



Instruction for use  
**Gerkrös TT/TK Boiler**

Technical Manual

## Putting the boiler into operation:

# ATTACK TT, TK - WALL GAS BOILER

The boiler must be put into operation by a service worker trained by producer!

**The boiler is set by the producer to natural gas G20, inlet gas pressure 2,0 kPa.**

**Before installation and putting the boiler into operation it is necessary to get acquainted with the instruction for use.**

**The NSK boiler is equipped with a waste-gas thermostat (B 11 Bs)**

## Before first putting into operation it is necessary to take following steps:

1. Check whether the heating system is filled with water and the boiler is deaerated properly.
2. Make sure if all the valves are open.
3. Open the gas valve next to the boiler and test the sealing of the gas piping in the boiler.

## Procedure of the first boiler burning:

1. Plug the feeding flex into the 230V/50 Hz socket.  
Test the socket with another appliance. The main switch of the boiler must be in the off position.
2. Set the boiler and spatial thermostat (if connected) to maximum
3. Switch on the main switch
4. Check the proper operation of all the thermostats and control elements

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## Introduction

### Dear customer,

Thank you for confidence expressed by purchasing our product wall gas boiler ATTACK. We wish you long and reliable operation, therefore you need to read this instruction for use carefully. The manual is written in the way to respect the right operation of the boiler in central heating.

The conditions of right operation of the boiler:  
choose the right type and output of the boiler  
impeccable putting into operation  
sensible operation  
regular technical maintenance  
reliable service

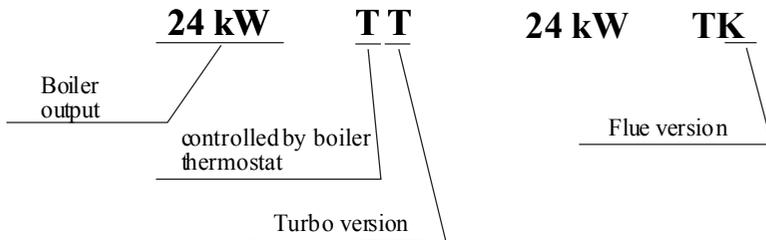
## General description

The latest produced range of wall gas boilers is designed as an appliance with maximum effectivity and minimum emissions into atmosphere, saving environment considerably. Maximum output is 24 kW. High technical level of boilers is supported by used top components from world producers.

### NOTICE:

For the right working of the boiler it is necessary to keep a minimum water pressure of 1 bar (measured when the water is cold) in the heated system.

### Description of ATTACK TT, TK boilers brand:



## Purpose of use:

The type range of ATTACK TT, TK wall boilers is produced with the output of 24 kW. They are used for heating or central heating of family houses, flats, shops and similar places where natural gas is used as fuel.

As to installation, the boiler is built to operate with heating water to maximum hydrostatic pressure of 0,3 Mpa (3 bar) and operating temperature to 80°C with the connection to heating systems with forced flow of heating water in a closed system. The water in the heating system must suit to STN 07 7401 (it must not be sour in any case, which means that the pH-value must be higher than 7 and it must have minimum carbonate hardness, max. 3,5 m val/l). Filling pressure in cold system is of 1 1,5 bar. Filling must be done slowly to let air bubbles escape through proper deaerating valves. For adjusting the water hardness in the heating system it is necessary to use recommended agents. **In the case of not following the rules above, there is no guarantee for damaged components.**

## Installation conditions:

A gas boiler can be installed only by a company authorized to carry out this work. Before installation the installing company is obliged to check the right choice of the boiler type with regard to the functional attributes and required parameters. The boiler has an IP 41 covering of electric parts resistant against vertical water dropping. Therefore it can be installed in bathrooms in zone 3 (in the distance of 60 cm from the edge of the bath or shower corner). The room where the boiler is located must have the temperature in the range of +5 to +35°C with relative humidity to 80%.

**It is not allowed to place things close to the boiler, in the distance of:**

- 100 mm things from hard and medium inflammable materials
- 200 mm things from easy-inflammable materials

**Conditions of service:** The first putting into operation and training of the boiler operators must be done by a contract service partner of the producer that makes regular maintenance as well as guarantee and post-guarantee service of the boiler. To the supply gas piping, a handy gas valve must be installed before the boiler, which must be approachable but is not a part of the boiler accessories. Connecting the boiler to the heating system is through screw joints G 3/4". Gas inlet is connected through screw joints G 3/4". Before installing the boiler it is necessary to make sure that the chosen place fits to requirements for waste gas escape and that minimum distances before mentioned are kept. As this boiler is fast-heating, equipped with its own pump, it can be connected to gravity circulation as well as to a new system for forced water circulation in the heating system. In the case of new distributions we recommend to use small-volume heating bodies and distributions in the smallest dimensions because of fast heating of the system to the temperature as well as big flexibility of the system. Connecting the boiler to the heating system and to the gas distribution must be carried out so as not to strain connecting outlets of the boiler. Before connecting the boiler to the heating system it is necessary to flush it thoroughly to remove small impurities and mud. The heating system must include a proper filter. To utilize the maximum output of the heat-exchanger, it is necessary to ensure minimum pressure in the heating system of 1 bar for right operation and long lifetime.

A built expansion tank enables connecting the boiler to closed heating system. The boiler is to operate on natural gas of 20 mbar nominal pressure in the distribution net. The boiler is located so as to ensure necessary operating conditions whether it is an appliance with open combustion chamber (flue) or with closed combustion chamber (turbo) and with regard to the ways of combustion air supply and waste gas exhaust.

