

Firewood boiler

englisch

BMK

Planning und Installation



GUNTAMATIC

INFORMATION ON THIS DOCUMENTATION

BS-01

Please read through this documentation carefully.

It is intended as a reference document and contains important information on the design, safety, operation, maintenance and care of your heating system.

We are always looking to improve our products and documentation. Any ideas and suggestions you may have will be gratefully received.

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It is important that you pay particular attention to the safety issues highlighted in the text by these symbols.

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1.1 SAFETY INSTRUCTIONS

GUNTAMATIC heating systems represent state-of-the-art technology and meet all applicable safety regulations. Incorrect installation can endanger life and limb. Heating boilers are combustion systems and are potentially dangerous if handled incorrectly. Installation, commissioning and servicing must, therefore, only be carried out by adequately qualified technicians observing all regulations and the manufacturer's instructions.

1.2 GUARANTEE AND WARRANTY

The manufacturer's guarantee is subject to correct installation and commissioning of the heating system. Defects and damage caused by incorrect installation, commissioning or operation are not covered by the guarantee. To ensure that the system functions as intended, the manufacturer's instructions must be followed. Furthermore, only genuine replacement parts or parts explicitly approved by the manufacturer may be fitted to the system.

1.3 COMMISSIONING

Commissioning of the boiler must be carried out by an authorised GUNTAMATIC specialist or other qualified persons. They will check whether the system has been installed according to the plans, adjust the system settings as required and explain to the system operator how to use the heating system.

1.4 SITE REQUIREMENTS

When establishing the site requirements, it is absolutely essential to take account of the locally applicable planning, building and implementation regulations and the dimensional specifications in the fitting guidelines, installation examples and technical data. Compliance with the locally applicable regulations and the correct implementation of the measures required on site are solely the responsibility of the system owner and are a requirement of the manufacturer's guarantee. GUNTAMATIC provides no guarantee of any kind for any type of site work.

2 PLANNING

2.1 FIRE SAFETY

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The fire security introductions are obligatory needed on the construction place



The Compliance from counties ore states fire security law is obligatory and stands higher then the GUNTAMATIC fire security instruction



Austria State legislation of the federal states
Technical Directive on Preventative Fire Safety (pr TRVB H118)

Germany Standard boiler regulations (M-FeuVO)
Hessen and Saarland – in these states §16 FeuVO Hessen applies

Switzerland Fire safety regulations (www.vkf.ch)

any other exporting countries Any fire safety office



You have to follow you specific country fire safety rules obligatory. Your country safety rules are higher then our GUNTAMATIC minimum rules.



If there are no specific fire security rules in your country, you have to follow the GUNTAMATIC introductions



2.2 MINIMUM FIRE SAFETY REQUIREMENTS

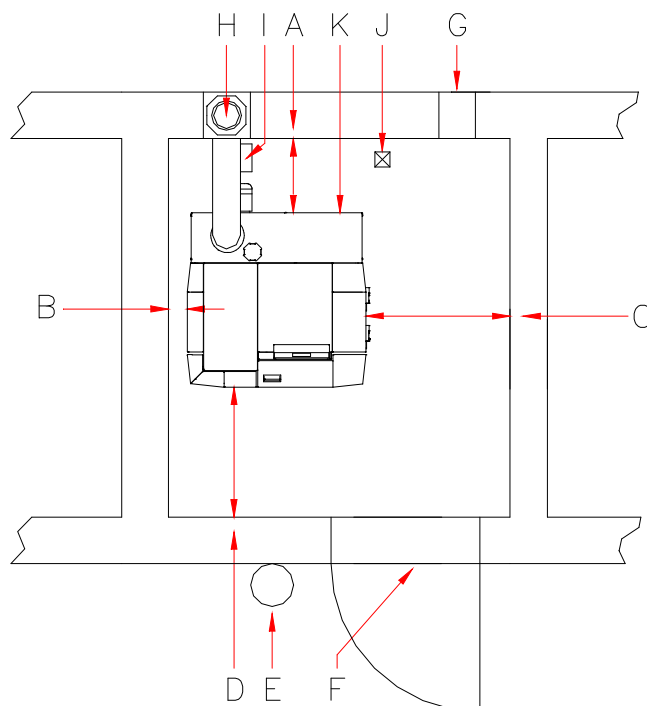
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Boiler room Floor of concrete construction, either bare or tiled. All materials for floor, walls and ceiling must be fire-resistant to F60 / REI90 rating. The boiler room door must be a Class T30 / EI230-C fire door which opens in the direction of escape and is self-closing. Connecting doors to the fuel storeroom must also be Class T30 / EI230-C fire doors, self-closing and lockable. There must be no direct connection to rooms in which flammable gases or liquids are stored (e.g. garage).

<u>Minimum Roomheight</u>	ideal	<u>H 220 cm</u>	
	possible at BMK 20-30	<u>H 165 cm</u>	
	possible at BMK 40-50	<u>H 185 cm</u>	
<u>Minimum Room tallnes</u>	ideal	<u>B 200 cm x T 240 cm</u>	left 50 cm / right 50 cm / below 45 cm / above 100 cm
BMK with Ignition	possible	<u>B 147 cm x T 209 cm</u>	left 20 cm / right 30 cm / below 45 cm / above 70 cm
BMK without Ignition	possible	<u>B 147 cm x T 199 cm</u>	left 20 cm / right 30 cm / below 35 cm / above 70 cm
			T = seeing from the boiler's rear
<u>Minimum Access opening</u>	Ideal	<u>B 100 cm x H 160 / 180 cm</u>	BMK 20-30 / 40-50 Opening lift truck on the transport wood (Boiler completely constructed / above Transportwood shortened)
	possible	<u>B 85 cm x H 150 / 170 cm</u>	Opening lift truck on the transport wood (Boiler completely constructed / above Transportwood shortened)
	possible	<u>B 80 cm x H 80 cm</u>	Opening lift truck on the transport wood (Boiler completely constructed / above Transportwood shortened)
<u>Combustion air supply</u>	The pressure in the boiler room must not be less than 3 Pa (0.3 mm H ₂ O). The air vents for boiler rooms must have a clear, net cross-sectional area of at least 200 cm ² and must not be sealable. The air supply ducting must connect directly to the outside and if the ducting passes through other rooms, it must be jacketed to Class F90 / REI90. On the outside of the building, air vents must be covered by a protective grille with a mesh size of > 5 mm. The supply of combustion air should, if possible, enter at floor level in order to prevent cooling of the boiler room.		
<u>Electrical installation</u>	The lighting and the electrical wiring in the boiler room must be permanently installed. An Net connector 230 VAC, 50 Hz, 13 A is needed.		
<u>Fire extinguisher</u>	A hand-held fire extinguisher (6kg gross weight, EN3) must be mounted outside the boiler room near the boiler-room door.		
<u>Protection against freezing</u>	The boiler room, pipes carrying water and any district heating pipes must be protected against freezing.		

Installation side

You have to plan the furnace in the near of the chimney to avoid a long flue pipe. The heating has to be accesable from the left and the right site. The Outreach of burningroom and ashdoor must be kept free.



