil	491 247
3.59	Sealing ring A10 x 14 x 4.0 DIN 7603 Cu	440 037
3.60	pressure hose DN4 286 mm flow	491 246
3.61	Oil hose DN4 900 mm diffusion resistant	462 011 30 66 7
3.62	Nozzle body with oil line	246 050 10 01 2
3.63	Screwed union XG 04-LL	452 020
3.64	Heat exchanger with plug No. 2	246 050 12 14 2
3.65	Temperature switch 55°C with plug No. 9	246 050 12 07 2
3.66	Nozzle shut off set	240 050 10 01 2
3.67	Nozzle 0.30 GPH 80°SR Danfoss	602 198
3.68	Service pack PC-Tool for flame sensor	900 121 83
3.69	USB readout unit for flame sensor	900 121 81
3.70	PC-Tool Software for flame sensor	900 121 82

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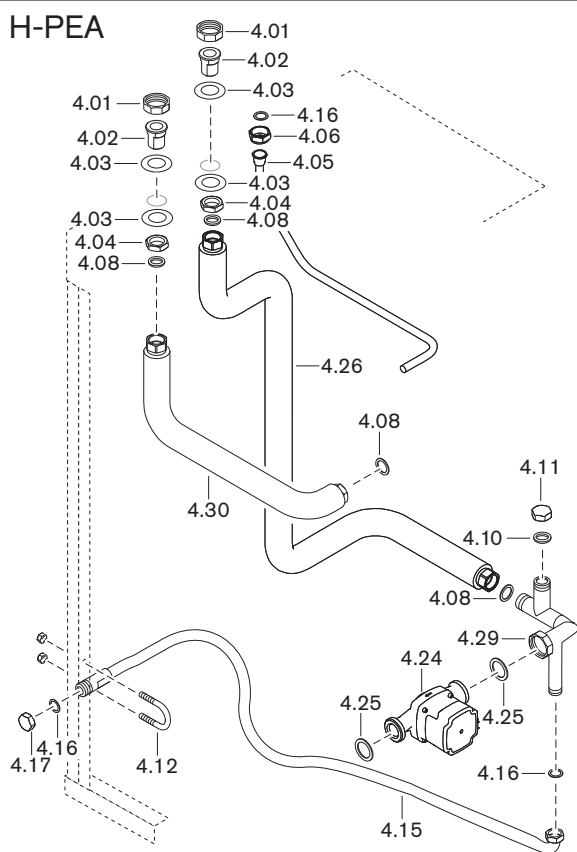
W-PEA