## Conditions of service

The service of the boiler must be carried out by the rules described in this manual. Except service works, the user must not carry out any repairs on the appliance nor adjustments or dismantling and cleaning the inside parts of the boiler. The boiler can be operated only by an adult. After leaving home in winter (on holiday...) a supervision by a trained person is needed. If there is a danger of approach of inflammable (combustible) gases or fumes to the boiler (e.g. when lying a PVC flooring), it must be put out of action early. The user is obliged to take care of proper use of the boiler according to this instruction which is also a condition to acknowledge guarantee. When putting the boiler to operation, the service worker must instruct the user about boiler operating. **The user with his or her signature in the letter of guarantee confirms having been instructed with the boiler operating.**

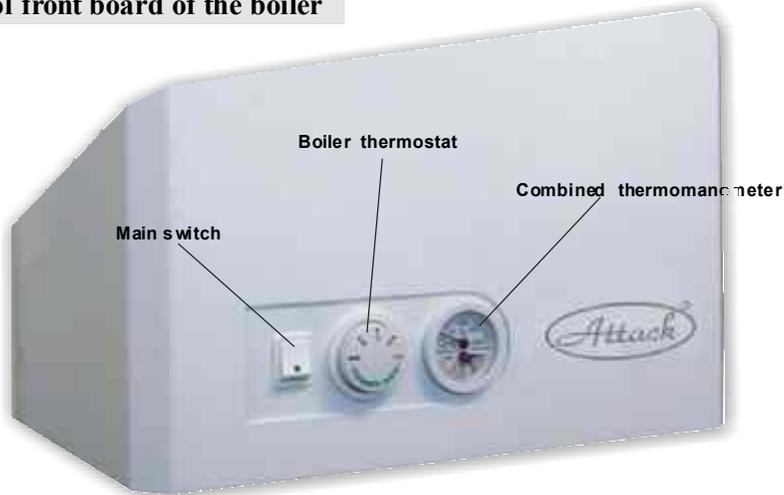
## Technical description

Fast-heating wall boilers ATTACK TT, TK are equipped with copper heat-exchangers protected on surface with silicone coating on the base of aluminium, resistant to 430°C. These are exchangers to warm up heating water. A big advantage of this exchanger is place and weight saving. Maximum operation pressure for heating circle is 300 kPa (3 bar) by 80°C. Minimum operation pressure is 100 kPa (1 bar). The heat-exchanger is located in the upper part of combustion chamber and is fitted with an automatic deaerating valve, which leads over closing chamber. For minimum loses during heat transmission it is necessary to keep the surface of heat-exchanger lamellas clean.

The source of heat is a gas burner of modern unit-built design made from stainless steel. It is located in the bottom part of combustion chamber. There are two electrodes in the burner. One of them is a spark ignition electrode, another is a ionization probe for burning control. Combustion chamber is made from aluminium-coated steel plate with inside thermal insulation. Over the combustion chamber (TT) is a waste-gas collector with a fan for waste-gas draw. With the help of silicone tubes is the fan connected to a switch of differential pressure (manostat). In the flue version (TK) there is a draw breaker with a waste-gas thermostat. In the upper part of the exchanger there is a thermal probe for heating system. The inside water piping in the boiler is made from copper pipes. Closing chamber of the boiler (TT) is made from aluminium-coated steel plate. Openings in the closing chamber are sealed with silicone seal.

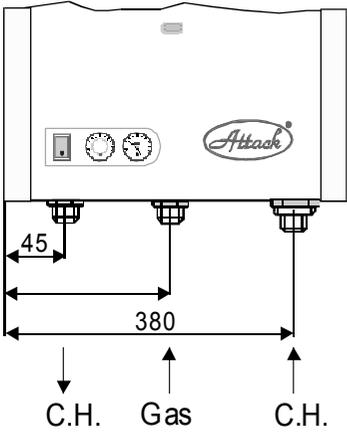
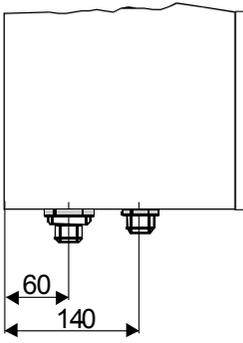
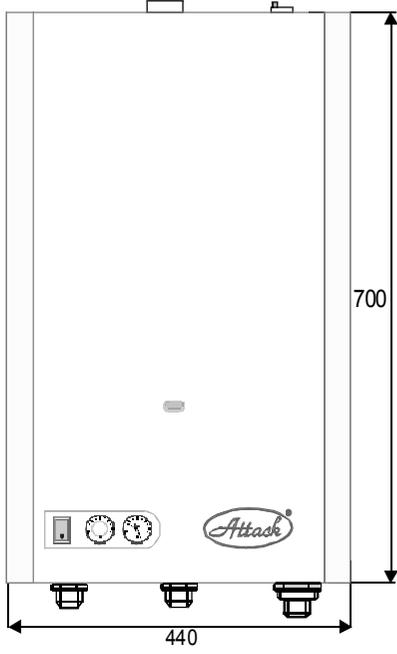
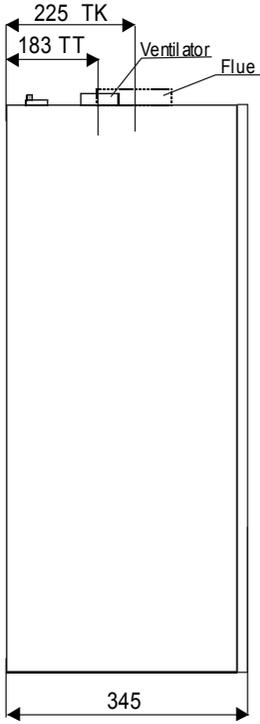
On the inside distribution of heating water outlet there is an emergency thermostat, pressure switch and pressure gauge. In the case the temperature of outgoing heating water overcomes 95°C, the emergency thermostat puts the boiler in emergency condition following by putting it out of operation. In the case the pressure in the heating system falls under 1 bar, the pressure switch puts the boiler out of operation. In inside distribution of heating water inlet there is a 3-bar-safety valve and a circulation pump. In the rear part of the boiler there is an 8-liter expansion tank connected with the pump. Outside case is treated with dust paint with thermal endurance up to 180°C.