- | | | | |
|------------|--|----------|---|
| A → | <u>below Distance</u> | ideal | <u>45 cm minimum</u> |
| | | possible | <u>35 cm</u> when the BMK is without Ignition |
| B → | <u>left Distance</u> | ideal | <u>50 cm minimum</u> |
| | | possible | <u>20 cm</u> necaserry Distance for opening of the left door |
| C → | <u>right Distance</u> | ideal | <u>50 cm minimum</u> |
| | | possible | <u>30 cm</u> necaserry Distance for Servicing of Servermotor |
| D → | <u>front Distance</u> | ideal | <u>100 cm minimum</u> |
| | | possible | <u>70 cm</u> |
| E → | Fire extingiusher 6 kg Filler's weightt EN3 | | |
| F → | Fire safety door T30 / EI230-C unlockable and self acted closed | | |
| G → | Combustion air supply | | |
| H → | Flue wet imun Chamotte-flue advised | | |
| I → | Einbauvariante Energiesparzugregler mit Ex-Klappe im Kamin
ca. 50 cm under the flieconnector- please attend the local laws.
Einbauvariante Energiesparzugregler mit Ex-Klappe im Rauchrohr
möglichst nahe am Kaminanschluss – die örtlichen Vorschriften beachten – mögliche Staubbildung | | |
| J → | Drain | | |
| K → | Netconnector 230VAC 13A | | |

In principle, the system may be connected to chimneys dimensioned according to DIN EN 13384. We recommend (without any obligation in this respect) for our furnaces moisture-resistant, thermally insulated fireclay chimneys that are resistant to over 400°C, or alternatively thermally insulated, soot fire-resistant stainless steel chimneys if the system is dimensioned correctly. (Valid for the usual turbulators delivered status "Set calorific value". For different situations, see the information in the chimney connection chapter). In order to be able to carry out an exact chimney design, the flue gas values listed below must be used as a basis for a chimney calculation. It is advisable to involve the chimney sweep in the planning phase, since he has to inspect the chimney system.

Flue height The minimum flue height is 5 - 10 m depending on boiler output. The flue must terminate at least 0.5 m above the highest part of the building. In the case of flat rooves, the flue must terminate at least 1.5 m above the surface of the roof.

Flue diameter The flue must be matched to the boiler output. The following details are guide figures and can be used for planning purposes. However, we recommend that the flue dimensions are calculated precisely by an expert.

BMK	eff. flue height over	6 m	D = 180 mm
	eff. flue height under	6 m	D = 200 mm

Flue dimensioning data Dimension the flue for rated output!
(Averaged figures with used heat exchanger)

Rated output *)

Type	Flue gas temp.	CO ₂	Mass flow rate	Required draught
BMK 20-30	200 - 220°C	13 – 14 %	0,020 kg/s	15-20 Pa
BMK 40-50	200 – 230°C	13 – 14 %	0,034 kg/s	15-20 Pa

Sub-maximum output *)

Type	Flue gas temp.	CO ₂	Mass flow rate	Required draught
BMK 20-30	170 – 200°C	10 – 12 %	0,011 kg/s	2 Pascal
BMK 40-50	170 – 200°C	10 – 12 %	0,013 kg/s	2 Pascal

*) Exhaust gas and CO₂ values corresponding to the fuel qualities commonly used in practice (preset) - can be optimized through menu settings if the fuel quality is ideal.



Fitting an energy-saving flue draught regulator/pressure-surge compensator (Class RE) is absolutely imperative.
(if possible 200 mm)

The flue draught should not differ by more than +/- 3 pascals from the figure specified in the flue dimensioning data. If the flue draught cannot be reduced to the required figure, either a larger draught regulator should be fitted or an additional flue baffle fitted between the flue and the draught regulator.

Purpose

- To ventilate the flue when the system is not in operation
- To compensate for pressure surges
- To regulate and limit the flue draught

Fitting requirement

The energy-saving flue draught regulator must be fitted in accordance with the local regulations, preferably in the flue approx. 0.5 m below the point where the flue connecting pipe joins or alternatively in the flue connecting pipe close to its junction with the flue.

Flue draught setting

- Adjusting the flue draught is only of any use at outside temperatures below +5°C.
- The system must have been in operation for at least an hour
- Ensure there is sufficient demand for heat for the boiler to be run at rated output for at least 15 minutes
- Measure the flue draught between the boiler and the flue draught regulator (distance of measuring point from boiler ideally 3 x flue diameter from connection between boiler and flue connecting pipe).



Too much flue draught

May cause the flue gas temperature to increase and accelerate combustion as a result. Poor boiler output adjustability, increased dust discharge and malfunctions can result.



Too little flue draught

Performance problems, incomplete combustion and malfunctions when operating below rated output can result.

The heating circle rule is optional offered.
You can decide between a MKR set or a wall mounted MK 261 set.



- 3 weather-compensated controls possible per system;
- 1 Set-MKR can be activated on the boiler per system;
- 3 digital space stations possible per system;
- One analogue room unit possible per heating circuit;

without Heatingcirculation rule

Following functions could be activated:

Heatingcircle WW • Warmwater- Memory
Heatingcircle 0 • Pumping heatingcirculation
Heatingcircle 1 • Pumping heatingcirculation
Heatingcircle 2 • Pumpe heatingcirculation

Set-MKR

Following functions could be activated:

Heatingcircle • Warmwater-Memory
Heatingcirle 0 optional available • pump heating circulation
• additional warmwater memory
Heatingcircle 1 optional available..... • Pump heatingcirculation
• mixed heatingcirculation
Heatingcircle 2 optional available..... • Pump heatingcirculation
• mixed heatingcirculation

wall mounted Set-MK261

Following functions could be activated:

Heatingcirculations WW • Warmwater-Memory
Heatingcirculation 0 • Pumping heatingcirculation
Heatingcirculation 1 optional available..... • Pumping heatingcirculation
• mixed heatingcirculation
Heatingcirculation 2 optional available..... • Pump heatingcirculation
• mixed heatingcirculation
Pipeline optional available • feed pump (ZUP)
• charge pump (LAP)
2) • extension (ERW)
3) • third mixed heating circuit
Additionally optional available..... • Additional hot water tank
4) • third mixed heating circuit



INFO

- 1) the "third mixed heating circuit" can only be activated if the long-distance and additional functions are not used;
- 2) With the "ERW" function, another heating circuit controller can be assigned to a heating circuit controller with long-distance line;
- 3) if the "third mixed heating circuit" function is activated, the long-distance pipe functions are not available;
- 4) if the "third mixed heating circuit" function is activated, the additional functions are not available;

3 CONSTRUCTION

3.1 DELIVERY

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The boiler system is delivered packed in a wooden crate wrapped in foil. Please check that the delivery is complete according to the delivery note and in perfect condition.

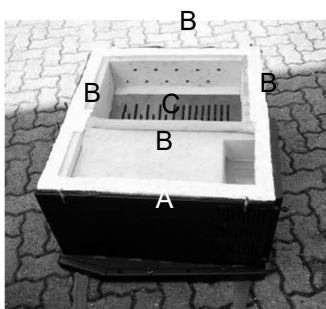
Deficiencies Please make a note of the deficiencies identified directly on the delivery note and contact the supplier, heating installer or our Customer Service.

3.2 CARRYING TO INSTALLATION SITE

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The system is delivered on a wooden pallet and can be lifted and carried to the installation site using a pallet truck.

Carrying in dismantled The boiler body can be dismantled into parts for carrying in. If that is done, a person authorised by GUNTAMATIC must be consulted.



To be able to undo the heat exchanger unions, all of the insulation must be removed from the boiler. Take care not to damage the gaskets (B) when lifting off the heat exchanger.

Important: damaged gaskets must always be replaced without exception.

Pull in carrying straps and position lower section (A) in boiler room; place gasket strips (B) precisely in position all the way round; place gasket cord (C) precisely in position on upper section



Contribute the upper part (D) of the boiler with harness or 1 pipes in the heatingroom and put it carefully to the boiler's lower part.

ATTENTION: The Sealing strip (B) and the rope seal (C) might not slipped away!

