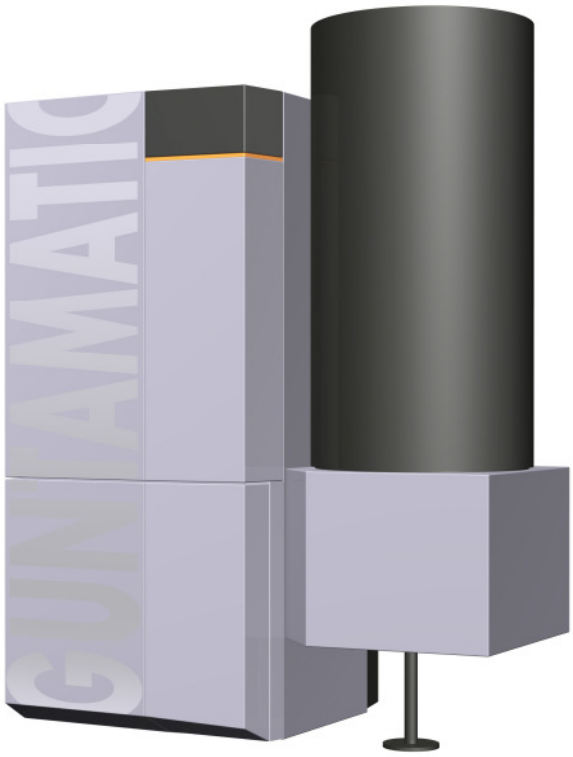
Pellet firing

englisch

BIOCOM

Planning and installation

BC-01



EN-B31-007-V12-0515

GUNTAMATIC

Information on this documentation

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.

GUNTAMATIC Heiztechnik GmbH

Bruck 7

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

Contents

1 Introduction

BS-01

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 liability

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. Without making any claims as to completeness or non-applicability of official requirements, we recommend the following specifications based on the Austrian Guidelines pr TRVB H 118:

2 Planning 01

2.1 Fire safety BS-01

 **The fire security instroductions 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 BC-01

Boiler room

Floor of concrete construction, either bare or tiled. All materials for floor, walls and ceiling must be fire-resistant to F60/REI60 rating.

Boiler rooms door: The Boiler room's door also might close single handed and it has to be possible to close off the door. Connecting doors to the fuel storeroom must also be Class T30/$EI_2$30-C fire doors, self-closing and lockable. There must be no direct connection to rooms in which flammable gases or liquids are stored.

Fuel storeroom

The same minimum fire safety requirements apply as for the boiler room.

Storeroom doors/hatches: Storeroom doors/hatches must be fire safe to Class T30/$EI_2$30-C, self-closing and lockable. There must be a warning sign carrying the message "Do not enter when feeder system is running" attached to the storeroom door/hatch.

Fireproof collars: If the storeroom is not situated directly adjacent to the boiler room, a fireproof collar must be fitted to the extraction and air return pipes at their wall exit points from the boiler room. If the outfeed auger goes directly into the boiler room, it is factory fitted with a special fire safety lining. No additional fireproof collars are required on the air pipes. If the outfeed auger is sited entirely inside the storeroom (i.e. if the outfeed auger does not extend out of the storeroom), fireproof collars must similarly be fitted to the extraction and air return pipes at their wall exit points from the storeroom.

> 50 m³

HLE - Manual fire extinguisher: If 50 m³ of fuel or more can be stored, a manually operated fire extinguishing facility must be installed. It must be protected against freezing and connected to a pressurised water pipe (DN20 conduit). The discharge point must be located directly above where the fuel outfeed channel exits the storeroom. The fire extinguishing facility must be identified by a sign carrying the inscription "Fuel storeroom fire extinguisher".

Filler pipes: Filler pipes through rooms where there is a fire risk must be provided with Class F90/REI90 cladding.

2.3 Boiler room requirements

BC-01

Minimum room height	BC 30 / 40 / 50	ideal solution	**H 225 cm**
		[1] possible	**H 210 cm**
	BC 75 / 100	ideal solution	**H 240 cm**
		[1] possible	**H 230 cm**

[1] = minimum height on upscrewed heat exchanger

Minimum room size	BC 30 / 40/50	**B 240 cm x [2] T 230 cm** ([3] T 240 cm)
	BC 75 / 100	**B 270 cm x [2] T 230 cm** ([3] T 240 cm)

[2] T = The room with boiler's bodies front seeing from behind
[3] = Minimum size from the automatic ash suction system

Clear access opening	BC 30 / 40 / 50	[4] ideal	**B 120 cm x H 205 cm**
		[5] possible	**B 80 cm x H 170 cm**
		[6] possible	**B 75 cm x H 165 cm**
	BC 75 / 100	[4] ideal	**B 180 cm x H 210 cm**
		[5] possible	**B 100 cm x H 190 cm**
		[6] possible	**B 90 cm x H 180 cm**

[4] = Contribution of ready mounted boiler on transportwood
[5] = Contribution without Stoker, cleaning impulse and Transportwood
[6] = Measures with aditional to Point [5] unrigged

Combustion air supply

The pressure in the boiler room must not be less than 3 Pa (0.3 mm H_2O). The air vents for boiler rooms must have a clear, net cross-sectional area of at least 200 cm² and must not be sealable. With combustion boiler systems with a fuel heat output upwards of 50 kW, the net, clear cross-sectional area must be increased to at least 5 cm² per kW rated output according to the combustion air requirement of the boiler system. 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.

Electrical installation

The lighting and the electrical wiring in the boiler room must be permanently installed. There must be a clearly marked emergency off switch in an easily accessible position outside the boiler room, close to the boiler-room door.

The line connector 230 VAC, 50 Hz, 13 A is needed.

Fire extinguisher

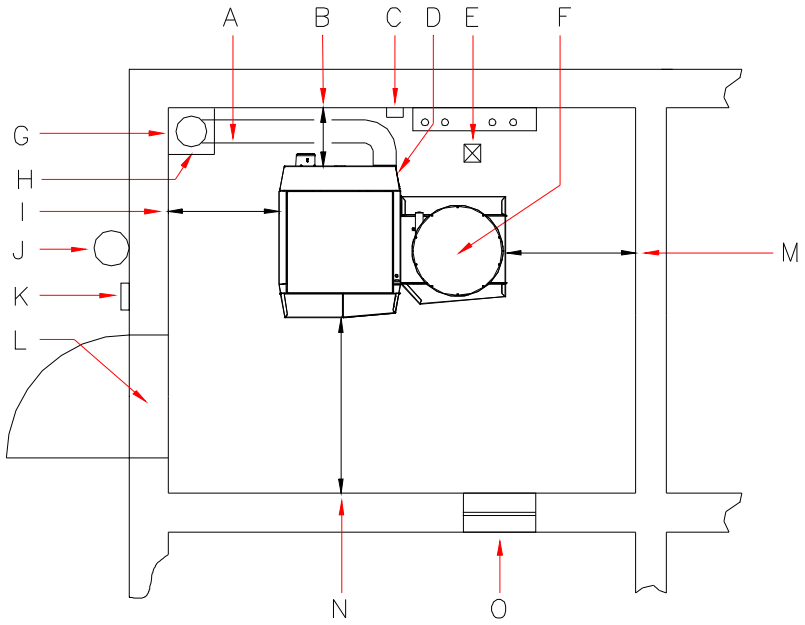
A hand-held fire extinguisher (6kg gross weight, EN3) must be mounted outside the boiler room near the boiler-room door.

Protection against freezing

The boiler room, pipes carrying water and any district heating pipes must be protected against freezing.

Installation site

You have to plan the furnace in the near of the chimney to avoid a long flue pipe.



A → Integration version of Energy saving draft regulator with Ex flap and with fire tube
respect the local fire security rules- dust information possible

B → BEHIND distance
ideal **70 cm minimum**
possible **50 cm** without Ash suction system
60 cm with Ash suction system

C → The discharge for overheating

D → Line Connector 230 VAC 13A

E → Drain

F → Sparger complex

G → flue wet non- sensitive chamotte-flue advised

H → installation variant energy-saving damper with explosion damper in the flue
Ca. 50 cm under the flue – please follow the local laws

I → LEFT distance
ideal **70 cm minimum**
possible **40 cm**

J → fire extinguisher 6 kg filling weight EN3

K → escape switcher (emergency stop)

L → fireproof door T30 / $EI_2$30-C lockable and self depended

M → RIGHT distance
ideal **70 cm minimum**
possible **40 cm**

N → LEFT distance
ideal **100 cm minimum**
possible **80 cm**

O → Combustion air supply

2.4 Flue requirements

BC-01

Use heat-insulated fireclay flues that are insensitive to damp.

The flue gas temperature can be less than 100°C.

The system must only be connected to the flue if the flue meets the legal requirements and the technical specifications. The flue must be matched to the boiler output and dimensioned in accordance with DIN 4705. In order to be able to accurately dimension the flue, the calculations must be based on the flue gas figures. When designing new flues, high thermal insulation chimneys (DIN 18160 T1 heat transmission resistance group I) or suitable fireclay flues that are insusceptible to damp and have general building regulation approval should be used. It is advisable to involve those responsible for approving the flue system early on in the planning phase.

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 1.5m above the surface of the roof.

Flue diameter

The flue hast to adjust on the fire power. The following dates are approximate values and could be used for planning. We recommend calculating the flue by a professional.

BC 30 / 40 / 50	eff. high above	6 m	D = 160 mm
	eff. high under	6 m	D = 180 mm
BC 75 / 100	eff. high above	6 m	D = 200 - 220 mm
	eff. high under	6 m	D = off 220 mm

Flue dimensioning data

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

Rated output:

Type	exhaust	CO_2	massflow	draft requirement
BC 30	160°C	12,5%	0,024 kg/s	15 Pascal
BC 40	170°C	13,0%	0,030 kg/s	15 Pascal
BC 50	175°C	13,0%	0,030 kg/s	15 Pascal
BC 75	190°C	13,0%	0,042 kg/s	15 Pascal
BC100	190°C	13,0%	0,055 kg/s	15 Pascal

Sub-maximum output:

Type	exhaust	CO_2	massflow	draft requirement
BC 30	100°C	9,5%	0,010 kg/s	2 Pascal
BC 40	105°C	10,0%	0,012 kg/s	2 Pascal
BC 50	115°C	10,0%	0,009 kg/s	2 Pascal
BC 75	120°C	10,0%	0,013 kg/s	2 Pascal
BC100	120°C	10,0%	0,017 kg/s	2 Pascal

2.5 Flue draught regulator and pressure-surge compensator

BS-01

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

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.

2.6 FUEL STORAGE

BS-01

Please note:
the specific national rules for your fuel store (for example. ÖNORM M7137, VDI 3464,...) are strictly adhered blindly

Jahresbedarfsschätzung — The fuel store should be able to pick up the stock for a year . The fuel store volume is circa 2/3 when the fuel supply is active. The storeroom should be recantugular and wider then 3,5 m. So narrower the store room is, so less storeroom is available.

→ per 1 kW/Year ca. 0,65 m³ = ca. 450 kg Pellets

wetprotection — The fuil is to protect from wet floors or walls. The storeroom has to be dry during the whole year. In case of temporary wettnes walls, we advice you to install a ventilated facin on the wall. You also have to clad the walls with derived timber product.

Cold area — Suction pipes and order units in the cold areas might be isolated freezeproof.

Danger of condensation!

filling set — There has to mounted two filling stuts
minimum distance 0,5 m – maximum distance 1,5 m.

Location — The fuil will delivered in an pump truck. The storeroom ort he filling conections has to be ordered, that they are reachable form a tube which has a maximum length from 30 m. On the second filling connection the Transport air will be aspirated the transport air.

Statics — With Flex store systems on the floor and the containment walls must have the static requirement withstand by the stored fuel and the pressure during filling. In Box store systems requires particicular attention to the sustainability to the substed, as at full filling in the Box acting on the individual support points.

BOX placement — The box must be installed basically separated from the boiler in another room. In some countries, the fabric tank could be set up in the room where the furnance if there is a minimum distance of 2 m between the BOX and the boiler could be maintained and the thermal output does not reach 50 Kw.

Therefore observe the regulations in force addition! For outdoor positioning, no F90/ REI90 trim is required , if the minimum distances were respected. The fabric tank must be protected against rain, wetness and UV Light.

FLEX wall breakthrough — Breadth 33 cm / High 25 cm (for FLEX propulsive unit)

Fuel store air sparging

To avoid an high perilous Co^2 consentration you have to lift the store and Broiler room.The opening for the lifting might discharge into the atmosphere. There must be an air change between the Storeroom and the ambient atmosphere. If the natural thermal isnt´t enough you have to take technical measures.

If the filling stubs (the openings) discharges not into the atmosphere you have to lift it with another lifting opening. you have to be careful, that there is no rainwater into the storeroom from the filfting opening. The construction site from the permeable to air storage container might have a port in to the atmosphere. A ventilator shifts from 200cm² is enough.

Up to 30 t storage volume the requirement is prepossessed, if:

- The filling stub (opening) is leading into atmosphere for minimum 2 caps with an air inlet
- The diameter from 2 ventilation pipes is per pipe minimum 90 mm
- The ventilator shift from the exhaust port from both Ventilation pipes from 2 m minimum 40 cm² and must be higher then a lenghth from 2 me but minimum 60 cm ².

  INFO: The whole ventilation shift from 2 caps from our filling sets is 60 cm².

Over 30 t storage volume the requirements

- a combination between natural and manual lifting, based on a Co^2 Sensor. If there is no natural lifting you have to install forced ventilation- in case of a high Co^2 Concentration ventilation is lifting automatically.

Access doors/hatches

Above-ground fuel stores must be provided with a door or hatch that opens outwards. So that the fuel cannot run out if the fuel store is opened by mistake, the inside of the access door/hatch opening must be covered with boarding (which must be removable from the outside). During to the risk of injury when the system is in operation, access doors/hatches must be lockable and kept locked when the system is in operation. There must be a warning sign carrying the message "Do not enter when feeder system is running" attached to the access door/hatch.

Electric Installation

At FLEX storesystems electroinstallations in the fuil aren´t permissible.

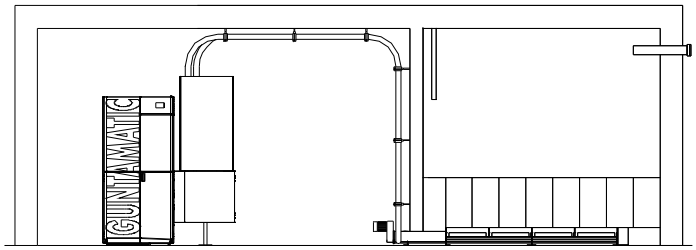
At box level systems electroinstallations in the show room aren´t allowed.

Filling couplings have to be grounded.

