Gerkros® Termogas

USER'S OPERATING INSTRUCTIONS
INSTALLATION AND SERVICING INSTRUCTIONS FOR
WALL MOUNTED GAS BOILERS

GERKROS TERMOGAS

MODELS
COMPACT
GAS BOILERS

Category 2 appliances.(IIH3P)

Power rating 230 VAC, 50Hz. IP41
CE Marking

For use on Natural and LPG Gases for IE & UK
Natural Gas (G20) at a pressure of 20mbar
LPG Gas G31 (3P) at a pressure of 37mbar

The installation of this appliance must be carried out by a competent person in accordance with IS 813:
2002/A1:2004 Domestic Gas Installation (Edition 2)

IE

1.12.2005

Putting the boiler into operation:

GERKROS TERMOGAS COMPACT-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 COMPACT boiler is equipped with a waste-gas thermostat (B11Bs).

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 deareated 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. The button for setting the heating temperature and a room thermostat (if connected) set to maximum.
3. Put the mode switch to the position **winter**.
4. Check the proper operation of all the thermostats and control elements.
5. Set the boiler output by the request of heated place.

Contents:

Technical manual

Introduction

Dear customer,

Thank you for confidence expressed by purchasing our product GERKROS TERMOGAS COMPACT wall gas boiler with equithermal and smooth electronic output regulation. We wish you long and reliable operation. Proper attendance of the boiler is one of the conditions for reliable and right operation, so please read this instruction for use carefully. The manual is written in the way to respect the right operation of the boiler in central heating system.

The conditions of right operation of the boiler:

- to choose the right type and output of the boiler
- impeccable putting into operation
- sensible attendance
- regular technical maintenance
- reliable service

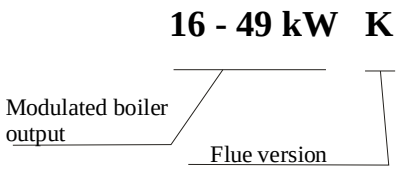
General description

The latest produced range of wall gas boilers is designed as an appliance with maximum effectivity and minimum emissions into atmosphere, saving environment considerably. The output is regulated smoothly, controlled by microprocessor in heating mode in all the output range of the boiler and is modified to a building by heating loss. High technical level of boilers is supported by used top components from world producers.

NOTICE:

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

Description of GERKROS TERMOGAS COMPACT boilers brand:



Purpose of use:

The type range of GERKROS TERMOGAS COMPACT wall boilers is produced with modulated output of 16-49,9 kW. They are used for heating or central heating of family houses, flats, shops and similar places where the fuel is natural gas.
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 85ºC with connection to heating systems with forced flow of water in the closed system. Water in the heating system must suit to standards (it must not be sour in any case, which means that it must have the pH-value higher then 7 and minimum carbonate hardness, max. 3,5 m val.1-1) Filling pressure in cold system is of 1- 1,5 bar. Filling must be done slowly for air bubbles to escape through proper deareating valves. For adjusting the water hardness in the heating system it is necessary to use recommended agents. **In case of not following the rules above ,there is no guarantee for damaged components which cause higher cost for boiler operation.** (lower boiler efficiency, high consumption, fast wear, short service life)

Installation conditions:

A gas boiler can be installed only by a company authorized to carry these works. 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 that is resistent against water dropping vertically. 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 +35ºC with relative humidity to 80%.
It is not allowed to place things close to the boiler, in the distance shorter than
100 mm -- materials of low and medium flammability
200 mm -- materials of high flammability

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 ¾“. Gas inlet is connected through screw joints G¾“. 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 is possible to connect it with gravity circulation as well as to a new system for forced water circulation in the heating system. For 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 is necessary to carry 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 boiler 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 (chimney) or with closed combustion chamber (turbo) and with regard to the ways of combustion air supply and waste gas exhaust.

Conditions of attendance:

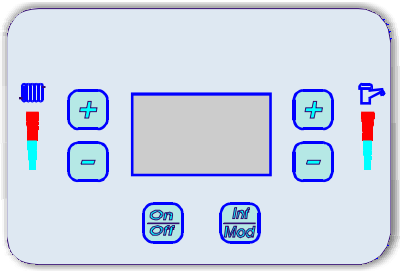
The attendance of the boiler must be carried out by the rules described in this manual which is a part of delivered consumer documentation. Except attendance, the user must not carry out any repairs on the appliance nor adjustments or unmounting and cleaning the inside parts of the boiler. The boiler 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, it must be put out of operation soon. The user is obliged to take care of right use of the boiler according to this instruction which is also a condition for acknowledgement of guarantee. When putting the boiler to operation, the service worker must instruct the user how to operate the boiler. **The user with his or her signature in the letter of guarantee confirms having been instructed in the boiler service.**

Technical description

Fast-heating GERKROS TERMOGAS COMPACT wall boilers are equipped with copper heat-exchangers protected on surface with silicone coating on the base of aluminium, resistent to 430ºC. A big advantage of this exchanger is sparing place and weight. Maximum operation pressure for heating circle is 300 kPa (3 bar) by 85ºC. Minimum operation pressure in the heating circle is 100 kPa (1 bar). The heat-exchanger is located in the upper part of combustion chamber and is fitted with an automatic deareating valve. For minimum loses during heat transmission it is necessary to keep the surface of the 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. In the burner there are two electrodes. One of them is a spark ingition 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 there is a draught breaker that has a waste-gas thermostat. The inside water circle in the boiler is made from copper pipes and there is also a sensor for temperature of central heating and a sensor for pressure.Combustion chamber of the boiler is made from aluminium-coated steel plate. Fast- heating GERKROS TERMOGAS COMPACT wall boilers are equipped with automatics with continuous output regulation.

The control centre for controlling boiler operation is a modulation electronic board equipped with a microprocessor. Sensor state and value is scored by software which also gives orders to active elements - gas valve, ignition electronics, circulating pump. On the inside distribution of heating water outlet there is an emergency thermostat which, in the case the temperature of outgoing heating water overcomes 85ºC, puts the boiler in emergency condition following by putting it out of operation. For a perfect efficiency of the heat-exchanger it is necessary to ensure the minimum pressure of 1 bar in the heating system to reach right operation and long life. Maximum pressure of 3 bar is given by the boiler design. These given values are controlled by a pressure switch measuring also the whole range of pressure in the heating system. In inside distribution of heating water inlet there is a 3 bar safety valve and a circulating pump. . In the heating system there is also a by-pass valve which opens by the difference overpressure higher than Δp >0,35 bar. By-pass is used as the last option to ensure water flow in the heat exchanger. After opening the by-pass valve, the power produced by boiler does not go to the heating system, but it heats a short circuit very fast, the boiler modulates to the lowest output and after a short time stops working.
Outside case is treated with dust paint with thermal endurance.