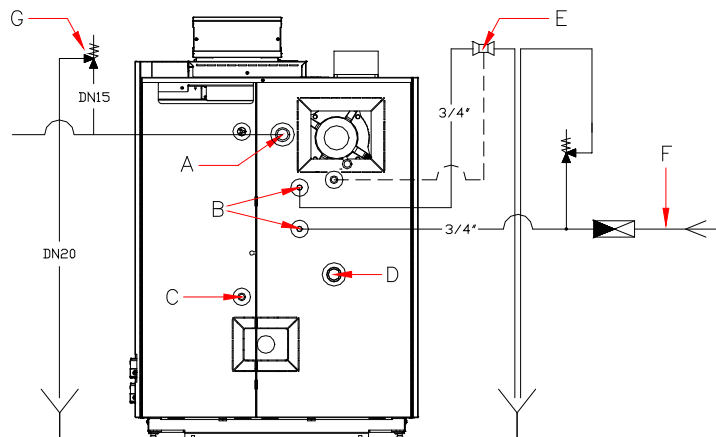
ATTENTION: The warmwaterexchanger with shirp and srew it with maximal 30 Nm torque.

Keep to the minimum wall clearances specified by the system planner and manufacturer. If important details are missing, please refer to the planning documentation or ask our Technical Support. Position the system as close as possible to the flue to avoid having a long flue connecting pipe. The system must be accessible from the left or right side.

<u>Clearance at rear</u>	ideal	<u>45 cm minimum</u>	BMK with Ignition
	possible	<u>35 cm</u>	BMK without Ignition
<u>Clearance on left</u>	ideal	<u>50 cm minimum</u>	
	possible	<u>20 cm</u>	Freespace for the left cover panel's door
<u>Clearance on right</u>	ideal	<u>50 cm minimum</u>	
	possible	<u>30 cm</u>	Freespace for Servomotor Servicing
<u>Clearance at front</u>	ideal	<u>100 cm minimum</u>	
	possible	<u>70 cm</u>	
<u>Floor clearance</u>	ideal	<u>2,5 cm minimum</u>	attend with screwfeed
	possible	<u>8 cm</u>	

Set the boiler at a slant Unscrew the rear adjustable feet slightly further so that the boiler is slightly **higher at the rear**. That will allow the air inside the boiler to escape easily when the system is filled.

- A** → Flow 5/4"
- B** → Security warm heatexchanger 3/4"
- C** → Emptying 1/2"
- D** → Backrun 5/4
- E** → therm. drainvalve 3/4"
residual operation temperaturer
95°C
- F** → Cold water supply
- G** → Security valve 1/2"
Inlet DN15
Outlet DN20



Security warmexchanger

A temperature-relief valve to ÖNORM B 8131 and DIN 4751 with an opening temperature of 95°C must be provided on site and connected to the temperature-relief heat exchanger. The supply pressure must be at least 2 bar but no more than 6 bar. The temperature-relief valve must be connected to the cold water mains supply by a connection that cannot be turned off. The outlet of the discharge pipe must be routed and installed in such a way that functional capacity cannot be impaired and no danger can arise when the temperature-relief valve responds. The instructions for the temperature-relief valve must be followed.

Security valve

A security valve ½ for heatingcontents after EN 128 28 with opening pressure has to be installed. The Finish of the sequence pipe has to be so misplaced, that there is no impairment of Functionality and there is no Danger. The instruction for security valves are attended.

buffer memory

Installation of an adequately dimensioned thermal store is absolutely imperative. No guarantee liability is accepted for systems **with a thermal store capacity under 1,000 litres** (= 1,000 litres excluding DHW capacity in the case off combination cylinders).

- Min. thermal store capacity 1,000 litres
- Recommended thermal store capacity Over 1,400 litres
- Ideal thermal store capacity 2,000 – 3,000 litres



Make sure any regulations regarding thermal store size are observed.

In system with a **pure thermal store capacity under 1,400 litres** (= 1,400 litres excluding DHW capacity in the case of combination cylinders) the boiler must be fuelled according to required output, i.e. it should only be loaded with as much wood as can be coped with by the system and the thermal store in the hours that follow.



When you put the programme „OUT“, the antifreeze function has to be secured, if the E heating system is built with an manual thermostat..

Return boost

The boiler return temperature must be at least 55°C and must be held at the required level by a return boost set. Return-temperature regulators in the bypass are not allowed. If this requirement is not complied with, there is an increased risk of corrosion and guarantee entitlement will be lost as a result.



If additional components, such as e.g heat equality counter integrated into the system hydraulics, or the total buffer line length over 30 m (flow and return) can make reinterpreting boiler/ charge pump (KLP) necessary.



When using foreign return boost which is not correspond to these in the flow or control speed of GUNTAMATIC, any warranty is rejected.

Sludge separator with magnetite

Magnetite and the sludge separator in the Heatingwater could become a problem for energysaver pumps. By installing a properly sized and applied sludge separator with a magnet can remedied cost efficiently.

Either old pipes could be meant

Expansion vessel

The boiler operates in a sealed heating system and must be provided with an expansion vessel for pressure compensation. To calculate the expansion volume, the volume of the system when cold must be known. Please select the expansion vessel on the basis of the manufacturer's specifications. The expansion volume of the system is calculated as follows:

System volume x Expansion factor x Additional allowance factor

- Expansion factor for wood-fuel boilers = 0.03
- Additional allowance factor = 3.0 for systems under 30 kW
- Additional allowance factor = 2.0 for 30-150 kW systems

Example calculation: 2200 litres x 0,03 x 3 = ~ 200 litres

Pump selection

The choice of pump must be made by the installer or building technology planner on the basis of the friction data, the pipe cross-sectional area and the required delivery pressure for the piping system planned.

Plastics pipeline

At connection for plastic pipelines for floorheating or district heating pipeline these temperatures are additional protected for a limit thermostat.

Danger of overheating

Faulty operation, wrong fuel or disturbance could be lead to overheating. To avoid disturbance you have to install additional fuse protections for maximum process water and fuses for heatingcircle temperatures. You have to install an additional door for the tap water.



Please note the guidelines on "Corrosion and boiler protection in heating and domestic water systems"!

Water quality

The water quality of hot water systems with flow temperatures of max. 100°C is subject to VDI 2035 sheet 1 "Avoidance of damage in hot water heating systems". The fill and make-up water must be treated or preferably softened if the following limit values for total hardness [°dH] in relation to the total heating output and system volume are exceeded.

total heat output	total hardness [°dH] depending on the system volume		
	< 20 liter/kW	≥ 20 liter/kW < 50 liter/kW	≥ 50 liter/kW
< 50 kW	≤ 16,8 °dH	≤ 11,2 °dH	< 0,11 °dH
50 – 200 kW	≤ 11,2 °dH	≤ 8,4 °dH	< 0,11 °dH
200 – 600 kW	≤ 8,4 °dH	≤ 0,11 °dH	< 0,11 °dH
> 600 kW	< 0,11 °dH	< 0,11 °dH	< 0,11 °dH

Water heater

If a water heater is also used in addition to the GUNTAMATIC boiler, it should be filled according to the installation instructions for it.

Construction flushing

- Before charging you have to flush the system. When you do this, it's the best opportunity to clean magnetit and rust sludge from the pipe system.

Filling the system

- Match the pressure of the system when cold to the air charge pressure of the expansion vessel.
- Check the operating pressure on the pressure gauge.

