Installation and maintenance instructions

Nitron Condense

Nitron Condense 24 (H-TR)
Nitron Condense 28 (H-TR)

DemirDöküm
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TR

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 intended as a heat generator in closed central heating installations and for central hot water generation. When used in solar systems, the product is only suitable for hot water generation.

The product is mounted on a wall such that it is possible to route air supply pipes and flue gas pipes. Suitable installation locations include basements, storage rooms, multi-purpose rooms or living rooms. Fresh air must be supplied at a sufficient rate.

The products referred to in these instructions must only be installed and operated in conjunction with the flue pipe accessories listed in other applicable documents.

Exceptions: For C63 and B23P installation types, follow the specifications in these instructions.

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

Assembly and disassembly, installation, start-up, maintenance, repairs and decommissioning must only be carried out by a competent person who is sufficiently qualified to observe all of the instructions that come with the product, to proceed in accordance with the current state of the art, and to comply with all applicable directives, standards, laws and other regulations.

1.3.2 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.

1.3.3 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.

1.3.4 Risk of death from leaks if the product is installed below ground level!

Liquid gas is accumulating at floor level. If the product is installed below ground level, liquid gas may accumulate at floor level if there are any leaks. In this case, there is a risk of explosion.

- Make sure that liquid gas cannot escape from the product or the gas line under any circumstance.

1.3.5 Risk of death from escaping flue gas

If you operate the product with an empty condensate siphon, flue gas may escape into the room air.

- In order to operate the product, ensure that the condensate siphon is always full.

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 electric shock

There is a risk of death from electric shock if you touch live components.

Before commencing work on the product:

- Disconnect the product from the power supply by switching off all power supplies (electrical partition with a contact opening of at least 3 mm, e.g. fuse or line protection switch).
- Secure against being switched back on again.
- Wait for at least 3 minutes until the capacitors have discharged.
- Check that there is no voltage.

1.3.9 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.

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

- Only operate the product if the air/flue pipe 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.

1.3.11 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.

1.3.12 Risk of being burned or scalded by hot components

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

1.3.13 Risk of injury during transport due to a high product weight.

- Make sure that the product is transported by at least two people.

1.3.14 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 air/flue pipe.

- 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 a combustion air supply is ensured that is technically free of chemical substances.

1.3.15 Risk of material damage caused by frost

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

1.3.16 Risk of material damage caused by using an unsuitable tool

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

1.4 Safety information pertaining to the air/flue gas installation

1.4.1 Risk of death from escaping flue gas

- Ensure that all openings in the air/flue pipe that are within the building and can be opened are always closed for start-up and during operation.

Flue gas may escape from leaking pipes or damaged seals. Mineral-oil-based greases can damage the seals.

- When installing the flue gas installation, use only flue pipes of the same material.
- Do not install any damaged pipes.
- File off sharp burrs and chamfer the ends of the pipes before installing them, and dispose of the shavings.
- Never use mineral-oil-based grease for the installation.
- To facilitate the installation, use only water, standard commercial soft soap or, if required, the enclosed lubricant.

Mortar residues, shavings, etc., in the flue gas route may restrict the outward flow of the flue gas, meaning that flue gas can escape.

- After installation, remove all mortar residues, shavings, etc., from the air/flue pipe.

1.4.2 Risk of death from escaping flue gas due to negative pressure

For open-flued operation, the product must not be placed in an installation site from which the air is extracted using fans and in which negative pressure is generated (ventilation systems, extractor hoods, tumble dryer ventilation). This negative pressure can cause flue gas to be sucked into the installation site from the opening through the annular gap between the flue gas pipe and the shaft.

- If you are operating the product with an open flue, make sure that there are no other systems/units producing negative pressure in the installation site.

1.4.3 Risk of injury from ice formation

Where air/flue pipes penetrate the roof, the water vapour contained in flue gas may pre-

cipitate as ice on the roof or the roof structures.

- Ensure that this ice formation does not slide from the roof.

1.4.4 Risk of fire and damage to electronics caused by lightning

- If the building is equipped with a lightning protection system, incorporate the air/flue pipe into the lightning protection.
- If the flue gas pipe (parts of the air/flue pipe situated outside the building) contains metal materials, incorporate it into the potential equalisation system.

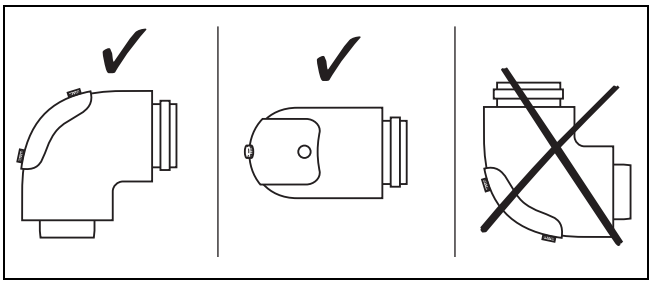
1.4.5 Risk of corrosion caused by sooted chimneys

Chimneys that previously discharged the flue gas from oil- or solid-fuel-fired heat generators are unsuitable for supplying combustion air. Chemical deposits in the chimney may pollute the combustion air and cause corrosion in the product.

- Ensure that the supply of combustion air is free from corrosive materials.

1.4.6 Moisture damage caused by incorrect installation location of the inspection elbow

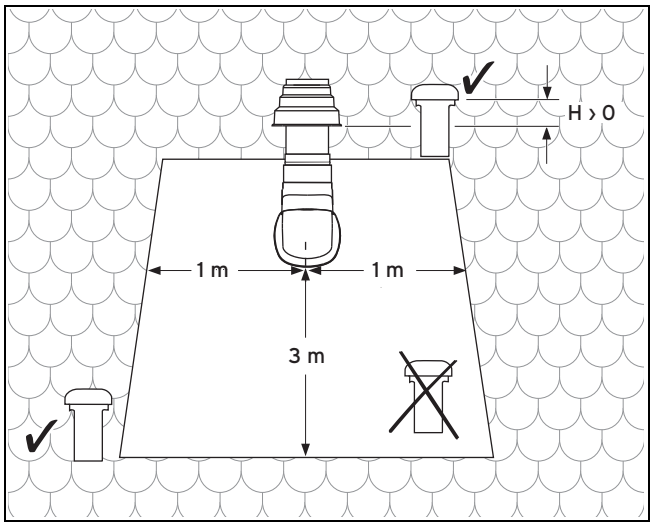
Conditions: Diameter: 60/100 mm; 80/80 mm; 80/125 mm



An incorrect installation location leads to condensate leaking from the cover of the inspection opening and may lead to corrosion damage.

- Install the inspection elbow in accordance with the illustration.

1.4.7 Risk of material damage caused by an adjacent channel vent



Extremely damp exhaust air escapes from the channel vents. This may condense in the air pipe and cause damage to the product.

- Observe the requirements for minimum clearances in accordance with the illustration.

1.4.8 Risk of material damage caused by flue gases or dirt particles that have been sucked in

If the opening on the air/flue gas installation is adjacent to a chimney, flue gases or dirt particles may then be sucked in. Sucked-in flue gases or dirt particles may damage the product.

If the adjacent chimney feeds flue gas with an extremely high temperature or soot starts to burn, the opening to the air/flue gas installation may be damaged by the heat effect.

- Take suitable measures to protect the air/flue gas installation by raising the chimney, for example.

1.5 Regulations (directives, laws, standards)

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

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 Applicability of the instructions

These instructions apply only to:

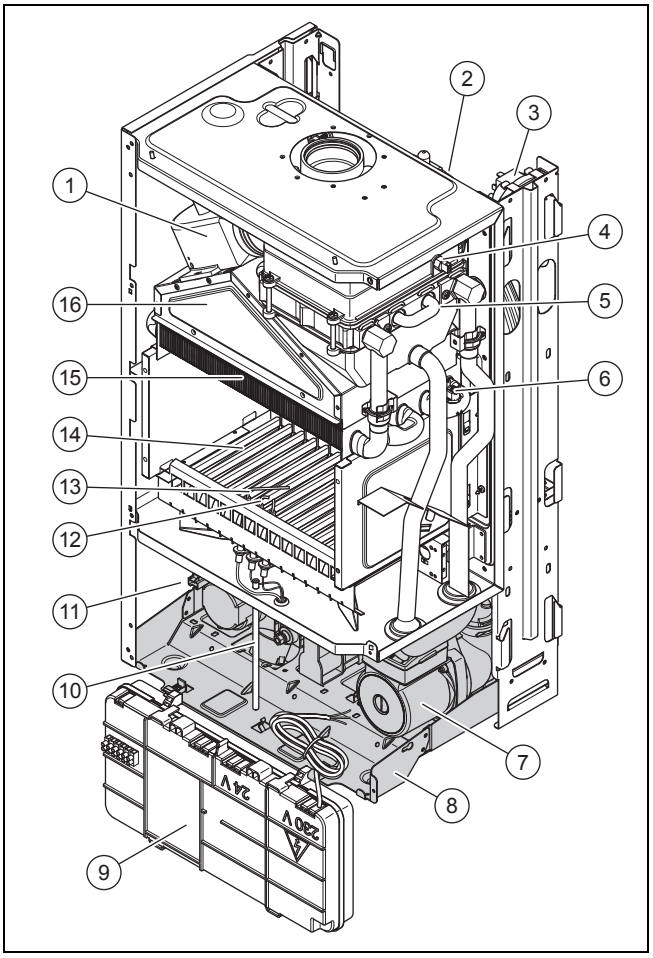
Product article number

	Turkey
Nitron Condense 24 (H-TR)	0010019369
Nitron Condense 28 (H-TR)	0010019370

3 Product description

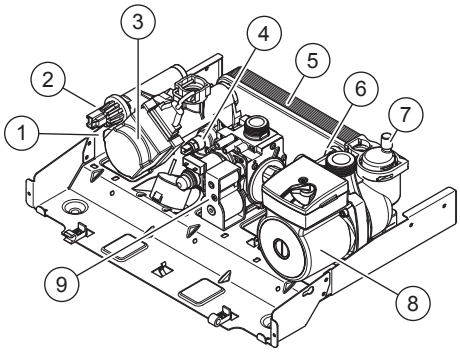
3.1 Design

3.1.1 Design of the product



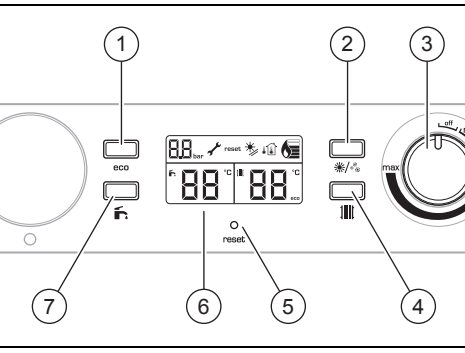
1	Fan	5	Recuperator
2	Expansion vessel	6	Overheating thermostat
3	Air pressure sensor	7	Heating pump
4	Flue gas temperature sensor	8	Hydraulic block
9	Electronics box	13	Monitoring electrode
10	Pressure compensation tube	14	Burner
11	Safety cut-out (SCO)	15	Primary heat exchanger
12	Ignition electrode	16	Hood

3.1.2 Design of the hydraulic block



1	Expansion relief valve	6	Flow rate sensor (DHW)
2	Pressure sensor	7	Automatic air vent
3	Diverter valve	8	Heating pump
4	Immersion sensor	9	Gas valve
5	Secondary heat exchanger		

3.2 Overview of the operator control elements



1	eco button	5	reset button
2	Heating mode button (On/Off)	6	Display (operating displays)
3	Rotary knob (ON/OFF)	7	Hot water handling mode button (set the temperature)
4	Heating mode button (set the temperature)		

3.3 Information on the identification plate

The identification plate is attached to the product at the factory.

Information on the identification plate	Meaning
CE	→ "CE label" section

Information on the identification plate	Meaning
	→ "TSE symbols" section
	Read the instructions.
	→ "Recycling and disposal" section
H-TR	Type designation
24, 28	Output
H	Type of gas (e.g. natural gas)
TR	Designated country (target market)
V	Mains voltage
W	Power consumption
Hz	Power frequency
MPa (bar)	Max. line pressure
IP	Level of protection/protection class
Cat. (e.g. II $_{2H3+}$)	Approved gas category
Type (e.g. C_{12})	Approved flue gas connections
G20 – 20 mbar (2 kPa)	Gas group and gas connection pressure as set at the factory
ww/jjjj (e.g. 09/2015)	Date of manufacture: Week/year
PMW (e.g. 8 bar (0.8 MPa))	Permissible total overpressure during hot water generation
PMS (e.g. 3 bar (0.3 MPa))	Permissible total overpressure in heating mode
ED 92/42	Current efficiency directive fulfilled with 4* rating
P	Nominal heat output range
$T_{max.}$	Max. flow temperature
Q	Heat input range
D	Nominal hot water draw-off rate
	Heating mode
	Hot water generation
	Bar code with serial number, The 7th to 16th digits of the serial number form the article number

3.4 Symbols on the product

Symbol	Meaning
	Access to the potentiometers
	The product is connected to 230 V mains voltage
	Connecting to the room thermostat

3.5 CE label

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.

3.6 TSE symbols

The TSE symbols document that the product has been checked by TSE and approved for sale in Turkey.

4 Installation

4.1 Unpacking the product

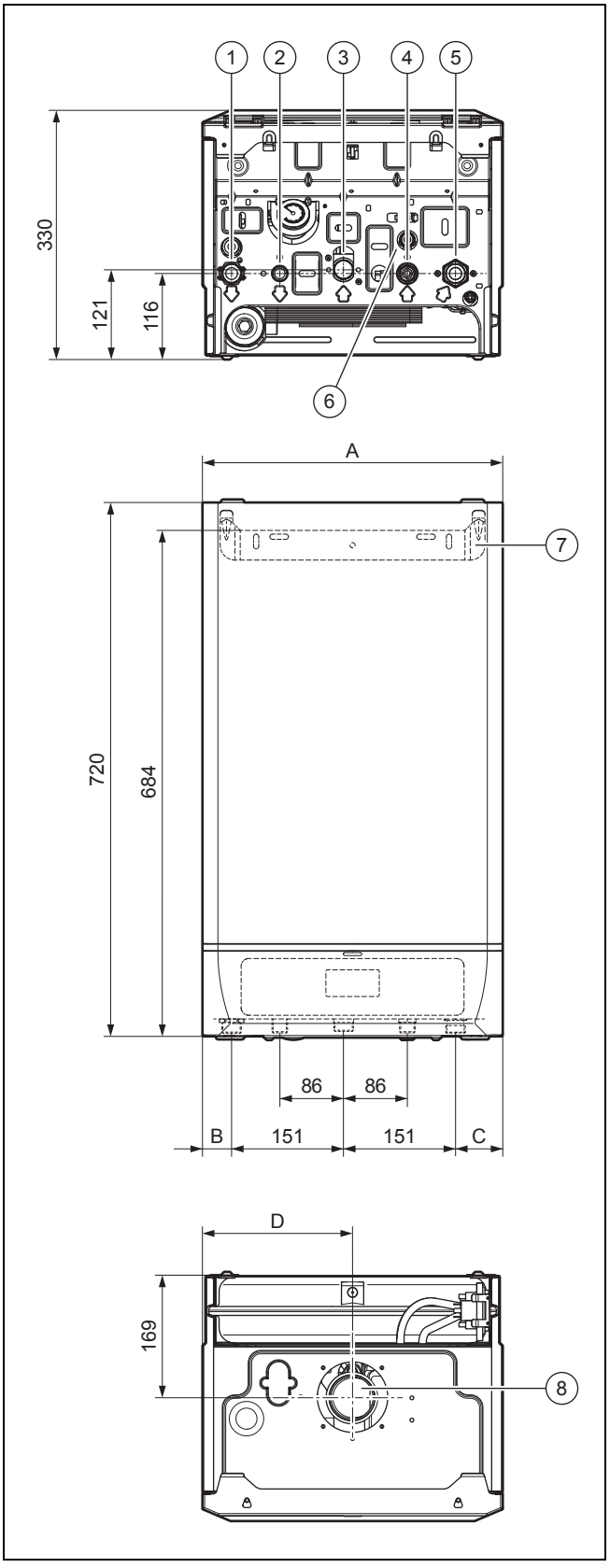
1. Remove the product from its box.
2. Remove the protective film from all parts of the product.

4.2 Checking the scope of delivery

► Check that the scope of delivery is complete.