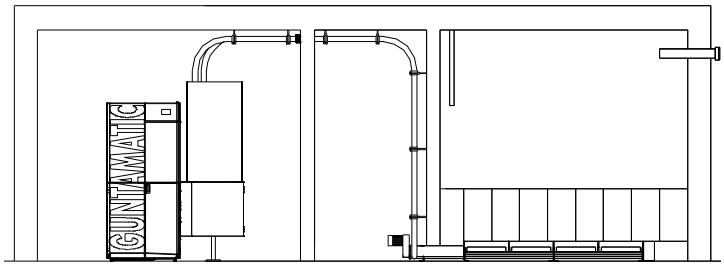
2.7 EXAMPLES FOR PLANING

BC-01

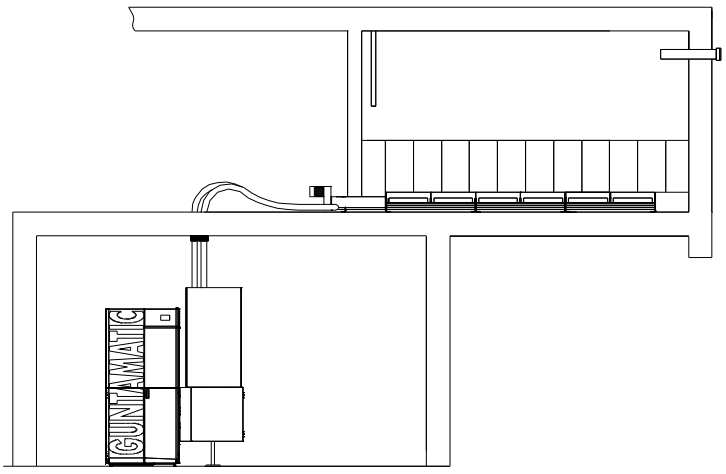
Example 1 Construction with Flex fuel supply next to the heating room.
The maximum length of agitator is 5m.
The maximum suction length is 25 m.
Minimum 2 fire security wristbands needed – please respect the minimum fire security rules!



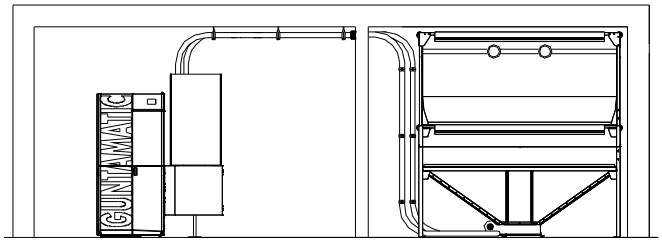
Example 2 Machine with Flex fuel supply with annother building section.
The maximal length of extracting screw amounts 5 m.
The maximal suction length is 25 m.
Minimum 2 fire security wristbands needed – please respect the minimum fire security rules!



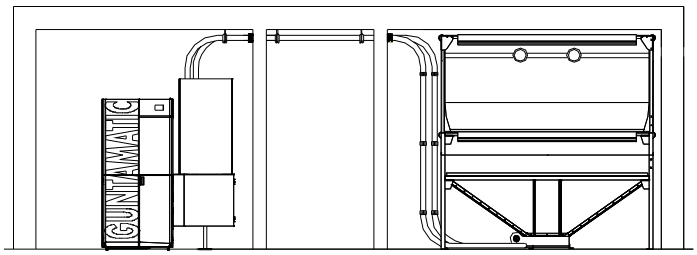
Example 3 Machine with Flex fuel supply with annother building section.
The maximal length of extracting screw amounts 5 m.
The maximal suction length is 25 m.
Minimum 2 fire security wristbands needed – please respect the minimum fire security rules!



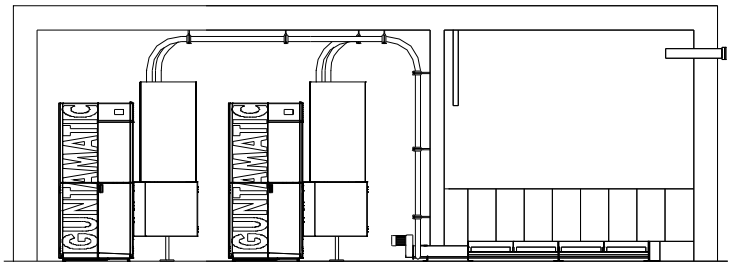
Example 4 Consruction with BOX- fabrictank direktly above the heatingroom.
The maximum Suctionlength is 25 m.
Minimum 2 fire security wristbands needed – please respect the minimum fire security rules!



Example 5 Construction with BOX- fabrictank in a other building section.
The maximum Suction length is 25 m.
Minimum 4 fire security wristbands needed – please respect the minimum fire security rules!



Example 6 Cascade construction with 2 FLEX-R directly below with the heating room.
The maximal length of extruding screw constitudes 5 m.
The maximum suction length is 25 m.
No fire security wristbands needed – please respect the minimum fire security rules!



2.8 AUTOMATIC ASH SUCTION SYSTEM

PC-01

The following Introductions are for Device planning- for installation of ash vacuum suction system there is another Introduction included.

Optional there is a automatic ash vacuum system. The accumulated ash will go through the firing build Feedsystem and flexible metal tube in a big removable ashton. The deashing is automatically.

Retofit the system

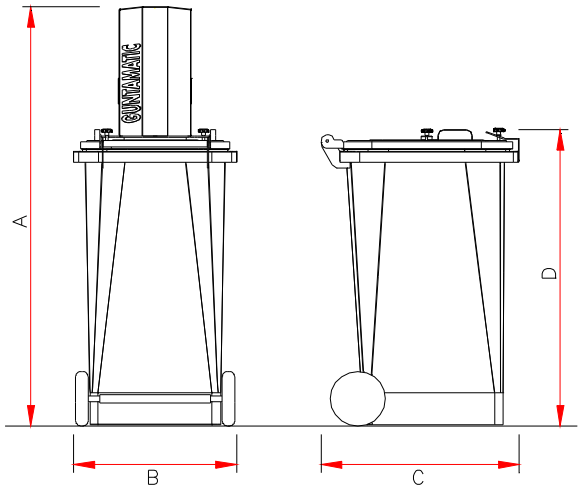
It´s possible to retrofit the ash vacuum suction system, if the minimum difference between the wall and the system ist 60 cm.

A → 153 cm

B → 59 cm

C → 72 cm

D → 107 cm



Construction side:

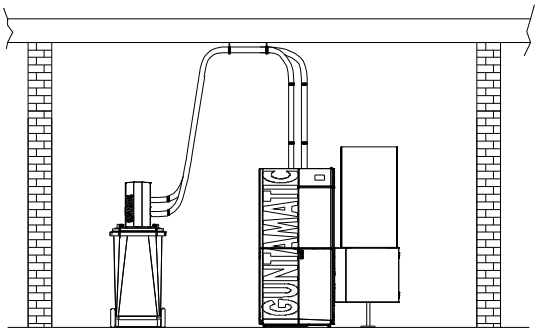
If possible, you have the opportunity to plan the ash ton at a ground level beside the boiler's body. Basic requirement for the construction is a good lifting through the installation site, The ash ton must have a 25 cm minimum difference to inflammable materials. You have to be a look that there is no inflammable ground.

Not permitted construction side for an ash ton:

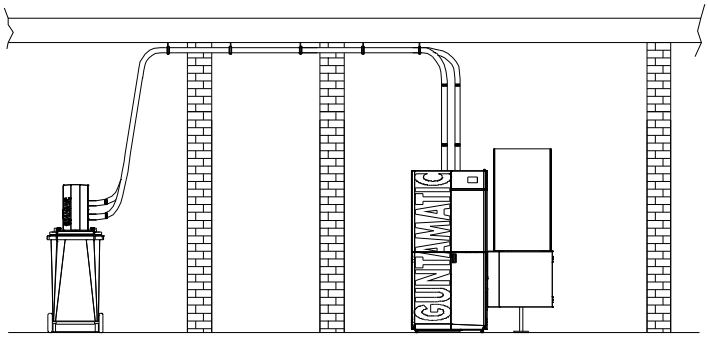
- in an garage
- in the atmosphere in living rooms;
- in storerooms with inflammable materials or gases.;

Permitted Construction places for the ash ton:

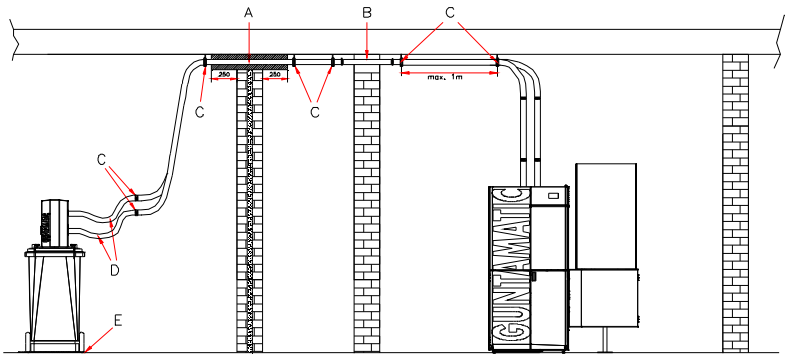
- in the boiler room



- in an secondary room



Hauling of a suction pipe through fire zones



A → wall penetration with Rockwoolpipesprialclamp;

B → wall penetration with boiled Steel pipe;

C → fire security clamps 54 – 60; (maximal 1 m difference)

D → flexible suction metal tube (minimum 10 cm difference)

E → not inflammable mad

2.9 HEATING CIRCLE RULE

PH-01

The heating circle rule is optional offered.

You can decide between a MKR set or a wall mounted MK 261 set.

- per construction 3 controlled by atmospheric condition rules possible
- per construction could be actived just 1 MKR Set boiler
- pro Machine there are 3 remote control möglich;
- per heatingcircle one analogue room unit possible

  Exceptions at five sensors are buffer management

  Please note the information in section 5- sensore buffer management of chapter 7.1 and buffermanagement HP0 !

Set-MKR Following functions could be activated:

Heatingcircle		• Warmwater-Memory
Heatingcirle 0	optional avalible	• pump heating circulation • aditional warmwater memory • external heatingcirculation
Heatingcircle 1	optional avalible.....	• Pumpenheizkreis • gemischter Heizkreis
Heatingcircle 2	optional avalible.....	• Pumpenheizkreis • gemischter Heizkreis

wall mounted model set-MK261 Following funtions could be active:

Heatingcircle WW		• warmwater- memory
Heatingcircle 0	optional..... [1]	• pumpingheatingcircle • third mixed heatingcircle
Heatingcircle 1	optional.....	• pumpingheatingcircle • mixed heatingcircle
Heatingcircle 2	optional.....	• pumpingheatingcircle • mixed heatingcircle
Trunk link	optional..... [2] [3]	• feederpump (ZUP) • dumping device pump (PUP) • cargo pump (LAP) • extension (ERW) • third mixed heatingcircle
adition	optional..... [4]	• aditional warmwater memory • external heatingcircle • third mixed heatingcircle

INFOBOX

1) the third mixed heatingcircle could be actived, if the functions trunk link and addition are not used.

2) through „ERW“ function a heating circle controller with trunk blink can be assigned an other heating circle controller

3) if the function „third mixed heatingcircle“ is activated, the trunk blink functions are not availible.

4) if the „third mixed heatingcircle“ is activated, the additional functions are not availibe.

Sketch:

3 Construction 01

3.1 Delivery BS-01

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 BS-01

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.

3.3 Positioning and aligning the boiler BC-01

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.

Clearance at back	ideal	**70 cm minimum**	
	possible	**50 cm**	without auto ash extraction system
		60 cm	with auto ash extraction system
Clearance on left	ideal	**70 cm minimum**	
	possible	**40 cm**	
Clearance on right	ideal	**70 cm minimum**	
	possible	**40 cm**	
Clearance at front	ideal	**100 cm minimum**	
	possible	**80 cm**	
Floor clearance	ideal	**3,5 cm minimum**	with screw feet triggered
	possible	**8 cm**	

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.

3.4 Plumbing connections

BC-01

BIOCOM 30/ 40 / 50

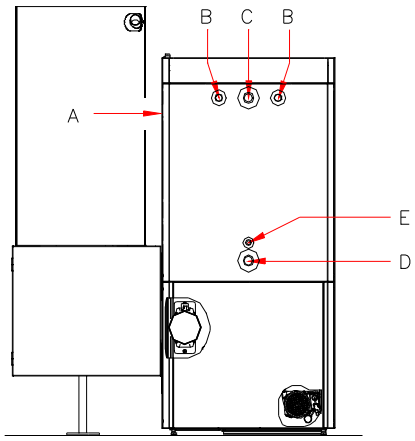
A → Sensor for temp. relief valve, 1/2"

B → Temperature-relief heat exchanger 3/4“

C → Heating return, 5/4“

D → Heating flow, 5/4”

E → External thermostat, 1/2"



BIOCOM 75 / 100

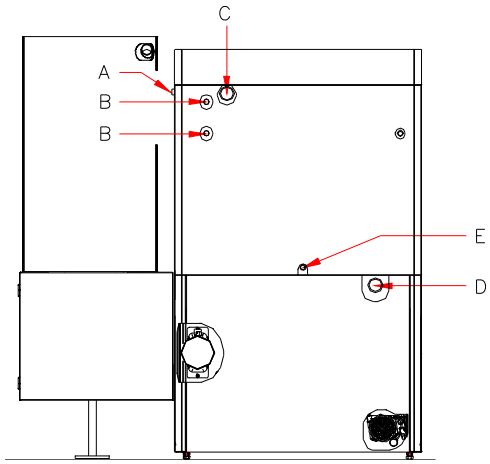
A → Sensor for temp. relief valve, 1/2"

B → Temperature-relief heat exchanger 3/4“

C → Heating flow, 2”

D → Heating return, 2“

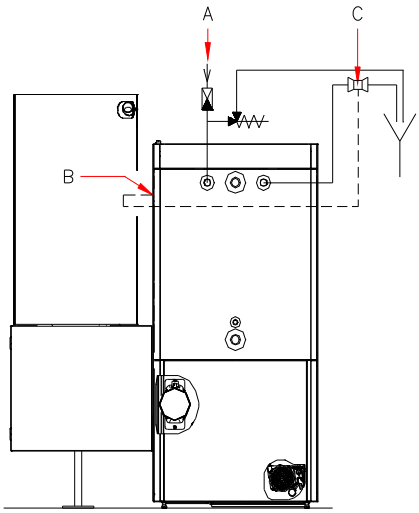
E → External thermostat, 1/2"



Temperature-relief heat exchanger

The maximum permissible operating temperature of the boiler is 110°C. In order to prevent the maximum allowable operating temperature being exceeded, connection of a temperature-relief valve conforming to Austrian standard ÖNORM 8131 and DIN 4751 and with a response temperature of 95°C is required. The supply pressure must be at least 2 bar but no more than 6 bar.