Bleeding the system

- Switch off and bleed circulation pumps.
- Bleed boiler by opening the bleed valve on the boiler and allowing air to escape until water runs out.
- Bleed radiator heating system (if present) by opening the bleed valve on every radiator and allowing air to escape until water runs out.
- Bleed underfloor heating system (if present) by opening each heating circuit and flushing through thoroughly until there are no more air bubbles in the heating circuit pipes.
- Important: perform sequence in the correct order!
Start bleeding in the cellar or on the ground floor and finish in the attic.
- Check the system operating pressure on the pressure gauge and add more water if necessary.
- Restart circulation pumps.



Only systems that have been properly bled guarantee effective conveyance of heat.

The boiler is connected to the flue by means of a flue connecting pipe which must be gas-tight and insulated between the heating boiler and the chimney.

→ **The following diameters should be used:**

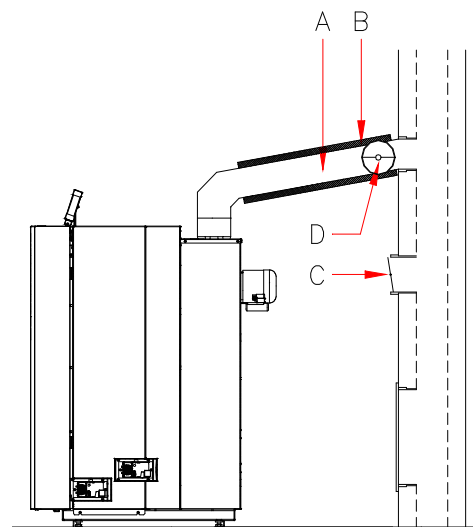
BMK $\varnothing = 150 \text{ mm}$

→ **Flue connecting pipes longer than 4 m or with more than 3 bends:**

BMK $\varnothing = 180 \text{ mm}$

The hole in the wall for connecting the flue pipe must be lined with a built-in double-skinned lining tube or fireproof material. The flue connecting pipe must rise upwards from the boiler to the flue at an angle of at least 6° and be connected with gas-tight joints. An inspection cover must be provided for cleaning the flue connecting pipe.

- A** → Smokepipe (minimum 6° grade)
- B** → Isolation (z.B. Rockwool)
- C** → Flue draft regulator with Ex-Clape in the Flue
(you have to prefer this method)
- D** → Flue draft regulator with Ex-Klap in the Smokepipe
(If possible in the near of the flue connector)



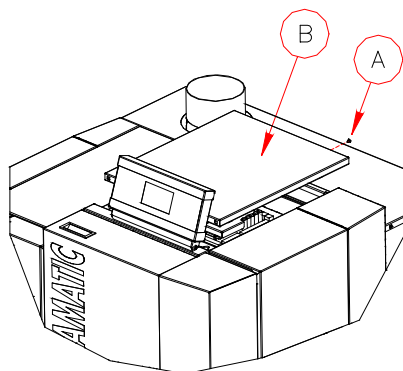
- The flue connecting pipe must be gas-tight
- An energy-saving flue draught regulator with pressure-surge compensator (Class RE) must be fitted
- Insulate the flue connecting pipe
- Do not brick in the flue connecting pipe (noise transmission)
- The flue connecting pipe must not extend into the flue

General information on chimneys: The system may generally be connected to chimneys which are dimensioned according to DIN EN 13384. We recommend (without any obligation in this respect) for our furnaces moisture-resistant, thermally insulated fireclay chimneys that are resistant to over 400°C. For automatically fed furnaces, we also recommend heat-insulated, soot fire-resistant stainless steel chimneys as an alternative, provided the system is dimensioned correctly. (Applies to the usual turbulators delivered with "Set calorific value". If the system is ordered with turbulators "Set partial condensation", then chimney systems that are suitable for condensing are required in accordance with the relevant standards. The system must be dimensioned in such a way that longer ember maintenance or standby phases are avoided (i.e. if necessary provide large buffer tanks) to prevent tar deposits in the exhaust system and operational disruptions. The turbulator system must be selected according to regional efficiency requirements and the available exhaust system. The difference in efficiency of the turbulator systems can be a few percent (detailed values and tests please Inquire if necessary.) With the first delivery, the selection is cost-neutral (if no special information is given, the "Set calorific value" for normal fireplaces will be delivered for safety reasons). Later or subsequent modifications of the turbulator system are subject to a charge.

The electrical connections to the boiler system on site may only be made by an approved electrical installer observing all the applicable regulations. In addition, it is essential that electrical system components are protected against damage from heat radiation.

All boiler system internal wiring is wired up at the factory ready for use. The work required on site by the electrical installer consists only of connecting the mains power and wiring up and connecting the system components such as thermal store, CAN bus, heating circuit pumps, mixer valve motors, etc.

01



open the control panel

- solve the security screw (A);
- cap the control panel (B);
- the circuit board with connecting plugs and securitys is under in a good accesible position.

Net connector 230 VAC, 50 Hz, 13 A (over voltage conductor advised)

The mains power must be connected by means of the standard non-reversible power socket on the rear panel of the boiler. It must possible to isolate the system entirely from the mains without opening the switch panel cover, e.g. by means of an automatic circuit-breaker

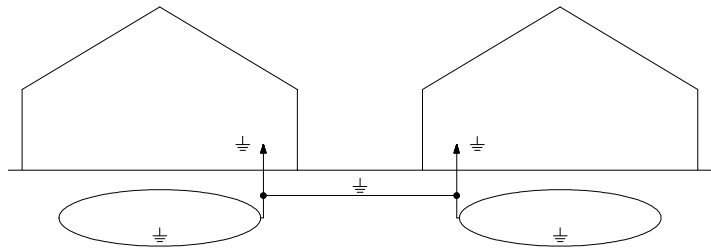


Attend on the correct phase Net connection!

Please attend on in that Phase (L) and zero Signal (N) can't be changed, becauseo of the bypassfunction and the securitychain couldn't be warranted.

<u>Cabeling</u>	• Feeder	3 x 1,5 mm ²
	• Sensor	2 x 1 mm ²
	• Roomconstruction	2 x 1 mm ²
	• CAN-Bus	2 x 2 x 0,5 mm ² (paired cable / screened)

Overvoltage protection Where CAN bus cables run between different buildings, the earthing conductors of the buildings must be connected to each other for potential equalisation purposes. If the earthing conductors cannot be interconnected, a 10 mm ring earth must be laid along with the CAN bus cable in the ground. The earthing conductors and ring earth must then be connected to one another.



CAN-Bus cabling **wirring linear:** (you have to prefer this variation)

The connection is rewire linear, further cabling the CAN bus, for example, from the operating unit to the wall unit and the wall-mounted unit to the remote unity.

wirring radial:

The connection is radial wiring, means the CAN bus, for example, from the operating unit to the wall unit and the space station. The total length of the CAN bus connection must not exceed 100 m in this case.

The terminals +/- and H / L connect each twisted pair.

Potencial equalizer splint The whole construction and the conneced pipesystem has to be connected as prescribed on the potencial equalize splint system.



Attend on the connection on the potencial equalizer splint on a short connection.

Cable stain relieved To avoid electrical defects or errors all cables have to be stain relieved.

Emergency power supply Only use regulated generators.