Control front board of the boiler



On Off — **used for switching on and off**

Inf Mod — **used for parameters of the control board (temperature of heating water, water pressure, outside temperature, K factor)**

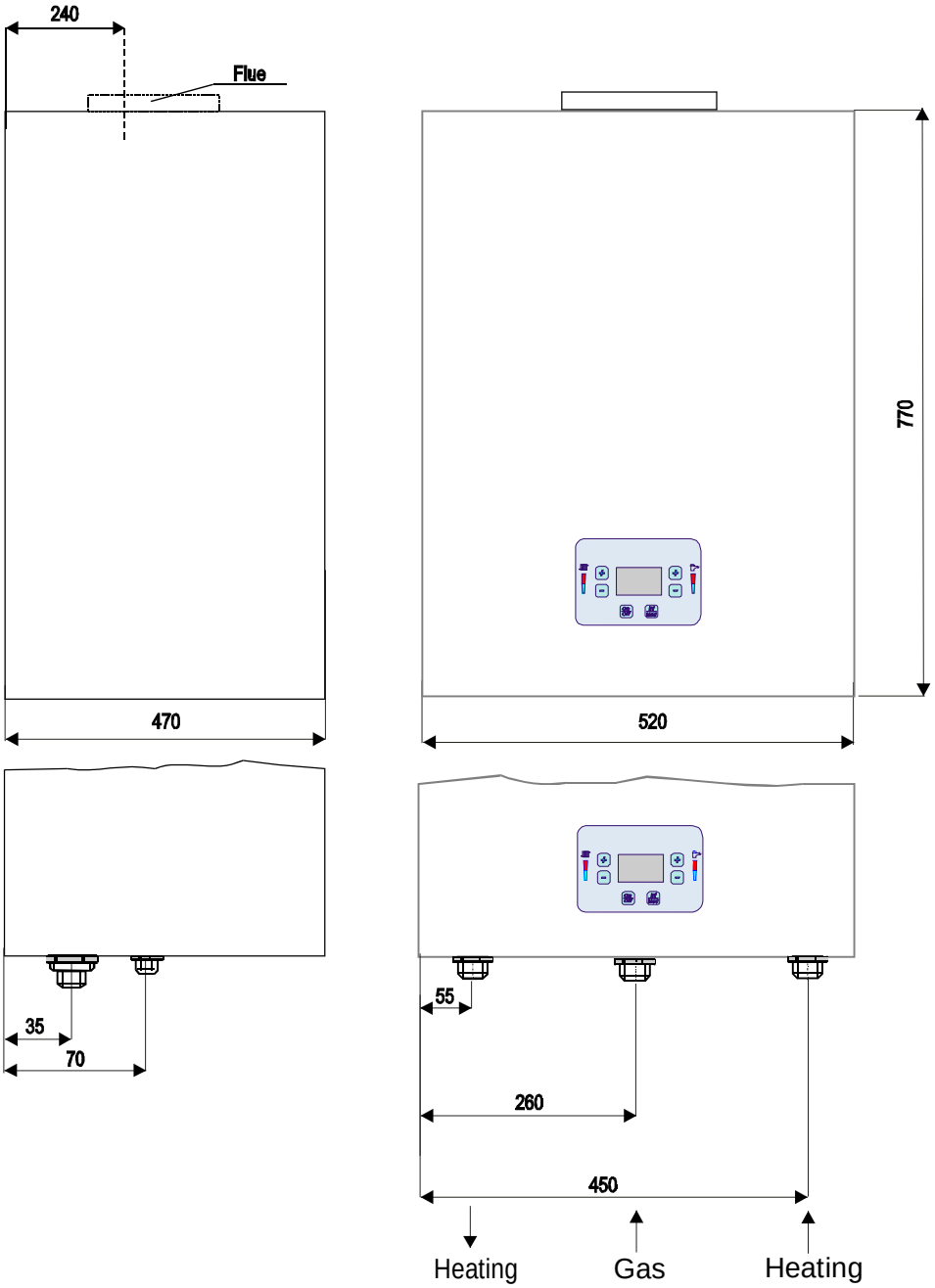
+ — **used for increasing temperature of heating water**

− — **used for decreasing temperature of heating water**

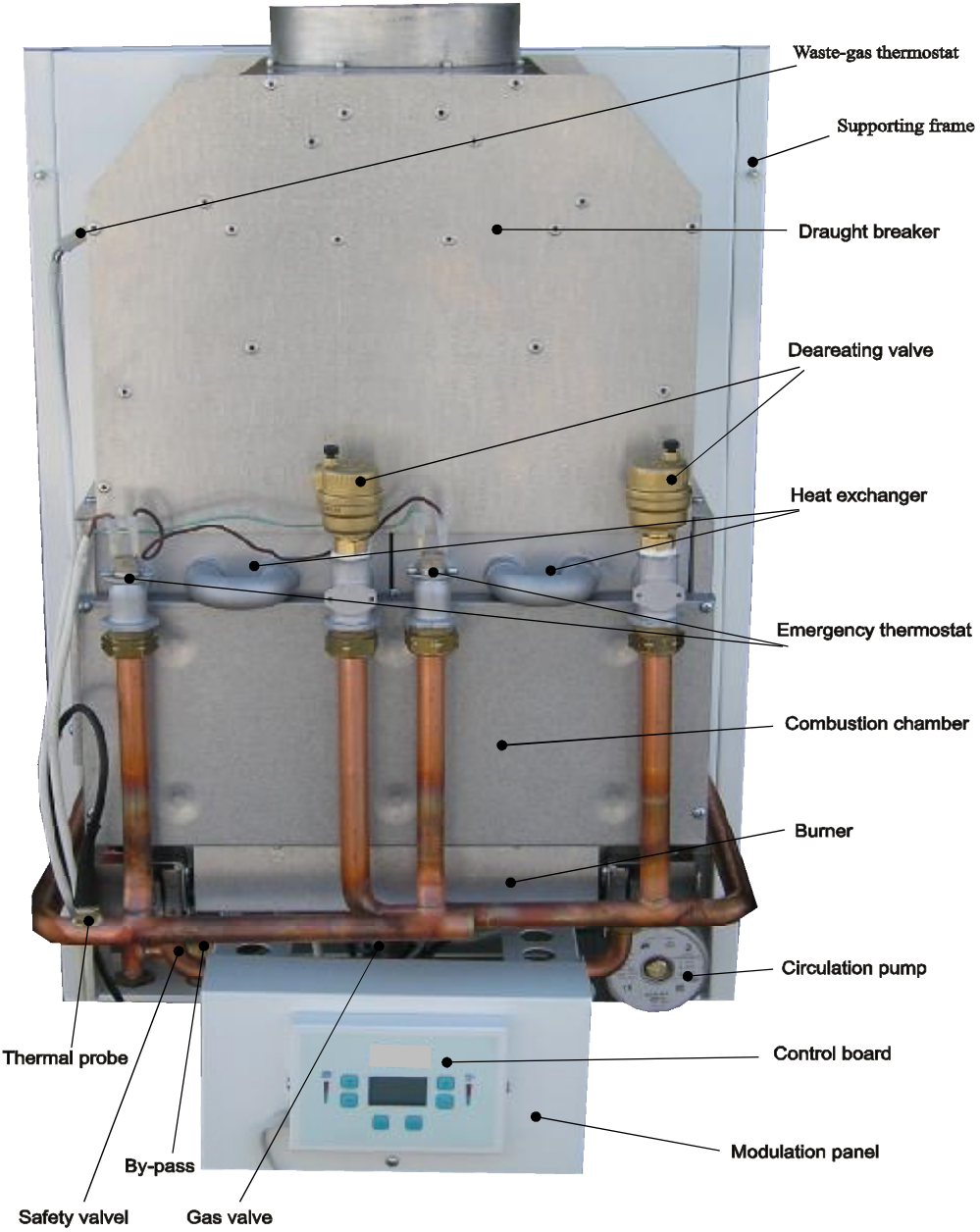
The control board has 4 keys (buttons) used for requesting or setting the boiler parameters. Liquid crystal display consists of 3 figures and symbols for paramaters and actual boiler condition. If the display is under voltage, it lightens. The symbols and their meanings are recorded in following table.