Quantity	Description
1	Heat generator
1	Hanging bracket
1	Air vent
1	Installation template
1	Bag with small parts: – 2 bolts – 2 rawl plugs – 6 seals
1	Guarantee card
1	Service list
1	Enclosed documentation

4.3 Dimensions

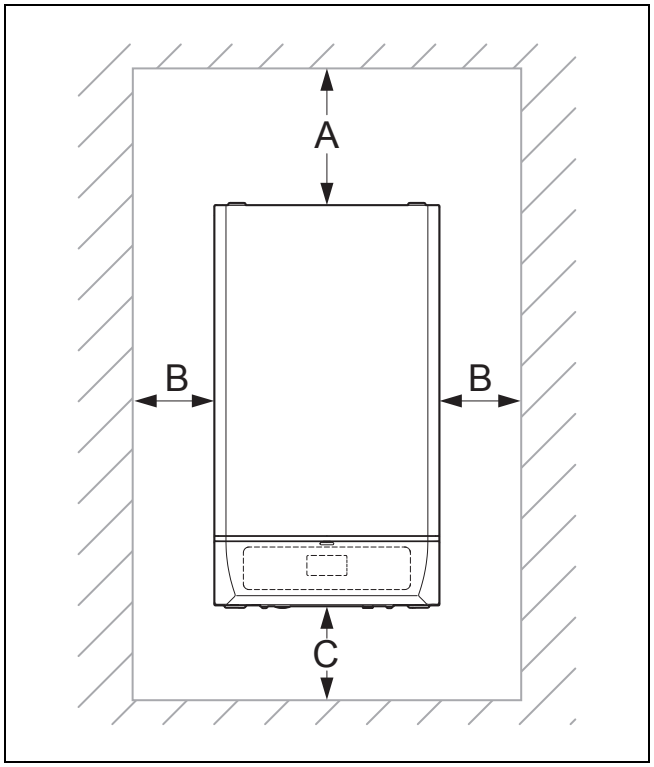


1 Heating flow (22 mm diameter)
2 Hot water connection (dia. 15 mm)
3 Gas connection (22 mm diameter)
4 Cold water connection (dia. 15 mm)
5 Heating return (22 diameter)
6 Filling device
7 Hanging bracket
8 Connection for flue gas guiding

Dimensions

	Nitron Condense 24 (H-TR)	Nitron Condense 28 (H-TR)
A	405 mm	430 mm
B	39 mm	41.5 mm
C	64 mm	76.5 mm
D	202.5 mm	215 mm

4.4 Minimum clearances



	Minimum clearance
A	200 mm
B	200 mm
C	300 mm

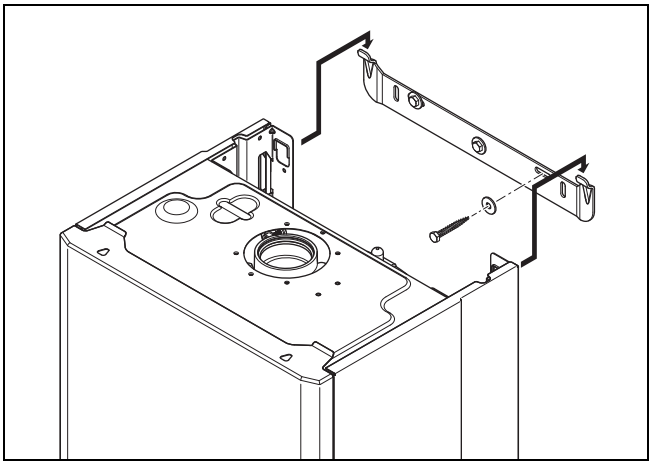
4.5 Clearance from combustible components

The clearance from the product, the flue pipe and the flue gas guiding to components made of combustible materials must be insulated using fireproof material.

4.6 Using the installation template

► Use the installation template to ascertain the locations at which you need to drill holes and make perforations.

4.7 Wall-mounting the product



1. Check whether the wall has sufficient load-bearing capacity to bear the operational weight of the product.
2. Check if the supplied fixing material may be used for the wall.

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.

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

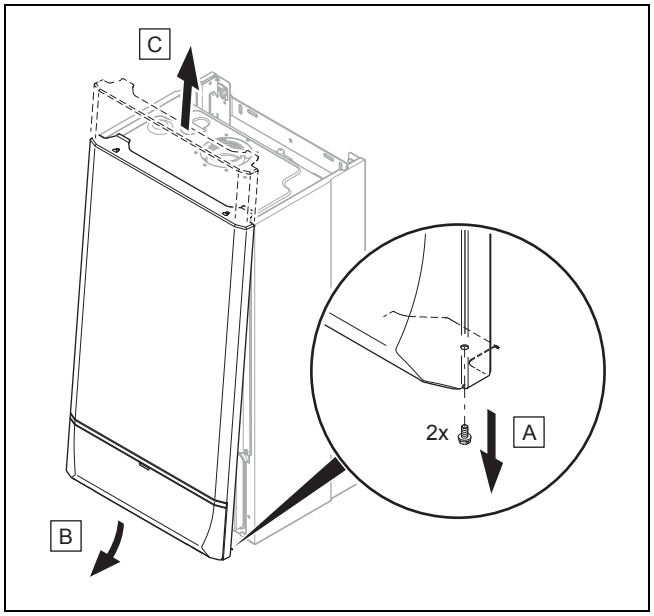
► Ensure that wall-mounting apparatus on-site has a sufficient load-bearing capacity. Use individual stands or primary walling, for example.
► Do not wall-mount the product if you cannot provide wall-mounting apparatus with a sufficient load-bearing capacity.

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

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

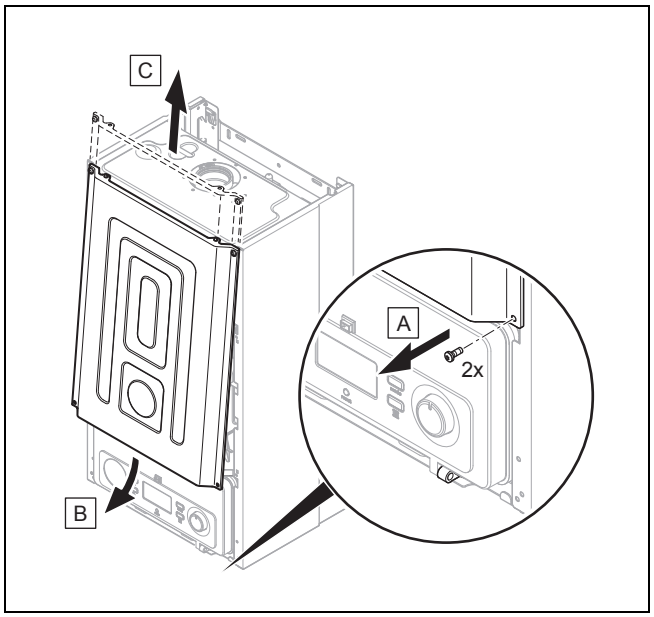
4.8 Installing/removing the front casing and the chamber cover

4.8.1 Removing the front casing



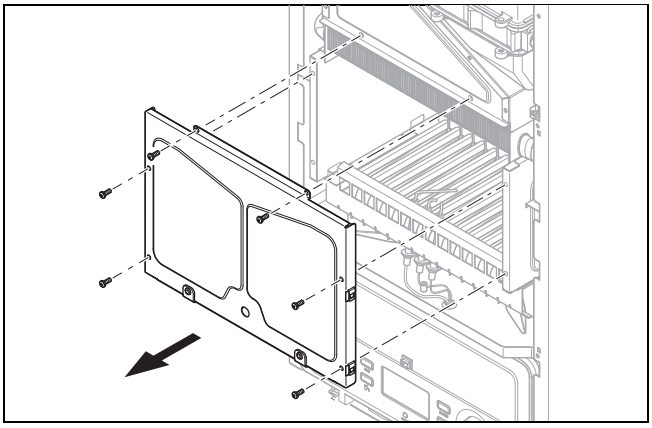
► Remove the front casing as shown in the illustration.

4.8.1.1 Removing the chamber cover



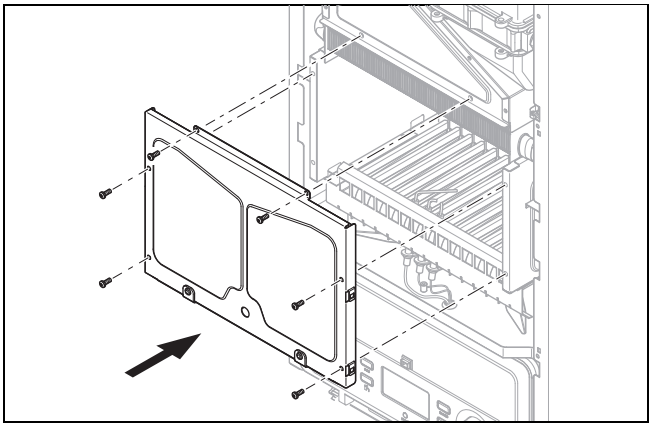
► Remove the front chamber cover, as shown in the illustration.

4.8.1.2 Removing the combustion chamber cover



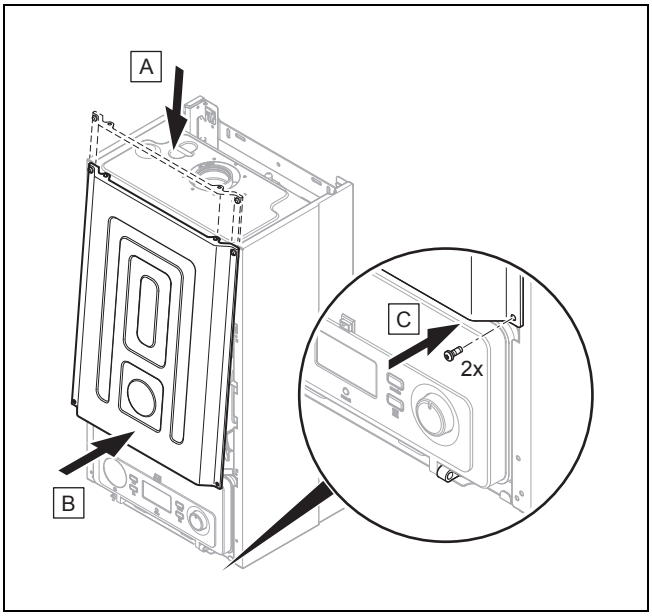
► Remove the combustion chamber cover, as shown in the illustration.

4.8.1.3 Installing the combustion chamber cover



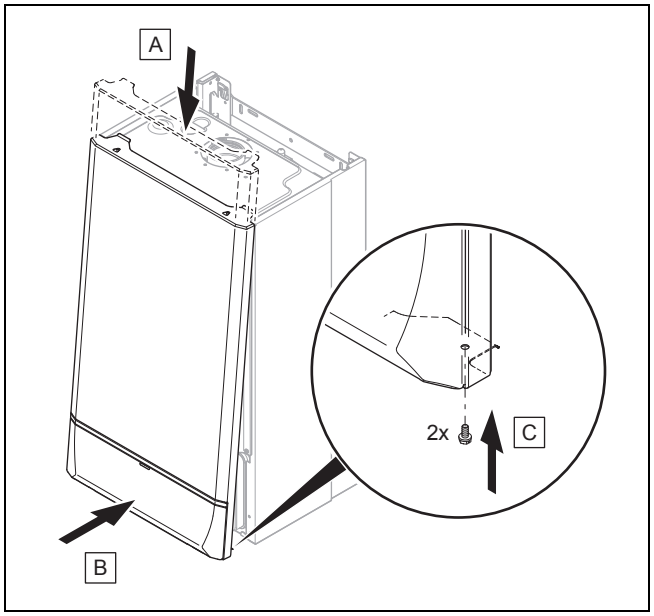
► Install the combustion chamber cover, as shown in the illustration.

4.8.1.4 Installing the chamber cover



► Install the front chamber cover, as shown in the illustration.

4.8.2 Installing the front casing

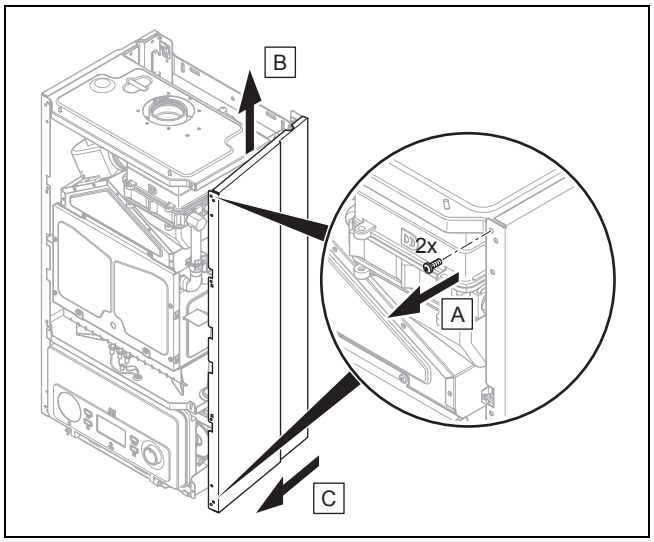


► Install the front casing as shown in the illustration.

4.9 Removing/installing the side section

4.9.1 Removing the side section

1. Remove the front casing. (→ Page 10)
2. Remove the front chamber cover. (→ Page 10)



Caution.

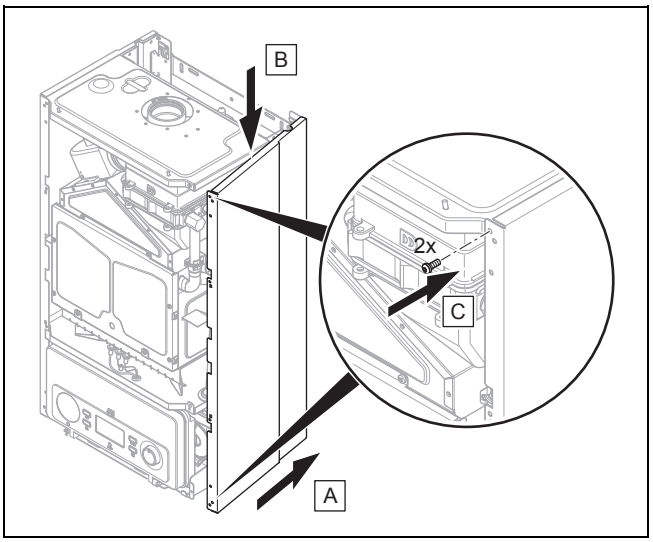
Risk of material damage caused by mechanical deformation.

Removing both side sections may cause mechanical distortion in the product, which may cause damage to the piping, for example, and potentially result in leaks.

► Always only remove one side section – never both side sections at the same time.

3. Remove the side section as shown in the illustration.

4.9.2 Installing the side section



1. Install the side section as shown in the illustration.
2. Install the front chamber cover. (→ Page 11)
3. Install the front casing. (→ Page 11)

5 Installation

Danger!

Risk of explosion or scalding caused by incorrect installation.

Stresses in the supply line can cause leaks.

► Make sure there is no voltage in the supply lines when they are installed.

Caution.

Risk of material damage due to contaminated lines.

Foreign bodies, such as welding remnants, sealing residues or dirt in the water pipes, may cause damage to the product.

► Flush the heating installation thoroughly prior to installation.

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.

Caution.

Risk of damage caused by corrosion.

If non-diffusion-tight plastic pipes are used in the heating installation, this may cause air to enter the heating water and corrosion of the heat generation circuit and the boiler.

► If using non-diffusion-tight plastic pipes in the heating installation, separate the system by installing an external heat exchanger between the boiler and the heating installation.

Caution.

Risk of material damage due to heat transfer during soldering.

► Do not solder the connection pieces if the connection pieces are screwed to the service valves.

5.1 Installation requirements

5.1.1 Information on liquid gas operation

In the as-delivered condition, the product is preset for operation with the gas group indicated on the identification plate.

If you have a product that has been preset for operation with natural gas, you must convert it to run on liquid gas. You will need a conversion kit for this. The conversion procedure is described in the manual supplied with the conversion kit.

5.1.2 Purging the liquid gas tank

If the liquid gas tank is not purged properly, this may result in ignition problems.

► Ensure that the liquid gas tank has been purged properly before installing the product.

► If required, contact the filler or the liquid gas supplier.

5.1.3 Using the correct type of liquid gas

Using the incorrect type of liquid gas may cause fault shutdowns in the product. Ignition and combustion noise may occur in the product.