Net connecting • 230 VAC, 50 Hz, 13 A

- Standard specifications
- Boiler control panel (BCE)
 - Boiler circuit board (230 VAC)
 - Safety temperature limiter (STB)
 - Boiler sensor (KVT 20 Ω)
 - Flue gas temperature sensor (thermocouple)
 - Oxygen sensor (12 VDC)
 - Flue draught fan (230 VAC)
 - TKS 1 (right casing door switch, 24V DC)
 - Primary/secondary air vent motor (24 VDC)
 - Ignition fan (230V AC – optional)
 - Boiler charging pump output KLP (230 VAC)
 - Special output HP0 (230 VAC)
 - Backrunmixer (230 VAC)
 - 1 Memoryloadingpumpexit (230 VAC)
 - 3 Heatingpumpexit (230 VAC – just time controlled)

- Optional equipment
- Pump outputs (230 VAC)
 - Mixer valve outputs (230 VAC)
 - Sensor's entrance (KVT 20 Ω)
 - Analogue Roomconstruction
 - Digital Roomstations

Resistances

Temperature	KVT20
-20°C	1383 Ω
-16°C	1434 Ω
-8°C	1537 Ω
-4°C	1590 Ω
0°C	1644 Ω
10°C	1783 Ω
20°C	1928 Ω
30°C	2078 Ω
40°C	2234 Ω
50°C	2395 Ω
60°C	2563 Ω
70°C	2735 Ω
80°C	2914 Ω

Final checks

- After completing installation of the system, check again that all joints and pipes are properly tightened and not leaking.
- Check that all covers are fitted and secured.
- Check that the fitting of all connections (water, flue, electrical) has been done correctly.
- Check that all required safety signs and instructions are attached and hand over all documentation (operating and installation instructions) for the system.
- Check that all electrical connections have been properly wired before connecting the system to the power supply.
- Clean the system and clear up the installation site.
- Always leave the boiler room clean.

Initial commissioning

Commissioning must only be carried out by GUNTAMATIC or a qualified specialist. The precondition is that the flue technician, heating installer and electrician have cleared the system for operation. The authorised GUNTAMATIC specialist will carry out the following work during commissioning:

- Check the entire system
- Check the electrical functions
- Adjust the programmer to the system
- Commission the system
- Explain to the user how the system functions and how to operate and clean it
- Record the details of the customer and the system and complete the commissioning log



Any deficiencies identified must be recorded in writing and rectified within the following 4 weeks in order to maintain guarantee entitlement.



The fully completed commissioning checklist must be sent to GUNTAMATIC immediately as otherwise the guarantee will be void.



These installation instructions should not be destroyed after commissioning but kept permanently with the system together with the operating instructions.

The heater equates Class 5/ EN 303-5. The original certification report is deposited at the manufacture, Public Police and Fire safety rules have to be respected.

- **ÖNORM / DIN EN 303-5**

Heaters for pillar fuel, automatic and manual sanded up to 500 KW. Terms, requirements, and checkups.

- **ÖNORM / DIN EN 12828**

heaters for pillar fuel, automatic and manual sanded up to 300 kw, terms, requirements, checkups and marking

- **ÖNORM / DIN EN 12831**

Heating for Buildings; method for calculating usual heating board

- **ÖNORM EN ISO 20023 und ÖNORM EN ISO 20024**

Requirements on the Pelletstorage at the private customer.

- **ÖNORM M 7510**

Guideline for the review from central heaters

- **ÖNORM H 5195-1** (Austria)

Prevention from damage through nest and Store origin with working temperature.

- **VDI 2035** (Germany)

Avoidance from damages in Water heating systems

- **SWKI 97-1** (Suisse)

Chalk and Rust Prevention in Waterheaters

- **TRVB H 118** (in Austria for automatic sended Machines)

technical heating fire safety rule

- **DIN 1988**

Technical Rules for drinking water installation

- **DIN 4751 Teil 1-4**

Safety engineering equipment for water heaters

- Swiss decrees for aircleaning

- Swiss decrees with smallfiremachines

- VKF Fire security thermaltechnical construction (Suisse)

- SIA 384 (Swiss)

Heatingcirculations time controlled – without atmospheric controlled rule

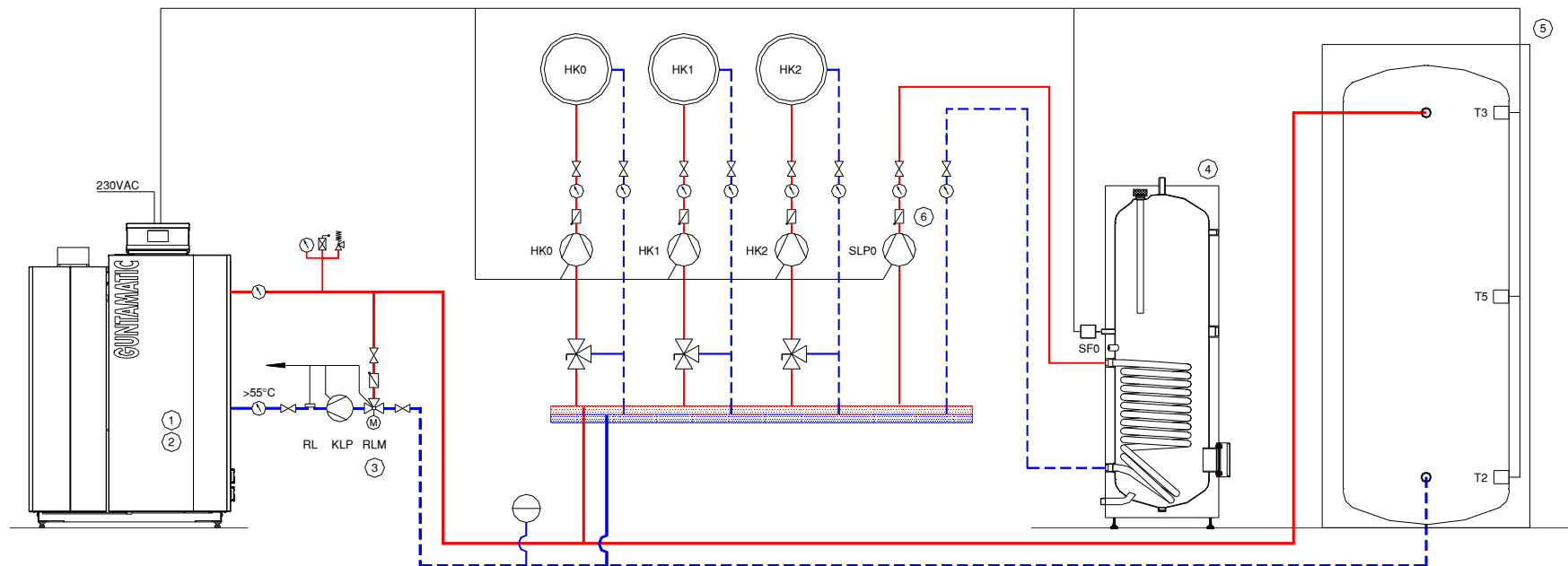
Warmwatermemory – Buffermemory

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Diagram no **BMK-01-03**

Electrical connections as per operating and installation instructions

- | | |
|--|---------------|
| 1. Firing BMK | as pricelist |
| 2. flue draft regulator with Ex-Clap RE20 | H38-160 |
| 3. Return boost group RA50 A | H39-021 |
| 4. Warmwatermemoryr ECO | as price list |
| 5. buffermemory ECO | as price list |
| 6. Recommendation non-return valve (difficult execution) | plumber |