BIOCOM 30/40/50

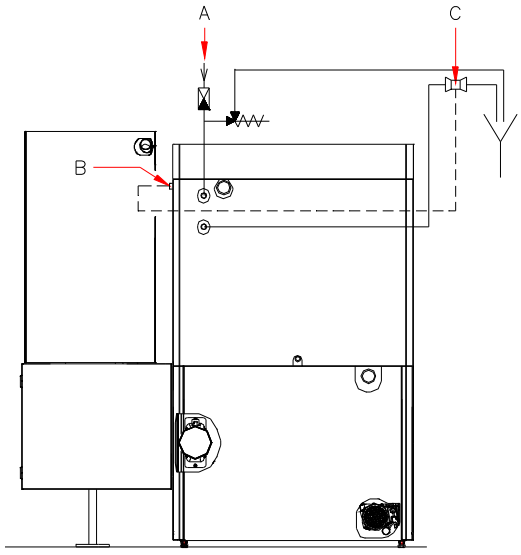


A → Cold water supply

B → Sensor for temp. relief valve, 1/2"

C → Temp. relief valve, 95°C

BIOCOM 75 / 100



A → Cold water supply

B → Sensor for temp. relief valve, 1/2"

C → Temp. relief valve, 95°C

Buffer memory

Installing a thermal store is not necessary as the boiler is operated by a modulating control system and the system can be quickly shut down. However, if the required continuous heat output in the summer months is below 10 kW for systems up to 50 kW, or 22 kW for systems upwards of 50 kW, combination with a thermal store is necessary for reasons of efficiency

When you putt 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 bypass pump between the boiler flow and return pipes. If a thermal store is connected, the boiler return temperature must similarly be at least 55 °C, which must be ensured by a return boost (cross-over valve) set as shown in the plumbing diagram. If this requirement is not complied with, there is an increased risk of corrosion and guarantee entitlement will be lost as a result. Connect the return boost set precisely as specified in our plumbing diagrams.

The dimensioning of the return boost pump (set) is designed for the arrangements shown in GUNTAMATIC plumbing diagrams. If additional components such as heat meters are incorporated in the system plumbing, or if the overall thermal store pipe run (flow and return) is more than 30 m, re-dimensioning of the boiler charging pump (HP0) may be necessary.

Sludge separator with magnetite

Magnetite and the sludge separator in the Heatngwater could become a problem for energysaver pumps. By installin a prperly sized and applied sludge sperator with a magnet can remided cost effenciently.

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: 2500 litres x 0.03 x 3 = 225 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.

Plastic piping

If plastic piping for underfloor heating or district heating pipes are connected, they must be protected against excessive temperatures by using a limiting thermostat for the circulation pumps.

Danger of overheating

Faulty operation, wrong fuil or disturbance could be load to overheating. To avoid disturbance you have to install additional fuse protections for maximum process water and fuses for heating circulation temperatures.

3.5 Filling and bleeding the system

BS-01

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. According to VDI 2035 Part 1, "Avoiding damage to hot water systems", which comply with EN12828, the first-fill and replenishment water, must be conditioned (preferably softened) if the following overall hardness limits [°dH] according to total heat output (kW) are exceeded:

- < 50kW: if °dH > 16.8
- 50 to 200 kW: if °dH > 11.2
- 200 to 500 kW: if °dH > 8.4
- > 500kW: if °dH > 0.11

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.

3.6 Flue connection

BC-01

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

Abgasrohr → **up 4 m length and maximum 3 sheets:**

- BC 30 / 40 / 50 Ø = 150 mm
- BC 75 / 100 Ø = 180 mm

→ **longer then 4 m or more then 3 sheets:**

- BC 30 / 40 / 50 Ø = 160 mm
- BC 75 / 100 Ø = 220 - 250 mm

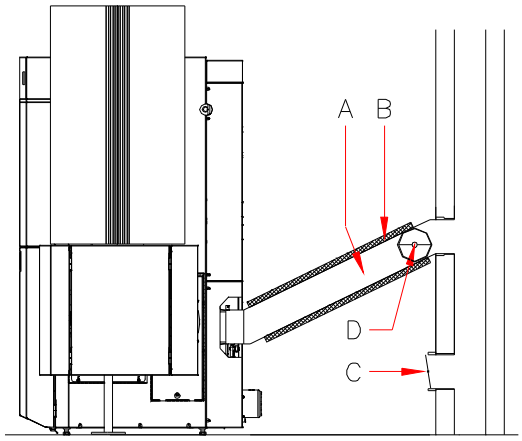
The hole in the wall for connecting the flue pipe must be lined with a built-in double-skinned lining tube or fireproof material. The flue connecting pipe must rise upwards from the boiler to the flue at an angle of at least 6° and be connected with gas-tight joints. An inspection cover must be provided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

A → Flue connecting pipe, min. gradient 6°

B → Flue connecting pipe insulation

C → Flue draught regulator/pressure-surge compensator in flue
(Preferred fitting arrangement)

D → Alternatively: Flue draught regulator in flue connecting pipe
(As close as possible to junction with the flue)



- The flue connecting pipe musty be gas-tight
- isolate the flue pipe
- 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

3.7 Construction holding 01

3.7.1 System Flex BC-01

Please attent, that the inlet opening (B) has the correct assembly.

A → support direction

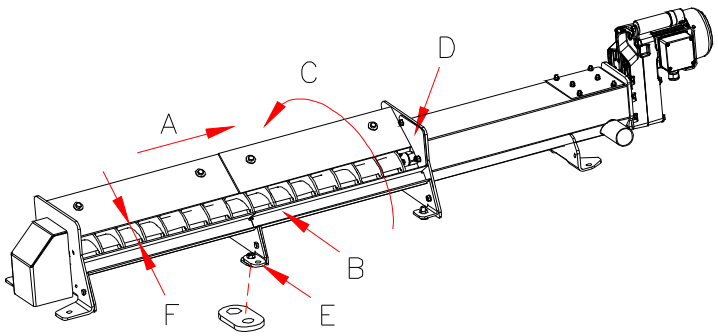
B → inlet opening

C → direction of turning

D → scraper

E → bottom flap

F → reference dimension 56 mm



Sketch:1

discharge screw

1. Lead the populsive unit (1) Sketch 2 through wall breakthrough of discharge screw

2. Dependent from screw length the snails tees stick it from the store room with hutch (2) Sketch 2 to the drive unit. The spiral piecex has to been stuck together, so that the rise slopes shortly with the spiral. Then srew the flange connections of throughs by means of M8x 30 screws (3) Sketch 2 and washeres firmly. Make sure that the screws are screwed through without impact on the inside. At the end of discharge screw the flange (4) Sketch 2 screw with bearings

3. Slacke the worm screw (5) Sketch 2 in the store room up to the block in the direction with the drive unit, then fix the worm screw.

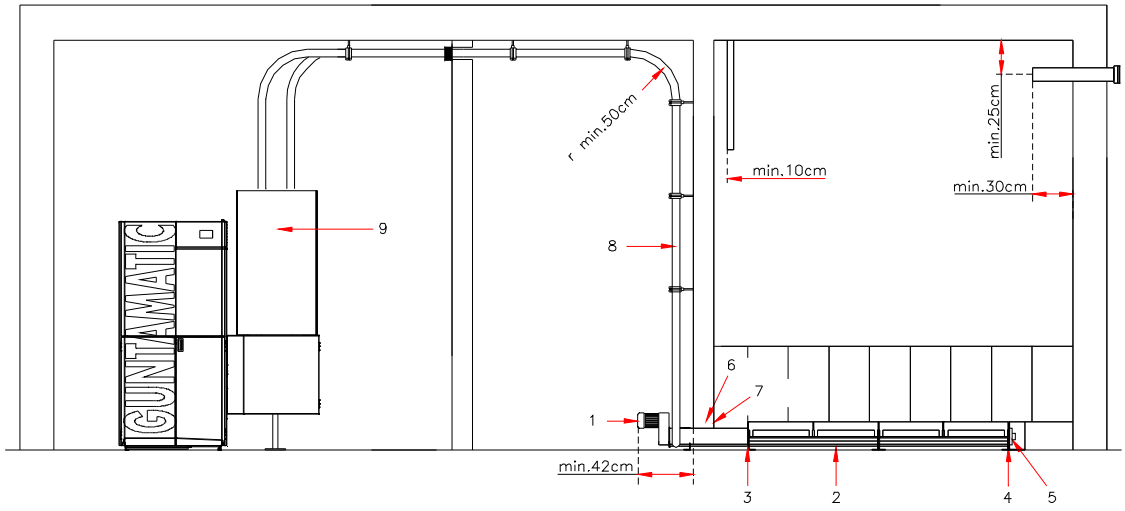
4. Controll of concentricity through turning the spiral. The spiral may beat in the middle maximum 3 mm.

5. Arrange the auger feed system (Sketch 2), that minimum 42 cm saliencied from the roomwall.

6. Screw the spiral´s through on the store rooms ground.

   Then screw the flange of the troughs by means of M8 x 30 screws (3) Fig. 2 and washers firmly. Make sure that the screws are screwed troughs without impact on the inside. At the end of the discharge screw the flange (4) Fig. 2 screw with bearings.

7. Fill the wall opening (6) Sketch 2 with rock wool. The opening with the cover plates (7) Sketch 2 cover inside and outside contact.



Sketch :2

Suction tubes

1. Connect the suction tubes (8) Sketch 2 by the cyclone container (9) or connect the blower at an arbitrary suction part on the auger. The suction hose to the cyclone container in the largest possible radii embarrassed.

The minimum radius is 0,5 cm !

The tube shouldn't slaged. Use good mounts.

2. The suction and retour air line (8) are fixed with the declined clam and cyclone container (9) on the propolsive unit (1).

Check the tightness on the first suction operator. Leakage could lead to filling fails!

3. Don´t lead suction pipes into the outside area or cold rooms, because of consendation. If no other place is available you have to isolate the suction pipe.

fire safety!

Fire safety wristbands has to be mounted, when the suction pipe is misplaced through different rooms.

Please respect the minimum fire security rules.

ground the suction pipe!

At the ends the cooper wires in the suction hoses and connect to the reservar, the suction far, the drive unit and the boiler ground or with clams

A → crossbar

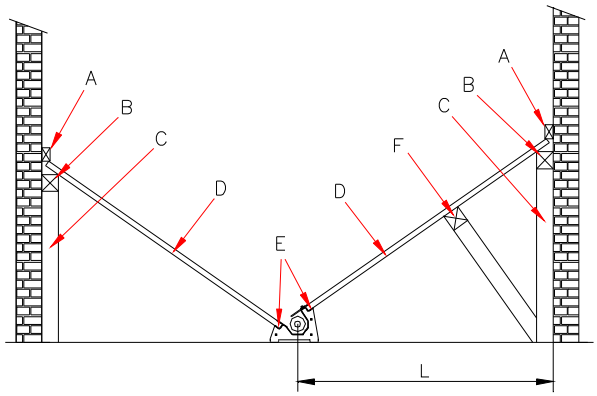
B → scantling

C → scantling

D → Verbretterung

E → auger intake

F → shoring



Sketch: 3

View: → is seeing from host gear in direction to the storeroom

Store room boards:

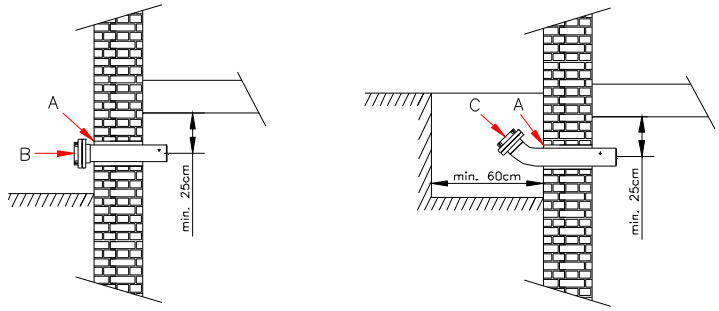
1. Stick the wooden frame into the auger intake (E) when the slope is 35 ° left and right.
2. Mark and screw the wood circa 3 cm under the maximum fall.
3. Assure the assamble squared wood everey 1,5 m with a standind wood (C). If thhe distance would be bigger than 1,5 between the screw and the wall, you have to install additional supporting beams (F).
4. You have to serrate 3 cm long strong woods or laminated records, lay it into the screw groove, that there is a gap between the wall and the construction.
5. You don´t have to tight every board, but you have to screw on the wall on the boards.
6. If the spiral doesn´t reach to thestore room´s end, you have to built a board slant with 35 °.
7. If the removal profile, doesn´t reach to the wall passage, you have to use a under construction.

filling set There have to be constructed minimum 2 filling nozzles.

A → PVC pipe Ø150 mm

B → filling set straight
(di 100 mm / Da 108 mm)

C → filling set 45°
(di 100 mm / Da 108 mm)



Sketch 4

on the Outsidewall in the light well

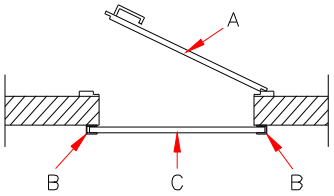
- if possible order the filling noozels 0,5 m on the narrow room sided with minmum 0,5 distance to each other;
- walls and Walldistance minimum 25 cm;
- wall drilling Ø 130–150 mm;
- fix the filler neck (for example lathering);
- the filling noozels have to be grounded (1,5 mm²)

access door It is a T30 / EI230-C fire door or install hatch which opens from the inside out. On the inside the manhole must be provided with a minimum of 3 cm thick planking, which is detachable from the outside, so that the fuel in erroneous opening can not fall out. Due to the risk of injury during operation manholes are closed execute. On the manhole of the boiler documentation Dremel warning label that says to install "fuel storage room". The manhole should be provided with a to-current seal.

A → Door or Luke (T30 / $EI_2$30-C)

B → U or Z iron profile

C → wooden blocking (minimum 3 cm strong)

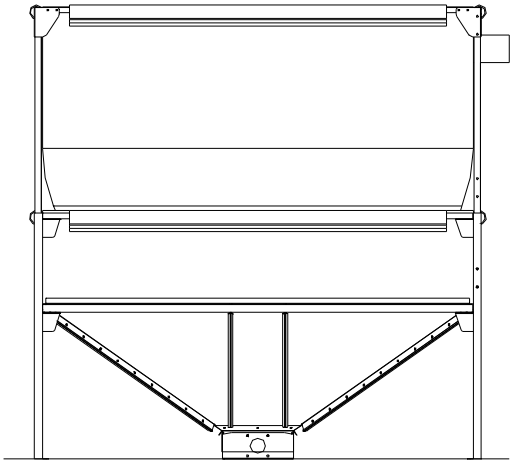


Sketch: 5

3.7.2 SYSTEM BOX

BS-01

Montage — The Montage of fabric tank occours with a seperated construction instruction.



Suction pipe — For construction use the same introduction as you could find in the chapter „system Flex“.

Please attend the chapter

fire security

and

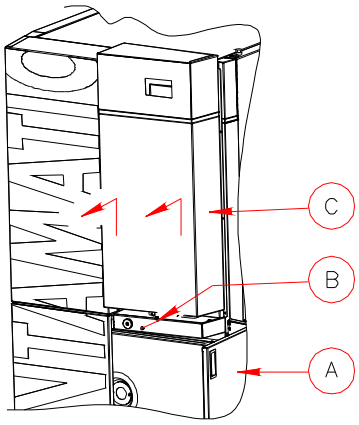
minimum fire security requirement!