Symbol		
	Hot water tap	*Works only after connecting thermal probe, three-way valve and hot-water storage tank*
	Heating body	Fixed: boiler in heating mode Flickering: the number is for temperature or set value of heating
	Flame	Burner is on
°C	Temperature	the number is for temperature in °C
	Curves (K factor)	Fixed: External thermal probe connected Flickering: setting K factor or comparing temperature of OTC No symbol: external thermal probe not connected or failed
bar	Pressure	the numbers are for the pressure in heating system
	Flame crossed	Breakdown
	Frost	Boiler in WINTER mode
	Sun	*Works only after connecting thermal probe for hot water*
	Arrows	All the arrows lighten when the OT+ communication is active

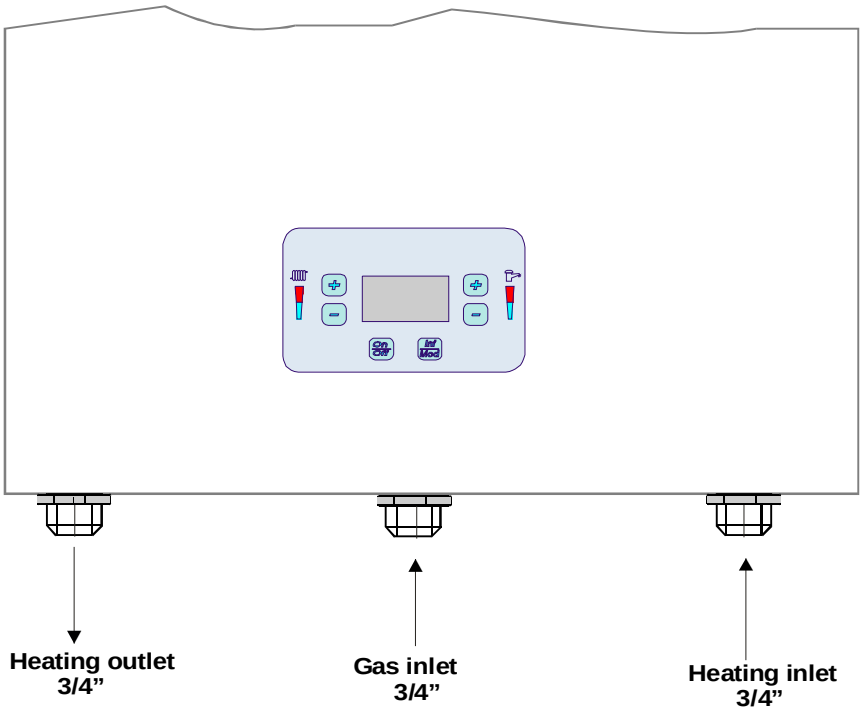
Outside boiler dimensions (mm):



Main parts of GERKROS TERMOGAS COMPACT boiler



Connecting the boiler to gas:



Connecting the boiler to mains

The boiler is plugged into the electric net socket of 230V/50Hz with a supply lead with a plug. The socket must suit to appropriate standards, various multiplugs and lenghtening cables are not allowed to use. Installation of the socket, connecting the spatial thermostat and service of electric parts of the boiler can be only performed by a person with special electric qualification. Electric installation is ready for additional connection of spatial thermostat and outside temperature sensor.

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.

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. The guarantee will not be admitted until this is performed. 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 working, long lifetime and combustion effectivity of the boiler. The user is recommended to contact a contract service organization nearby and ensure regular annual examinations (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. For faultless operation of heating system it is necessary to check regularly the pressure of water in heating system (min. 1 bar, measured when the water is cold). In 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 horizontal position. To prevent possible damage, they are 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 +50ºC in maximum relative humidity of air of 75%, without presence of organic steams, gases and dust.

Boiler accessories and documentation

GERKROS TERMOGAS COMPACT boilers are delivered completely assemblied and tested due to operation. The delivery includes:

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

Technical data

Max. min. output of heating	kW	49,9-16
Gas consumption - NG	m^3/hod	1,9-5,4
Gas consumption - LPG	m^3/hod	1,0-2,2
Efficiency	%	92-93
Electrical supply	V/Hz	230/50
Control of room thermostat	V	24
Min. max. pressure in heating	bar	0,8-3
Weight	kg	50
Outlet heating temperature regulation	°C	30-80
Waste-gas exhausting diameter	mm	160
Electric load	W	130
Connecting gas pressure (NG)	mbar	20
Connecting gas pressure (LPG)	mbar	37
Electric standard	-	IP 41
Number of nozzles	pcs	26
Nozzle diameter T ⌀ (NG)	mm	1,15
Nozzle diameter K ⌀ (NG)	mm	1,25
Nozzle diameter T ⌀ (LPG)	mm	0,79
Nozzle diameter K ⌀ (LPG)	mm	0,82
Fuel	G20	Natural gas
Fuel	G31	LPG

TECHNICAL MANUAL FOR ASSEMBLY AND SERVICE COMPANIES

Installation of boilers

A boiler can be installed only by a company with a valid certificate for installation and assembly. Connecting of the boiler must 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 0,5 m for assembly and service. Boilers must be installed at least 0,5 m over the floor. The K version 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, like store of flammable 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. Mark and drill holes to the wall by a wall bracket. The wall bracket must be mounted to the wall with a suitable connecting material (e.g. screws and dowels) regarding the quality of the wall and weight of the boiler. Finally hang the boiler on the wall bracket.