► Only use the gases listed on the identification plate.

5.1.4 Basic preparation for the installation

► Install a stop cock on the gas line.

► Make sure that the existing gas meter is capable of passing the rate of gas supply required.

► Flush out the supply lines thoroughly prior to installation.

► Install a hot water safety group and a stop cock on the cold water pipe.

► Install a filling device between the cold water pipe and the heating flow.

► Check whether the volume of the installed expansion vessel is sufficient for the heating system.

Conditions: The volume of the installed expansion vessel is insufficient

► Install an additional expansion vessel, connected as close to the product as possible, in the heating return.

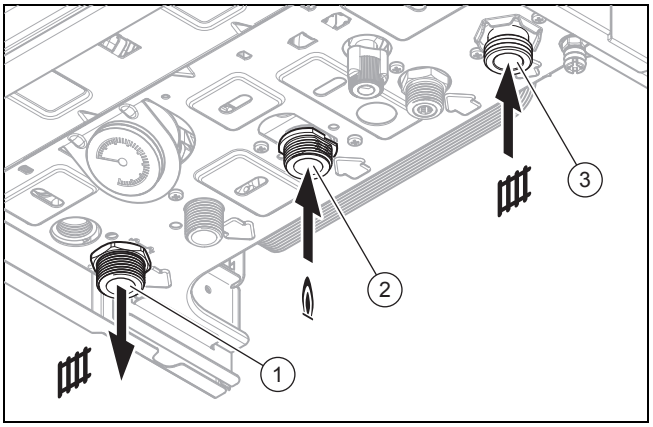
Conditions: External expansion vessel installed

► Install a non-return valve in the product outlet (heating flow) or decommission the internal expansion vessel in order to prevent the warm start function from being increasingly activated due to backflow.

► Install a tundish with siphon for the condensate discharge and the exhaust pipe on the expansion relief valve. Lay as short a drain line as possible, at a downward gradient away from the tundish.

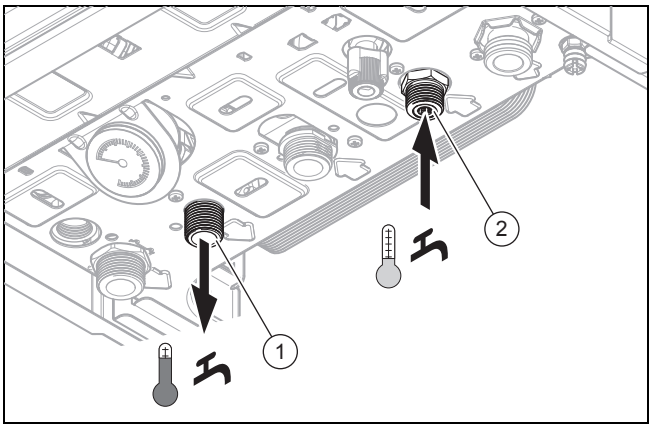
► Insulate bare pipes exposed to environmental influences to protect them from frost using suitable insulating material.

5.2 Installing the gas connection and heating flow/return



1. Install the gas line on the gas connection **(2)** without tension.
2. Purge the gas line before start-up.
3. Install the heating flow **(3)** and the heating return **(1)** in accordance with the relevant standards.
4. Check all connections for leaks.

5.3 Installing the hot and cold water connection



► Install the cold water connection **(2)** and hot water connection **(1)** in accordance with the relevant standards.

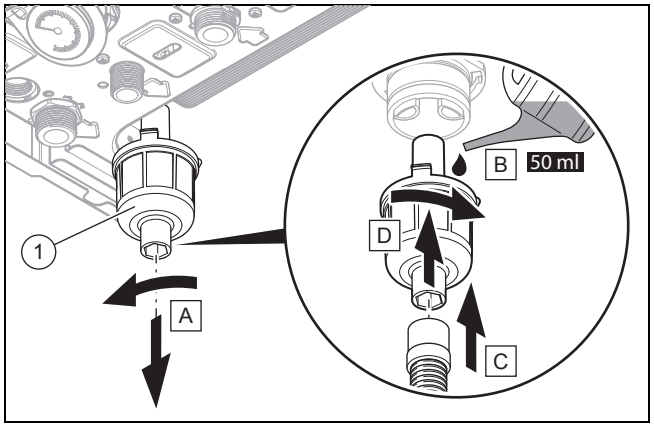
5.4 Filling the siphon and connecting the condensate discharge pipe

Danger!

Risk of death from escaping flue gases!

The siphon's condensate drain pipework must not be connected to waste-water piping because, otherwise, the internal condensate siphon may be drained fully and flue gas may escape.

► Do not connect the condensate drain pipework tightly to the waste-water piping.



► Only use pipes which have been manufactured from acid-resistant material (e.g. plastic) for the condensate drain pipework.

► Leave an installation space of at least 240 mm beneath the condensate siphon.

► Loosen the lower section of the siphon **(1)** from the condensate siphon.

► Fill the lower section of the siphon with 50 ml water.

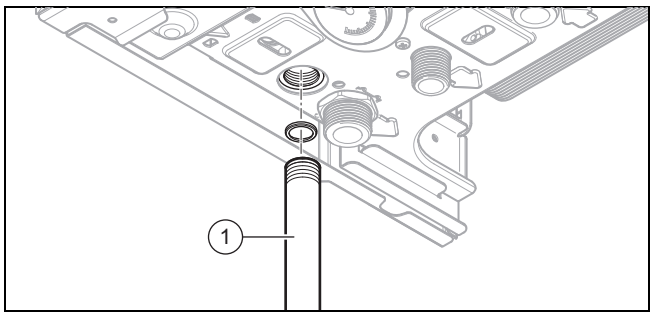
► Secure the condensate discharge pipe to the lower section of the siphon.

► Re-fit the lower section of the siphon onto the condensate siphon.

► Suspend the condensate discharge pipe above the preinstalled tundish.

5.5 Connecting the discharge pipe to the expansion relief valve on the product

1. Install the supplied discharge pipe for the expansion relief valve so that it does not interfere with the removal and fitting of the siphon trap.



2. Install the discharge pipe **(1)** as shown.

3. Terminate the line in such a way that escaping water or steam cannot cause injury to persons or damage to electronic components.
4. Make sure that the line end is visible.

5.6 Flue gas installation

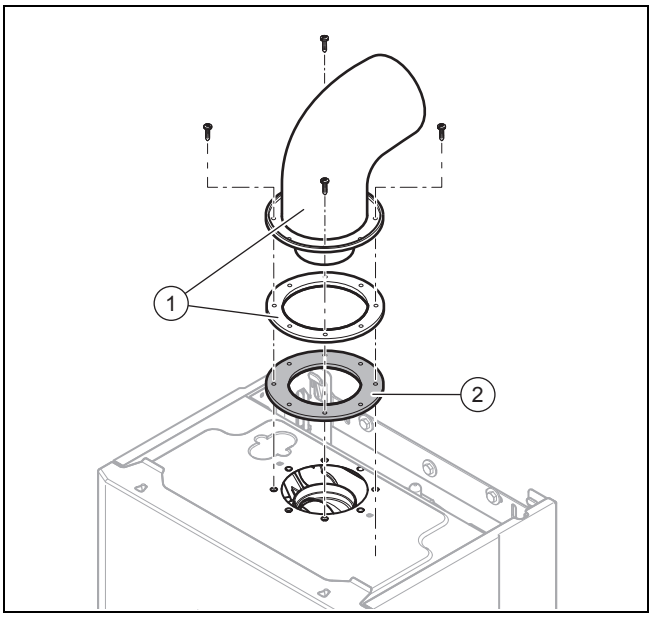
Danger!

Risk of poisoning due to escaping flue gas.

Mineral-oil-based greases can damage the seals.

► Instead of grease, use only water or commercially available soft soap to aid installation.

5.6.1 Installing the connection piece for the flue pipe

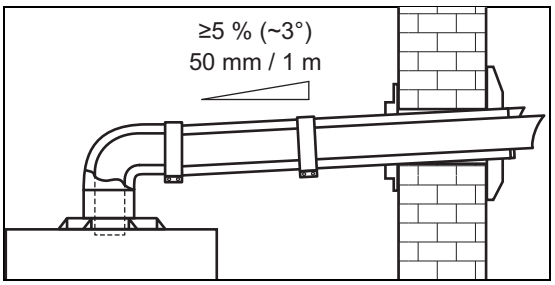


1. Position the connection piece **(1)** on the product.

Conditions: Total length of the connection piece and air/flue pipe ≤ 1 metre

► Also install the air throttle **(2)**.
► Screw the connection piece in tightly.

5.6.2 Installing the air/flue pipe



1. Ensure that there is a minimum downward gradient of 5% between the elbow and the terminal of the air/flue pipe so that condensate can flow back to the unit.
   – Downward gradient to the inside: ≥ 5 %
2. Install the air/flue pipe as described in the separate installation instructions for the air/flue pipe.

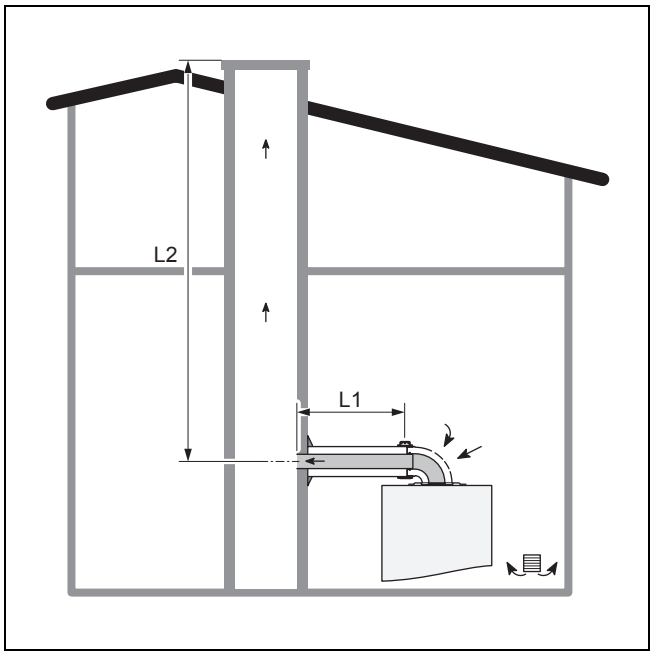
5.6.3 Air/flue gas installation

5.6.3.1 Complying with the minimum clearances for the air/flue gas installation

► Comply with the minimum clearances for the air/flue gas installation. (→ Page 35)

5.6.3.2 Horizontal/vertical air/flue gas installation

Applicability: B22 type flue pipe



In this configuration, an old flue gas duct can be used to create an outlet for an open-flued boiler/combination unit.

In this configuration, the statutory regulations on air supply must be satisfied.

The supply air is extracted from the room in which the unit is installed via the elbow of the horizontal flue pipe attachment.

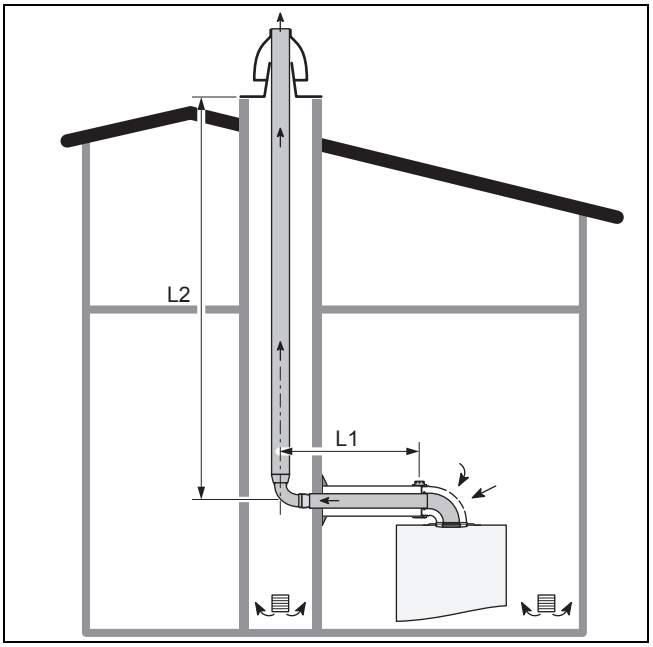
The horizontal length **(L1)** is a simple pipe (dia. 80/80 mm). This length takes into account the loss of pressure through the elbow. For each additional 90° elbow (or two 45° elbows) that is required, the length **(L1)** must be reduced by 1 m (for 80/80 mm diameter).

The length of the hearth **(L2)** must be taken into consideration and it must be proven that it works correctly.

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

5.6.3.3 Horizontal/vertical air/flue gas installation

Applicability: B22P air/flue pipe



In this configuration, a flue-gas or ventilation duct can be used to create an outlet for an open-flued boiler/combination unit.

In this configuration, the statutory regulations on air supply must be satisfied.

The supply air is extracted from the room in which the unit is installed via the elbow of the horizontal flue pipe attachment.

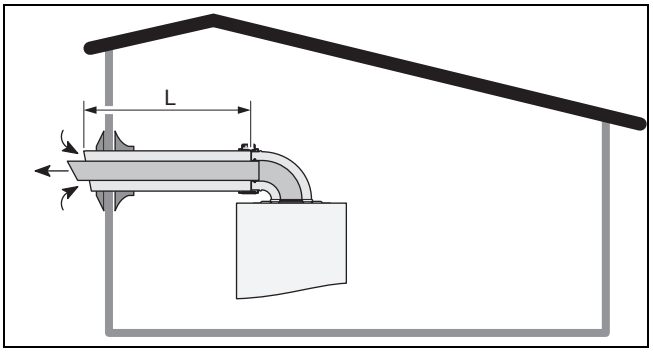
The horizontal length **(L1)** is a simple pipe (dia. 80/80 mm). This length takes into account the loss of pressure through the elbow. For each additional 90° elbow (or two 45° elbows) that is required, the length **(L1)** must be reduced by 1 m (for 80/80 mm diameter).

The vertical length **(L2)** is a rigid flue gas pipe measuring 80 mm in diameter.

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

5.6.3.4 Horizontal air/flue gas system

Applicability: C12 type flue pipe



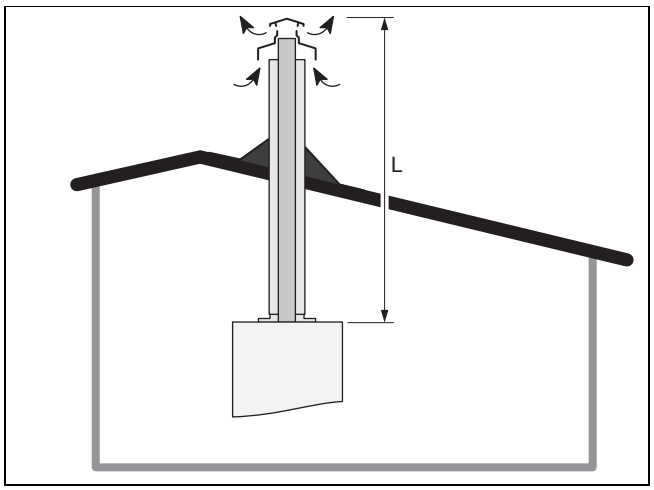
For each additional 90° elbow (or two 45° elbows) that is required, the length **(L)** must be reduced by 1 m (for 60/100 mm diameter or for 80/125 mm diameter).

Length of the air/flue gas installation, dia. 60/100 mm (→ Page 36)

Length of the air/flue gas installation, dia. 80/125 mm (→ Page 36)

5.6.3.5 Vertical air/flue gas system

Applicability: C32 type flue pipe



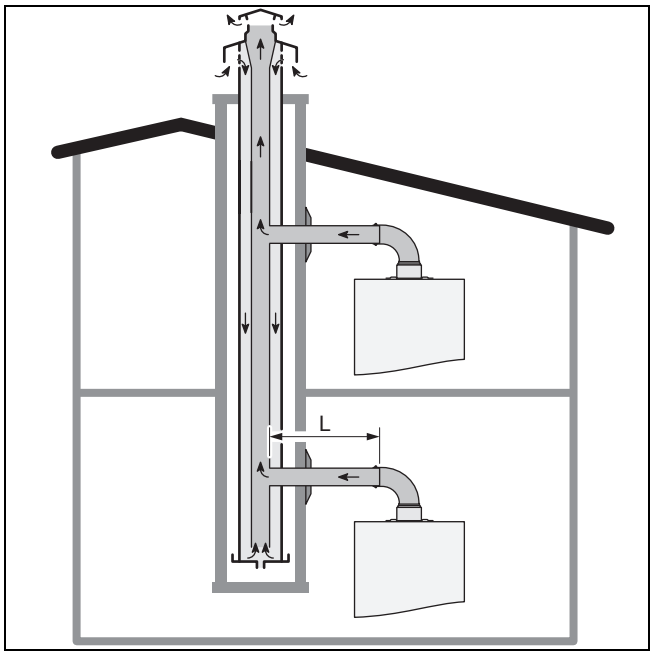
For each additional 90° elbow (or two 45° elbows) that is required, the length **(L)** must be reduced by 1 m (for 60/100 mm diameter or for 80/125 mm diameter).