4 Electrical connections

BC-01

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.



Opening switch panel

- open the right cover panel (A);
- solve the lock screw (B)
- raise the control cover (C) and hang it below;
- the platine with the connecting plug under accessible positions

Mains power supply

230 VAC, 50 Hz, 13 A fuse (surge arrester recommend)

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.

Emergency off switch

According to prTRVB H 118, it must be possible to switch off the system using an emergency off switch fitted outside the boiler room near to the boiler room door. The burner must then shut down but the heating controller and all safety equipment must remain functional. Connected to the boiler enabling switch, terminals 22/23 on the boiler circuit board (see electrical wiring diagram).

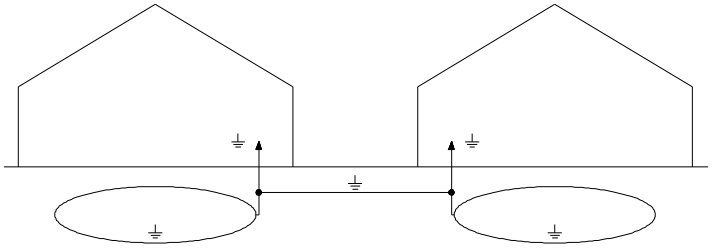
Cabeling

- Feeder 3 x 1,5 mm²
- Sensor 2 x 1 mm²
- Room stat 2 x 1 mm²
- CAN-Bus 2 x 2 x 0,5 mm² (twisted pair, shielded)

For low voltage (sensores…) and high voltage, the cable duct on the boiler, is needed

Surge 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.



Wiring CAN bus

linear wiring: (you have to prefer this kind of wiring)

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.

Boiler cascade

Up to four heating boilers can be operated in a cascade system (sequential control system) and must be connected in-line via a CAN bus. **The CAN bus lead must be wired without connecting the + terminal.**

Earthing

The entire system is to be joined to the earth circuit conductor via the connected piping system according to the regulations.

When connecting the earth circuit conductor pay particular attention to keeping the connecting runs as short as possible.

Cabel non tensioned

to avoid defects or errors all cables strain relieved

Emergency power supply

Only use regulated generators.

4.1 Heating system electrical connections

BC-01

Mains connection

- 230 VAC, 50 Hz, 13 A fuse

Standard specifications

- Boiler control panel (BCE)
- Boiler circuit board (230 VAC)
- Fault signal output (24VDC 200mA)
- Safety temperature limiter (STL)
- Boiler sensor (KVT20 Ω)
- Flue gas temperature sensor (thermocouple)
- Oxygen sensor (12V DC)
- Flue draught fan (230V AC)
- Grate cleaner motor (230V AC)
- TKS 1 (firebox and ash box door switch, 24VDC)
- Stoker drive motor G1 (230V AC)
- Outfeed drive motor A1 (230 VAC)
- Outfeed blower A2 (230 VAC)
- Stoker sensor (PT1000 Ω)
- Filling Sensor (12VDC)
- Ignition fan (230V AC)
- Boiler enabling switch (emergency off)
- HP0 output (230 VAC)
- Reflux mixers (230 VAC)

Optional equipment

- Pump outputs (230 VAC)
- Mixer valve outputs (230 VAC)
- sensor entrance (KVT 20 Ω)
- anlaloug equipment for furnace
- Digital remote station

Restistances

Temp	KVT20 Ohm (Ω)	Temp	PT1000 Ohm (Ω)
-16℃	1434 Ω	0C°	1,000 Ω
-8℃	1537 Ω	10C°	1,039 Ω
0℃	1644 Ω	30C°	1,117 Ω
10℃	1783 Ω	40C°	1,155 Ω
20℃	1928 Ω	50C°	1,194 Ω
30℃	2078 Ω	60C°	1,232 Ω
40℃	2234 Ω	70C°	1,271 Ω
50℃	2395 Ω	80C°	1,309 Ω
60℃	2563 Ω	100C°	1,385 Ω
70℃	2735 Ω	125℃	1,480 Ω

5 Final checks

BS-01

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.

6 Standards / Regulations BS-01

The heater equates Class 3/ 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 300 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 M 7137**
  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 aircleening

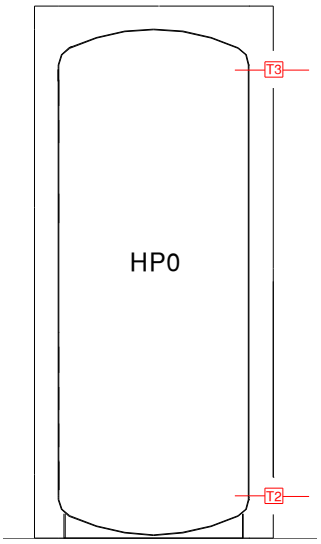
- Swiss decrees with smallfiremachines

- VKF Fire security thermaltechnical construction (Suisse)

- SIA 384 (Swiss)

7 Plumbing diagrams 01

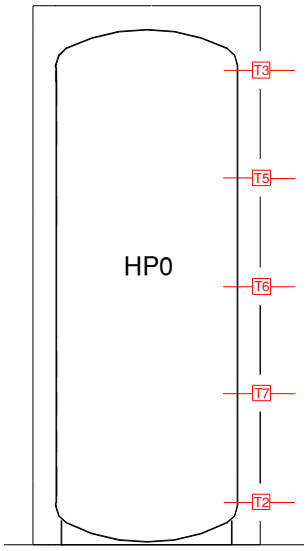
7.1 Backup Memory HP0 PH-01



2 SENSOR – Buffer management

- Attitude„Part-Charging“
  The buffermanagement is charged in the top art. ON and OFF Switching temperatures could be attitude with buffermanagement.

- Attitude „FULL-Charging“
  The buffermanagement is charged in the below art. ON and OFF Switching temperatures could be attitude with buffermanagement.



5 SENSOR – Backup Memory

PLEASE NOTE:

The buffer sensor additionally required T5, T6 and T7 must be connected to the boiler board or on a wall unit on the terminals of the analogue space devices. It can be programmed for heating circuits therefore this controller no analogue room device RFF. Alternatively, use digital space stations RS or an additional wall mounted set-MKR261 for connecting the analogue room sensor RFF.

- Attitude „part load border“
  The buffer storage tank is loaded up to the adjusted maximum part load limit at full boiler output. Once this limit is reached, the boiler output is reduced so much by the buffer management that this charge state of the buffer can be kept as long as possible and thus restart the plant are as far as possible avoided.

Attention: In case of very low (less than 30%) decrease of performance like for example a low energy or a passivehouse and for oversizing, we advice you to install a backup memory.

GUNTAMATIC

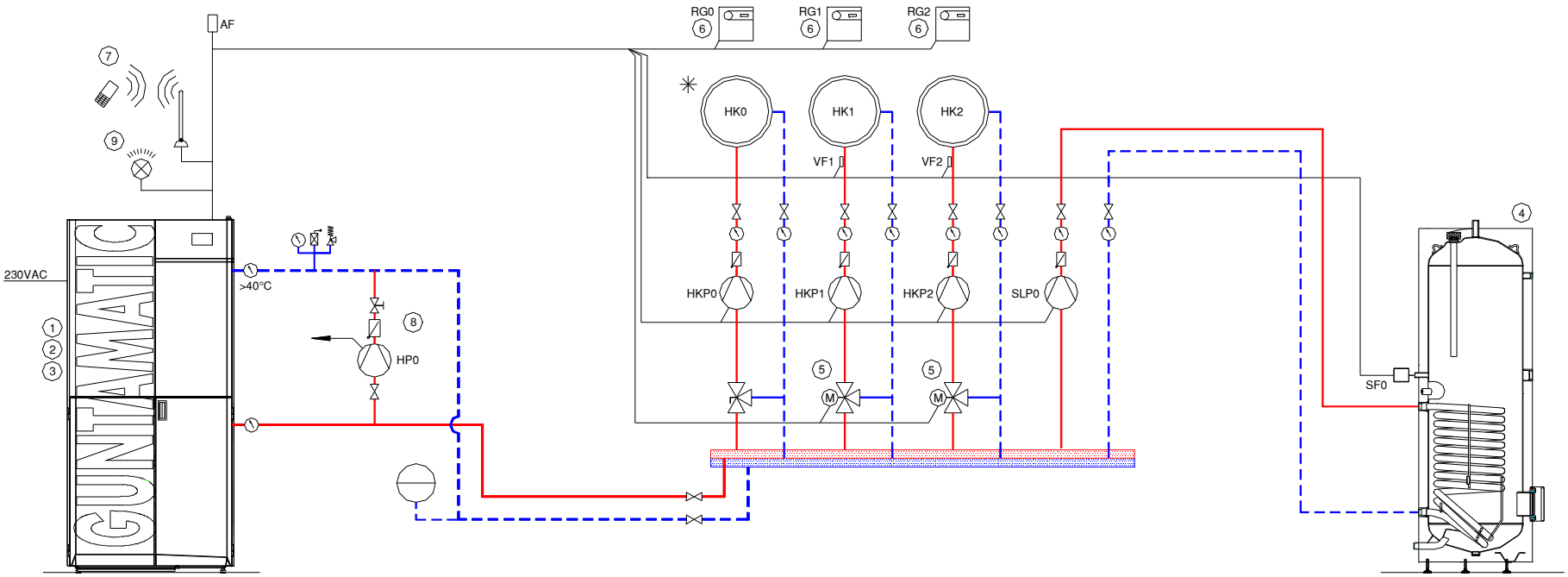
Diagram no. BC-01-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Branch control valve	by client
9.	Fault indicator lamp	by client

Important: follow wiring diagram!

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



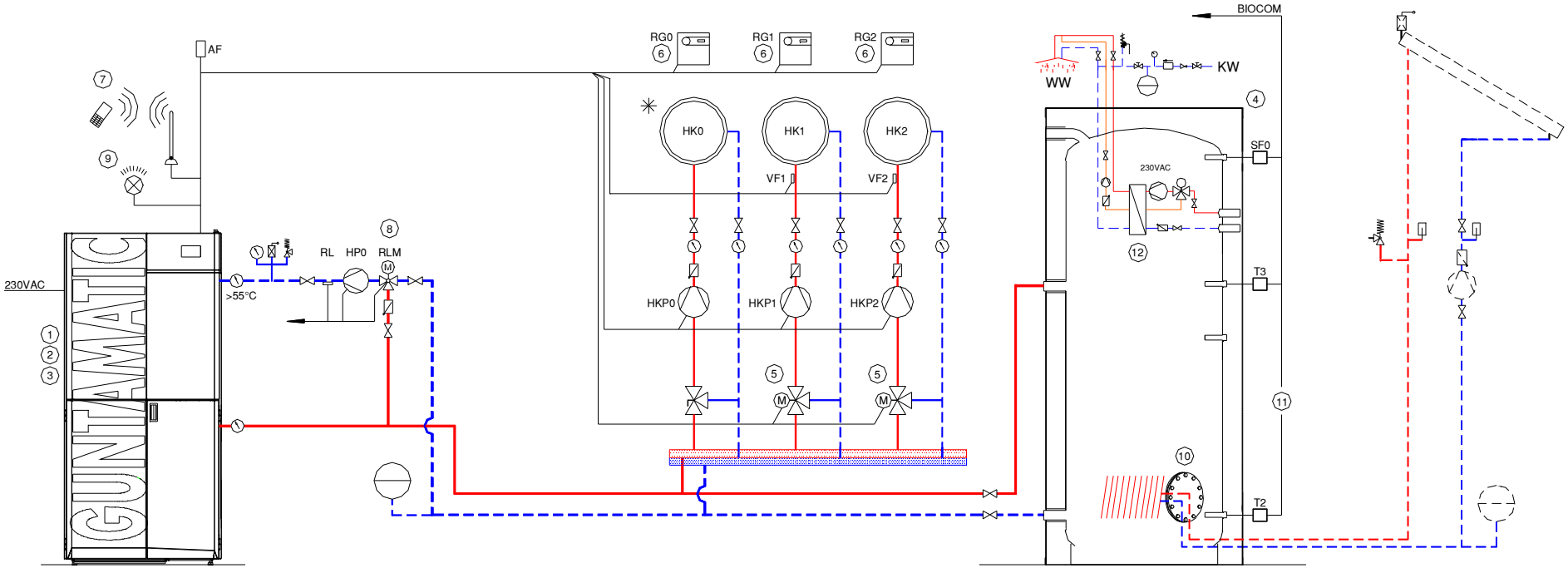
Attitude HP0 = Z-pump

Diagram no. BC-02-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	Thermal store PSF	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA50 A	H39-021
9.	Fault indicator lamp	by client
	Important: follow wiring diagram!	
10.	Option: flange and heat exchanger	as per price list
11.	2 Thermal store sensor	S70-003
12.	Option: Secondary return unit	045-250

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



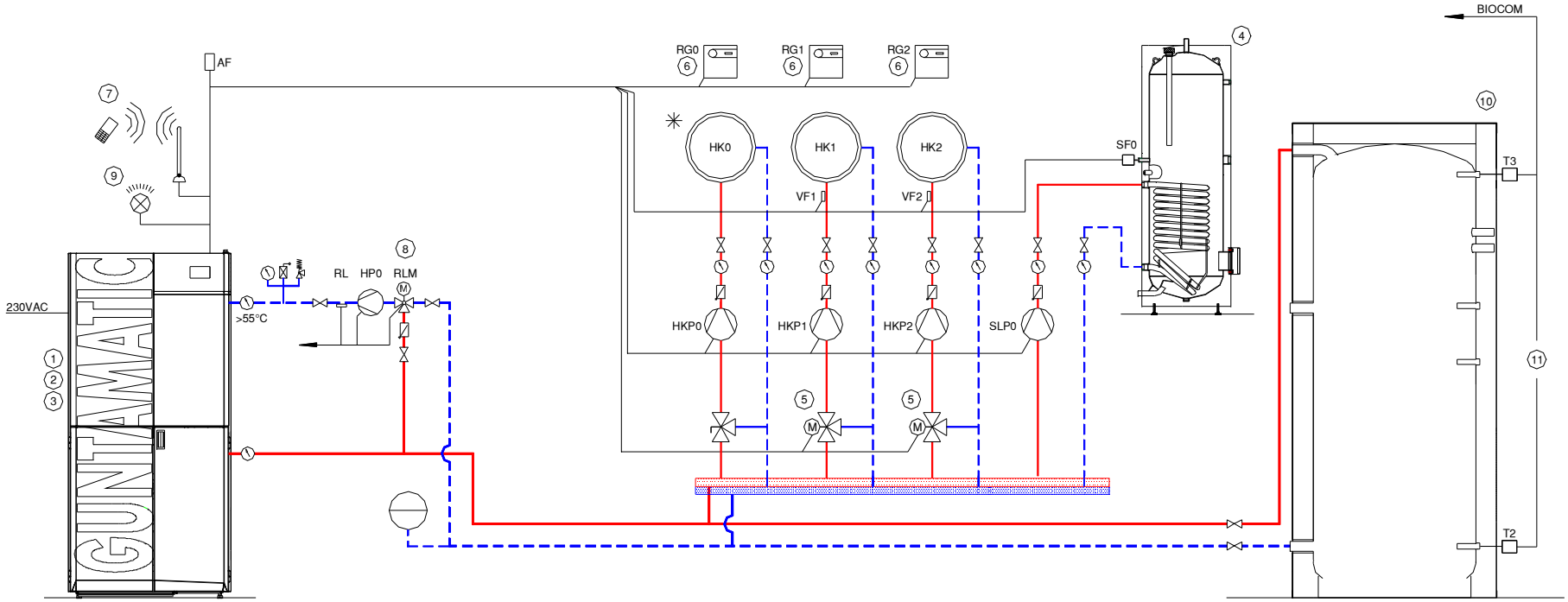
Attitude HP0 = buffer pump

Diagram no. BC-03-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA50 A	H39-021
9.	Fault indicator lamp by client **Important: follow wiring diagram!**	
10.	Thermal store PS	as per price list
11.	2 Thermal store sensor	S70-003

