Woodchip boiler

englisch

POWERCHIP / POWERCORN 12-50

Planning and installation

GUNTAMATIC

EN-B31-009-V22-0522

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 Introduction

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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 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

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 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.

Sprinkler: Connected to the outfeed unit there must be a sprinkler device set to trip at 55°C. With storeroom volumes up to 50 m³, this is used instead of the temperature monitor. When the sprinkler is triggered, the sloping outfeed auger enclosure – which also serves as a burn-back inhibiting device – is completely flooded. The quantity of water required to do so is at least 20 litres. If the temperature drops back below 55°C, the flooding is stopped.

The sprinkler system must be connected on all systems regardless of local regulations!

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.

> 50 m³ **TÜB - Temperature monitor**: If it is possible to store 50 m³ of fuel or more, a temperature monitor connected to a warning device must be installed in the fuel storeroom at the point where the fuel conveyor exits the fuel store and enters the boiler room. The warning device must be triggered when the temperature exceeds 70°C. Because of the sprinkler system, the temperature monitor on the outfeed auger is not required for storerooms with a capacity of less than 50 m³.

> 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".

SLE - Automatic fire extinguishing facility:
For storage rooms in farm building it is possible to dispense with a F90 / REI90 cladding for fuel storage and if the fire compartment is less than 500 sq meters . The fuel but separately (wooden planking) must be stored on other goods . If furthermore a firewall to a residential wing before, so an automatic extinguishing device (SLE) is also required.
This extinguishing equipment must be connected either directly to a pressurized water supply or to a water -supply container . The amount of water to need three times the volume of the loading device shall be not less than 20 liters.

Inspection covers: There must be a lockable F90-class inspection hatch above the fuel out feed channel.

Services area: For storerooms in the services area, it is possible to dispense with F90/REI90 jacketing of the fuel store. The fuel must be stored separately (wooden boarding) from other materials and the fire containment zone must be less than 500 m².

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

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Minimum room height	PH 30 / 50 / PC 12-50	ideal solution	**H 225 cm**
		[1] possible	**H 210 cm**
	PH 75 / 100	ideal solution	**H 240 cm**
		[1] possible	**H 230 cm**

[1] = Mindestraumhöhe bei abgeschraubtem Wärmetauscherdeckel

Minimum room size	PH 30 / 50	**B 240 cm x [2] T 230 cm** ([3] T 240 cm)
	PH 75 / 100 / PC 12-50	**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	PH 30 / 50[4]	ideal	**B 120 cm x H 185 cm**
		[5] possible	**B 80 cm x H 170 cm**
		[7] possible	**B 75 cm x H 165 cm**
	PH 75 / 100 / PC 12-50	[4] ideal	**B 195 cm x H 210 cm** ([6] 185 cm)
		[7] possible	**B 100 cm x H 190 cm** ([6] 170 cm)
		[8] possible	**B 90 cm x H 180 cm**

[4] Contribution from the ready constructed boiler on the pallet
[5] Bringing in without stoker and transport wood
[6] minimum height of boiler type Powercorn 12-50
[7] Installation without cleaning drive and exhaust pipe connection
[8] dimensions with additional to point [5] with unrigged cover panel

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 400 VAC, 50 Hz, 13 A is needed.

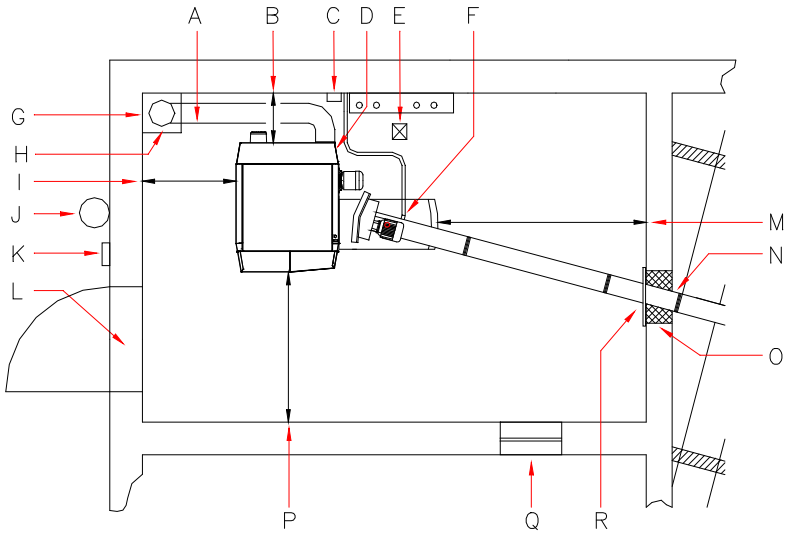
Fire extinguisher

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 400V 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

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

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

N → HLE manual release arc control device

O → Mauerdurchbruch Höhe 70 cm / Breite 45 cm

P → AHEAD distance ideal **100 cm minimum**
possible **80 cm**

Q → Air combustion supply

R → TÜB Warning device for to heaters spiral's temperature

2.4 Flue requirements

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In principle, the system may be connected to chimneys dimensioned in accordance with DIN EN 13384. We recommend (without any obligation in this regard) for our firing systems that are moisture-insensitive, thermally insulated and resistant to over 400 ° C. If the system is correctly dimensioned, we also recommend heat-insulated, soot-fire-resistant stainless steel chimneys for automatically charged fireplaces. (Valid for the usual turbulators, delivery condition "Set calorific value". For different situations, see notes 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 include the chimney sweeper in the planning phase, as he has to approve 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 hast to adjust on the fire power. The following datas are approximate values and could be used for planning. We recommend to calculate the flue by a professional.

PH 30 / 50 / **(PC 12-50)**	eff. high above	6 m	D = 160 **(180)** mm
	eff. high under	6 m	D = 180 **(200)** mm
PH 75 / (100)	eff. high above	6 m	D = 220 (250) mm
	eff. high under	6 m	D = 250 (250) mm

Flue dimensioning data

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

Rated output *)

Type	Flue gas	CO_2	Mass flow rate	Required draught
PH 30	180°C	12,5%	0,025 kg/s	15 Pascal
PH 50	190°C	13,0%	0,040 kg/s	15 Pascal
PC 12-50	185°C	12,5%	0,040 kg/s	15 Pascal
PH 75	180°C	12,5%	0,065 kg/s	15 Pascal
PH100	195°C	12,5%	0,082 kg/s	15 Pascal

Sub-maximum output *)

Type	Flue gas	CO_2	Mass flow rate	Required draught
PH 30	130°C	9,5%	0,010 kg/s	2 Pascal
PH 50	145°C	10,0%	0,015 kg/s	2 Pascal
PC 12-50	140°C	9,5%	0,015 kg/s	2 Pascal
PH 75	140°C	9,5%	0,020 kg/s	2 Pascal
PH100	150°C	10,5%	0,025 kg/s	2 Pascal

*) Exhaust gas and CO2 values are preset according to the fuel quality usual in practice - can be optimized through menu settings if the fuel quality is ideal.

2.5 Flue draught regulator and pressure-surge compensator

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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 store requirements

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Please note:

the specific national rules for your fuel store (for example. ÖNORM EN ISO 20023, ISO 20024, VDI 3464,...) are strictly adhered blindly

Annual demand for fuel store

The fuel store should be able to pick up the stock for a year . Per 1 kw building heat is expected with the following annual fuel demand .

→ per 1 kW/Year	ca. 2,00 m³	= ca. 550 kg	beech
→ per 1 kW/Year	ca. 2,50 m³	= ca. 500 kg	spruce
→ per 1 kW/Year	ca. 0,65 m³	= ca. 450 kg	Pellets
→ per 1 kW/Year	ca. 0,75 m³	= ca. 550 kg	Energycorn
→ per 1 kW/Year	ca. 4,30 m³	= ca. 470 kg	Miscanthus

Fuel store arrangement

You have to built your Storeroom in a quadratic frame, to use the filling spiral optimally.

Fuel store air sparging

In order to avoid life-threatening CO concentrations up to ≤ 100 tons according to ÖNORM EN ISO 20023 and> 100 tons according to ÖNORM EN ISO 20024, storage rooms and storage containers must be designed and ventilated. Ventilation openings must lead to the outside and ensure that there is an exchange of air between the storage room and the ambient air. If the natural thermals are insufficient, appropriate technical precautions must be taken. If the filling nozzles do not open into the open, ventilation must take place via a separate ventilation opening. It must be ensured that no rainwater can get into the storage room through the ventilation opening. The installation rooms for storage containers made of air-permeable fabric must have a ventilation opening opening into the open air.

INFO: The total ventilation cross-section of 2 closing lids of our filling sets is 60 cm².

The following information is based on the above-mentioned standards and is recommended as execution without any guarantee of completeness and correctness. Relevant mandatory standards and country regulations must be observed with priority.

Storage room Flex, Agitator, slug… with sloping bottom

1) Storage room with Guntamatic filling set
   - Can be used up to a cable length of 2 m and a capacity of 15 t;
   - Filling openings on the outside a maximum of 0.5 m higher or a maximum of 0 m deeper than on the inside;

2) Storage room as above (1) but 15-100 t capacity
   - with additional ventilation opening ≥ 10 cm² / t (at least 150 cm²)

3) Execution as above (1) but with a longer filling line or greater height difference
   - Carry out ventilation according to EN ISO 20023

4) Large storage area> 100 tons capacity
   - Carry out ventilation according to EN ISO 20024

Ventilation opening with filter — If the ventilation opening in the fuel store is equipped with a dust filter (e.g. in carpentry extraction systems), a pressure sensor with a warning device (e.g. signal horn) must be installed in the fuel store, which indicates a dirty filter fabric in the ventilation opening if there is a pressure difference in the store room.

Storeroom filling — The hackchips are delivered by a tip truck. A fired drive at your house to the storeroom is needed, if it´s possible. Ideally the storeroom is on the external wall and is reachable and reflable form the gate. To avoid damages on the agiator during insertion of the hack chips, you shall fill the storeroom with a front loader. The filling opening should be 30 up to 40 cm minimum higher than the deepest point of the springroom. If the fuel storeage room is pneumatic filled through a pump carrage. In this kind of fillimg you have to care if there is a dustproff speration.

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 — Electronic installation in the fuel stores are not allowed
Filler couplings must be single ended.

Structural requirements — The enclosing walls must be capable of withstanding the possible static loads created by the fuel and the pressure when filling the fuel store.

Damp-proofing — The fuel must be protected against contact with water or damp floors/walls. The storeroom must remain dry all year round. If there is a risk of temporarily damp walls, fitting a back-ventilated facing to the walls and lining them with wooden material may be required.

Doors — Aboveground fuel stores must be accessible via a door (lockable) of at least 1,80 m² cross-section to the outside, inside and planked removable from the outside, so that the fuel can not fall out when erroneous opening the door.

floor planking

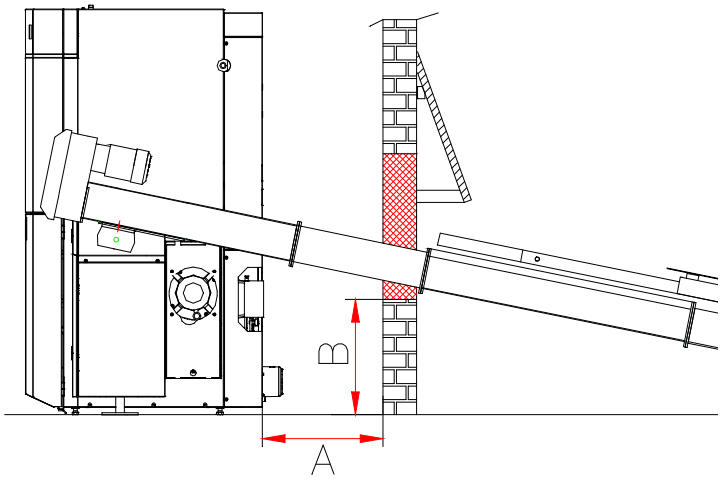
For operation with heating corn or pellets, a ground-planking or a concrete floor is absolutely necessary. If it is only running by hack chips, dry wood chips may be introduced instead of the soil.

Celling agitator

The drive motor and the necessary electrical installations must be installed outside of the storage room. A lockable emergency stop switch with motor protection must be installed in the immediate vicinity of the charging slot switches, which interrupts the power supply of the auger when opening the door, secured. The filling shaft must be secured with a grating.

wall breakthrough

The following measure table shows the measure for positioning from the wall breakthrough. The measures apply to the serial production.
serial production = discharge unity + 0,55 m hutch and agitator
Measure wall breakthrough
wide 45 cm
length 70 cm



Agitator	Measure A	Measure B
1,5 m	50 / 75 / 100 cm	37 / 35 / 33 cm
2,0 m	50 / 75 / 100 cm	41 / 39 / 37 cm
2,5 m	50 / 75 / 100 cm	44 / 42 / 40 cm
3,0 m	50 / 75 / 100 cm	47 / 45 / 43 cm
3,5 m	50 / 75 / 100 cm	50 / 48 / 46 cm
4,0 m	50 / 75 / 100 cm	53 / 51 / 49 cm
4,5 m	50 / 75 / 100 cm	54 / 52 / 50 cm
5,0 m	50 / 75 / 100 cm	55 / 53 / 51 cm

2.7 Examples for planning

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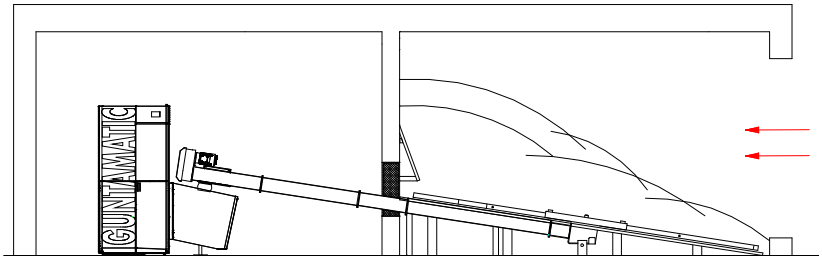
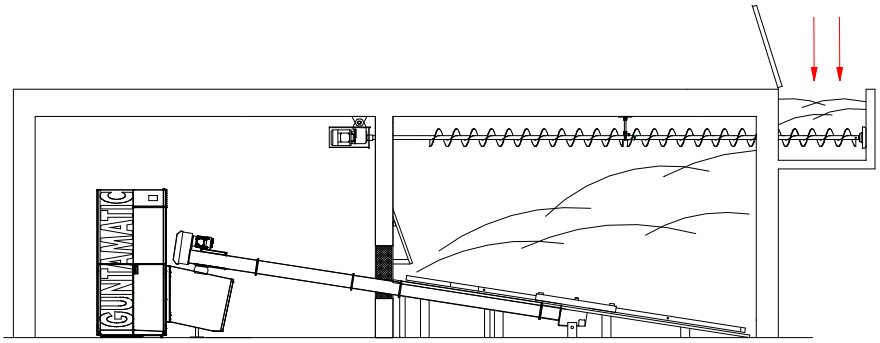
For working with Pellets oder Energy corn is a own filling set needed. (please have a look at the price list).

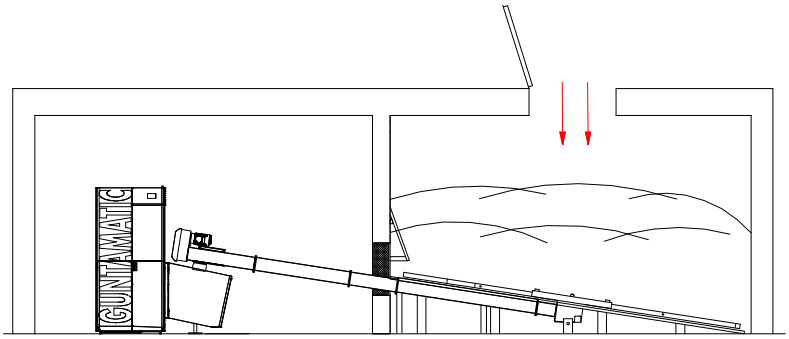
Example 1 The storrage filling occurs through a gate.
The maximal length of feed with the agitator is 7 meter.



