termet®

INSTRUCTION MANUAL

INSTALLATION AND OPERATION

Instantaneous gas water heater

type:

closed combustion chamber

AQUA COMFORT ECO GT-19-03

AQUA COMFORT ECO GT-24-03

CE 1450

COMPANY COMPLIES WITH ISO 9001 · 14001

DEAR CUSTOMER,

Congratulations on choosing the termet product.
You have purchased a modern, economical and environment-friendly product that complies with high EU quality standards.

Please take time to get yourself familiarised with this manual, as full understanding of the product's functions, as well as knowledge of manufacturer's recommendations is imperative for its smooth, economical and safe operation.

Please keep this manual handy throughout the whole operational lifetime of the water heater.

We hope you will be satisfied with our product.

CONTENTS

1. INTRODUCTION

This instruction manual describes instantaneous gas water heaters, designed for one or more tap - water uptake points (eg. shower, sink etc.). All drawings, specifications and information included in this instruction manual are based on the up-to-date data of the product, available at the moment of issuing this instruction.

The manufacturer reserves the right to make changes in gas water heater's design, without indicating them in the instruction, as far as the modifications do not have influence on the operational and technical features of the product.

Long-term operation of the product and its reliability most depends on a proper installation and use as well as performing the maintenance in due time and in a proper way.

1.1 Important tips

- Read this before any installation works or use
- Gas appliances, that are permitted to be used and signed with CE symbol are safe if they are used properly and the User and Installer comply with specific rules of installation and use.
- This installation guide and user's manual is an integral part of the water heater unit and as such it should be kept at hand, and be studied carefully throughout, as it contains all the necessary information and precautions that need to be observed to ensure the safety of installation, usage and maintenance of this unit.
- The water heater is a complicated appliance and it has many precise mechanisms. The reliability of the water heater depends mainly on appropriate gas, flue and water systems. Flue system for C-types water heaters must be made of flue pipes separately approved and introduced into the market, that complies with technical requirements presented in section 3.6.
- The flue system must be tight. Any leakages in flue pipes' connections may cause flooding the interior of a water heater with condensate. Any damages caused by above are excluded from the manufacturer liability.
- Any installation and regulation works must be done only by a gas engineer.
- The unit may be assembled and started up only after all the other construction and installation works in its designated room are finished. It is strictly forbidden to assemble and use the unit in rooms where construction or other installation works are still under way.
- Gas and water systems should be equipped with appropriate filters, which are not included with the unit.
- The water heater can be operated only by adults.
- Do not perform any repairs or alterations to the water heater on your own.
- It is strictly forbidden to make any modifications that could reduce the clearance of air-intake holes (covering, blanking off etc.) or uptake and flue ducts in a room and in the appliance.
- Do not keep any containers with inflammable, aggressive or strongly corrosive chemicals close to a water heater.
- It is forbidden to keep or dry clothes or other inflammable objects on or nearby the appliance and flue ducts.
- The service and maintenance operations of the water heater can be only performed by an authorised company.
- Effects of not - observance the instructions included in this document by gas engineers or users are excluded from the warranty coverage.

The manufacturer will not be liable for any damage or malfunction of the boiler caused by disregard to any relevant, official regulations.

Before you start up the water heater, concerning for your safety, make sure if:

1. **Permanent air supply necessary for gas combustion is provided,**
2. **The appliance has been connected to an individual and efficient chimney duct,**
3. **The gravitational ventilation duct is not choked.**

If you smell a gas:

Do not use electric switches likely to cause a spark.
Open the door and windows.
Shut down the main gas valve.
Contact the gas emergency service.
If gas escapes from an untaught valve of a gas cylinder, shut down a valve, disconnect the cylinder and take it outside the building.
If the gas escaping from a leaky valve on the cylinder catches fire, throw a wet blanket on the cylinder in order to extinguish the fire, and then pour water on it in order to cooling down the cylinder and make possible to turn off the valve.

In a case of breakdown:

1. **Turn off the gas supplying valve.**
2. **Turn off the water supply if there is a risk of flooding.**
3. **If there is a risk of water heater freezing, drain out the water from it.**

If you smell fumes:

1. **Switch off the heater by turning off the hot water tap or shut down the gas valve of water heater.**
2. **Open the door and windows.**
3. **After airing the room, switch on the heater for a while and check if the gas smell disappeared. If not, contact the fitter or a chimney service in order to check the flue system efficiency.**

2. PRODUCT DESCRIPTION

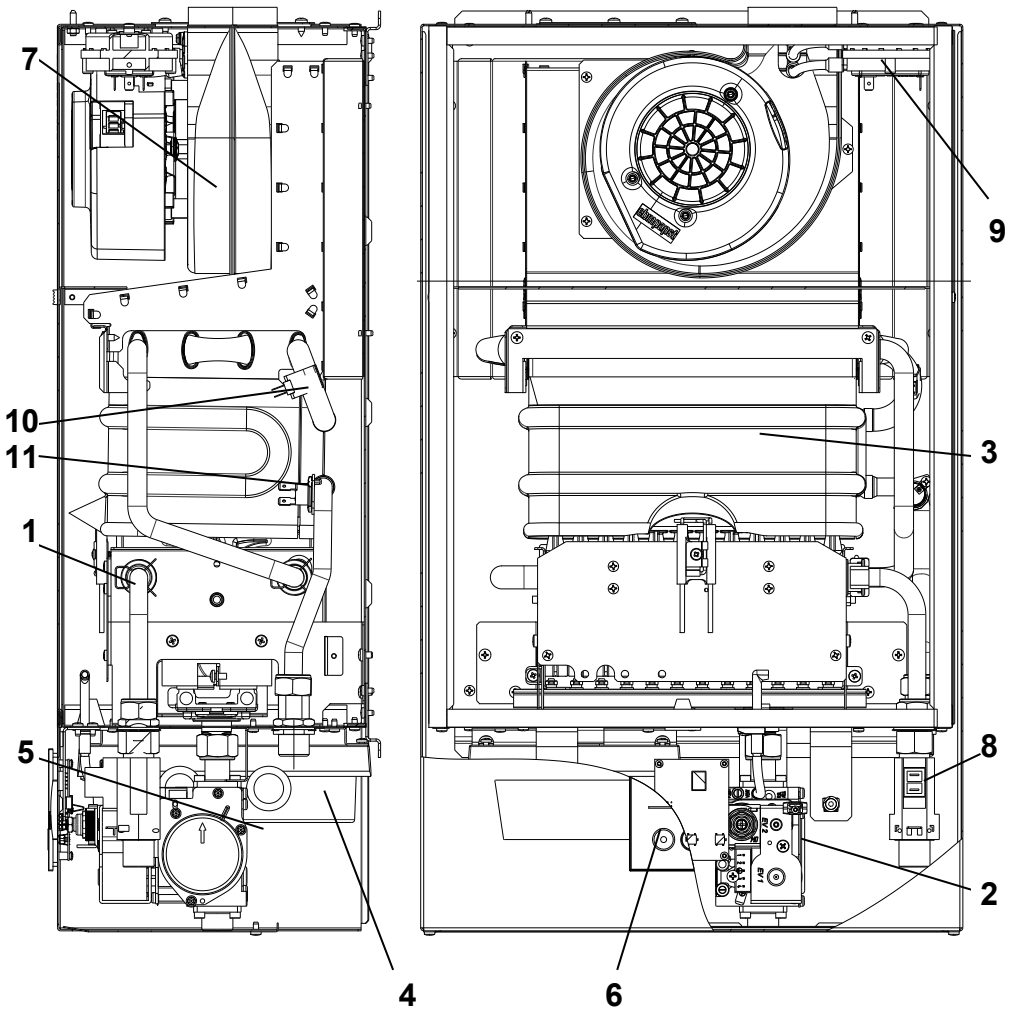
2.1 Technical features

- Electronic ignition with a ionisation flame control.
- Electronic, linear modulation of thermal input – keeping a constant water temperature.
- Required water temperature is set by two buttons (MIN, MAX).
- Displaying tap water temperature on the LCD.
- IPX4D electric protection degree, allows the heater to be installed on the wall, directly above bathtub in accordance with section 3.1.1
- Heat exchanger overheating protection.
- Water heater is adopted for normal pressure and for water supply system from 20 to 1000 kPa (0,2 to 10,0 bar)

Instantaneous gas water heaters type GT-19-03 AQUA COMFORT *eco* and GT-24-03 AQUA COMFORT *eco* are equipped with closed combustion chamber, what means they are allowed to be used in all rooms that do not have enough chimney draught or it is not possible to install a flue system.
Water heaters are equipped with the most recent technical solutions which provide long-lasting, faultless and economical performance and comfort of use.
Gas fittings and control system applied in water heater provide electronic power modulation, what means water heater keeps required tap water temperature.
Water heater actuates (igniting a main burner) automatically and electronically after turning on water tap. Water heater switches off after turning off water tap.
One of the main advantages of water heaters is small water flow necessary to start up the appliance (about 2 dm^3/min) and electronic linear water temperature regulation.
Each water heater is destined to combust only one type of gas (for example 2H-G20) and water heater must be fed only with this type of gas.
Marking of the water heaters type and gas type as well as the connection pressure for which the heater is designed is marked on packaging, in this instruction manual and on rating plate.
It is possible to adapt the water heater to combust another type of gas, what is described in section 5. This operation must be only performed by a qualified person according to section 5.