Length of the air/flue gas installation, dia. 60/100 mm (→ Page 36)

Length of the air/flue gas installation, dia. 80/125 mm (→ Page 36)

5.6.3.6 Air/flue gas installation for header lines

Applicability: C42 type flue pipe



The connection from the product to the line in the chimney is established using the accessory that was specially developed by the product manufacturer.

A boiler/combination unit that is connected to a type C42 system must only be connected to natural draught chimneys.

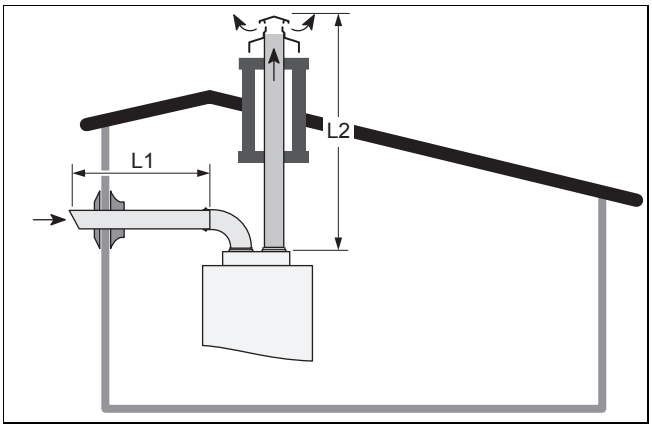
The condensate from header line systems must not drain into the boiler/combination unit.

For each additional 90° elbow (or two 45° elbows) that is required, the length **(L)** must be reduced by 1 m (for 80/80 mm diameter).

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

5.6.3.7 Air/flue gas system via separate pipes

Applicability: C52 type flue pipe



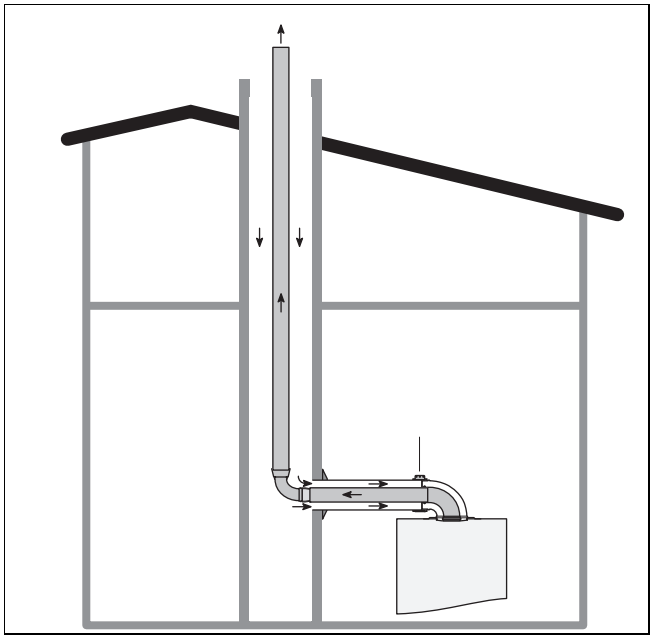
Each line that runs through a wall and whose temperature exceeds the room temperature by 60 °C must be equipped with thermal insulation where it passes through the wall. This may be carried out using suitable insulating material with a strength of ≥ 10 mm and thermal conductivity of λ ≤ 0.04 W/mK (e.g. glass wool). The attachments for the fresh air supply and flue gas extraction must not be installed on opposite walls of the building.

For each additional 90° elbow (or two 45° elbows) that is required, the length **(L1+L2)** must be reduced by 2 m (for 80/80 mm diameter).

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

5.6.3.8 Horizontal or vertical air/flue gas system with natural draught

Applicability: C62 type flue pipe



The entire accessory that is used must at least correspond to a T temperature class of 200 °C and comply with the requirements of standard EN 1443.

The maximum pressure loss in the lines must not be above 100 Pa.

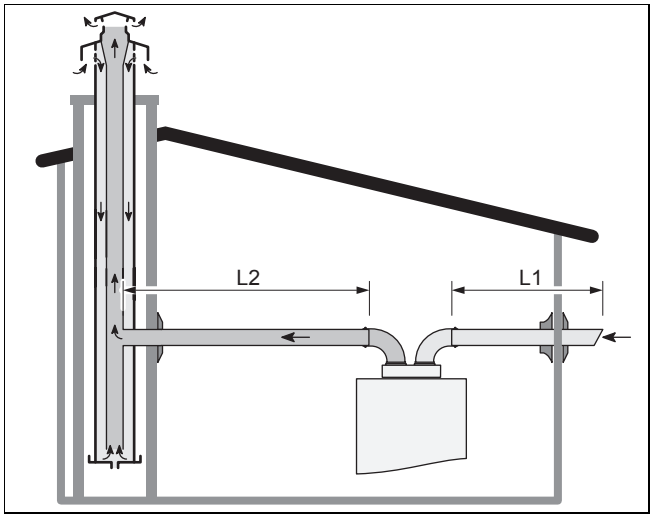
Length of the air/flue gas installation, dia. 60/100 mm (→ Page 36)

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

Length of the air/flue gas installation, dia. 80/125 mm (→ Page 36)

5.6.3.9 Air/flue gas system via separate pipes for single or header line

Applicability: C82 type flue pipe



The condensate from header line systems must not drain into the boiler/combination unit.

The flue gas connection is implemented via a branch connection on the single or header line in natural draught operation. The diameter of the line is to be determined depending on the total output of the connected units.

For each additional 90° elbow (or two 45° elbows) that is required, the length **(L1+L2)** must be reduced by 2 m (for 80/80 mm diameter).

Length of the air/flue gas installation, dia. 80/80 mm (→ Page 36)

5.7 Electrical installation

In Turkey, the electrical installation must only be carried out by authorised and qualified electricians.

Danger!

Risk of death from electric shock!

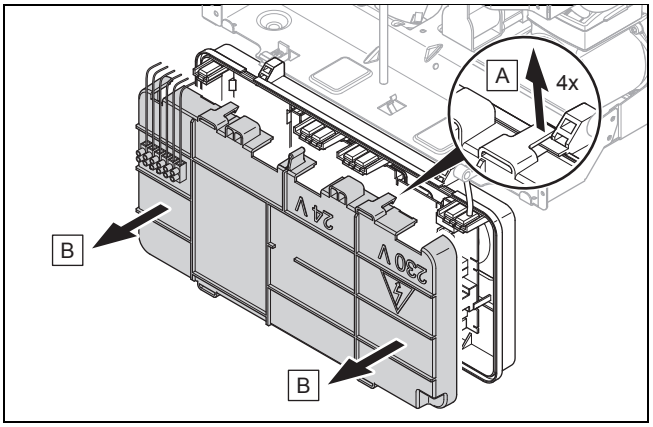
The mains connection terminals L and N remain live even if the product is switched off.

- ► Switch off the power supply.
- ► Secure the power supply against being switched on again.

5.7.1 Opening/closing the electronics box

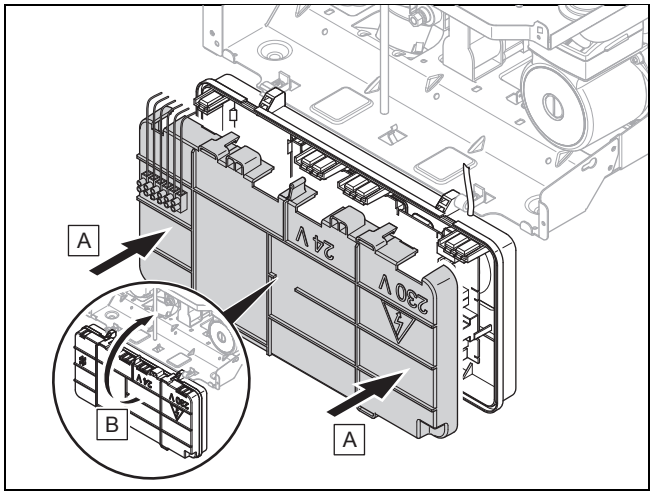
5.7.1.1 Opening the electronics box

1. Remove the front casing. (→ Page 10)



2. Open the electronics box as shown in the illustration.

5.7.1.2 Closing the electronics box



1. Close the electronics box as shown in the illustration.
2. Install the front casing. (→ Page 11)

5.7.2 Carrying out the wiring

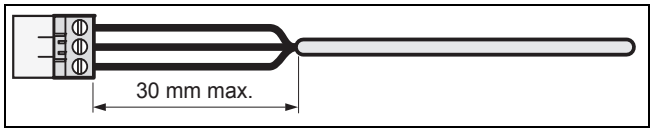
Caution.

Risk of material damage caused by incorrect installation.

Mains voltage at the incorrect plug terminals on the product may destroy the electronics.

- ► Only connect the mains connection line to the terminals marked for the purpose.

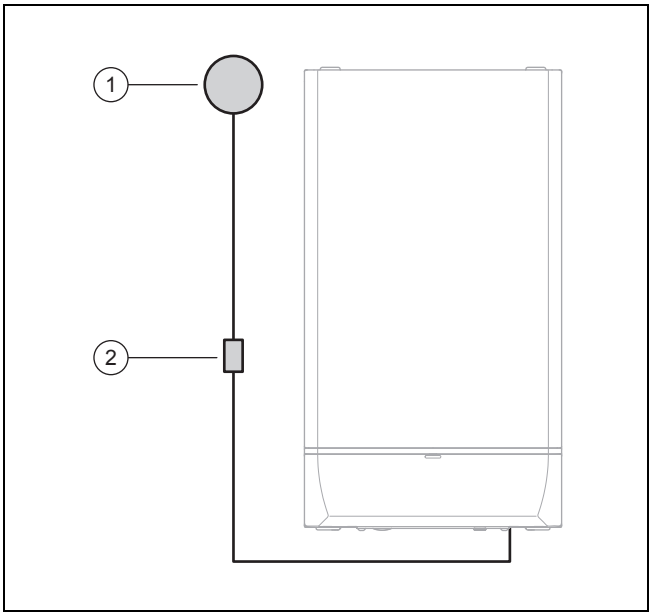
1. Shorten the supply lines to the appropriate length.



2. Ensure that the outer sheathing on the flexible lines is correctly stripped in order to prevent short circuits if a strand becomes loose.
   – Stripping: ≤ 30 mm
3. Ensure inner conductor insulation is not damaged when stripping the outer sheathing.
4. Only strip inner conductors just enough to establish stable connections.
5. To avoid short circuits resulting from loose individual wires, fit conductor end sleeves on the stripped ends of the conductors.
6. Screw the respective plug to the supply line.
7. Check whether all conductors are sitting mechanically securely in the terminals of the plug.
8. Plug the plug into the associated PCB slot.
9. Secure the cables in the electronics box using the strain reliefs.

5.7.3 Establishing the power supply

1. Ensure that the rated mains voltage is correct.
   – Rated mains voltage: 230 V
2. Make sure that the product is earthed.



3. Connect the product using a fixed connection **(1)** and an electrical partition with a contact opening **(2)** (e.g. fuses or line protection switches).
   – Contact opening on the partition: ≥ 3 mm
   – Mains connection line: Flexible line
4. Carry out the wiring. (→ Page 17)
5. Make sure that access to the mains connection is always available and is not covered or blocked.

5.8 Connecting additional components

Danger!

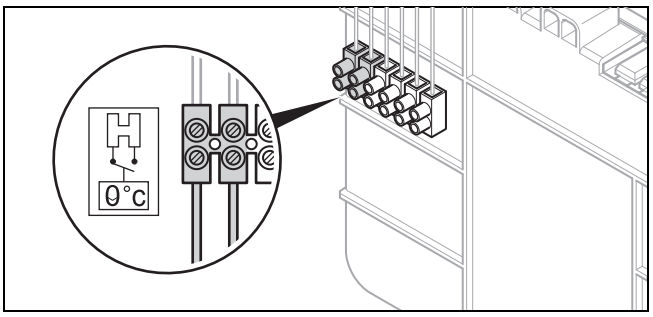
Risk of death from electric shock!

The mains connection terminals L and N remain live even if the product is switched off.

► Switch off the power supply.
► Secure the power supply against being switched on again.

5.8.1 Connecting the room thermostat

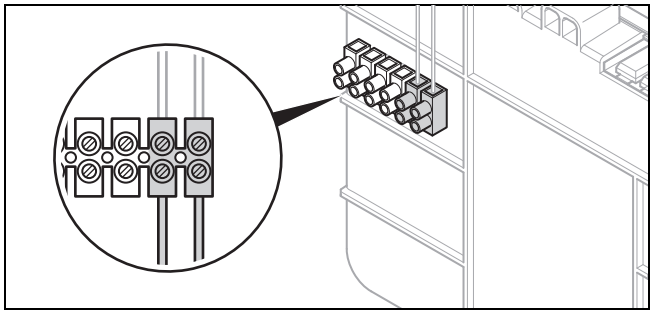
1. Remove the front casing. (→ Page 10)
2. Tilt the electronics box downwards.



3. Connect the room thermostat cable to the corresponding terminal.
4. Tilt the electronics box upwards.
5. Install the front casing. (→ Page 11)
6. After start-up, check whether the parameter **PP06** is set correctly in the parameter menu. (→ Page 22)
   Installer level – Overview (→ Page 27)

5.8.2 Connecting the outside temperature sensor

1. Remove the front casing. (→ Page 10)
2. Tilt the electronics box downwards.



3. Connect the cable for the outside temperature sensor to the corresponding terminal.
4. Tilt the electronics box upwards.
5. Install the front casing. (→ Page 11)
6. After start-up, set the heating curve. (→ Page 23)

6 Operation

6.1 Operating concept

The operating concept, the operation of the product and the read-off and setting options in the operator level are described in the operating instructions.

An overview of the read-off and setting options of the installer level can be found in the "Installer level – Overview" table in the appendix.

Installer level – Overview (→ Page 27)

6.2 Calling up the installer level

1. Turn the rotary knob as far as it will go in an anticlockwise direction.
2. Press ☀/❄.
   – Button push: 5 s
   ◁ The installer level is called up.
3. Use the rotary knob to enter the code for the installer level.
   – Code: 96
4. Confirm by pressing ☀/❄.

7 Start-up

7.1 Initial start-up

In Turkey, the initial start-up must only be carried out by an authorised person.

7.2 Switching on the product

► Turn the rotary knob to the right.

◁ The basic display appears on the display.

7.3 Checking and treating the heating water/filling and supplementary water

Caution.

Risk of material damage due to poor-quality heating water

► Ensure that the heating water is of sufficient quality.

► Before filling or topping up the system, check the quality of the heating water.

Checking the quality of the heating water

► Remove a little water from the heating circuit.
► Check the appearance of the heating water.
► If you ascertain that it contains sedimentary materials, you must desludge the system.
► Use a magnetic rod to check whether it contains magnetite (iron oxide).
► If you ascertain that it contains magnetite, clean the system and apply suitable corrosion-protection measures, or fit a magnet filter.
► Check the pH value of the removed water at 25 °C.
► If the value is below 8.2 or above 10.0, clean the system and treat the heating water.

► Ensure that oxygen cannot get into the heating water. (→ Page 22)

Checking the filling and supplementary water

► Before filling the system, measure the hardness of the filling and supplementary water.

Treating the filling and supplementary water

► Observe all applicable national regulations and technical standards when treating the filling and supplementary water.

Provided the national regulations and technical standards do not stipulate more stringent requirements, the following applies:

You must treat the heating water in the following cases:

– If the entire filling and supplementary water quantity during the operating life of the system exceeds three times the nominal volume of the heating installation, or
– If the guideline values listed in the following table are not met, or
– If the pH value of the heating water is less than 8.2 or more than 10.0.