Heatingcirculation time controlled – with atmospheric condition loaded rule

Warmwatermemory – 2 buffermemory

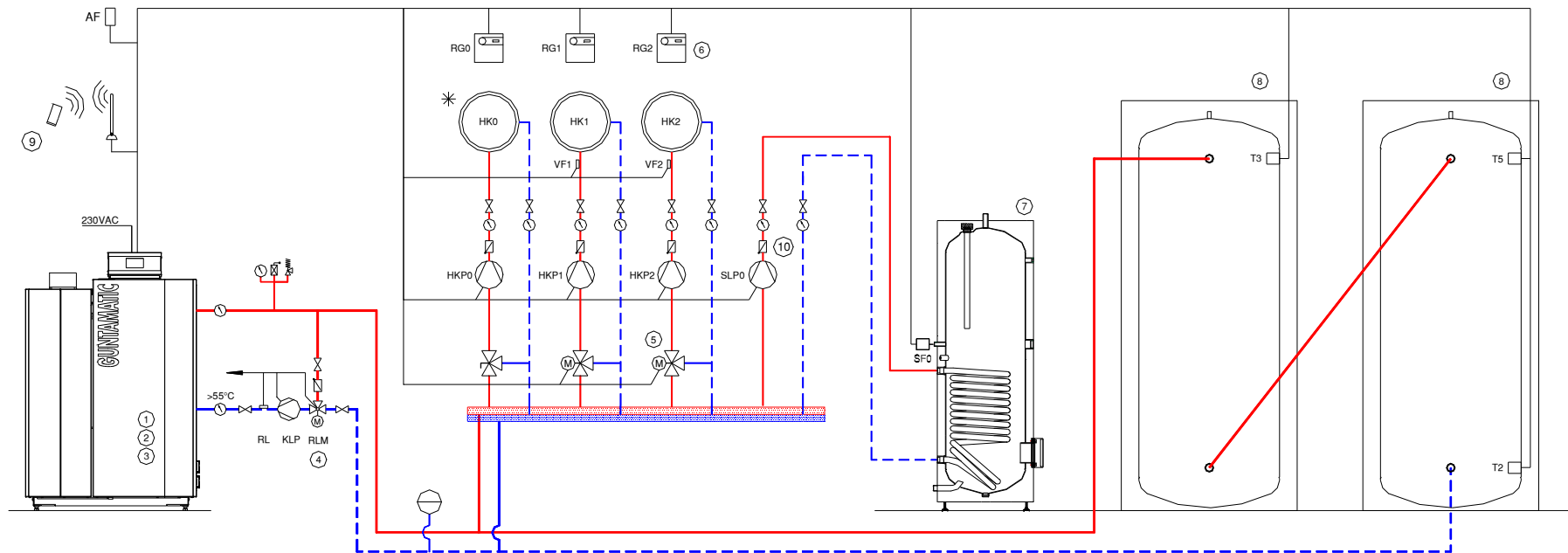
GUNTAMATIC

Diagram no **BMK-02-03**

Electrical connections as per operating and installation instructions

- | | |
|---|---------------|
| 1. Firing | as Price list |
| 2. Flue draft regulator with Ex-Klappe RE20 | H38-160 |
| 3. Rule Set-MKR | S30-031 |
| 4. Return boost group RA50 A | H39-021 |
| 5. Mixer Servermotor | S50-501 |
| 6. Roomconstruction / Roomstation | as Price list |
| 7. Warmwasserspeicher ECO | as Price list |
| 8. buffermemory ECO | as Price list |
| 9. GSM-Module | S15-002 |
| 10. Recommendation non-return valve (difficult execution) | plumber |

* The heating circulation could be operated roomtemperature controlled...



Heatingcirculation time contolled – with atmospheric controlled rules

Freshwaterstation – 2 buffer memory - Solarconstruction

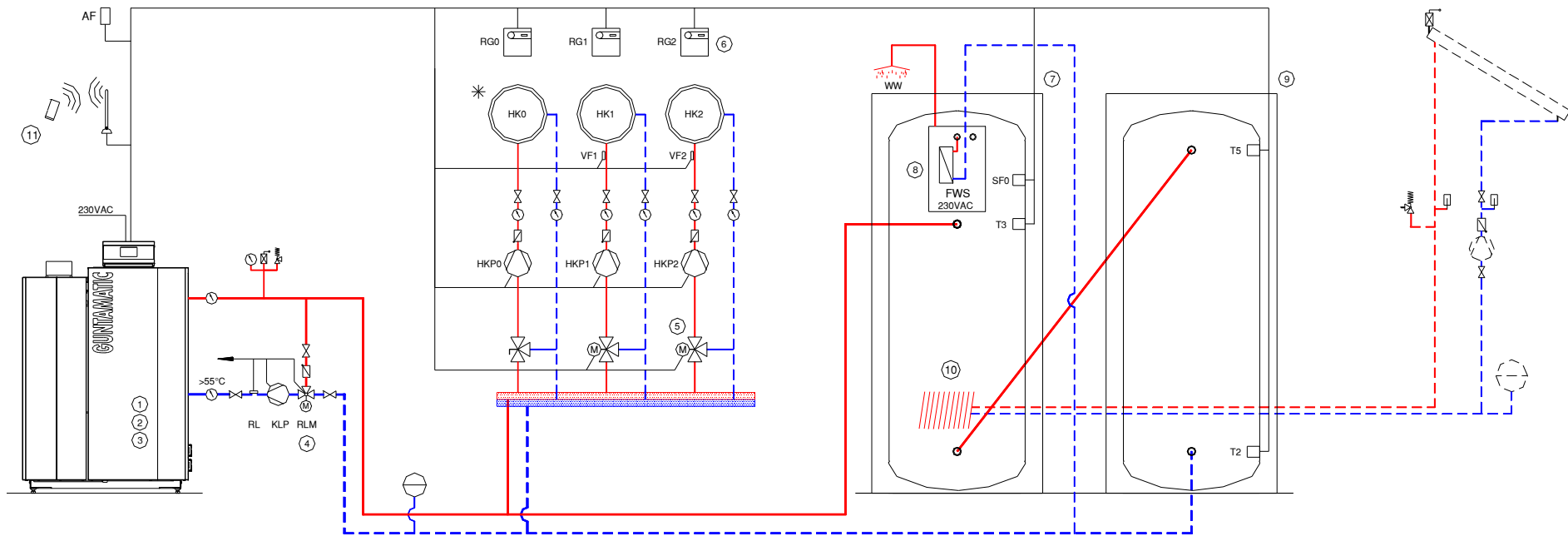
GUNTAMATIC

Diagram no **BMK-03-03**

Electrical connections as per operating and installation instructions

- | | |
|--|--------------|
| 1. Firing BMK | as pricelist |
| 2. Flue draught regulator mit Ex-Klappe RE20 | H38-160 |
| 3. Rule Set-MKR | S30-031 |
| 4. Return boost group RA50 A | H39-021 |
| 5. Mixer servemotor | S50-501 |
| 6. Roomconstruction / Roomstation | as pricelist |
| 7. buffermemory PSF inkl. FWS | as pricelist |
| 8. Option Cirkulationsunit | 045-250 |
| 9. buffermemory ECO | as pricelist |
| 10. Option Flange and warmheatexchanger | as pricelist |
| 11. GSM-Module | S15-002 |

* The heating circulation could be operated roomtemperature controlled..



Combination with existing oil/ gas boiler - controlled by atmospheric conditions heatingcirculationrule in the existing boiler

ATTENTION: non qualified for gas thermics!