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



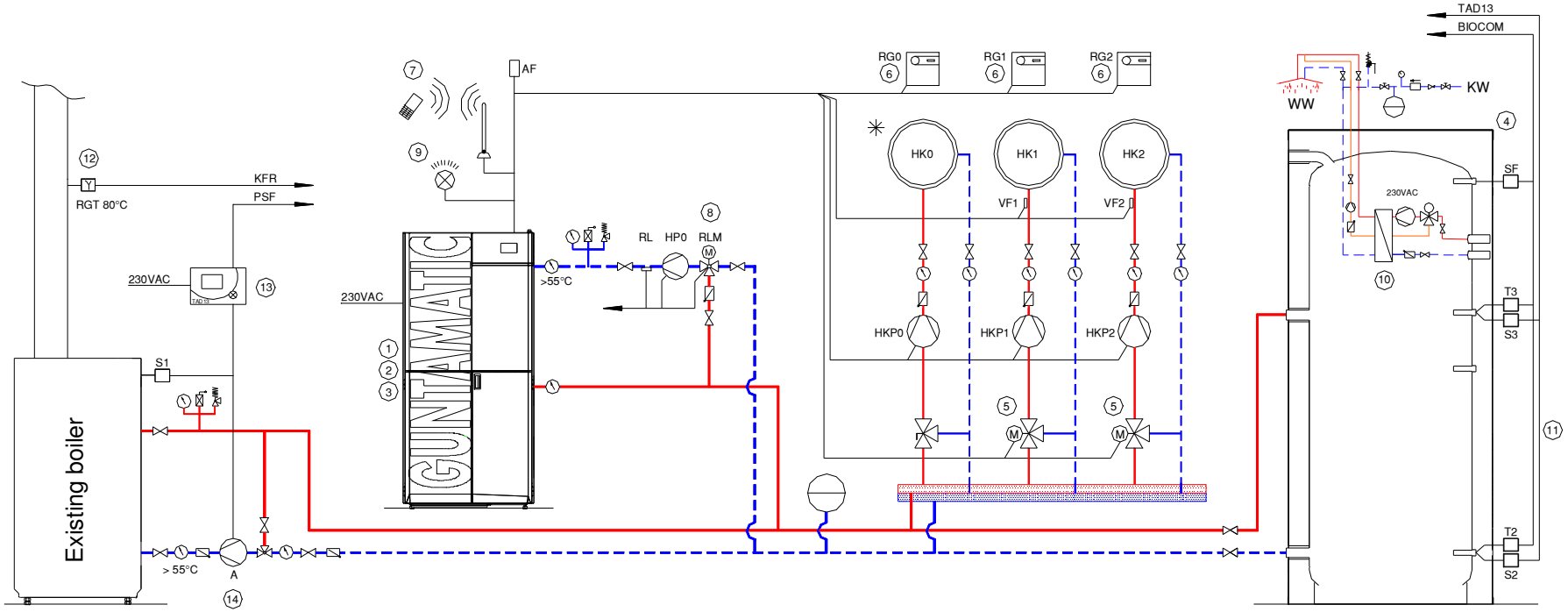
Attitude HP0 = buffer pump

Diagram no. BC-04-15

Electrical connections as per operating and installation instructions

1.	Biocom	look at pricelist
2.	Flue draught regulator RE	look at pricelist
3.	Ruler Set-MKR	S30-031
4.	buffermemory PSF	look at pricelisr
5.	Mixer valve positioner motor	S50-501
6.	Room stat	laut Preisliste
7.	GSM-module	S15-002
8.	Return boost set RA50 A	H39-021
9.	alert lamp (follow wirring diagram)	bauseits
10.	Circulation unit	045-250
11.	2 piece buffer	S70-003
12.	exhaust guardian RGT 80°C	H00-801
13.	difference control TAD 13	S35-101
14.	return lift group RA50 TA	H39-022

* Heating circuit can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit can be room-temperature controlled using an room stat for a radiator heating system.



off 50 kW boiler output - High-/ lower temperature construction with trunk link

Attention: In some cases very low power consumption (<30%) such as at a very low energy or passive house, as well as over-dimensioning, we recommend installing a buffer!

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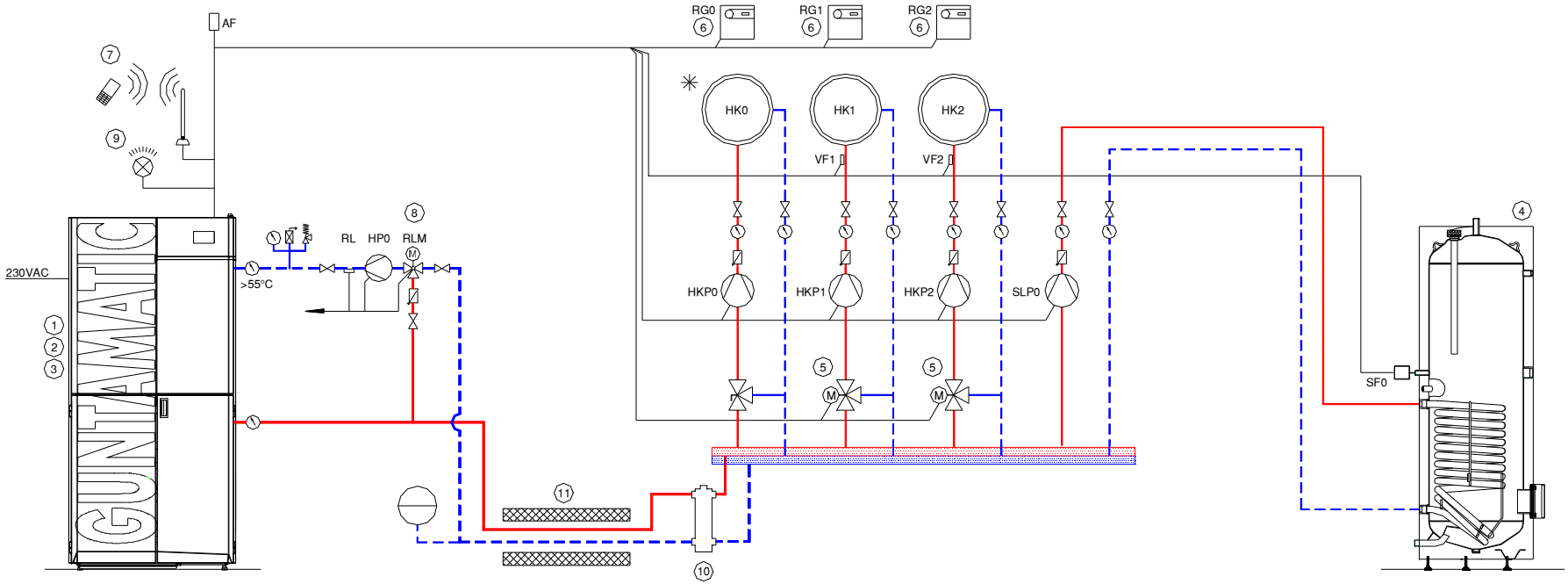
Diagram no. BC-05-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	ruler Set-MKR	S30-031
4.	warmwater memory ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA50 A	H39-021
9.	alert lamp (follow wiring diagram)	by client
10.	hydraulic duplexer	by client
11.	trunk blink	by client

* Heating circuit can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit can be room-temperature controlled using an room stat for a radiator heating system.



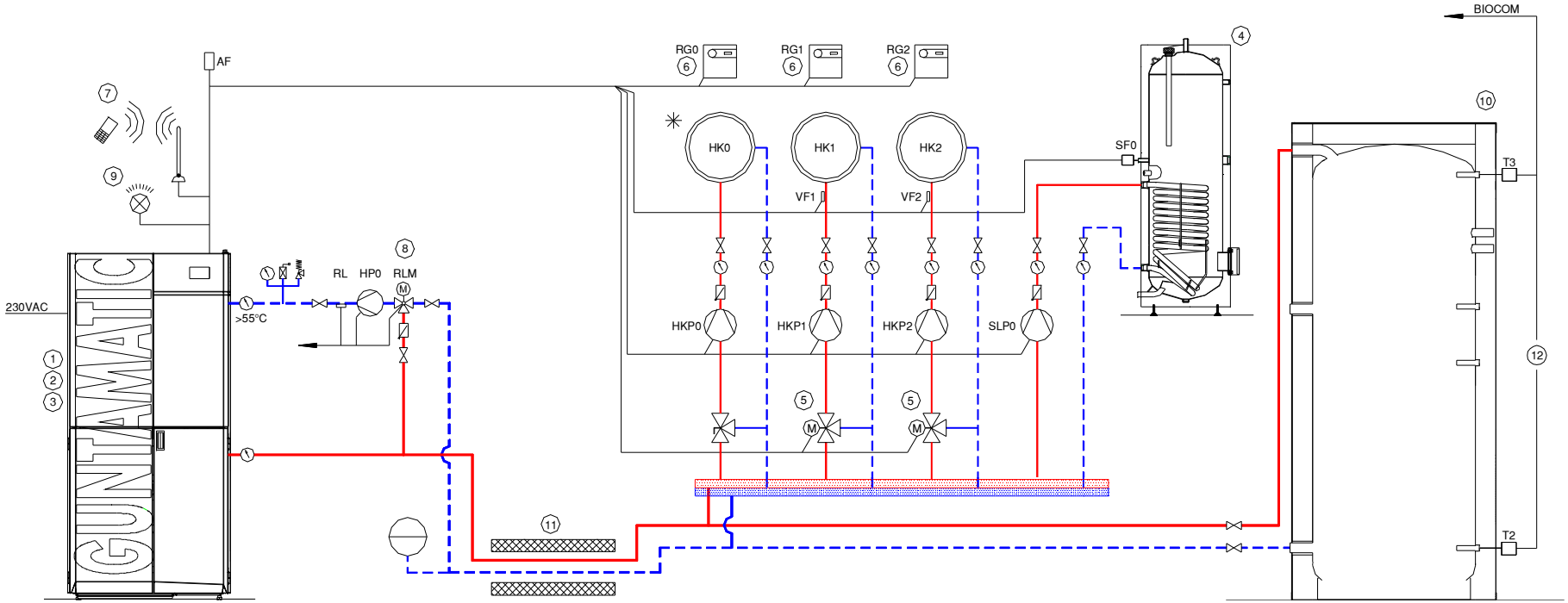
Attitude HP0 = Z-pump

Diagram no. BC-06-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA50 A	H39-021
9.	Fault indicator lamp	plumber
	Important: follow wiring diagram!	
10.	Thermal store PS	as per price list
11.	District heating pipe	plumber
12.	2 Thermal store sensor	S70-003

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



Attitude HP0 = buffer pump

Attention: In some cases very low power consumption (<30%) such as at a very low energy or passive house, as well as over-dimensioning, we recommend you to install a buffer!

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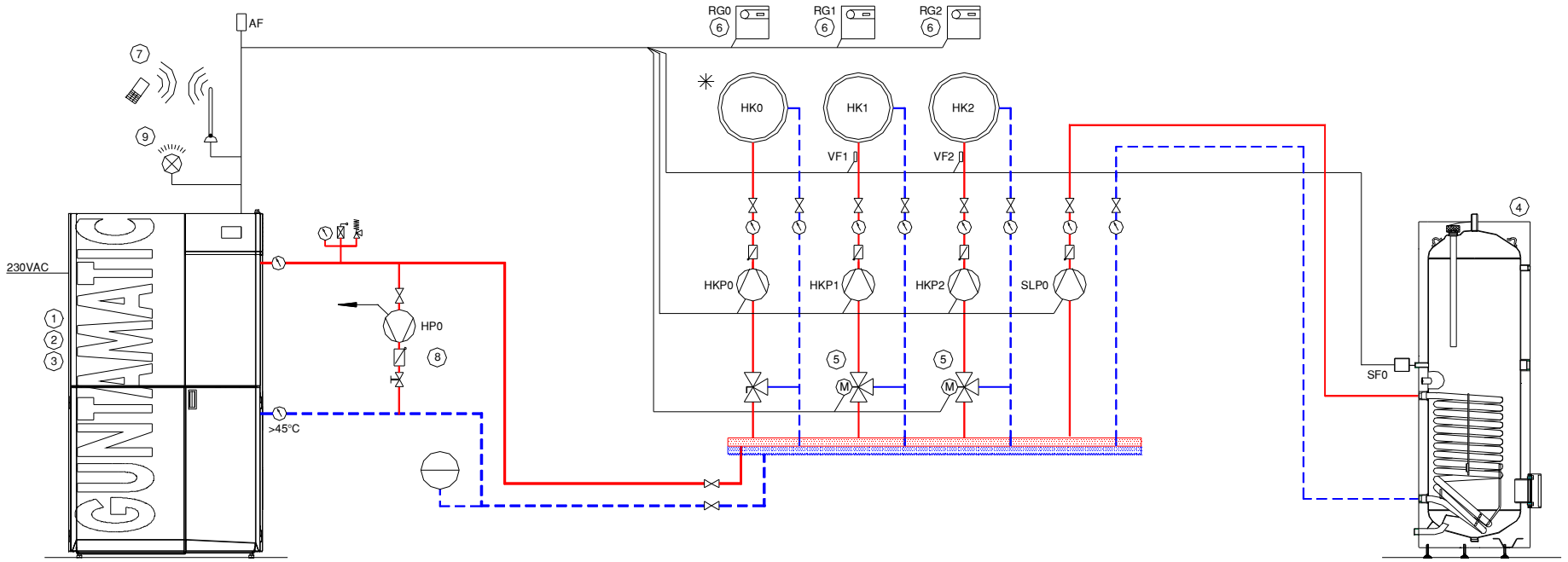
Diagram no. BC-07-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA100 A	H39-023
9.	Fault indicator lamp	plumber

Important: follow wiring diagram!