Total heating output	Water hardness at specific system volume[1]					
	≤ 20 l/kW		> 20 l/kW ≤ 50 l/kW		> 50 l/kW	
kW	mg $CaCO_3$/l	mol/m³	mg $CaCO_3$/l	mol/m³	mg $CaCO_3$/l	mol/m³
< 50	< 300	< 3	200	2	2	0.02
> 50 to ≤ 200	200	2	150	1.5	2	0.02
> 200 to ≤ 600	150	1.5	2	0.02	2	0.02
> 600	2	0.02	2	0.02	2	0.02

1) Nominal capacity in litres/heating output; in the case of multi-boiler systems, the smallest single heating output is to be used.

Caution.

Risk of material damage if the heating water is treated with unsuitable additives.

Unsuitable additives may cause changes in the components, noises in heating mode and possibly subsequent damage.

► Do not use any unsuitable frost and corrosion protection agents, biocides or sealants.

No incompatibility with our products has been detected to date with proper use of the following additives.

► When using additives, follow the manufacturer's instructions without exception.

We accept no liability for the compatibility of any additive or its effectiveness in the rest of the heating system.

Additives for cleaning measures (subsequent flushing required)

– Fernox F3
– Sentinel X 300
– Sentinel X 400

Additives intended to remain permanently in the system

– Fernox F1
– Fernox F2
– Sentinel X 100
– Sentinel X 200

Additives for frost protection intended to remain permanently in the system

– Fernox Antifreeze Alphi 11
– Sentinel X 500

► If you have used the above-mentioned additives, inform the operator about the measures that are required.
► Inform the operator about the measures required for frost protection.

7.4 Preventing low water pressure

In order for the heating installation to operate properly, the display must show a filling pressure between 0.1 MPa and 0.2 MPa (1.0 bar and 2.0 bar).

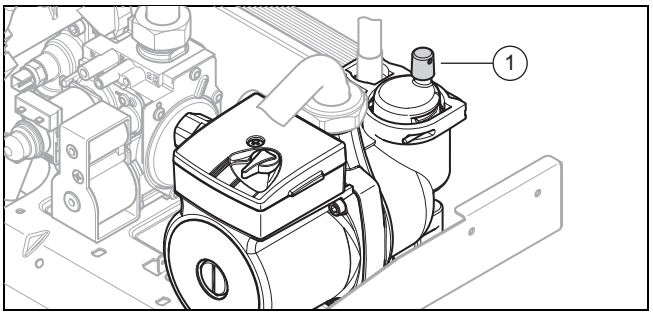
If the heating installation extends over several storeys, higher filling pressures may be required to avoid air entering the heating installation.

If the filling pressure falls below 0.03 MPa (0.3 bar), the product switches off. The display shows **F10**.

► Top up the heating water to start the product up again.

7.5 Filling and purging the heating installation

1. Ensure that the product is operating.
2. Flush the heating installation through.
3. Remove the front casing. (→ Page 10)
4. Tilt the electronics box downwards.



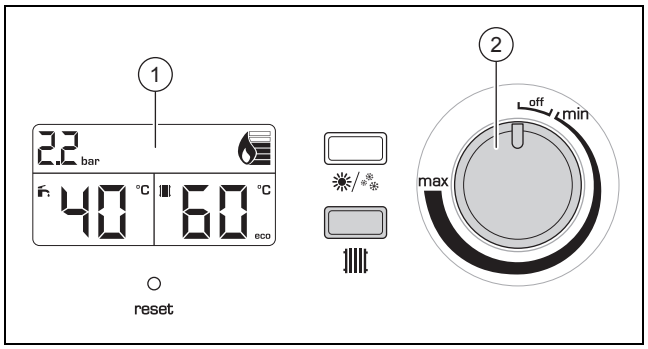
5. Undo the cap on the automatic air vent **(1)**.
   – Turning anti-clockwise: 1 … 5
6. Open the filling device valve so that the heating water flows into the heating installation.
7. Open all radiator valves and, if installed, services valves.
8. Purge the highest radiator until water flows out of the purging valve without bubbles.
9. Purge all other radiators until the entire heating installation has been completely filled with heating water.
10. Fill with heating water until the required filling pressure is reached.
11. Close the valve on the filling device.
12. Turn the cap on the automatic air vent to close it.
    – Turning clockwise
13. Install the front casing. (→ Page 11)
14. Check all of the connections and the entire heating installation for leaks.

7.6 Filling and purging the hot water circuit

1. Open the cold water stop valve on the product and all the hot water draw-off valves.
2. Fill the hot water circuit until water escapes.
   ◁ The hot water circuit is filled and purged.
3. Check all connections and the entire hot water circuit for leaks.

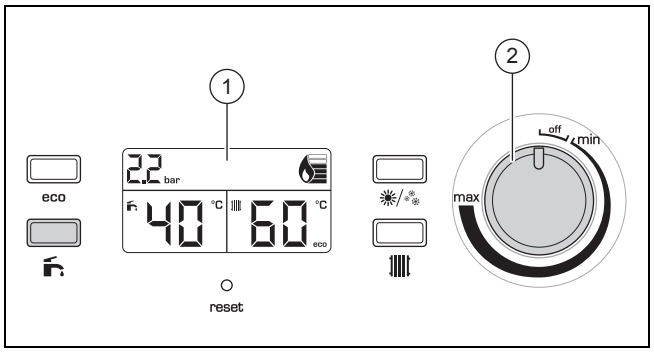
7.7 Setting the heating flow temperature

Conditions: Heating mode (Winter mode) switched on



► Press .
► Use the rotary knob **(2)** to set the required heating flow temperature.
   ◁ The set heating flow temperature is shown in the display **(1)**.

7.8 Setting the hot water temperature



1. Press .

Danger!
Risk of death from Legionella.

Legionella multiply at temperatures below 60 °C.

► Ensure that the operator is familiar with all of the Anti-legionella measures in order to comply with the applicable regulations regarding legionella prevention.

2. Use the rotary knob **(2)** to set the hot water temperature.

Conditions: Water hardness: > 3.57 mol/m³

– Hot water temperature: ≤ 50 °C

◁ The set hot water temperature is shown in the display **(1)**.

7.9 Checking and adjusting the gas ratio setting

7.9.1 Checking the factory-set gas ratio setting

The product's combustion has been factory tested and is preset for operation with the gas group indicated on the identification plate.

► Check the information about the type of gas indicated on the identification plate and compare this with the type of gas available at the installation location.

Conditions: The product design is not compatible with the local gas group

► Do not start up the product.

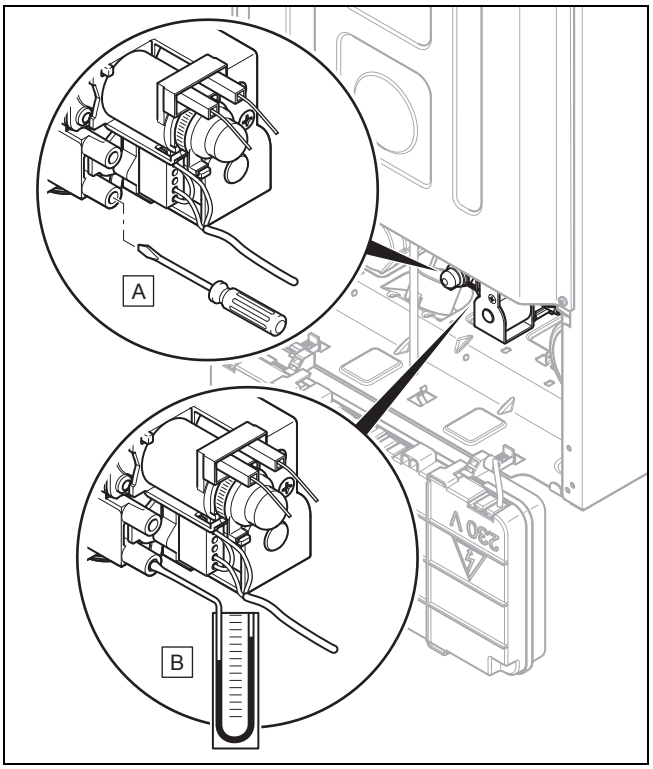
If the gas was converted to liquid gas, you can find the correct values in the Technical Data.

Conditions: The product design is compatible with the local gas group

► Proceed as described below.

7.9.2 Checking the gas connection pressure (gas flow pressure)

1. Temporarily decommission the product.
2. Close the gas isolator cock.
3. Remove the front casing. (→ Page 10)
4. Remove the valve cover.



5. Use a screwdriver to undo the sealing screw on the measuring connection of the gas valve.
6. Connect a pressure gauge to the measuring nipple .
7. Start up the product.
8. Open the gas isolator cock.
9. Measure the gas connection pressure against atmospheric pressure.
   – Permissible gas connection pressure for operation with G20 natural gas: 2 kPa (20 mbar)
   – Permissible gas connection pressure for liquid gas operation G30: 3 kPa (30 mbar)
   – Permissible gas connection pressure for liquid gas operation G31: 3.7 kPa (37.0 mbar)
10. Temporarily decommission the product.
11. Close the gas isolator cock.
12. Remove the pressure gauge.
13. Tighten the sealing screw on the measuring nipple .
14. Open the gas isolator cock.
15. Check the measuring nipple for gas tightness.

Conditions: Gas connection pressure not in the permissible range

Caution.

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

If the gas connection 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.

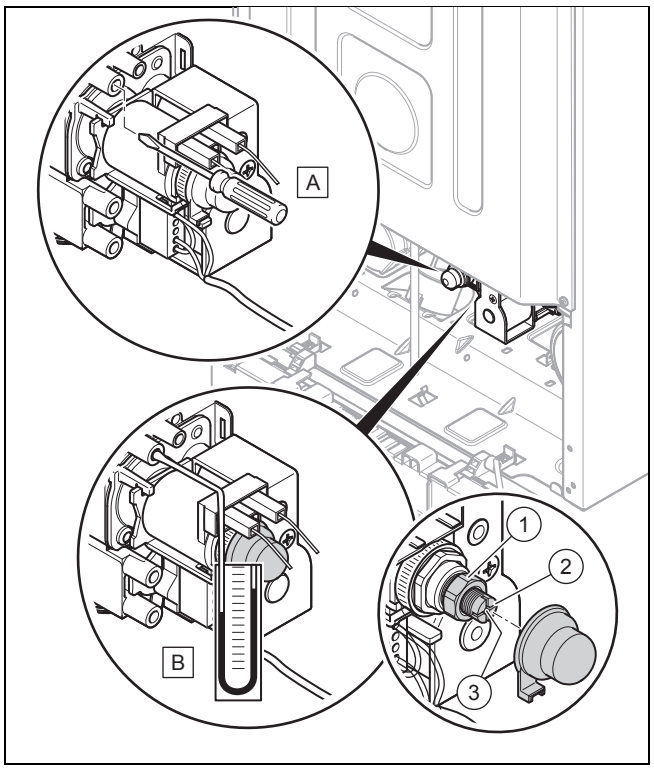
► Do not start up the product.

► If you are unable to remedy the fault, contact the gas supply company.

► Close the gas isolator cock.

7.9.3 Checking the maximum heat load

1. Temporarily decommission the product.
2. Close the gas isolator cock.

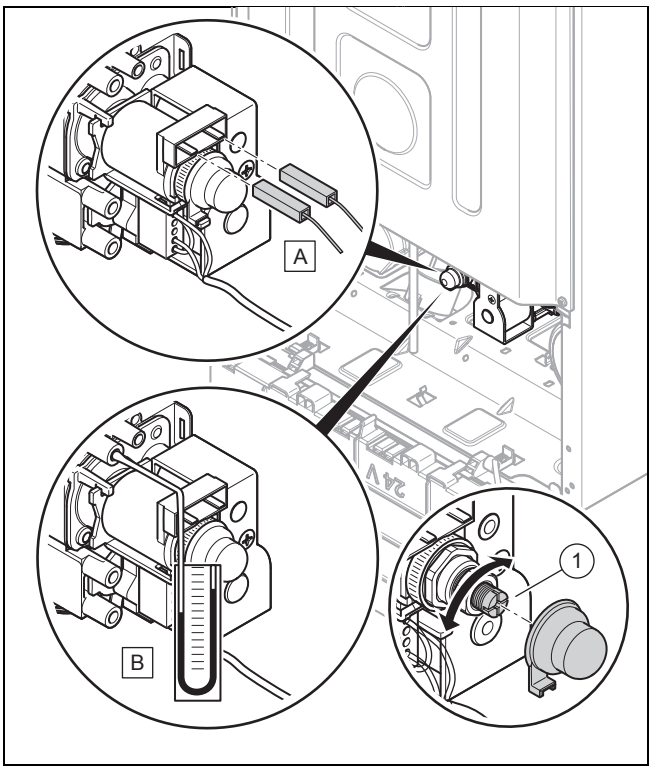


3. Loosen the sealing screw on the measuring nipple.
4. Connect a pressure gauge to the measuring nipple .
   – Working materials: Pressure gauge

5. Start up the product.
6. Open the gas isolator cock.
7. Check the value on the pressure gauge.
   Technical data – Gas adjustment values for the heat input (→ Page 34)
   The value lies outside of the permitted range.
   ► Turn the brass screw **(1)** directly below the red ring and, at the same time, push the ball **(3)** within the red plastic screw **(2)** in order to set the correct value.
8. Temporarily decommission the product.
9. Close the gas isolator cock.
10. Tighten the sealing screw on the measuring nipple.
11. Open the gas isolator cock.
12. Check the measuring nipple for gas tightness.

7.9.4 Checking the minimum heat load

1. Temporarily decommission the product.
2. Close the gas isolator cock.



3. Loosen the sealing screw on the measuring nipple.
4. Remove the cable from the modulation coil.
5. Connect a pressure gauge to the measuring nipple .
   – Working materials: Pressure gauge
6. Start up the product.
7. Open the gas isolator cock.
8. Check the value on the pressure gauge.
   Technical data – Gas adjustment values for the heat input (→ Page 34)
   The value lies outside of the permitted range.
   ► Turn the red plastic screw **(1)** in order to set the correct value.
9. Temporarily decommission the product.
10. Close the gas isolator cock.
11. Tighten the sealing screw on the measuring nipple.
12. Secure the cable for the modulation coil.
13. Secure the valve cover.
14. Open the gas isolator cock.
15. Check the measuring nipple for gas tightness.
16. Install the front casing. (→ Page 11)
17. Start up the product.

7.10 Checking function and leak-tightness

Before you hand the product over to the operator:

► Check the gas line, the flue gas installation, the heating installation and the hot water pipes for leaks.
► Check that the air/flue pipe and condensate drain pipework have been installed correctly.
► Check that the front casing has been installed correctly.

7.10.1 Checking the heating mode

1. Make sure that there is a heat requirement.
2. Check that the radiator is becoming warm.

7.10.2 Checking the hot water generation

1. Open a hot water valve completely.
2. Check that the water is becoming warm.

8 Adapting the unit to the heating installation

You can change the system parameters in the installer level.

You can find an overview of all the system parameters in the "Installer level – Overview" table in the appendix.

Installer level – Overview (→ Page 27)

8.1 Calling up/setting parameters

Calling up the parameter menu

1. Call up the installer level. (→ Page 18)
2. **Alternatives 1 / 2**
   ► Use the rotary knob to enter the code for the programmable parameters or fault messages.
   – Programmable parameters: Code 11
   – Fault messages: Code 26
2. **Alternatives 2 / 2**
   ► Press ✳/⁂ for the Info parameters.
   – Button push: 7 s
3. Confirm by pressing ✳/⁂.
   – Button push: 5 s
4. Use the rotary knob to select the required parameter from the parameter menu.
5. Confirm by pressing ✳/⁂.
   – Button push: 5 s
6. If required, use the rotary knob to set the required setting (if possible).
7. Confirm by pressing ✳/⁂.

– Button push: 5 s

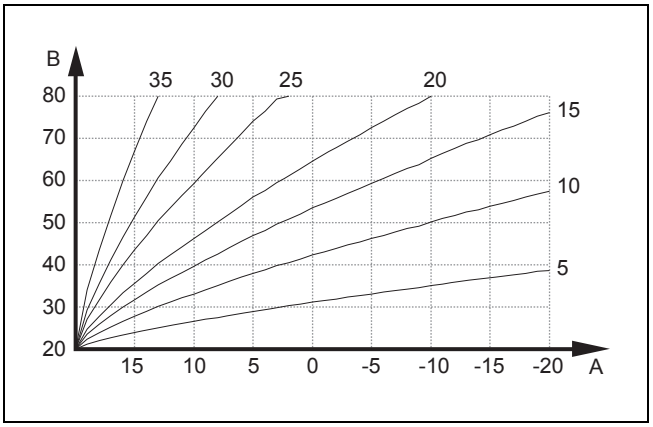
Exiting the parameter menu

Note
If you do not press any button for 30 seconds, the display automatically switches to the basic display.