### Control front board of the boiler

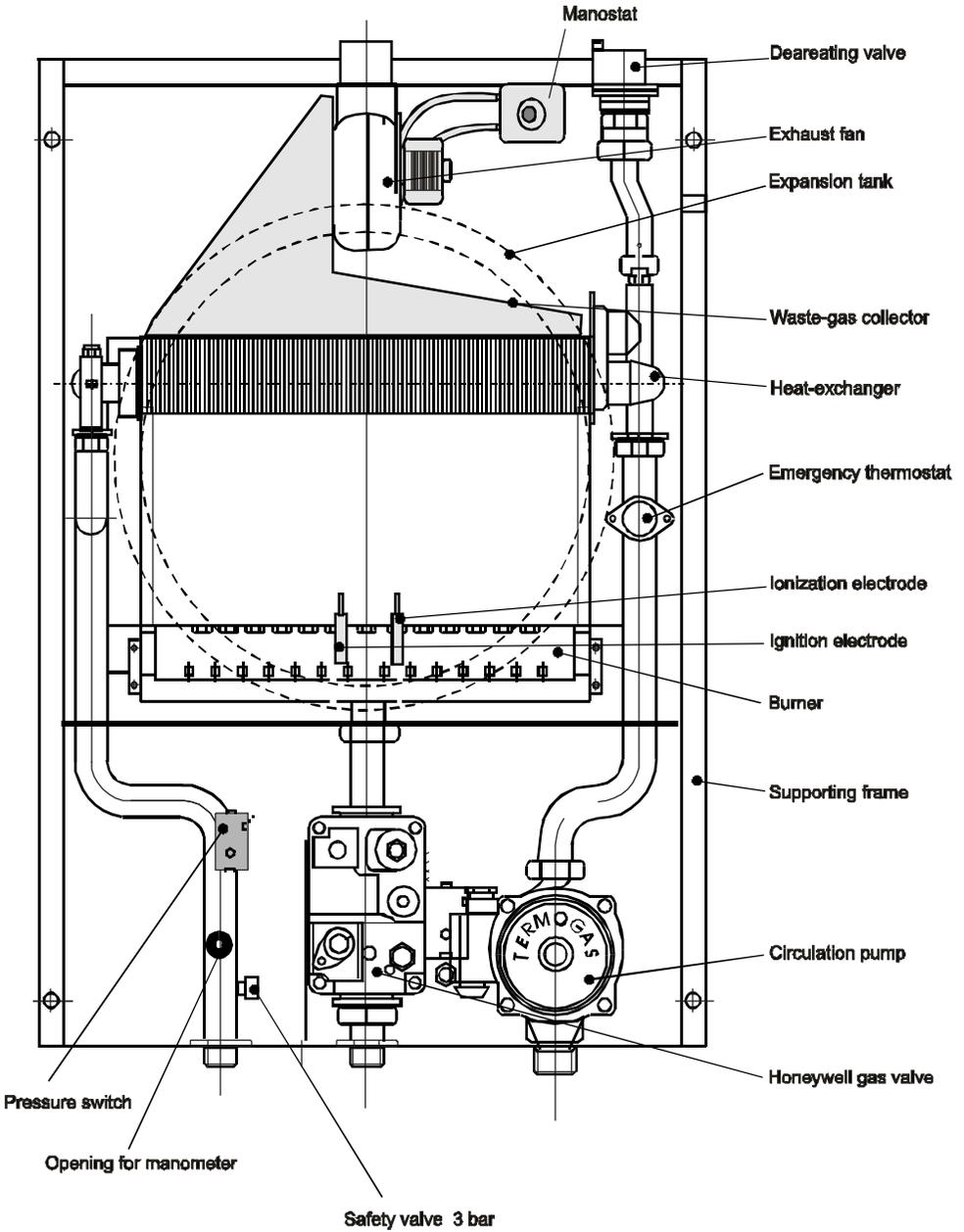


Thermomanometer is a measuring appliance for measuring outlet temperature of water and pressure in the heating system. A user can set the temperature of water in the heating system to 25 - 80°C by a boiler thermostat. The recommended range is 55 - 80°C. The RESET signal light signals a condition, when the electronics has not managed to burn the boiler (e.g. because of gas supply failure). After finding and remedying the defect it is necessary to restart the boiler operation by pressing the RESET button.