Example 2 The storage filling occurs with a ceiling filling spiral through a shaft.
Deliverable ceiling filling spirals are available in following sizes: 3 m, 4 m, 5 m, 6 m or 7 m. The maximal length of holding included the agitator is 7 m.

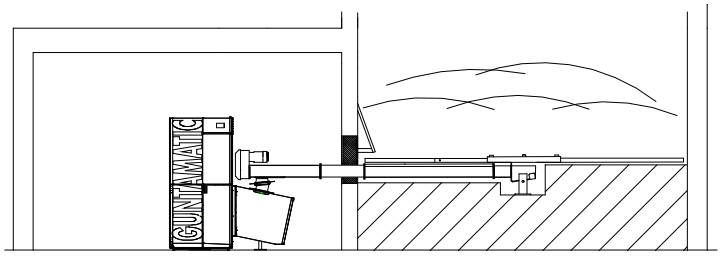


Example 3 The storage filling occurs through a shift in the storage room ceilling.
The maximal length of holding included the agitator is 7 m.

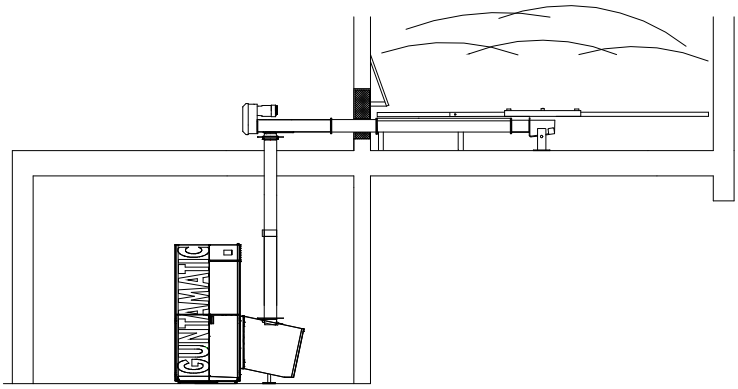


For working with Pellets oder Energy corn is a own filling set needed. (please have a look at the price list).

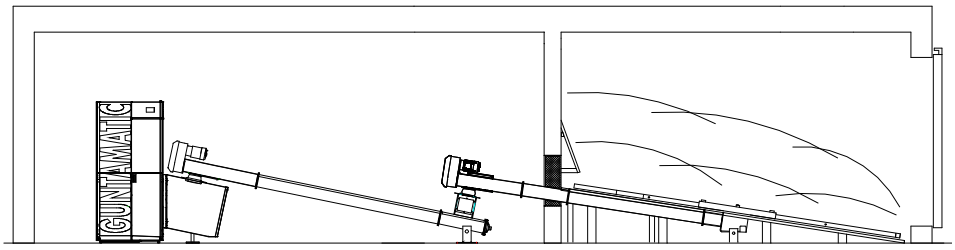
Example 4 The boilers charging occurs with a horizontal installed agitator.
A droft shaft extension is needed. (please have a look on the price list)
The maximal length of holding included the agitator is 7 m.



Example 5 The boilers charging occurs with a horizontal installed agitator.
A in the length shortened downpipe is need. (Please have a look on the price list).
The maximal length of holding included the agitator is 7 m.



Example 6 The boilers charging occurs with an additional feeder spiral.
A operation set and some spiral´s trags are needed. (Please have a look on the price list).
The maximal length of feeder spiral included operation set might have a 7 m length.
The maximal length of holding included the agitator is 7 m.



2.8 Automatic ash suction system

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> 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

The ash suction system can be retrofitted.

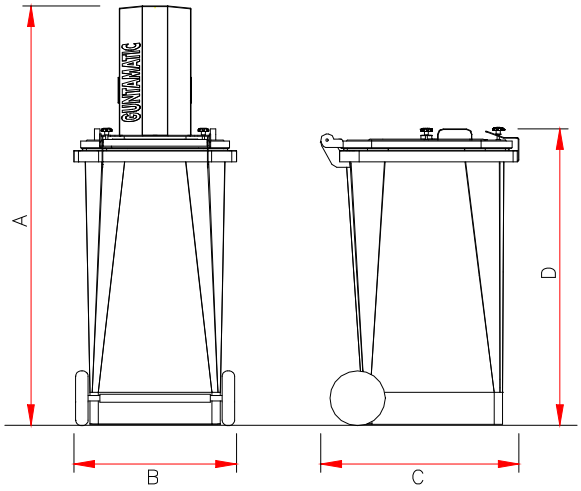
Notice: With Powerchip, Biocom and Powercorn systems, a distance of at least 60 cm from the wall is necessary behind the boiler.

A → 153 cm

B → 59 cm

C → 72 cm

D → 107 cm



Construction side:

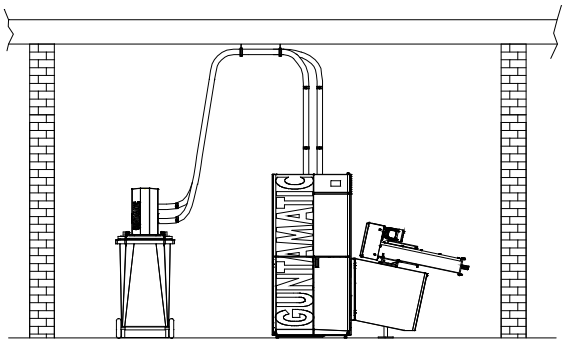
If possible, you have the opportunity to plan the ash ton at a ground level beside the boiler's body. Basic requirement for the construction is a good lifting through the installation site, The ash ton must have a 25 cm minimum difference to inflammable materials. You have to be a look that there is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

Not permitted construction side for an ash ton:

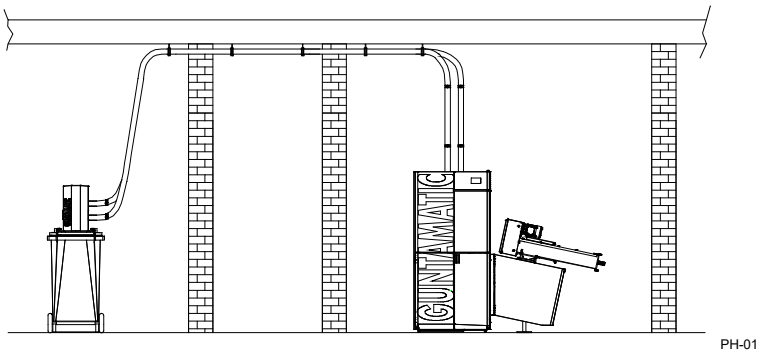
- in an garage
- in the atmosphere in living rooms;
- in storerooms with inflammable materials or gases.

Permited Construction plaeces for the ash ton:

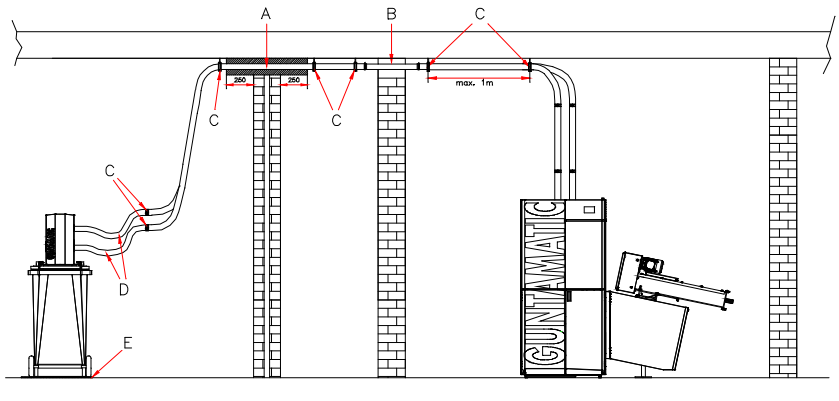
- in the boiler room



- 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-02

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 on the MKR Set boiler
- pro Machine there are 3 remote control möglich;
- per heatingcircle one analogue room unit possible

Limitations with Set-MKR on the boiler board

1) If a 5-sensor buffer management is connected to the boiler circuit board, no analog room devices can be connected when using the Set-MKR for heating circuit 0, 1 and 2 at the same time.
2) If an EC filter is connected, no analog room unit can be connected for heating circuit 0.
3) When connecting a 5-sensor buffer management and an EC filter in conjunction with a Set-MKR, no room units can be connected to the boiler circuit board for heating circuit 0, 1 and 2. Furthermore, in this equipment variant, the 5 sensor buffer management can only be operated with 4 sensors.

Set-MKR

Following functions could be activated:

Heatingcircle		● Warmwater-Memory
Heatingcirle 0	optional avalible.....	● Pumpenheizkreis ● Zusatz Warmwasser-Speicher ● Externes Heizgerät
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	● pumpingheatingcircle [1] ● third mixed heatingcircle
Heatingcircle 1	optional	● pumpingheatingcircle ● mixed heatingcircle
Heatingcircle 2	optional	● pumpingheatingcircle ● mixed heatingcircle
Trunk link	optional.....	● feederpump (ZUP) ● dumping device pump (PUP) ● cargo pump (LAP) [2] ● extension (ERW) [3] ● third mixed heatingcircle
adition	optional.....	● aditional warmwater memory ● external heatingcircle [4] ● third mixed heatingcircle

INFO

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.

Notes

3 Construction

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

02

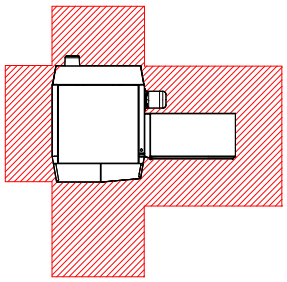
Keep to the minimum wall clearances specified by the system planner and manufacturer. If important details are missing, please refer to the planning documentation or ask our Technical Support. Position the system as close as possible to the flue to avoid having a long flue connecting pipe. The system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

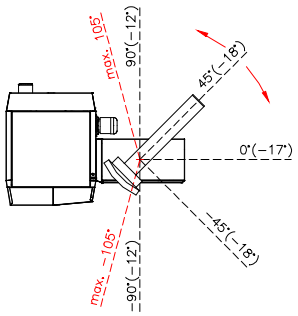
Unscrew the rear adjustable feet slightly further so that the boiler is slightly higher at the rear. That will allow the air inside the boiler to escape easily when the system is filled.

3.4 Fuel out feed installation



Sketch.1

1. Set the boiler in accordance with the required minimum wall-distances in the boiler room place so that sufficient maintenance space around the boiler, see Sketch.1, exist. Align the boiler by means of adjustable feet to the rear is slightly inclined upwards so that existing in the heat exchanger air can escape easily at the plant filling.Please note, that the auger feed system has to be constructed right and just like in sketch 2. , um ca. 90° can be swiveled forwards or backwards.

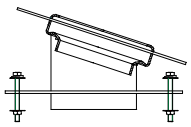


Sketch.2

2. The storage room should be arranged only slightly lower than the boiler room. The maximum possible inclinations of the discharge screw can be seen in the clip values in sketch 2. With the optional chute extension, see sketch 3, up to 18 ° tilt are achieved. In disassembled stoker seal the inlet (A) Sketch 4 insert between stoker unit and Flange and screw with 4 pieces M08 x 30 hexagon bolts, snap rings and nuts. The support foot (B) sketch.4. Unscrew the stoker unit, so that the stoker unit is relieved. The cable Ignition, TKS, level-tongue, fire engine, Stoker sensor, actuator G1 and A1 connect drive.

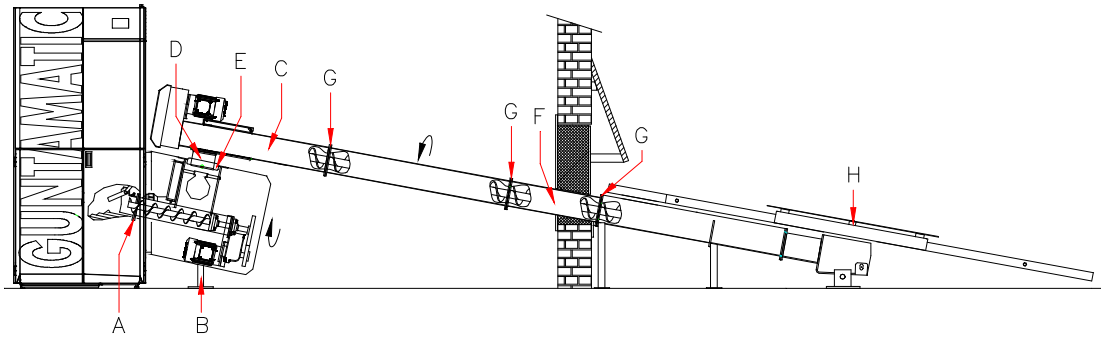
3. Put the propulsive unit (C) Sketch 4 to the Stoker unit and turn it in direction of the storeroom.

4. Pre assemble the needed Spiraltrogs on the ground. Construct the in serial delivered trogpiece (F, look at Sketch 4) in the wall breakthrough. Screw the single trogpieces with M08 x 30 hexagon screw, screw it hard Safety disk with a locknut and crush. Stick the spirals piece that the spiral´s lead (G, Sketch 4) is running without a crush or a break. At least you have to stick the pre assambled Feed spiral on the drive unit.

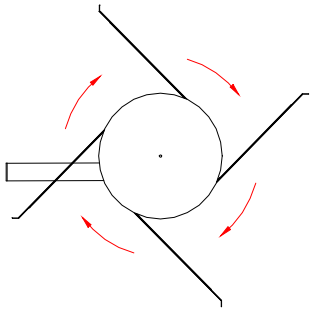


Sketch.3

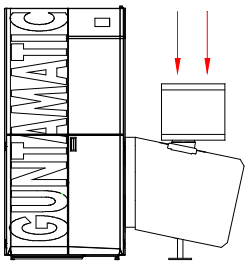
5. Construct the agitator (H), look at picture 4 on the Feed spiral and have a look if the Spirals lead (G) is running without a break and a pille.



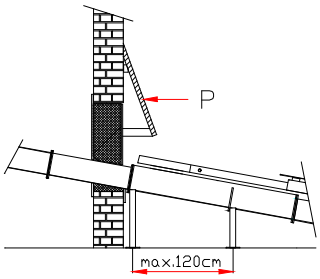
Sketch.4



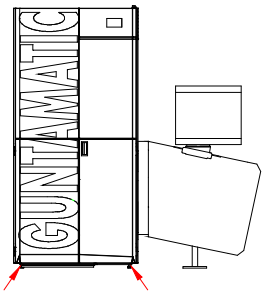
Sketch .5



Sketch .6



Sketch .7



Sketch .8

6. The agitator is turning in clockwise direction, look at Sketch 5. The spring arm has to be constructed, that the longest are in counterpart position. The spring arms have to run 15 to 20 mm above the drawing spiral (look at Sketch 9). Please don´t fix the screws (J, Sketch 9) on the spring arm. The feet (K, Sketch 9) on the agitator has to attitude, that the longest spring and is running 3 to 4 cm over the ground (look at L, Sketch 9)

7. Fix the unit air tight with screws M08x100/140 mm (look at M, Sketch 9) with the Stoker unity. Construct the drive unit always straight. Look at Sketch 6.

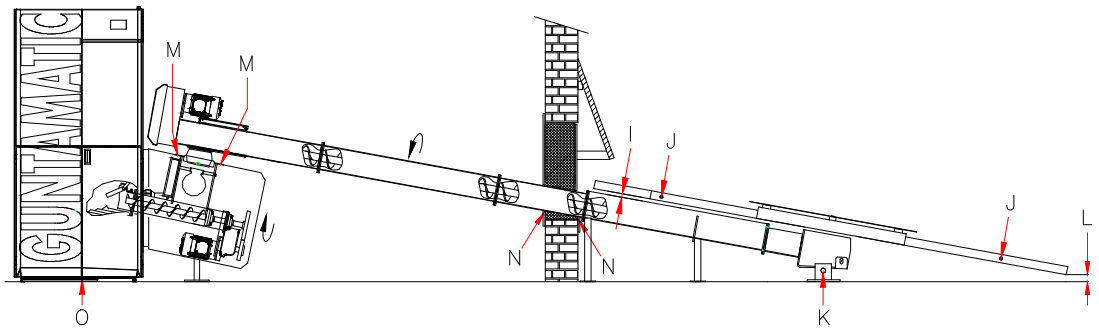
8. Place the agitator in the middle, that the spring arm has a few cm space to the store room´s wall. The agitator on the store room´s ground has to screw tightly.

