

Operating and service instructions

for contractors

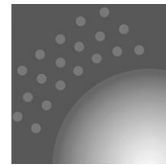
VIESSMANN

Vitomax 200-LW

Type M62A

Oil/gas low pressure hot water boilers

Rated output 2.3 to 6.0 MW



VITOMAX 200-LW



Safety instructions



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

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

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

Note

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

Target group

These instructions are exclusively designed for qualified personnel.

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

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations,

- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards,
- Gas Safety (Installation & Use) Regulations
 - the appropriate Building Regulation either the Building regulations, the Building Regulation (Scotland), Building Regulations (Northern Ireland),
 - the Water Fittings Regulation or Water Bylaws in Scotland,
 - the current I.E.E. Wiring Regulations.

If you smell gas



Danger

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

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

Safety instructions (cont.)

If you smell flue gas



Danger

Flue gas can lead to life-threatening poisoning.

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

Working on the system

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



Please note

Electronic modules can be damaged by electro-static discharges.

Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components which fulfil a safety function can compromise the safe operation of your heating system.

Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts



Please note

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

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Commissioning, inspection, maintenance

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Notes on commissioning and operation

Only fill and operate boilers and heating systems with water that complies with the "Water quality guidelines" (see page 21 onwards).

The system must be commissioned by the system installer or a qualified relevant expert authorised by the installer. Record all actual values in a commissioning/service report. These must be confirmed by the installer, commissioning expert and the system user.

Within 4 weeks of the combustion equipment being commissioned, the operator must notify the local flue gas inspector accordingly [check local regulations].

We would recommend that you operate the boiler constantly at the required operating pressure. Even if no heat demand occurs for a longer period of time, it is still better to operate the boiler continuously.

In systems comprising several boilers, of which one is constantly used as a standby boiler, only change the operation over after longer intervals, e.g. during the annual inspection of the total system.



Operating instructions on preserving the water and hot gas sides

Shutdown



Control unit operating instructions



Operating instructions on preserving the water and hot gas sides

Maintenance information

We recommend that your boiler system is maintained regularly to ensure a fault-free, energy-conscious and environmentally responsible operation of your heating system.

The boiler must be cleaned at regular intervals, otherwise the flue gas temperature can rise with increasing contamination resulting in higher energy losses.

We recommend the installation of a flue gas thermometer. Monitoring the flue gas temperature highlights incorrect burner settings and the level of boiler contamination.

Maintenance information (cont.)

Excessive flue gas temperatures through boiler contamination or incorrect burner setting reduce the system efficiency. Where necessary, clean the boiler or adjust the burner settings.

Steps - commissioning, inspection and maintenance

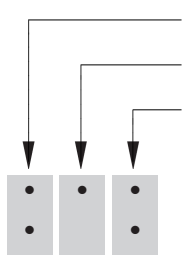
For further information regarding the individual steps, see the page indicated

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Service

Steps - commissioning, inspection and... (cont.)

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Further details regarding the individual steps

Commissioning the heating system



Details provided by the burner manufacturer and regarding accessories

1. Open the boiler doors and check that the turbulators (if fitted) are fully pushed into the hot gas flues.
2. Check that the installation room ventilation is unobstructed.
3. Fill the heating system with water and vent it.



Please note

Unsuitable water quality can damage the boiler body. Fill and operate the heating system with water that complies with the "Water quality guidelines" from page 21 onwards.

Note

Record the fill volume and total hardness on page 19.

4. Check the system pressure.
5. Check all fitted components, such as pipework, valves, regulators, pumps etc. for function and leaks.
6. Check the fuel supply for leaks and pressure.
7. Open the flue gas damper (if installed).
8. Check that the cleaning aperture on the flue outlet is closed.
9. Check that the dewatering line (if installed) is correctly connected to the condensate drain.
10. Open the shut-off valves in the oil lines (at the oil tank and filter) or open the gas shut-off valve.
11. Switch ON the main isolator, the ON/OFF switch for the boiler drives and burner in this order.



