For the competent person

Installation and maintenance instructions

atmoMAG

MAG AT ..-0/1 GX, MAG ..-0/1 GX, MAG ..-0/1 XI

AT, CH (de), DE

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Contents

1 Safety

1.1 Action-related warnings

Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

Warning symbols and signal words

Danger!
Imminent danger to life or risk of severe personal injury

Danger!
Risk of death from electric shock

Warning.
Risk of minor personal injury

Caution.
Risk of material or environmental damage

1.2 Intended use

There is a risk of injury or death to the user or others, or of damage to the product and other property in the event of improper use or use for which it is not intended.

The product is designed for use as a heat generator for hot water generation.

Depending on the gas-fired boiler type, the products referred to in these instructions must only be installed and operated in conjunction with the air/flue pipe accessories listed in the other applicable documents.

Intended use includes the following:

– observance of accompanying operating, installation and servicing instructions for the product and any other system components
– installing and fitting the product in accordance with the product and system approval
– compliance with all inspection and maintenance conditions listed in the instructions.

Intended use also covers installation in accordance with the IP class.

Any other use that is not specified in these instructions, or use beyond that specified in this document shall be considered improper use. Any direct commercial or industrial use is also deemed to be improper.

Caution.

Improper use of any kind is prohibited.

1.3 General safety information

1.3.1 Risk caused by inadequate qualifications

– Set-up
– Disassembly
– Installation
– Start-up
– Maintenance
– Repair
– Decommissioning

► Observe all instructions that are included with the product.
► Proceed in accordance with the current state of technology.
► Observe all applicable directives, standards, laws and other regulations.

1.3.2 Risk of death due to blocked or leaking flue gas routes

Installation errors, damage, tampering, unauthorised installation sites or similar can cause flue gas to escape and result in a risk of poisoning.

What to do if you smell flue gas in the property:

► Open all accessible doors and windows fully to provide ventilation.
► Switch off the product.
► Check the flue gas routes in the product and the flue gas diversions.

1.3.3 Risk of poisoning due to missing flue gas monitoring device

Flue gases may escape into the installation room under unfavourable conditions. If this happens, the flue gas monitoring device switches the heat generator off. If a flue gas monitoring device has not been installed, the heat generator will continue to run.

► Never decommission the flue gas monitoring device.

1.3.4 Risk of poisoning caused by insufficient supply of combustion air

Conditions: Open-flued operation

- Ensure that the air supply to the product's installation room is permanently unobstructed and sufficient in accordance with the relevant ventilation requirements.

1.3.5 Risk of corrosion damage due to unsuitable combustion and room air

Sprays, solvents, chlorinated cleaning agents, paint, adhesives, ammonia compounds, dust or similar substances may lead to corrosion on the product and in the flue gas guiding.

- Ensure that the supply of combustion air is always free of fluorine, chlorine, sulphur, dust, etc.
- Ensure that no chemical substances are stored at the installation site.
- Ensure that the combustion air is not routed through chimneys which have previously been used with floor-standing oil-fired boilers, or with other boilers, which could cause soot to build up in the chimney.
- If you are installing the product in hairdressing salons, painter's or joiner's workshops, cleaning businesses or similar locations, choose a separate installation room in which the room air is technically free of chemical substances.

1.3.6 Risk of death due to cabinet-type casing

Cabinet-type casing can give rise to dangerous situations when used on a product which is operated with an open flue.

- Ensure that the product is supplied with sufficient combustion air.

1.3.7 Risk of death due to explosive and flammable materials

- Do not use or store explosive or flammable materials (e.g. petrol, paper, paint) in the installation room of the product.

1.3.8 Risk of death from escaping gas

What to do if you smell gas in the building:

- Avoid rooms that smell of gas.
- If possible, open doors and windows fully and ensure adequate ventilation.
- Do not use naked flames (e.g. lighters, matches).
- Do not smoke.
- Do not use any electrical switches, mains plugs, doorbells, telephones or other communication systems in the building.
- Close the emergency control valve or the main isolator.
- If possible, close the gas isolator cock on the product.
- Warn other occupants in the building by yelling or banging on doors or walls.
- Leave the building immediately and ensure that others do not enter the building.
- Alert the police and fire brigade as soon as you are outside the building.
- Use a telephone outside the building to inform the emergency service department of the gas supply company.

1.3.9 Risk of material damage caused by frost

- Do not install the product in rooms prone to frost.

1.3.10 Risk of death due to lack of safety devices

The schematic drawings included in this document do not show all safety devices required for correct installation.

- Install the necessary safety devices in the system.
- Observe the applicable national and international laws, standards and guidelines.

1.3.11 Risk of being burned or scalded by hot components

- Only carry out work on these components once they have cooled down.

1.3.12 Risk of poisoning and burns caused by escaping hot flue gases

- Only operate the product if the flue gas guiding has been completely installed.

- With the exception of short periods for testing purposes, only operate the product when the front casing is installed and closed.

1.3.13 Risk of material damage caused by using an unsuitable tool

- Use the correct tool to tighten or loosen screw connections.

1.4 Regulations (directives, laws, standards)

Applicability: Germany

- Observe the national regulations, standards, guidelines and laws.

Applicability: Austria

- Observe the national regulations, standards, guidelines and laws.

For this installation, observe in particular the latest applicable versions of the following regulations:

– ÖVGW (Austrian Association for Gas and Water) directive G1 (ÖVGW-TR-Gas)
– ÖVGW (Austrian Association for Gas and Water) directive G2 (ÖVGW TR-Liquid gas)
– Country-specific building regulations and/or OIB (Austrian Institute of Construction Engineering) directives

Applicability: Switzerland

The gas-fired instantaneous water heater must only be installed by a competent person who also assumes the responsibility for installing the unit properly and commissioning it for the first time.

Before installing the gas-fired instantaneous water heater, you must consult with the gas supply company.

The gas-fired instantaneous water heater must only be installed in rooms that are sufficiently ventilated.

For this installation, observe in particular the latest applicable versions of the following laws, ordinances, technical rules, standards and provisions:

– Fire-prevention guidelines from the Vereinigung Kantonaler Feuerversicherungen (Association of Cantonal Fire Insurance) in Switzerland with regard to "Thermal heating systems, 2015"
– SVGW (Swiss Gas and Water Industry Association) gas directive G1, issue April 2012
– SVGW (Swiss Gas and Water Industry Association) directives on water W/TPW 131 and W/TPW 115
– EKAS (Swiss Federal Coordination Commission for Occupational Safety FCOS) directive, no. 1942: Liquid gas, part 2
– SIA (Swiss Society of Engineers and Architects) standards and regulations 181, 384/1 and /2, as well as 385
– The provisions of the Eidgenössisches Starkstrominspektorat (Federal Inspectorate for Heavy Current Installations) regarding the set-up of low-voltage products

2 Notes on the documentation

2.1 Observing other applicable documents

► You must observe all the operating and installation instructions included with the system components.

2.2 Storing documents

► Pass these instructions and all other applicable documents on to the system operator.

2.3 Validity of the instructions

These instructions apply only to:

Product article number

Applicability: Austria

MAG AT 11-0/1 GX H	0010006905
MAG AT 14-0/1 GX H	0010006906

Product article number

Applicability: Germany, Switzerland

MAG 11-0/1 XI H	0010006919
MAG 11-0/1 XI L	0010006920
MAG 11-0/1 GX P	0010006921
MAG 14-0/1 XI H	0010006922
MAG 14-0/1 XI L	0010006923
MAG 14-0/1 GX P	0010006924
MAG 11-0/1 GX H	0010006925
MAG 11-0/1 GX L	0010006926
MAG 14-0/1 GX H	0010006927
MAG 14-0/1 GX L	0010006928
MAG 11-0/1 XI P	0010019375
MAG 14-0/1 XI P	0010019376

3 Product description

3.1 Information on the identification plate

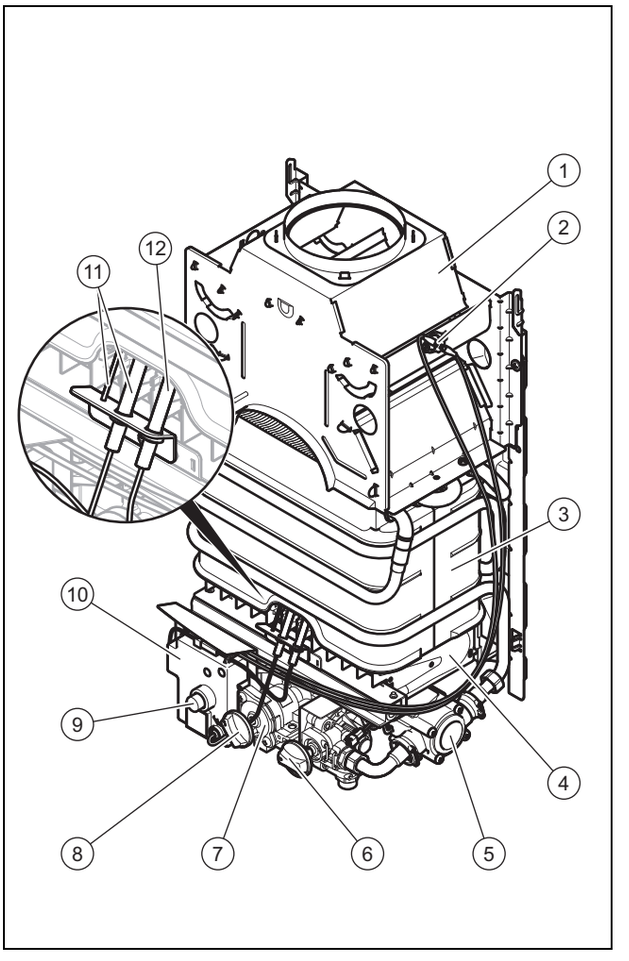
The identification plate is mounted at the front of the atmospheric sensing device, under the product casing, at the factory.

Applicability: Germany, Austria, Switzerland

Information on the identification plate	Meaning
MAG	Product category
11/14	Power in l/min
-0/1	Chimney connection/product generation
G	With electrical ignition and generator
I	With electrical ignition and battery
X	With flue gas sensor
atmoMAG	Product series
Type B11 BS	Approved unit type
Cat II	Multiple gas type unit
2 ELL 3P (DE) 2H 3P (AT, CH)	Gas-fired boiler category
G20/25/31 (DE) G20/31 (AT, CH)	Permitted gas types with connection pressures
$P_{nom.}$	Maximum heat output
$P_{min.}$	Minimum heat output
$Q_{nom.}$	Maximum heat input
$Q_{min.}$	Minimum heat input
$P_{w\ max.}$	Maximum permissible water pressure
Serial number	7th to 16th digit = product article number