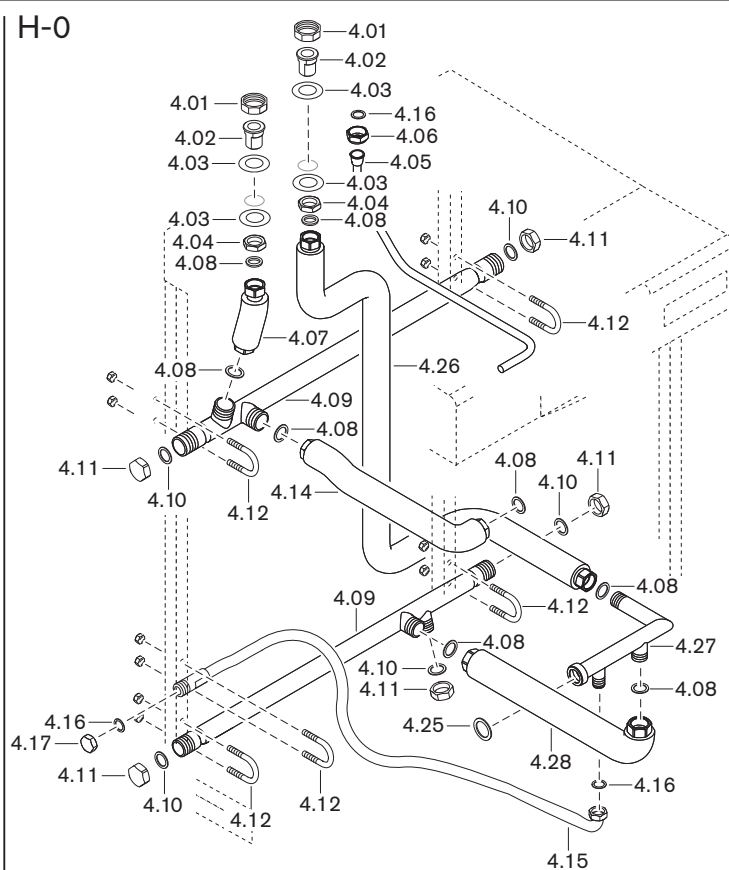
KSK



H-PEA

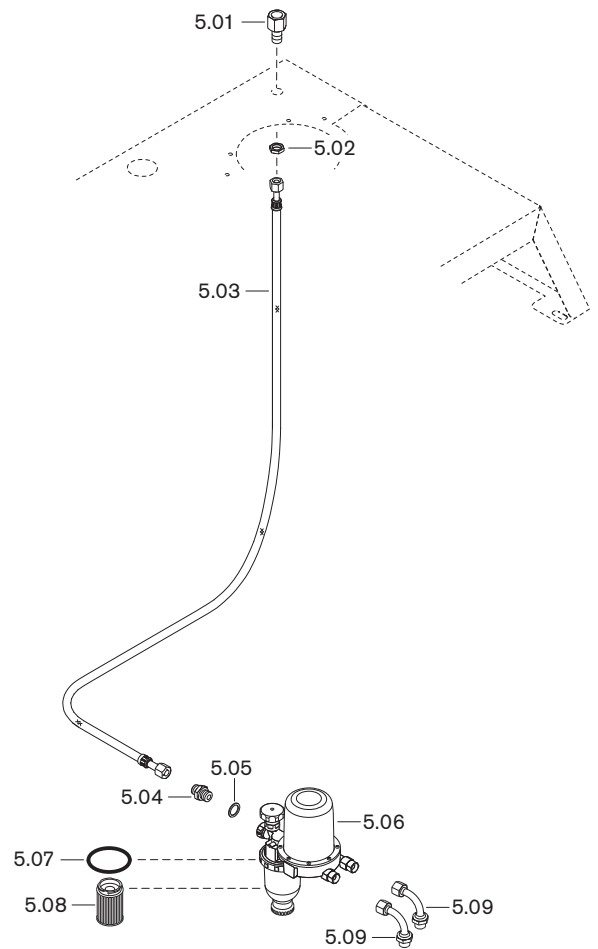


H-O



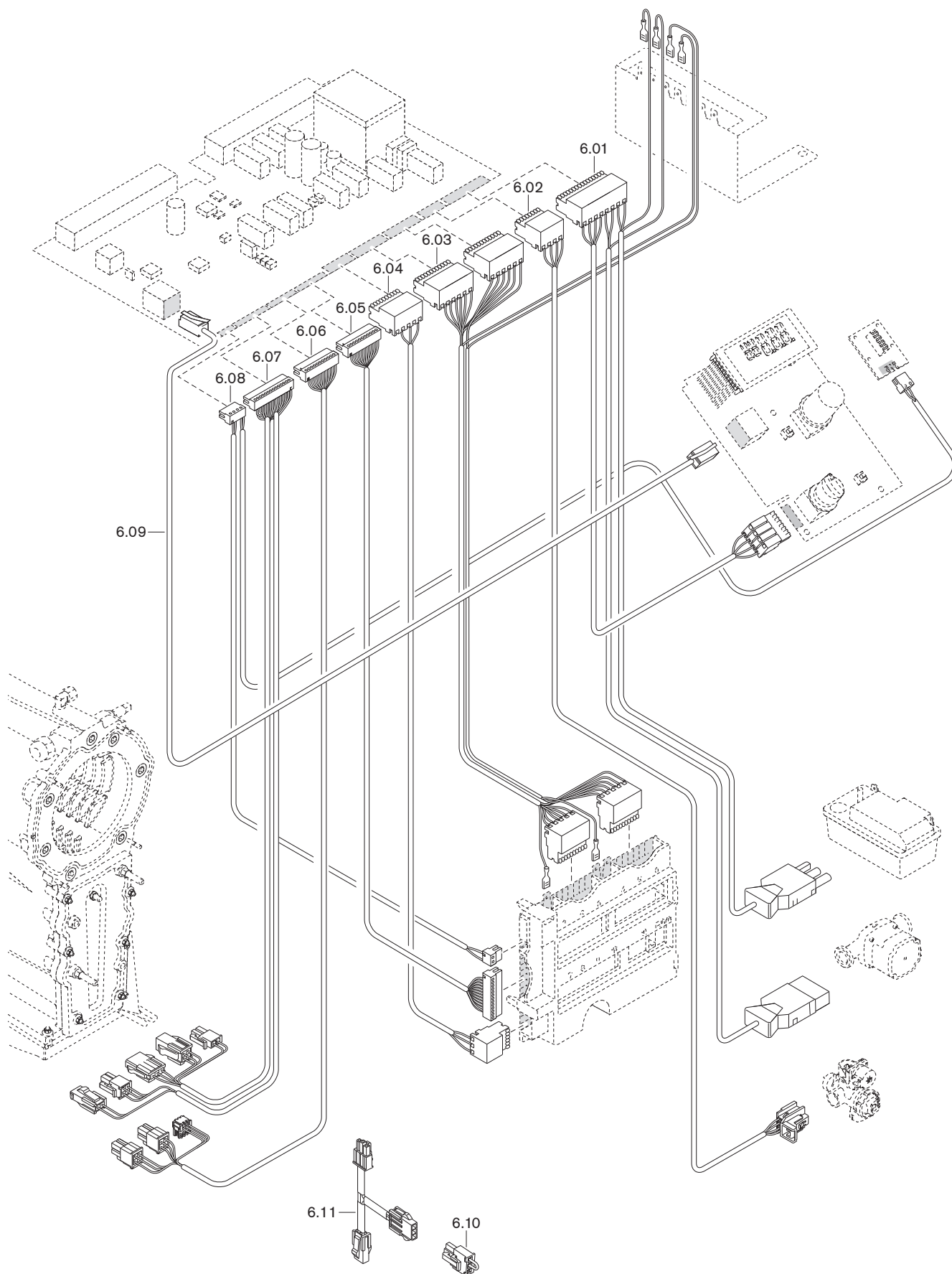
Pos.	Description	Order No.
4.01	Union nut G1 1/2 x 42.2	409 000 04 15 7
4.02	Connection socket G1A x 1 1/2	462 011 40 02 7
4.03	Washer Dm.34I x Dm.60A x 3	462 011 02 28 7
4.04	Nut G1	462 011 02 26 7
4.05	Connecting pipe G3/4 small distributor	462 011 40 14 7
4.06	Union nut G3/4 x 19	481 011 30 20 7
4.07	Conn. pipe G1 heating flow vers. H-O / W	462 011 40 17 7
4.08	Seal 23 x 30 x 3 EN 1514-1	441 055
4.09	Conn. pipe WW 4 x G1A vers. H-O / W	462 011 40 09 2
4.10	Seal 22 x 30 x 2 (1") AFM-34/2	409 000 21 12 7
4.11	End cap G1	409 000 12 30 7
4.12	Bracket M10 water connection 38 NW25	462 012 40 15 7
4.13	Conn. pipe G1 heating ret. vers. W	462 012 40 20 7
4.14	Conn. pipe G1 heat exchanger flow	462 011 40 18 7
4.15	Connection pipe AD G 3/4A x G 3/4I	462 011 40 11 7
4.16	Seal 17 x 24 x 2 (3/4") AFM-34/2	409 000 21 10 7
4.17	End cap G 3/4	409 000 04 10 7
4.18	Conn. pipe G1 x Hydro ret. DHW vers. W	462 012 40 21 7
