

Pellet boiler

englisch

**PRO** FLEX

Planning and Installation



**GUNTAMATIC**

EN-B31-013-V10-0822

Please read through this documentation carefully.

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

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

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

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## 1.1 Safety instructions

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

## 1.2 Guarantee

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:

## 1.5 Quality management

QM for wood-fired heating systems

PR-01

**Austria:** [www.qmholzheizwerke.at](http://www.qmholzheizwerke.at)  
[www.qm-heizwerke.at](http://www.qm-heizwerke.at)  
[www.umweltfoerderung.at](http://www.umweltfoerderung.at)

**Germany:** [www.qmholzheizwerke.de](http://www.qmholzheizwerke.de)

**Switzerland:** [www.qmholzheizwerke.ch](http://www.qmholzheizwerke.ch)  
[www.holzenergie.ch](http://www.holzenergie.ch)

## 2 Planning

### 2.1 Fire safety

01



**The fire security instructions are obligatory needed on the construction place**



**The Compliance from counties or states fire security law is obligatory and stands higher than 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](http://www.vkf.ch))

any other exporting countries Any fire safety office



**You have to follow your specific country fire safety rules obligatory. Your country safety rules are higher than our GUNTAMATIC minimum rules.**



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



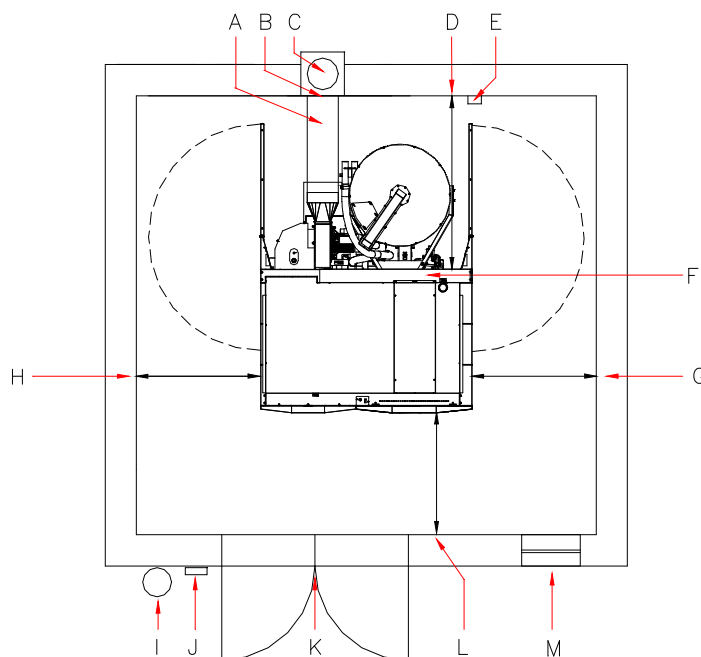
- Boiler room** Floor of concrete construction, either bare or tiled. All materials for floor, walls and ceiling must be fire-resistant to F60/REI60 rating.
- Boiler room door:** The boiler room door must be a Class T30/EI<sub>2</sub>30-C fire door which opens in the direction of escape, is self-closing and lockable. Connecting doors to the fuel storeroom must also be Class T30/EI<sub>2</sub>30-C fire doors, self-closing and lockable. There must be no direct connection to rooms in which flammable gases or liquids are stored (e.g. garage).
- 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<sub>2</sub>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 m<sup>3</sup> **HLE:** If it is possible to store 50 m<sup>3</sup> or more, an extinguishing device (HLE) to be triggered manually from the boiler room, connected frost-proof to a pressurized water line, designed as empty pipework DN20, must be installed directly above the passage of the room discharge channel into the fuel store. The extinguishing device must be marked with a sign saying "Fuel storage room extinguishing device".
- Filler pipes:** filler pipes through rooms where there is a fire risk must be provided with Class F90/REI90 cladding
- Safety systems** **In Austria** various safety systems are required according to prTRVB H118 (Technical Directive on Preventative Fire Safety) depending on the system design, heat output, fuel type and fuel store size.
- RSE=** Burn-back prevention device  
(Rotary feeder, fire-proof laminate in outfeed auger inspection cover)
- RHE =** Burn-back inhibiting facility  
(Rotary feeder, fire-proof laminate in outfeed auger inspection cover)
- For heating systems with a heat output >150kW or fuel storerooms >50m<sup>3</sup>, differences from this directive in the form of special designs are permissible if they provide at least the same degree of fire safety as required by this directive.

**Any differences are to be examined by a testing agency and documented in an inspection report.**

|                                    |   |  |
|------------------------------------|---|--|
| <u>Minimum room height</u>         | PRO-Flex  | ideally <b><u>H 280 cm</u></b><br>1) possible <b><u>H 250 cm</u></b><br><br>1) = the flue pipe connection on the boiler must either be turned horizontally to the rear or 45° upwards to the rear  |
| <u>Minimum room size</u>           | 1 module  | <b><u>B 270 cm x <sup>2)</sup> T 330 cm</u></b><br>Module accessible from the left<br><br><b><u>B 270 cm x <sup>2)</sup> T 430 cm</u></b><br>Module accessible on one side and from behind   |
|                                    | 2 modules   | <b><u>B 540 cm x <sup>2)</sup> T 330 cm</u></b><br>each module accessible from the left<br><br><b><u>B 440 cm x <sup>2)</sup> T 430 cm</u></b><br>each module accessible on one side and from behind<br><br>2) T = the room seen from the front of the boiler backwards                                    |
| <u>Clear access opening</u>        | PRO-Flex  | 3) ideally <b><u>B 150 cm x H 230 cm</u></b><br>4) possible <b><u>B 125 cm x H 200 cm</u></b><br>5) possible <b><u>B 90 cm x H 200 cm</u></b><br><br>3) = Introduction of the fully assembled boiler on the transport wood<br>4) = Boiler delivered in parts<br>5) = all screw-on parts must be dismantled |
| <u>Combustion air supply</u>       | The depression in the boiler room must not be more than 3 Pa (0.3mm H <sub>2</sub> O). The air vents for boiler rooms where the fuel heat output is 50 kW or more must have a clear, net cross-sectional area of at least 5cm <sup>2</sup> per kW of rated output. 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 >5mm. The supply of combustion air should, if possible, enter at floor level in order to prevent cooling of the boiler room. |  |
| <u>Electrical installation</u>     | The lighting and the electrical wiring in the boiler room must be permanently installed. For every heating system there must be a clearly marked lockable heating master switch and an emergency off switch in an easily accessible position outside the boiler room, close to the boiler-room door.<br><br>A mains connection of 400 VAC, 50 Hz, 20 A is to be provided.   |  |
| <u>Fire extinguisher</u>           | A hand-held fire extinguisher (6kg gross weight, EN3) must be mounted outside the boiler room near the boiler-room door.  |  |
| <u>Protection against freezing</u> | The boiler room, pipes carrying water and any district heating pipes must be protected against freezing.  |  |

### Installation site

Plan for positioning the module(s) as close as possible to the flue to avoid having a long flue connecting pipe. For servicing purposes and for emptying the ash box, the module should ideally be accessible from the left or from the rear left. Should it be necessary due to the circumstances of the site to position the module with its left side against the wall, the ash box can only be emptied from the rear. With this arrangement, it must be possible to access the ash box from the right-hand side of the boiler for removal.