Burner manufacturer's operating instructions

12. Start the boiler at a low output (max. 30 %) and heat up to a temperature of approx. 30 K below the operating temperature.
The condensate drains must be open and the condensate correctly collected or drained.
13. After the required flow temperature has been achieved, open the boiler return valve and if required the feed-water valve and the boiler flow valve - very slowly.
14. Only then enable the full burner load.
15. While the system heats up, check the correct function of all control and safety equipment.
16. Observe the pressure and temperature test equipment.

Further details regarding the individual steps (cont.)

17. Check the fittings for leaks and tighten if required.

Closure	Dimensions	Torque
Handhole	100 x 150, M16	100 Nm

18. Check the boiler doors and cleaning cover for leaks after approx. 50 hours run and retighten all screws (torque approx. 5 to 10 Nm).

Shutting down the system



Danger

Heating water escaping under pressure will injure bystanders. Only open connections and inspection ports on the heating water side if the boiler has been depressurised.



Please note

Draining the boiler with a suction pump will create negative pressure inside the boiler. Only drain the boiler with a suction pump if the air vent valve is open.



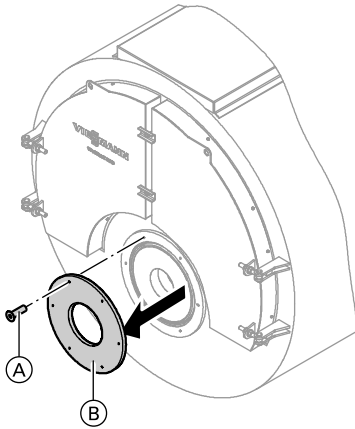
Please note

Hot water can cause damage. Never drain hot water into the drainage system. Ensure adequate cooling.

1. Shut down the burner.
2. Close the shut-off valves in the oil lines (at the oil tank and filter) or the gas shut-off valve.
3. Isolate the system from the power supply.
4. Close all valves.

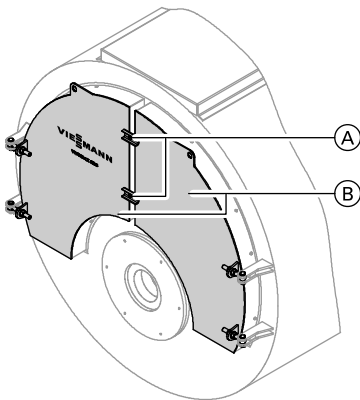
Further details regarding the individual steps (cont.)

Removing the burner (if required)



1. Remove the fuel supply line.
2. Undo screws (A) and remove burner with burner plate (B).

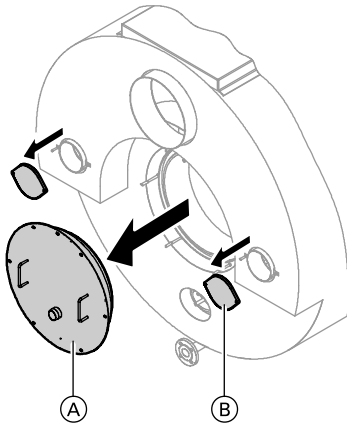
Opening the boiler doors



Undo screws (A) and swing open boiler doors (B).

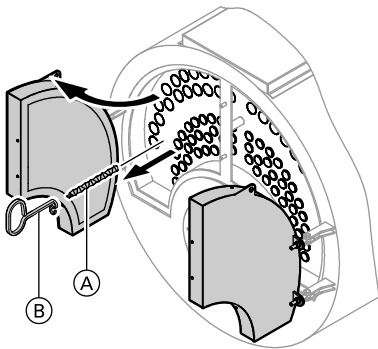
Further details regarding the individual steps (cont.)

Opening the cleaning cover



Undo nuts and remove cleaning covers (A) and (B).

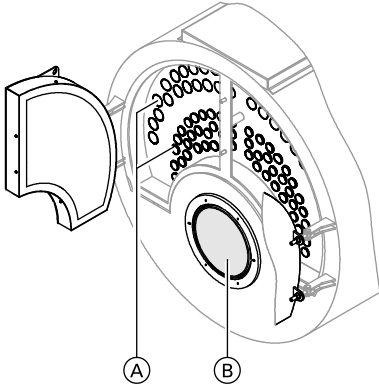
Removing and cleaning the turbulators (if fitted)



Remove turbulators (A) without applying force; to do so, use the turbulator extractor (B) supplied.