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



Attitude HP0 = Z-pump

Diagram no. BC-08-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	Thermal store PSF	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA100 A	H39-023
9.	Fault indicator lamp	by client
	Important: follow wiring diagram!	
10.	Option: flange and heat exchanger	as per price list
11.	2 Thermal store sensor	S70-003
12.	Option: Secondary return unit	045-250

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.

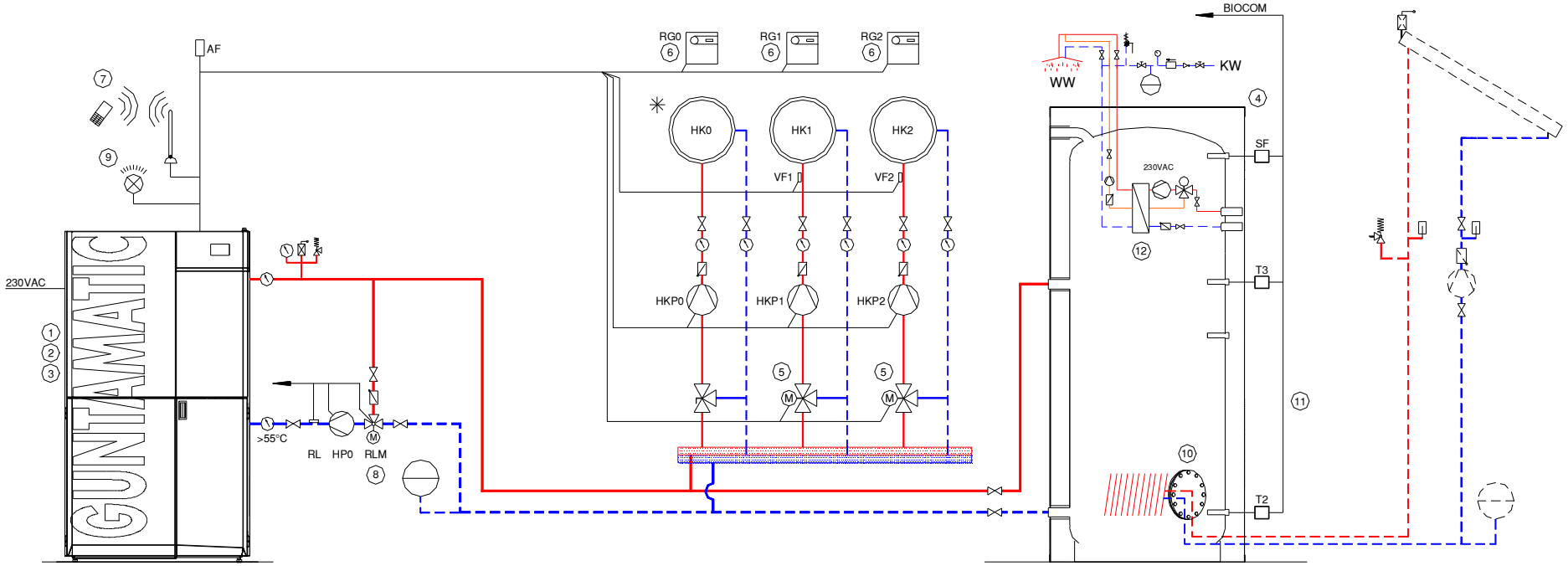
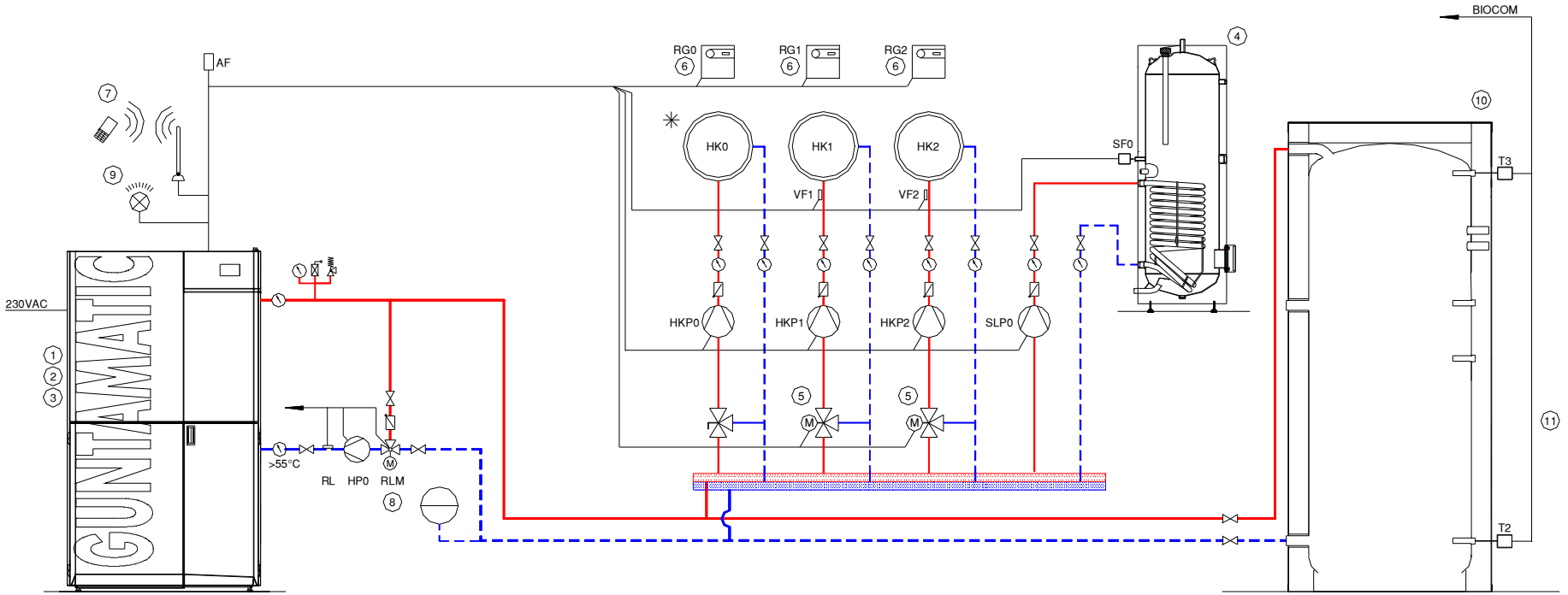


Diagram no. BC-09-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA100 A	H39-023
9.	Fault indicator lamp	plumber
	Important: follow wiring diagram!	
10.	Thermal store PS	as per price list
11.	2 Thermal store sensor	S70-003

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



Attitude HP0 = buffer pump

off 50 kW boiler output - High-/ lower temperature construction with backup memory with trunk blink

Attention: In some cases very low power consumption (<30%) such as at a very low energy or passive house, as well as over-dimensioning, we recommend you to install a buffer!

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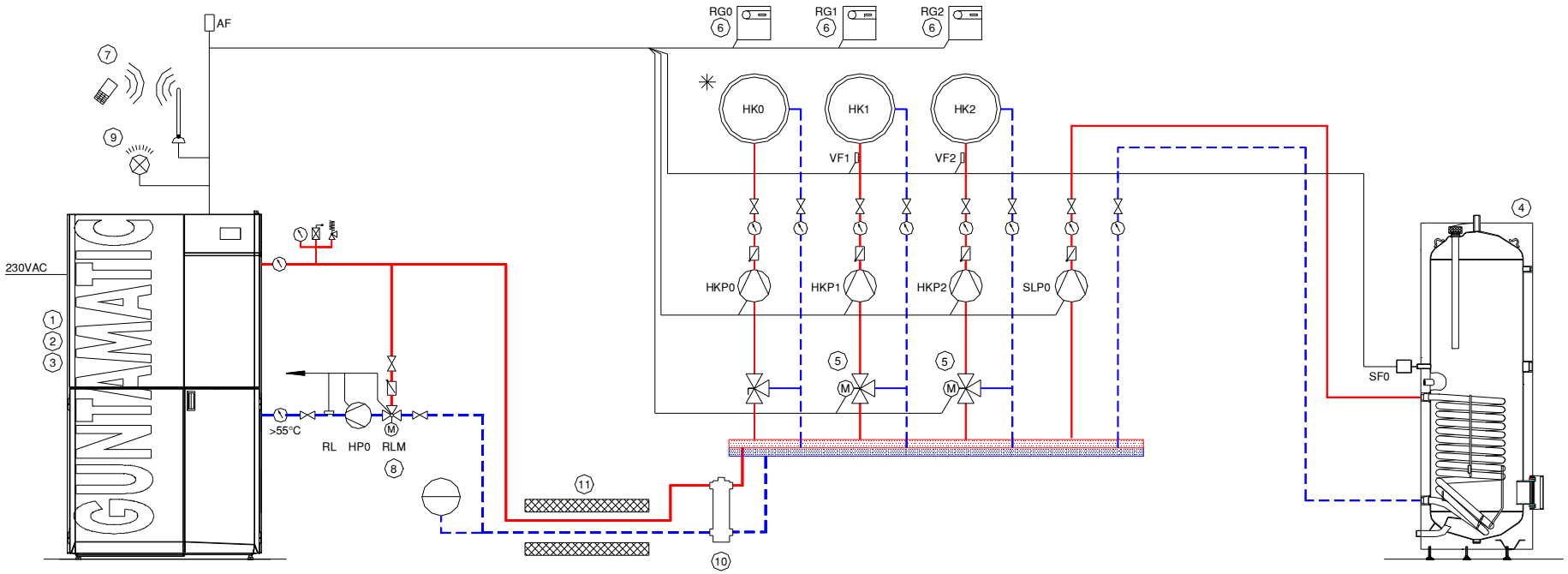
Diagram no. BC-11-15

Electrical connections as per operating and installation instructions

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA100 A	H39-023
9.	Fault indicator lamp	plumber
	Important: follow wiring diagram!	
10.	Flow equaliser	plumber
11.	District heating pipe	plumber

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system orHeating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.



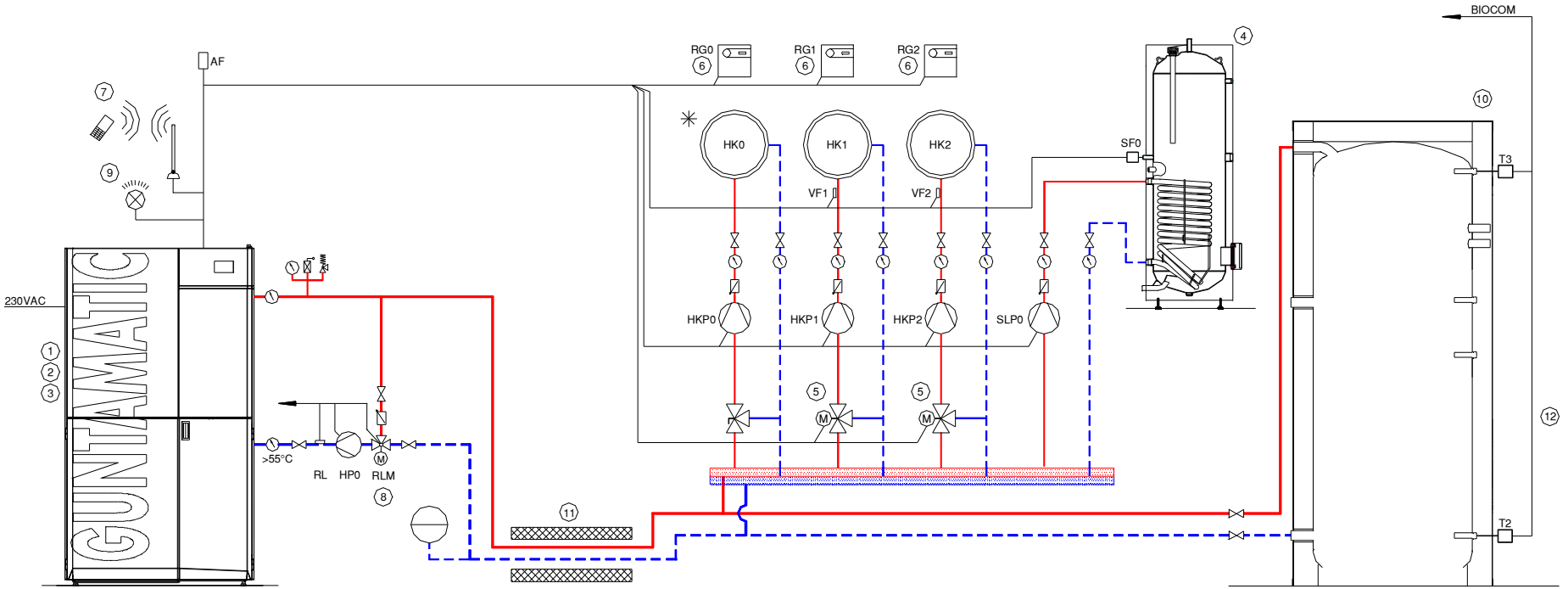
Attitude HP0 = Z-pump

Diagram no. BC-12-15

Electrical connections as per operating and installation instructions

* Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or
Heating circuit 0 can be room-temperature controlled using an room stat for a radiator heating system.