2.2 Construction and technical data

2.2.1 Main units of water heaters



1. Main burner
2. Gas fittings
3. Heat exchanger
4. Controller
5. Spark generator
6. Control panel
7. Fan
8. Water flow switch
9. Difference pressure switch
10. NTC sensor
11. Temperature limiter – protection against heat exchanger overheating

12. Flexible hose

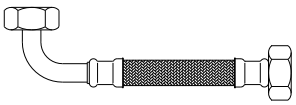


Fig. 2.2.1.1. Main units of water heater

2.2.2 Technical data

Parameter	Unit	Size	
Energetic parameters			
Type		GT-19-03	GT-24-03
Nominal thermal output	kW	2H-G20: 19,2	24,5
		3B/P-G30,: 19,2	23,1
Efficiency at nominal thermal output	%	91	89
Nominal thermal input	kW	2H-G20: 21,1	27,5
		3B/P-G30: 21,1	26,0
Minimal thermal output	kW	6,7	7,4
Efficiency at minimal thermal output	%	93	93
Minimal thermal input	kW	7,2	8,0
Nominal kinetic pressure for gas: 2H-G20 / 3B/P-G30	kPa (mbar)	2,0 (20) / 3,0 (30)	
Nominal gas consumption[1)] of main burner, for gas:			
2H-G20	m^3/h	2,30	2,85
3B/P-G30	kg/h	1,69	2,09
[1)] Calculated for standard gas in standard conditions (dry gas at 15°C, 1013 mbar), at given boiler efficiency values.			
Water operating pressure	kPa (bar)	20-1000 (0,2-10)	
Water flow range	dm^3/min	2-11	2-14
Range of tap water temperature setting	°C	35 - 60	
Flue flow	g/s	17	19
Flue temperature at maximum output (measured at 1m in the flue pipe)		175	190
Sound power level L_{WA}	dB	53	53
Electric parameters			
Max. power consumption	W	30	
Supply voltage	V	230	
Protection degree		IPX4D	
Mounting dimensions			
Overall dimensions: height / width / depth	mm	621 / 366 / 224	
Net weight	kg	17,5	18,5
Positioning of installation points	mm	fig. 3.3.2	
Gas connection	inch	G ½	
Cold water connection	inch	G ½	
Hot water connection	inch	G ½	
Chimney connection (see section 3.6 and table 7.1)	mm	Ø60/ Ø100 or Ø80/ Ø125 or Ø80x Ø80	

2.3 Protection equipment

- **Protection against fumes outflow into a room** – bases on ionisation flame control and if flame on burner disappears it causes cutting off gas supply to the burner.
- **Heat exchanger overheating protection** – temperature limiter (item 11) will be activated if water in heat exchanger exceeds 95°C; gas valve is then closed.
- **Exhaust system protection** – supervision over patency of flue gas system is executed by pressure difference switch (item 9) cooperating with water heater controller. When, during start-up of the heater, pressure difference between supplied air and exhaust gases is incorrect or missing, gas valve will not be opened.

It is not permitted to make unauthorised changes to the heater protection systems.

In order to protect the flue gas-water heat exchanger against damage as a result of its freezing, an anti-freeze protection has been installed in water heater. Anti-freeze protection was implemented in software by suitable control algorithm. Description of this algorithm:

- if temperature on NTC sensor achieves 5°C, burner switches on for 5 seconds
- after this time, temperature sure increase by the value of 35°C
- if NTC sensor achieves 5°C again, burner switches on for 5 sec. again
- the above algorithm shall be carried out at intervals of not less than 15 minutes

NOTE : the above protection prevents only the flue gas-water heat exchanger from freezing damage.

3. WATER HEATER INSTALLATION

Have the heater installed by a qualified person.

All connections with water, gas and flue systems as well as a room, where a water heater will be install in must meet local applicable regulations.

After all installation works are completed, it is necessary to check up if all gas and water connection are tight.

NOTE:
Pipes and other water and gas connection elements (filters, valves), neither flue discharge elements are not included in water heater's equipment.

3.1 Key installation regulations

3.1.1 Location

- Water heater may only be installed in closed rooms meeting conditions regarding their height, cubic capacity, ventilation and flue gas discharge, as well as combustion air supply.
- It is not allowed to install water heaters above a heat source (i.e. electric or gas cooker, etc.)
- It is not allowed to install water heaters in rooms exposed to temperatures above 55 ºC or below 0ºC. If there is such a risk, it is necessary to drain the heater out of water.
- It is not allowed to keep any solvents, paints, inflammable gas, glue, detergents or any other chemicals that may cause corrosion.

Water heater mentioned in this manual has a degree of electrical protection assured by the housing: IPX4D. Equipped with a cord and plug can be installed in Zone 2 or further - it should not be installed in Zone 1.
Device can be installed in zone 1 only if it is permanently connected to the power source.

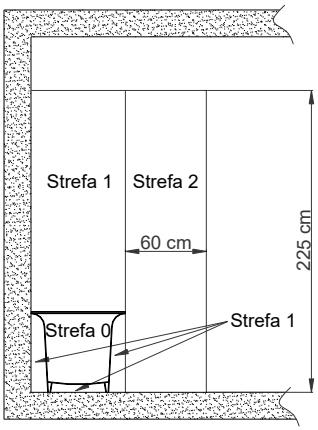


Fig.3.1.1.1 Side view. Bathtub

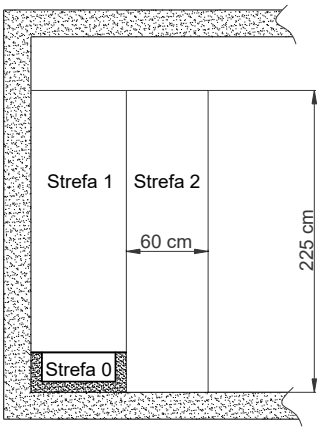


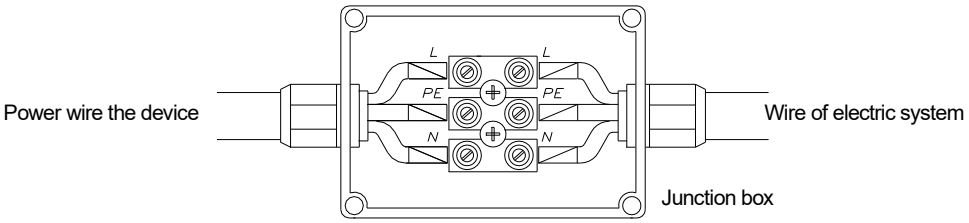
Fig.3.1.1.2 Side view. Shower

3.1.2 Electric system

Water heater was designed as a first-class device. It was designed for single-phase power supply with alternating current rated voltage of 230 V / 50 Hz.
In case the water heater is permanently connected to the power supply, it should be execute by junction box. Junction box must be equipped with protection degree appropriate for the defined assembly zone.
In order to connect the water heater to junction box, it is recommended to:

- cut the power cord to a suitable length for connection to the box
- pull off cable insulation
- put the cable-end sleeve with appropriate diameter

This prepared cables connect according to the following diagram.