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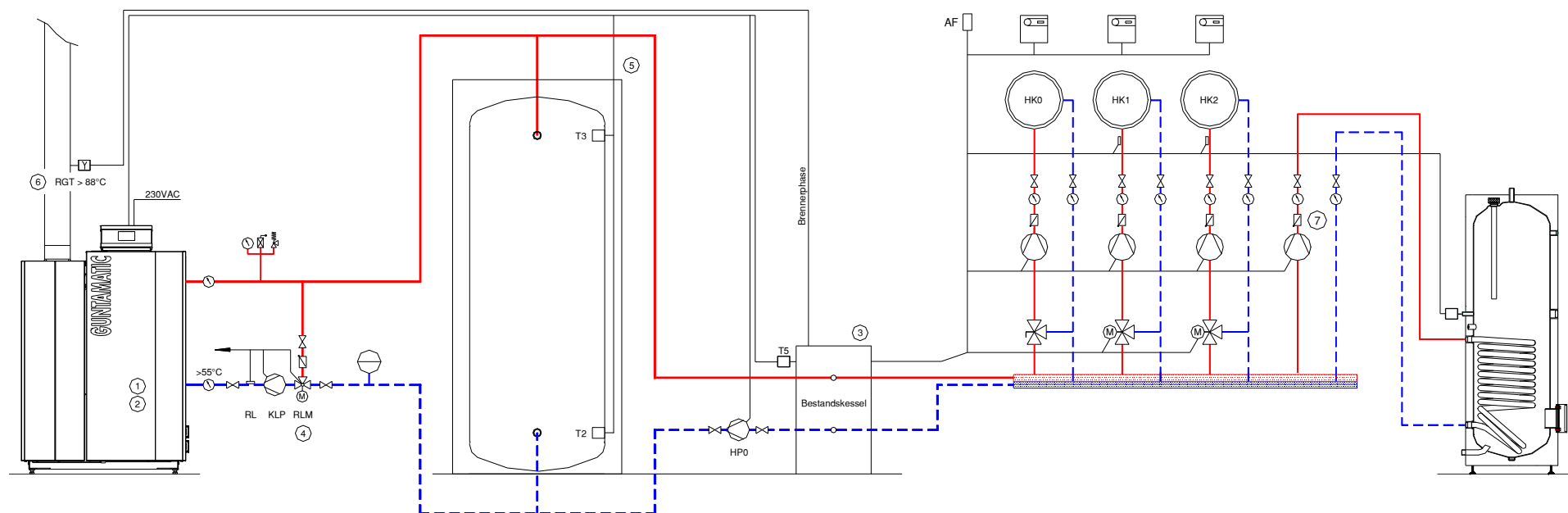
Diagram no **BMK-05-03**

Electrical connections as per operating and installation instructions

- INFO:**
- 1) The oil and gas boiler will be through the function ZP always kept on temperature – please attend on good isolation of the boiler.
 - 2) The radiation loose on the oil/ gas boiler has to be respected.
 - 3) A smokegasthermostat in the flue is just neceserry, when both boiler are conducted in the same flue.

- | | |
|--|--------------|
| 1. Firing BMK | as pricelist |
| 2. Flue draft regulator with Ex-Clap RE20 | H38-160 |
| 3. Oil / Gasboiler | by client |
| 4. Return boost group RA50 A | H39-021 |
| 5. buffermemory PS | as pricelist |
| 6. smokegasthermostat | H00-801 |
| 7. Recommendation non-return valve (difficult execution) | plumber |

FUNCTION: About the difference control T3 - T5 of BMK system pump is driven (ZP), thus supplying the oil / gas boiler with heat. The oil / gas boiler starts only when enough energy from the buffer memory in the oil / gas boiler is supplied.



Attitude HP0 = ZP

Combination with blocking of an Oil/ Gasconstruction by atmospheric conditions heatingcirculation with BMK

ATTENTION

- 1) qualified for oil or gasboiler and gas thermics
- 2) for gasthermics there is an hydraulic seperation advisable

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Diagram no **BMK-16-8-03**

Electrical connections as per operating and installation instructions

INFO:

- 1) By gasthermic in the Parameter „HP0“ the parameter has to be attituded to „burn cont.“ to 2- 3 minutes.
- 2) all securityconstructions on the oil/ gasconstruction have to run correctly.
- 3) Switch USV to oil/ gasconstruction= Exit „HP1“= Order „OFF“

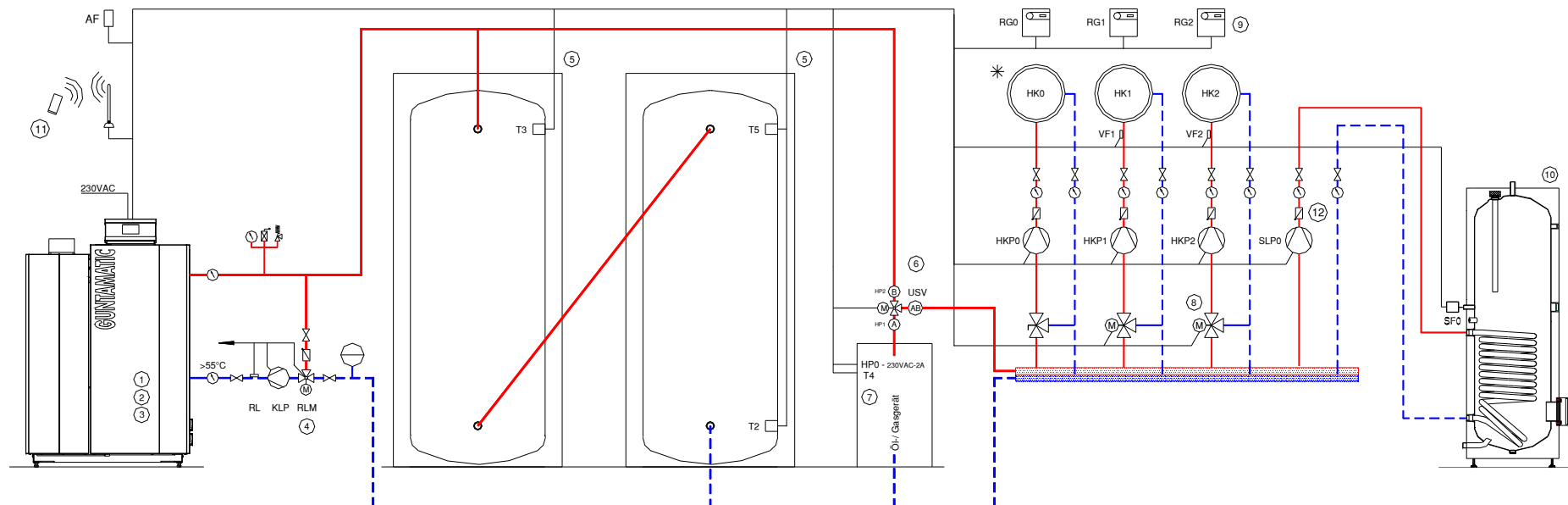
FUNCTION:

The oil / gas appliance is required by the "lockup" of BMK, if the temperature at the "Buffer sensor UP" (T3) is less than the highest required target temperature of a heating or hot water circuit.

Following conditions must be leaded out::

- 1) The parameter „HP0“ in the costumer menu is attituded to „AUTO“ or „DURATION“.
- 2) The temperature on „buffer sensor ABOVE“ (T3) is smaller then the highes wanted target temperature.
- 3) The temperature on the „buffersensor BELOW“ (T3) iss maller then the in the parameter „TP0 blocked temperature“.
- 4) The exhaust gas temperature of BMK is smaller, then the in the parameter „RGT Burner“ attituded temperature.
- 5) For boiler with automatically „Ignitionblocking“ the Ignition has to be runned over.