9. Shore the Feed spiral in the store room with the delivered stanchion below the wall breakthrough- the maximum distance between the stanchions is 120 cm. The stanchions have to be on the flanges or on angel brackets. To avoid the sound transmission you have to put it under an attenuated mad. You have to attitude the stanchions in high, that there is enough space fort he spiral. You have to screw tightly the stanchion. (Look at Sketch 7)

10. The wall breakthrough below (N, Sketch 9). For the closing of the Feeding spiral you have to close it with the delivered cover plate and with rock wool. For perforation you have to cobble the cover plate.

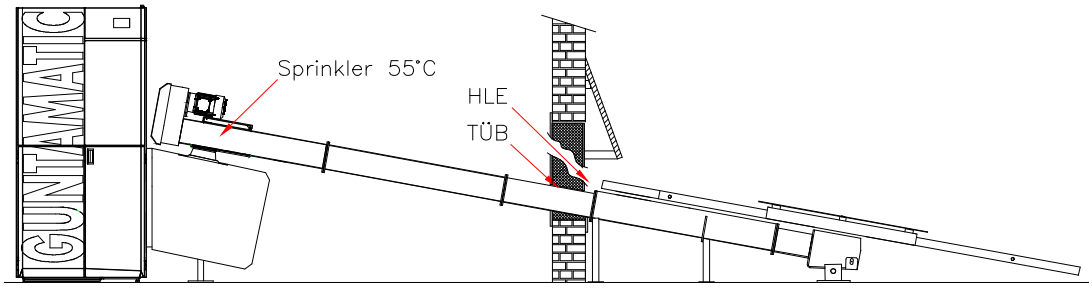
11. You have to screw the bottom plate with M8 x 16 screws tightly (look at Sketch 8) and you have to insert the bottom plate below. (look at 0, Sketch 9)

12. The seperation (P) from the inspection opening (look at picture 7) is sited by manufacture. This measure prohibits the uncontrolled spread from fuil into the heatingroom. You have to construct a 40 cm feed spiral which has a wall distance from 40 cm and got a breadth with 80 cm. You have to construct also a plank slat in a 20 degree angel. The construction has to fixed satisfactoired and has to get fixed enough on the underside.



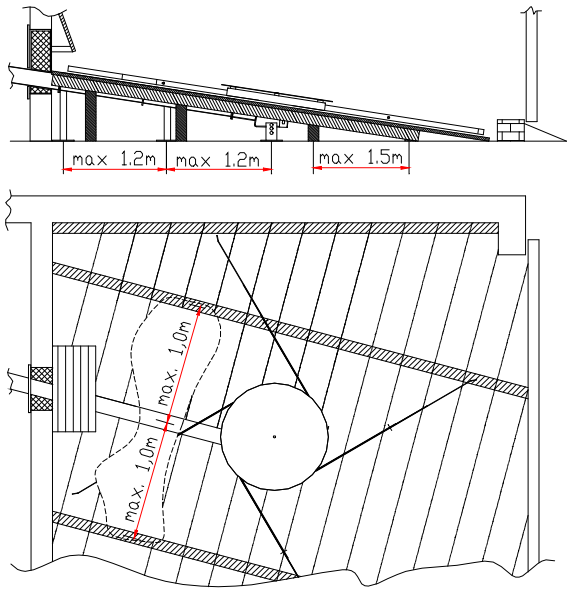
Sketch .9

13. The temperature monitoring (TÜB) may be omitted on the drive unit (Sprinkler 55 ° C) to 50 m³ storage volume due to the sprinkler device. In stockroom volume greater than 50 cubic meters, the temperature monitoring (segmental) is also installed on the sprinkler system to the propulsion unit in the area of the wall and the opening of a warning device such as ruled at-a bugle. Also from 50 m³ storage volume is a manually triggered from the boiler room, extinguishing device (HLE), connected to a pressurized water line and executed as empty piping DN20, directly to the passage of space Sweep channel opening out in the fuel storage installed. The extinguishing equipment must be marked with a sign "erase fuel storage room".

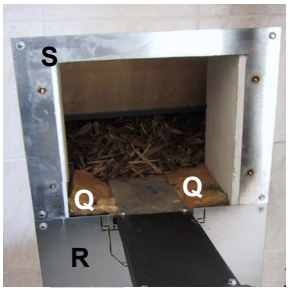


Sketch .10

14. When wood chips operating a slanted floor is not mandatory. With grain or pellet operation, however, a sloping floor should be installed. Sloping floors made of wood or cement could be constructed on site. With wood floors slant the boarding of 3 cm thick planed boards or paste board is finished. The sub-structure of 10 x 10 cm timber construction, according to Fig.11. customize. The supports must be on concrete or metal sheets. The distance between the spring arms to sloping floor must be 15-20 mm. With sloping floor of concrete 2-3 cm away from the worm trough.

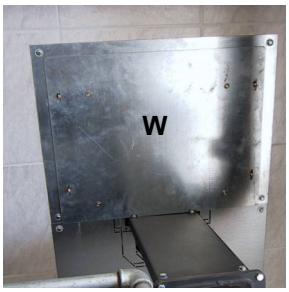


Sketch.11



Sketch .12

Sketch .13



Sketch .14

15. The parellings installation with revisons opening must be performed like written. In the store room there is a installade partition (P), look at sketch 7, prohibts at opening of revisionsquery an uncontrolled spread of stored fuel.

- The Feedspiral has filled out with rockwoll, look at (Q) picture 12

- The cover plate (R) inside and outside installed (look at picture 12)

- fix the cover plate (S)- look at picture 12

- Cut the rockwollblock (T) on size of store rooms opening (look at picture 13)

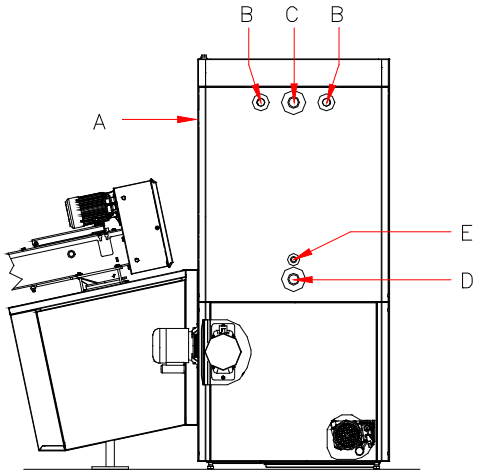
- The stonewallblock (T), like in picture 13 is delivered seperatly with a hexagon screw between revisionsopening (U) and Revisionsbelowside (V) delivered and installed.

- Put the installed inspection cover (W) and srew it with wing locknuts.

3.5 Plumbing connections

03

POWERCHIP 30 - 50 / POWERCORN 12-50



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

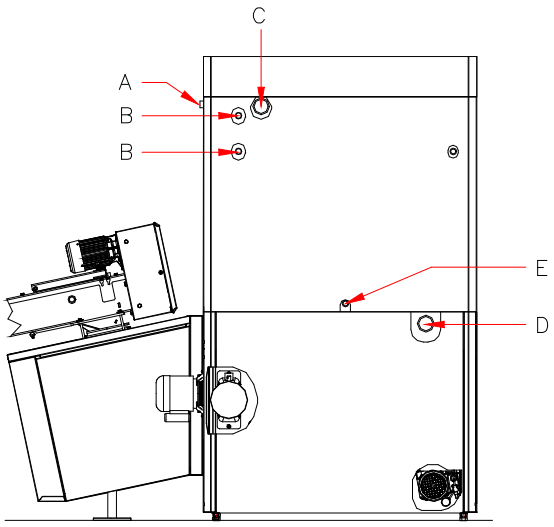
B → Temperature-relief heat exchanger 3/4“

C → Heating return, 5/4“

D → Heating flow, 5/4”

E → External thermostat, 1/2"

POWERCHIP 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"

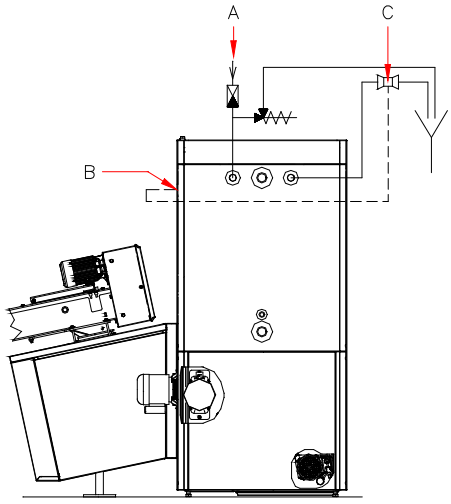
Safety heat exchanger

The maximum permissible operating temperature of the furnace is 110 ° C. To prevent the maximum permissible operating temperature from being exceeded, a thermal discharge safety device must be connected in accordance with, component-tested according to EN14597, which responds at 95 ° C. The connection pressure must be at least 2 bar and must not exceed 6 bar.

Safety valve

A non-lockable 1/2 "safety valve for heating systems up to 50 kW or 3/4" safety valve for heating systems up to 100 kW nominal output according to EN12828 or EN ISO 4126-1 with an opening pressure of 3 bar must be installed. The outlet of the drainage line must be laid and designed in such a way that the functionality is not impaired and that there is no danger when the safety valve responds. The instructions for safety valves must be observed!

POWERCHIP 20/30 – 40/50 / POWERCORN 12-50

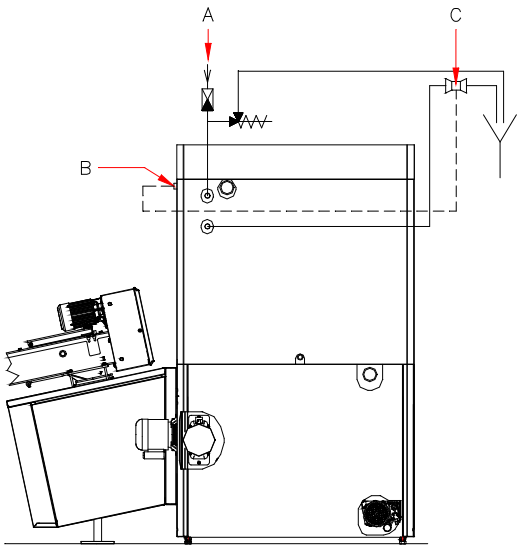


A → Cold water supply

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

C → Temp. relief valve, 95°C

POWERCHIP 75 - 100



A → Cold water supply

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

C → Temp. relief valve, 95°C

Thermal store

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 he programm „OUT“, the antifreezefunction has to be secured, if the E heatingsystem 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 fpr heatingcircle temperatures.

3.6 Filling and bleeding the system

BS-02

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 Part 1 "Avoidance of damage in hot water heating systems". The fill and top-up water must be treated or, preferably, softened if the following limit values for total hardness [° dH] related to total heating output and system volume are exceeded.

Total heating capacity	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.

3.7 Connecting the flue

03

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:**

- PH 30 - 50 Ø = 150 mm
- PH 75 – 100 / PC 12-50 Ø = 180 mm

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

- PH 30 - 50 Ø = 160 mm
- PC 12-50 Ø = 200 mm
- PH 75 – 100 Ø = 220 - 250 mm

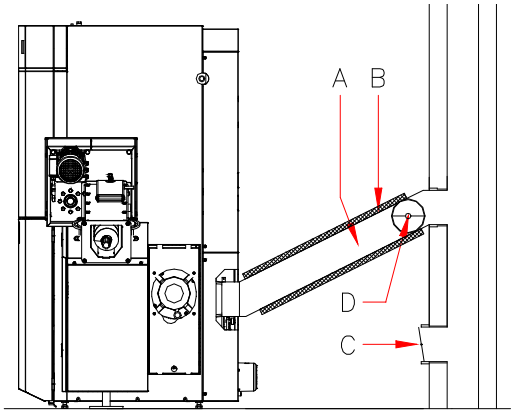
The hole in the wall for connecting the flue pipe must be lined with a built-in double-skinned lining tube or fireproof material. The flue connecting pipe must rise upwards from the boiler to the flue at an angle of at least 6° and be connected with gas-tight joints. An inspection cover must be provided 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
- a draft regulator with an explosion flap must be installed
- Do not brick in the flue connecting pipe (noise transmission)
- The flue connecting pipe must not extend into the flue

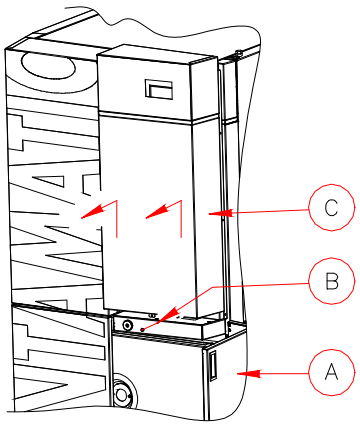
General chimney information: The system may generally be connected to chimneys which are dimensioned according to DIN EN 13384. We recommend (without any obligation in this regard) for our firing systems that are moisture-insensitive, thermally insulated and resistant to over 400 ° C. If the system is correctly dimensioned, we also recommend heat-insulated, soot-fire-resistant stainless steel chimneys for automatically charged fireplaces. (Valid for the usual turbulators, delivery condition "Set calorific value". If the system is ordered with a different turbulators "Set partial condenser", chimney systems suitable for condensing technology 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 to prevent tar deposits in the exhaust system and operational disruptions. The selection of the turbulator system must be made according to regional efficiency requirements and the available exhaust system. The efficiency difference of the turbulator systems can amount to a few percent (detailed values and tests please In the case of first delivery, the selection is cost-neutral (if no special information is given, the “Set calorific value” for normal chimneys will be delivered for safety reasons).

4 Electrical connections

PH-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

400 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).

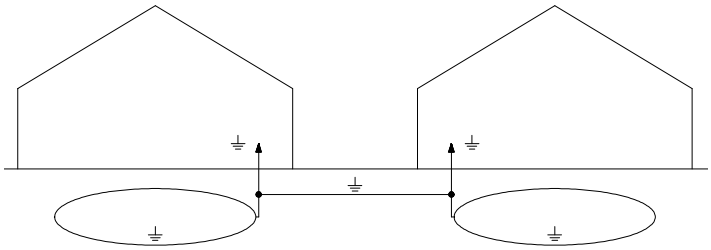
Cabeling

- Feeder 5 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 01

Mains connection

- 400 VAC, 50 Hz, 13 A fuse

Standard specifications

- Boiler control panel (BCE)
- Boiler circuit board (230 VAC)
- Router module (400 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)
- TKS 2 (fuel outfeed monitor)
- Stoker drive motor G1 (400V AC)
- Outfeed drive motor A1 (400 VAC)
- Outfeed drive motor A2 (400 VAC – for feeder auger)
- Stoker sensor (PT1000 Ω)
- Fire safety flap (24V DC)
- 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

Resistances

Temperature	KVT20 Ohm (Ω)	Temperature	PT1000 Ohm (Ω)
-8°C	1537 Ω	0C°	1000 Ω
0°C	1644 Ω	10C°	1039 Ω
10°C	1783 Ω	30C°	1117 Ω
20°C	1928 Ω	40C°	1155 Ω
30°C	2078 Ω	50C°	1194 Ω
40°C	2234 Ω	60C°	1232 Ω
50°C	2395 Ω	70C°	1271 Ω
60°C	2563 Ω	80C°	1309 Ω
70°C	2735 Ω	100C°	1385 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-04

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 aircleening

- Swiss decrees with smallfiremachines

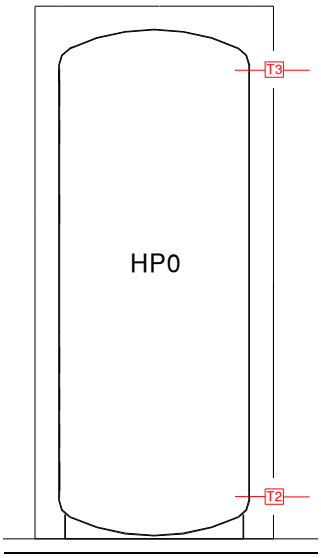
- VKF Fire security thermaltechnical construction (Suisse)

- SIA 384 (Swiss)

7 Plumbing diagrams

7.1 Backup Memory HP0

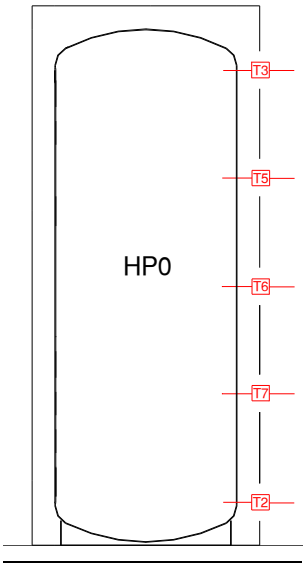
PR-01



2 Sensor – Backup Memory

- 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.

off 50 kW boiler output High-/ lower temperature construction

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.