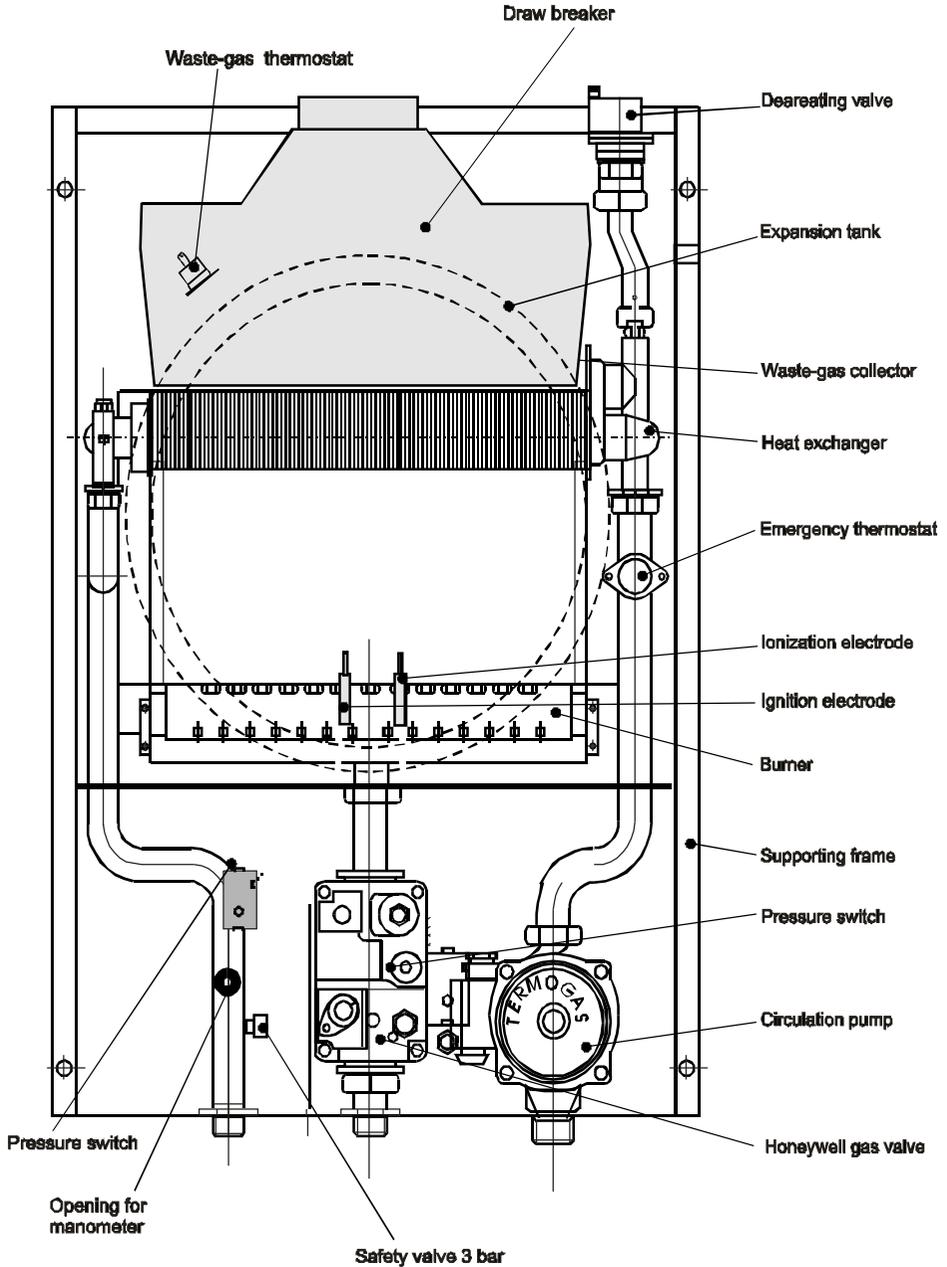
**Outside dimensions of the boiler :**



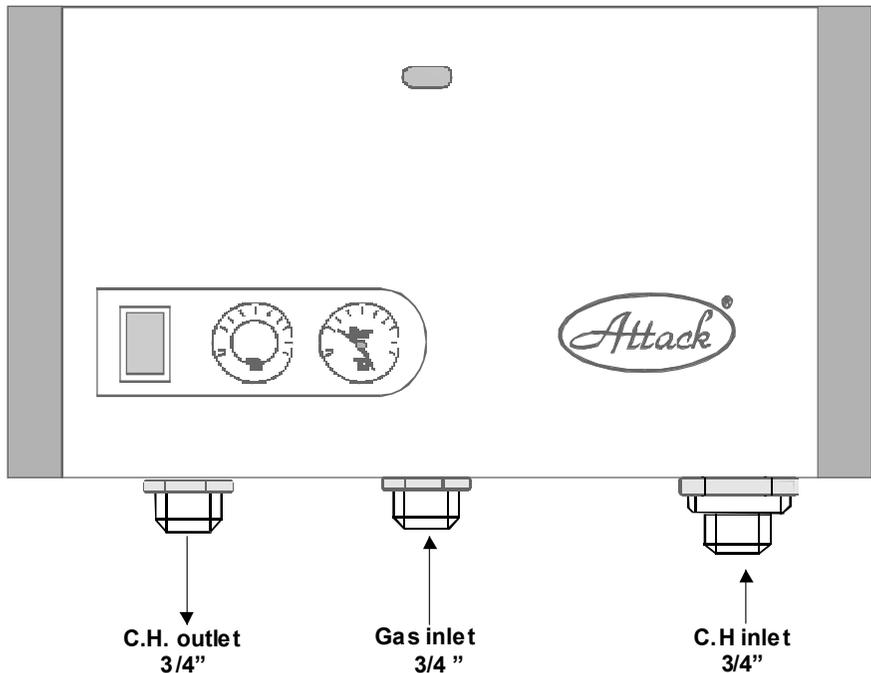
# Mainparts of the ATTACK TT boiler :