4.19	Bayonet clip D18	462 012 40 06 7
4.20	Bayonet fixing	462 012 40 07 7
4.21	O ring 17 x 4 -N-EPDM 70 DIN 3771	445 150
4.22	3-way change-over valve Kvs 4.4	462 012 40 04 2
	– Actuator Saia UBK	462 012 40 05 7
4.23	Return conn. G1 1/2Fl. x G3/4A vers. W	462 012 40 06 2
4.24	Circulation pump UPM3 25-75	462 411 40 07 2
	with cable and seals	
	– Connection cable 370 mm	462 411 40 01 7
	– Control cable 350 mm	462 411 40 02 7
4.25	Seal 32 x 44 x 2 EN 1514-1	441 058
4.26	Conn. pipe G1 heating ret. vers. H / H-O	462 011 40 16 7
4.27	Pump replacement pipe G1 1/2A x G3/4A x G1A	462 011 40 10 2
4.28	Conn. pipe G1 DHW ret. vers. H-O	462 011 40 19 7
4.29	Return conn. G1 1/2Fl. x G3/4A x G1A	462 011 40 03 2
4.30	Conn. pipe G1 heating flow vers. H	462 011 40 15 7
4.31	Conn. pipe DHW G1lxG1lxG1A DHW fl. vers. KSK	462 015 40 18 7
4.32	Conn. pipe G1 DHW flow vers. KSK	462 015 40 17 7
4.33	Conn. pipe G1 DHW ret. vers. KSK	462 015 40 16 7
4.34	Gravity brake SKB FO 015 (1")	409 000 13 10 7
4.35	Conn. pipe G1 DHW ret. vers. KSK	462 015 40 19 7
4.36	Conn. pipe AD G3/4A x G3/4I vers. KSK	462 015 40 20 7