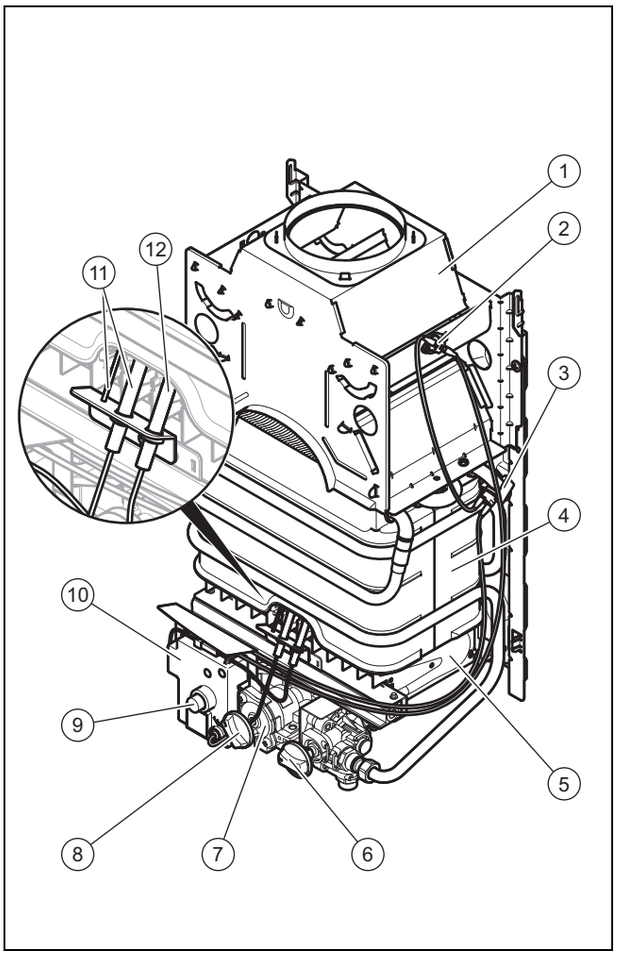
3.2 Product design

Applicability: MAG 11-0/1 GX



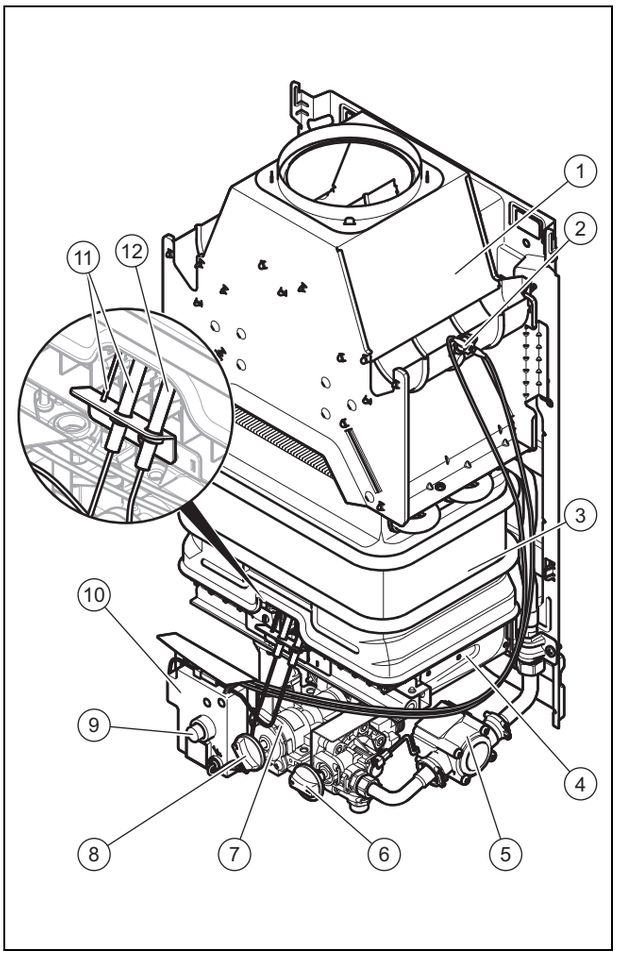
1 Atmospheric sensing device
2 Flue gas sensor
3 Heat exchanger
4 Burner
5 Generator
6 Temperature selector
7 Gas valve
8 Power switch
9 Main switch
10 Switch box
11 Ignition electrode
12 Monitoring electrode

Applicability: MAG 11-0/1 XI



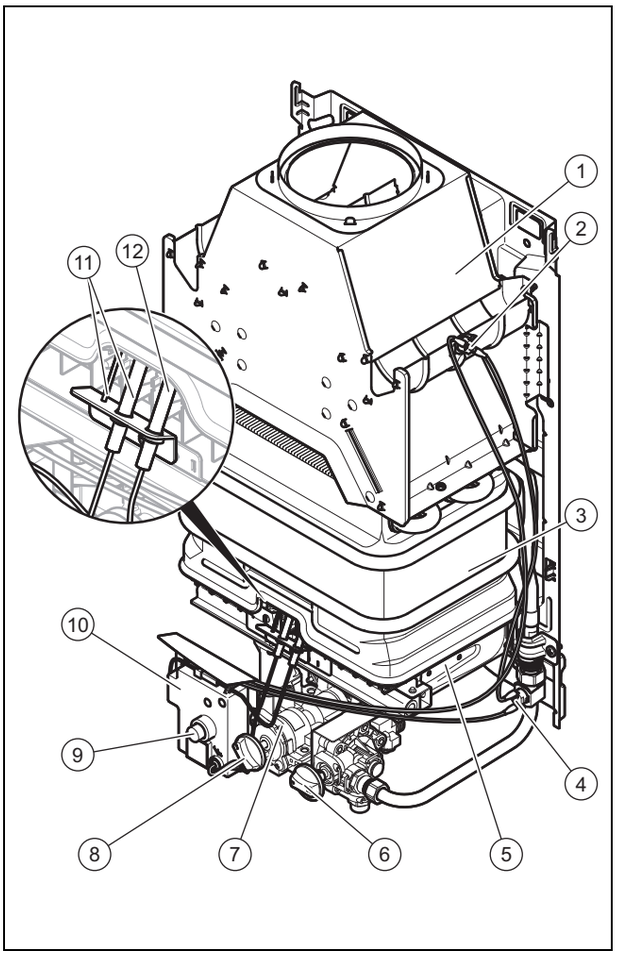
1	Atmospheric sensing device	7	Gas valve
2	Flue gas sensor	8	Power switch
3	Safety overheat cut-off device	9	Main switch
4	Heat exchanger	10	Electronics box with battery compartment
5	Burner	11	Ignition electrode
6	Temperature selector	12	Monitoring electrode

Applicability: MAG 14-0/1 GX



1	Atmospheric sensing device	7	Gas valve
2	Flue gas sensor	8	Power switch
3	Heat exchanger	9	Main switch
4	Burner	10	Switch box
5	Generator	11	Ignition electrode
6	Temperature selector	12	Monitoring electrode

Applicability: MAG 14-0/1 XI



1	Atmospheric sensing device	7	Gas valve
2	Flue gas sensor	8	Power switch
3	Heat exchanger	9	Main switch
4	Safety overheat cut-off device	10	Electronics box with battery compartment
5	Burner	11	Ignition electrode
6	Temperature selector	12	Monitoring electrode

3.3 CE label

CE

The CE label shows that the products comply with the basic requirements of the applicable directives as stated on the identification plate.

The declaration of conformity can be viewed at the manufacturer's site.

3.4 ÖVGW symbol

ÖVGW GEPRÜFT

The ÖVGW symbol shows that the products comply with all of the requirements for assigning the ÖVGW symbol in accordance with the identification plate.

4 Installation

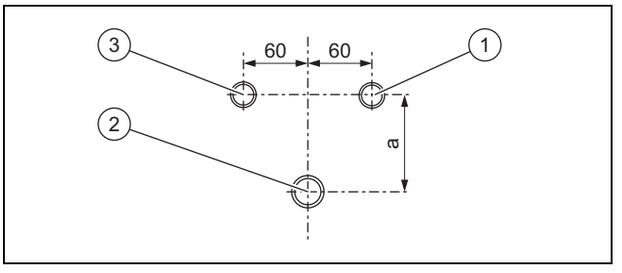
4.1 Checking the scope of delivery

1. Remove the product from its box.
2. Check that the scope of delivery is complete and intact.

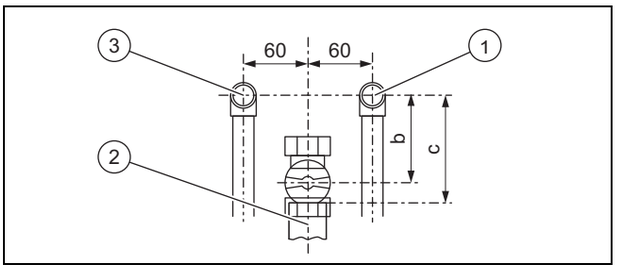
4.1.1 Scope of delivery

Number	Description
1	Gas-fired instantaneous water heater
1	Connection accessories that are included
1	Enclosed documentation
1	**XI units only:** Battery (monocells D/LR20) **Note** The battery is inserted in the lower Styrofoam cushion.

4.2 Wall pre-installation



Flush mounting



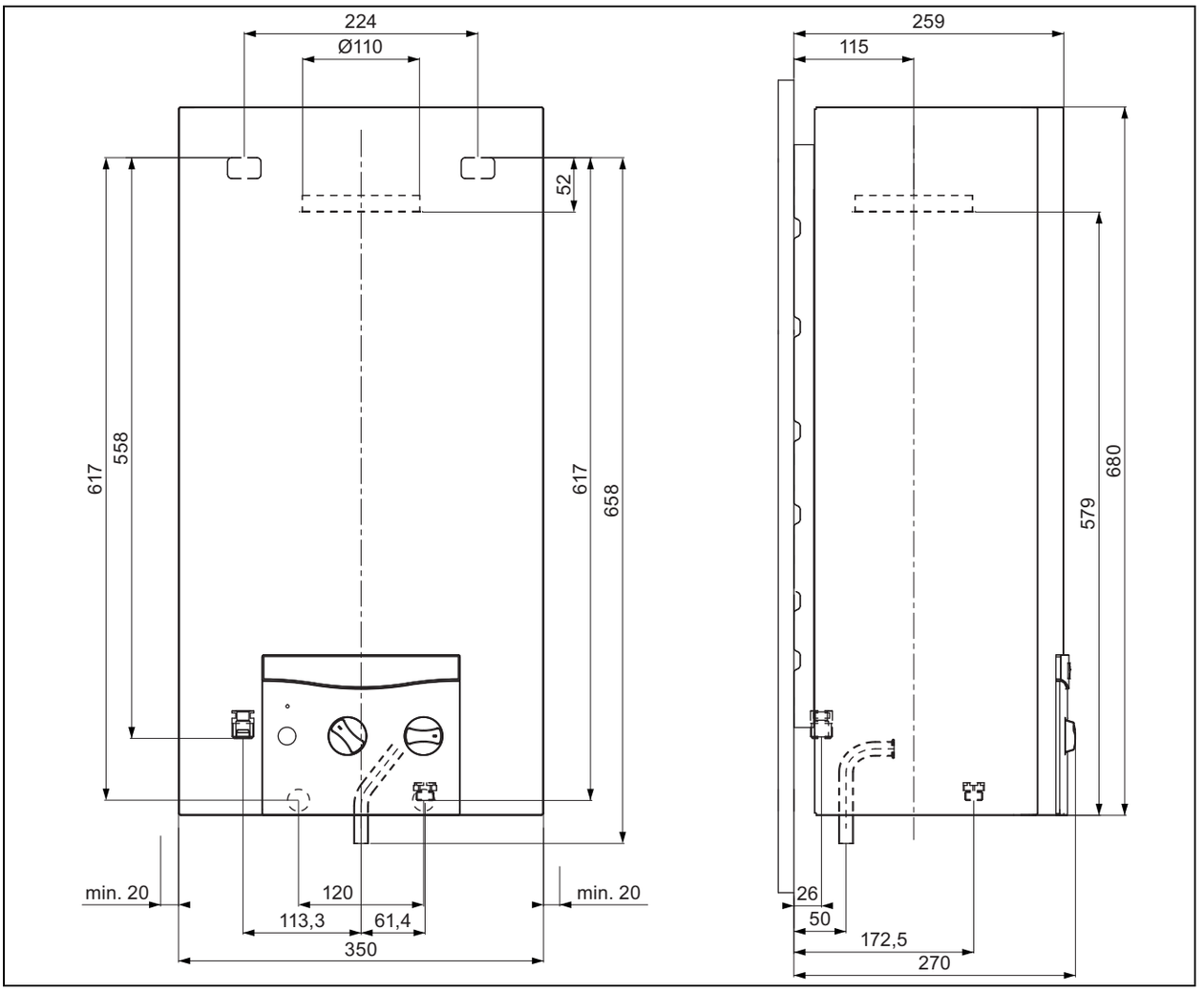
Surface installation

- Install the connections as follows:
  - 1 = Cold water connection R 1/2
  - 2 = Gas connection
  - 3 = R 1/2 hot water connection
- Observe the following clearances for all product types:

- a = 92 mm
- b = 85 mm
- c ≈ 100 mm without thermal isolator device
- c ≈ 145 mm with thermal isolator device

4.3 Dimensions

Applicability: MAG 11-0/1 XI
OR MAG 11-0/1 GX

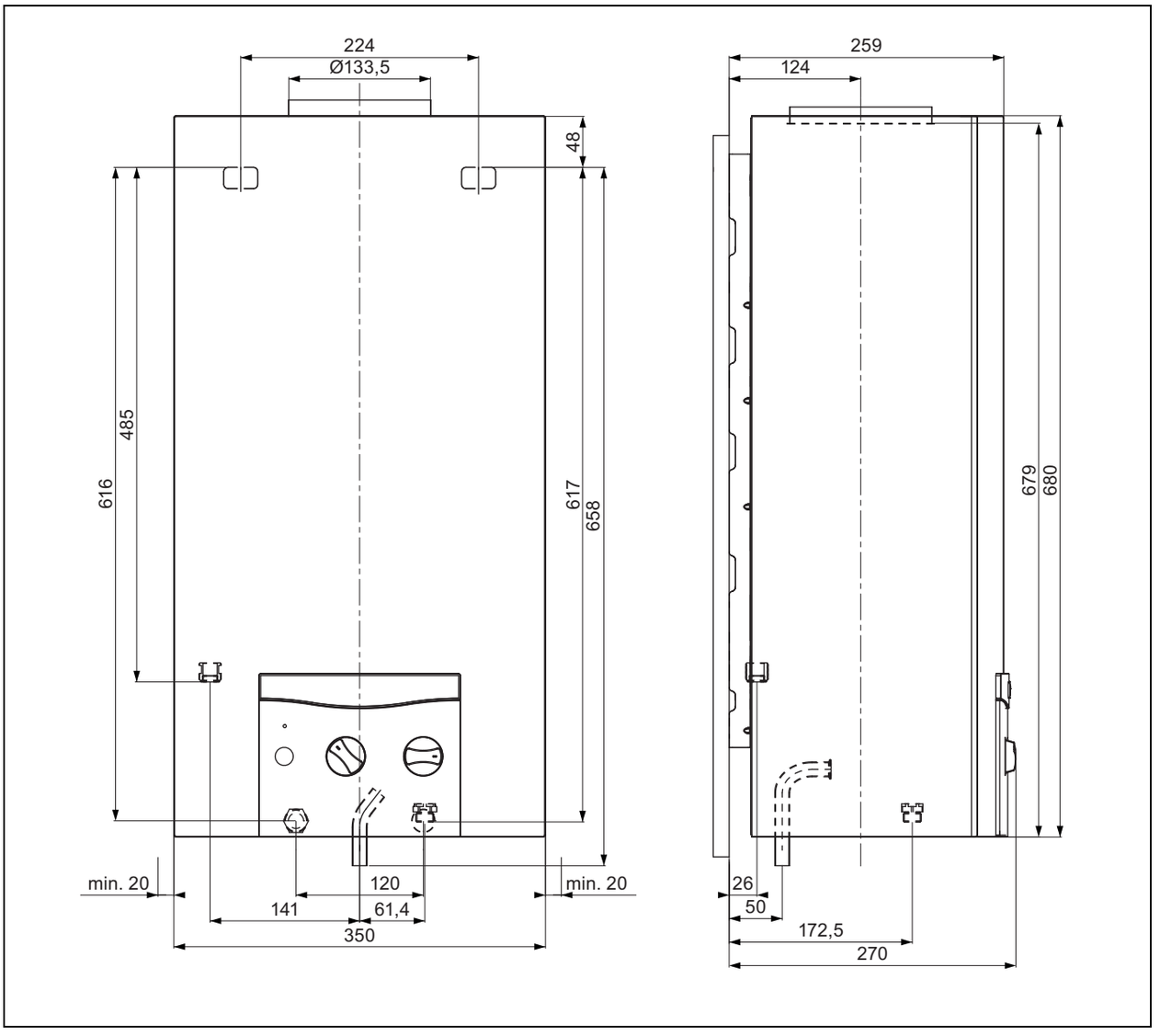


Applicability: MAG 14-0/1 XI, Germany

OR MAG 14-0/1 GX, Germany

OR MAG 14-0/1 GX, Switzerland

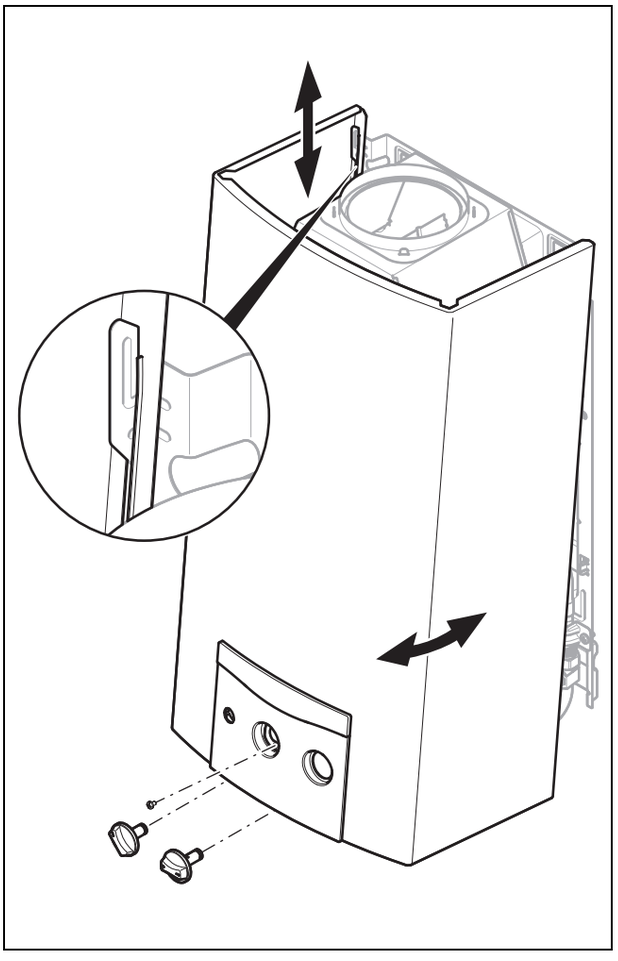
OR MAG 14-0/1 GX, Austria



4.4 Requirements for the installation site

- ► Select the installation site so that the pipes can be easily routed (gas supply, water supply and drain).
- ► Do not install the product above an appliance whose use may damage the gas-fired instantaneous water heater (e.g. above a cooker that can emit grease vapours).

4.5 Removing/installing the product casing



4.6 Wall-mounting the product

Conditions: The load-bearing capacity of the wall is sufficient, The fixing material may be used for the wall

- ► Wall-mount the product as described below.

Conditions: The load-bearing capacity of the wall is not sufficient

- ► Ensure that wall-mounting apparatus on-site has a sufficient load-bearing capacity. Use individual stands or primary walling, for example.
- ► Do not wall-mount the product if you cannot provide wall-mounting apparatus with a sufficient load-bearing capacity.

Conditions: The fixing material may not be used for the wall

- ► Wall-mount the product as described as follows using the permitted fixing material provided on-site.

1. Drill the holes for the fixing screws while taking into consideration the dimensions.
2. To secure the product, depending on the installation site, use wall anchors, hooks, bolts or threaded bolts as the fixing material.
3. Use suitable fixing material to install the back wall of the unit to the wall.

5 Installation

Danger!

Risk of scalding and/or damage due to incorrect installation leading to escaping water.

Stresses in supply lines can cause leaks.

- ► Install the supply lines without tension.
- ► If you use plastic supply lines for the hot- and cold-water connection, these must withstand temperatures up to 95 °C and pressures up to 1.0 MPa (10 bar).

Caution.

Risk of material damage due to the gas leak-tightness test.

At a test pressure of >11 kPa (110 mbar), gas leak-tightness tests may cause damage to the gas valve.

- ► If, during gas leak-tightness tests, you also place the gas lines and the gas valve in the product under pressure, use a max. test pressure of 11 kPa (110 mbar).
- ► If you cannot limit the test pressure to 11 kPa (110 mbar), close any gas isolator cocks that are installed upstream from the product before you carry out the gas leak-tightness test.
- ► If, during gas leak-tightness tests, you have closed the gas isolator cock that is installed upstream of the product, relieve the gas line pressure before you open this gas isolator cock.

5.1 Integration into a solar system

The inlet temperature must not exceed 45 °C.

The hot water temperature must not exceed 60 °C.

- ► Install thermostatic 3-way valves.

5.2 Sequence for installing the connection

1. Install the hot water connection.
2. Install the gas connection.
3. Install the cold water connection.

5.2.1 Installing the hot and cold water connection

► Make the water connections in accordance with the relevant standards.

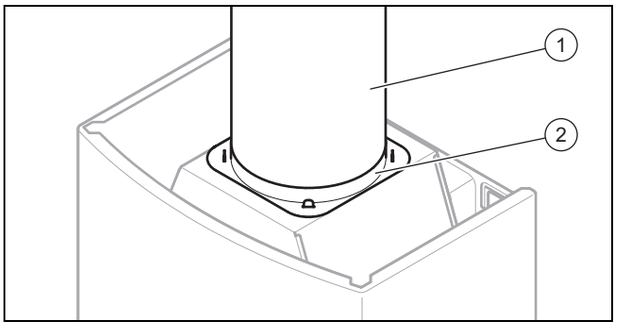
5.2.2 Installing the gas connection

► Install the gas pipe in accordance with the recognised rules of technology.
► Connect the product to the gas line in accordance with the recognised rules of technology.
► Remove the residues from the gas pipe by blowing through the gas pipe beforehand.
► Purge the gas pipe before start-up.

Applicability: Austria, MAG AT 14-0/1 GX H

► Install a gas pressure regulator on-site.

5.3 Connecting the flue pipe



► Use a flue pipe with the prescribed diameter (→ Page 25) to connect the product to a flue gas installation that has a natural draught (hearth).
► Insert the flue pipe **(1)** into the flue gas pipe connection **(2)** on the atmospheric sensing device.

6 Start-up

6.1 Carrying out the initial start-up

Initial start-up must be carried out by a customer service engineer or a qualified competent person.

► Remove the product casing (→ Page 12).

Applicability: MAG 11-0/1 XI

OR MAG 14-0/1 XI

► Insert the battery in accordance with the operating instructions.
► When starting up the unit, proceed in accordance with the attached checklist.