- | | |
|---|--------------|
| 1. Firing BMK | as Pricelist |
| 2. Flue draft regulator with Ex-Clap RE20 | H38-160 |
| 3. Rule Set-MKR | S30-031 |
| 4. return boost grouo RA50 A | H39-021 |
| 5. buffermemory ECO | as Pricelist |
| 6. USV 5/4" | by client |
| use just zone valves with off turned and tight closed mixer | |
| 7. additional boiler sensor for Oil-/ Gasconstr. | S70-004 |
| 8. Mixer Servermotor | S50-501 |
| 9. Roomconstruction / Roomstation | as Pricelist |
| 10. Warmwatermemory ECO | as Pricelist |
| 11. GSM-Module | S15-002 |
| 12. Recommendation non-return valve (difficult execution) | plumber |



Attitude HP0 = Verblock

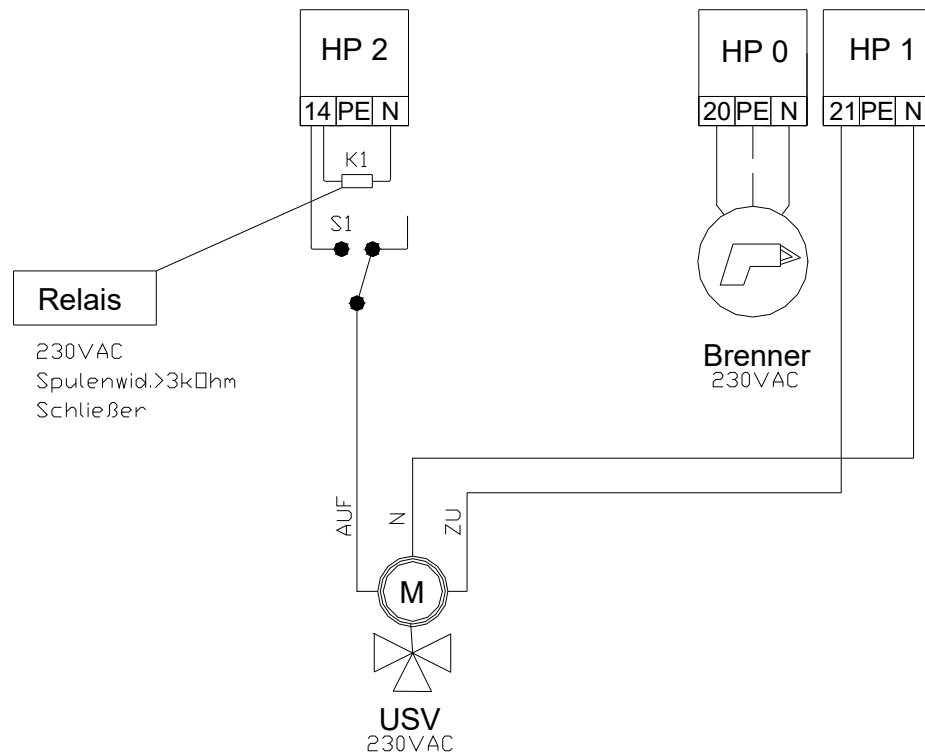
precondition The blocking function for scheme 16-8-xx only works if the furnace is equipped with weather-compensated control.

hydraulics The blocking function is matched to the 16-8-xx scheme. The function is only guaranteed if the hydraulic design is exact according to the diagram.

mixing valve When installing a mixing valve, it must be ensured that only mixing valves that close absolutely tightly are installed.

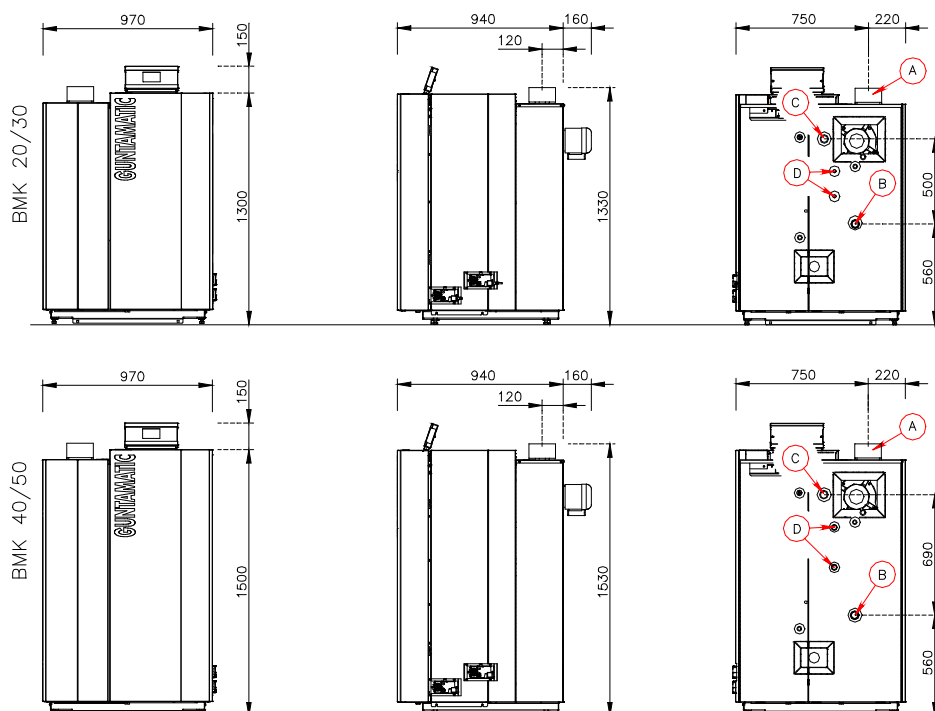
mixer motor Since output HP 2 is designed as a triac output, the mixer motor should be suitable for TRIAC control (z.B. Kromschroder SM70, Belimo LR230A, ...).

Additional relay If so-called humming noises occur with a mixer motor that is not suitable for TRIAC control, output HP 2 must be routed via a relay. The relay is not necessary if a TRIAC output-capable mixer is installed or if the output is used to control a pump.



8 TECHNICAL DATA

06



	BMK 20	BMK 30	BMK 40	BMK 50	Unity
Fuel	Split log ¹⁾ natural finish	Split log ¹⁾ natural finish	Split log ¹⁾ natural finish	Split log ¹⁾ natural finish	-
rating	20,0 (23,0 ^{2) 3)})	30,0 (27,8 ²⁾)	39,5	42,5	kW
boiler temperature	65 – 85	65 – 85	65 – 85	65 – 85	°C
Return boost temperaturer	> 55	> 55	> 55	> 55	°C
Flue draft	2 - 20	2 - 20	2 - 20	2 - 20	Pascal
Water content	125	125	175	175	Litre
Opration pressure	max. 3	max. 3	max. 3	max. 3	bar
A – Smoke pipe (Diameter)	150	150	150	150	mm
B - Backrun	5/4	5/4	5/4	5/4	Zoll
C – Vorlauf	5/4	5/4	5/4	5/4	Zoll
D – Securitywarmexchanger	3/4	3/4	3/4	3/4	Zoll
Waterside resistance 10K	1710 l/h 3,8	2570 l/h 8,1	3430 kg/h 15,4	4290 l/h 24,1	l/h - kg/h mbar
Wasserseitiger Widerstand 20K	860 l/h 1,1	1290 l/h 2,5	1710 kg/h 3,9	2140 l/h 6,0	l/h - kg/h mbar
Volume filling roo0m	166	166	215	215	Liter
boiler’s weigh ca.	630	630	730	730	kg
weight warmexchanger	240	240	320	320	kg
weight lower part	350	350	350	350	kg
Power supply	230VAC / 13A	230VAC / 13A	230VAC / 13A	230VAC / 13A	
energy efficiency class	You can find the energy efficiency classes either on the label enclosed with the boiler, in our brochures or on the product data sheets on our specialist partner website.				
¹⁾ Tested and recommended with low fines and dust content from low-potassium, low-nitrogen and low-bark fuel quality. (an optional EC filter is available for poorer material)					
²⁾ Performance specification Italy.					
³⁾ Performance specification Austria.					
Version ... EC describes a set consisting of a heater with electrostatic precipitator EC 24P, 24, 85 or 250.					

GUNTAMATIC

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