# Main parts of the ATTACK TK boiler



## Connecting the boiler to water and gas:



## Connecting the boiler to electrical network

The boiler is plugged into the electric net socket with a three-wire supply lead with a plug. The socket must suit to appropriate standards STN, various multiplugs and lengthening cables are not allowed to use. Installation of the socket, connecting the space thermostat and service of electric parts of the boiler can be only performed by a person with special electric qualification by the Public Notice No. 718/2002 Z.z. Electric installation is ready for additional connection of spatial thermostat and a 3-way valve for connecting undirectly heated storage tank.

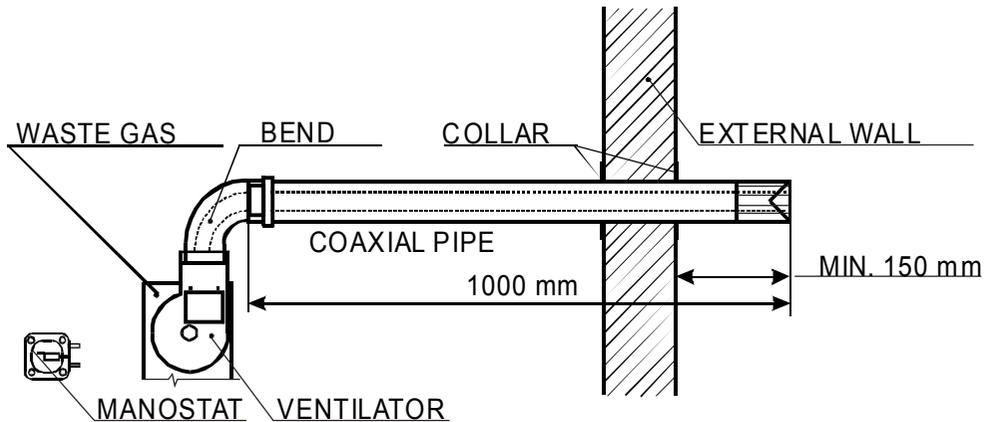
## Supervision over operation

During the operation the boiler is secured against dangerous operation conditions. However, the breakdowns the cause of which is not included in the boiler mechanism, cannot be protected to arise. Therefore it is necessary after putting the boiler to operation to examine the boiler once in three days and check:

- whether the system is filled with water and there is no discharge
- whether waste gases or gas cannot be smelled

***Found breakdowns must be reported to the service worker who put the boiler to operation. If there is a gas discharge, the gas supply must be closed. Found breakdowns must be removed immediately.***

## Waste-gas exhaust



Waste-gas exhaust and combustion air come through double piping (turbo version) delivered by the boiler producer which can be ordered in required amount by the project (horizontal or vertical exhaust) including sealing collars, roof reducing piece and so on.

### Conditions of waste-gas exhaust outlet through the external wall:

- the outlet must protrude 150 mm minimally from the external wall of a building
- minimum height over the ground to a space publicly inapproachable is 1 m
- minimum height over the ground to a space publicly approachable is 2 m
- the outlet must not lead to an explosive and inflammable space
- if in the up direction there are some inflammable materials on the building, it is necessary to keep vertical distance of 1,5 m from the outlet

### Maximum length of double waste-gas exhaust permitted by the producer:

- horizontal piping of 3 m measured from the bend on the boiler to the outlet on the facade
- vertical piping of 2,7 m measured from the boiler to the bottom edge of a roof reducing piece
- each 90° bend inserted shortens the length in 0.75 m and a 45° bend shortens it in 0.5 m

### Spare parts

The producer keeps single parts of boilers as spare parts which are provided for guarantee and postguarantee service only to contract partners on the base of order or reclamation.

### Guarantee, reclamation

The exact reading of guarantee and guarantee conditions and hints for reclamation are included in the letter of guarantee. Repairs in the guarantee time are performed only by contract services.

**Attention!** *To respect the conditions of guarantee, the producer does not permit performing any repairs by a company other than a contractor service in the guarantee time.*

## **Service**

After each year of the operation during the guarantee time it is necessary to get the boiler examined and adjusted by a contract company. Unless this is performed, the guarantee will not be acknowledged. Even after finishing the guarantee time the producer recommends any interventions aiming to repairs to be made only by a contract service partner. The activities of the boiler user in the post guarantee time are determined in the part „Maintenance“.

## **Maintenance**

Regular maintenance is important for reliable operation of the boiler, its long lifetime and combustion effectivity. The user is recommended to contact a contract service organization nearby and ensure regular examinations of the boiler after a year of working (see conditions for guarantee). A service worker checks control and safety elements of the boiler, gas and water distribution sealing or cleans the burner and exchanger from burnt dust particles. In the case of lower pressure it is necessary to refill water into cold heating system. The outside coat of the boiler can be cleaned with a rag soaked in soapy water and then dried with a dry one.

## **Wrapping, transport, storing**

Boilers are transported in vertical position. To prevent possible damage during manipulation and transport, it is protected by a carton wrapping. The wrapping is secured by an adhesive tape. The boiler must be stored in non-aggressive space with the temperature of +5 up to +50°C in maximum relative humidity of air of 75%, without presence of organic steams, gases and dust.