Commissioning checklist (→ Page 21)

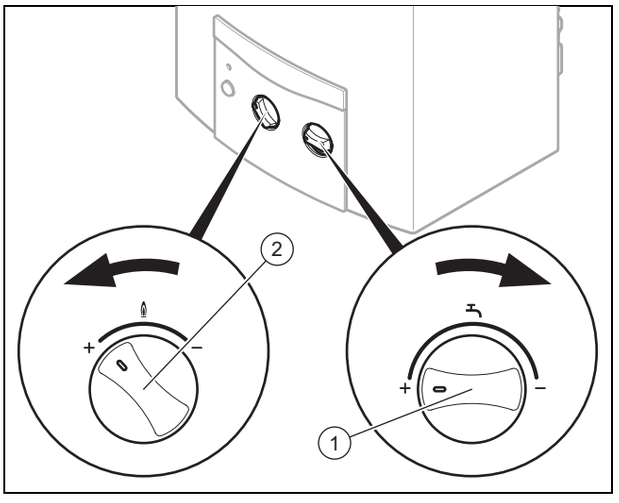
6.2 Gas conversion

1. Observe the applicable national regulations.
2. To convert the gas, use only Vaillant conversion kits or Vaillant spare parts.
3. Follow the instructions contained in the documentation that is supplied with the conversion kits or spare parts.

6.3 Checking that the flue gas sensor works correctly

If the flue gas guiding is fully or partially blocked or the local air pressure conditions restrict the smooth flue gas guiding, the flue gas sensor registers an increase in temperature and interrupts the gas supply.

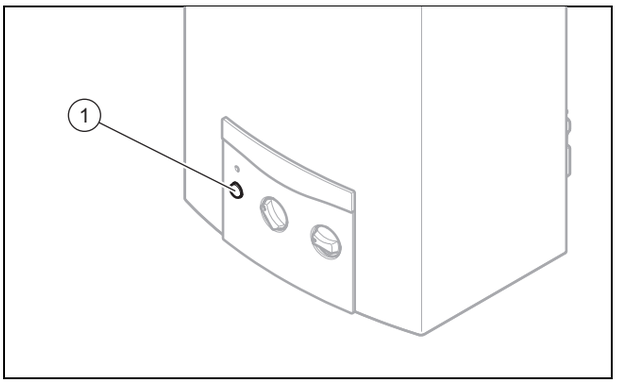
Check that the flue gas sensor is working correctly, as described below.



► Start up the product with the product casing attached.
► Turn the temperature selector **(1)** clockwise as far as it goes and turn the power switch **(2)** anti-clockwise as far as it goes in order to set the lowest water volume and the maximum gas volume.
► Check the product's heat input (→ Page 14) and adjust this, if required.
► Open a hot water valve.
► Operate the product until a steady state is reached (approx. 10 minutes).
► Block off the flue gas route with a Vaillant flue gas fan, for example. Also observe the documentation enclosed with the flue gas fans.

◁ The flue gas sensor must automatically interrupt the gas supply within two minutes.

► Close the hot water valve.
► Allow the flue gas sensor to cool for at least 15 minutes.



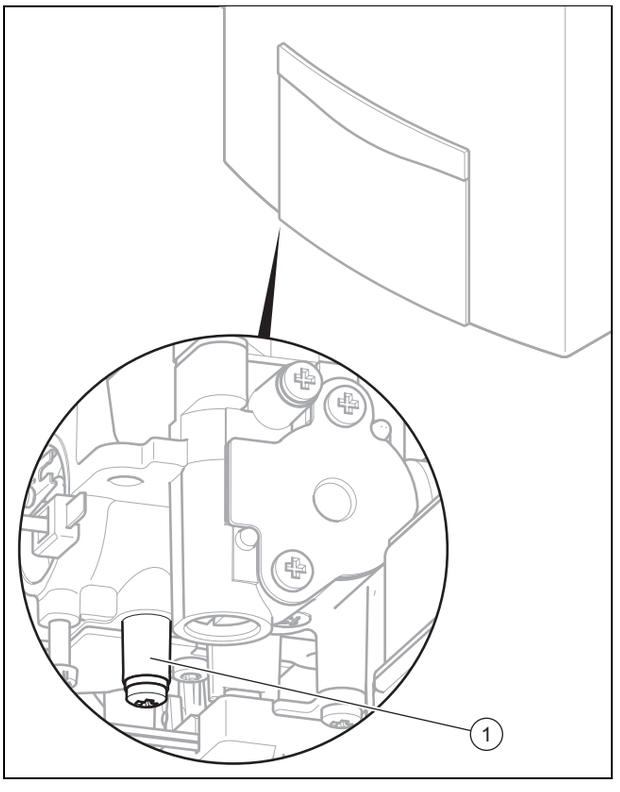
- ► Clear any faults from the product by opening the hot water valve again and switch the product on and off again by pressing the main switch **(1)** a second time.
- ► If the fault clearance does not work or the product is repeatedly blocked by a safety device, check the product or contact Vaillant Customer Service.
- ► In this case, shut down the product.

6.4 Checking the gas flow pressure

Applicability: Germany

OR Austria

OR Switzerland



- ► Close the gas isolator cock.
- ► Unscrew the sealing screw **(1)** from the measuring nipple on the gas valve.
- ► Remove the seal.
- ► Connect a pressure gauge to the measuring nipple on the gas valve.
- ► Open the gas isolator cock.
- ► Start up the product in accordance with the operating instructions and draw off hot water.
- ► Measure the gas flow pressure.

Applicability: Germany, Austria, Switzerland

Gas family	Permissible gas flow pressure
Natural gas	
G20 (DE, AT, CH)	1.7-2.5 kPa (17-25 mbar)
G25 (DE)	1.7-2.5 kPa (17-25 mbar)
Liquid gas	
G31 (DE, AT, CH)	4.25-5.75 kPa (42.5-57.5 mbar)

Conditions: Gas flow pressure not in the permissible range

Danger!

Risk of material damage and operating faults caused by incorrect gas flow pressure.

If the gas flow pressure lies outside the permissible range, this can cause operating faults in and damage to the product.

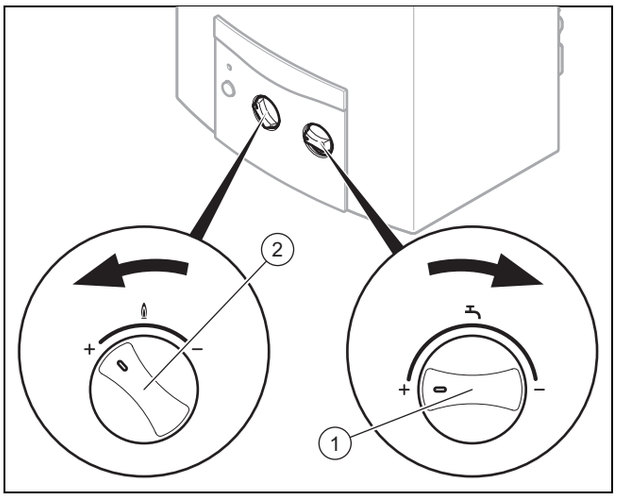
- ► Do not make any adjustments to the product.
- ► Check the gas installation.
- ► Do not start up the product.

- ► If you are unable to remedy the fault, contact the gas supply company.
- ► Close the gas isolator cock.
- ► Remove the pressure gauge.
- ► Position the seal on the sealing screw.
- ► Screw the sealing screw **(1)** into the measuring nipple on the gas valve again.
- ► Open the gas isolator cock.
- ► Check the measuring nipple for gas tightness.

6.5 Checking the heat input

- ► Check the heat input either by reading off the gas flow values at the counter (volumetric method) or by checking the burner pressure (burner working pressure test).

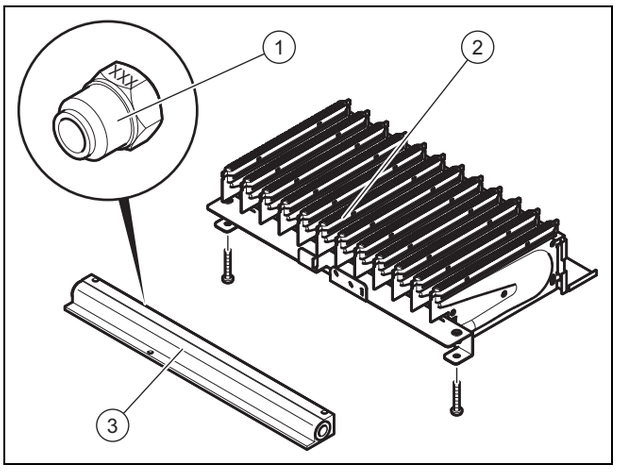
Volumetric method



- When carrying out the check, ensure that no additional gases (e.g. mixtures of liquid gas and air) are fed in to cover the peak demand. Contact the responsible gas supply company for this.
- Ensure that no other gas appliances are operated during the check.
- Start up the product.
- Turn the temperature selector **(1)** clockwise as far as it will go in order to reduce the water volume and set the maximum water temperature.
- Turn the power switch **(2)** as far as it will go anti-clockwise to set the maximum product output.
- Determine the required gas flow value at nominal heat loading in accordance with the Tables of gas settings (→ Page 25).
- Note down the gas meter status.
- Draw off hot water with the water tap fully open to enable the nominal water volume (→ Page 25) to flow.
- After approx. five minutes of the product running in continuous mode, read off the gas flow value at the counter and compare this with the gas flow value at nominal heat loading in the Tables of gas settings (→ Page 25).

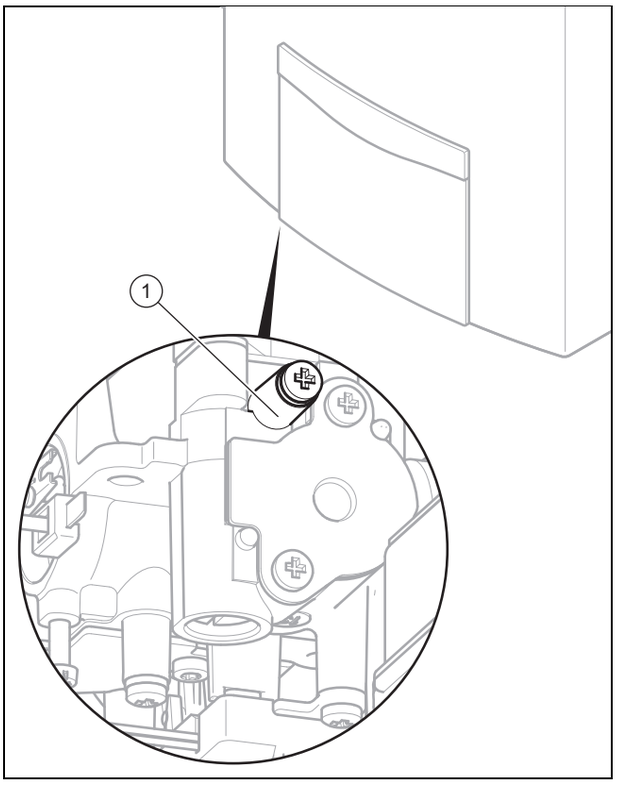
Note
Deviations of ±5% are permitted.

Conditions: The deviation is greater than ±5%



- Remove the burner. (→ Page 18)
- Remove the jet holder. (→ Page 18)
- Check whether the correct burner jets **(1)** have been used in the jet holder **(3)** for the burner **(2)** by comparing the labels on the burner jets with the specifications in the Tables of gas settings (→ Page 25).
- If incorrect burner jets are used, contact Vaillant Customer Service. Do not start up the product.
- If the correct burner jets are being used, continue with the following steps.
- Clean the burner. (→ Page 19)
- Refit the burner assembly in the reverse order.
- Repeat the check of the heat input.
- If the deviation continues to be greater than ±5%, adjust the product load (→ Page 17).