- A →** Installation option with draught regulator/pressure-surge compensator in flue connecting pipe  
As close as possible to junction with flue – observe local regulations – possibility of dust generation
- B →** Installation option with flue draught regulator/pressure-surge compensator in flue  
Approx. 50cm below junction with flue – observe local regulations
- C →** Flue refractory flue that is insusceptible to damp recommended
- D →** Clearance at rear                      possible    **130 cm**    if clearance at left is at least 1m  
   **230 cm**    if clearance at left is less than 1m or if several modules are placed adjacent to one another
- E →** Drain for safety valves and temperature relief valve
- F →** Mains power connection
- G →** Clearance at right                      possible    **0 cm**    if clearance at left and at rear is at least 1m  
   **100 cm**    if clearance at left is less than 1m
- H →** Clearance at left                      possible    **0 cm**    if clearance at right and at rear is at least 1m  
   **100 cm**    if clearance at right is less than 1m
- I →** Fire extinguisher 6 kg gross weight to EN3
- J →** Emergency off switch
- K →** Fire door Class T30 / EI<sub>2</sub>30-C lockable and self-closing
- L →** Wall clearance at front                      ideally    **150 cm**  
   possible    **100 cm**
- M →** Combustion air inlet 5 cm<sup>2</sup> per kW output



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

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

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

|               |                   |     |            |
|---------------|-------------------|-----|------------|
| PRO 175 / 250 | eff. height over  | 6 m | D = 250 mm |
|               | eff. height under | 6 m | D = 300 mm |

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

### **Rated output<sup>\*)</sup>**

| Type    | Flue gas temp. | CO <sub>2</sub> | Mass flow rate | Required draught |
|---------|----------------|-----------------|----------------|------------------|
| PRO 175 | 150°C          | 12,0%           | 0,136 kg/s     | 10 Pascal        |
| PRO 250 | 180°C          | 12,0%           | 0,177 kg/s     | 10 Pascal        |

### **Sub-maximum output<sup>\*)</sup>**

| Type    | Flue gas temp. | CO <sub>2</sub> | Mass flow rate | Required draught |
|---------|----------------|-----------------|----------------|------------------|
| PRO 175 | 110°C          | 10,0%           | 0,046 kg/s     | 2 Pascal         |
| PRO 250 | 130°C          | 10,0%           | 0,046 kg/s     | 2 Pascal         |

<sup>\*)</sup> Exhaust gas and CO<sub>2</sub> values are preset according to the fuel qualities that are usual in practice - can be optimized through menu settings if the fuel quality is ideal.



**Fitting an energy-saving flue draught regulator/pressure-surge compensator is absolutely imperative!**

Fit 2 if necessary!

The flue draught should not differ by more than  $\pm 3$  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 draught regulator installed.

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  $+5^{\circ}\text{C}$ .
- 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.



Your attention is drawn to the fact that the relevant national regulations (e.g. ÖNORM EN ISO 20023, ISO 200024, VDI 3464, ...) in respect of storeroom safety are to be strictly observed.

|                                      |   |
|--------------------------------------|---|
| <u>Estimating annual requirement</u> | <p>In the case of room discharges, the usable storage volume is approx. 2/3 of the total storage volume. The storage room should be as rectangular as possible and no wider than 3.5 m per discharge screw. The narrower the storage room, the less empty space there is.</p> <p>→ Per 1 kW/year      approx. 0,65 m<sup>3</sup>      = approx. 450 kg pellets</p>  |
| <u>Damp-proofing</u>                 | <p>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.</p>  |
| <u>Installation in cold areas</u>    | <p>If installed in cold areas, vacuum pipes and outfeed unit must be adequately insulated (frost-proof).</p> <p><b>Risk of condensation formation</b></p>   |
| <u>Filler set</u>                    | <p>At least 2 filler pipes must be installed – minimum separation 0.5m – maximum separation 1.5 m</p>   |
| <u>Situation</u>                     | <p>The fuel is delivered by a tanker lorry. The storeroom and/or the filler-pipe connections must be arranged so that they can be reached by a hose no longer than 30m from the tanker lorry.</p>   |
| <u>Structural requirements</u>       | <p>The enclosing walls must be capable of withstanding the possible static loads created by the stored fuel and the pressure when filling the fuel store</p>  |
| <u>Wall penetration</u>              | <p>Width 33 cm / height 25 cm (for FLEX drive unit)</p>   |
| <u>Storeroom ventilation</u>         | <p>To avoid life-threatening CO concentrations, storage rooms and storage containers must be designed and ventilated up to ≤ 100 tons according to ÖNORM EN ISO 20023 and &gt; 100 tons according to ÖNORM EN ISO 20024. 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 not sufficient, appropriate technical precautions must be taken. If the filling nozzles do not lead to the outside, ventilation must take place via a separate ventilation opening. It must be ensured that no rainwater can get into the storage room via the ventilation opening. The rooms where storage containers made of air-permeable fabric are set up must have a ventilation opening leading to the outside.</p> |

**INFO:** The total ventilation cross-section of 2 sealing caps of our filling sets is 60 cm<sup>2</sup>.

Based on the standards mentioned above, the following information is implementation recommendations with no guarantee of completeness and correctness. Relevant mandatory standards and national regulations are to be observed with priority.

**Flex storage room, agitator, auger... with sloping floor**

- 1) Storage room with Guntamatic filling set
  - Can be used up to a maximum cable length of 2 m and a capacity of 15 t;
  - Filling openings on the outside no more than 0.5 m higher or no more than 0 m lower than on the inside;
- 2) Storage room as above (1) but with a capacity of 15-100 t
  - with additional ventilation opening  $\geq 10 \text{ cm}^2/\text{t}$  (at least 150 cm<sup>2</sup>)
- 3) Execution as above (1) but with a longer filling line or greater difference in height
  - Carry out ventilation according to EN ISO 20023
- 4) Large-capacity warehouse > 100 tons capacity
  - Carry out ventilation according to EN ISO 20024

**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). Due 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.

**Electrical equipment**

Electrical equipment is prohibited in the fuel storeroom.  
The filler pipes must be earthed.

## 2.7 Planning examples for the fuel store

01

**Information** Every heating system is supplied with 2 fuel outfeed augers and a vacuum hose changeover unit. The only additional requirement is to run 2 vacuum hoses from the changeover unit to the fuel hopper on the boiler.

- Planning guide**
- Provide one filler set with rubber deflector guard per outfeed auger
  - Maximum distance between filler pipe connections 1.0 m
  - Maximum storeroom width 3.5 m per outfeed auger
  - Maximum outfeed auger length 5.0 m
  - Plan storeroom ventilation