## **Boiler accessories and documentation**

ATTACK TT and TK boilers are delivered completely assembled and tested functionally. The delivery includes following documentation:

- instruction for use with a document on boiler testing on the back side of the instruction
- letter of guarantee, list of contract partners

## Technical parameters

Table

Max. output of heating	kW	24
Gas consumption - natural gas	m <sup>3</sup> /hod	2,7
Effectivity	%	90-92
Electrical supply	V/Hz	230/50
Control of spatial thermostat	V	230
Min. - max. pressure in heating	Bar	0,8-3
Expansion tank volume	l	8
Weight	kg	40
Outlet heating temperature regulation	°C	30-85
Waste gas exhaust diameter $\varnothing$	mm	130
Forced waste gas exhaust diameter $\varnothing$	mm	100/60
Electric standard	W	130
Connecting gas pressure	mBar	20
Electric standard	-	IP 41
Number of nozzles	pcs	13
Jet diameter TT $\varnothing$	mm	1,15
Jet diameter TK $\varnothing$	mm	1,25
NOx	ppm	20-50
CO	ppm	7-14
Fuel	-	Natural gas

# TECHNICAL MANUAL FOR ASSEMBLY AND SERVICE COMPANIES

## **Installation of boilers**

A boiler can be installed only by a company with an appropriate certificate for assembly of gas appliances. Connecting of the boiler must also suit to valid standards, rules and instruction for use. **The producer is not responsible for damages caused by wrong connecting.**

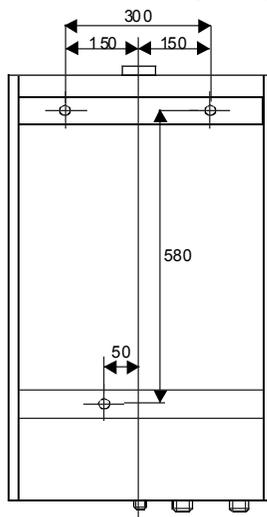
## **Localization of boilers**

Localization of boilers must suit to project documentation.

Boilers are to be situated in the way to ensure all the operation conditions needed for an appliance with open combustion chamber (flue) as well as for closed combustion chamber (turbo) with regard to the way of combustion air supply and waste gas exhaust. From the sides of boilers there must be free access of at least 0.2 m and in front of boilers of 1 m for assembly and service. Boilers must be installed at least 0.1 m over the floor. The flue version has an open combustion chamber so it takes air for combustion directly from the room where the boiler is placed. The room can be ventilated through ventilating openings into surrounding atmosphere or indirectly through neighbouring rooms. The neighbouring room, where the air is sucked from, must not be a bedroom or a part of the house where there is danger of fire e.g. store of inflammable materials or a garage.

## **Hanging boilers on the wall**

Mounting boilers on the wall must be performed on the base of qualified assessment of the wall bearing capacity (by a project worker or assembly company) so as to guarantee safe and reliable hanging of boilers. Boilers are necessary to mount to the wall with a suitable connecting material (e.g. screws and dowels) regarding the quality of the wall.



## Connecting boilers to heating system

ATTACK boilers serve for heating systems with forced circulation. Rate of water flow can be set by the switch on the pump. Before filling the heating system with water it is necessary to clean the system properly. Heaters and distribution must be washed several times. For thorough washing and cleaning the heated system, cleaning agents are recommended. On the inlet from heating system to the boiler there must be a filter mounted. We recommend a brass filter with side cleaning which must be cleaned once a year minimally. Because of maintenance and service we recommend to mount valves on the inlet and outlet of central heating. Filters and valves are not delivered as boiler accessories. Clogged filters can cause higher noisiness of boilers. Outlet from safety valve is necessary to connect to discharge piping. **Guarantee does not apply to the cases of clogging the heat exchanger or pump by impurities from the system.**

The hardness of water in the heating system is not recommended higher than 3.5m val/l. In boilers there is an 8-litre pressure expansion tank enabling connecting to a closed heating system. If it is required by the size of the heating system, it is necessary to mount another pressure expansion tank. The recommended temperature difference between outgoing and incoming heating water from a boiler is 15 - 20°C. For reconstruction of heating or a new system we recommend small-volume heaters and distributions in the smallest dimensions regarding to fast rise of the system to the temperature and quite a big flexibility of the system. Process of water filling: when filling with water, boiler must be disconnected from electricity, deaerating valves on the boiler and heating system must be open. Fill the system to reach the pressure of 1 Bar, then deaerate and fill with water to reach the pressure of 1.5 bar in cold condition..

*The guarantee does not apply to incrustation of the heat exchanger or the pump!*

## Connecting the boiler to gas pipeline

Before connecting a boiler to the gas pipeline, the pipeline must be tested and adjusted. After connecting to a boiler all the gas connectors must be tested for tightness including piping and fittings in the boiler. Bolted connectors of the gas pipeline as well as those of the heating water piping must not be stressed by any additional force.

## Connecting a spatial thermostat (regulator)

A spatial thermostat is not a part of boiler accessories but it can be connected into a boiler by the request of a customer. Voltage for switch contacts of the spatial thermostat is 230V/50Hz. Connecting of the spatial thermostat into the boiler is illustrated on the connection chart. Connecting terminals for the thermostat are interconnected by a jumper. After connecting the spatial thermostat to the terminals the jumper is to be removed.