Burner working pressure test

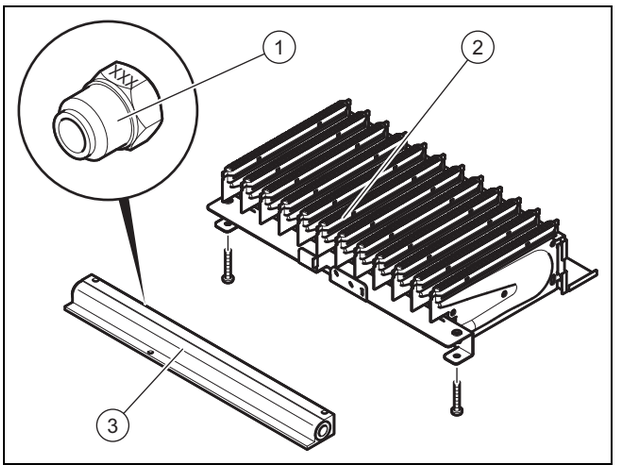


- Unscrew the sealing screw from the measuring nipple **(1)** for the burner pressure.
- Remove the seal.
- Connect a pressure gauge (resolution at least 0.1 bar).
- Start up the product.
- Turn the temperature selector clockwise as far as it will go in order to reduce the water volume and set the maximum water temperature.
- Turn the power switch as far as it will go anti-clockwise to set the maximum product output.
- Draw off hot water with the water tap fully open to enable the nominal water volume (→ Page 25) to flow.
- Look up the required burner pressure in the Tables of gas settings (→ Page 25) and compare the value with the corresponding value in the table.

Note
Deviations of ±10% are permitted.

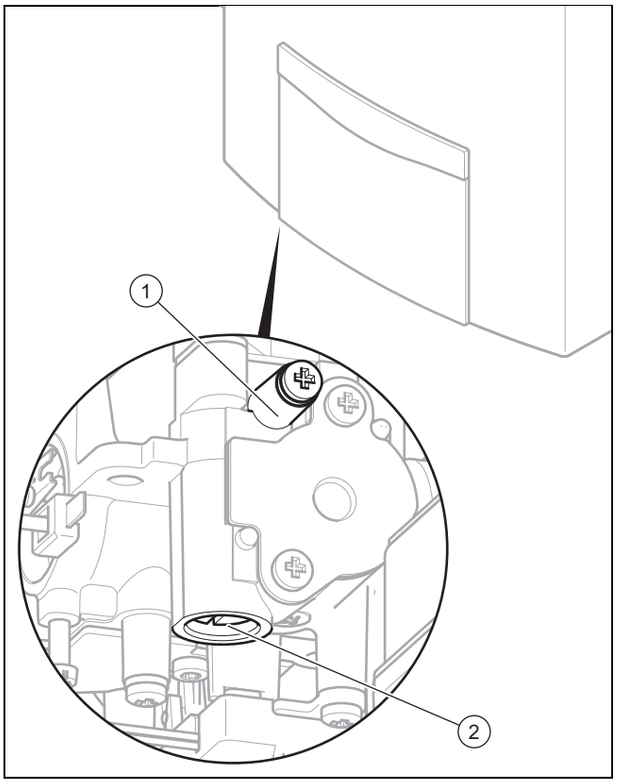
- Remove the pressure gauge.
- Place the sealing screw and the seal on the measuring nipple, tighten the sealing screw and check that it is leak-tight.

Conditions: The deviation is greater than ±10%



- Remove the burner. (→ Page 18)
- Remove the jet holder. (→ Page 18)
- Check whether the correct burner jets **(1)** have been used in the jet holder **(3)** for the burner **(2)** by comparing the labels on the burner jets with the specifications in the Tables of gas settings (→ Page 25).
- If incorrect burner jets are used, contact Vaillant Customer Service. Do not start up the product.
- If the correct burner jets are being used, continue with the following steps.
- Clean the burner. (→ Page 19)
- Refit the burner assembly in the reverse order.
- Repeat the check of the heat input.
- If the deviation continues to be greater than ±10%, adjust the product load (→ Page 17).

6.6 Setting the product load



1. Turn the temperature selector clockwise as far as it will go in order to reduce the water volume and set the maximum water temperature.
2. Turn the power switch as far as it will go anti-clockwise to set the maximum product output.
3. Unscrew the sealing screw from the measuring nipple **(1)** for the burner pressure.
4. Connect a U tube pressure gauge (resolution at least 0.1 bar).
5. Use a flat-blade screwdriver to set the product load on the adjusting screw **(2)**.
6. Read off the value for the product load on the U tube pressure gauge.
7. If you are unable to set the correct values in accordance with the Tables of gas settings (→ Page 25), do not start up the product. Report this to Vaillant Customer Service.
8. Remove the U tube pressure gauge.
9. Place the sealing screw and the seal on the measuring nipple, tighten the sealing screw and check that it is leak-tight.

6.7 Checking that the product functions correctly and checking the leak-tightness

1. Start up the product.
2. Check the gas line, the flue gas installation and the hot water pipes for leaks.
3. Check that all control, regulation and monitoring devices are functioning properly.
4. Check that the flue gas guiding has been installed correctly and is securely fastened.
5. Ensure that the product casing is properly installed.

6.8 Handing the product over to the operator

1. Explain to the operator how the safety devices work and where they are located.
2. Inform the operator how to handle the product. Answer any questions the operator may have.
3. Draw special attention to the safety instructions which the operator must follow.
4. Inform the operator of the necessity to have the product maintained according to the specified intervals.
5. Pass all of the instructions and documentation for the product to the operator for safe-keeping.
6. Inform the operator about measures taken to ensure the supply of combustion air and flue gas guiding, and instruct the operator that he must not make any changes.

7 Inspection and maintenance

► Carry out inspection and maintenance on an annual basis. The inspection may require maintenance to be carried out earlier, depending on the results.

Inspection and maintenance work – Overview (→ Page 21)

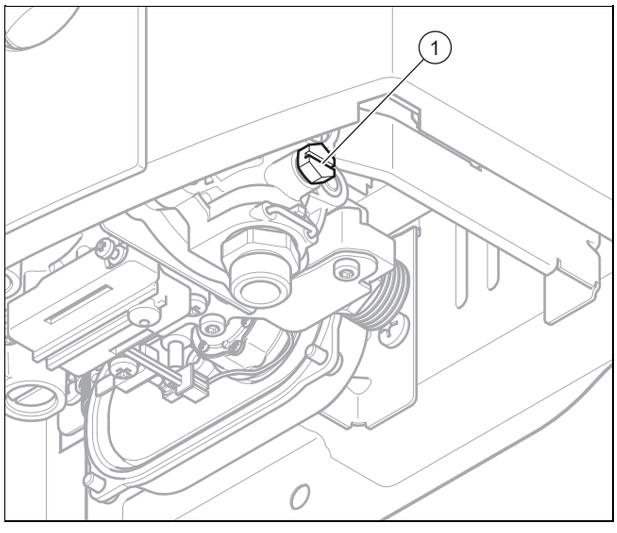
7.1 Procuring spare parts

The original components of the product were also certified by the manufacturer as part of the declaration of conformity. If you use other, non-certified or unauthorised parts during maintenance or repair work, this may void the conformity of the product and it will therefore no longer comply with the applicable standards.

We strongly recommend that you use original spare parts from the manufacturer as this guarantees fault-free and safe operation of the product. To receive information about the available original spare parts, contact the contact address provided on the reverse of these instructions.

► If you require spare parts for maintenance or repair work, use only the spare parts that are permitted for the product.

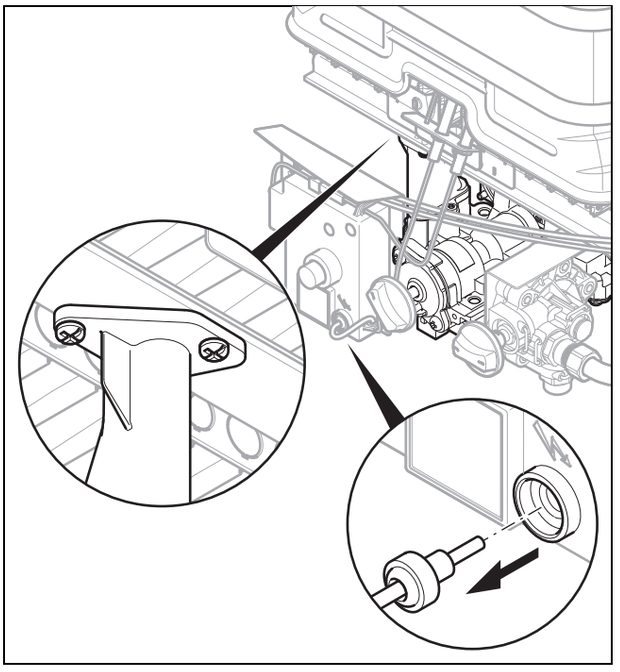
7.2 Draining the product



1. Loosen the drain screw **(1)** and the sealing ring for the draining.

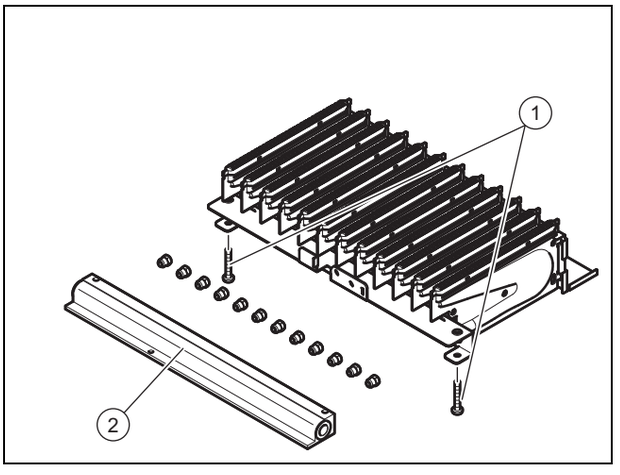
2. Open all of the hot water valves that are connected to the product so that the product and lines drain until they are completely empty.

7.3 Removing the burner



1. Pull out the plug contact on the ignition electrode from the connection socket on the electronics box.
2. Remove the two bolts from the gas pipe.
3. Loosen the two bolts that are used to secure the burner to the back wall.
4. Raise the burner slightly and carefully pull the burner forwards and out.

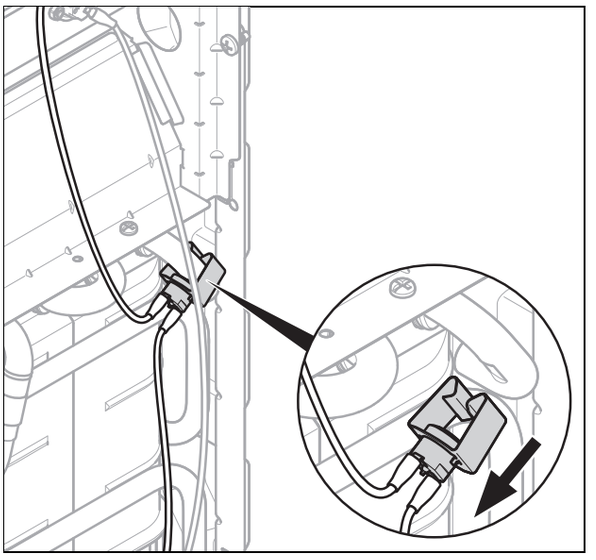
7.4 Removing the jet holder



1. Remove the two bolts **(1)** in order to remove the jet holder.
2. Remove the jets from the jet holder **(2)**.
3. Check the components of the jet holder **(2)** for damage and dirt.
4. If successful, clean or replace soiled or damaged components.