Wire colors: L – brown; N – blue; PE – yellow-green

3.1.3 Gas system

- It is recommended to install a gas cut – off valve as close to water heater as possible.
- Water heater must be connected to gas mains with steel or copper pipes, accordingly to applicable regulations.
- If you use liquefied gas, water heater must be connected with a liquefied gas system, with a gas pressure reduction device situated on a gas cylinder, by means of a flexible tube no longer than 3m and pressure strength 300 kPa, which is resistant to components of liquefied gas, mechanical damages and temperature 60°C.

3.2 Preliminary check-up operations

- Take the device out of box.
- Unscrew two screws, remove the bottom cover.
- Remove the safety device from the front cover, unfasten the control panel from its latches by pulling it forwards (Fig. 3.2.1.).
- Disconnect the cable from control panel.
- Unscrew 2 screws.
- Remove front cover.
- Remove plugs from gas and water connections.

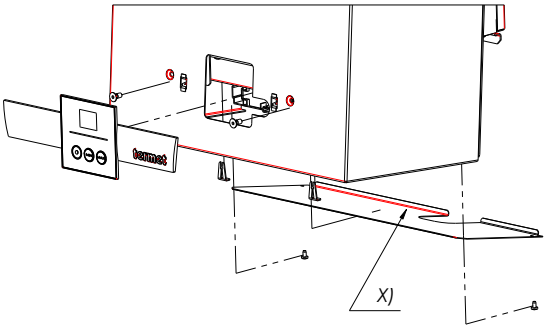


Fig. 3.2.1. Front cover removal

Before installation works, it is necessary to check if:

- purchased water heater is adapted to combust type of gas supplied from gas mains which appliance will be connected to. Type of gas the heater has been adapted for is given on box and rating plate placed on back cover.
- water system has been rinsed thoroughly with water, in order to remove rust, scale, sand or other foreign matter, which could disturb the proper operation of water heater (e.g. increase the resistance of water flow in system).

For electrical safety reasons the heater must be operated with bottom cover mounted (item X) fig. 3.2.1.

3.3 Water heater mounting

Maximal temperature of the appliance's surface does not exceed 60°C, so it is not necessary to take a special care of inflammable build materials.
In case of building the water heater over in a furniture system, air supply necessary for proper gas combustion should be provided. (Fig. 3.3.1).
Space should be left to allow for maintenance and servicing work.
Mount the water heater on the wall, on hooks permanently fixed in it, using two rectangular notches on water heater back cover.

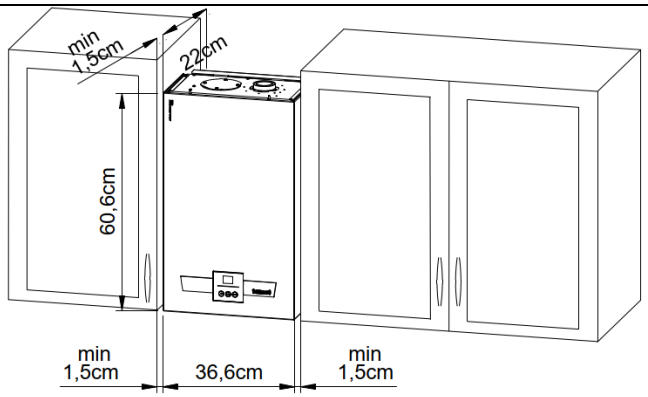


Fig. 3.3.1. Required mounting distances

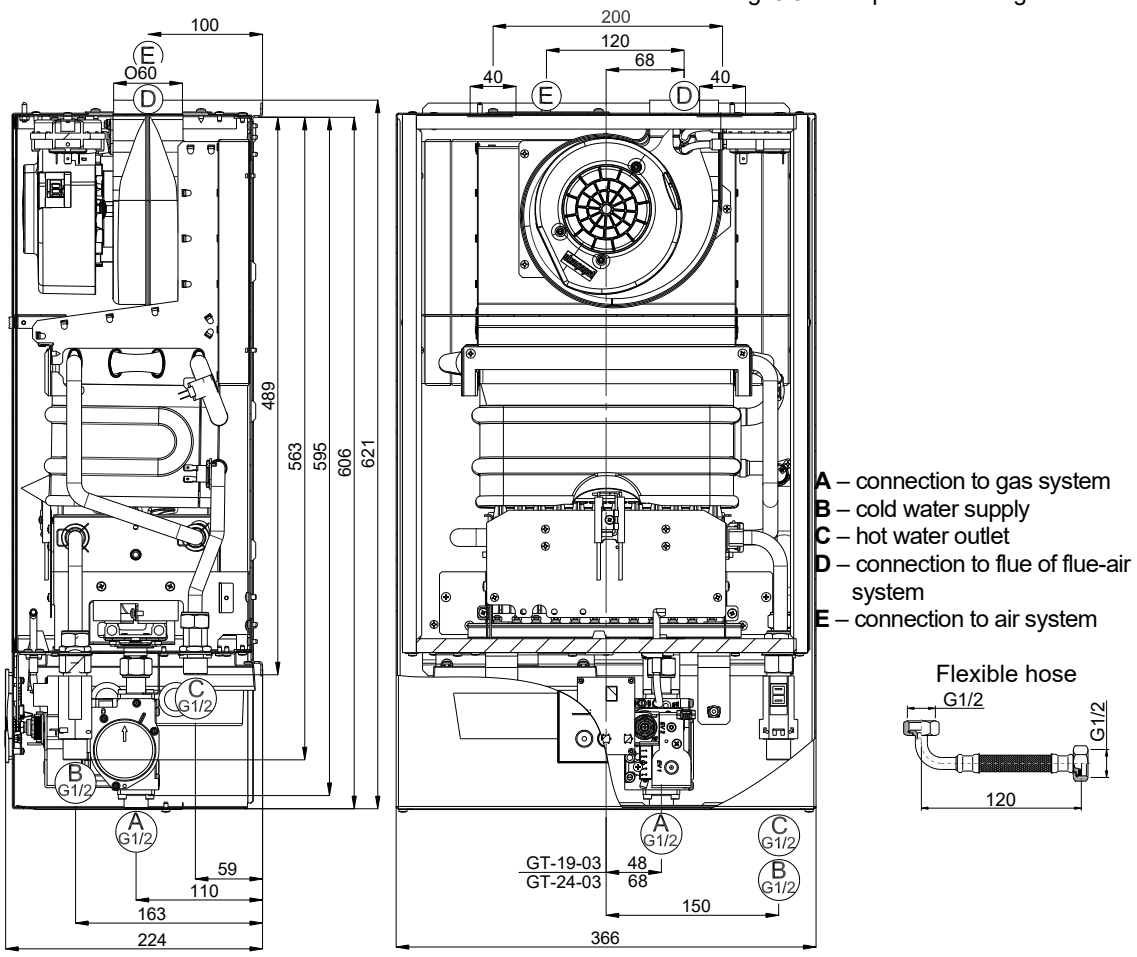


Fig. 3.3.2 Installation dimensions (mm)

3.4 Connecting to gas supply

Connection is presented in Fig. 3.3.2. Gas connector pipe size: G 1/2".
There should be installed a cut off valve and gas filter on the system. Gas filter installation is essential for correct and long-lasting operation of the gas unit and burner.
Filter is not included in device's equipment.

3.5 Connecting to water supply

Connection is presented in Fig. 3.3.2. Water connector pipe size: G1/2".
There should be installed a cut-off valve on the system.
Connect the water heater with water supply system should be performer by means of flexible hose which is a part of installation kit attached to the product.
In order to stop mechanical pollution, and thus, and to provide the water heater reliability and its long-lasting operation, it is recommended to install a water filter.
Filter is not included in device's equipment.

3.6 Connecting to flue system

The ways of connecting C-type water heaters to flue systems are presented on Fig. 3.6
The ways of connecting C-type water heaters with heat output 19,2 kW to flue systems in multi-storeyed buildings are presented in separate section. In such buildings it is possible to connect a water heater to common flue system that consists of:
- separate common pipes with a diameter 120 mm – such a system will be appropriate for 4 level – buildings,
- concentric common pipe with a diameter 140/200 mm - such a system will be appropriate for 5 level – buildings

To ensure proper operation of the device, use the appropriate dimensions of wires (diameter, maximum length, resistance on the elbows), depending on used flue system. The maximum length of the cables should be consistent with the data given in the table below.