8. Press **eco** once to exit the parameter menu.
9. Press **eco** again to exit the installer level.

8.1.1 Setting the heating curve

1. In the parameter menu, call up the parameter **PP16**. (→ Page 22)

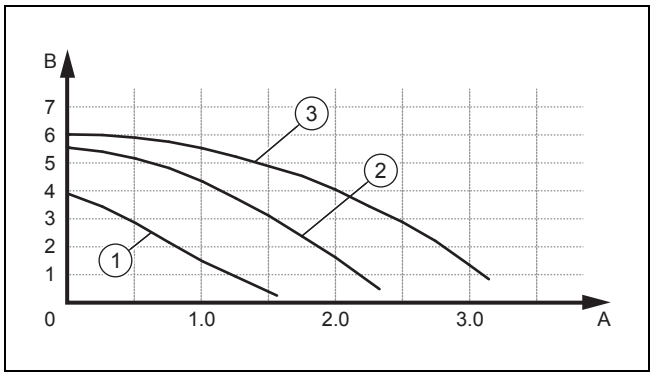


2. Set the corresponding value for a constant room temperature using the outside temperature **(A)** and heating flow temperature **(B)**.
   – Room temperature: 20 °C
   – Adjustment range for the heating curve: 5 … 35 K
3. Exit the parameter menu and switch back to the basic display. (→ Page 23)

8.1.2 Setting the offset value for Eco mode

1. In the parameter menu, call up the parameter **PP12**. (→ Page 22)
2. Set the required offset value.
   – "0" setting: 0 °C
   – "1" setting: 5 °C
3. Exit the parameter menu and switch back to the basic display. (→ Page 23)

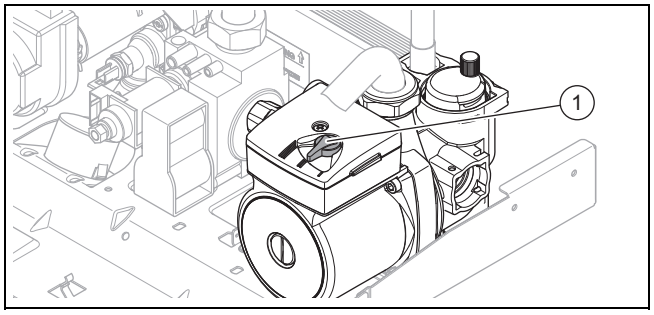
8.2 Remaining feed head of the pump



A Flow rate [Q (m³/h)] B Remaining feed head [m]

8.3 Setting the pump output

1. Temporarily decommission the product. (→ Page 26)
2. Remove the front casing. (→ Page 10)
3. Tilt the electronics box downwards.



4. Set the switch **(1)** on the heating pump to the required level depending on the heating installation.
   – Default setting: Stage 2
   – Stage: 1 … 3
5. Tilt the electronics box upwards.
6. Open the gas isolator cock and, in combination products, the cold water stop valve.
7. Install the front casing. (→ Page 11)
8. Switch on the product. (→ Page 19)

9 Handing the product over to the operator

- Explain to the operator how the safety devices work and where they are located.
- Inform the operator how to handle the product.
- In particular, draw attention to the safety information which the operator must follow.
- Inform the operator of the necessity to have the product maintained according to the specified intervals.
- Pass all of the instructions and documentation for the product to the operator for safe-keeping.
- 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.

10 Troubleshooting

10.1 Rectifying faults

- If fault messages (**FXX**) appear or malfunctions occur, rectify the fault or malfunction after carrying out the checks listed in the tables in the appendix.
  Fault messages – Overview (→ Page 29)
  Troubleshooting – Overview (→ Page 29)
- Press the fault clearance key (max. three times) to restart the product.
- If you are unable to rectify the fault and the fault recurs despite fault clearance attempts, contact Customer Service.

10.2 Calling up/clearing the fault memory

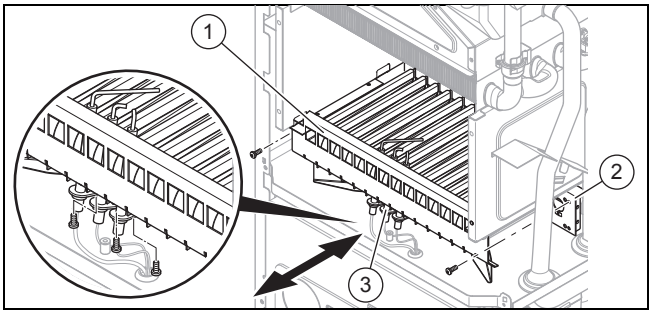
If faults have occurred, the last ten (max.) fault messages are available in the fault memory.

- Call up the installer level. (→ Page 18)
- Call up the fault parameters. (→ Page 22)
- Call up the individual fault messages using the rotary knob.
- Clear the fault messages by pressing ✳/✳.
  – Button push: 7 s
- Exit the parameter menu. (→ Page 23)

10.3 Preparing the repair work

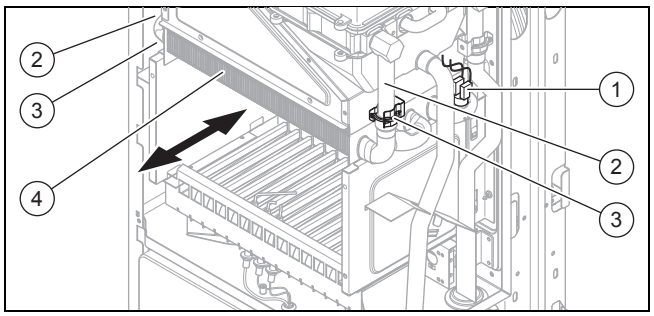
1. Temporarily decommission the product. (→ Page 26)
2. Disconnect the product from the power mains.
3. Remove the front casing. (→ Page 10)
4. Remove the front chamber cover. (→ Page 10)
5. Remove the combustion chamber cover. (→ Page 11)
6. Remove both side sections. (→ Page 11)
7. Close the service valves in the heating flow, in the heating return and in the cold water pipe.
8. Drain the product if you want to replace water-bearing components of the product. (→ Page 25)
9. Make sure that water does not drip on live components (e.g. the electronics box).
10. Use only new seals.

10.3.1 Replacing the burner



1. Unscrew the screws on the gas distributor pipe **(2)**.
2. Remove the cable connection from the ignition and monitoring electrode **(3)**.
3. Pull out the burner **(1)** towards the front and out.
4. Remove the screws for the ignition and monitoring electrode **(3)** from the burner.
5. Screw the ignition and monitoring electrode **(3)** tightly onto the burner.
6. Insert the new burner.
7. Screw in the burner **(1)** tightly.
8. Insert the cable connection from the ignition and monitoring electrode **(3)**.

10.3.2 Replacing the heat exchanger



1. Undo the clamps **(2)** on the flow pipe and the return pipe **(3)**.
2. Remove the upper flow pipe and return pipe **(3)**.
3. Loosen the overheating thermostat **(1)** from the heat exchanger by pressing the clamp.
4. Pull the heat exchanger **(4)** towards the front and out.
5. Insert the new heat exchanger.
6. Replace all the seals.
7. Install the upper flow pipe and return pipe **(3)**.
8. Secure the clamps **(2)** on the flow pipe and return pipe **(3)**.
9. Secure the overheating thermostat **(1)** to the heat exchanger.

10.3.3 Replacing the expansion vessel

1. Drain the product. (→ Page 25)
2. Remove the side section. (→ Page 11)
3. Loosen the expansion vessel's flexible hose from the heating pump by unclipping it from the heating pump.
4. Pull out the expansion vessel upwards.
5. Insert the new expansion vessel into the product.
6. Secure the expansion vessel's flexible hose to the heating pump by the clipping it into the heating pump. Use a new seal for this.
7. Fill and purge the product and, if required, the heating installation. (→ Page 20)

10.3.4 Replacing the PCB

1. Open the electronics box. (→ Page 17)
2. Remove all of the plugs from the PCB.
3. Undo the clips on the PCB.
4. Remove the PCB.
5. Install the new PCB in such a way that it clicks into the bottom and top of the clip.
6. Secure the plugs.
7. Close the electronics box. (→ Page 17)

10.4 Completing repair work

1. Install the combustion chamber cover. (→ Page 11)
2. Install the side sections. (→ Page 12)
3. Install the front chamber cover. (→ Page 11)
4. Install the front casing. (→ Page 11)
5. Establish the power supply.
6. Switch on the product. (→ Page 19)
7. Open all service valves and the gas isolator cock.
8. Check that the product works correctly and is leak-tight. (→ Page 22)

11 Observing inspection and maintenance intervals

► Adhere to the minimum inspection and maintenance intervals. The inspection may require maintenance to be carried out earlier, depending on the results.

Inspection and maintenance work – Overview (→ Page 28)

11.1 Procuring spare parts

The original components of the product were also certified as part of the declaration of conformity. If you do not use certified Demir Döküm original spare parts for maintenance or repair work, this voids the conformity of the product. We therefore strongly recommend that you install Demir Döküm original spare parts. Information about available Demir Döküm original spare parts is available by contacting the contact address provided on the reverse of this document.

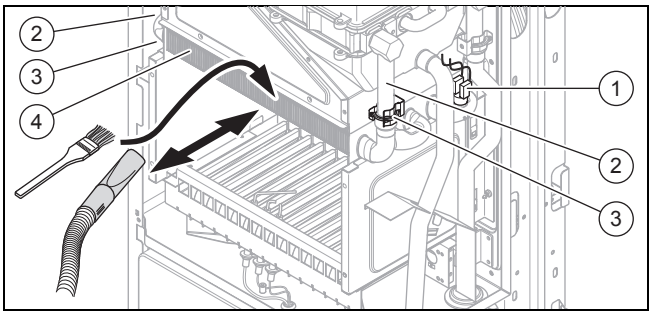
► If you require spare parts for maintenance or repair work, use only Demir Döküm original spare parts.

11.2 Preparing the cleaning work

► Temporarily decommission (→ Page 26) the product.
► Remove the front casing. (→ Page 10)
► Remove the front chamber cover. (→ Page 10)
► Remove the combustion chamber cover. (→ Page 11)
► Fold the electronics box down and protect the electronics box against sprayed water.

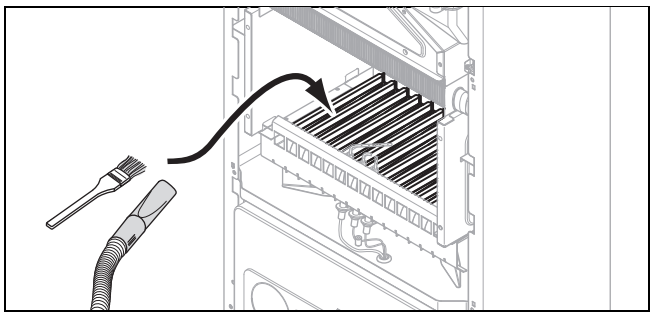
11.2.1 Cleaning the heat exchanger

1. Remove both side sections. (→ Page 11)



2. Undo the clamps **(2)** on the flow pipe and the return pipe **(3)**.
3. Remove the upper flow pipe and return pipe **(3)**.
4. Loosen the overheating thermostat **(1)** from the heat exchanger by pressing the clamp.
5. Pull the heat exchanger **(4)** towards the front and out.
6. Clean the ribs of the heat exchanger to remove combustion residue.
7. Slide the heat exchanger back again.
8. Install the upper flow pipe and return pipe **(3)**.
9. Secure the clamps **(2)** on the flow pipe and return pipe **(3)**.
10. Secure the overheating thermostat **(1)** to the heat exchanger.
11. Install both side sections. (→ Page 12)

11.2.2 Cleaning the burner



► Clean the burner to remove combustion residue.

11.2.3 Cleaning the filter in the cold water inlet

1. Drain the product on the hot water side by undoing the screwed connections on the hot water pipe.
2. Remove the pipe, including the screwed connections, from the product.
3. Rinse the filter under a jet of water, holding it against the direction of flow.
4. Secure the pipe back in place.
5. Always use new seals and screw in all components again.

11.3 Completing cleaning work

► Install the combustion chamber cover. (→ Page 11)
► Install the front chamber cover. (→ Page 11)
► Tilt the electronics box upwards.
► Install the front casing. (→ Page 11)
► Open the gas isolator cock and, in combination products, the cold water stop valve.
► Switch on the product. (→ Page 19)

11.4 Draining the product

1. Turn the rotary knob as far as it will go in an anticlockwise direction.
2. Close the service valves of the product.
3. Close the gas isolator cock.
4. Remove the front casing. (→ Page 10)
5. Tilt the electronics box downwards.
6. Open the drain valve.
7. Ensure that the automatic air vent cap on the internal heating pump is open.
8. Remove the motor from the diverter valve.
9. Push the pin on the diverter valve to the mid-position until the product has been completely drained.
10. Secure the diverter valve motor.
11. Turn the automatic air vent cap on the internal heating pump to close it.

12. Close the drain valve.
13. Tilt the electronics box upwards.
14. Install the front casing. (→ Page 11)

11.5 Checking the admission pressure of the expansion vessel

1. Close the service valves and drain the product. (→ Page 25)
2. Measure the admission pressure of the expansion vessel at the vessel valve.

Conditions: Pre-charge pressure < 0.1 MPa ± 0.02 MPa (1 bar ± 0.2 bar)

► Top up the expansion vessel in accordance with the static height of the heating installation, ideally with nitrogen, otherwise with air. Ensure that the drain valve is open when topping up.

3. If water escapes from the valve of the expansion vessel, you must replace the expansion vessel.
4. Fill and purge the heating installation. (→ Page 20)

11.6 Completing inspection and maintenance work

► Check the gas connection pressure (gas flow pressure). (→ Page 21)

12 Decommissioning

12.1 Temporarily decommissioning the product

► Turn the rotary knob as far as it will go in an anticlockwise direction.

◁ The display goes out.

► Close the gas isolator cock.
► In combination products, also close the cold water stop valve.

12.2 Decommissioning the product

► Turn the rotary knob as far as it will go in an anticlockwise direction.

◁ The display goes out.

► Disconnect the product from the power mains.
► Close the gas isolator cock.
► In combination products, also close the cold water stop valve.
► Drain the product. (→ Page 25)

13 Recycling and disposal

Disposing of the packaging

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

14 Customer service

24 saat Müşteri İletişim Merkezi: 444 18 33

Internet: http://www.demirdokum.com.tr

Appendix

A Installer level – Overview

Setting level	Values		Unit	Increment, select, explanation	Default setting
	Min.	Max.			
Installer level →					
Enter code	00	99	–	1 (competent person code 96)	–
Installer level → Programmable parameters (code 11) →					
PP01 Gas type	00	01	–	00 = Natural gas 01 = LPG	00
PP02 Maximum load	00	03	–	00 = 100% 01 = 90% 02 = 80% 03 = 70%	00
PP04 Heating temperature range	00	01	–	00 = 30-80 °C (radiator heating) 01 = 30-50 °C (underfloor heating)	00
PP06 Room thermostat	00	01	–	00 = Room thermostat not installed 01 = Room thermostat installed	00
PP08 Transition between hot water generation/heating	00	01	–	00 = Immediate transition from hot water generation to heating 01 = Transition from hot water generation to heating after 45 s	00
PP11 Ignition capacity selection	00	04	–	00 = Automatic ignition 01 = 0.3 x $L_{max.}$ 02 = 0.4 x $L_{max.}$ 03 = 0.5 x $L_{max.}$ 04 = 0.6 x $L_{max.}$	00
PP12 Offset value (Eco mode)	00	01	–	00 = 0 °C 01 = 5 °C	01
PP13 hot water handling mode	00	01	–	00 = Outflow 71 °C 01 = Return, set value +7 °C; flow set value +6 °C	01
PP15 AFTC waiting period (Comfort mode)	00	05	–	00 = No waiting period 01 = 1 minute 02 = 2 minutes 03 = 3 minutes 04 = 4 minutes 05 = 5 minutes	03
PP16 Outside temperature exponent (heating curve)	05	35	K	5	20
PP17 Timer programming logic	00	01	–	00 = Active logic value 0 01 = Active logic value 1	00
PP18 Pump speed (for high-efficiency pump only)	00	03	–	Depending on the pump.	00
Installer level → Info parameters →					
IF01	00	99	℃	– – = Fault 00 - 99 = Flow temperature	–
IF02	00	99	℃	– – = Fault 00 - 99 = Hot water temperature	–
IF03	–	–	l/min	0 = No flow rate (DHW) present Current value = Flow rate (DHW)	–
IF04	–	–	–	Software	–
IF05	–	–	–	Gas valve (modulation)	–
[1] If fault messages are present, the last ten fault messages are saved and the latest fault message is displayed.					