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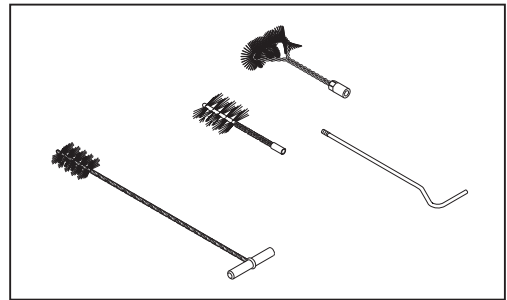
Pos.	Description	Order No.
5.01	Screwed union G3/8I-L8 x M14 x 1.5 x 47	462 011 30 15 7
5.02	Hexagonal nut BM14 x 1.5 DIN 439	411 701
5.03	Oil hose DN4 1300 mm diffusion resistant	462 011 30 68 7
5.04	Screwed union XGE 10-LR G 3/8-A	452 277
5.05	Sealing ring A17 x 23 x 1.5 DIN 7603 Cu	440 059
5.06	Oil filter-vent combination	462 011 30 38 2
5.07	O ring 54 x 3	493 384
5.08	Filter insert type MS-5 20 ... 35 µm	462 011 30 79 7
5.09	Pipe elbow DN 8 G 3/8 x G 3/8	453 201

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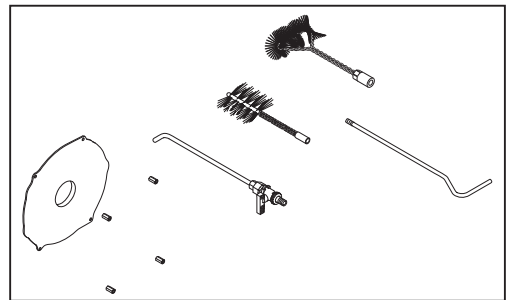