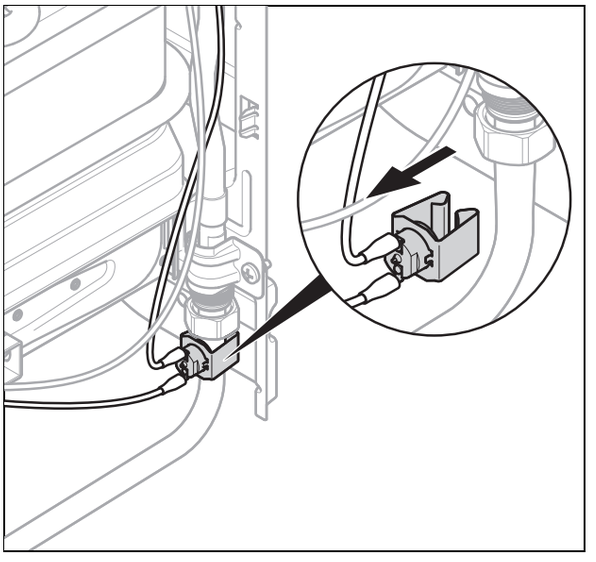
7.5 Removing the heat exchanger

Applicability: MAG 11-0/1 XI

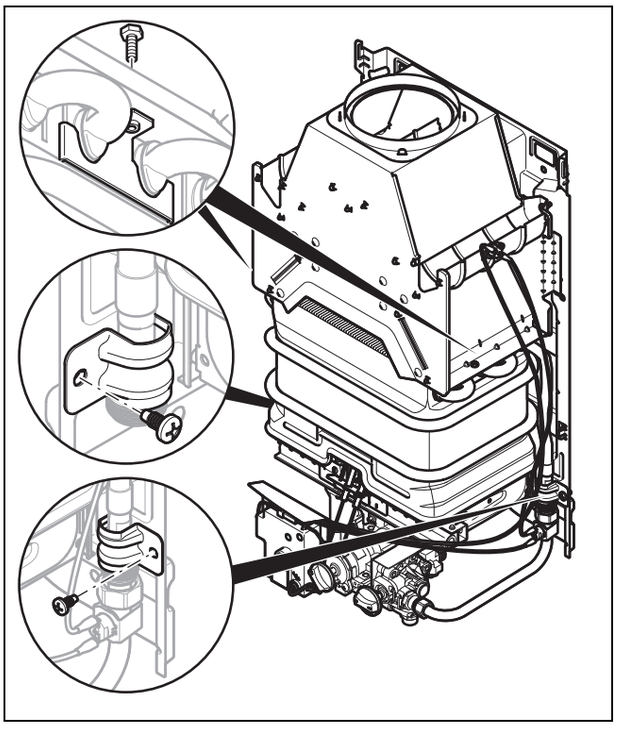


► Remove the safety cut-out that is secured using a clamp on the connection pipe above the heat exchanger.

Applicability: MAG 14-0/1 XI



► Remove the safety cut-out that is secured using a clamp on the connection pipe below the heat exchanger.



Caution.

Risk of material damage caused by damage to the heat exchanger.

Damage that occurs when installing and removing the heat exchanger leads to premature wear.

- ► When installing or removing the heat exchanger, ensure that it does not become damaged or bent out of shape.
- ► Remove the heat exchanger in the specified sequence.

1. Remove the bolts from the two retainers, which are located on the side of the atmospheric sensing device.
2. Remove the retainer.
3. Unscrew the cap nuts from the hot water pipe and the cold water pipe.
4. Unscrew the bolts from the clamps that are used to install the hot water pipe and cold water pipe of the heat exchanger to the back wall.

Applicability: MAG 11-0/1 GX

OR MAG 11-0/1 XI

- ► Remove the left-hand fastening from the heat exchanger.

Applicability: MAG 14-0/1 GX

OR MAG 14-0/1 XI

- ► Remove the left- and right-hand fastening from the heat exchanger.

5. Remove the heat exchanger by pulling it forwards and then upwards.

7.6 Cleaning the burner

1. Use a brass wire-brush to carefully remove combustion residues from the burner without damaging the burner.
2. Clean the jets, injectors and burner rails with a soft brush and blow out any dust or dirt outside the installation room from the outside to the inside using compressed air.
3. If the burner is extremely dirty, clean it with soapy water and rinse it thoroughly with clean water.

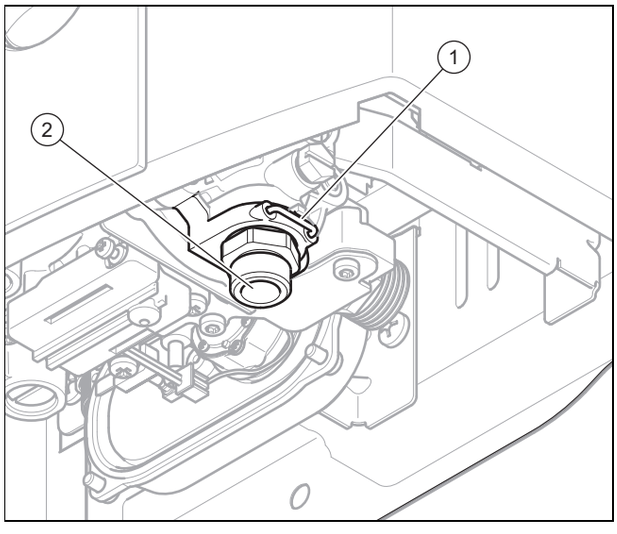
7.7 Cleaning the heat exchanger

1. Use a spray of water to rinse through the fins of the heat exchanger.
2. Use a soft brush to remove the heavier soiling on the fins of the heat exchanger.
   – Ensure that you do not bend the fins on the heat exchanger.
3. If required/necessary, remove any grease and dust by adding a fat-dissolving cleaning agent to a container of hot water.
4. Use a commercial descaler to remove any limescale, while taking into consideration the corresponding documentation.
5. Rinse the heat exchanger under running water.

7.8 Repairing any damage to the coating of the heat exchanger

1. Use a Supral pen to repair minor damage to the heat exchanger coating.
2. Ensure that the damaged area is free from deposits and greasy residues.
3. Shake the Supral pen vigorously before use.
4. Apply the coating material thinly and evenly.

7.9 Checking the flow switch



1. Remove the cold water connection line from the cold water connection **(2)**.
2. Visually check the cold water filter that is downstream from the cold water connection **(2)** for dirt and limescale.
3. If the cold water filter is dirty or calcified, remove the clamp **(1)** and pull out the cold water connection **(2)**.

4. Remove the cold water filter from the cold water connection and clean the cold water filter.
5. Reinsert the cold water filter into the cold water connection **(2)**.
6. Reinsert the cold water connection into the product's retainer and secure the clamp **(1)**.
7. Secure the cold water connection line to the cold water connection **(2)** again.
8. Check whether the temperature selection spindle can be turned. Otherwise, loosen the clamps on the temperature selection spindle, remove these and clean the temperature selection spindle.
9. Check the stuffing box for leaks. If a stuffing box is leaking, replace the flow switch.

7.10 Completing inspection and maintenance work

- ► Install all of the components in reverse order.
- ► Install the product casing (→ Page 12).
- ► Start up the product.
- ► Check that all control, regulation and monitoring devices and, in particular, the flue gas sensor (→ Page 13) are working properly.
- ► Check that the product and the flue gas guiding are leaktight.
- ► Log all maintenance work that is carried out.

8 Troubleshooting

8.1 Detecting and rectifying faults

- ► A fault is visually displayed by the LED indicator light. Use the table that is included in the appendix to rectify the fault.

  Detecting and rectifying faults (→ Page 22)
- ► After each time you rectify a fault, check that the flue gas sensor is working without any problems.
- ► If you are unable to rectify the fault, contact Vaillant Customer Service.

8.2 Eliminating faults in the product

- ► Clear the product of any faults by carrying out the following steps:
  - – Close the water tap and open it again without pressing the main switch.
  - – Leave the water tap open and switch the product off and on again by pressing the main switch twice.
- ► If the fault clearance fails or the product is repeatedly blocked by a safety device, carry out a complete functional check and a visual check for damage, loose connection cables, loose components, etc. If required, contact Vaillant Customer Service.
- ► Only start the product up again once the fault has been rectified.

9 Decommissioning

- ► Press the main switch.
- ► Close the gas isolator cock.
- ► Close the cold water stop valve.
- ► Drain the product. (→ Page 17)

10 Recycling and disposal

Disposing of the packaging

- ► Dispose of the packaging correctly.
- ► Observe all relevant regulations.

11 Customer service

Applicability: Austria

Vaillant Group Austria GmbH
Clemens-Holzmeister-Straße 6
1100 Wien
Österreich

E-Mail Kundendienst: termin@vaillant.at

Internet Kundendienst: http://www.vaillant.at/werkskundendienst/

Telefon: 05 7050-2100 (zum Regionaltarif österreichweit, bei Anrufen aus dem Mobilfunknetz ggf. abweichende Tarife - nähere Information erhalten Sie bei Ihrem Mobilnetzbetreiber)

Der flächendeckende Kundendienst für ganz Österreich ist täglich von 0 bis 24 Uhr erreichbar. Vaillant Kundendiensttechniker sind 365 Tage für Sie unterwegs, sonn- und feiertags, österreichweit.

Applicability: Switzerland

Vaillant GmbH (Schweiz, Suisse, Svizzera)
Riedstrasse 12
CH-8953 Dietikon
Schweiz, Svizzera, Suisse

Kundendienst: 044 74429-29

Techn. Vertriebssupport: 044 74429-19

Applicability: Germany

Auftragsannahme Vaillant Kundendienst: 021 91 5767901

Appendix

A Commissioning checklist

No.	Procedure	Comment	Required tool
1	Starting up the product		
2	Checking that the flue gas sensor works correctly	See section "Checking that the flue gas sensor works correctly".	Vaillant flue gas fan
3	Check the entire gas route for leaks	Use leak-detection spray or a leak detector.	Leak-detection spray/leak detector
4	Check the entire water route for leaks	Carry out a visual check.	
5	Measuring the chimney draught	The maximum draught must not exceed 20 Pa. If the draught is too great, the chimney draught must be restricted using suitable measures.	Measuring instrument for chimney draught
6	Checking combustion	Check for leaking flue gas. Target value for nominal heat loading: Only carry out the measurement after ten minutes of normal operation. – CO < 100 ppm	Dew point hygrometer CO measuring instrument
7	Checking the gas flow pressure	See section "Checking the gas flow pressure".	U tube or digital pressure gauge
8	Switching off the product and switching it back on again		
9	Setting the hot water function		
10	Handing over the operating instructions to the customer		
11	Stick the sticker "Read the operating instructions" on the front of the product, in the language spoken by the operator		

B Inspection and maintenance work – Overview

Note

The table below lists the manufacturer requirements with respect to minimum inspection and maintenance intervals. If national regulations and directives require shorter inspection and maintenance intervals, you should observe these instead of the intervals listed in the table.