Connecting boilers to heating system

GERKROS TERMOGAS 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 flushed several times. For thorough flushing and cleaning the heating system we recommend to use cleaning agents. On the inlet from heating system and hot water to boilers, filters must be mounted. We recommend brass filters with side cleaning. The filters must be cleaned once a year minimally. Maintenance of the boiler is easier when on the inlet as well as on the outlet of heating there is a valve. Filters and valves are not delivered as boiler accessories. Clogged filters can cause higher noisiness of boilers. The outlet from safety valve is necessary to connect to discharge piping. **Guarantee does not apply to the cases of clogging the exchanger or pump by impurities from the system.**

The hardness of water in the heating system is not recommended higher than 3,5mmol /l. The recommended temperature difference between outcoming 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, deareating valves on the boiler and heating system must be open. Set the system to the pressure of 1 bar, then deareate and set to the pressure again (1,5 bar when it is cold).

Guarantee does not apply to the cases of incrustation of the heat exchanger or pump.

Connecting boilers 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, including piping and fittings in the boiler. Bolted connections of the gas pipeline as well as those of the water piping and heating water piping must not be stressed by any additional force.

Connecting a spatial thermostat (regulator) and outside sensor

A spatial thermostat as well as outside sensor can be connected into a boiler additionally by the request of a customer. Voltage for switch contacts of the room thermostat (regulator) is 24 V. 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 room thermostat to the terminals, the jumper is necessary to remove.
Connecting the outside sensor is illustrated on the connecting chart. In the control board of the boiler there is an OPENTHERM communication system that controls all the functions of the boiler with the help of programmable HONEYWELL CX 51 MC regulator.The programmable regulator as well as room thermostat are not parts of boiler accessories.

Connecting to a flue. K version

GERKROS TERMOGAS COMPACT K boilers in the flue version are connected to a flue with an exhaust branch of 130 mm diameter that must be equipped with a protective insert, suiting to the standard.

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 1bar 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 electroinstallation inspection
- check the waste gas exhaust
- check the flue inspection
- check the minimum and maximum output by measuring the pressure on burner nozzles
- set the output of the boiler by a thermal loss of the heated place
- test the regulation of heating water

- 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 of the letter of guarantee
- write down putting the boiler into operation to the letter of guarantee and instructions for use

Integrated control system of boiler of type AM 56 IMS 02 code 16 643

Description:

Control automatics of the AM 56 IMS type for hanging gas boilers with storage water heating, copper heat exchanger and automatic ignition.
Control functions of automatics include ignition of flame, its control and smooth modulation, all in one appliance. Automatics have two functional units:
- automatic control combustion flame unit (ACCF)
- flame control and modulation unit (CMF)

General properties:

– signalling operation and breakdowns with the help of LCD on the display
– elimination of disturbing caused by ignition and contact switching
– control of the circulation pump with run-out function after the request for heating
– control of the ventilator and air flow with run-out function
– earthing connector on the board
– 2A fuse on the board
– connecting the phase, neutral conductor and earthing on the entry with the help of connector on the board
– connecting the spatial thermostat and outside sensor with the help of connector on the board
– connecting the emergency thermostat
– option of operation mode and reset by buttons on the LCD display
– setting the heating temperature with the buttons on the LCD display
– setting maximum boiler output and equithermal curve with the buttons on the LCD display
– stopping the burner in the case of primary thermal sensor failure (breakdown or shortcircuit)
–displaying breakdown conditions on the LCD display

Section of flame modulation

– setting the boiler mode
– setting starting output with the help of service function (set from production)
– setting central heating temperature with buttons on the board
– control of heating temperature with the thermal sensor on the outlet
– setting the burner output in the heating mode by service function (setting made by a service organization)
– option of the type of gas can be made by JP1 jumper on the board

Operation

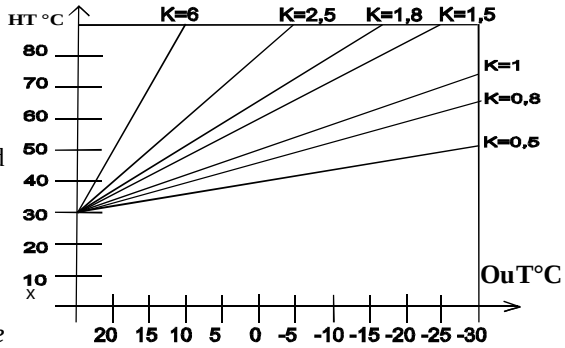
Heating mode

Operation phase in the heating mode starts when the spatial thermostat puts a request for heat and the operation switch is in the ***winter*** position. The pump and ventilator are activated and after verifying air flow, the burner control unit is activated. Starting output is kept in the time of two seconds after burning the boiler. Then the boiler output is controlled by PID regulation until the set temperature for central heating is reached. In the case water overcomes the set value in 5ºC, the burner goes off. The burner is reignited by the temperature 5ºC lower than set value until the anti-fast cycling time is over. The anti-fast cycling function is over after the contacts of the spatial thermostat are broken and switched or if hot water mode is requested. When the JP3 jumper is set to ON position, the range of temperatures is lowered to values suitable for floor heating. If the outside sensor is connected, the boiler works by the set equithermal curve. Outside temperature is displayed automatically. The boiler operation is similar to the one of heating mode. The only difference is in setting the primary temperature automatically with the help of outside thermal probe and K factor set with a button on the control board like following:

HT = (20-OuT)xK+30°

HT = Heating temperature
OuT = Outside temperature

Table:



In the case of damage of the outside sensor the boiler works on as in the heating mode. For floor heating, the heating water temperature is divided by two.

Note: More details of equithermal regulation on p. 28.

Warning: Always must be used an appliance limiting high temperature (to protect floor heating).