Setting level	Values		Unit	Increment, select, explanation	Default setting
	Min.	Max.			
IF08	00	99	°C	– – = Fault 00 - 99 = Return temperature	–
IF09	−20	99	°C	– – = No outside temperature sensor connected −20 - 99 = Outside temperature sensor	–
IF10	00	99	°C	– – = No collector temperature 00 - 99 = Collector temperature	–
Installer level → Fault messages (code 26) →					
FXX	–	–	–	–	–
[1] If fault messages are present, the last ten fault messages are saved and the latest fault message is displayed.					

B Inspection and maintenance work – Overview

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	Inspection (annual)	Maintenance (at least every 2 years)
1	Check the flue pipe for leak-tightness and correct fastening. Make sure that it is not blocked or damaged and has been installed in accordance with the relevant Installation Manual.	X	X
2	Check the general condition of the product. Remove dirt from the product and from the vacuum chamber.	X	X
3	Visually inspect the general condition of the entire heating cell and, in particular, check for signs of corrosion, soot or other damage. If you notice any damage, carry out maintenance work.	X	X
4	Check the gas connection pressure at maximum heat input. If the gas connection pressure is not within the correct range, carry out maintenance work.	X	X
5	Disconnect the product from the power mains. Check that the electrical plug connections and other connections are seated correctly and correct their position if necessary.	X	X
6	Close the gas isolator cock and the service valves.	X	X
7	Drain the product on the water side (observe the pressure gauge). Check the admission pressure of the expansion vessel and top the vessel up if necessary (approx. 0.03 MPa/0.3 bar below the system filling pressure).		X
8	Clean the heat exchanger.		X
9	Check the burner for damage and replace the burner if necessary.		X
10	If the volume of water is insufficient or the outlet temperature is not reached, replace the secondary heat exchanger if necessary (only for products with hot water generation).		X
11	Clean the filter in the cold water inlet. Replace the filter if impurities can no longer be removed or if the filter is damaged. If this is the case, check the impeller sensor for dirt and damage too; clean the sensor (do not use compressed air) and replace the sensor if it is damaged.		X
12	Open the gas isolator cock, reconnect the product to the power mains and switch the product on.	X	X
13	Open the service valves, fill up the product/heating installation to 0.1 - 0.2 MPa/1.0 - 2.0 bar (depending on the static height of the heating installation) and purge the system.		X
14	Perform a test operation of the product and heating installation, including hot water generation (if available), and purge the system once more if necessary.	X	X
15	Visually inspect the ignition and burner behaviour.	X	X
16	Check the product for gas, flue gas and hot water leaks, and repair the leaks if necessary.	X	X
17	Record the inspection/maintenance work carried out.	X	X

C Fault messages – Overview

Fault code	Meaning	Possible cause
F01	Overheating	The safety cut-out or the overheating thermostat interrupts circulation. (RESET) The flue gas temperature sensor in the recuperator is defective.
F02	NTC fault (hot water)	The hot water temperature is outside of the permitted range.
F03	NTC fault (flow)	The cable connections are defective/faulty.
F04	Ignition fault	The gas ratio settings are incorrect. (RESET)
F05	Pressure cartridge defective	The air circulation cuts out for 25 seconds.
F06	NTC fault (return)	The cable connections are defective/faulty.
F07	Gas valve defective	Control fault (RESET)
F08	NTC sensor (return) overheated	The return temperature is too high.
F09	Pressure cartridge defective	If the pressure cartridge is closed for 15 seconds (not operating), the fan then stops (a fault message is generated). If the pressure cartridge is open again (operating), normal operating mode automatically starts again.
F10	System pressure incorrect	Heating pump blocked, insufficient heating pump output, air in product, flow and return NTC connected the wrong way round.
F11	Hot water temperature amplitude too high (heating mode)	Heating pump blocked, insufficient heating pump output, air in product, system pressure too low, non-return valve blocked/incorrectly installed.
F12	Mains voltage too low	Break in plug connection for optional flue gas safety temperature limiter (safety cut-out), break in cable harness.
F13	NTC sensors connected incorrectly or not connected	Gas valve stepper motor not connected, multiple plug on the PCB not plugged in correctly, interruption in cable harness, gas valve stepper motor defective, electronics defective.
F14	Ignition blocked	The ignition signal was 5 seconds outside of the predefined time period. (RESET)
F15	Flame failed, ignition blocked	If the flame fails for 10 seconds, ignition is then blocked. (RESET)

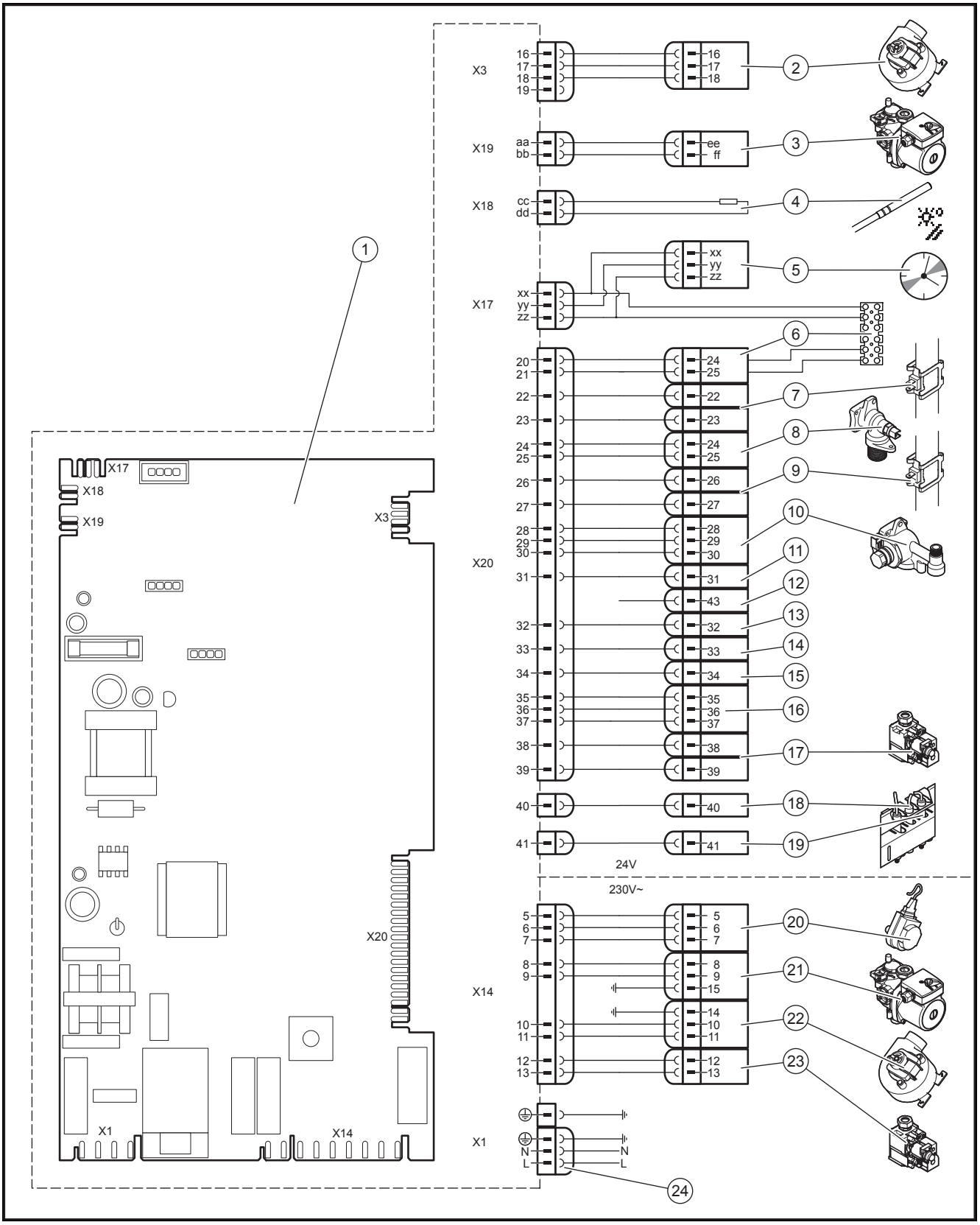
D Troubleshooting – Overview

Fault		Cause	Measure
The product is not working or will not ignite, or the standby symbol is shown on the display.	The heating pump and/or fan is not working.	The power supply to the product has been interrupted.	Check the power-supply connection and the fuses.
		The voltage is lower than 180 V.	Use a controller.
		The system pressure is too low.	Check the system pressure and fill with water, if necessary.
		The pressure sensor is defective.	Measure the resistance between the connectors and replace if the sensor, if necessary.
		The overheating thermostat is defective.	Replace the overheating thermostat.
		The PCB is defective.	Replace the PCB.
		The water flow sensor is defective.	Replace the sensor.
		The water pressure is too low when there is a hot water demand.	Check the particle filter for dirt.
	The heating pump and/or fan is working.	The fan or its corresponding cable is defective.	Check whether the power supply to the fan is working and replace any defective components, if necessary.
		The air pressure sensor is defective.	Replace the air pressure sensor and check the power-supply connections.
		The hose for the air pressure sensor has become disconnected.	Reconnect the hose or replace it, if necessary.
		The connections to the ignition electrode are broken.	Correct the connections.

Fault	Cause	Measure
The product is not working, no fault messages are flashing. – The ignition electrode will not ignite, the burner is off.	The fuel is not reaching the product or the gas flow pressure is too low.	Check the gas flow pressure and the fuel supply.
	The monitoring electrode is positioned incorrectly.	Check the position of the monitoring electrode and the gas flow pressure.
	The connection to be PCB is broken.	Check the cable connection to the PCB and replace the cable connection, if necessary.
	The cable connection to the gas valve is broken.	Check the cable connection to the gas valve and replace the cable connection, if necessary.
	Although the gas flow pressure is sufficient, the gas acceleration to the product is insufficient.	Check the gas line.
	The cable connection to the monitoring electrode or the monitoring electrode is broken.	Check whether the cable connection/monitoring electrode is defective. If required, replace the defective component.
	The hot water level is too low.	Check the particle filter for dirt.
	The heating pump is damaged.	Check whether the heating pump is working correctly. Check the particle filter for dirt.
The product is not working, no faults have been reported and the display is off.	The PCB is defective.	Check the PCB and replace it, if necessary.
	The fuse on the PCB is defective.	Replace the fuse.
	The cable connections are defective.	Replace the cable connections.
The hot water supply is insufficient	The water level is too high.	Check the water level reducer.
	The gas pressure is insufficient.	Check the cable connections to the gas inlet and to the modulation coil.
	Scale in the primary or secondary heat exchanger.	Descale or replace the heat exchanger affected.
	The diverter valve or the cam from the hydraulic block is defective.	Check whether the hot water supply is being heated.
	The flow rate sensor (DHW) is defective or there is a fault in the hydraulic-block turbine.	Check the flow rate sensor (DHW) and replace it, if necessary. Check the turbine for dirt.
	The temperature sensors are defective or deposits have built up on the contact surface.	Check the temperature sensor.
The hot water is not being heated.	The hot water level is too low. The water pressure is insufficient.	Check whether the product is drawing off a sufficient quantity of water when heating mode is off. Check the flow rate sensor (DHW) and the water pressure.
	The diverter valve or the cam from the hydraulic block is defective.	Check the heating system during the draw-off process.
	The flow rate sensor (DHW) is defective or there is a fault in the hydraulic-block turbine.	Check the flow rate sensor (DHW) and replace it, if necessary. Check the turbine for dirt.
	The temperature sensors are defective or deposits have built up on the contact surface.	Check the temperature sensor.
The product ends the heating circuit too quickly.	Air in the heating installation.	Purge the heating installation. Check whether the discharge valve is blocked. Open the discharge valve slightly.
	The heating installation is blocked by dirt.	Check the heating installation for dirt and clean it, if necessary.
	The heating pump is defective.	Replace the heating pump.

Fault	Cause	Measure
The product ends the heating circuit too quickly.	There is a low level of heat loss.	Reduce the gas valve pressure or reduce the system-capacity potentiometer in line with the heat loss.
The expansion relief valve is leaking.	The system pressure is over 0.03 MPa (3 bar).	Reduce the system pressure.
	Reduced air in the expansion vessel or a tear in the diaphragm.	Check the expansion vessel and rectify the fault.
	The expansion relief valve is defective.	Replace the expansion relief valve.
	The volume of the heating water is more than 150 litres.	Install an additional expansion vessel.
	The pressure sensor is defective.	Replace the pressure gauge.

E Connection diagram



1	PCB for the product	6	Room thermostat/earth connection/24 V
2	Rev counter in the fan	7	Return temperature sensor
3	Pump (PWM)	8	Hot water temperature sensor
4	Collector temperature sensor	9	Flow temperature sensor
5	Timer (optional)	10	Flow rate sensor (DHW)

11	Overheating thermostat + flue gas temperature sensor
12	Earthing for the ignition electrode
13	Overheating thermostat
14	Air pressure sensor
15	Air pressure sensor
16	Water pressure switch
17	Gas valve
18	Ignition electrode
19	Monitoring electrode
20	Diverter valve
21	Heating pump
22	Fan
23	Gas valve
24	Power supply

F Technical data

Technical data – **General**

	Nitron Condense 24 (H-TR)	**Nitron Condense 28 (H-TR)**
Heat output (min./max.)	12.5 … 24.0 kW	12.5 … 26.9 kW
Heat input (min./max.)	13 … 25 kW	13 … 28 kW
Permissible gas categories	II_{2H3+}	II_{2H3+}
Gas connection, boiler side	15 mm	15 mm
Flow/return heating connections, boiler side	22 mm	22 mm
Hot and cold water connection, boiler side	G 3/4 inch	G 3/4 inch
Expansion relief valve connector (min.)	15 mm	15 mm
Air/flue gas connection (concentric)	60/100 mm	60/100 mm
Air/flue gas connection (separated)	80/80 mm	80/80 mm
Air/flue gas connection (concentric)	80/125 mm	80/125 mm
G20 natural gas flow pressure	2 kPa (20 mbar)	2 kPa (20 mbar)
G30 liquid gas flow pressure	2.8 … 3.0 kPa (28.0 … 30.0 mbar)	2.8 … 3.0 kPa (28.0 … 30.0 mbar)
G31 liquid gas flow pressure	3.7 kPa (37.0 mbar)	3.7 kPa (37.0 mbar)
Gas consumption	2.660 m³/h	2.930 m³/h
Approved flue gas connections	B22, B22P, C12, C32, C42, C52, C82,C62	B22, B22P, C12, C32, C42, C52, C82,C62
Nominal efficiency (full load)	96.3 %	96.1 %
Nominal efficiency (partial load, 30%)	99.7 %	99.7 %
Nominal efficiency (partial load, 50-30%)	103 %	103 %
NOx class	2	2
Boiler dimension, width	405 mm	430 mm
Boiler dimension, height	720 mm	720 mm
Boiler dimension, depth	330 mm	330 mm
Net weight	37 kg	38 kg
Flue gas temperature (at nominal heat loading of 80/60 °C)	67 °C	68 °C
Flue gas temperature (at nominal heat loading of 50/30 °C)	51 °C	51 °C
CO content (at nominal heat loading of 80/60 °C)	16 ppm	24 ppm
CO_2 content (at nominal heat loading of 80/60 °C)	8.1 %	8.1 %

Technical data – **Heating**

	Nitron Condense 24 (H-TR)	**Nitron Condense 28 (H-TR)**
Maximum flow temperature	80 °C	80 °C
Max. flow temperature adjustment range	30 … 80 °C	30 … 80 °C
Water pressure	0.03 … 0.3 MPa (0.30 … 3.0 bar)	0.03 … 0.3 MPa (0.30 … 3.0 bar)
Max. water volume (at 75 °C)	140 l	140 l
Expansion vessel (volume)	7 l	7 l