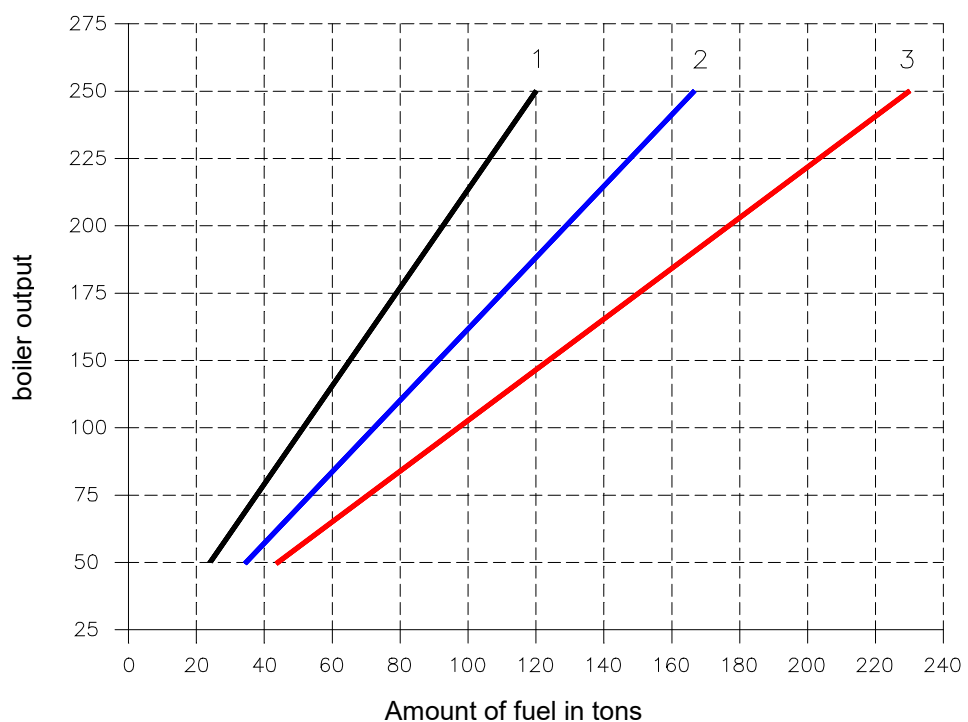
- Recommendation**
- The store should be large enough for at least one lorry load (approx. 20t) + 20% spare capacity
  - Rule of thumb: approx. 2/3 of the total storeroom volume can be utilised for pellet storage

**minimum storage size** Calculation example:

- Lorry load + 20% spare capacity = 24 tonnes
- Pellets volume 0,65 tonnes = 1 m<sup>3</sup> = 37 m<sup>3</sup>
- Required storeroom volume Pellets volume : 0,66 = 56 m<sup>3</sup>

Equates to a storeroom with e.g. the following dimensions:  
(W) 5.5 x (L) 3.5 x (H) 2.9 m

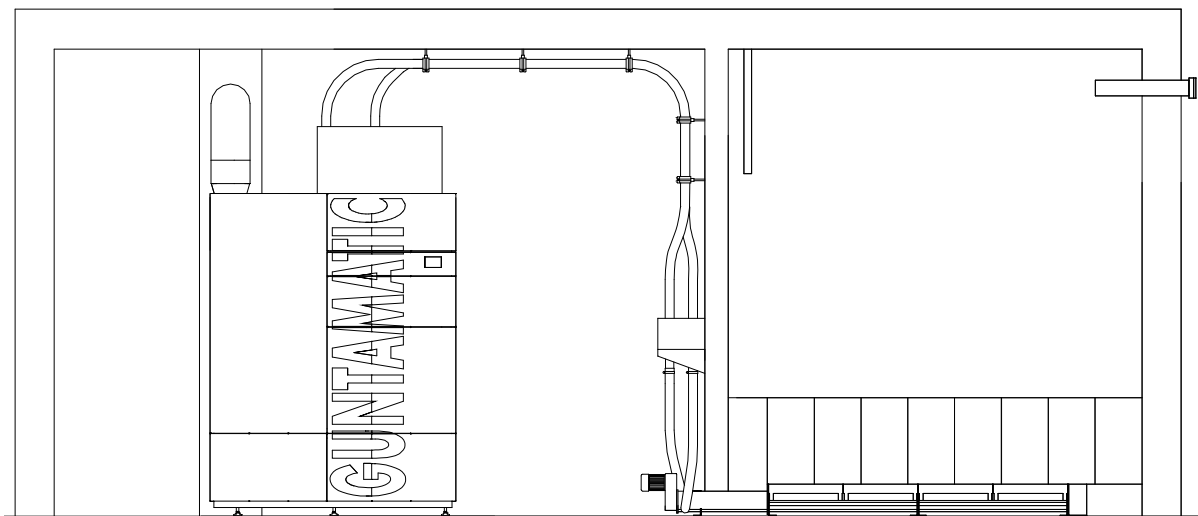
- annual fuel consumption
- 1  180 heating days of 12 hours each
  - 2  220 heating days of 14 hours each
  - 3  260 heating days of 16 hours each



Example The fuel store is directly adjacent to the boiler room.

Information:

- Mount the fuel switch as close as possible to the boiler.
- The maximum length of each discharge screw is 5 m.
- The maximum length per suction hose is 25 m.
- Lay the suction hoses in the largest possible radii ( $\geq 1.0$  m).
- If necessary, install fire protection sleeves on the suction lines according to the chapter Minimum fire protection requirements.



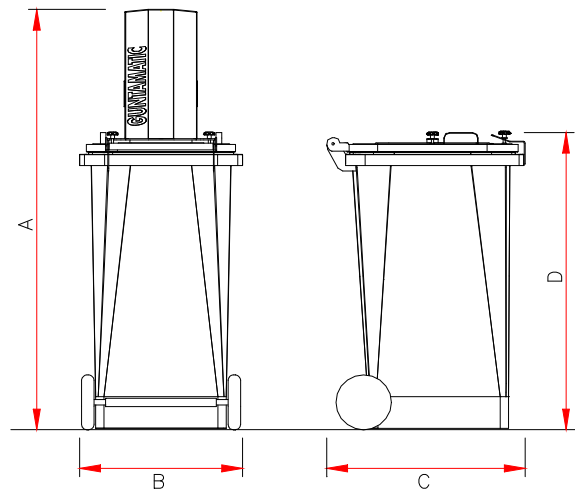


The information below is provided primarily for system planning purposes. Full details of installing the automatic ash extraction system are provided in the separate installation and operating instructions supplied with the system!

An optional automatic ash extraction system is available. The extraction system is built into the boiler and conveys the accumulated ash via flexible metal vacuum pipes (maximum length of 20 m vacuum pipe and 20 m air return pipe) to a large-capacity wheeled ash bin. Ash removal is fully automatic.

Retrofitting The automatic ash extraction system can also be retrofitted at a later date.

A → 153 cm  
B → 59 cm  
C → 72 cm  
D → 107 cm



### Siting the ash bin

If possible, plan for placing the ash bin at ground level in the boiler room near the boiler. A fundamental requirement for the siting of the ash bin is good ventilation of the room in which it is placed. The ash bin must be sited permanently with a minimum clearance of 25 cm from combustible materials and on a non-combustible base that extends at least 5 cm beyond the bin on all sides.

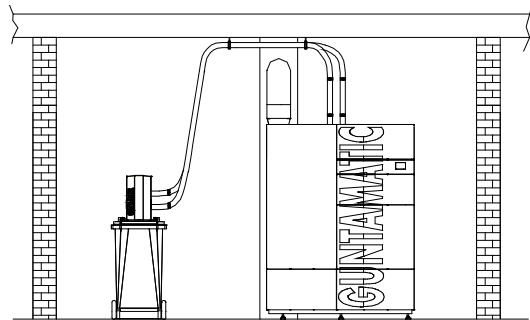


### Locations where the ash bin must not be installed:

- Garages;
- Outdoors (unless protected from frost and ventilated)
- Rooms used for living purposes;
- Storerooms for flammable liquids and gases;

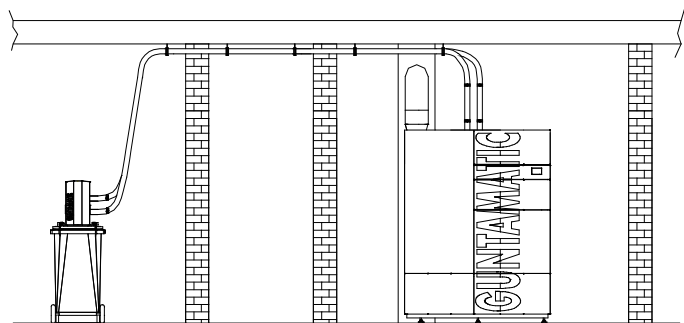
Locations where the ash bin may be installed:

- In the boiler room



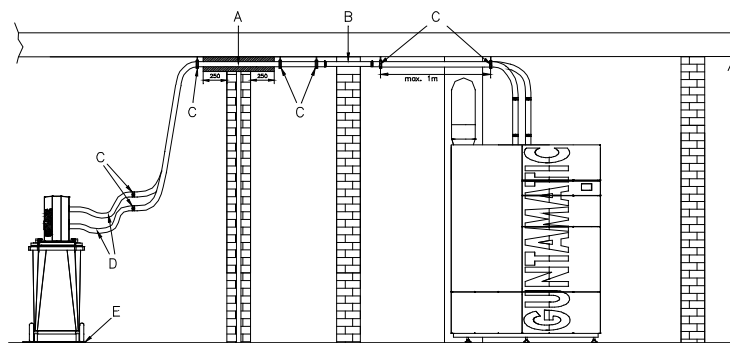
PR-01

- In an adjoining room



PR-01

Vacuum pipe routing through fire containment zones:



PR-01

- A** → Passage through wall using mineral wool sleeves;
- B** → Passage through wall using steel tube built into wall;
- C** → Fireproof pipe bracket 54-60 ZUS (maximum spacing 1 m)
- D** → Metal vacuum hoses (spacing at least 10 cm)
- E** → Non-combustible base;



notes

### IMPORTANT INFORMATION



- The mains circuit control is standard with every system (module).
- The heating circuit control cannot also be used in systems with activated mains circuit control.
- In systems (modules) with an EC filter, the mains circuit pumps cannot be remotely controlled via the 0-10 V input.



The following functions can be activated on each system (module):

hot water optionally as ..... • hot water storage tank  
<sup>1)</sup> • Dual pump for mains circuit 2

power circuit 0 optionally as ..... • pump network circuit  
<sup>2)</sup> • Dual pump for mains circuit 1  
<sup>3)</sup> • Additional hot water tank  
<sup>4)</sup> • additional heater

power circuit 1 optionally as ..... • pump network circuit  
<sup>5)</sup> • mixed network circuit

power circuit 2 optionally as ..... • pump network circuit  
<sup>6)</sup> • mixed network circuit



#### INFO

- 1) the double pump function for network circuit 2 can only be activated if the hot water tank 0 function is deactivated;
- 2) the double pump function for circuit 1 can only be activated if the pump circuit 0, additional hot water tank and external heater functions are deactivated;
- 3) the additional DHW tank function can only be activated if the pump circuit 0, double pump for circuit 1 and external heater functions are deactivated;
- 4) the external heater function can only be activated if the functions pump circuit 0, double pump for circuit 1 and additional hot water tank are deactivated;
- 5) network circuit 1 can only be operated with a double pump if the pump network circuit 0, additional hot water tank or external heater functions are not used;
- 6) network circuit 2 can only be operated with a double pump if the hot water tank function is not used;

### IMPORTANT INFORMATION



- The mains circuit control cannot also be used in systems with activated heating circuit control.
- Only set MK261 wall devices can be installed.
- Up to three wall-mounted devices set MK261 (= heating circuit controllers) can be installed for each system (module).
- A maximum of three digital room stations can be installed for each system (module).
- An analogue room unit can be installed for each heating circuit.



Attention: Exceptions when connecting the 5 sensor buffer management to a wall device set MK261.

The following functions can be activated on any built-in wall device:

- hot water ..... • hot water storage tank
- heating circuit 0 optionally as ..... • pump heating circuit  
<sup>7)</sup> • third mixed heating circuit
- heating circuit 1 optionally as ..... • pump heating circuit  
 • mixed heating circuit
- heating circuit 2 optionally as ..... • pump heating circuit  
 • mixed heating circuit
- pipeline optionally as ..... • buffer pump (PUP)  
 • charge pump (LAP)  
<sup>8)</sup> • extension (ERW)  
<sup>9)</sup> • third mixed heating circuit
- additionally optionally as ..... • Additional hot water tank  
 • additional heater  
<sup>10)</sup> • third mixed heating circuit



### INFO

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



## 3 Assembly

### 3.1 Delivery

BS-01

The heating system is delivered wrapped in foil and packed in a wooden crate. Please use the delivery note to check whether the delivery is complete 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 mounted on a transport piece of wood and can be lifted with a lift truck and driven to the installation site.

Multi-part contribution The boiler body can be disassembled into parts and brought in. If this is the case, a GUNTAMATIC-authorized person must be consulted.

### 3.3 Positioning and aligning the boiler

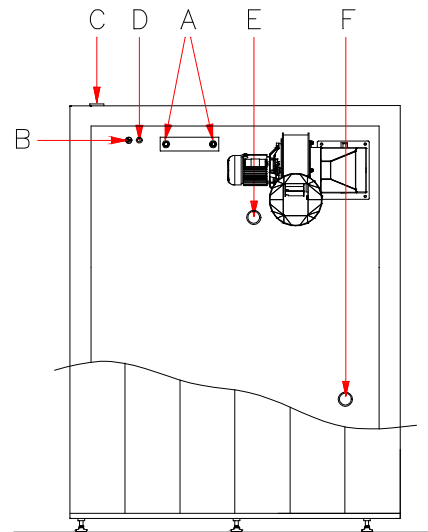
03

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

|                           |          |                      |   |
|---------------------------|----------|----------------------|---|
| <u>Clearance at rear</u>  | ideal    | <b><u>100 cm</u></b> |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at left is less than 1m or if several modules are placed adjacent to one another |
|                           | possible | <b><u>0 cm</u></b>   |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at left is at least 1m   |
| <u>Clearance at left</u>  | ideal    | <b><u>100 cm</u></b> |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at right is less than 1m   |
|                           | possible | <b><u>0 cm</u></b>   |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at right and at rear is at least 1m  |
| <u>Clearance at right</u> | ideal    | <b><u>100 cm</u></b> |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at left is less than 1m  |
|                           | possible | <b><u>0 cm</u></b>   |   |
|                           |          |                      |   |
|                           |          |                      | if clearance at left and at rear is at least 1m   |
| <u>Clearance at front</u> | ideal    | <b><u>150 cm</u></b> |   |
|                           |          |                      |   |
|                           | possible | <b><u>100 cm</u></b> |   |
| <u>Floor clearance</u>    | ideal    | <b><u>5 cm</u></b>   | set using screw feet  |
|                           |          |                      |   |
|                           | possible | <b><u>8 cm</u></b>   |   |

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

- A** → Temperature-relief heat exchanger,  $\frac{3}{4}$ "
- B** → Boiler sensor, STL
- C** → Heating flow, 2"
- D** → Sensor for temp. relief valve,  $\frac{1}{2}$ "
- E** → Heating return, 2" (run pipe upwards)
- F** → Drain 2"



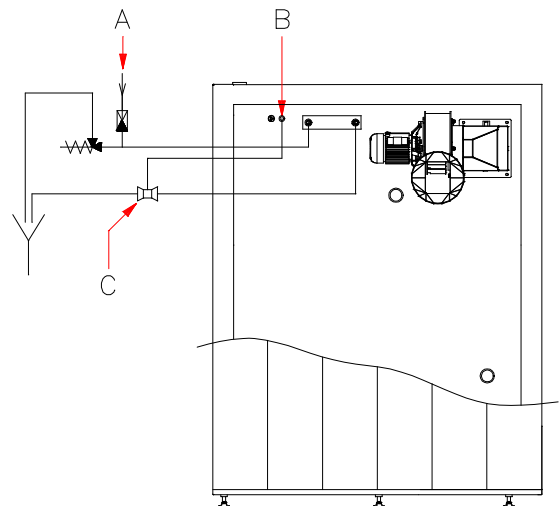
#### Temperature-relief heat exchanger

The maximum permissible operating temperature of the furnace is 110°C. In order to prevent the maximum permissible operating temperature from being exceeded, a thermal discharge safety device must be connected, component-tested in accordance with 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" safety valve for heating systems up to 200 kW or 1¼" safety valve for heating systems up to 300 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 drain pipe must be routed in this way and it is stated that there is no impairment of the functionality and that no danger can arise when the safety valve responds.