Connecting indirectly heated water storage tank

To each type of T, K boilers it is possible to connect indirectly heated water storage tank with the help of 3-way valve and installation of the thermal probe to the water storage tank. Three-way valve is connected to the electronic board with the terminal block No. **1**, where
N - is neutral conductor
L1 - is hot water
L2 - is heating water
The thermal probe is connected to the electronic board with the terminal block No. **2**, by the chart in this instruction for use. Temperature of water in the storage tank can be set on the control LCD display.

JP2 jumper is set into position of <u>broken</u> for storage-tank water heating.

Pump control and circulation

The pump starts in the moment of the request for heating. At the end of each request for heating the pump keeps working for 180 s more. If after working time the boiler signals a failure in heating mode, the pump works on all the time as run-out in the heating mode.

Anti-blocking-pump function

After 24 hours of boiler inactivity the pump is activated to 150 s. After breaking electrical supply, the first cycle of anti-seizure-pump function starts after 3 hours of inactivity.

Anti-freezing function

If a thermal sensor of the heating circuit detects that the temperature has fallen below 8ºC, the pump is activated and burner starts with minimum output. This continues until the temperature of 35ºC has been attained at which point the anti-freezing function stops. This function is active even when the operation switch is in OFF position. If there is a failure in the boiler, the pump is activated only.

The type with open combustion chamber.

In this version, if there is a request for heat, the burner control unit is activated after activating the pump. In the case of failure (rising temperature because of wrong waste gas exhaust) the waste gas thermostat breaks contacts, the burner blows out and a failure is signalled. Reignition is not possible for 30 minutes. This time period can be cleared (reset) with the operation switch.

Service testing functions

If this function is chosen, the boiler starts working in the heating mode to the maximum output of the burner and maximum temperature of the heating water (80ºC). The burner blows out after reaching the maximum switch-off temperature (85ºC). This function can last 15 minutes maximally and then it is necessary to switch the operation switch to some of other functions and then back to service function.This function can be reached after pressing 

the button for 5 seconds.

Functions of the BERTELLI automatics in COMPACT T, K boilers

If the spatial thermostat is not connected, the pump keeps working even if the boiler is off.

If the spatial thermostat is connected, the pump is in operation during 180 seconds after switching off the boiler.

	SWITCHED	BROKEN
JP1	LPG	natural gas
JP2	instantaneous D.H.W. heating	water storage-tank heating
JP3	value of central heating for floor heating	value of central heating for normal operation
JP4	AFCT minimum	AFCT maximum

Run-out of the pump
The run-out time starts in the moment of switching off the boiler by the thermostat. At the end of each request for heating, the pump stays in operation for 180 seconds more. The run-out of the pump has 2 important functions:
– it cools the heat-exchanger to prevent overheating
– in the run-out time, the temperature differences of heating bodies are equalized

Displaying breakdown conditions
Breakdowns are displayed by flickering LCD figures. The first sign is for „E“, the second and third one stand for code of breakdown.

CODE OF BREAKDOWN	MISTAKE
E01	Starting (ignition) blocked
E02	Heating pressure out of operation limit or pressure sensor damaged
E03	Primary thermal probe damaged
E04	Thermal probe for hot water damaged- only when connected
E06	Emergency thermostat blocked
E08	Waste-gas thermostat blocked

Reset of blocked boiler: When the control board is blocked, reset the system by parallel pressing 

+ 

for 2 seconds

Service technician function starts by pressing 

for 10 seconds without releasing. This enables entering into set menu. The flickering number on the left displays the number of parameter, the figures in the centre and on the right display parameter value.
The value of parameter can be raised or lowered by pressing the keys with the symbol of heating body.
The value of parameter can be raised or lowered by pressing the keys with the symbol of water.
The range is from 1 to 25 which corresponds to 0 - 100%.
Note: Table of output setting is on p.28.

Number	Parameter	Range
0	Ignition capacity	1÷25
1	Max. capacity of heating	1÷25

5. TECHNICAL DATA

Supply

1.	Supply voltage	230VAC +10% -15%
2.	Inner fuse	2A F 250VAC
3.	Safety varistor	275V, Diameter 10 , 43J
4.	Ground resistance	10M Ω

Contact loading

5.	Outlet to main valve	230VAC 0,1A	MAX	cos 0.4
6.	Outet to main valve	230VAC 0,1A	MAX	cos 0.4
7.	Outlet to pump	230VAC 0,4A	MAX	cos 0.4
8.	Outlet to ventilator	230VAC 0,4A	MAX	cos 0,4

Functional parameters

9.	Operation temperature range	- 20°C/ +60°C
10.	Supply to a modulator (Natural gas)	25 - 125 mA ±7%
11.	Supply to a modulator (LPG)	35 - 165 mA ±7%
12.	Power regulation range for ignition	0 - 80 % lmax
13.	Power regulation range for maximum heating output	0 - 100% lmax
14.	Continuous start timing (time of first continuous start after switch on is 30 s)	2s
15.	Switch-on temperature of anti-freezing function	6°C
16.	Switch-off temperature of anti-freezing function	25°C
17.	Thermal probe switched on	< 200Ω
18.	Thermal probe broken	> 150 kΩ

Central heating

19.	Heating temperature range	+30 / +80°C ±1.5°C
20.	Boiler thermostat off	set up value +5°C
21.	Boiler thermostat on	set up value - 3°C
22.	Floor heating temperature range	+25 / +45°C ± 1.5°C
23.	Boiler thermostat off (floor heating)	set up value +5°C
24.	Boiler thermostat on (floor heating)	set up value -3°C
25.	Anti-fast cycling function in heating mode (short time)	30s
26.	Anti-fast cycling function in heating mode (long time)	180s
27.	Run-out of the pump in heating mode	90s
29.	Switch-off temperature (primary)	88°C ± 1.5°C
30.	Switch-on temperature (primary)	73°C ± 1.5°C

Note:
The temperatures are guaranteed by a water-passage thermal probe: R=10kΩ for 25°C/ß=3435