1.	Biocom	as per price list
2.	Flue draught regulator RE	as per price list
3.	Outside temp. based controller set MKR	S30-031
4.	DHW cylinder ECO	as per price list
5.	Mixer valve positioner motor	S50-501
6.	Room stat	as per price list
7.	GSM module	S15-002
8.	Return boost set RA100 A	H39-023
9.	Fault indicator lamp	plumber
	Important: follow wiring diagram!	
10.	Thermal store PS	as per price list
11.	District heating pipe	plumber
12.	2 Thermal store sensor	S70-003



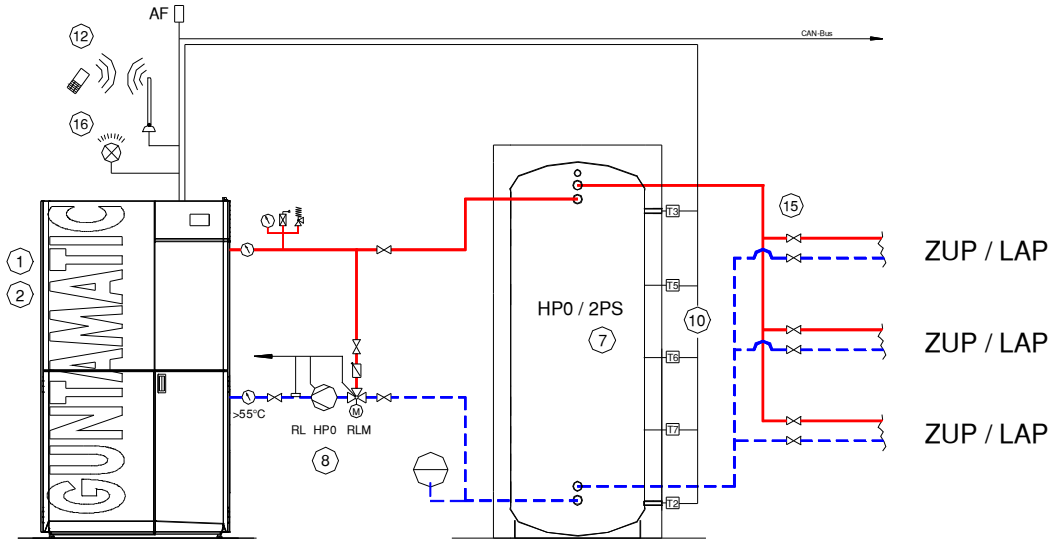
Site 1 / Diagram no. BC-13-15

Electrical connections as per operating and installation instructions

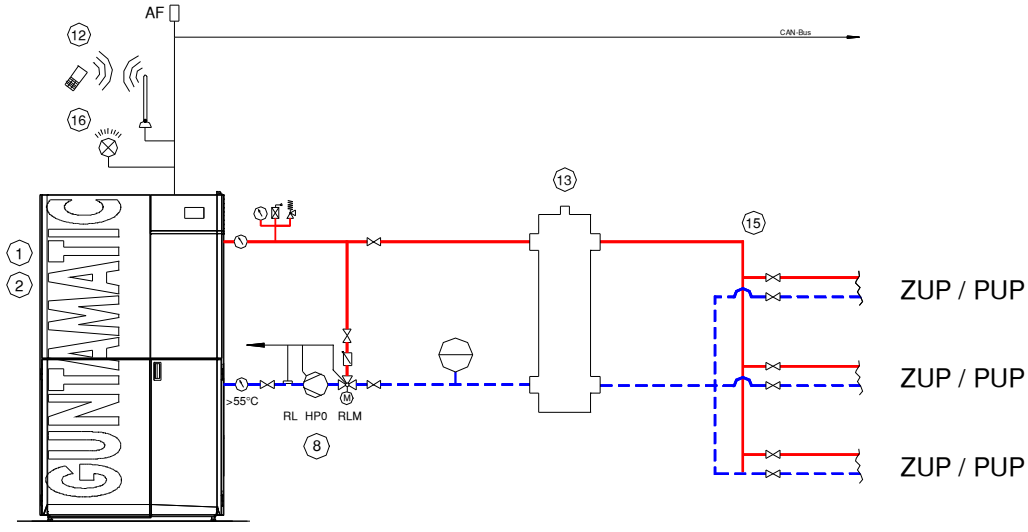
- Line connector 230 VAC / 13 A;
- per System just one Sensor;
  (if possible on the boiler)
- per System 3 Wall mounted Set-MK261 possible;
- per System 3 digital Remotestationens possible;
- per Heatingcircle one analouge Remot unit possible.

Heatingrooms opportunitys

1.	Firing Biocom	as Pricelist
2.	Flue draught regulator RE with Ex-Clap	as Pricelist
3.	Regulation wall mounted unit Set-MK261	S30-030
4.	Warmwater memory ECO	as Pricelist
5.	Mixer Stellmotor	S50-501
6.	Remote / Remotestation	as Pricelist
7.	Backupmemory PS / PSF / 2PS	as Pricelist
8.	Reverse raising group	as Pricelist
9.	circulation unity	045-250
10.	Backup memory sensor	S70-003
11.	Flange or recuperator	as Pricelist
12.	GSM-Modul	S15-002
13.	Hydraulic switch	by client
14.	trunk blink and trunkblinks pum	by client
15.	Pipesystem,	by client
16.	Alertlamp (look at the circuit diagram)	by client



HP0 mode = B-pump



HP0 mode = Z-pump

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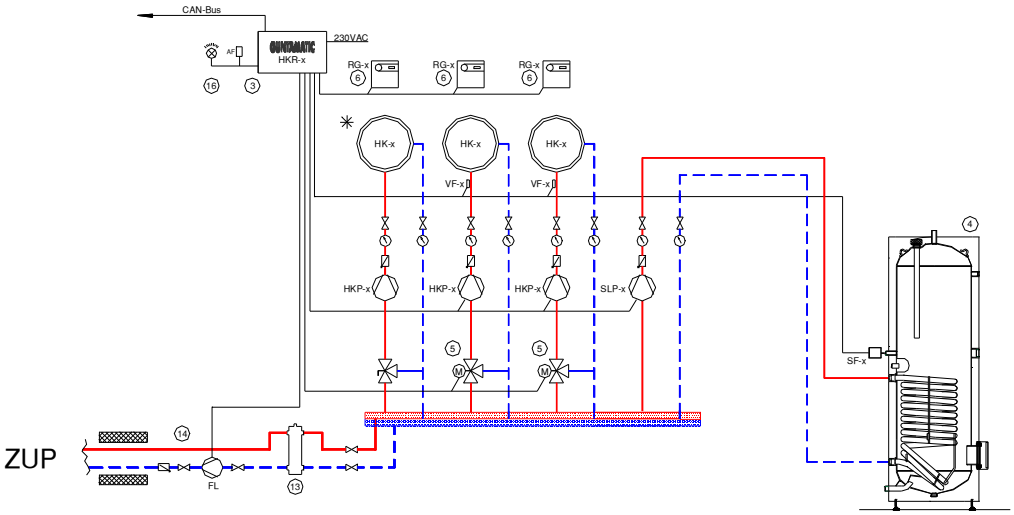
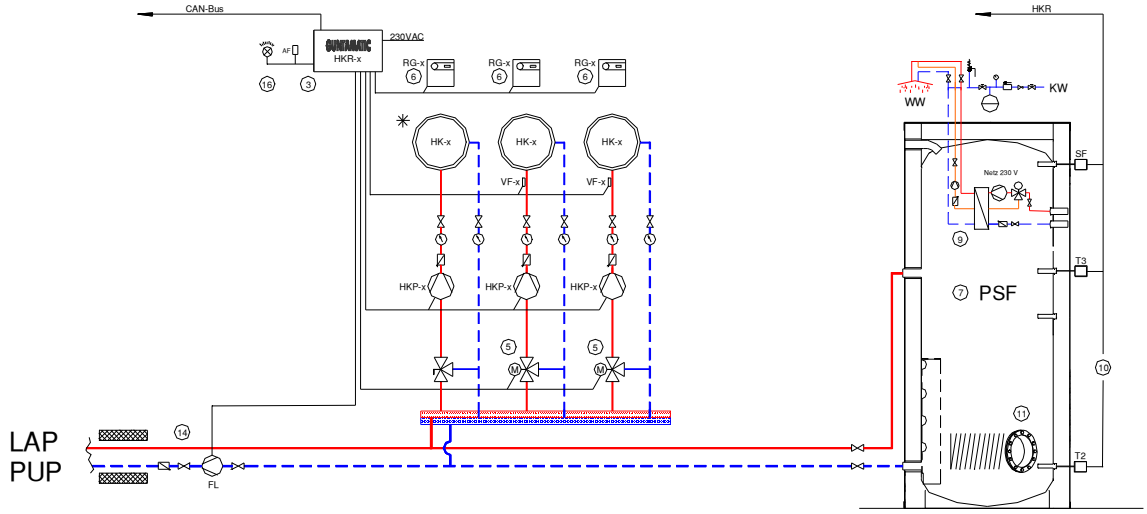
Connected size





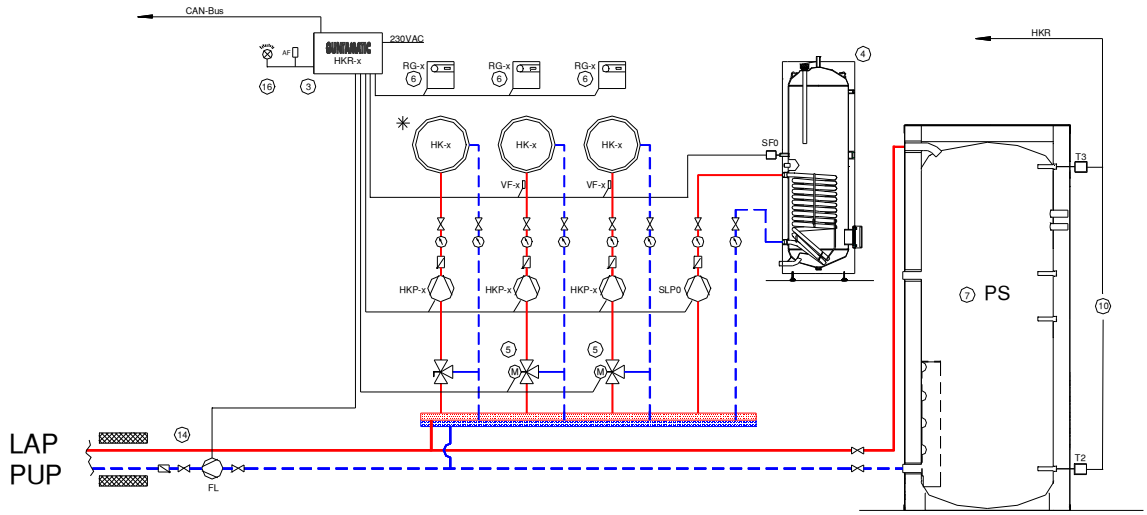


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Diagram no. BC-14-15

line connector with operation and construction introduction.

- line connecter per Construction 230 VAC / 13 A;
- connect the CAN Bus linear with the construction; (the cabeling without + the clip fulfill)
- per Construction 3 wall mounted machines Set-MK261 possible;
- per Construction 3 digital remote connector possible;
- per heating circulation one analouge possible; (exceptions at 5 sensor buffermanagement)
- on Cascades <150 kW could 3“ T- Pieces and the 3“ bufferconections where cancelled (2“);

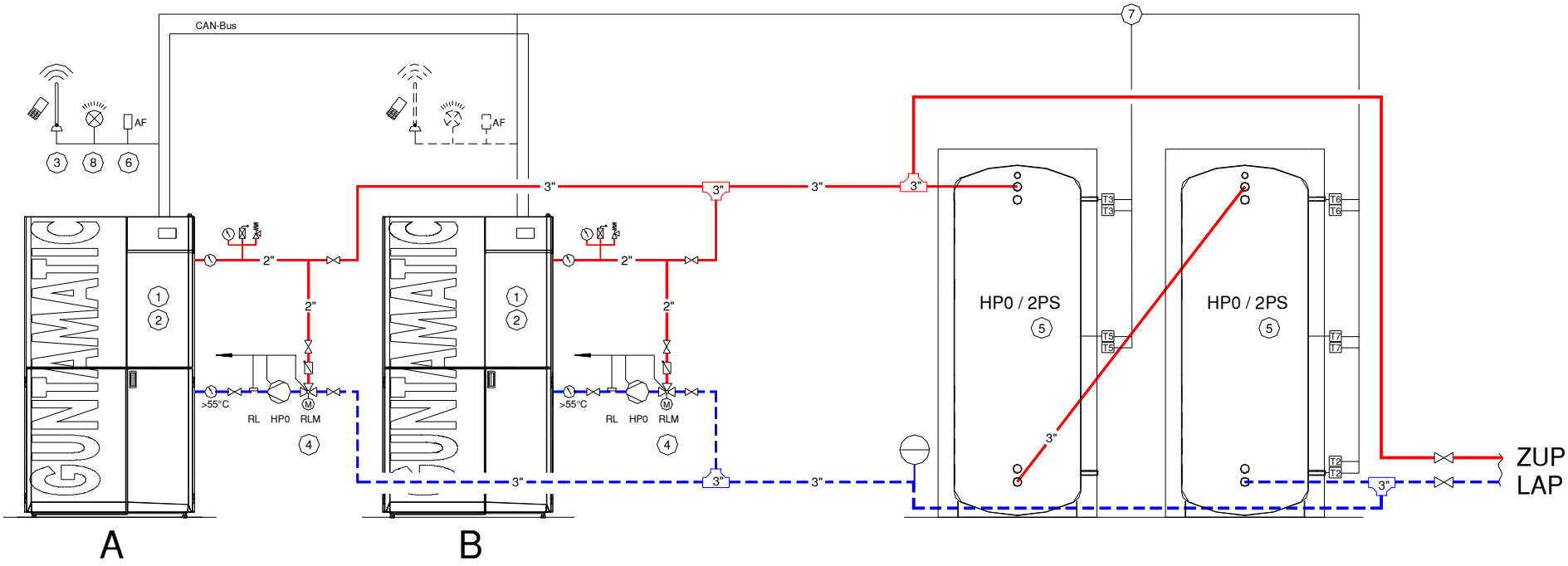
1.	Biocom	look at pricelist
2.	Flue draught regulator RE with Ex-Clap	look at pricelist
3.	GSM- module	S15-002
4.	Return boost unit	look at pricelist
5.	buffermemory PS	look at pricelist
6.	Outside sensor	S70-001

required on every System without atmosperic Conditions, with additional above the turned of fOFF Temperature

7.	buffer memory sensor	S70-003

Suggestion: 5 sensores per construction- minimum 2 per construction necesarry.

8.	alert lamp (attend circuit diagram)	by client



Attitude HP0 = bufferpump

Paper 2 / Scheme: BC-13-15

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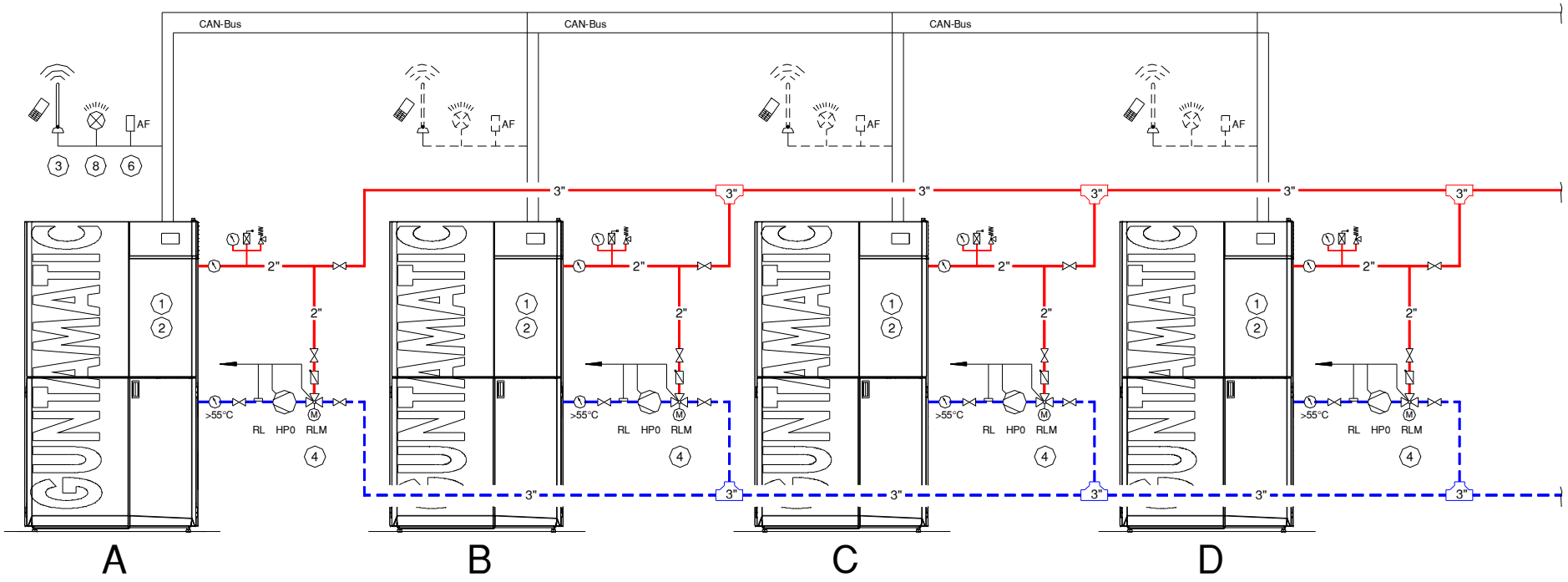
Site 1 / Diagram no. BC-15-15

Electrical connections as per operating and installation instructions

- Line connector per construction 230 VAC / 13 A;
- per System 3 mounted system Set-MK261 possible;
- per System 3 digital mounted system possible;
- per Heatingcircle a analouges wall mounted unity possible; (Exceptions on 5 Feeler buffermanagement)
- the written dimensons fort he backup memory, pipes on T pipes refers to a Cascade with 400 KW and in maximum 2 x 25 m pipe length for buffer forward motion.