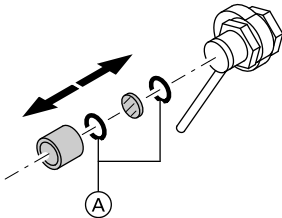
Further details regarding the individual steps (cont.)

Cleaning the heating surfaces and flue gas collector



1. Clean flues (A), combustion chamber (B) and reversing chamber with suitable cleaning equipment and remove combustion residues.
2. Remove combustion residues from the flue gas collector (back).

Cleaning the sight glass

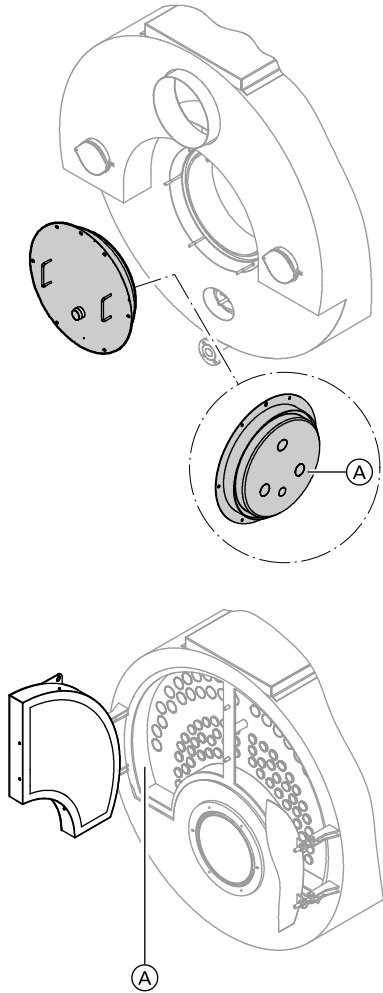


Check the sight glass with gaskets (A) for leaks and clean.

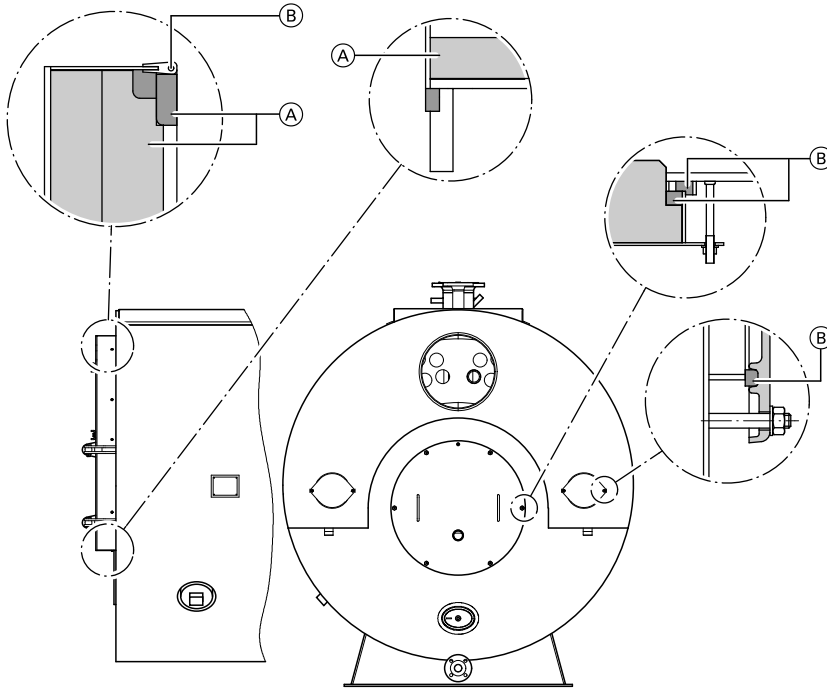
Further details regarding the individual steps (cont.)