Table of relation between resistance and temperature

Temperature °C	Resistance k Ω	Temperature °C	Resistance k Ω	Temperature °C	Resistance k Ω
-30	111,3	16	14,17	62	2,83
-29	105,7	17	13,62	63	2,74
-28	100,5	18	13,09	64	2,66
-27	95,52	19	12,59	65	2,58
-26	90,84	20	12,11	66	2,50
-25	86,43	21	11,65	67	2,43
-24	82,26	22	11,21	68	2,35
-23	78,33	23	10,79	69	2,29
-22	74,61	24	10,39	70	2,22
-21	71,10	25	10,00	71	2,15
-20	87,77	26	9,63	72	2,09
-19	64,51	27	9,27	73	2,03
-18	61,64	28	8,93	74	1,97
-17	58,68	29	8,61	75	1,92
-16	55,97	30	8,30	76	1,86
-15	53,41	31	8,00	77	1,81
-14	50,98	32	7,71	78	1,76
-13	48,68	33	7,44	79	1,71
-12	46,50	34	7,18	80	1,66
-11	44,43	35	6,92	81	1,62
-10	42,47	36	6,68	82	1,57
-9	40,57	37	6,45	83	1,53
-8	38,77	38	6,23	84	1,49
-7	37,06	39	6,01	85	1,45
-6	35,44	40	5,81	86	1,41
-5	34,48	41	5,61	87	1,37
-4	32,96	42	5,42	88	1,33
-3	31,52	43	5,24	89	1,30
-2	30,16	44	5,06	90	1,26
-1	28,85	45	4,89	91	1,23
0	27,62	46	4,73	92	1,20
1	26,44	47	4,57	93	1,17
2	25,32	48	4,42	94	1,14
3	24,25	49	4,28	95	1,11
4	23,23	50	4,14	96	1,08
5	22,27	51	4,01	97	1,05
6	21,34	52	3,88	98	1,02
7	20,46	53	3,75	99	1,00
8	19,63	54	3,64	100	0,97
9	18,83	55	3,52		
10	18,07	56	3,41		
11	17,34	57	3,30		
12	16,65	58	3,20		
13	15,98	59	3,10		
14	15,35	60	3,01		
15	14,75	61	2,91		

Automatic control combustion flame unit (ACCF)

Definition

Electronical appliance for control of flame by the ES 298, for direct ignition of the burner by discharge spark and monitoring presence of flame by ionization.

Working sequence

By connecting contacts of a request, the phase of autotest begins. During this test, the flame intensifier and safeguard elements are tested.

At the end of the autotest safety time begins during which supply comes to ignition appliance and the outlet of gas valve.

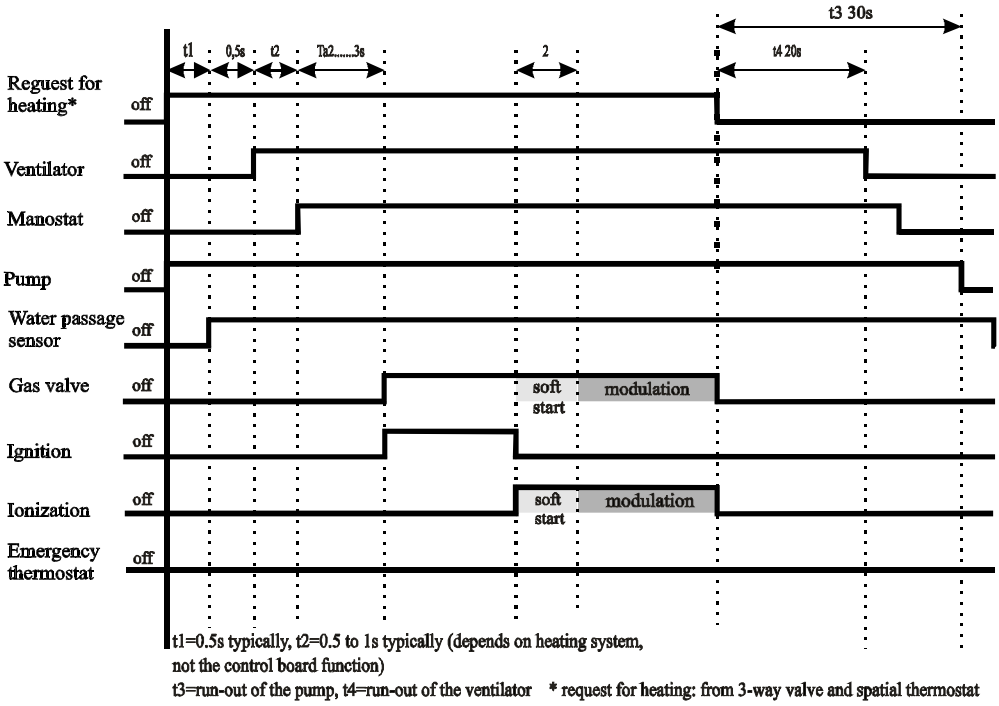
As soon as the burner is ignited and presence of flame is signalled, sparkling is stopped and normal run by the mode starts.

Breaking off contacts of the request closes the gas valve and the appliance is put into the waiting condition automatically (regulation break off).

If ignition during safety time fails, the appliance goes in a failure with automatic reset, the supply from the gas valve outlet and from ignition appliance is cut.

The breakdown condition is found by a CMF unit signalling breakdown condition.

Heating, time schedule



Technical parameters

Flame detection

Minimum ionization current	>1.2 uA
Maximum length of ionization cable	1 m
Maximum parasitic capacity	1 nF
Minimum resistance of ionization electrode and cable to ground	50 mΩ
Short-circuit current	>200 uA

The circuit measuring intensifier sensitivity

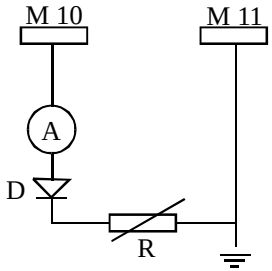


Table of values (230 V~50 Hz):

	Start ON	Operation ON	Operation OFF
Ionization current I (uA´)	<0.6+-10%	>1.2+-10%	>0.9+-10%
Flame resistance R (mΩ)	>140+-10%	<70+-10%	<95+-10%

Ignition

Ignition voltage	16kV cca (load 40pF)
Distance of ignition electrode	4 mm (max)
Frequency of sparkle repeating	10 Hz
Maximum lenght of ignition cable	1 m
Ignition transformer	type b&p

Working programm and times

Autotest time	2,2s +15% / -10% A 230 V~25°C
Safety time	10 s
Manufacturing tolerance of safety time	8s +10% / -15% A 230 V~25°C
Reaction time of switch-off	< 1 s

Basic functional characteristics

- detection, polarity
- interrupted run (interruption every 24 hours at least)
- automatic reset