Table 3.6.1

Type	Concentric system		Separate system
	∅60/∅100	∅80/∅125	∅80x∅80
	Max. length of chimney duct H		
GT-19-03	9 m	13 m	26 m
GT-24-03	9 m	13 m	26 m

Resistance of flue gas flow at each elbow, depending on the bending angle and associated reduction in maximum pipe length are given in the table below.

Table 3.6.2

Reduction of max. flue system length depending on elbow		
Elbow 15°	Elbow 45°	Elbow 90°
0.25 m	0.5 m	1 m

Adequate amount of air supplied to the combustion chamber is necessary for a proper water heater operation. Adjustment of air supply takes place by setting an appropriate fan speed correction on the controller (parameter r7). Procedure for changing this parameter is described in point 5.2. The value of fan speed correction depends on length of flue gas-air system, and is given in the table below.

Table 3.6.3

Type	Flue system	Gas type	Correction values depending on type and length of the flue gas-air system.								
GT-19-03	∅60/∅100	2E-G20, 2H-G20	Flue gas-air system length [m]	2	3	4	5	6	7	8	9
			Correction (r7 parameter)	01	02	03	04	05	06	07	08
			Parameter r5	32							
		3B/P-G30	Flue gas-air system length [m]	2	3	4	5	6	7	8	9
			Correction (r7 parameter)	01	02	03	04	05	06	07	08
			Parameter r5	17	18	19	20	20	21	21	21

Type	Flue system	Gas type	Correction values depending on type and length of the flue gas-air system.								
GT-24-03	∅60/∅100	2E-G20, 2H-G20	Flue gas-air system length [m]	2	3	4	5	6	7	8	9
			Correction (r7 parameter)	01	02	03	04	05	06	07	08
			Parameter r5	35							
		3B/P-G30	Flue gas-air system length [m]	2	3	4	5	6	7	8	9
			Correction (r7 parameter)	01	02	03	04	05	06	07	08
			Parameter r5	30	31	32	35	35	35	35	35

"NOTE:
For flue systems ø80/ø125 and ø80/ø80, r7 parameter must be set to 01 regardless of chimney length."

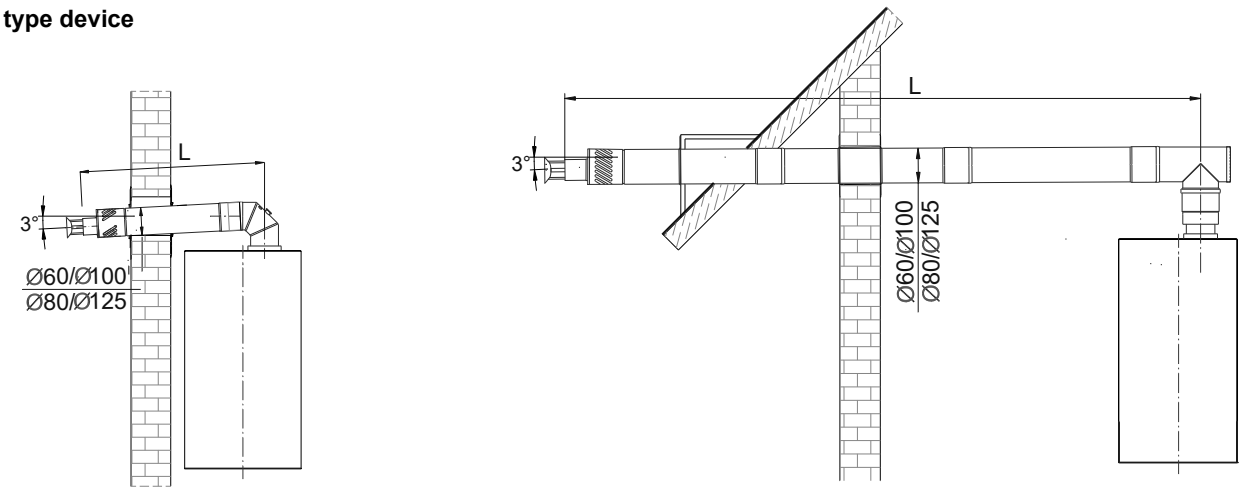
Connection of water heater to flue system and system installation should provide tightness. Flue system should be installed with outlet with wind protection and protection against external factors.

NOTE:

Before connection the flue system to water heater - remove the cap from fan.

3.6.1. Horizontal outlet of flue gas-air system through the wall or onto the roof

C12 type device



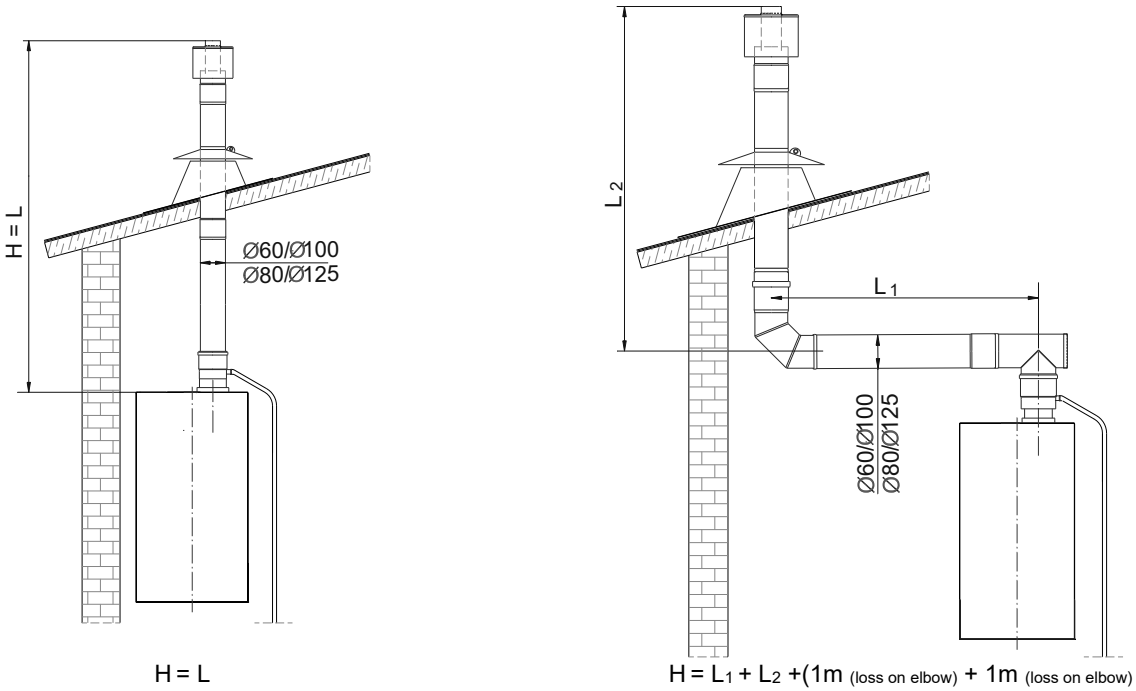
H = L + 1m (loss at elbow or T-piece)

Fig. 3.6.1.1

Note: Horizontal flue gas-air pipe should be installed with the slope of ~3º (Fig. 3.7.1) so that the raining water coming into pipes will not flood the water heater and flow out the building.
It is not necessary to install draining board, if the slope has been made.
Condensate drain hose must be properly siphoned.

3.6.2 Vertical outlet of flue gas-air system through the roof

C32 type device



H = L

Fig. 3.6.2.1

H = L_1 + L_2 +(1m (loss on elbow) + 1m (loss on elbow)

Fig. 3.6.2.2

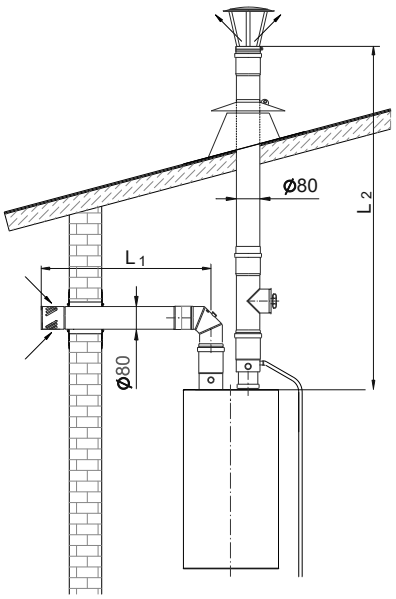
Note: condensate drain hose must be properly siphoned.