Checking thermal insulation parts and gaskets

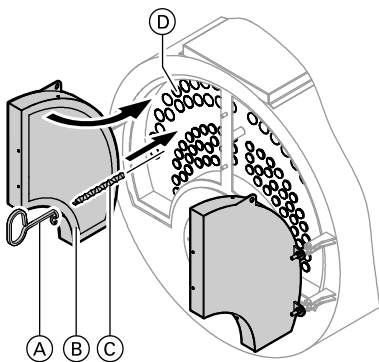
Check thermal insulation parts (A) and gaskets (B).
Replace faulty parts.



Further details regarding the individual steps (cont.)



Inserting the turbulators (if fitted) and closing the boiler doors

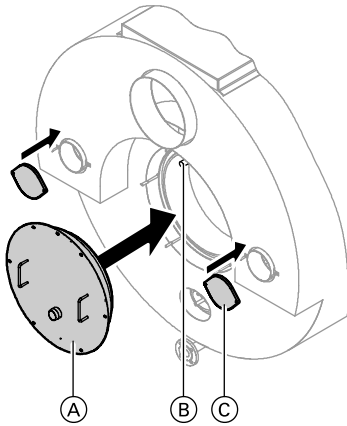


1. Insert turbulators **C** (only in the 3rd flue **D**) as far as they will go, using the turbulator extractor **A** to do so.
2. Close boiler doors **B**.
3. Tighten boiler door screws evenly (torque approx. 5 to 10 Nm).

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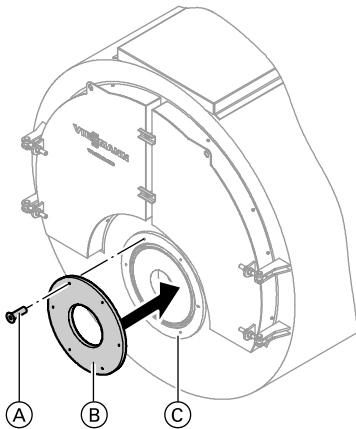
Further details regarding the individual steps (cont.)

Securing the cleaning cover



1. Secure both cleaning covers (C) so they seal.
2. Position cleaning cover (A) over centering pin (B) and tighten evenly and diagonally (torque approx. 10 Nm).

Installing the burner



1. Fit burner plate (B) with screws (A) to burner flange (C).
2. For pressure-jet gas burner:
Fit the gas supply pipe.



Danger

Escaping gas leads to a risk of explosion.

Test the tightness of all gas connections.

Further details regarding the individual steps (cont.)

Checking the inspection ports for leaks



Danger

Boiler components that are not thermally insulated can be subject to high temperatures that can cause burns.

Take care with hot surfaces.

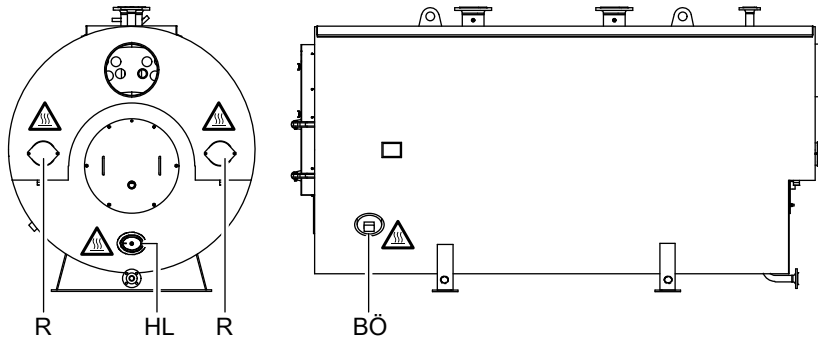


Installation instructions of the gasket manufacturer.

Note

Replace the gaskets every time the connections and inspection ports are opened.

Insert only gaskets approved in accordance with TRD 401, appendix 1, VdTÜV [or local regulations].



Caution - hot surface

BÖ Inspection port

HL Handhole

R Cleaning aperture

Further details regarding the individual steps (cont.)