Technical data – **Electrics**

	Nitron Condense 24 (H-TR)	Nitron Condense 28 (H-TR)
Electric connection	230 V/50 Hz	230 V/50 Hz
Built-in fuse (slow-blow)	2 A	2 A
Max. electrical power consumption	110 W ± 10%	140 W ± 10%
Level of protection	IP X4 D	IP X4 D
Test symbol/registration no.	CE 0476CQ0908	CE 0476CQ0908

Technical data – **Hot water handling mode**

	Nitron Condense 24 (H-TR)	Nitron Condense 28 (H-TR)
Lowest water volume	2.5 l/min	2.5 l/min
Water volume (at ΔT = 30 K)	12 l/min	12 l/min
Water pressure	0.025 … 0.8 MPa (0.250 … 8.0 bar)	0.025 … 0.8 MPa (0.250 … 8.0 bar)
Hot water output temperature range	35 … 64 °C	35 … 64 °C
Flue gas temperature (in hot water handling mode)	≤ 67 °C	≤ 68 °C

Technical data – **Gas adjustment values for the heat input**

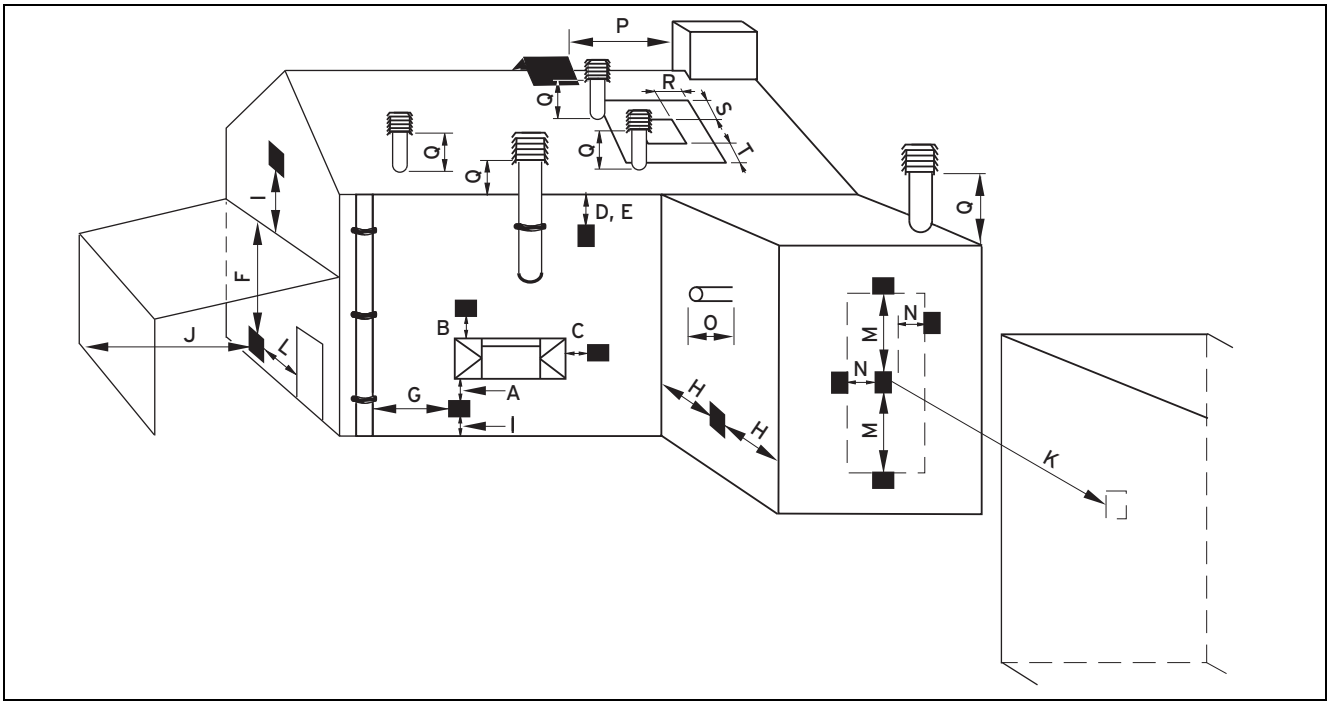
	Nitron Condense 24 (H-TR)	Nitron Condense 28 (H-TR)
Natural gas H G20 (min./max.)	0.30 … 1.16 kPa (3.00 … 11.60 mbar)	0.29 … 1.37 kPa (2.90 … 13.70 mbar)
G30 liquid gas (min./max.)	0.90 … 2.80 kPa (9.00 … 28.00 mbar)	0.55 … 2.73 kPa (5.50 … 27.30 mbar)
G31 liquid gas (min./max.)	1.15 … 3.59 kPa (11.50 … 35.90 mbar)	0.80 … 3.53 kPa (8.00 … 35.30 mbar)

Technical data – **Burner jets**

	Nitron Condense 24 (H-TR)	Nitron Condense 28 (H-TR)
Natural gas H (G20) diameter	1.20 mm	1.15 mm
Liquid gas (G30/G31) diameter	0.72 mm	0.72 mm

G Air/flue gas installation

G.1 Minimum clearances for the air/flue gas installation



	Installation site	Minimum dimensions
A	Directly below an opening, air bricks, opening windows, etc., that can be opened.	300 mm
B	Above an opening, air bricks, opening windows, etc., that can be opened.	300 mm
C	Horizontally to an opening, air bricks, opening windows, etc., that can be opened.	300 mm
D	Below temperature-sensitive building components, e.g. plastic gutters, down pipes or wastewater pipes	75 mm
E	Below eaves	200 mm
F	Below balconies or car port roofs	200 mm
G	From vertical wastewater pipes or down pipes	150 mm
H	From external or internal corners	200 mm
I	Above floors, roofs or balconies	300 mm
J	From a surface facing a terminal	600 mm
K	From a terminal facing a terminal	1200 mm
L	From an opening in the car port (e.g. door, window) which leads into the dwelling	1200 mm
M	Vertical from a terminal on the same wall	1500 mm
N	Horizontal from a terminal on the same wall	300 mm
O	From the wall on which the terminal has been installed	0 mm
P	From a vertical structure on the roof	N/A
Q	Above the roof area	300 mm
R	Horizontal from adjacent windows on pitched or flat roofs	600 mm
S	Above adjacent windows on pitched or flat roofs	600 mm
T	Below adjacent windows on pitched or flat roofs	2000 mm

G.2 Length of the air/flue gas installation, dia. 60/100 mm

	Diameter of the flue pipe				
	Dia. 60/100 (L)				
	B22 type flue pipe	B22P air/flue pipe	C12 type flue pipe	C32 type flue pipe	C42 type flue pipe
Nitron Condense 24 (H-TR)	–	–	≤ 3 m	≤ 3 m	–
Nitron Condense 28 (H-TR)	–	–	≤ 3 m	≤ 3 m	–

	Diameter of the flue pipe		
	Dia. 60/100 (L)		
	C52 type flue pipe	C62 type flue pipe	C82 type flue pipe
Nitron Condense 24 (H-TR)	–	≤ 3 m	–
Nitron Condense 28 (H-TR)	–	≤ 3 m	–

G.3 Length of the air/flue gas installation, dia. 80/80 mm

	Diameter of the flue pipe				
	80/80 (L) diameter				
	B22 type flue pipe	B22P air/flue pipe	C12 type flue pipe	C32 type flue pipe	C42 type flue pipe
Nitron Condense 24 (H-TR)	≤ 20 m	≤ 20 m	–	–	≤ 20 m
Nitron Condense 28 (H-TR)	≤ 20 m	≤ 20 m	–	–	≤ 20 m

	Diameter of the flue pipe		
	80/80 (L) diameter		
	C52 type flue pipe	C62 type flue pipe	C82 type flue pipe
Nitron Condense 24 (H-TR)	≤ 20 m	≤ 20 m	≤ 20 m
Nitron Condense 28 (H-TR)	≤ 20 m	≤ 20 m	≤ 20 m

G.4 Length of the air/flue gas installation, dia. 80/125 mm

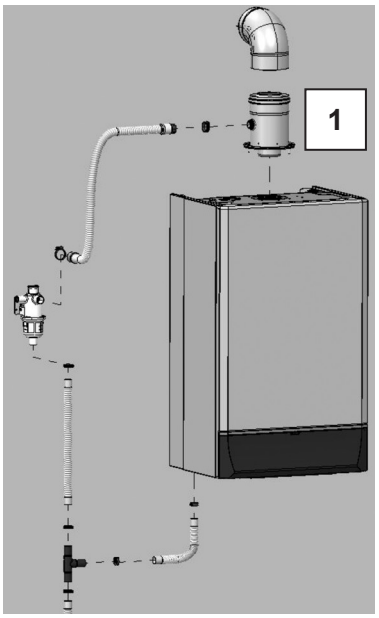
	Diameter of the flue pipe				
	Dia. 80/125 (L)				
	B22 type flue pipe	B22P air/flue pipe	C12 type flue pipe	C32 type flue pipe	C42 type flue pipe
Nitron Condense 24 (H-TR)	–	–	≤ 7 m	≤ 7 m	–
Nitron Condense 28 (H-TR)	–	–	≤ 7 m	≤ 7 m	–

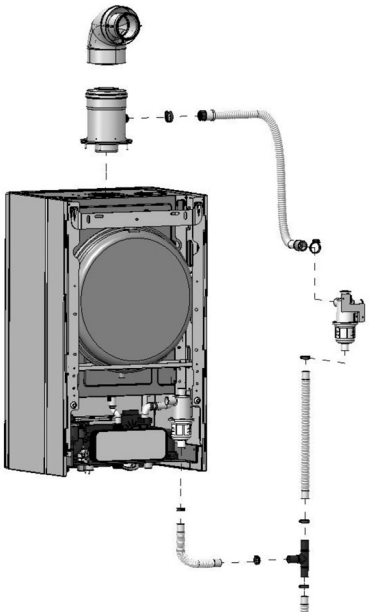
	Diameter of the flue pipe		
	Dia. 80/125 (L)		
	C52 type flue pipe	C62 type flue pipe	C82 type flue pipe
Nitron Condense 24 (H-TR)	–	≤ 7 m	–
Nitron Condense 28 (H-TR)	–	≤ 7 m	–

Condesate Trap For Flue Pipe

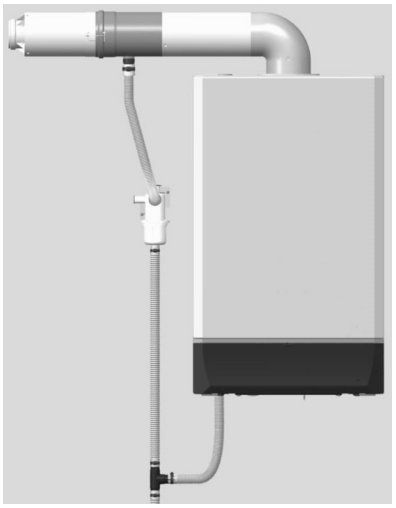
Using condensate adaptor is recommended for preventing to condensate.

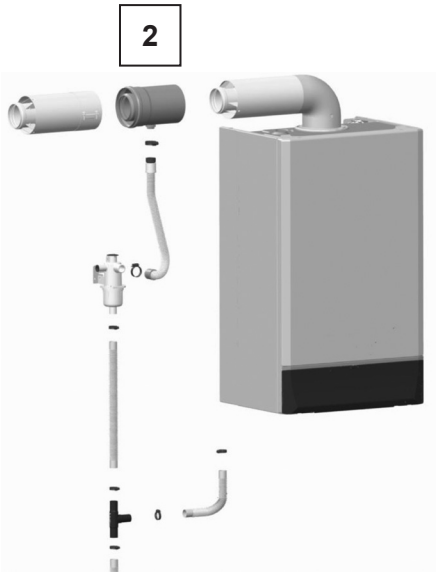
Vertical Condesate Trap

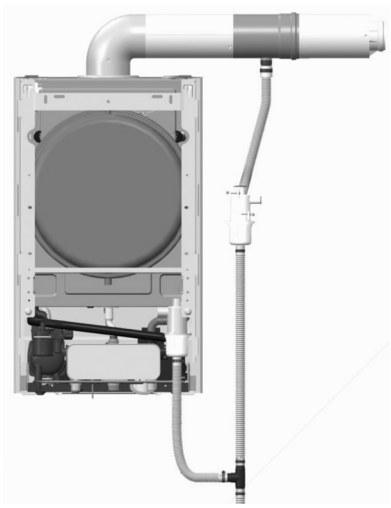




Horizontal Condesate Trap

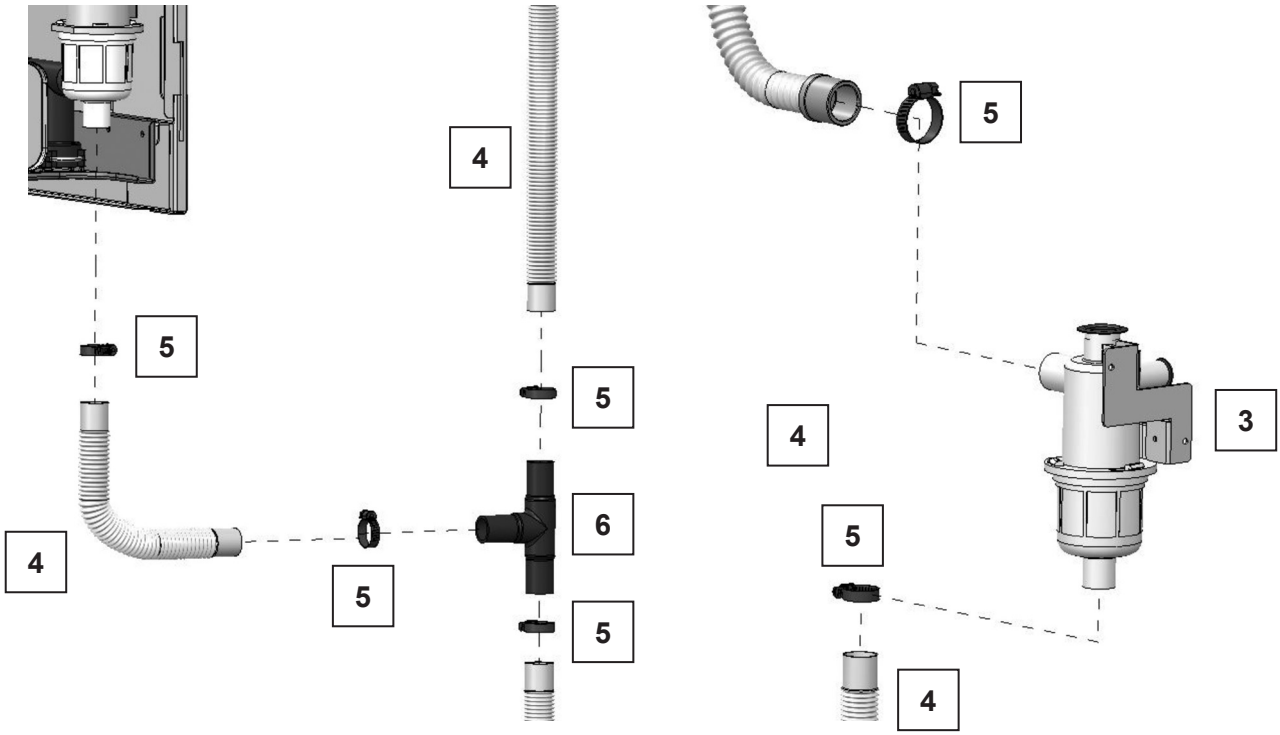






Condesate trap could be installed on vertical or horizontal position to flue pipe system. Vertical one is installed directly on boiler , horizontal one is installed after elbow or added flue pipe that shown on figure above. Threaded side of condensate hose must be connect with condensate trap, other side side must be mounted to syphon that shown above.

Recommendation: Condensate traps usage is recommended for 1 m. or longer flue pipes (flue pipe length >1 m).



Condensate Trap Kit

1 Vertical condensate trap
2 Horizontal condensate trap
3 Syphon
4 Condensate hose
5 Clamp
6 T - elbow

Danger!

Siphon should be filled with water before condensate trap installation.Make sure no flue leakage on connections of condensate hose both trap side and syphon side.

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