- A** → Cold water supply for Temperature-relief heat exchanger
- B** → Sensor for temp. relief valve,  $\frac{1}{2}$ "
- C** → Temp. relief valve, 95°C



Thermal store Installing a thermal store is absolutely imperative as it helps to balance the load within the system so that the boiler can be operated with a substantial degree of modulation. In larger systems with multiple modules, a sufficiently large thermal store must be used in order to balance out heating load spikes and to assist sequential boiler control. The minimum thermal store size is stated on the plumbing diagram in each case.



If 5-sensor thermal store management is activated, it is imperative that a return mixer valve controlled by the boiler controller is used.



Compliance with Stage 2 BIMSCHV (Germany) requires a thermal store capacity of at least 20 litres/kW.

Return boost The boiler return temperature must be at least 55°C and must be guaranteed by a return boost set as per the system 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 set is designed for the configurations 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 25 m, re-dimensioning of the boiler charging pump (HP0) may be necessary.



Use the 2" piping shown in the plumbing diagrams as a minimum or large-sized components with the lowest possible flow resistances.

Dirt separator with magnet Magnetite and rusty sludge in the heating water can be problematic for energy-saving pumps. Installing a correctly dimensioned and used dirt separator with a magnet can be a cost-effective and effective remedy.

**Older pipe systems in particular can be more severely affected!**

Expansion vessel The boiler operates in a sealed heating system and must be provided with an automatic pressure maintenance system or 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 is calculated as follows:

**System volume x Expansion factor x Additional allowance factor**

- Expansion factor for wood-fired boilers = 0,03
- Additional allowance factor (1.5 for systems over 150 kW)

Example calculation: 10000 litres x 0,03 x 1,5 = 450 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.

risk of overheating Incorrect operation, the wrong fuel or malfunctions in the device can lead to overheating. In order to avoid damage, additional safeguards must be provided for the maximum service water temperature and the maximum heating circuit temperatures.





**Please observe the guidelines for corrosion and boiler protection in heating and service water systems!**

#### Water quality

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

| heating capacity | water hardness [°dH]<br>depending on the system volume |                                |               |
|------------------|--|--------------------------------|---------------|
|                  | < 20 liter/kW  | ≥ 20 liter/kW<br>< 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    |

#### third-party devices

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

#### flush system

- Before filling the system, flush the entire pipe system extensively in order to remove magnetite and rust sludge from the pipe system as best as possible.

#### Filling the system

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

#### Bleeding the system

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



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

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

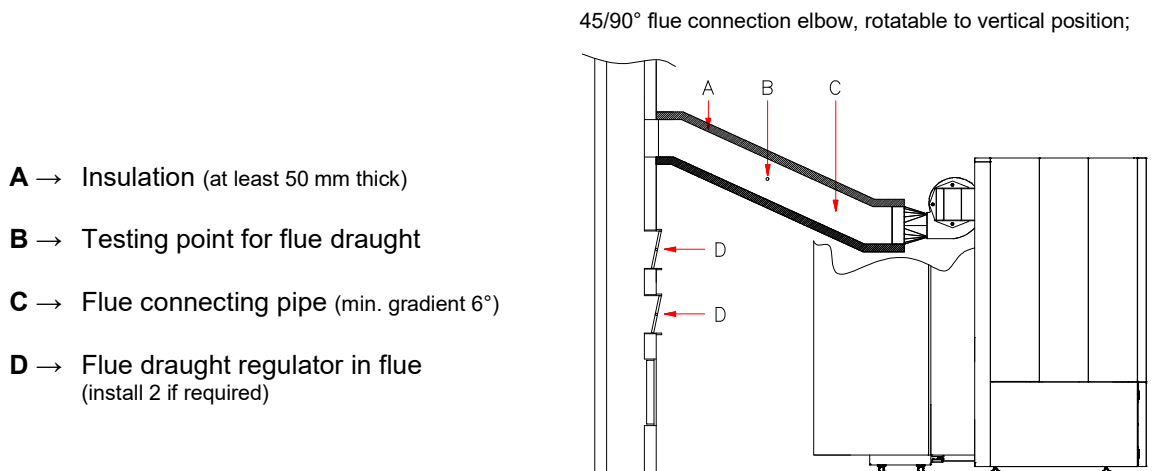
→ **The following diameters should be used:**

- PRO  $\varnothing = 250 \text{ mm}$

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

- PRO  $\varnothing = 300 \text{ mm}$

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



- The flue connecting pipe must be gas-tight;
- A flue draught regulator with pressure-surge compensator must be fitted;
- Insulate the flue connecting pipe;
- Do not brick in the flue connecting pipe;
- The flue connecting pipe must not extend into the flue;

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

## 3.7 Fuel outfeed installation

### 3.7.1 Montage FLEX SYSTEM

BS-02



Ensure the inlet opening is on the correct side

- A → Conveying direction
- B → Inlet opening always this side
- C → Direction of rotation
- D → Scraper
- E → Floor mounting plate
- F → Check dimension 56 mm

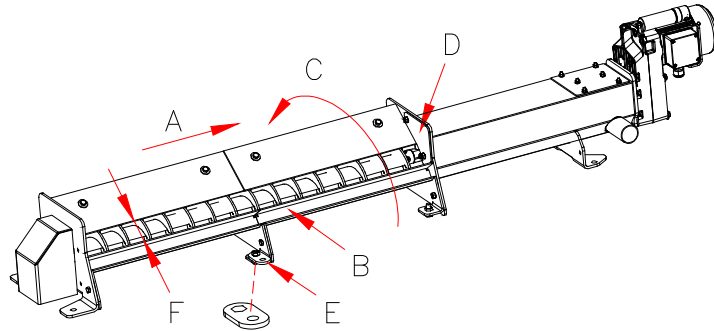


Fig:1

#### Outfeed augers

1. Feed the drive unit (1, Fig. 2) of the fuel outfeed auger through the hole (W 330mm x H 250mm) in the storeroom wall.
2. Depending on the auger length, join the required auger sections complete with conveyor trough (2, Fig. 2) to the drive unit (1, Fig. 2) from the storeroom end. Important: join the auger sections together so that the auger slope continues evenly. Afterwards securely fix the auger trough flange joint using the M08 x 30 bolts supplied (3, Fig. 2) and locking washers. Make sure that the auger troughs are joined together so as to be perfectly flush on the inside. Screw the flange plate (4, Fig. 2) and bearing on the end of the outfeed auger (if not pre-fitted).
3. Unscrew the grub screws (5, Fig. 2) on the bearing and attempt to push the auger towards the drive unit as far as it will go. Then re-tighten the grub screws.
4. After assembly: rotate the auger to check that it is running true (maximum allowable auger run-out in the centre is 3mm).
5. Position the assembled outfeed auger so that the drive unit extends at least 42cm (see Fig. 2) out of the storeroom wall.
6. Screw the conveyor trough securely to the storeroom floor. **Important:** the conveyor trough must be aligned flush using the floor mounting plates (E, Fig. 1) and screwed securely to the floor so that it is straight and has no sags or humps.
7. Fill the gap (6, Fig. 2) in the wall around the conveyor with mineral wool. Cover the hole on both sides of the wall with the masking plates supplied (7, Fig. 2), fitting them so that they do not touch the conveyor.