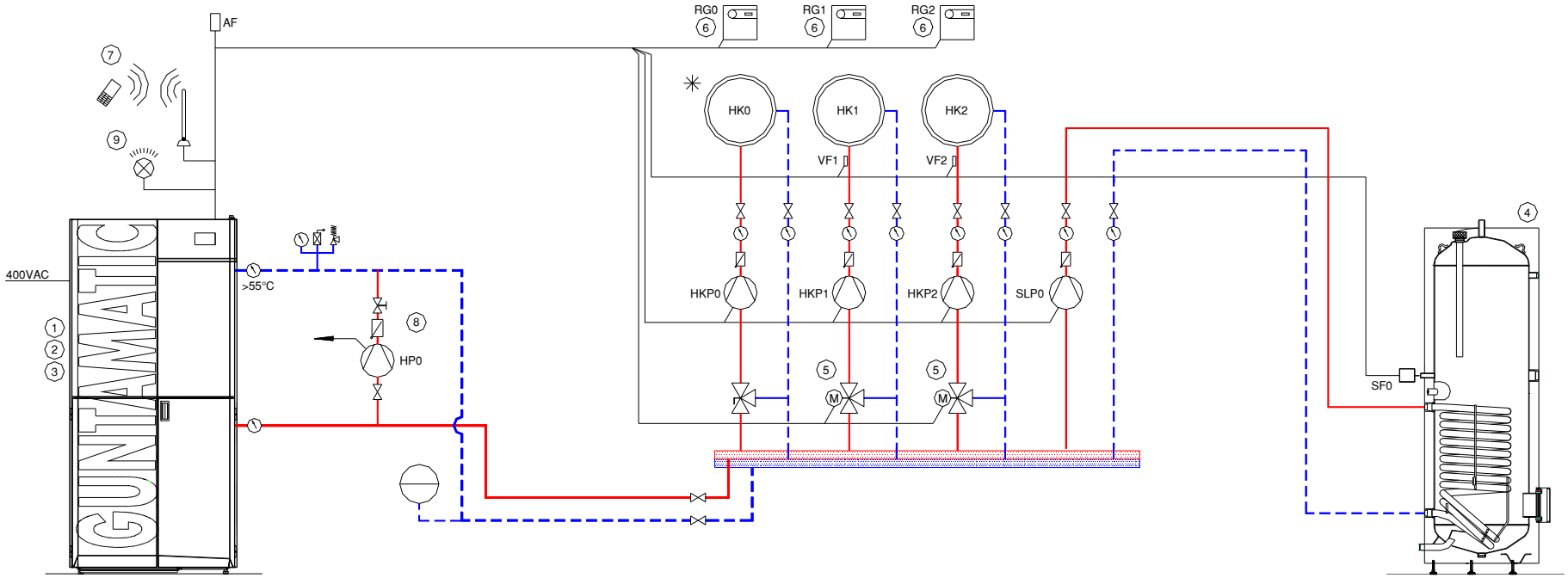
GUNTAMATIC

Diagram no. PH-01-15

Electrical connections as per operating and installation instructions

1.	Powerchip	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	plumber
9.	Fault indicator lamp	plumber
10.	Heat meter	H40-002

* 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.



HP0 mode = Z-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory PSF

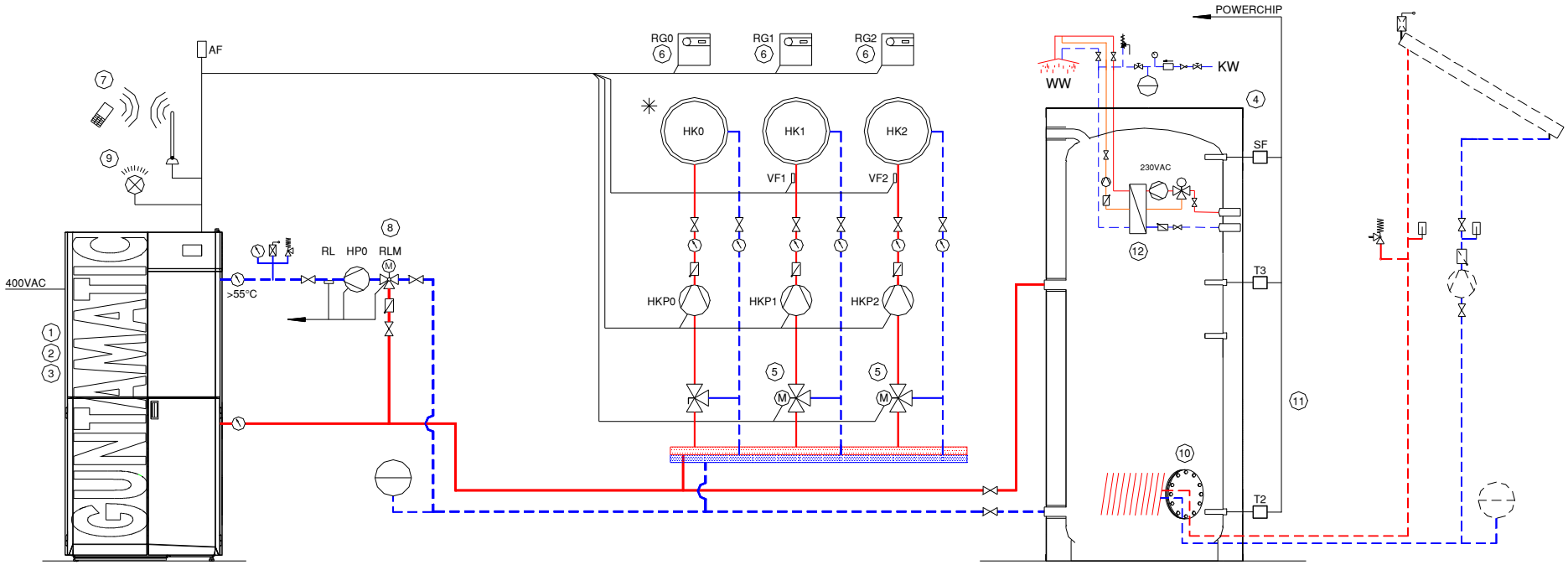
GUNTAMATIC

Diagram no. PH-02-15

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.	Powerchip	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	plumber
10.	Option: flange and heat exchanger	as per price list
11.	2 Thermal store sensor	S70-003
12.	Option: Secondary return unit	045-250
13.	Heat meter	H40-002



HP0 mode = B-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory PS

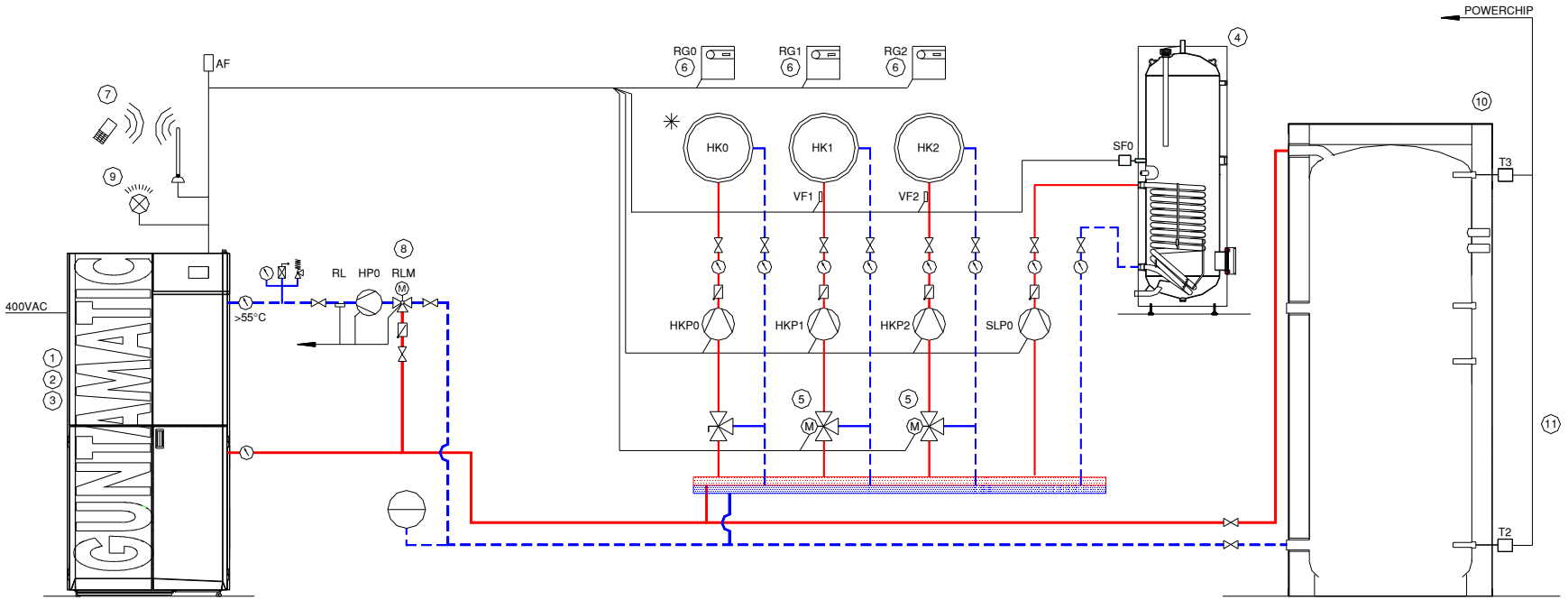
GUNTAMATIC

Diagram no. PH-03-15

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.	Powerchip	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
10.	Thermal store PS	as per price list
11.	2 Thermal store sensor	S70-003
12.	Heat meter	H40-002



HP0 mode = B-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory PSF and inventory boiler.

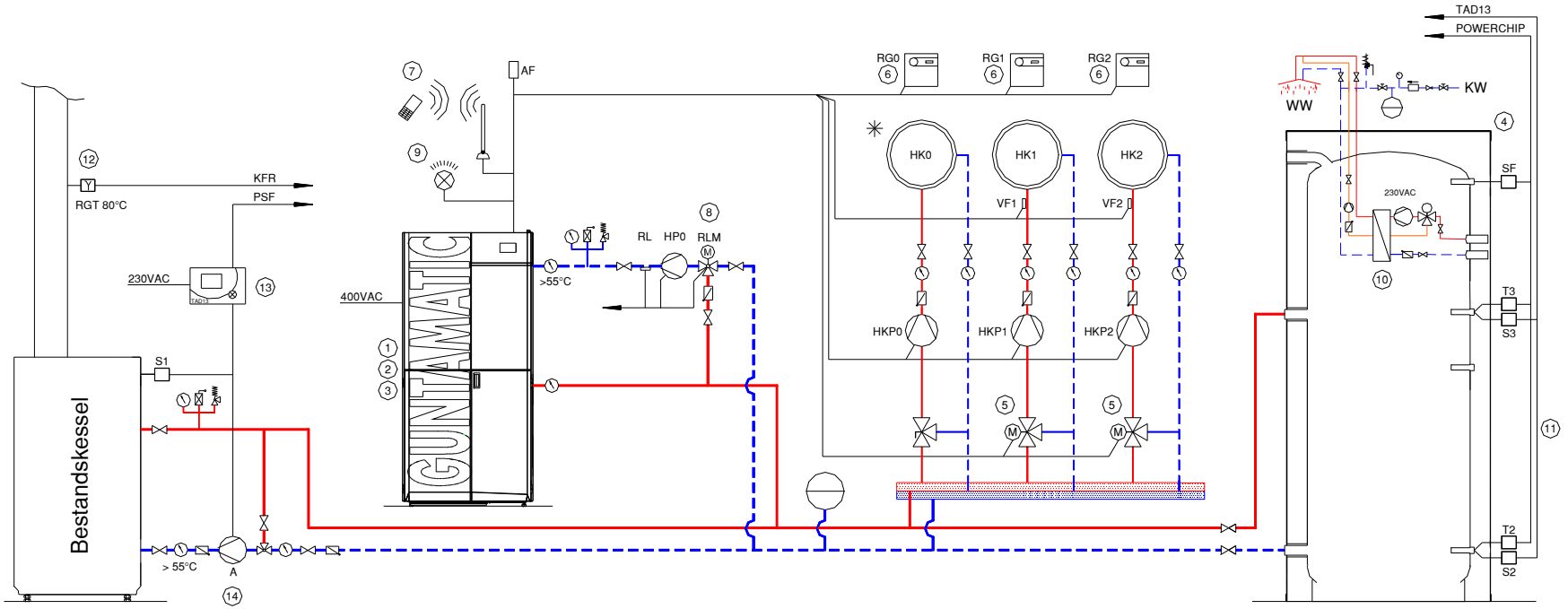
GUNTAMATIC

Diagram no. PH-04-15

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.	Powerchip	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	plumber
10.	Option: Secondary return unit	045-250
11.	2 Thermal store sensor	S70-003
12.	Flue gas monitor, RGT 80°C	H00-801
13.	difference scheme TAD 13	S35-101
14.	Return boost set RA50 TA	H39-022
15.	Heat meter	H40-002



TAD13 mode = Prog. 4 HP0 mode = B-pump

off 50 kW boiler output High-/ lower temperature construction with 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 installing a buffer.