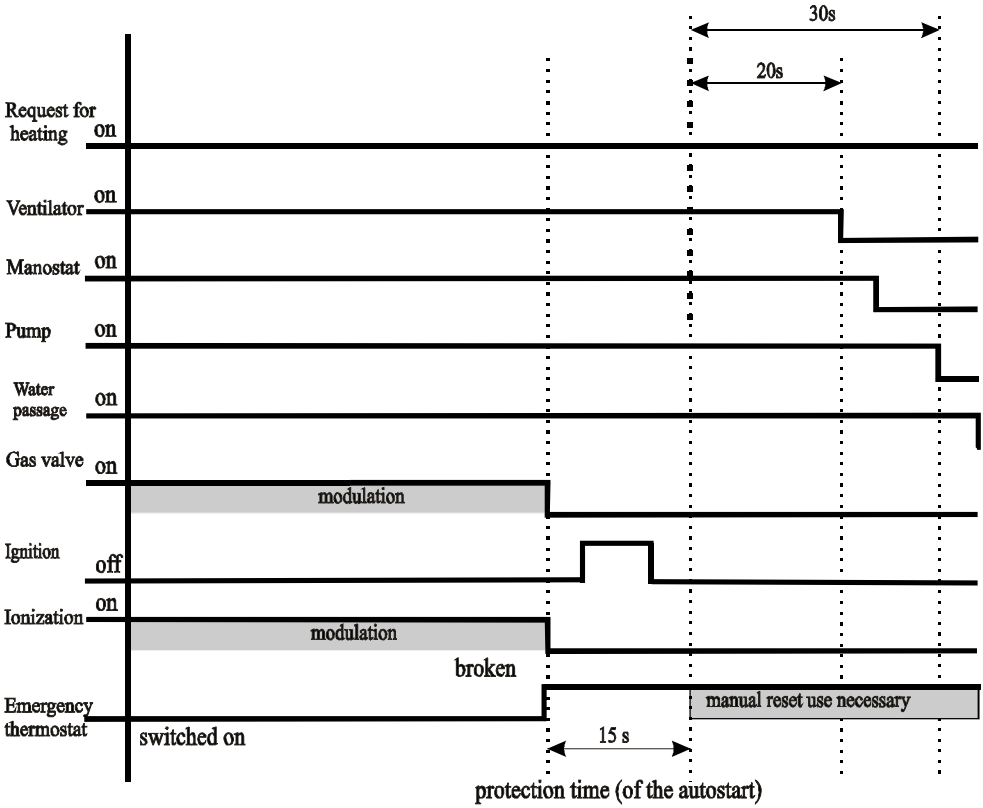
Working in the case of failure

if there is flame simulation, ignition is stopped

Note: If CMF unit finds flame simulation, it reports anomaly and if this situation lasts longer than 15 seconds, the request for heat is stopped (it is switched off by a relay). A new try for ignition can occur only after resetting the system with buttons on the control board (LCD display).

Heating mode with remote terminal (chronotherm)

Set buttons on the control board are completely blocked. The control board keeps set values from the remote terminal (chronotherm). The order from the remote terminal can activate or deactivate working mode of central heating.
For this function it is necessary to use a remote terminal **HONEYWELL CX 51 MC.**



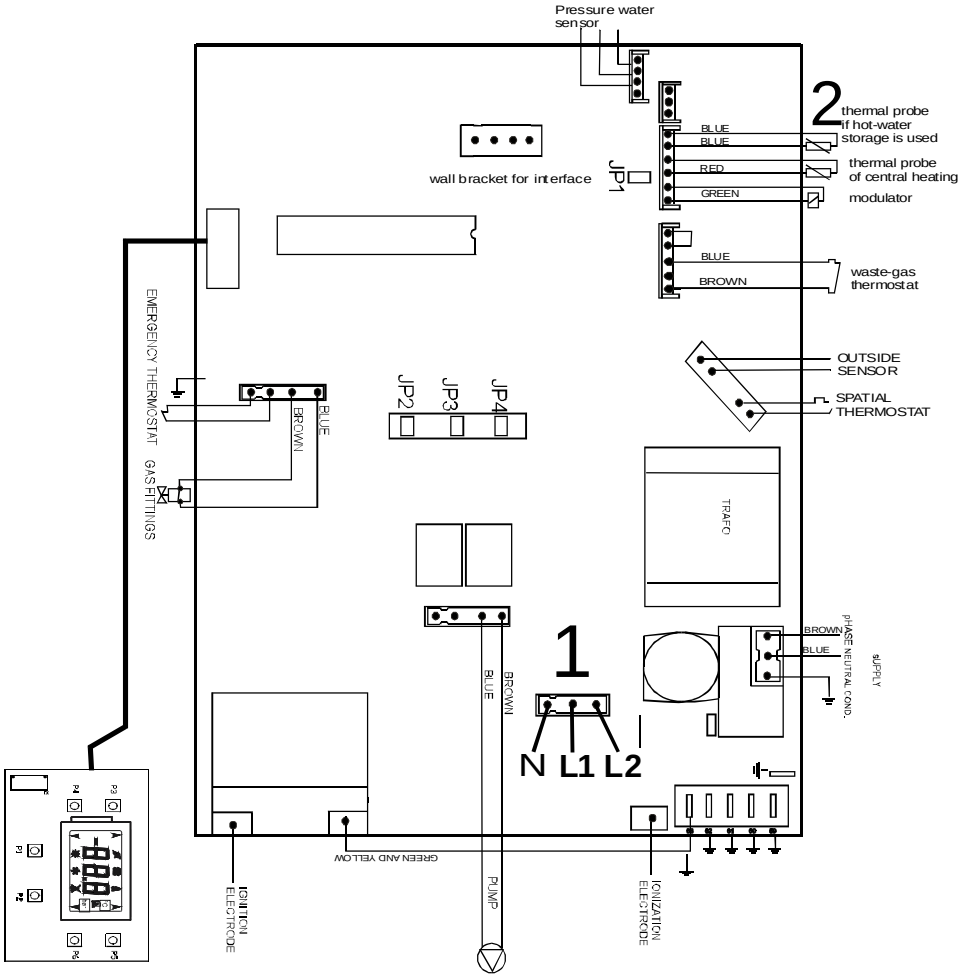
Note: If there is no request for heating or no signal of air flow and CMF unit detects signal of flame or signal of open gas valve for time of 15 seconds, ventilator supplying and relay requests for heat are broken. New attempt for ignition can occur after resetting the system by the operation switch.

Level of protection:	IP 41
Temperature of surroundings:	-20ºC-+60ºC
Temperature for storing and transport:	-30ºC-+60ºC
Maximum humidity of air:	95% for 40ºC

Technical changes

The producer has exclusive right for product modifications resulting from inovative or technical changes. Such changes need not be mentioned in the instruction.