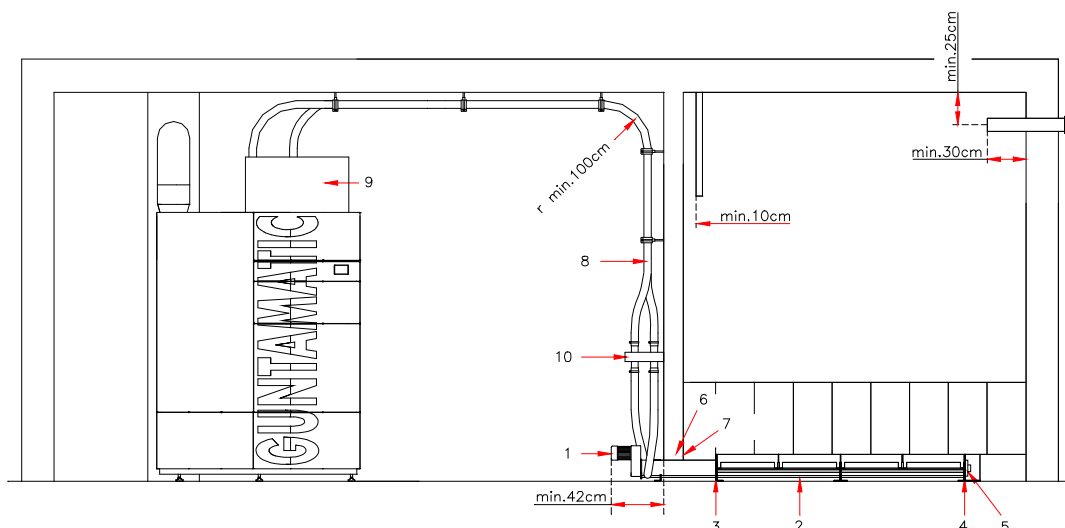


Fig:2

PR-01

### Suction lines

1. The suction hoses (8) Fig.2 from the heating module (9) Fig.2 to the fuel switch (10) must be routed in generous radii (at least 100 cm) and connected to the fuel switch. A suction and return air hose each, also in generous radii, must be routed from each discharge screw to the fuel switch and connected to it.



**Important:** Hose bends with a curvature radius of under 1 m can cause obstructions in the fuel supply system. In addition, the vacuum hoses should not sag. An adequate number of fixings should be used.

2. The suction hoses (8) must be clamped airtight to the heating module (9), the fuel switch (8) and the drive unit (1) using the clamps supplied.



**Important:** Air leaks from the hose connections can cause problems in the fuel supply system.

3. Do not lay the suction hoses outdoors or in cold rooms, as this can cause condensate to form in the suction hoses. If necessary, adequately insulate the suction hoses.

### **Fire protection!**



Fire protection collars must be installed if the suction hoses are routed into or through other rooms. Observe the minimum fire protection requirements!

### **Ground suction lines!**



To do this, detach the copper wires in the suction hoses at the line ends and connect or clamp them to the storage tank, the suction fan, the drive unit and the boiler earth.



For large-scale pellet stores, a specially solid substructure for the boarding in the storeroom must be constructed. Please follow our recommendations as shown in Fig. 3 or else have a sufficiently strong structure installed by a specialist. 1m<sup>3</sup> of pellets weighs approx. 0.65 tonnes.

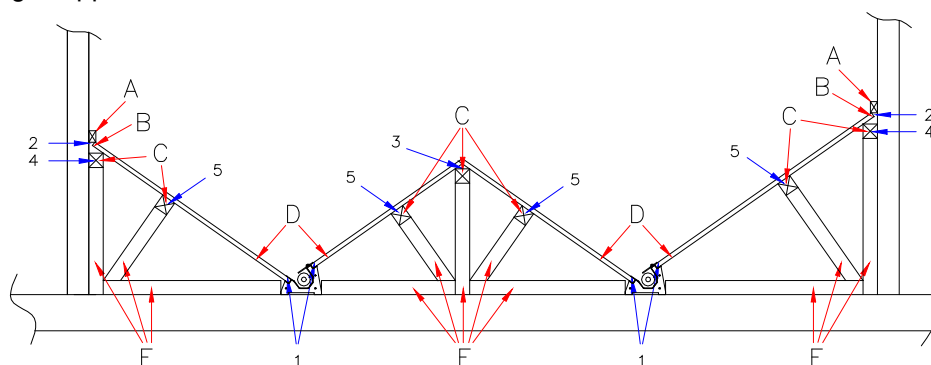


Fig: 3 → Viewed from auger drive unit facing towards storeroom

PR-01

- A → Cross-batten
- B → Cut timber boards/blockboard panels 3cm short
- C → Horizontal reinforcing timber (10cm x 10cm batten)
- D → Planed timber boards or blockboard panels (3cm thick)
- E → Substructure supporting timbers (10cm x 10cm battens)

#### Fitting the boarding in the storeroom

1. Insert a length of batten or similar into the slot for the boarding (1, Fig. 3) in order to mark the line for the 35° slope. Mark off the resulting height for the substructure on the side walls (2, Fig. 3) of the storeroom. Measure the necessary height for the substructure between the outfeed augers (3, Fig. 3) by inserting a length of batten on the left and right respectively.
2. Screw the horizontal supporting timbers (4, Fig. 3) on the left and right to the storeroom wall approx. 3cm below the slope height previously marked.
3. Support the horizontal timbers (4, Fig. 3) with vertical battens spaced at no more than 1.5m apart. If the distance between the auger and the wall is greater than 1.5 m, additional supporting battens and substructure (5, Fig. 3) must be provided.
4. Cut the boards (D, Fig. 3) from the outfeed augers to the wall on the left and right about 3cm short and fit them so that there is a small gap (2, Fig. 3) between the boards and the wall. Fit the boards between the augers as shown in our suggested structure in Fig. 3.
5. Do not screw every board in place and instead screw a horizontal batten (A, Fig. 3) to the wall across all the boards.
6. If the augers do not extend to the end of the storeroom, a 35° slope should also be constructed from the end wall to the conveyors.
7. If the conveyor sections do not reach up to the exit point through the wall, an additional substructure must be used up to the wall.

**Filler set** For storerooms up to a maximum width of 3.5m, installation of a single filler set with a blast guard fitted opposite is sufficient. For wider storerooms, installation of additional filler pipes is advisable so that the fuel supplier can change over the filler hoses from the lorry. This will enable better filling of the storeroom

**Note:** There must be a blast guard opposite each filler pipe on the facing wall fixed at a distance of 10cm from the wall unless the pipe concerned only extracts air from the storeroom during the filling process.