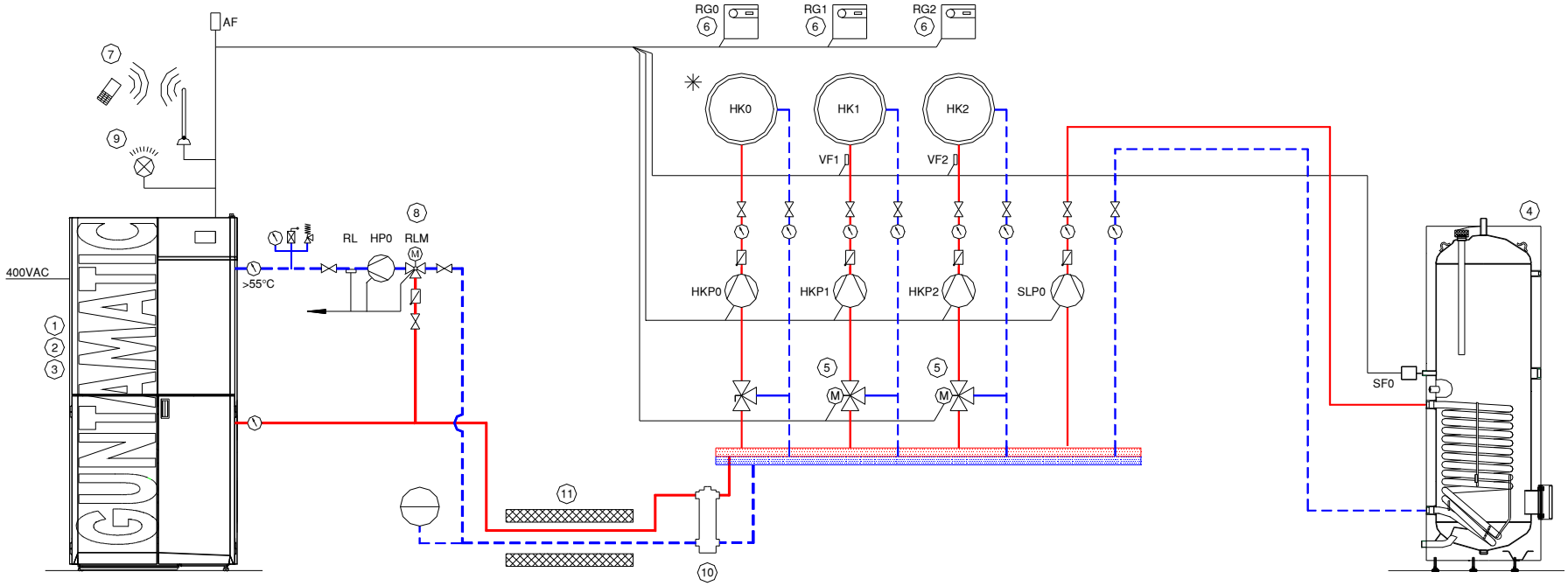
GUNTAMATIC

Diagram no. PH-05-15

Electrical connections as per operating and installation instructions

1.	Powerchip	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
10.	Flow equaliser	plumber
11.	District heating pipe	plumber
12.	Heat meter	H40-002

* 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.



HP0 mode = Z-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory with trunk blink.

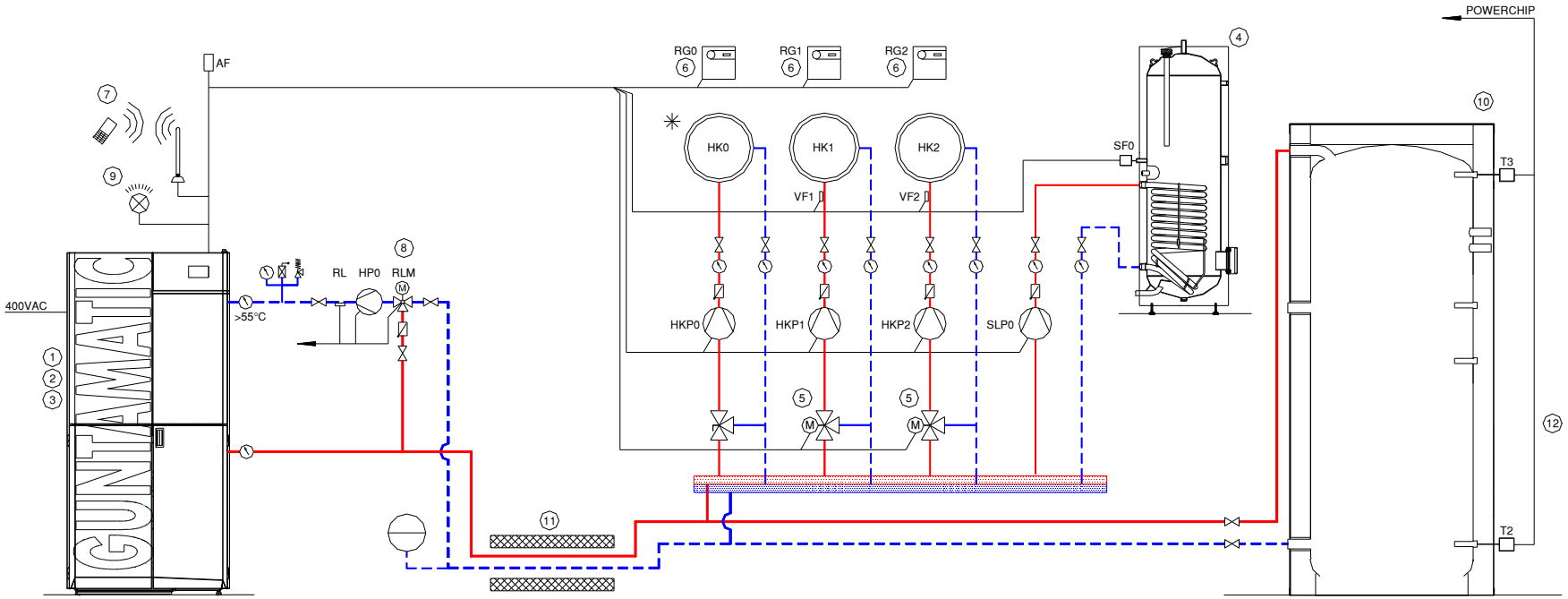
GUNTAMATIC

Diagram no. PH-06-15

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.	Powerchip	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
10.	Thermal store PS	as per price list
11.	District heating pipe	plumber
12.	2 Thermal store sensor	S70-003
13.	Heat meter	H40-002



HP0 mode = B-pump

off 50 kW boiler output High-/ lower temperature construction

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.

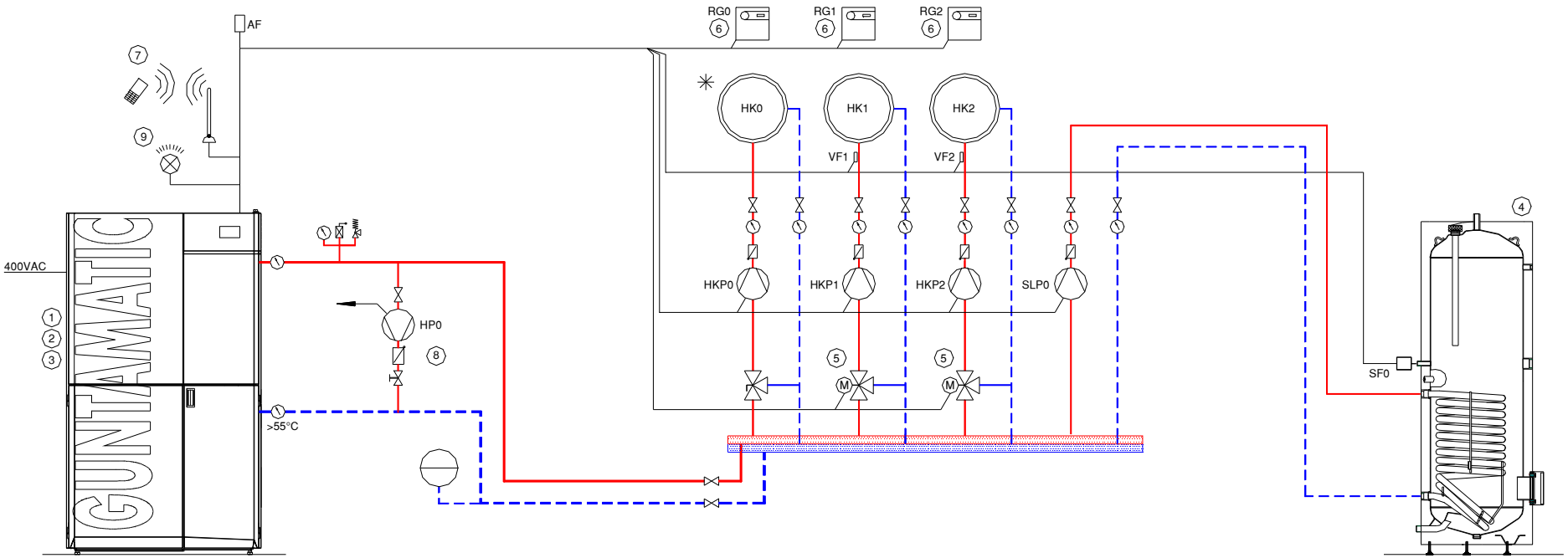
GUNTAMATIC

Diagram no. PH-07-15

Electrical connections as per operating and installation instructions

1.	Powerchip	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	plumber
9.	Fault indicator lamp	plumber
10.	Heat meter	H40-002

* 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.



HP0 mode = Z-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory PSF

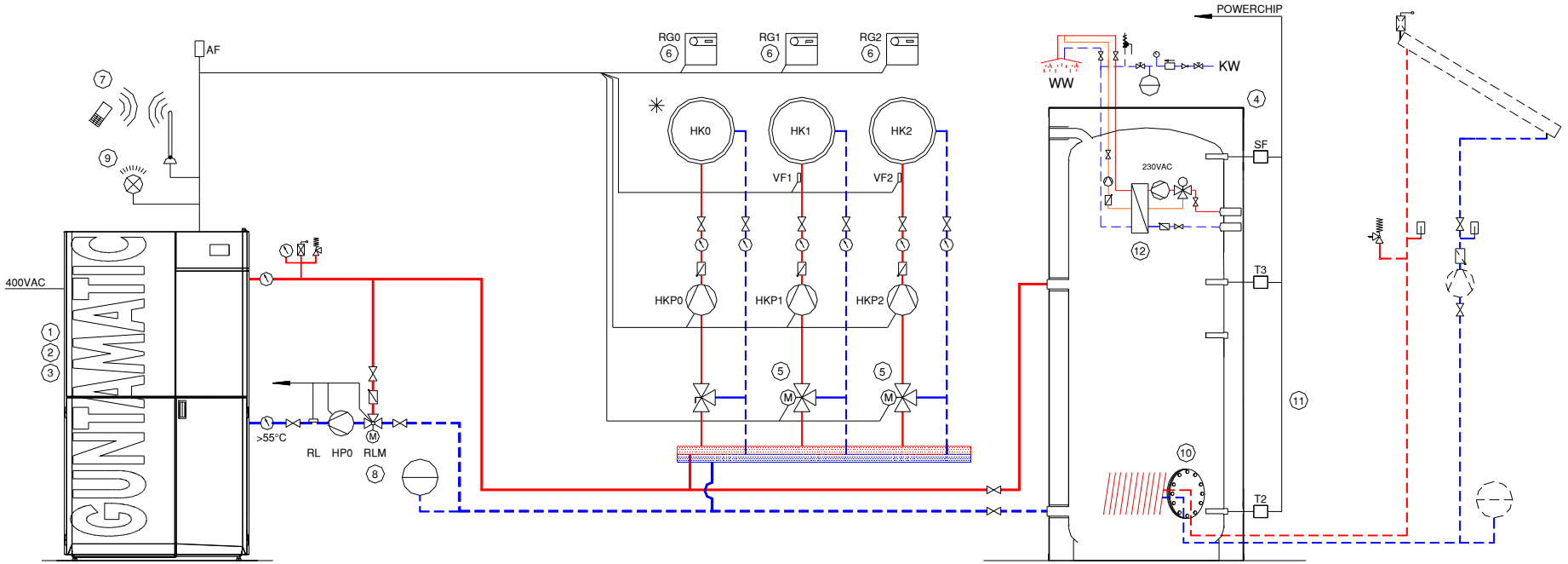
GUNTAMATIC

Diagram no. PH-08-15

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.	Powerchip	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	plumber
10.	Option: flange and heat exchanger	as per price list
11.	2 Thermal store sensor	S70-003
12.	Option: Secondary return unit	045-250
13.	Heat meter	H40-002



HP0 mode = B-pump

off 50 kW boiler output

High-/ lower temperature construction with backup memory PS

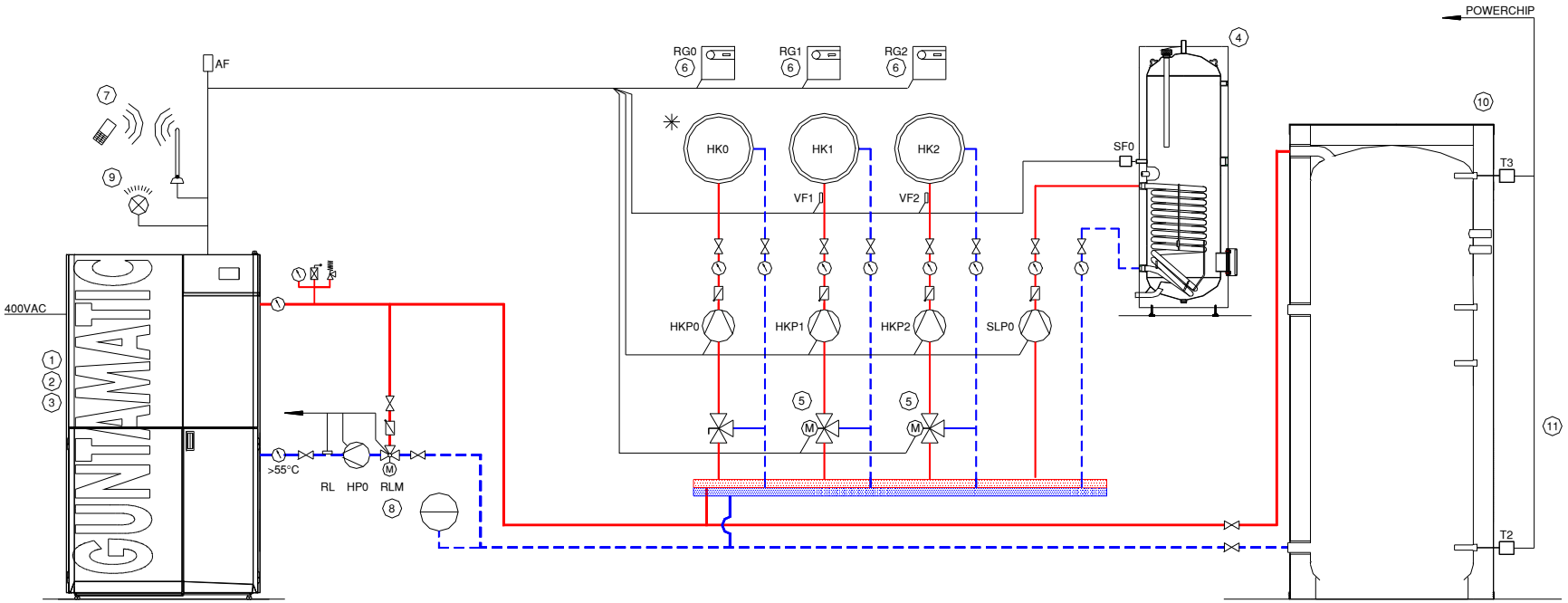
GUNTAMATIC

Diagram no. PH-09-15

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.	Powerchip	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
10.	Thermal store PS	as per price list
11.	2 Thermal store sensor	S70-003
12.	Heat meter	H40-002



HP0 mode = B-pump

off 50 kW boiler output High-/ lower temperature construction 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.