3.6.3. Exhaust and air supply via two separate pipes

In order to use a system of two separate pipes:

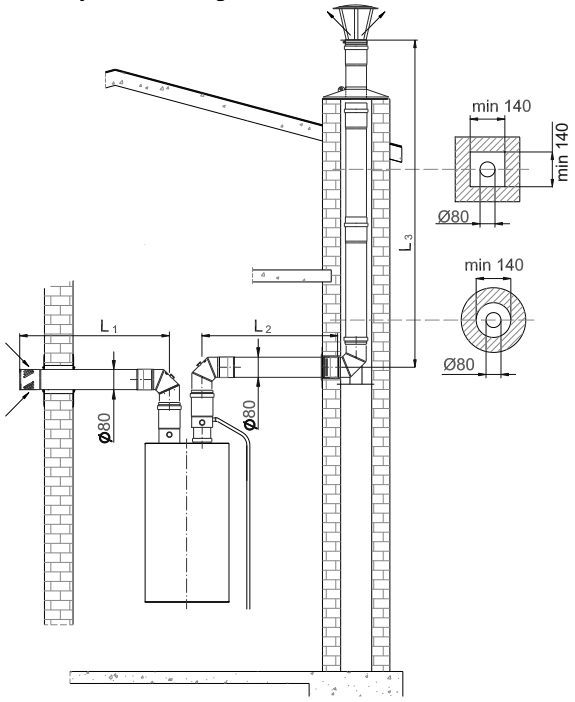
- Unscrew a cover in an upper part of the combustion chamber in the point where an air supply system is connected to the water heater (Fig. 3.6.1),
- Keep a gasket which is placed under the cover to use it later,
- Screw down an adapter ∅80/∅80 (acc. to table 7.1), at place where the removed cover had been screwed down before, seal a connection by means of kept gasket,
- Screw down an adapter ∅60/∅80 (acc. to table 7.1) in the point of flue offtake, in an upper part of combustion chamber, by sliding over its lower part onto the connection of a fan and sealing up the connection by means of a gasket No 690.00.00.06

C52 type device



$H = L_1 + L_2 + 1m$ (loss on elbow)

Fig. 3.6.3.1



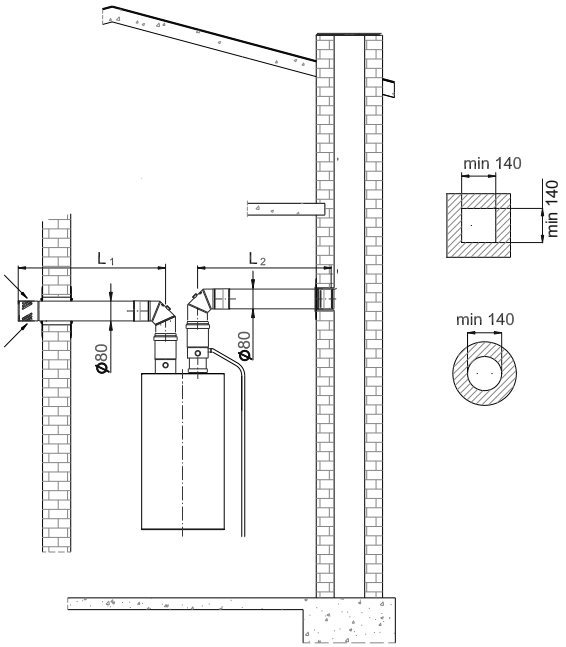
$H = L_1 + L_2 + L_3 + (1m+1m+1m)$ (loss on elbows)

Fig. 3.6.3.2

Note: Horizontal flue gas-air pipe should be installed with the slope of ~3º (Fig. 3.6.3.1 and 3.6.3.2) so that the raining water coming into pipes will not flood the water heater and flow out the building. Condensate drain hose must be properly siphoned.

3.6.4 Chimney system consists of a single duct with natural draught, second duct supplies combustion air from outside the building.

C82 type device

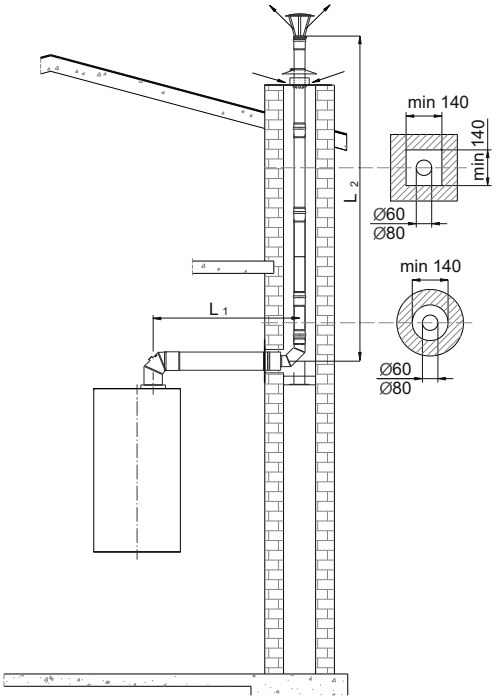


$H = L_1 + L_2 + L_3 + (1m+1m)$ (loss on elbows)

Fig. 3.6.4.1

3.6.5 Connection to a common ducting system consisting of combustion air duct and exhaust duct

C92 type device



$H = L_1 + L_2 + (1m_{\text{(loss on elbow)}} + 1m_{\text{(loss on T-piece)}})$

Fig. 3.6.5.1

4. WATER HEATER OPERATION

4.1 Water heater preparing for first start-up

Before proceeding with first start-up of the water heater, it is necessary to:

- fill the water system so that water flows when the hot water draw-off valves are opened,
- connect the water heater to the electric supply (a red diode will light on the control panel),
- turn on a gas knob (if you use LPG, turn on a valve placed on a gas cylinder).

4.2 Water heater start-up

Use buttons „**MIN**" and „**MAX**" (Fig. 4.3.1) and set the required tap water temperature. After turning on a water tap, the water heater will automatically actuate.

During the first start-up, release air from the system and the gas fittings.
During the first start – up gas is not ignited in a burner and in a consequence the anti – outflow protection closes a gas valve for 30 s (E1 error code will be displayed on LCD). After 30 s the control system actuate the water heater. After 3 ignition trials (2 trials for LPG) the water heater will be blocked. It is signalled with a E1 error code permanently displayed on LCD,
In order to cancel the error, turn off a water tap and then turn it on again. Repeat this action until air from a gas system will be released.
After this the water heater is ready to be used.
After turning on a water tap, gas is ignited on a main burner – then you get hot water from a tap.
After turning off a hot water tap, the gas supply to the main burner will be cut off and after 15 the fan will stop.

4.3 Water temperature regulation

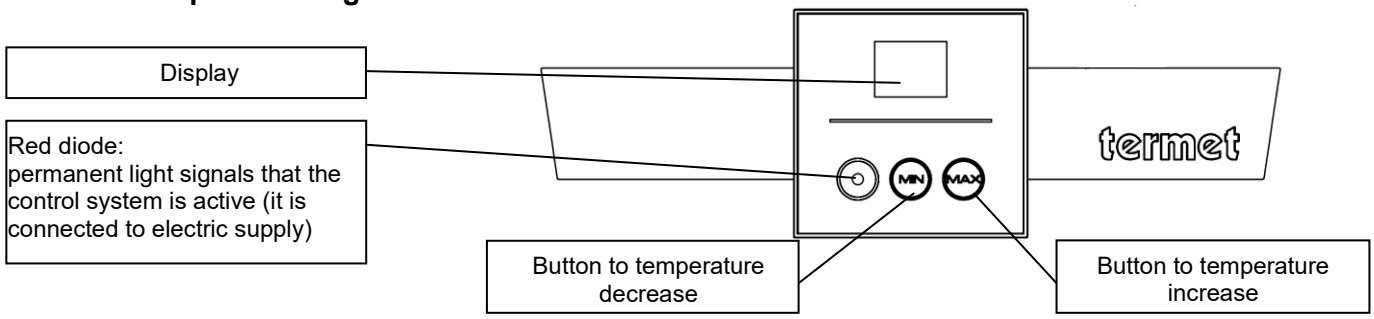


Fig.4.3.1 Function and regulation elements

Water heater is equipped with system to control gas–water valve that is responsible for keeping a set water temperature. To set water temperature use buttons **„MIN"** and **„MAX"** (Fig. 4.3.1). During setting the temperature, the current temperature value on LCD can be seen. It is possible to set tap water temperature within the range 35º÷60ºC.
During water heater operation, current temperature of water flowing out of water heater is indicated on the LED display.