**Recommendation:**

Storeroom width up to 4.5m → 3 filler pipes and 2 blast guards

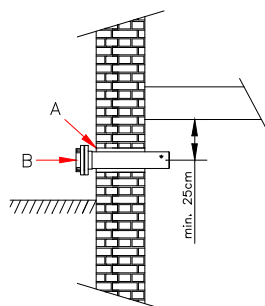
Storeroom width up to 5.5m → 4 filler pipes and 2 blast guards

Storeroom width up to 6.5m → 5 filler pipes and 3 blast guards

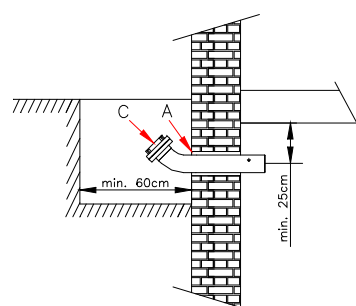
**A** → PVC pipe Ø150 mm dia

**B** → Filler set, straight  
(di 100 mm / flare 115 mm)

**C** → Filler set 45°  
(di 100 mm / flare 115 mm)



on the outside wall



in the light well

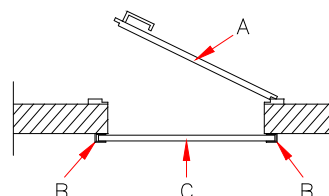
- Minimum distance from ceiling and walls 25cm.
- Required hole diameter in wall 130-150mm.
- Ensure the filler pipes are fixed firmly in place and tightly sealed. (E.g. fill gap with waterproof expanding foam filler.)
- The filler pipes must be earthed (at least 1.5mm<sup>2</sup>).
- If installed in a shaft, make sure that no water can enter the pellet storeroom via the filler pipes.

**Access doors/hatches** A T30 / EI230-C fire protection door or hatch must be installed, which opens from the inside to the outside. On the inside, the access opening must be fitted with planking that is at least 3 cm thick and can be removed from the outside so that the fuel cannot trickle out if it is opened by mistake. Due to the risk of injury during operation, access openings must be closed. The warning label enclosed with the boiler documentation with the inscription "Fuel storage room" must be affixed to the manhole. The access opening should be provided with an all-round seal.

**A** → Fire door (T30 / EI<sub>230</sub>-C)

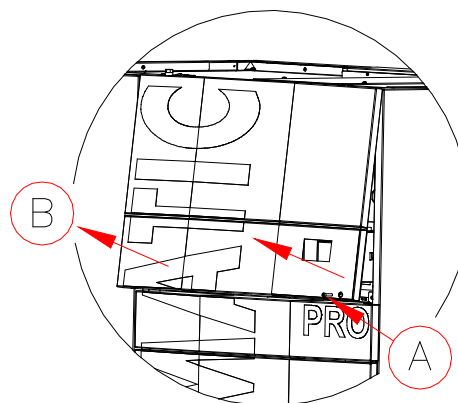
**B** → U or Z-section framing

**C** → Wooden boards (at least 3cm thick)



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

- loosen the locking screw (A);
- lift the controller cover in the direction of the arrow (B) and lift it up until it clicks into place at the top;
- the circuit board with connectors and fuses is located underneath in an easily accessible position;

### Mains connection

400 VAC, 50 Hz, 20 A (surge protector recommended)

The mains power must be connected by means of the standard non-reversible power socket on the rear panel of the boiler. It must be possible to isolate the system entirely from the mains – either by means of the master switch outside the boiler room door, an automatic circuit-breaker in the control cabinet or the power plug on the rear of the boiler – without opening the switch panel cover.

### Master switch

The heating system must be capable of being fully isolated from the mains power supply by means of a master switch mounted outside the boiler room door which can be secured in the 0/OFF position by locking and removing the key so as to prevent it being switched on by unauthorised persons.

### 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 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.

### Safety switch (storeroom)

The agitator must be capable of being switched off by means of a safety switch mounted outside the boiler room door which can be secured in the 0/OFF position by locking and removing the key so as to prevent it being switched on by unauthorised persons.

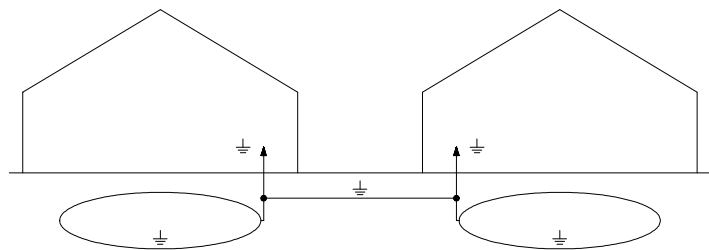
### Cabeling

- Feeder min. 5 x 1,5 mm<sup>2</sup>  
Calculate the required cross-section according to the cable length!
- Sensor 2 x 1 mm<sup>2</sup>
- Room stat 2 x 1 mm<sup>2</sup>
- CAN-Bus 2 x 2 x 0,5 mm<sup>2</sup> (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.

#### **wiring 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.

### Kaskade verkabeln

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

02

Mains connection 400 VAC, 50 Hz, 20 A

### Standard specifications

- Boiler control panel (BCE)
- Boiler circuit board (230 VAC)
- Conveyor module (400 VAC)
- Fault signal output (24VDC 200mA)
- Safety temperature limiter (STB)
- Boiler sensor (KVT 20  $\Omega$ )
- Inputs for up to 5 thermal store sensors
- Flue gas sensor (thermocouple)
- Cleaner sensor (thermocouple)
- Stoker sensor (PT1000)
- Combustion chamber photo sensor
- Door switch, cleaning position (15VDC)
- Combustion chamber door monitor (24 VDC)
- Ash box monitor (230VAC)
- Oxygen sensor (12 VDC)
- Air flap (24VDC)
- Fuel valve motor (24VDC)
- Inputs for up to 5 thermal store sensors
- Ash extractor motor (230VAC)
- speed monitor (Hall)
- Cleaner motor (230VAC)
- Flue draught fan (230 VAC)
- speed monitor (Hall)
- Grate motor (230VAC)
- speed monitor (Hall)
- Fill level (12VDC)
- Auger motor (230 VAC)
- Stoker motor (230 VAC)
- Ignition fan (230 VAC)
- Boiler charging pump (230 VAC)
- Return mixer valve (230 VAC)
- Return sensor (KVT 20  $\Omega$ )
- Storeroom safety switch (230VAC)
- Boiler enabling switch (230 VAC)
- Circuit outputs (230VAC)

### Optional equipment

- Heating circuit pumps (230 VAC)
- Mixer valve (230 VAC)
- Flow temp. sensor (KVT 20  $\Omega$ )
- Analog room devices
- Digital Space Stations

### Resistances

| Temperature | KVT20         | Temperature | PT1000         |
|-------------|---------------|-------------|----------------|
| -16°C       | 1434 $\Omega$ | 0°C         | 1,000 $\Omega$ |
| -8°C        | 1537 $\Omega$ | 10°C        | 1,039 $\Omega$ |
| 0°C         | 1644 $\Omega$ | 30°C        | 1,117 $\Omega$ |
| 10°C        | 1783 $\Omega$ | 40°C        | 1,155 $\Omega$ |
| 20°C        | 1928 $\Omega$ | 50°C        | 1,194 $\Omega$ |
| 30°C        | 2078 $\Omega$ | 60°C        | 1,232 $\Omega$ |
| 40°C        | 2234 $\Omega$ | 70°C        | 1,271 $\Omega$ |
| 50°C        | 2395 $\Omega$ | 80°C        | 1,309 $\Omega$ |
| 60°C        | 2563 $\Omega$ | 100°C       | 1,385 $\Omega$ |
| 70°C        | 2735 $\Omega$ | 125°C       | 1,480 $\Omega$ |