1.	Biocom	look at Pricelist
2.	Flue draught regulator RE with Ex-Clap	
3.	GSM-Modul	S15-002
4.	recirculationincreasinggroup	look at Pricelist
5.	Buffermemory PS jeden Puffer mit 2 Stück 3" Sondermuffen bestellen;	look at Pricelist
6.	Outdoorsensor required on every System without atmosperic Conditions, with additional above the turned of fOFF Temperature;	S70-001
7.	Backup memory sensor Advice: alertlamp 5 Sensors per System - minimum 2 per System required	S70-003
8.	alert lamp (important)	by client



Site 2 / Diagram no. BC-15-15

Attitude HP0 = bufferpump (on every construction

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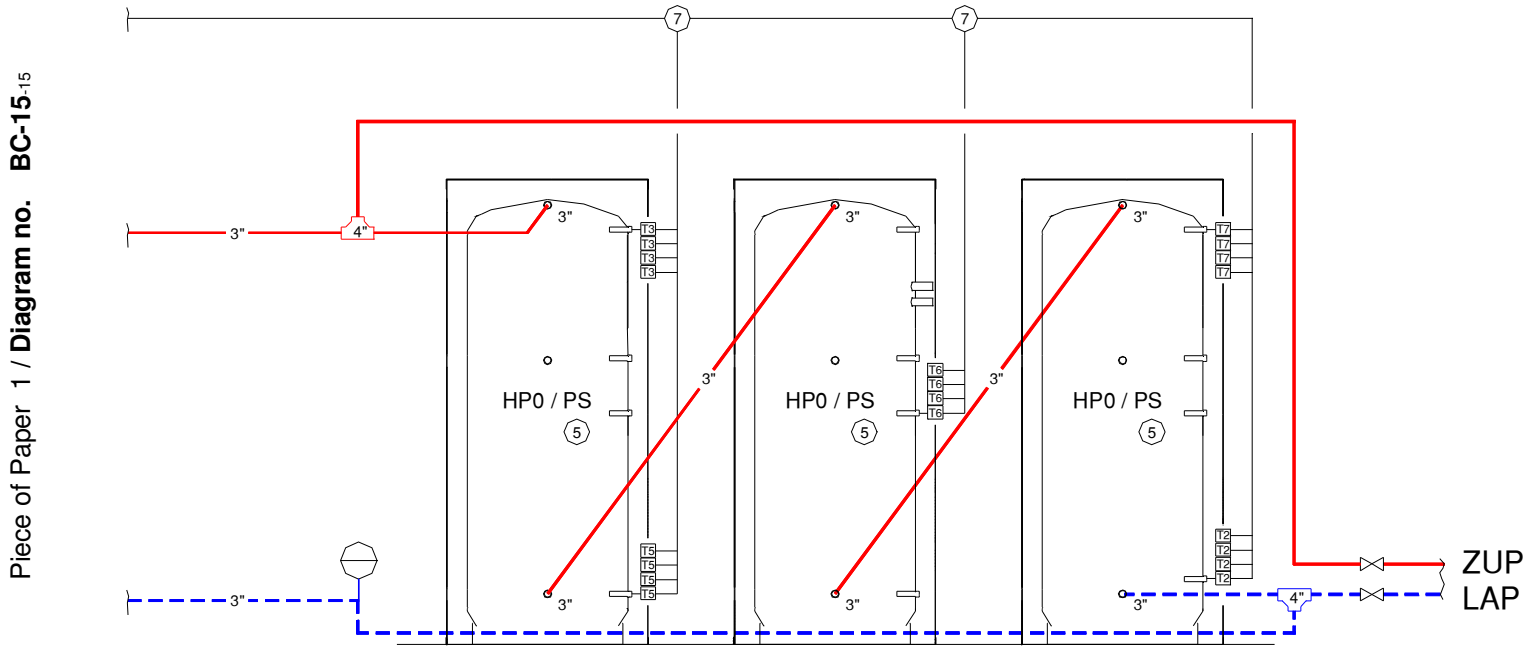
Electrical connections as per operating and installation instructions

- Order every backup memory with 2 pieces with 3 muffles.
- the written dimensons fort he backup memory, pipes on T pipes refers to a Cascade with 400 KW and in maximum 2 x 25 m pipe length for buffer forward motion.



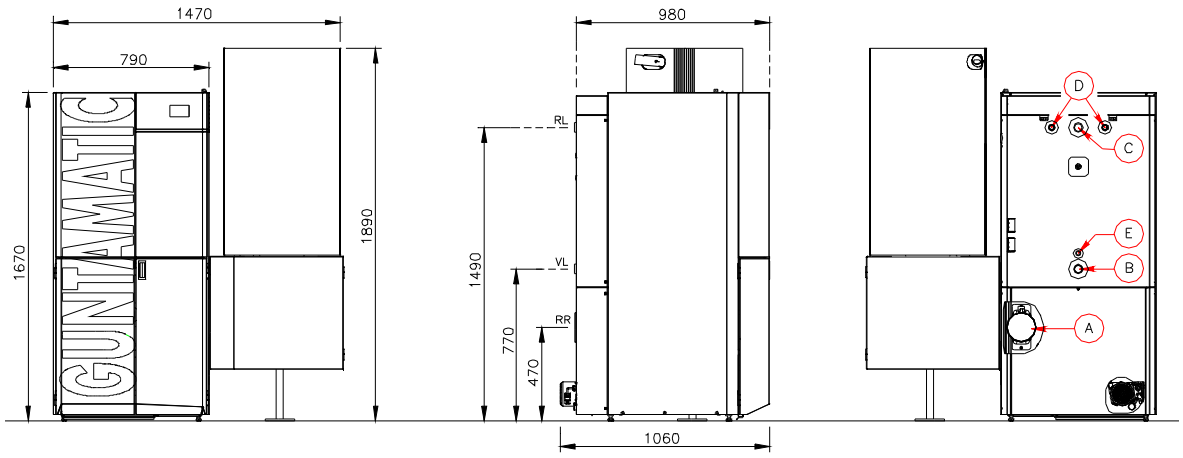
Sketch:

8 Technichal data

01

8.1 BIOCOM 30 / 40 / 50

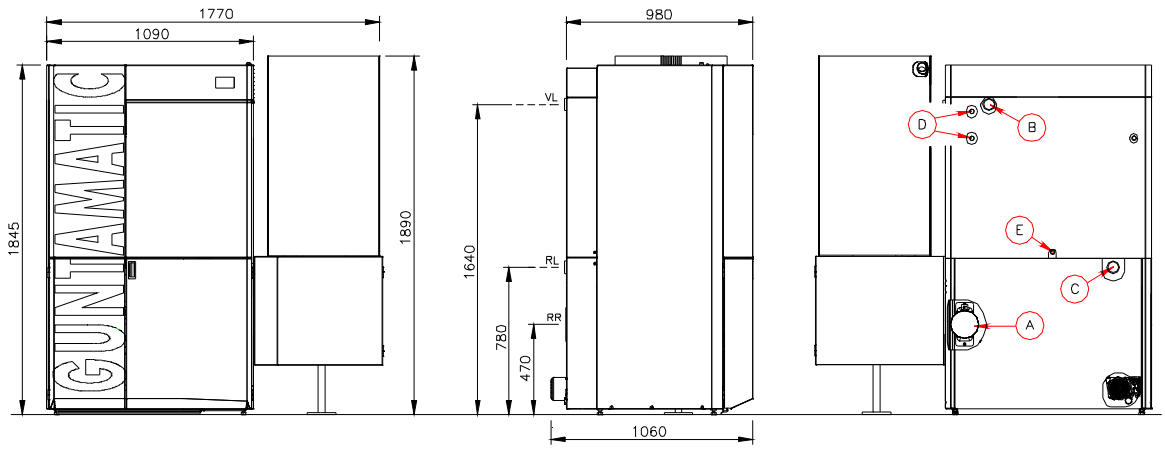
BC-01



Type	BIOCOM 30	BIOCOM 40	BIOCOM 50	Unit
fuil	Pellets EN Plus A1 oder A2	Pellets EN Plus A1 oder A2	Pellets EN Plus A1 oder A2	 EN 14961-2
boiler´s power	7 - 30	9 – 40	12 – 49	kW
boiler temperature back run temperature	50 – 80 look at scheme	50 – 80 look at scheme	50 – 80 look at scheme	°C °C
flue draft	2 - 15	2 - 15	2 – 15	Pascal
water content operating pressure	128 max. 3	128 max. 3	147 max. 3	Litre bar
A - smokepipe B - advance C - return D – Safety heat exchangers E - emptying	150 5/4 5/4 3/4 1/2	150 5/4 5/4 3/4 1/2	150 5/4 5/4 3/4 1/2	mm inch inch inch inch
water side resistance difference 10K	2570 14,2	3430 28,3	4257 24,7	kg/h mbar
water side resistance difference 20K	1290 3,8	1710 13,5	2180 6,2	kg/h mbar
ash drawer - rust ash drawer- warm heat exchanger	60 12	60 12	60 12	Litre Litre
boiler´s whole wheight weight Lower part weight of warm heat exchanger weight of stoker unit weight of drive unit weight of drive worm	550 (without Stoker) 340 180 70 26 40	553 (without Stoker) 340 183 70 26 40	585 (without Stoker) 340 215 70 26 40	kg kg kg kg kg kg
Power supply	230 VAC / 13 A	230 VAC / 13 A	230 VAC / 13 A	-

8.2 BIOCOM 75 / 100

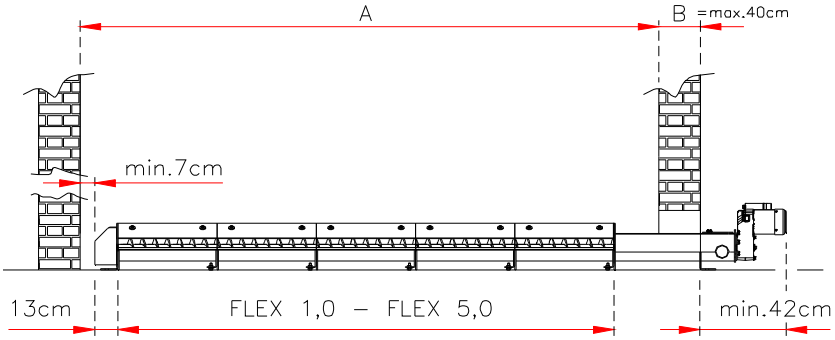
BC-01



Type	BIOCOM 75	BIOCOM 100	Unit
Fuel	Pellets EN Plus A1 oder A2	Pellets EN Plus A1 or A2	 EN 14961-2
boiler´s power	22 – 75	22 – 99/101	kW
boiler temperature Return temperature	60 – 80 look at scheme	60 – 80 look at scheme	°C °C
Required flue draught	2 - 15	2 – 15	Pascal
Water capacity Operating pressure	256 max. 3	256 max. 3	Litre bar
A - Flue connecting pipe dial B - Flow C - Return D - Temp.-relief heat exchanger E – Drain	180 2 2 3/4 1/2	180 2 2 3/4 1/2	mm inch inch inch inch
Water system resistance Temperature difference 10K	6450 4,3	8490 6,2	kg/h mbar
Water system resistance Difference 20K	3250 1,8	4240 2,5	kg/h mbar
Ash pan - rust Ash pan, "heat exchanger"	80 12	80 12	Liter Litre
Kesselgesamtgewicht Overall weight Weight of heat exchanger Weight of stoker unit Gewicht Antriebseinheit Weigh of stoker unit	865 (without Stoker) 430 405 70 26 40	865 (without Stoker) 430 405 70 26 40	kg kg kg kg kg kg
Power supply	230 VAC / 13 A	230 VAC / 13 A	-

8.3 HOLDING **SYSTEM FLEX** BC-01

Choice of the right Flex screw length:

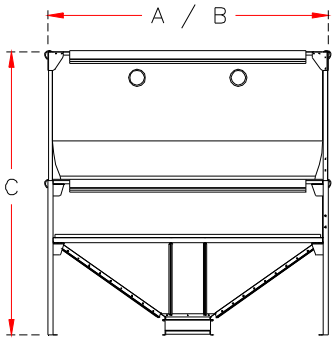


Wall breakthrough:
B 33 cm x H 25 cm

Dumping height:
Pellets max. 2,5 m

	measure - A		measure - A + B	
FLEX 1,0 m	ab 1,2 m	Length store room inside	bis 1,7 m	Length storeroom inside included wall thickness.
FLEX 1,5 m	ab 1,7 m		bis 2,2 m	
FLEX 2,0 m	ab 2,2 m		bis 2,7 m	
FLEX 2,5 m	ab 2,7 m		bis 3,2 m	
FLEX 3,0 m	ab 3,2 m		bis 3,7 m	
FLEX 3,5 m	ab 3,7 m		bis 4,2 m	
FLEX 4,0 m	ab 4,2 m		bis 4,7 m	
FLEX 4,5 m	ab 4,7 m		bis 5,2 m	
FLEX 5,0 m	ab 5,2 m		> 5,2 m	

8.4 HOLDING **SYSTEM BOX** BC-01



	measure A - B	measure - C	m³	weight
BOX 7,5	2,1 x 2,1 m	1,8 – 2,5 m	5,0 – 7,5 m³	3,0 – 4,7 t
BOX 8,3	1,7 x 2,9 m	1,9 – 2,5 m	6,1 – 8,3 m³	4,0 – 5,4 t
BOX 11	2,5 x 2,5 m	1,8 – 2,5 m	8,3 – 11 m³	5,0 – 6,7 t
BOX 14	2,9 x 2,9 m	1,9 – 2,5 m	10 – 14 m³	6,5 – 9,1 t

GUNTAMATIC

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