## Connecting to a flue. TK version

ATTACK TK boilers in the flue version are connected to a flue with an exhaust branch of 130 mm diameter. Connection to the flue must be done by the appropriate rules.

## Connecting a coaxial pipe. TT version

Air inlet for combustion and flue gas exhaust is carried out by pipe in pipe elbow 90° and pipe in pipe 1m long. Additional accessories 90° and 45° elbows or pipes 0,5 and 1m long is possible to purchase on request. The maximum length, admitted by the producer, of coaxial waste gas exhaust is 3 m horizontally and 2,7 vertically, measured from the boiler to the outlet on the facade or to the bottom edge of the roof reducing piece. Each 90° bend shortens the length in 0.75 m and a 45° bend in 0.5 m. The whole pressure loss of the piping must not be bigger than 80 Pa. Coaxial piping must have a slope of 3° from the boiler out.

## Connecting a 3-way valve (undirectly heated storage tank for water heating)

By the request of a customer it is possible to connect to the ATTACK TK, TT boilers undirectly heated storage tank for hot water preparation with a 3-way valve. Connecting of the electric part of the 3-way valve to the boiler is illustrated on the chart of connection. Connecting terminals for the 3-way valve are interconnected by a jumper. After connecting the valve to the terminals the jumper is to be removed.

## Putting the boiler into operation

Putting into operation, checking and setting minimum and maximum output of the boiler as well as the repairs can be carried out only by firms authorized to this and trained by the producer (list of the contract service partners is in the supplement).

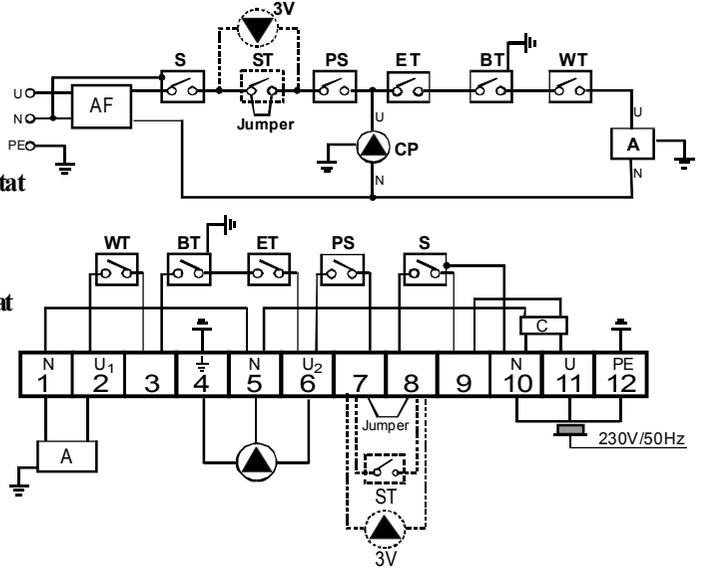
### **Duties of a service worker when putting the boiler into operation:**

- check whether the installation of the boiler and accessories suits to the project and boiler inspection.
- check the deaeration of the boiler and heating system (the bolt on the automatic deaerator must be released)
- check the water pressure in the heating system (minimum of 1 bar in the cold system)
- check if the safety valve is working
- check the connecting to the gas pipeline as well as control and safety elements and test the sealing of the gas pipeline from the main pipe seal up to the burner in the boiler
- check electric socket connecting and electro installation inspection
- check the waste gas exhaust
- check the flue inspection
- check the minimum and maximum output by measuring the pressure on burner nozzles

- check the function of operation
- set appropriate pump speed and pressure in the heating system
- test function of ball valves before the boiler
- get a user acquainted with the boiler attendance which is confirmed by the user's signature in the letter of guarantee
- write down putting the boiler into operation to the letter of guarantee and instructions for use

### Chart and connection of electroinstallation of ATTACK TK

- A** - Automatics
- S** - Main switch
- BT** - Boiler thermostat
- ET** - Emergency thermostat
- PS** - Pressure switch
- CP** - Circulation pump
- AF** - Antijamming filter
- WT** - Waste-gas thermostat
- ST** - Spatial thermostat
- 3V** - 3-way valve

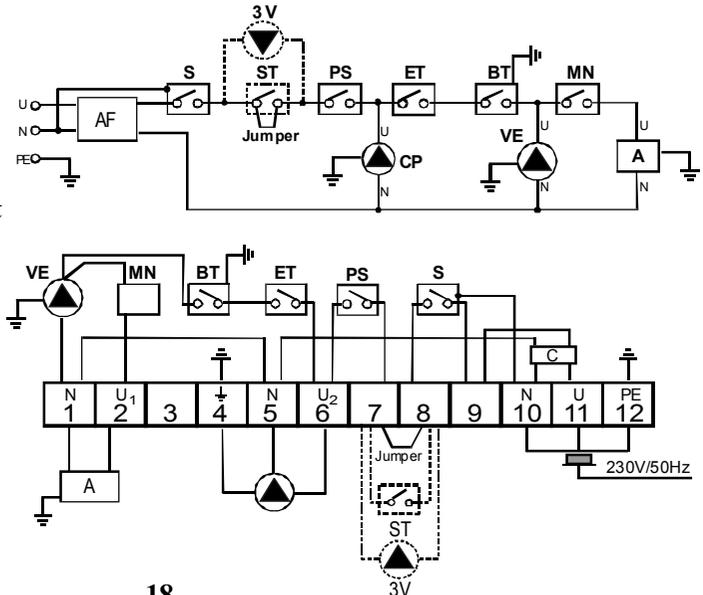


#### Note:

- ST or 3V is to be connected to terminals No.7 and 8
- Remove the jumper !