Pos.	Description	Order No.
6.01	Plug cable boiler mains voltage	462 011 22 19 2
6.02	Plug cable 3 way change-over valve	462 012 22 18 2
6.03	Plug cable burner mains voltage	462 011 22 23 2
6.04	Plug cable QRC	462 011 22 26 2
6.05	Plug cable burner low voltage	462 011 22 27 2
6.06	Plug cable boiler low voltage 1	462 011 22 28 2
6.07	Plug cable boiler low voltage 2	462 011 22 29 2
6.08	Plug cable Bus connections	462 011 22 32 2
6.09	Patch cable RJ45 FTP 1.0 m grey CAT5e	462 011 22 33 2
6.10	Bridging plug alarm condensate lift pump	462 011 22 31 2
6.11	Adapter cable level switch	462 011 22 10 7

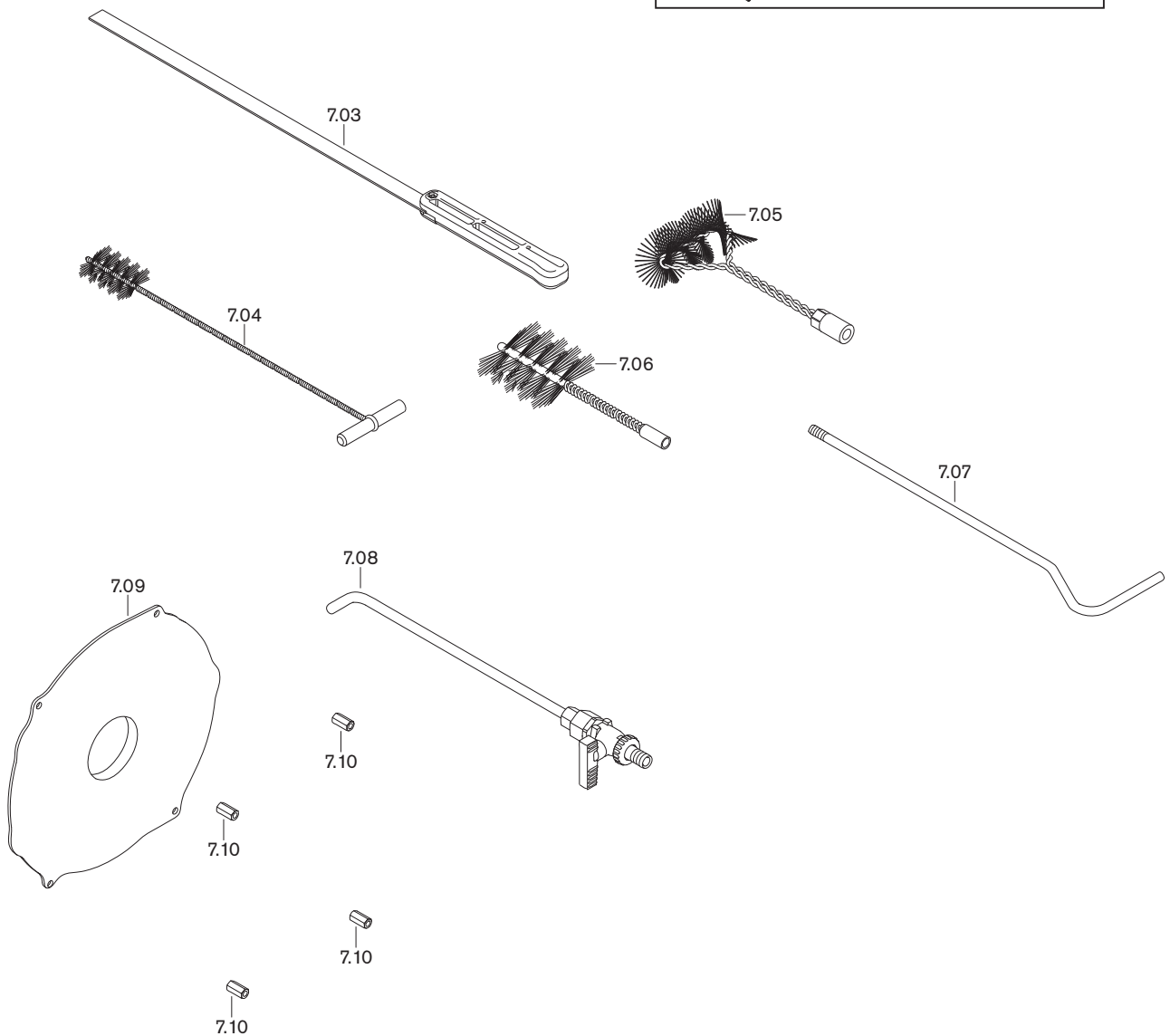
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7.01