GT-19-03 water heater has a built-in water flow limiter which limits the flow to 11 l/min.
GT-24-03 water heater (without additional limiter) ensures maximum flow of 14 l/min.
In the case of:

- hot water tap has been opened to maximum flow,
- high temperature is set,
- inlet water temperature is low (e.g. in winter),

it is possible that water heater (because its parameters of output 19,2 kW (275 kcal) or 24,5kW (350 kcal) will not reach the set water temperature.

Because the minimum output of water heater is 6,7 kW (96 kcal/min) and 7,4 kW (106 kcal/min), if water flow is low, the tap water temperature may exceed the set temperature. Water temperature increase depending on water flow is shown in the Fig. 4.3.3.

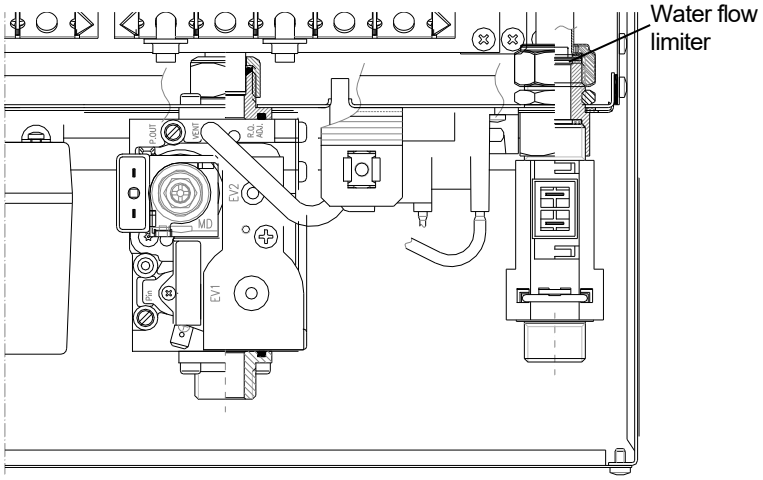
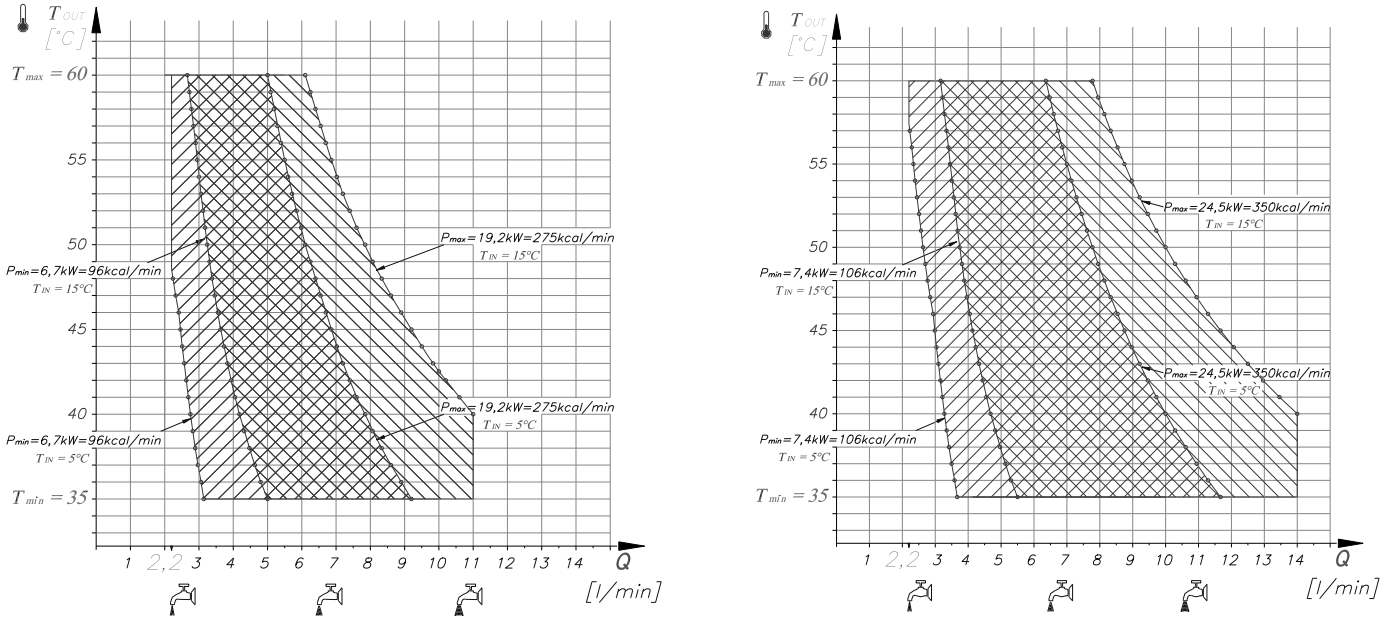


Fig.4.3.2



P – thermal output Q – water flow T_{IN} – supply water temperature T_{OUT} – tap water temperature

Fig.4.3.3

4.4 Diagnostics

If there appears a failure in water heater's performance, it will be signaled by displaying the proper error code on the control panel.
Error codes are being displayed with the priority of their importance for the safety of use.
If the symbols E1, E2, E3 or E6 flash, it is a signal that the water heater has been switched in safety mode.
This lock status may be cancelled by turning on a water tap.
If despite of this the water heater is still blocked it is necessary to contact service team.
When error occurs, try to reset the error manually. If error occurs again, intervention of an authorised company service is necessary. The following steps are only suitable for qualified service personnel.
Do not attempt to repair the water heater yourself.

Error code	Error description	Error reason	Error solving
E1	**No flame on the burner**. If the lack of flame is detected then gas valve will be closed and water heater will be stopped for 30s (E1 is permanently displayed; it signals the execution of emergency procedure). After 30s the control system actuate the water heater. After 3 ignition trials (2 trials for LPG) the water heater will be blocked - (it is signalled with a flashing E1 error code displayed on LCD, what means that the water heater has been switched off in safety mode).	Gas valve is closed	Open the gas valve
		Gas pipe is clogged	Clear the gas pipe
		Gas filter on the system is dirty	Clean or replace the filter
		Gas filter in gas valve is dirty	Replace the gas valve
		Ignition cable of electrode set is disconnected	Connect the ignition cable to spark generator
		Ignition wire of electrode set is defective	Repair the cable or replace the electrode set
		Ignition electrode is dirty	Clean the electrode or replace the electrode set
		Flame control cable of electrode set is disconnected	Connect the flame control cable to controller
		Flame control cable of electrode set is defective	Repair the cable or replace the electrode set
		Flame control electrode is dirty	Clean the electrode or replace the electrode set
		Grounding electrode is dirty	Clean the electrode
		Broken electrode set	Replace the electrode set
		Broken spark generator	Replace the spark generator
		Broken gas valve solenoid	Replace the gas valve
E2	**Water temperature in heat exchanger exceeded 95°C.** Water heat process is stopped by closing the gas valve; flashing E2 error code is displaying on LCD	Broken temperature limiter cable	Replace the wiring harness
		Temperature limiter cable is disconnected	Connect the cable to temperature limiter
		Broken temperature limiter (suspension in open position)	Replace the temperature limiter
		Heat exchanger is calcified	Clean of replace the heat exchanger
		Heater load set too high	Adjust the pressure on gas valve according to table 5.3
E3	**Lack of pressure difference in chimney system.** If a pressure difference between inlet air and outlet flue is not appropriate or there is no pressure difference, then: - gas valve is shut down, - E3 error code is displayed on LCD - 15 s – time needed to short contacts of differential pressure switch - if after 15 s the contacts are still open, water heater will be switched off in safety mode - flashing E3 error code is displaying on LCD	Differential pressure switch cable is disconnected	Connect the cable to differential pressure switch
		Broken cable of the pressure limiter sensor	Replace the wiring harness
		Air inlet is clogged	Unblock the air supply duct.
		Flue gas outlet is clogged	Clear the flue pipe
		Broken silicone hose	Replace the hose
		Silicon hose is disconnected	Connect the hose connecting the fan to differential pressure switch, paying attention to the connection signs
		Defective fan probe	Replace the probe
		Fan control cable is disconnected	Connect the cable to fan
		Fan power supply cable is disconnected	Connect the cable to fan
		Fan control cable broken	Replace the wiring harness
		Fan power supply cable broken	Replace the wiring harness
		Defective differential pressure switch	Replace the differential pressure switch