Checking the water chamber for deposits

1. Fully drain the boiler.



Please note

Hot water can cause damage.
Never drain hot water into the drainage system.
Ensure adequate cooling.

2. Clean the water chamber (hose it out) and remove deposits via the drain. In case of harder deposits that cannot be removed by hosing down, carry out chemical cleaning using an approved descaling agent.

3. Clean sealing surfaces of the hand hole cover and thread of the inspection port and replace the gaskets. Seal the thread using hemp. Retighten new gaskets after commissioning and check again after 24 hours run.

Checking the safety valve



Manufacturer's details

Checking all water connections for leaks after the boiler has been filled

Replace the gaskets every time a connection has been opened.

1. Clean the sealing face.

2. Replace the gasket.

3. Retighten all closures after commissioning.

Further details regarding the individual steps (cont.)

Checking the water quality

Enter the amount of top-up water and the total hardness of the boiler water into the table.

For water quality guidelines, see from page 21 onwards

Fill water r m ³	Top-up water m ³	Meter reading m ³	Total water volume m ³	Total hardness		pH value	Water treatment		Date
				Feed-water	Boiler water		Boiler water	Medium	
	—								



Further details regarding the individual steps (cont.)

Adjusting the burner



Burner manufacturer's details

Adjust to the maximum oil or gas throughput of the burner to the rated boiler output.

Rated output	Hot gas pressure drop	
	MW	Pa
2.3	750	7.5
2.8	850	8.5
3.5	1000	10.0
4.5	1050	10.5
6.0	1400	14.0

To protect the system against dew point corrosion, the full load must be set to the rated boiler output and must not be switched off during the summer months (full load at constant standby).

The minimum boiler water temperature is 70 °C. Adjust the return temperature raising facility to a minimum temperature of 50 °C (operation with oil) or to 55 °C (operation with gas).

Standard values for water quality

The service life of any boiler as well as that of the complete heating system is influenced by the quality of the water.

The cost of a water treatment facility is certainly less than the cost of repairing damage to the boiler system.

Maintaining the following requirements is necessary to safeguard your warranty rights. The manufacturer's warranty excludes damage due to corrosion and scaling.

The following is a summary of essential water qualities.

A chemical water treatment can be ordered from Viessmann for filling.

Heating systems with rated operating temperatures up to 100 °C (VDI 2035)

Prevent excessive scale build-up (calcium carbonate) on the heating surfaces.

For heating systems with operating temperatures up to 100 °C, the VDI Directive 2035 Sheet 1 "Prevention of heating system damage – scaling in DHW and hot water heating systems" applies [in Germany] together with the following standard values (see also the full explanations in the original Directive):

Total output in kW	Total alkaline earths mol/m ³	Total hardness in °dH
> 600	< 0.02	< 0.11

The standard values assume the following:

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

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

- The total of alkaline earths in the fill & top-up water exceeds the standard value.
- Higher fill & top-up water volumes are expected.

Standard values for water quality (cont.)

When engineering the system, observe the following:

- Install shut-off valves in different sections. This prevents the need for draining the entire heating water in case of repairs or system expansion.
- Install a water meter to record the amount of the fill & top-up water. Enter the volume of water filled and the water hardness into the boiler service instructions.

Operating information:

- Bring the system into use step by step, starting with the lowest boiler output and a high heating water flow rate. This prevents a localised concentration of lime deposits on the boiler heating surfaces.
- During expansion or repair work, only drain the necessary sections.
- Where water treatment is required, treat even the first fill of the heating systems prior to commissioning. This also applies to any subsequent filling, e.g. when adding top-up water or after a repair or after system expansion.
- Filters, dirt traps and other blow-down or separating facilities in the heating water circuit must be checked, cleaned and activated more frequently after commissioning or recommissioning, and later on as required, subject to the water treatment applied (e.g. water softening).

The build-up of lime deposits on the heating surfaces will be minimised if these instructions are observed.