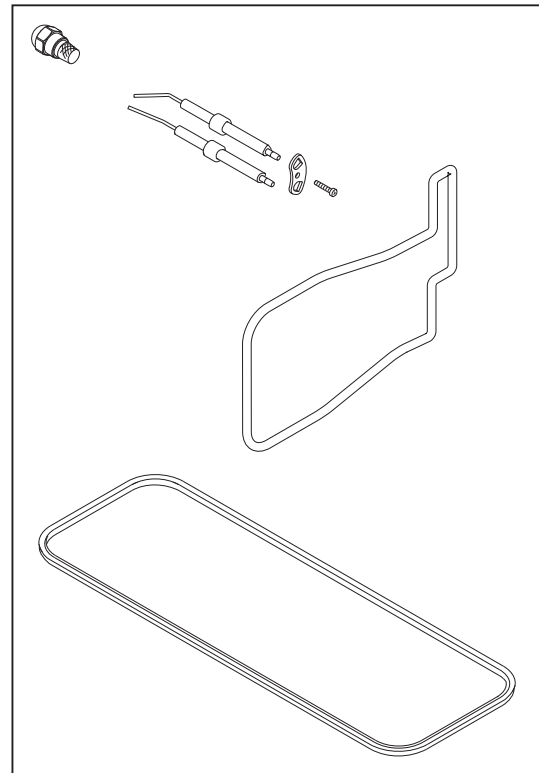


7.02



Pos.	Description	Order No.
7.01	Brush set	462 000 00 25 2
7.02	Cleaning kit	462 000 00 24 2
7.03	Cleaning tool straight	462 000 00 26 2
	– Handle cleaning tool	481 000 00 67 7
	– Mounting part cleaning blade	481 000 00 68 7
	– Cleaning blade 444 mm	462 000 00 26 7
	– Screw M4 x 16 DIN 912	402 131
	– Hexagonal nut M4 DIN 985	411 104
7.04	Brush 80 x 40 x 17 430 mm	462 000 00 25 7
7.05	Segment brush 235 x 100 / 165 x 80	400 150 00 05 7
7.06	Brush head 100 x 85 x 28 / 250 mm	400 110 00 02 7
7.07	Handle part 420 mm	400 110 00 04 7
7.08	Cleaning lance	461 000 00 07 2
7.09	Cleaning plate	461 000 00 04 7
7.10	Hexagonal bolt M6 x 27	461 000 00 05 7

13 Spares



—8.01

Pos.	Description	Order No.
8.01	Service kit	462 000 00 23 2
	Consisting of:	
	▪ Oil nozzle	
	▪ Ignition electrode set	
	▪ Gasket condensate pan	
	▪ Burner housing gasket	

14 Notes

14 Notes

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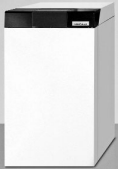
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