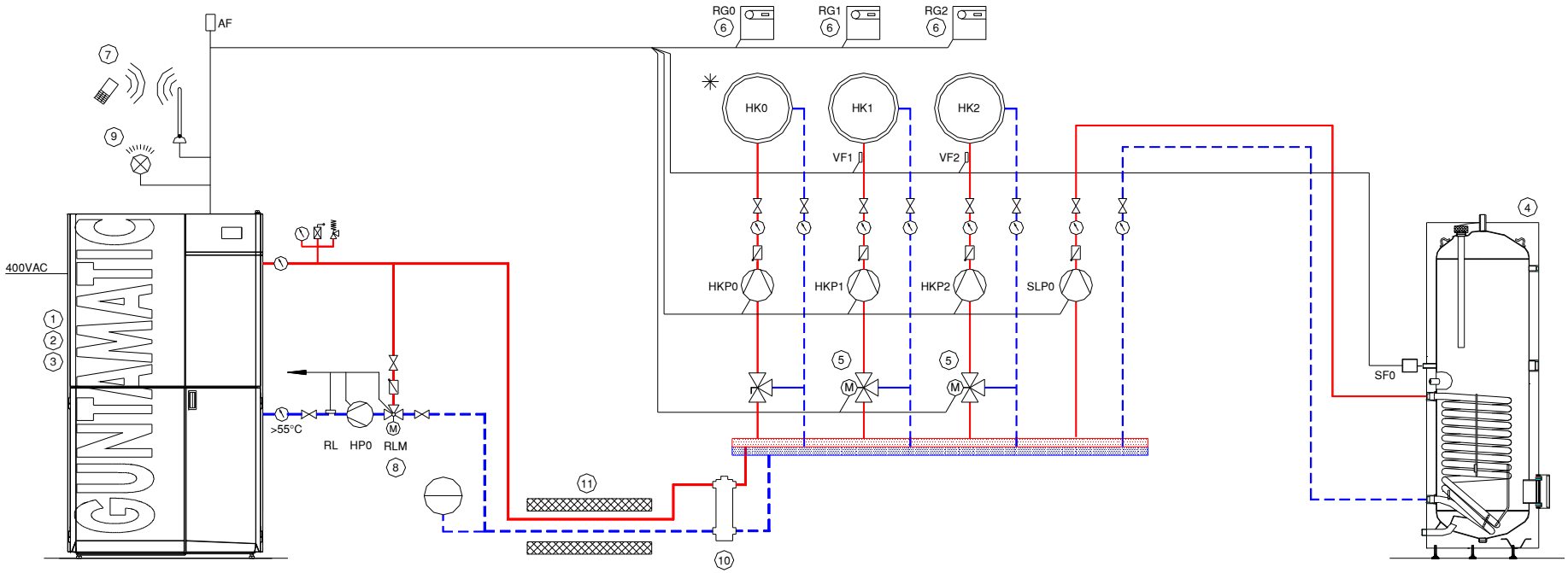
GUNTAMATIC

Diagram no. PH-11-15

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.	Powerchip	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
10.	Flow equaliser	plumber
11.	District heating pipe	plumber
12.	Heat meter	H40-002



HP0 mode = Z-pump

from 50 kW

High-/ lower temperature construction with backup memory PS and trunk blink

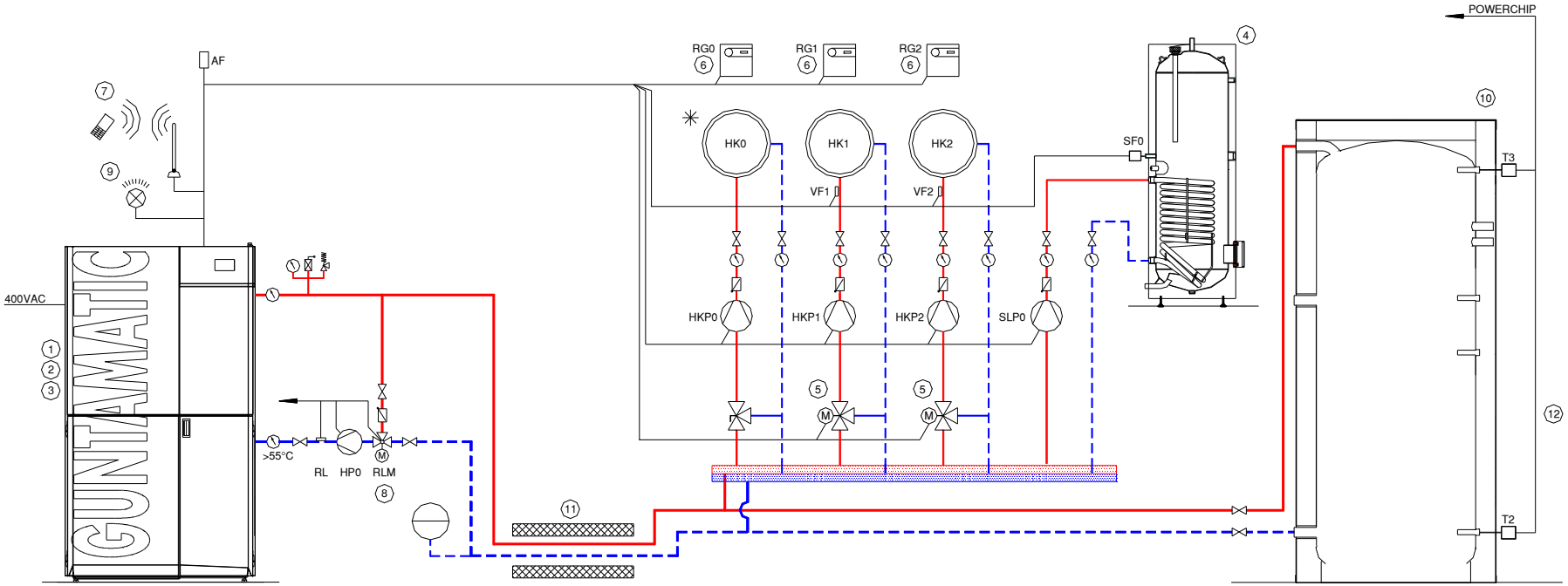
GUNTAMATIC

Diagram no. PH-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.	Powerchip	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
10.	Thermal store PS	as per price list
11.	District heating pipe	plumber
12.	2 Thermal store sensor	S70-003
13.	Heat meter	H40-002



HP0 mode = B-pump

Objekt supply for maximal 3 buildings

trunkblink functions ZUP, LAP oder PUP

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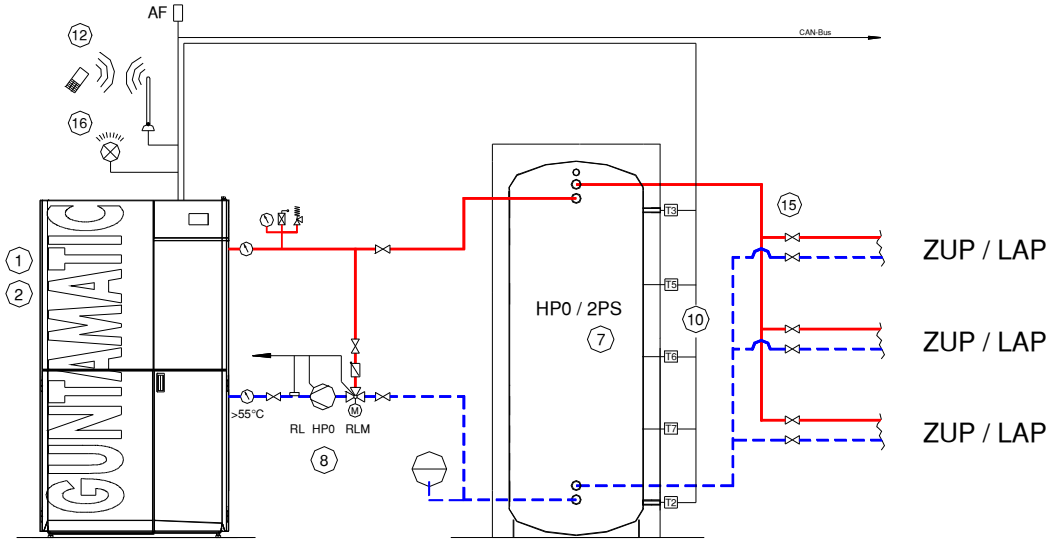
Site 1 / Diagram no. PH-13-15

Electrical connections as per operating and installation instructions

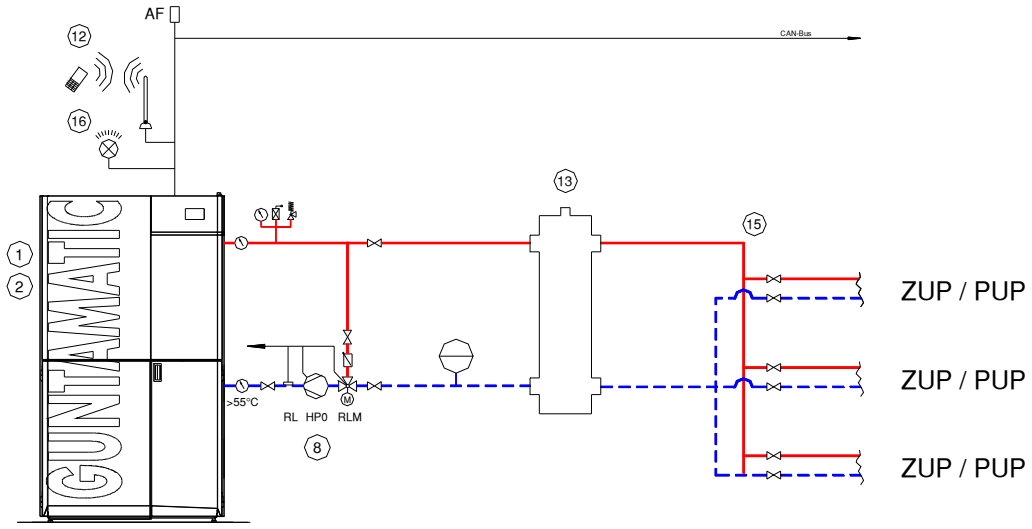
- Line connector 400 VAC / 13 A;
- per System just one Sensor;
- per System 3 Wall mounted Set-MK261 possible;
- per System 3 digital Remotestationens possible;
- per Heatingcircle one analouge Remot unit possible.

1.	Powerchip	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	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.	Fernleitung und Fernleitungspumpen	by client
15.	Pipesystem,	by client
16.	Alertlamp (look at the circuit diagram)	by client
17.	Heat meter	H40-002

Heatingrooms opportunitys



HP0 mode = B-pump



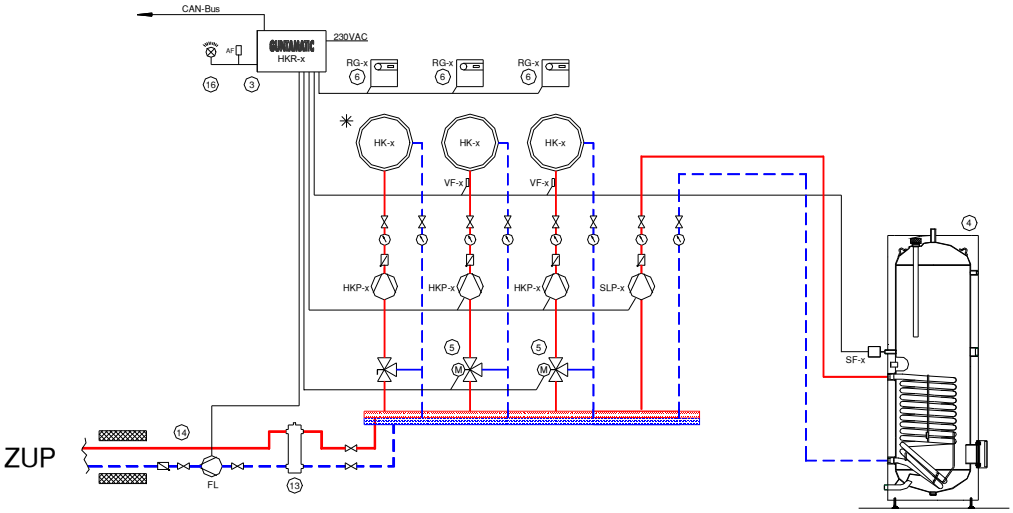
HP0 mode = Z-pump

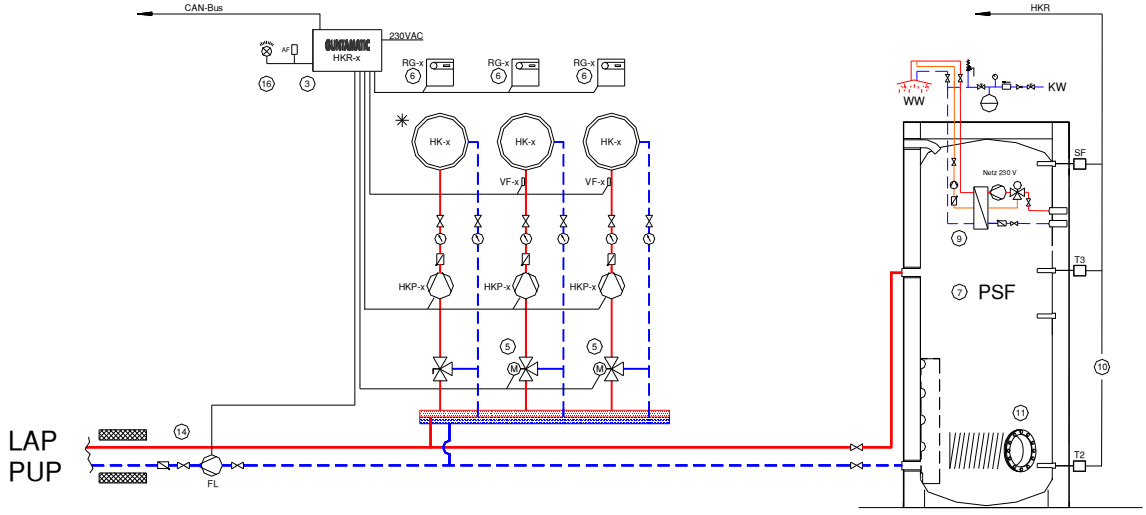
Site 2 / Diagram no. PH-13-15

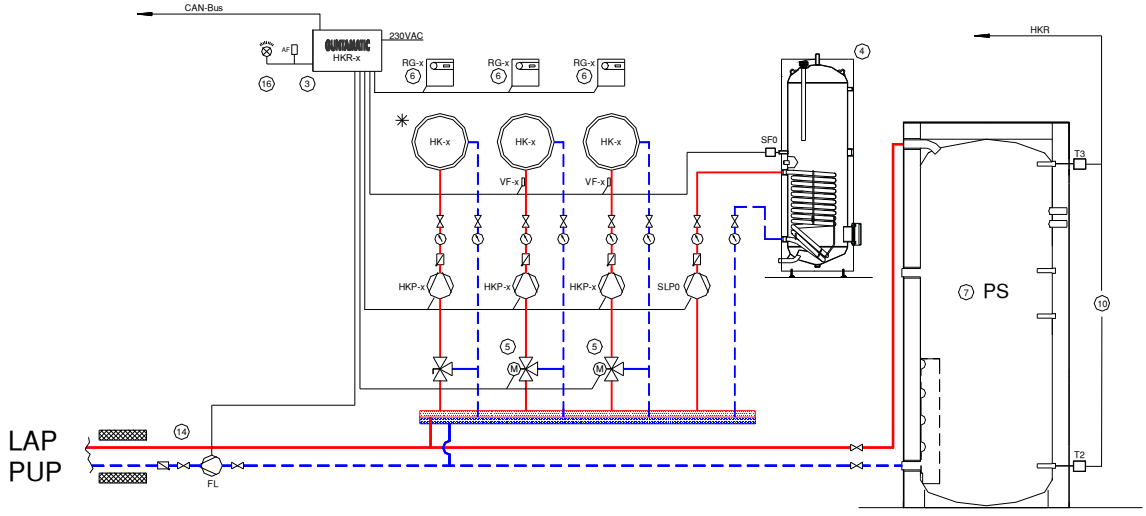
Site 2 / Diagram no. **PH-13**-15

GUNTAMATIC

Connected size







GUNTAMATIC

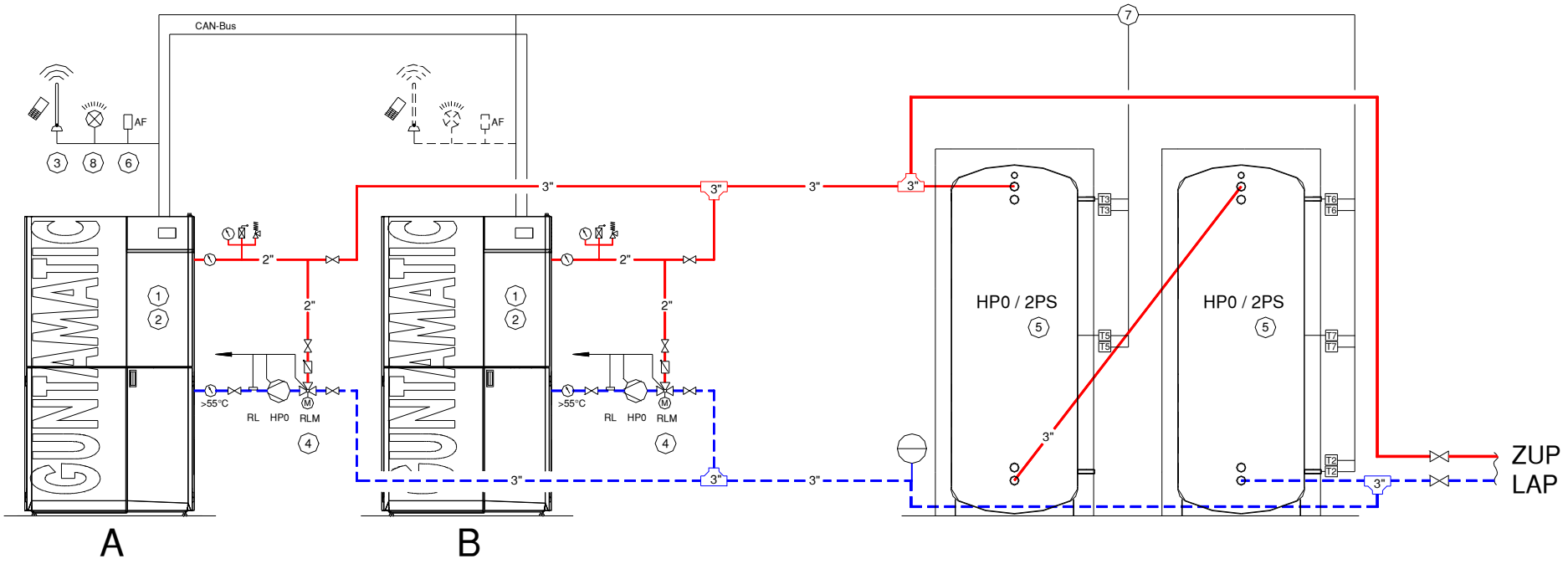
Diagram no. PH-14-15

Electrical connections as per operating and installation instructions

- Line connector per construction 400 VAC / 13 A;
- connect the system linear with CAN BUS (lead the wirring without)
- 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)