No.	Work	To be carried out in general	To be carried out as required
1	Close the gas supply.	X	
2	Remove the product casing.	X	
3	Carry out a visual check of the flue gas sensor. There must be no visible damage or dirt on the flue gas sensor.	X	
4	Carry out a visual check of the safety cut-out. There must be no visible damage or dirt on the safety cut-out.	X	
5	Drain the product.		X
6	Remove the burner assembly		X
7	Clean the burner and check it for damage.		X
8	Remove the heat exchanger.		X
9	Clean the heat exchanger and check it for damage.		X
10	Carry out a visual check of the electrodes. The electrodes must not be bent or damaged. Replace any bent or damaged electrodes.	X	
11	Check the electrodes for deposits. If required, replace the electrodes.	X	
12	Check the seals on the measuring nipple for damage. Replace any damaged seals.	X	
13	Check that the flow switch is working correctly.	X	
14	Reinstall the heat exchanger and burner.		X

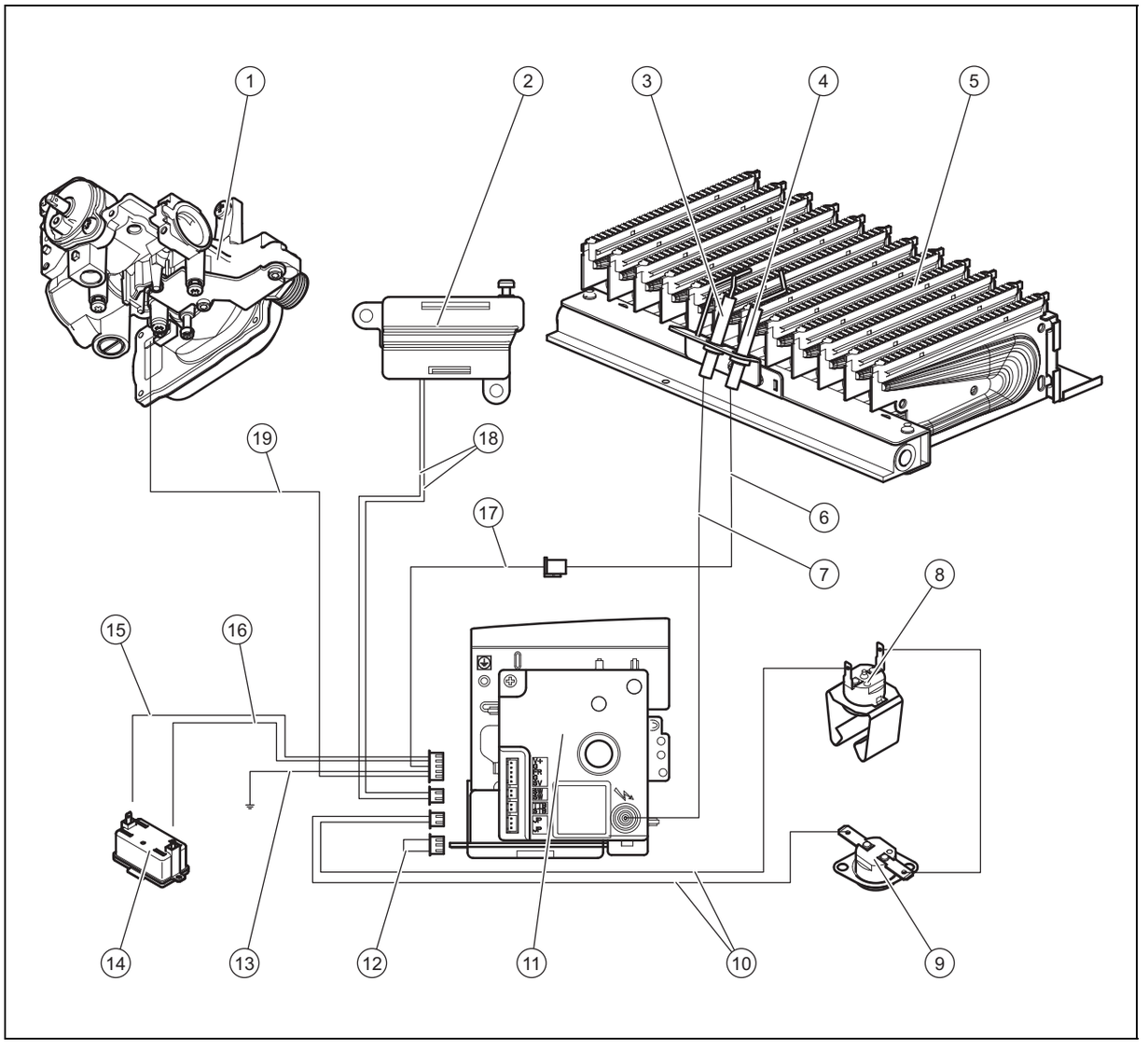
No.	Work	To be carried out in general	To be carried out as required
15	Open the gas isolator cock and start up the product.	X	
16	Carry out a test operation on the product and hot water generation.	X	
17	Check the product for gas, flue gas and hot water leaks, and repair if necessary.	X	
18	Measure the load.	X	
19	Check the flame. Ensure that the flames do not touch the heat exchanger shaft.	X	
20	Short-circuit the monitoring electrode with the burner by using the metal part on a screwdriver to create a connection between the electrode and the burner. The product must be shut down. Remove this connection again.	X	
21	Check that the flue gas sensor is working correctly by completely blocking the flue gas with flue gas fans.	X	
22	Carry out a visual check of all hoses and measuring nipples.	X	
23	Log the maintenance work carried out and the flue gas measured values.	X	
24	Install the product casing.	X	
25	Check the general condition of the product. Remove any general dirt from the product.	X	
26	Check the product to see if any flue gas is escaping at the atmospheric sensing device, with the doors and windows closed and the casing installed.	X	

C Detecting and rectifying faults

Problem	Cause	Remedy
The product does not work. The LED does not light up.	The battery is flat (XI only). Water pressure is too low (GX only).	Replace the battery (XI only). Ensure that the cold water stop valve is open. If required, clean the filter in the cold water inlet.
The LED flashes blue for up to ten minutes after water is drawn (XI only). Loud over-ignition (XI only)	The battery charge is low (XI only).	Replace the battery (XI only).
The product cannot be started up. The LED flashes red for up to ten minutes after water is drawn.	The gas supply is interrupted. There is air in the gas supply line. Water pressure is too low (GX only). Fault in the ignition device The servomotor is defective.	Secure the gas supply. In the case of liquid gas: Replace an empty gas cylinder with a full one. Ensure that the stop valve on the gas connection is open. Open and close the water tap several times in order to remove air from the gas supply. Check the cable connection for the plug contact. Replace the electrodes. Replace the servo valve.
The product switches off during operation, LED flashes red.	The gas supply is interrupted. There is air in the gas supply line. Water pressure is too low (GX only). The ionisation current is too low. The flame detector is defective. Incorrect installation of the flue gas guiding (flue pipe is too short). The flue gas guiding is restricted, which causes overheating (flue pipe is blocked). Cable break or short circuit in the cable on the safety cut-out or flue gas sensor. The safety cut-out or flue gas sensor is defective.	Ensure that the cold water stop valve is open. If required, clean the filter in the cold water inlet. Secure the gas supply. In the case of liquid gas: Replace an empty gas cylinder with a full one. Open and close the water tap several times in order to remove air from the gas supply. Check the ionisation current. Check the cable connection for the plug contact. If required, replace the monitoring electrode. Check that the flue gas guiding has been installed correctly and that there are no problems with the flue gas guiding.

D Type XI connection diagram

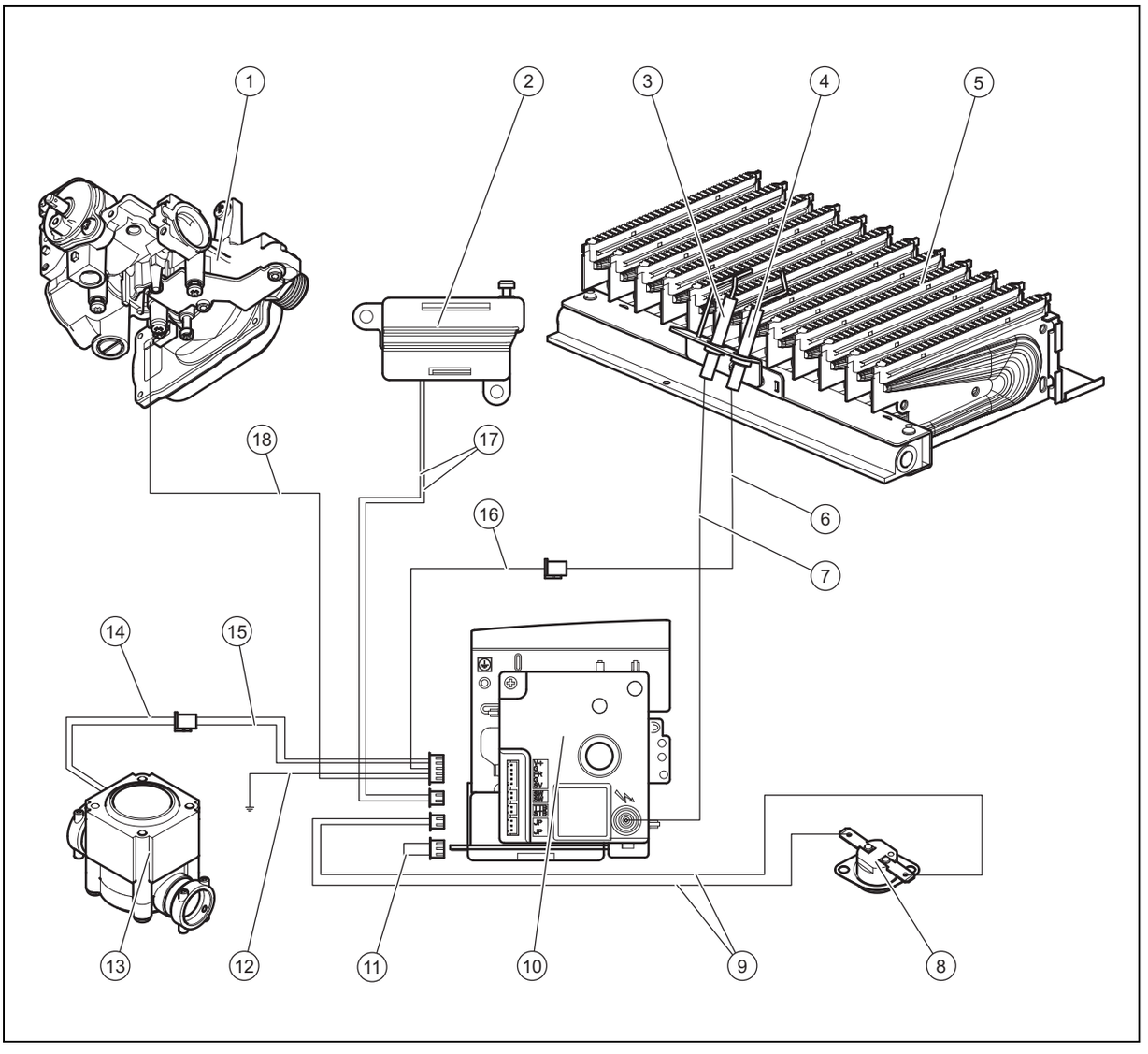
Applicability: MAG 11-0/1 XI
OR MAG 14-0/1 XI



1	Gas valve	11	Electronics box
2	Micro switch	12	Yellow connection cable
3	Ignition electrode	13	Black connection cable
4	Monitoring electrode	14	1 x 1.5 V
5	Burner	15	Red connection cable
6	Red connection cable	16	Black connection cable
7	Transparent connection cable	17	Blue connection cable
8	Safety overheat cut-off device	18	Orange connection cable
9	Flue gas sensor	19	Green connection cable
10	Red connection cable		

E Type GX connection diagram

Applicability: MAG 11-0/1 GX
OR MAG 14-0/1 GX



1	Gas valve	10	Electronics box
2	Micro switch	11	Yellow connection cable
3	Ignition electrode	12	Black connection cable
4	Monitoring electrode	13	Generator
5	Burner	14	Red connection cable
6	Red connection cable	15	Black connection cable
7	Transparent connection cable	16	Blue connection cable
8	Flue gas sensor	17	Orange connection cable
9	Red connection cable	18	Green connection cable