Any lime deposits that have formed because the requirements to VDI Guideline 2035 were not observed will in most cases already have caused a reduction in the service life of the boilers installed. Removing the lime deposits is one option to restore the operational viability. This measure must be carried out by the Viessmann industrial services or a specialist company. Inspect the heating system for possible damage prior to returning it into use. It is essential that the faulty operating parameters are corrected to prevent renewed formation of excessive scale deposits.

Standard values for water quality (cont.)**Heating systems with permissible flow temperatures in excess of 100 °C (VdTÜV MB 1466)****Operation with circulating water with low salt content**

Only use water with a low salt content as fill or top-up water, such as desalinated water, permeate or condensate.

Systems using mixed condensate generally create water with low salt content if no boiler water is fed into the system for putrefaction by alkalis.

Operation with saline water

Where possible, use water with a low salt content that is at least free from alkaline earths (softened) as fill or top-up water.

		Low salt content		With salt content
El. conductivity at 25 °C	µS/cm	10 to 30	> 30 to 100	> 100 to 1500
General requirements		clear, without sediments	clear, without sediments	clear, without sediments
pH value at 25 °C According to the potable water order/potable water treatment order		9 - 10 ≤ 9.5	9 - 10.5 ≤ 9.5	9 - 10.5 ≤ 9.5
Oxygen (O ₂) (values for constant operation are generally significantly lower)	mg/litre	< 0.1	< 0.05	< 0.02 ^{*1}
Alkaline earths (Ca + Mg)	mmol/litre	< 0.02	< 0.02	< 0.02
Phosphate (PO ₄)	mg/litre	< 5	< 10	< 15
According to the potable water order/potable water treatment order	mg/litre	≤ 7	≤ 7	≤ 7
For Viessmann hot water boilers	mg/litre	< 2.5	< 5	< 15

^{*1} The oxygen concentration in the re-circulated water may be up to 0.1mg/litre, if suitable inorganic corrosion inhibitors are used.



Standard values for water quality (cont.)

	Low salt content		With salt content
When using oxygen binders: Sodium sulphite (Na ₂ SO ₃) mg/litre (When using other suitable products, observe the respective guidelines issued by the supplier)	–	–	< 10

Prevention of damage through corrosion on the water side

The corrosion resistance of materials used on the heating water side of heating systems and boilers depends on the absence of oxygen in the heating water.

The oxygen introduced into the heating system with the first fill and the top-up water reacts with the system materials without causing damage.

The characteristic blackening of the water after some time in use indicates that free oxygen is no longer present. The technical rules and in particular VDI Directive 2035-2 therefore recommend that heating systems are designed and operated so that a constant ingress of oxygen into the heating water is prevented.

Opportunities for oxygen ingress during the operation:

- Through overflowing open expansion vessels
- Through negative pressure in the system
- Through gas-permeable components

Sealed systems – e.g. systems with a diaphragm expansion vessel – offer good protection against the ingress of airborne oxygen into the system if they are correctly sized and operate at the correct pressure.

At every part of the heating system, even at the suction side of the pump and under all operating conditions, the system pressure should be above ambient atmospheric pressure.

The pre-charge pressure of the diaphragm expansion vessel should be checked at least during the annual service. Also see chapter "General design information" for information regarding pressure maintenance systems and corrosion.

The use of permeable components, e.g. plastic pipes that are permeable to gas in underfloor heating systems, should be avoided. Provide system separation if such components are nevertheless used. This must separate the water flowing through the plastic pipes from other heating circuits, e.g. from the boiler, by the provision of a corrosion resistant heat exchanger.

Standard values for water quality (cont.)

No further anti-corrosion measures are required for sealed hot water heating systems subject to the above points being observed.

However, take additional precautions where there is a risk of oxygen ingress, for example by adding oxygen binder sodium sulphite (5 - 10 mg/litre into the excess). The heating water should have a pH value between 8.2 and 9.5.

Different conditions apply to systems that contain aluminium components.

Where chemicals are used as part of the corrosion protection, we recommend that the manufacturer of the chemicals issues a certificate of suitability of the additives with regard to the boiler materials and the materials of the other heating equipment components.