- at cascades <150 kW could 3“ T-Pipes and the 3“ Bufferconnection dispensed (2“);

1.	Powerchip	as Pricelist
2.	Flue draught regulator RE with Ex-Clap	as Pricelist
3.	GSM-Modul	S15-002
4.	recirculationincreasinggroup	as Pricelist
5.	Buffermemory PS	as Pricelist
6.	Outdoorsensor required on every System without atmosperic Conditions, with additional above the turned off OFF Temperature;	S70-001
7.	Buffermemory sensorm Advice: alertlamp 5 Sensors per System - minimum 2 per System required	S70-003
8.	Alertlamp (circuit diagram beachten)	by client
9.	Heat meter	H40-002



HP0 mode = B-pump

Site 2 / Diagram no. PH-13-15

Cascad circuit for 4 Firing

GUNTAMATIC

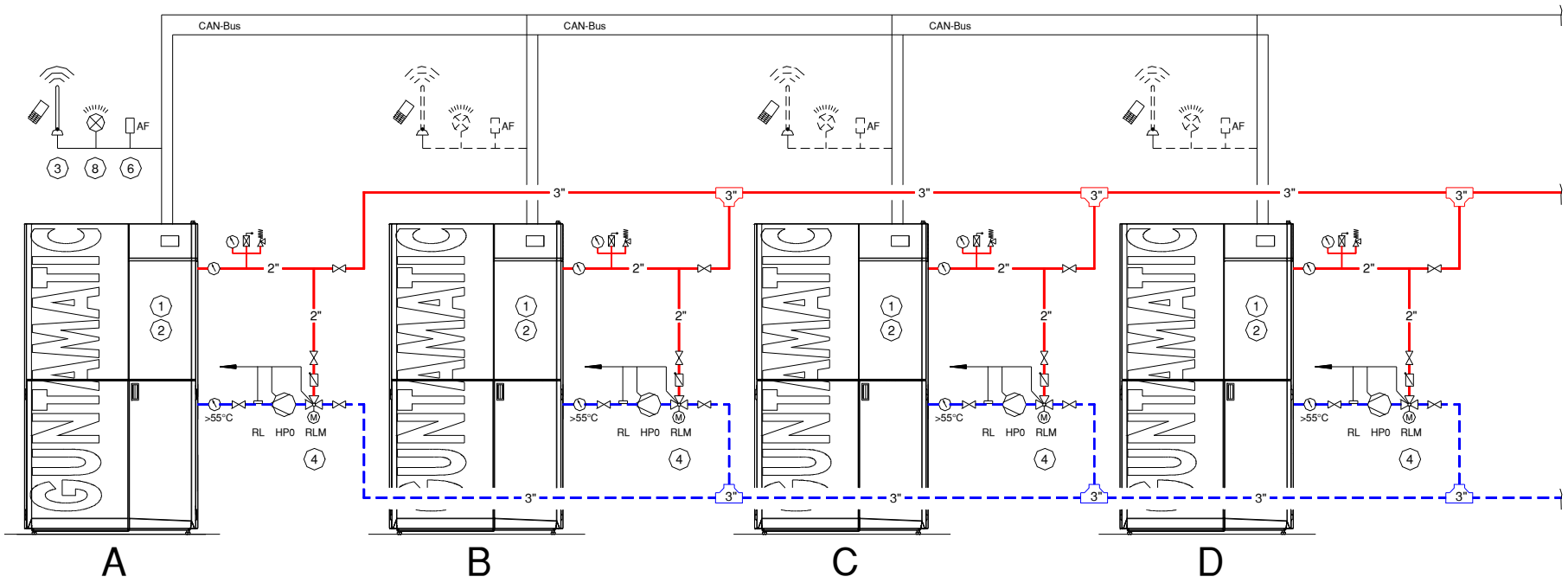
Site 1 / Diagram no. PH-15-15

Electrical connections as per operating and installation instructions

- Line connector per construction 400 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.	Powerchip	look at Pricelist
2.	Flue draught regulator RE with Ex-Clap	look at Pricelist
3.	GSM-Modul	S15-002
4.	recirculationincreasinggroup	look at Pricelist
5.	Buffermemory PS order each buffer with 2 3 “special sleeves;	look at Pricelist
6.	Outdoorsensor required on every System without atmosperic Conditions, with additional above the turned off OFF Temperature;	S70-001
7.	Backup memory sensor Advice: alertlamp 5 Sensors per System - minimum 2 per System required	S70-003
8.	alertlamp (important)	by client
9.	Heat meter	H40-002



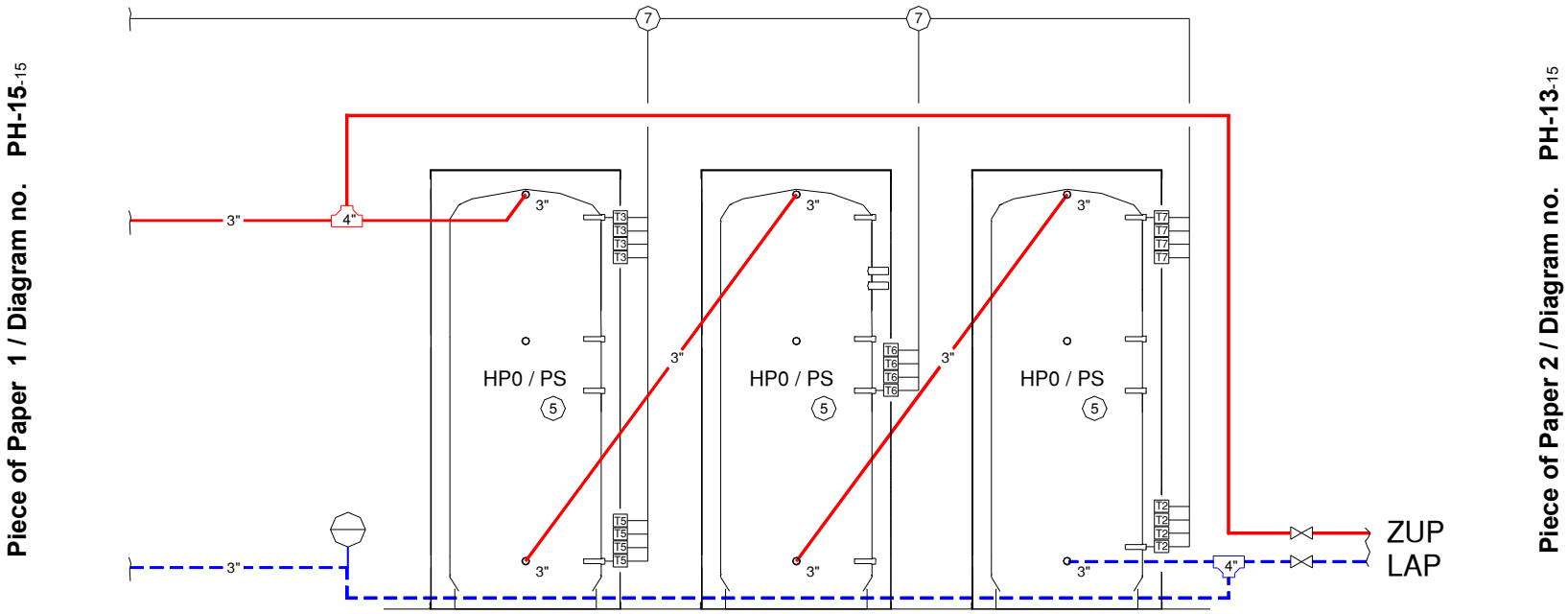
HP0 mode = B-pump

Site 2 / Diagram no. PH-15-15

GUNTAMATIC

Electrical connections as per operating and installation instructions

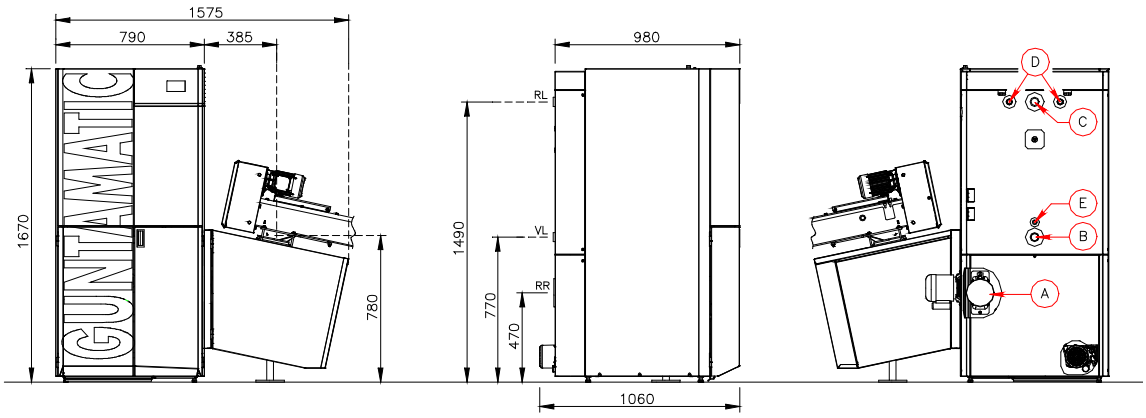
- Order every backup memory with 2 pieces with 3 muffles.
- the written dimensons fort he backup memory, pipes on T pipes refers to a Cascade with 400 KW and in maximum 2 x 25 m pipe length for buffer forward motion.



Notes

8 Technical data

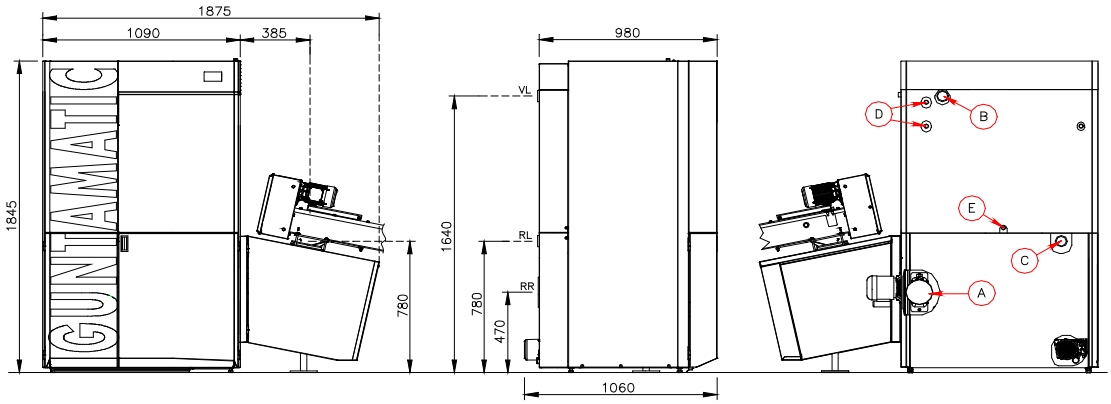
05



	POWERCHIP 20/30	POWERCHIP 40/50	
Fuel	Woodchips P16B[3] or P45A[1] Pellets[3] EN Plus A1 Grain Fuel[2] Miscanthus and agropellets[4]	Woodchips P16B[3] or P45A[1] Pellets[3] EN Plus A1 Grain Fuel[2] Miscanthus and agropellets[4]	EN 17225-4 EN 17225-2 - -
Boiler output Woodchips Smallest achievement Boiler output Pellets Smallest achievement Boiler output Grain Fuel Boiler output Miscanthus	30,4 (34,5[5]) 9,1 (10,4[5]) 34,5 10,4 maximum 25 maximum 25	49,0 (46,0[5]) 14,5 (13,8[5]) 49,0 13,3 maximum 25 maximum 25	kW kW kW kW kW kW
Boiler temperature Return temperature	60 – 80 > 55	60 – 80 > 55	°C °C
Required flue draught	2 - 15	2 - 15	Pascal
Water capacity Operating pressure	128 max. 3	147 max. 3	litres bar
A - Flue connecting pipe dia B - Flow C - Return D - Temp.-relief heat exchanger E - Drain	150 5/4 5/4 3/4 1/2	150 5/4 5/4 3/4 1/2	mm inch inch inch inch
Water system resistance Temperatur difference 10K	2570 19,6	4257 27,7	kg/h mbar
Water system resistance Temperatur difference 20K	1290 11,2	2128 6,2	kg/h mbar
Ash pan, grate Ash pan, "heat exchanger"	60 12	60 12	litres litres
Overall weight Weight of bottom box Weight of heat exchanger Weight of stoker unit	550 340 180 75	585 340 215 75	kg kg kg kg
Power supply	400 VAC / 13A	400 VAC / 13A	-
Energy efficiency class	You can find the energy efficiency classes either on the label attached to the boiler, in our brochures or on the product data sheets on our specialist partner website.		

1) Heating of P45A (G50) wood chips only if the wood chips are of good quality (disc chopper recommended).
2) The use of energy grain is only permitted if this is permitted by the relevant national regulations.
3) Tested and recommended with a low proportion of fines and dust from wood quality that is low in potassium, nitrogen and bark. (an optional EC filter is available for poorer material)
4) The systems are suitable for the combustion of vegetable fuels, but no type tests are available.
5) Performance rating Germany.