CHART OF GERKROS TERMOGAS COMPACT K CONNECTING



PUMP CHARACTERISTICS

Wilo RS 15/6-3P PN 10

Condenser µF	MOTOR levels	revolutions rev/min	P1 Current W A	Thread	Weight kg	Pitch mm
	1	1450	46 0,2	3/4”	2,00	130
2,6	2	1900	67 0,3			
	3	2200	93 0,4			

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 cover of modulation regulator

b) set the mode switch on the control board to the heating mode by the instruction (minimum output to heating) and with the help of manometer take outlet pressure on nozzles

c) if necessary, set minimum pressure on nozzles with **B** nut on the modulation regulator

d) by raising the parameter of output on the control board, set the output to central heating, read the measured value of outlet pressure on nozzles from the manometer and compare the value with the chart of relationship between the boiler output and gas pressure on nozzles

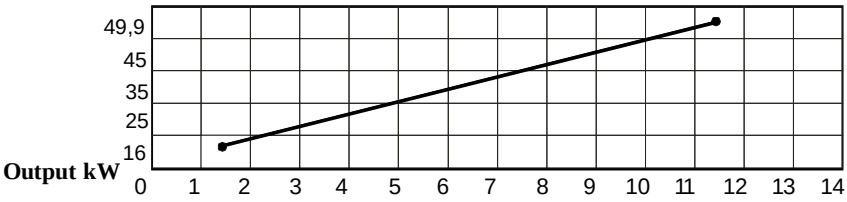
e) maximum output of 25 kW can be set by turning the **A** nut on the modulation regulator

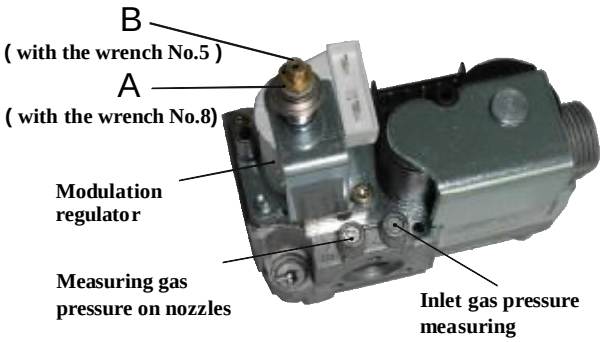
f) disconnect the manometer and close the probe by screwing the bolt

g) attach back the cover of modulation coil

h) check right operation of the boiler

Chart of setting pressure on nozzles





● Setting MIN and MAX output on the COMPACT K boiler ø1,25nozzle

Setting up the equithermal curve

For setting up, various entering values are important e.g. heating loss of heated building, heating temperature of the building, etc. After some experience we are able to say that the K=1.8 curve is relatively high for Slovak conditions. If the curve is too steep, the place will not be regulated equithermally, but by the spatial thermostat. The advantage of equithermal regulation is to heat the place by as low temperature of heating water as possible and thus rise effectivity of the boiler. As the heating bodies are always heated, they produce permanent heat radiation, making the user´s comfort better. Therefore it is necessary for the boiler thermostat to switch off the least in the comfort mode. The ideal condition is when the spatial thermostat does not switch off all the time and the boiler heats to the temperature set up equithermally. It is necesary to wait one or two days to get the thermal response of the place and watch the spatial thermostat whether it does not switch off too often. In the case the place is heated mainly by spatial thermostat, it is necessary to reduce the steepness of equithermal curve. The outside sensor for the equithermal regulation is usually placed on the northern side of the building. It is convenient to cover the sensor by a suitable covering, so as to take the real temperature of the air and not be influenced, e.g. by short sunlight.

The temperature of water in the heating system depending on equithermal curve in the range of 0.5 to 6 is calculated by the formula:

$$T_{hW} = (20 - T_{out}) \times K + 30°C$$

T_{hW} = temperature of water in the heating system

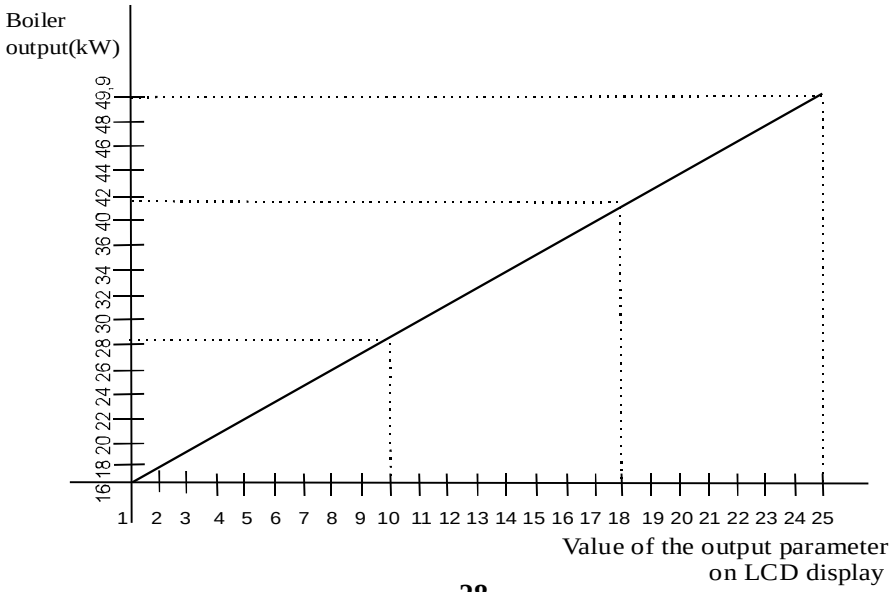
$T_{out.}$ = outside temperature

Example of a calculation:

$T_{hW} = (20 - (-10)) \times 0,8 + 30 °C$
$T_{hW} = (30) \times 0,8 + 30 °C$
$T_{hW} = 24 + 30 °C$
$T_{hW} = 54 °C$

Note: Table for setting up equithermal regulation is on p. 18

Chart of setting up the output



Note

Note

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 completness of GERKROS TERMOGAS gas boiler

COMPACT

Boiler output: 16-49,9 kW

Boiler prod. No.: M

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 INSTITUTE FOR TESTING SKTC-104 in Piešťany under the No. of certificate 412990086.

Technical inspection

In Vrútky, date: .....

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

Country of the appliance delivery :

SK	CZ	AT	CH	DK	ES	FI	FR	GB	GR	IE	IT	NL	NO	PT	SE

Manufacturer:
Rudolf Bakala TERMOGAS
Slovakia

Badged for Gerkros Boilers (Tipperary) Ltd.
Donaskeigh,
Tipperary,
Co.Tipperary,
Ireland.
Telephone: +353 62 71105
Fax: +353 62 71364
Email: info@Gerkros.ie
Website: www.Gerkros.ie