We recommend you refer questions of water treatment to an appropriate specialist.

Further details can be found in VDI Directive 2035-2 and EN 14868.

Parts lists

Parts lists

When ordering spare parts:
Please enter the serial number and type,
as well as the number of articles
required.

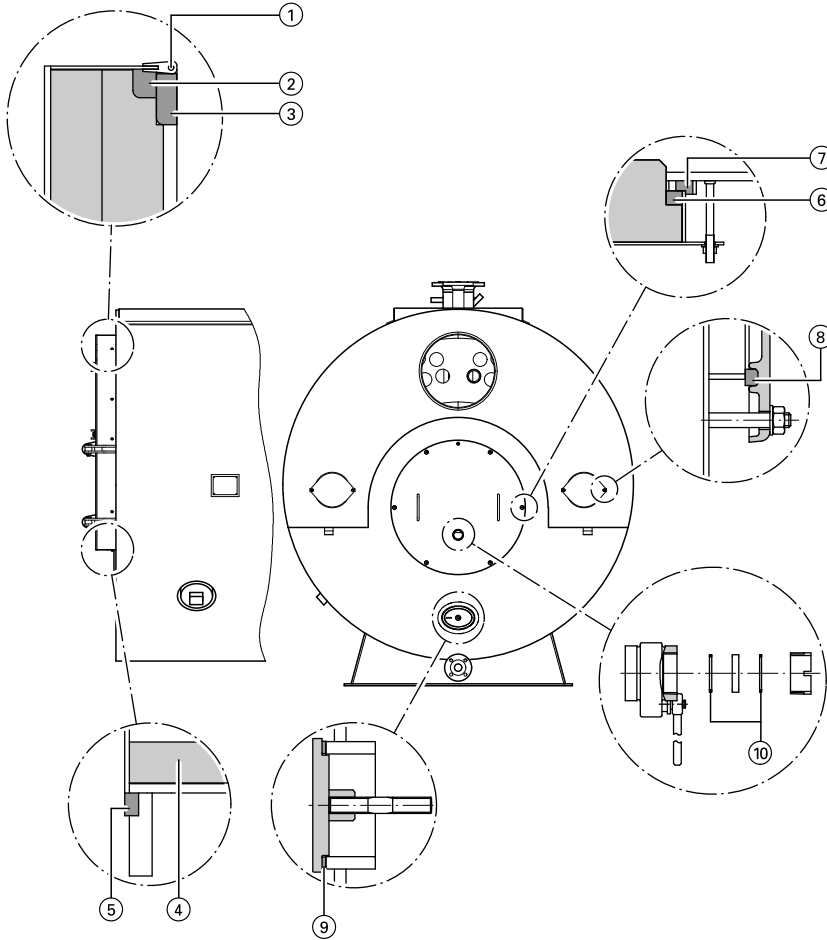
Obtain standard parts from your local
supplier.

Type M62A		Boiler size				
		0_1	0_2	0_3	0_4	0_5
Pos.	Component	Quan- tity	Quan- tity	Quan- tity	Quan- tity	Quan- tity
1	Profiled gasket per boiler door					
2 ^{*2}	Pack per boiler door					
3 ^{*2}	Insulation mat per boiler door					
4	Insulation ring					
5 ^{*2}	Burner connection pack					
6 ^{*2}	Cleaning cover pack					
7 ^{*2}	Rear boiler floor pack					
8 ^{*2}	Pack per cleaning aperture					
9	Hand hole gasket 100 x 150					
10	Seal ring set					

Please order individual parts from:
Viessmann-Industrie-Service
Tel.: 0049-30/6602 389
Email: industrieservice@viessmann.com
Internet: www.viessmann-industriekessel.de

^{*2} A corresponding amount of installation adhesive is provided.

Parts lists (cont.)



Commissioning/service reports

Commissioning/service reports

	Commissioning	Service	Service
date:			
by:			

	Service	Service	Service
date:			
by:			

	Service	Service	Service
date:			
by:			

	Service	Service	Service
date:			
by:			

	Service	Service	Service
date:			
by:			

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