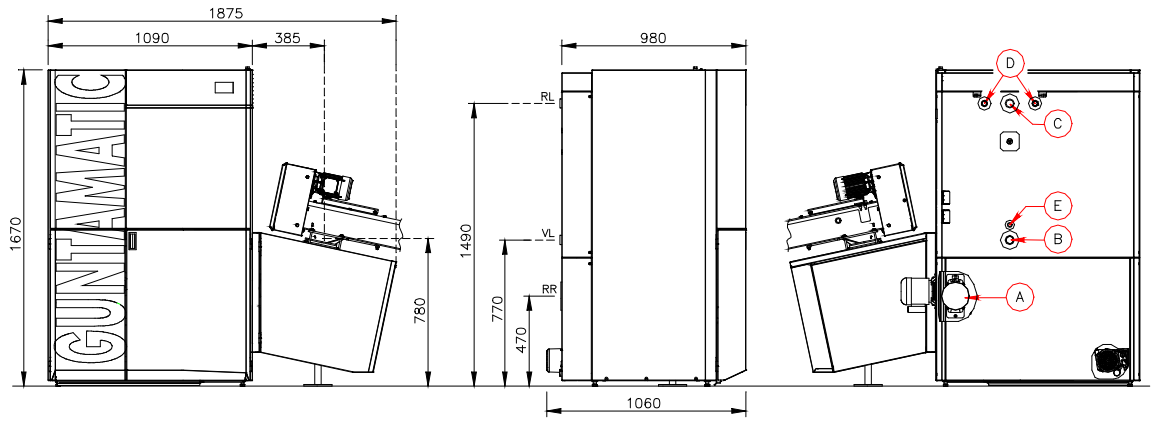
Version ... EC describes the set consisting of the listed heater with an electrostatic precipitator EC 24P, 24, 85 or 250 to be attached.



	POWERCHIP 75	POWERCHIP 100	
Fuel	Woodchips P16B[3] or P45A[1] Pellets[3] EN Plus A1 Grain Fuel[2] Miscanthus and agropellets[4]	Woodchips P16B[3] or P45A[1] Pellets[3] EN Plus A1 Grain Fuel[2] Miscanthus and agropellets[4]	EN 17225-4 EN 17225-2 - -
Boiler output Woodchips Smallest achievement Boiler output Pellets Smallest achievement Boiler output Grain Fuel Boiler output Miscanthus	75,0 22,5 75,0 22,5 maximum 40 (mit Additiv) maximum 60	99,0 (101,0[6]) 26,9 (25,5[5]) 99,0 (101,0[6]) 26,2 maximum 40 (mit Additiv) maximum 60	kW kW kW kW kW kW
Boiler temperature Return temperature	60 – 80 > 55	60 – 80 > 55	°C °C
Required flue draught	2 - 15	2 - 15	Pascal
Water capacity Operating pressure	256 max. 3	256 max. 3	litres bar
A - Flue connecting pipe dia 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 Temperatur difference 10K	6450 4,3	8490 6,2	kg/h mbar
Water system resistance Temperatur difference 20K	3250 1,8	4240 2,5	kg/h mbar
Ash pan, grate Ash pan, "heat exchanger”	80 12	80 12	litres litres
Overall weight Weight of bottom box Weight of heat exchanger Weight of stoker unit	865 430 405 75	865 430 405 75	kg kg kg kg
Power supply	400 VAC / 13A	400 VAC / 13A	-
Energy efficiency class	You can find the energy efficiency classes either on the label attached to the boiler, in our brochures or on the product data sheets on our specialist partner website.		

1) Heating of P45A (G50) wood chips only if the wood chips are of good quality (disc chopper recommended).
2) The use of energy grain is only permitted if this is permitted by the relevant national regulations.
3) Tested and recommended with a low proportion of fines and dust from wood quality that is low in potassium, nitrogen and bark. (an optional EC filter is available for poorer material)
4) The systems are suitable for the combustion of vegetable fuels, but no type tests are available.
5) ---
6) Power rating for type Powerchip 101.

Version ... EC describes the set consisting of the listed heater with an electrostatic precipitator EC 24P, 24, 85 or 250 to be attached.



	POWERCORN 12-50	
Fuel	Woodchips P16B[3] or P45A[1] Pellets[3] EN Plus A1 Grain Fuel[2] Miscanthus and agropellets[4]	EN 17225-4 EN 17225-2 - -
Boiler output Woodchips Smallest achievement Boiler output Pellets Smallest achievement Boiler output Grain Fuel Boiler output Miscanthus	49,5 (46,0[5]) 13,6 (13,8[5]) 49,5 13,1 maximum 40 maximum 40	kW kW kW kW kW kW
Boiler temperature Return temperature	60 – 80 > 55	°C °C
Required flue draught	2 - 15	Pascal
Water capacity Operating pressure	147 max. 3	litres bar
A - Flue connecting pipe dia B - Flow C - Return D - Temp.-relief heat exchanger E - Drain	180 5/4 5/4 3/4" 1/2"	mm inch inch inch inch
Water system resistance Temperatur difference 10K	4240 24,7	kg/h mbar
Water system resistance Temperatur difference 20K	2120 6,2	kg/h mbar
Ash pan, grate Ash pan, "heat exchanger"	80 12	litres litres
Overall weight Weight of bottom box Weight of heat exchanger Weight of stoker unit	667 410 227 75	kg kg kg kg
Power supply	400 VAC / 13A	-
Energy efficiency class	You can find the energy efficiency classes either on the label attached to the boiler, in our brochures or on the product data sheets on our specialist partner website.	

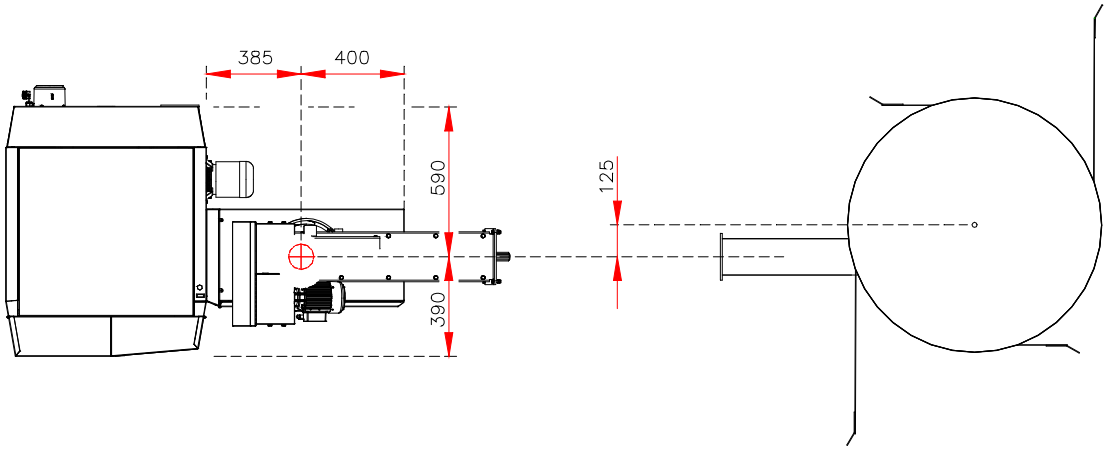
1) Heating of P45A (G50) wood chips only if the wood chips are of good quality (disc chopper recommended).
2) The use of energy grain is only permitted if this is permitted by the relevant national regulations.
3) Tested and recommended with a low proportion of fines and dust from wood quality that is low in potassium, nitrogen and bark. (an optional EC filter is available for poorer material)
4) The systems are suitable for the combustion of vegetable fuels, but no type tests are available.
5) Performance rating Germany.

Version ... EC describes the set consisting of the listed heater with an electrostatic precipitator EC 24P, 24, 85 or 250 to be attached.

8.1 Feed

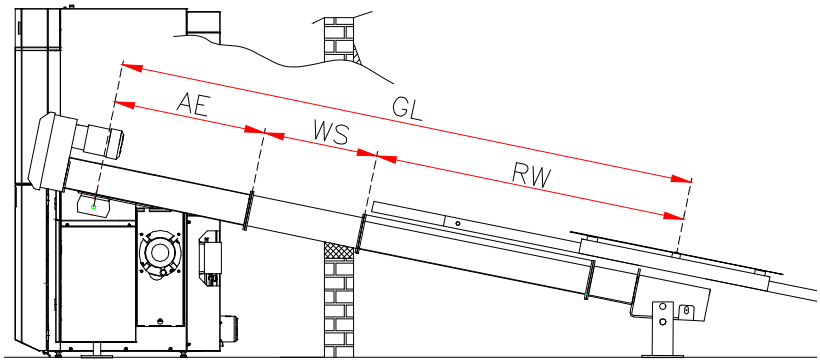
02

VIEW FROM ABOVE



DELIVERY STATUS

- bestehend aus Feed unit (AE),Wallpiece (WS) und Agitator (RW);
- maximum length (GL) of feedspiral = 7 m;



Dumping height:

Hackchips	max. 5,0 m
Pellets	max. 2,5 m
Energycorn	max. 2,5 m
Miscanthus	max. 5,0 m

Ø agitator	**Unit of holdung** (AE)	**Cellar piece** (WS)	**Rührwerk** (RW)	**total length** (GL)
1,5 m	73 cm	55 cm	75 cm	203 cm
2,0 m	73 cm	55 cm	100 cm	228 cm
2,5 m	73 cm	55 cm	125 cm	253 cm
3,0 m	73 cm	55 cm	150 cm	278 cm
3,5 m	73 cm	55 cm	175 cm	303 cm
4,0 m	73 cm	55 cm	200 cm	328 cm
4,5 m	73 cm	55 cm	225 cm	353 cm
5,0 m	73 cm	55 cm	250 cm	378 cm

Spiral´s extension

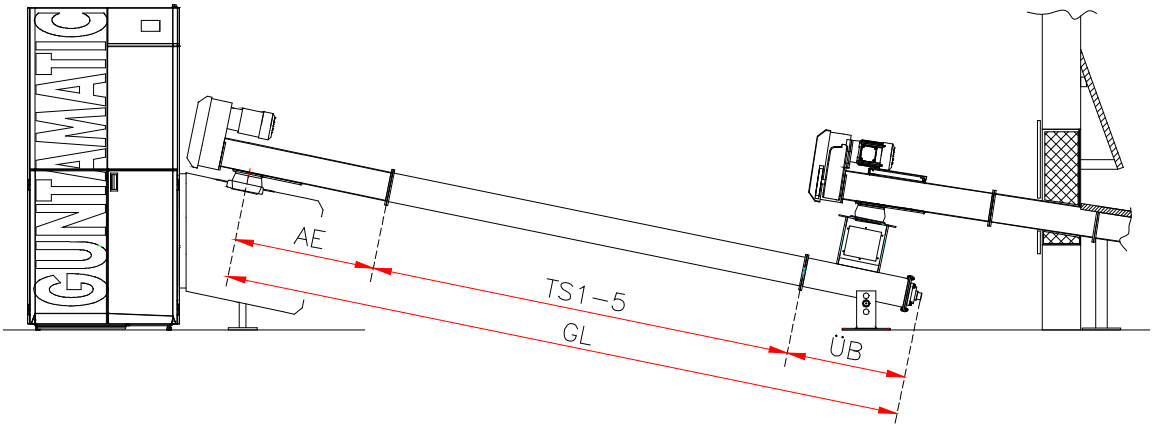
	Length
Trogsprial **TS 1**	22 cm
Trogsprial **TS 2**	55 cm
Trogsprial **TS 3**	110 cm
Trogsprial **TS 4**	220 cm
Trogsprial **TS 5**	297 cm

DUMPIRON:

Ø Agitator	64 cm	92 cm	120 cm	147 cm	172 cm	197 cm	225 cm	250 cm
1,5 m	4 off							
2,0 m	2 off	2 off						
2,5 m		2 off	2 off					
3,0 m			2 off	2 off				
3,5 m			1 off	1 off	2 off			
4,0 m				1 off	1 off	2 off		
4,5 m				1 off	1 off		2 off	
5,0 m				1 off	1 off		1 off	1 off

HANDOVERSET FOR FEED SPIRAL:

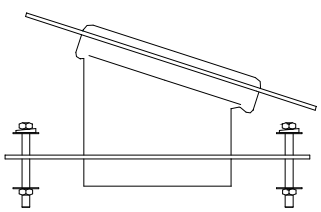
- existing a Connecting plug (AE) and hardcoverstation (ÜB);
- Trogsprials (TS1-5) in Table Spirals extensions;
- maximum total lenghth (GL) = 7 m;



handover Set	Length
Drive unit (AE) bis 50 kW	73 cm
Drive unit (AE) ab 100 kW	73 cm
Drive unit (ÜB)	63 cm

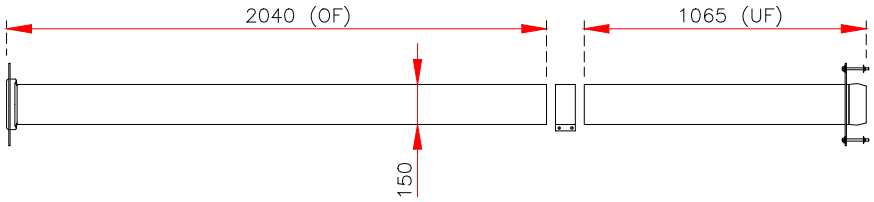
DROP SHAFT EXTENSION:

- necesarry with Agitator construction in the storeroomm ;
- deeper storeroom → spiral´s angel possible till 18° ;



DOWNPIPE up 3 m height:

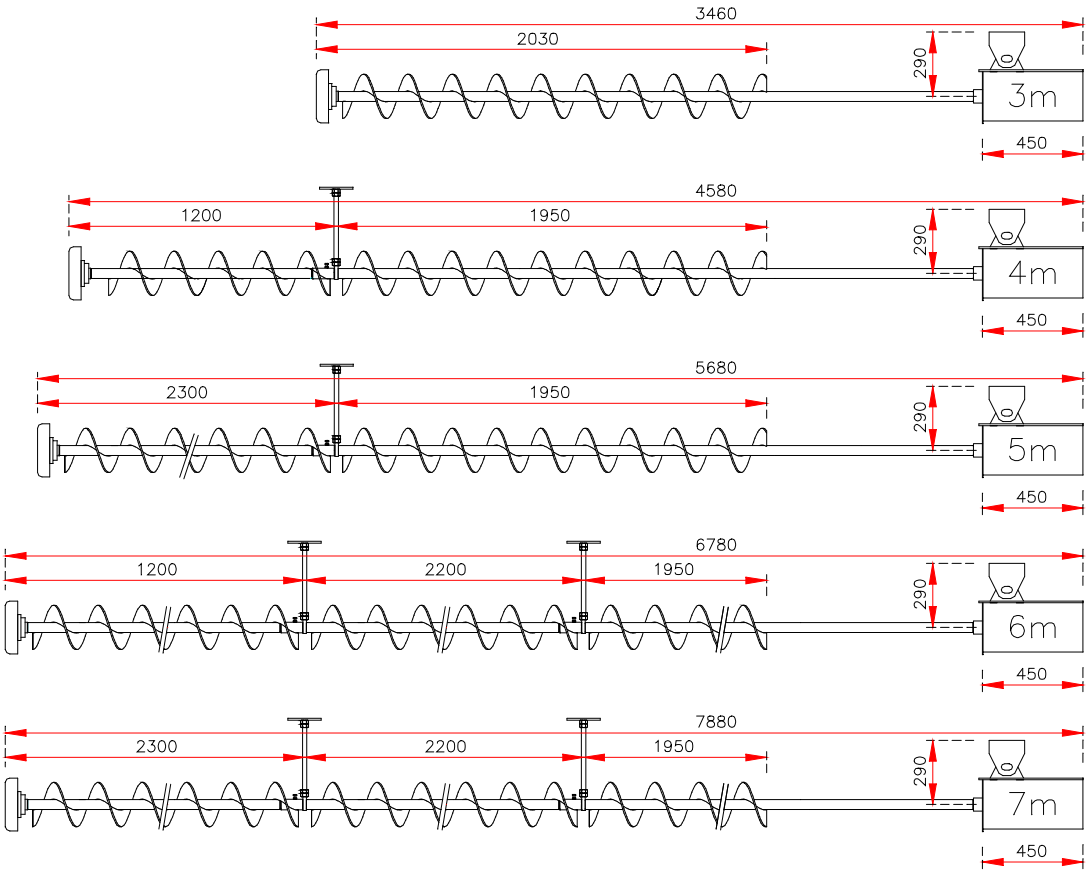
- presented over downpipe (OF), below downpipe (UF) and Bride to screw



8.2 Celling filling spiral

PH-02

- consisting of drive motor, Filling screw, Bearing plate and bracket;
- just for construction for store room´s ceilar;
- the drive motor must be mounted outside of the bearing;



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