E4	**Damage in NTC sensor's circuit:** - gas valve is shut down and a heat process is stopped - E4 error code is permanently displayed on LCD - after removing the error reason the water heater will automatically return to its normal operation	NTC sensor cable is disconnected	Connect the cable to NTC sensor
		Broken NTC sensor cable	Replace the wiring harness
		Broken NTC sensor	Replace the NTC sensor
E6	**Damage in an electric system of control unit:** - flashing E6 error code is displaying on LCD	Broken control board	Replace the controller
E7	**Fault in gas unit's modulator system:** - water heater operates at its minimal output - E7 error code is permanently displayed on LCD - after removing the error reason the water heater will automatically return to its normal operation	Gas modulator plug on the gas valve is unplugged	Connect the cable to gas modulator
		Gas modulator cable on the gas valve is broken	Replace the wiring harness
		Defective gas modulator on the gas valve	Replace the gas valve
Error code	Error description	Error reason	Error solving

4.5 Water heater switching off

In case of an anticipated long break in the heater operation disconnect the water heater from electric supply and close gas valve on the heater or on a gas cylinder (if applicable)
If a room where the water heater is installed is exposed to temperatures below 0ºC, it is necessary to drain the heater out of water. In order to do this, cut off cold water supply, then undone a nut on the pipe supplying the water into the water unit and turn on the hot water tap.

5. ADAPTING THE WATER HEATER TO COMBUSTING DIFFERENT TYPE OF GAS

⚠	***Adaptation of heater to another type of gas can be performed only by AUTHORIZED SERVICE COMPANY.***
NOTE!	Heater supplied by the manufacturer, is suitable for gas shown on the nameplate. If you need to connect the device to a different type of gas than the type for which the device has been pre-equipped, check what type of gas can be adapted.

Gases to which you can adjust the heater, are given on the nameplate-in the category of the device:

$II_{2H3B/P}$ - which means that it is designed to burn gases from two families

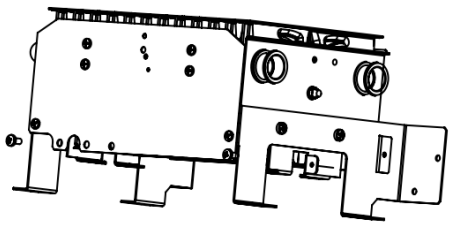
Gas type	Gas group	Kind of gas
2 Natural gas	H	G20
3 Liquefied gas	B/P	G30

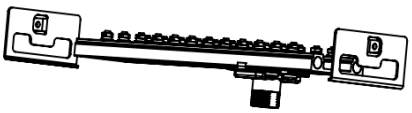
Switching of water heater to another type of gas:

- replacement of the nozzles in main burner,
- adapting the controller to operation with a specific type of gas,
- regulation of the minimum and maximum gas pressure in the burner,
- starting power regulation on control panel
- check the tightness.

5.1. Replacement of the gas manifold

Water heater type	Gas type	Drawing number	Manifold marking
GT-19-03	2H-G20-20mbar	3823.01.02.00	473.1041.02
	3B/P-G30-30mbar	3824.01.02.00	473.1041.06
GT-24-03	2H-G20-20mbar	3833.01.02.00	473.1102.02
	3B/P-G30-30mbar	3834.01.02.00	473.1102.04





5.2. Controller parameter changing

Changing parameters is performed only in the case of changeover on a different gas family:

- turn off the power
- turn on the power again
- in the 20s from the heater connection to the power supply, press and hold for 5 seconds two buttons "MIN" and "MAX"(at the same time)
- the display shows the code **"r1"**
- release the buttons "MIN" and "MAX"
- by pressing the button "MAX" twice - select the parameter **"r3"**
- if you selected **"r3"**, accept the selection with the button "MIN", display shows the current value

00 - for natural gas
01 - for liquified gas 3P
02 - for liquified gas 3B/P

- to modify the value of the selected parameter, press the "MAX"
- after reaching the desired value, press "MIN" to accept
- to complete the programming function, press the" MAX" button to select a parameter **"En"** and confirm by pressing "MIN".

Available parameters:

Parameter		zakres zmian	factory setting					
			2H	3P	3B/P	2H	3P	3B/P
r1	- starting power	0 ÷ 99	30	40	20	30	30	30
r2	- maximum power	0 ÷ 99	99					
r3	- gas type	00, 01 lub 02	00	01	02	00	01	02
r4	- minimum fan speed	10 ÷ r5 [*100 rot/min]	10					
r5	- maximum fan speed	r4 ÷ 50 [*100 rot/min]	Acc. to table 3.6.3					
r6	- starting fan speed	r4 ÷ 50 [*100 rot/min]	11	10	10	11	10	10
r7	- chimney length	01 ÷ 08	Acc. to table 3.6.3					
r8	– typ ogrzewacza	00 lub 01	00 -GT-19-03			01 -GT-24-03		

5.3 Adjustment of the minimum and maximum burner gas pressure by adjusting the screws on the gas valve modulator

All adjustments must be made very carefully based on the characteristic data of the unit given in Table 5.3.

It is mandatory to check the gas inlet pressure **"P. IN"** and the gas outlet pressure **"P. OUT"** using the gas valve pressure test points. To do so:

- Remove the protective cap "**k**" from the gas valve modulator coil;
- at the "**P. OUT**" outlet pressure measuring point, loosen the screw plug and connect a pressure gauge (micromanometer).

NOTE: The heater controller has a service function of low and high product power (burner pressure).
This function has a maximum duration of 30 minutes.

To activate the above function you need to:

- on the control panel by pressing the "MAX" button, set the water temperature to the highest value = 60^0 C;
- open the water point (tap) and maintain the maximum water flow;
- during water heating, hold down the "MAX" button for 5 seconds;
- The display will show the percentage gas output (99) with a dot;
- a single press on the "MIN" button will cause the gas flow to decrease slowly: after 10 seconds the percentage gas flow will reach the minimum on the display (00) - this means that the unit is operating at minimum power. **NOTE:**
  - pressing the MIN button during an ongoing decrease in output on the modulator allows the decrease to be paused; pressing the MIN button again starts the decrease to continue.
  - a single press of the MAX button causes a slow increase of the gas flow on the modulator, which is signalled by an increasing value on the display.
  - pressing the MAX button during the ongoing increase of the output on the modulator allows to stop the increase; another pressing of the MAX button starts the continuation of the increase.
  - **NOTE:** The service function terminates in the following cases:
  - after 30 minutes,
  - after the tap is turned off ,
  - when the MIN button and MAX button are pressed simultaneously,
  - when the set temperature is exceeded according to the instructions,
  - if error code E1 appears

ADJUSTMENT OF THE MAXIMUM GAS PRESSURE IN THE BURNER (maximum power)

- follow steps 1,2,3,4;
- set the maximum burner gas pressure according to table 5.3:
- - To do this, adjust screw "**B**" with a spanner;
- - Turning the screw clockwise increases the gas pressure in the burner;
- - Turning the screw counterclockwise reduces the gas pressure in the burner;
- - Once the pressure has been set, proceed to adjust the minimum pressure.