### Chart and connection of electroinstallation of ATTACK TT

- A** - Automatics
- S** - Main switch
- BT** - Boiler thermostat
- ET** - Emergency thermostat
- PS** - Pressure switch
- CP** - Circulation pump
- AF** - Antijamming filter
- 3V** - 3-way valve
- ST** - Spatial thermostat
- MN** - Manostat
- VE** - Ventilator



#### Note:

- ST or 3V is to be connected to terminals No.7 and 8
- Remove the jumper !

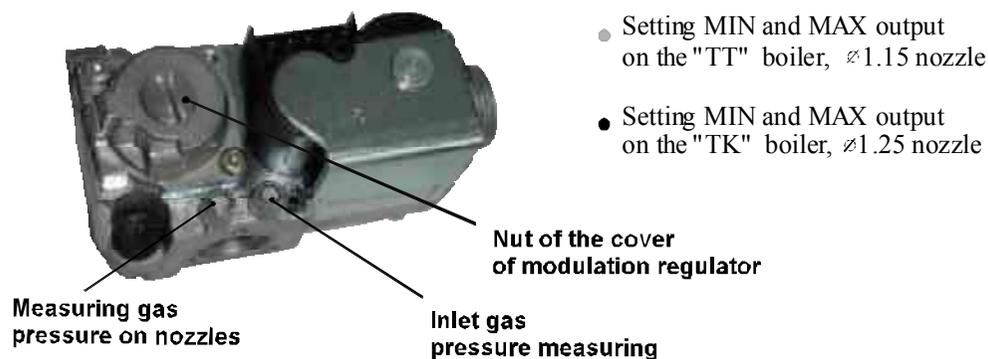
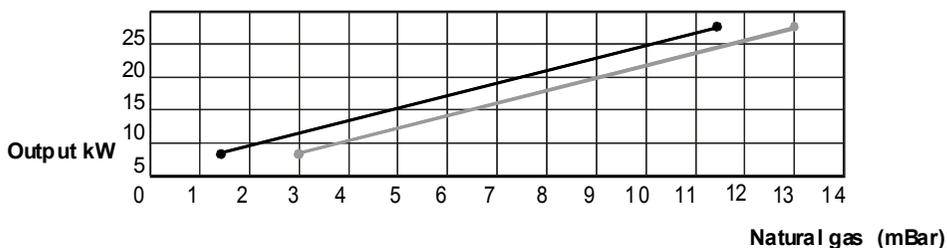
## Setting minimum and maximum boiler output into heating

Modulation regulator on the gas fittings is set from production to minimum and maximum pressure on nozzles that suits to minimum (8kW) and maximum (24kW) boiler output. When putting boiler to operation, it is necessary to check minimum and maximum gas pressure on the nozzles.

*Instruction for checking and setting up:*

- release the bolt in the probe for measuring inlet gas pressure, connect manometer and read the measured value (2mbar). Screw in the bolt in the probe for measuring inlet gas pressure.
- release the bolt in the probe for measuring gas pressure on burner nozzles, connect manometer and read the measured value by the chart of pressure setting.
- in the case of setting minimum and maximum pressure on nozzles, following actions are to be done:
  - a) remove the nut of the cover of modulation regulator
  - b) set the requested output by the chart
    - by turning the nut to the left minimum output
    - by turning the nut to the right maximum output
  - c) attach back the nut of the cover of modulation regulator
  - d) disconnect manometer and tighten the bolts in the probe
  - e) check right operation of the boiler

## Chart of setting pressure on nozzles



**NOTES :**

**NOTES :**

**NOTES :**

**RECORD ON PUTTING THE BOILER TO OPERATION**

**Boiler type:** .....

**Boiler output:** .....

**Production No.** .....

**Date of putting to operation:** .....

**Service company:** .....

*Stamp, signature*

**Obligatory service examination after the 1st year of operation**

**Date:** .....

*Stamp, signature*

**Obligatory service examination after the 2nd year of operation**

**Date:** .....

*Stamp, signature*

**Obligatory service examination after the 3rd year of operation**

**Date:** .....

*Stamp, signature*

**DOCUMENT on testing and completeness**  
**of ATTACK gas boiler**

**TT**

**TK**

**Boiler output: 8-24 kW**

**Boiler production No.:** **N**

**The product delivered with this certificate suits to technical standards and technical conditions.**

**The product was manufactured by its drawing design in requested quality and is approved by TECHNICAL TESTING FACILITY SKTC104 in Piešťany under the No. of certificate 00846/104/2/2002, 00847/104/2/2002**

**Technical inspection**

Vrútky, date: .....

Stamp and signature of the final inspection: .....

Producer:

**TERMOGAS**  
**Dielenská Kružná 5**  
**038 61 Vrútky**  
**SLOVAKIA**

Exporter:

**ATTACK s.r.o.**  
**Dielenská Kružná 5**  
**038 61 Vrútky**  
**SLOVAKIA**

**Tel: 00421 43 4003 103**

**Fax: 00421 43 4003 106**

**E-mail: [export@attack-sro.sk](mailto:export@attack-sro.sk)**

**[http: www.attack-sro.sk](http://www.attack-sro.sk)**

**[www.termogas.sk](http://www.termogas.sk)**