F Tables of gas settings

Applicability: Germany, Austria, Switzerland

Factory gas ratio setting

Unit type for	Natural gases				Liquid gases	
Label on the identification plate	DE: 2E AT, CH: 2H G20 – 2 kPa (20 mbar)		DE: 2LL G25 – 2 kPa (20 mbar)		DE, AT, CH: 3P G31 – 5 kPa (50 mbar)	
Factory setting	G20		G25		G31	
Burner jets label	**11-0/1**	**14-0/1**	**11-0/1**	**14-0/1**	**11-0/1**	**14-0/1**
	DE, CH: 118 AT: 110	130	135	150	072	DE, CH: 076

Gas flow

Gas family	Gas flow at nominal heat loading in l/min	
	11-0/1	**14-0/1**
Natural gas 2E/2H (G20)	DE: 38.3 AT, CH: 37.0	DE: 49.6 AT, CH: 46.0
Natural gas 2L (G25)	44,5	57,4
Liquid gas 3P (G31)	DE, CH: 14.8 AT: 14.3	DE, CH: 19.1

Burner pressure

Gas family	Burner pressure for nominal heat loading	
	11-0/1	**14-0/1**
Natural gas 2E/2H (G20)	DE, CH: 1.19 kPa (11.9 mbar) AT: 1.47 kPa (14.7 mbar)	DE, CH: 0.92 kPa (9.2 mbar) AT: 0.76 kPa (7.6 mbar)
Natural gas 2L (G25)	0.94 kPa (9.4 mbar)	0.76 kPa (7.6 mbar)
Liquid gas 3P (G31)	DE, CH: 3.34 kPa (33.4 mbar) AT: 3.16 kPa (31.6 mbar)	DE, CH: 2.70 kPa (27.0 mbar)

G Technical data

Technical data – General

Applicability: Germany, Austria, Switzerland

	MAG AT 11-0/1 GX H	MAG AT 14-0/1 GX H	MAG 11-0/1 GX	MAG 11-0/1 XI
Designated country (designation in accordance with ISO 3166)	AT	AT	DE, CH	DE, CH
Approved unit categories	II_{2H3P}	I_{2H}	$II_{2ELL\ 3P}$ (DE), II_{2H3P} (CH)	$II_{2ELL\ 3P}$ (DE), II_{2H3P} (CH)
Boiler dimension, height	680 mm	680 mm	680 mm	680 mm
Boiler dimension, width	350 mm	350 mm	350 mm	350 mm
Boiler dimension, depth (incl. rotary switch)	270 mm	270 mm	270 mm	270 mm
Flue pipe connection diameter	110 mm	130 mm	110 mm	110 mm
Gas connection diameter	1/2″ conical	1/2″ conical	1/2″ conical	1/2″ conical
Weight, approx.	10.5 kg	11.5 kg	10.5 kg	10.5 kg
Test symbol/registration no.	1008CP2793	1008CP2793	1008CP2793	1008CP2793

	MAG 14-0/1 GX	MAG 14-0/1 XI
Designated country (designation in accordance with ISO 3166)	DE, CH	DE, CH
Approved unit categories	$II_{2ELL\ 3P}$ (DE), II_{2H3P} (CH)	$II_{2ELL\ 3P}$ (DE), II_{2H3P} (CH)

	MAG 14-0/1 GX	MAG 14-0/1 XI
Boiler dimension, height	680 mm	680 mm
Boiler dimension, width	350 mm	350 mm
Boiler dimension, depth (incl. rotary switch)	270 mm	270 mm
Flue pipe connection diameter	130 mm	130 mm
Gas connection diameter	1/2″ conical	1/2″ conical
Weight, approx.	11.5 kg	11.5 kg
Test symbol/registration no.	1008CP2793	1008CP2793

Technical data – Power/load

Applicability: Germany, Austria, Switzerland

		MAG AT 11-0/1 GX H	MAG AT 14-0/1 GX H	MAG 11-0/1 GX	MAG 11-0/1 XI
Hot water volume at the "hot" temperature selection setting		2.8 … 5.5 l/min	3.7 … 7.0 l/min	2.8 … 5.5 l/min	2.6 … 5.5 l/min
Hot water volume at the "warm" temperature selection setting		5.7 … 11.0 l/min	7.5 … 14.0 l/min	5.7 … 11.0 l/min	5.5 … 11.0 l/min
Max. water outlet temperature at an inlet temperature of 10 °C		65 °C	65 °C	65 °C	65 °C
Max. heat input (in relation to the heating value H_i)	**Germany**	—	—	21.7 kW	21.7 kW
	Switzerland	—	—	21.7 kW	21.7 kW
	Austria	21.0 kW	26.1 kW	—	—
Min. heat input ($Q_{min.}$)		9.8 kW	12.2 kW	9.8 kW	9.8 kW
Max. heat output ($P_{max.}$)	**Germany**	—	—	19.2 kW	19.2 kW
	Switzerland	—	—	19.2 kW	19.2 kW
	Austria	18.2 kW	22.7 kW	—	—
Min. heat output ($P_{min.}$)		8.4 kW	10.4 kW	8.4 kW	8.4 kW
Control range	**Germany**	—	—	8.4 … 19.2 kW	8.4 … 19.2 kW
	Switzerland	—	—	8.4 … 19.2 kW	8.4 … 19.2 kW
	Austria	8.4 … 18.2 kW	10.4 … 22.7 kW	—	—
Max. permissible water pressure $P_{w\ max.}$		1.3 MPa (13.0 bar)	1.3 MPa (13.0 bar)	1.3 MPa (13.0 bar)	1.3 MPa (13.0 bar)
Min. permissible water pressure $P_{w\ min.}$		40 kPa (400 mbar)	45 kPa (450 mbar)	40 kPa (400 mbar)	15 kPa (150 mbar)
Flue gas temperature at max. heat output		160 °C	165 °C	160 °C	160 °C
Flue gas temperature at min. heat output		110 °C	110 °C	110 °C	110 °C
Max. flue gas mass rate	**Germany**	—	—	13.7 g/s	13.7 g/s
	Switzerland	—	—	13.7 g/s	13.7 g/s
	Austria	13.2 g/s	17.5 g/s	—	—
Min. flue gas mass rate		13.3 g/s	17.1 g/s	13.3 g/s	13.3 g/s
Min. chimney draught		1.5 Pa	1.5 Pa	1.5 Pa	1.5 Pa
Min. chimney draught when using a thermal flue non-return flap		10.0 Pa	10.0 Pa	10.0 Pa	10.0 Pa

	MAG 14-0/1 GX	MAG 14-0/1 XI
Hot water volume at the "hot" temperature selection setting	3.7 … 7.0 l/min	3.7 … 7.0 l/min
Hot water volume at the "warm" temperature selection setting	7.5 … 14.0 l/min	7.0 … 14.0 l/min
Max. water outlet temperature at an inlet temperature of 10 °C	65 °C	65 °C

		MAG 14-0/1 GX	MAG 14-0/1 XI
Max. heat input (in relation to the heating value H_i)	**Germany**	27.7 kW	27.7 kW
	Switzerland	27.7 kW	27.7 kW
	Austria	—	—
Min. heat input ($Q_{min.}$)		12.2 kW	12.2 kW
Max. heat output ($P_{max.}$)	**Germany**	24.4 kW	24.4 kW
	Switzerland	24.4 kW	24.4 kW
	Austria	—	—
Min. heat output ($P_{min.}$)		10.4 kW	10.4 kW
Control range	**Germany**	10.4 … 24.4 kW	10.4 … 24.4 kW
	Switzerland	10.4 … 24.4 kW	10.4 … 24.4 kW
	Austria	—	—
Max. permissible water pressure $P_{w\ max.}$		1.3 MPa (13.0 bar)	1.3 MPa (13.0 bar)
Min. permissible water pressure $P_{w\ min.}$		45 kPa (450 mbar)	22 kPa (220 mbar)
Flue gas temperature at max. heat output		165 °C	165 °C
Flue gas temperature at min. heat output		110 °C	110 °C
Max. flue gas mass rate	**Germany**	18.6 g/s	18.6 g/s
	Switzerland	18.6 g/s	18.6 g/s
	Austria	—	—
Min. flue gas mass rate		17.1 g/s	17.1 g/s
Min. chimney draught		1.5 Pa	1.5 Pa
Min. chimney draught when using a thermal flue non-return flap		10.0 Pa	10.0 Pa

Technical data – Natural gas G20

Applicability: Germany, Switzerland, Austria

	MAG AT 11-0/1 GX H	MAG AT 14-0/1 GX H	MAG 11-0/1 GX	MAG 11-0/1 XI
Gas connection value at max. heat output (DE)	—	—	2.3 m³/h	2.3 m³/h
Gas connection value at max. heat output (CH)	—	—	2.3 m³/h	2.3 m³/h
Gas connection value at max. heat output (AT)	2.2 m³/h	2.76 m³/h	—	—
Gas connection pressure	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)
Burner jet	1.18 mm	1.3 mm	1.18 mm	1.18 mm
Burner jet (AT)	1.10 mm	1.3 mm	—	—
Min. air requirement for combustion	23.3 m³/h	29.6 m³/h	23.3 m³/h	23.3 m³/h
Min. air requirement for combustion (AT)	22.3 m³/h	27.9 m³/h	22.3 m³/h	22.3 m³/h

	MAG 14-0/1 GX	MAG 14-0/1 XI
Gas connection value at max. heat output (DE)	2.93 m³/h	2.93 m³/h
Gas connection value at max. heat output (CH)	2.95 m³/h	2.95 m³/h
Gas connection value at max. heat output (AT)	—	—
Gas connection pressure	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)

	MAG 14-0/1 GX	MAG 14-0/1 XI
Burner jet	1.5 mm	1.3 mm
Burner jet (AT)	—	—
Min. air requirement for combustion	29.6 m³/h	29.6 m³/h
Min. air requirement for combustion (AT)	27.9 m³/h	27.9 m³/h

Technical data – Natural gas G25

Applicability: Germany

	MAG 11-0/1 GX	MAG 11-0/1 XI	MAG 14-0/1 GX	MAG 14-0/1 XI
Gas connection value at max. heat output	2.7 m³/h	2.7 m³/h	3.5 m³/h	3.5 m³/h
Gas connection pressure	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)	1.7 … 2.5 kPa (17.0 … 25.0 mbar)
Burner jet	1.35 mm	1.35 mm	1.5 mm	1.5 mm
Min. air requirement for combustion	23.2 m³/h	23.2 m³/h	30.0 m³/h	30.0 m³/h

Technical data – Liquid gas G31

Applicability: Germany, Austria, Switzerland

	MAG AT 11-0/1 GX H	MAG 11-0/1 GX	MAG 11-0/1 XI	MAG 14-0/1 GX
Gas connection value at max. heat output	—	1.7 kg/h	1.7 kg/h	2.18 kg/h
Gas connection value at max. heat output (AT)	1.65 kg/h	—	—	—
Gas connection pressure	4.25 … 5.75 kPa (42.50 … 57.50 mbar)	4.25 … 5.75 kPa (42.50 … 57.50 mbar)	4.25 … 5.75 kPa (42.50 … 57.50 mbar)	4.25 … 5.75 kPa (42.50 … 57.50 mbar)
Burner jet	0.72 mm	0.72 mm	0.72 mm	0.76 mm
Min. air requirement for combustion	—	20.6 m³/h	20.6 m³/h	26.5 m³/h
Min. air requirement for combustion (AT)	20.0 m³/h	—	—	—

	MAG 14-0/1 XI
Gas connection value at max. heat output	2.18 kg/h
Gas connection value at max. heat output (AT)	—
Gas connection pressure	4.25 … 5.75 kPa (42.50 … 57.50 mbar)
Burner jet	0.76 mm
Min. air requirement for combustion	26.5 m³/h
Min. air requirement for combustion (AT)	—

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