ADJUSTMENT OF MINIMUM GAS PRESSURE IN THE BURNER (minimum power)

- it is obligatory to perform the action according to point 5 - after about 10 seconds the display will show the value, (00), which means that the modulator and the fan operate at minimum;

Attention
Simply disconnecting the wire from the modulator coil will only reduce the power on the gas unit without reducing the fan power, which does not ensure correct minimum regulation

- observe that the burner has not been switched off;
- Use the adjusting screw " A" to adjust the burner pressure - do not use a Phillips screwdriver;
- Turning the screw clockwise increases the gas pressure in the burner:
- Turning the screw counterclockwise reduces the gas pressure in the burner.

NOTE: To avoid changing the previously set maximum burner pressure, hold screw "B" with a flat spanner.

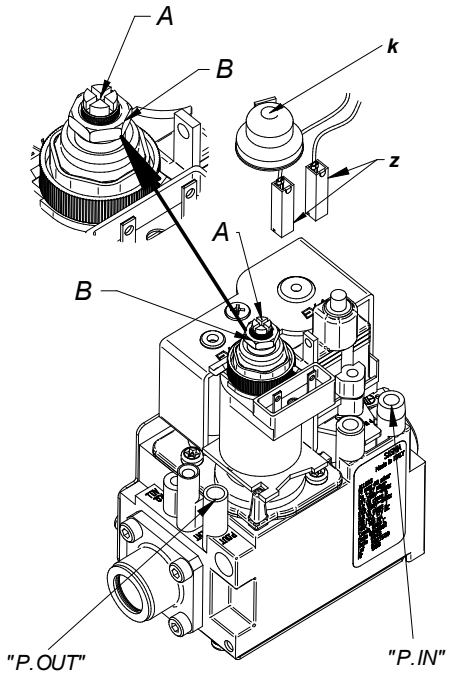
Once the adjustment has been completed:

- check the minimum and maximum pressures. If necessary, readjust the pressures;
- Fit protective cap "**k**";
- apply a seal (red nitro paint) to prevent the removal of the protective cap "**k**" without damaging it;
- check the correct electrical connections to the modulator coil;
- check and carefully seal the pressure control points by tightening the screw plug on the gas unit.

Set the temperature on the control panel according to your needs.

Table 5.3

Gas	Gas pressure on the burner			
	GT-19-03		GT-24-03	
	Min [Pa]	Max [Pa]	Min [Pa]	Max [Pa]
2H-G20 20 mbar	120	1120	130	1320
3B/P –G30 30 mbar	170	1690	180	1800



5.4. Starting power regulation

In the case of explosive gas ignition or no ignition, change the value of the starting power. Follow the instructions in point 2 change the value of "r1" in the range 0 to 99, so as to achieve a stable ignition of the gas.

5.5. After adjusting the heater to another type of gas

- on the rating plate
  - delete type of gas that has been pre-determined
  - enter the type of gas to the heater has been adjusted
- in the manual put the information that the heater has been designed for a different type of gas.

Rating plate example

termet s.a	
Gas setting	**Natural**
Gas type	**2H-G20**
Gas pressure mbar [kPa]	**20 [2,0]**
Set nominal heat load . . . . . [kW]	

6. MAINTENANCE

In order to ensure the appropriate and long-lasting operation of the heater, it is recommended to perform maintenance operations. Inspections and maintenance works must be only performed by an authorized service team, at least once a year.
The range of recommended maintenance operations is presented below.
Before starting any maintenance operations, the gas and water supply must be cut off, and then the water should be drain out from the appliance. Before cleaning the heater, first disassembly the burner and then follow the same way with the heat exchanger.

6.1 Cleaning a heat exchanger (removing deposits and scale)

To ensure full gas combustion and keeping maximum heat exchange efficiency, it is recommended to keep the segments of the heat exchanger cleaned.
Cleaning a heat exchanger out of sediments requires it to be disassembled from the water heater and rinsed with a strong water stream.
If it is necessary to remove scale from ducts of the heat exchanger, do it using agents available on the market, according to the recommendations of agent's manufacturer.
The scale can be also removed by means of 10-20% acetic acid, by keeping it in the heat exchanger for about 3 hours. After it the heat exchanger should be thoroughly rinsed with clean water.
Do not use wire brushes, or other brushes with hard bristle.

6.2 Burner maintenance

During maintenance works clean plates situated on segments of the burner. Pay attention whether the plates or segments were not damaged.

6.3 Cleaning a water filter

Clean a water filter during every maintenance work. The filter must be also cleaned if you notice that water flow is lower than usual. If a water filter is damaged, it is necessary to replace it with a new one.

6.4 Cleaning a gas filter

Clean a gas filter during every maintenance work. If a gas filter is damaged, it is necessary to replace it with a new one.

6.5 Cleaning a water flow limiter (GT-19-03)

Water heater is equipped with a water flow limiter, which is shown in the Fig. 4.3.2. The water flow limiter provides the maximal flow – 11 l/min for water heater with output: 19.2kW,
Pollutions in a water flow limiter can cause a lower water flow. In order to clean a water flow limiter, unscrew a nut situated on an inlet pipe of a heat exchanger, move a pipe and remove a water flow limiter. Then rinse it and mount it again.

6.6 Checking the protections against leakage in a flue system and heat exchanger overheating

Temperature limiter - (Fig. 2.2.1.1 item. 11) - protection against leakage in a flue system, is set for the temperature 85±3°C.
In order to verify the correctness of a limiter's setting, follow the below mentioned actions:
- prepare a metal vessel with a thermometer,
- fill the vessel with a liquid,
- take the limiter out of the holder (unscrew the screws), put it into a vessel submerging in the liquid only the metal cap
- heat the liquid up to the temperature 82°C – in such temperature the limiter should not actuate,
- heat the liquid up to 88°C – in such temperature the limiter should actuate.

A limiter that operates properly disconnects electric contacts in the temperature range 82 ÷ 88°C.

6.7 Checking the fan operation control protection device

water heater is equipped with an adjustable differentia pressure switch, which is factory set.
Actuation pressure: 150Pa - adjustable

Check the pressure at which contacts of differential pressure switch over (return pressure). Water heater must be switched off.

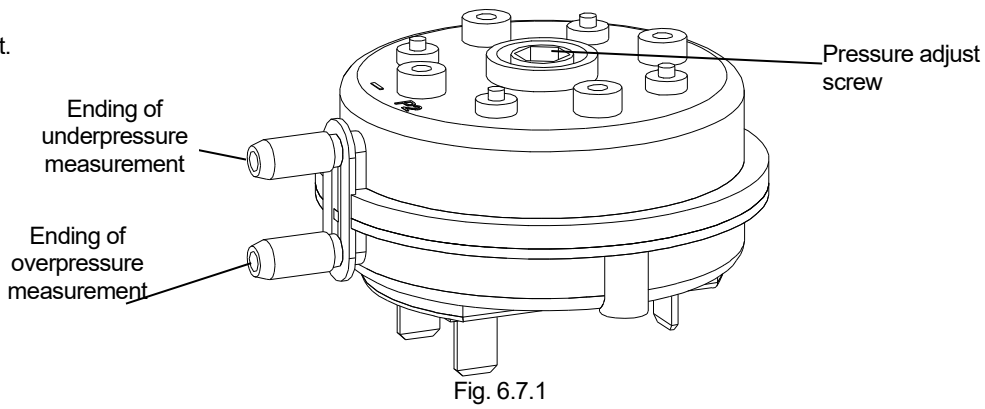


Fig. 6.7.1

Use new gaskets if any elements of water or gas systems has been disassembled.
The works mentioned in section 6 are not covered by warranty repairs.

7. FLUE GAS-AIR SYSTEMS

Flue gas-air systems are sold according to the current TERMET offer. Elements of the sets are not included in water heater's equipment

PL Producer:

Termet S.A.
ul. Długa 13
58-160 Świebodzice
Poland

T: +48 74 85 60 801
F: +48 74 85 40 884
E: termet@termet.com.pl

RO Importator/Distribuitor:

NOVASERVIS FERRO Group SRL
Sediul Central:
str. Câmpina nr. 47 Cluj-Napoca, jud. Cluj

Hub Logistic:
str. Sperantei nr. 101 Buftea, jud. Ilfov

Departament Service:
T/F: +40 264 522 524
E: service.termet@ferro.ro

T/F: +40 264 522 524
E: info@ferro.ro

www.termetcompany.com

termet.romania termet.romania