### Final checks

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

### Initial commissioning

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

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



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



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



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

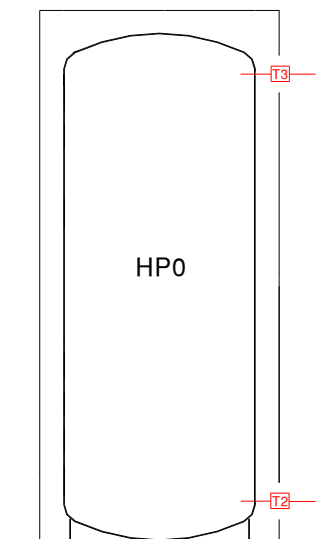
The heating appliance is designed in accordance with Class 5 to EN 303-5 and the Agreement of the Austrian Federal States according to Art. 15a BVG relating to safety measures for small combustion heating systems and energy saving. The original type approval certificates are available for inspection at the manufacturer's offices. When connecting the boiler, the following generally applicable standards and safety regulations must be followed in addition to the local fire safety and building control requirements

- **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 systems inside buildings; procedures for calculating rated heat input;
- **ÖNORM EN ISO 20023 und ÖNORM EN ISO 20024**  
Requirements for pellet storage by the end user;
- **ÖNORM M 7510**  
Guidelines for the inspection of central heating systems;
- **ÖNORM H 5195-1** (Austria)  
Preventing damage from corrosion and scale formation in hot-water circulation heating systems with operating temperatures up to 100°C;
- **VDI 2035** (Germany)  
Preventing damage in hot-water circulation heating systems; corrosion from heating-system water;
- **SWKI 97-1** (Switzerland)  
Limescale and corrosion-proofing in heating systems;
- **TRVB H 118** (for automatically stoked systems in Austria)  
Technical directive on preventative fire safety;
- **DIN 1988**  
Technical regulations for household-water installations (TRWI);
- Swiss Clean Air Regulations LRV
- Swiss Regulations on Small Combustion Heating Systems
- VKF Fire Safety Directive for Heating Systems (Switzerland)
- SIA 384 (Switzerland)

## 7 Connection schemes

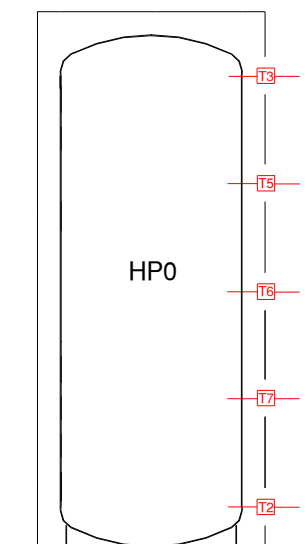
### 7.1 Buffer storage HP0

PR-01



#### **2 sensors - buffer management**

- "PARTIAL LOAD" setting  
The buffer tank is mainly loaded only in the upper part. ON and OFF switching temperatures can be set via buffer parameters.
- "FULL charge" setting  
The buffer tank is fully loaded from top to bottom. ON and OFF switching temperatures can be set via buffer parameters.



#### **5 sensors - buffer management**

##### **a notice:**

The additionally required buffer sensors T5, T6 and T7 must be connected to the connection terminals of the analogue room devices on the boiler circuit board or on a wall device. It is therefore not possible to program analog RFF room devices for heating circuits on this controller.

Alternatively, use digital room stations RS or an additional wall device Set-MKR261 to connect the analogue room sensor RFF.

- "PARTIAL LOAD LIMIT" setting  
The buffer tank is loaded with full boiler output until the set partial load limit is reached. As soon as this limit is reached, the boiler output is reduced by the buffer management to such an extent that this charge level of the buffer can be maintained for as long as possible, thus avoiding system restarts as far as possible.

## PRO 175 / 250

minimum thermal store capacity 4,000 litres

05

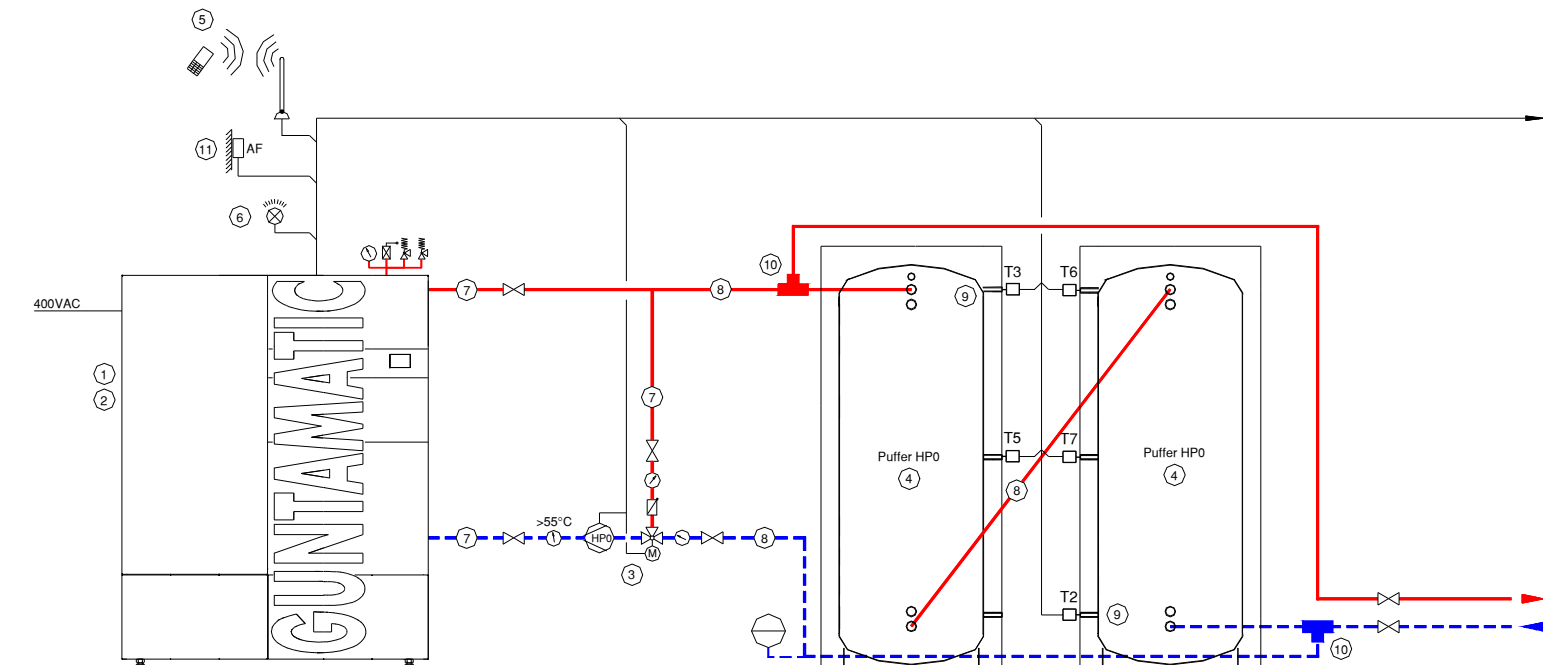
# GUNTAMATIC

### Diagram no: PR-01

Electrical connections as per operating and installation instructions

**Note:** If network system controller is used, heating system controller cannot be activated.

- |     |   |               |
|-----|---|---------------|
| 1.  | 1 PRO   | As price list |
| 2.  | 1 Flue draught regulator RE   | As price list |
| 3.  | 1 Return boost set RA250 A  | H39-024       |
| 4.  | 2 Thermal store Akkutherm   | As price list |
| 5.  | 1 GSM module / APP  | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)                                  | Not supplied  |
| 7.  | Pipe size 2"  | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe | Not supplied  |
| 9.  | 5 thermal store sensors   | S70-003       |
| 10. | T-joints, minimum size 4"   | Not supplied  |
| 11. | 1 Outside temp. sensor  | S70-001       |



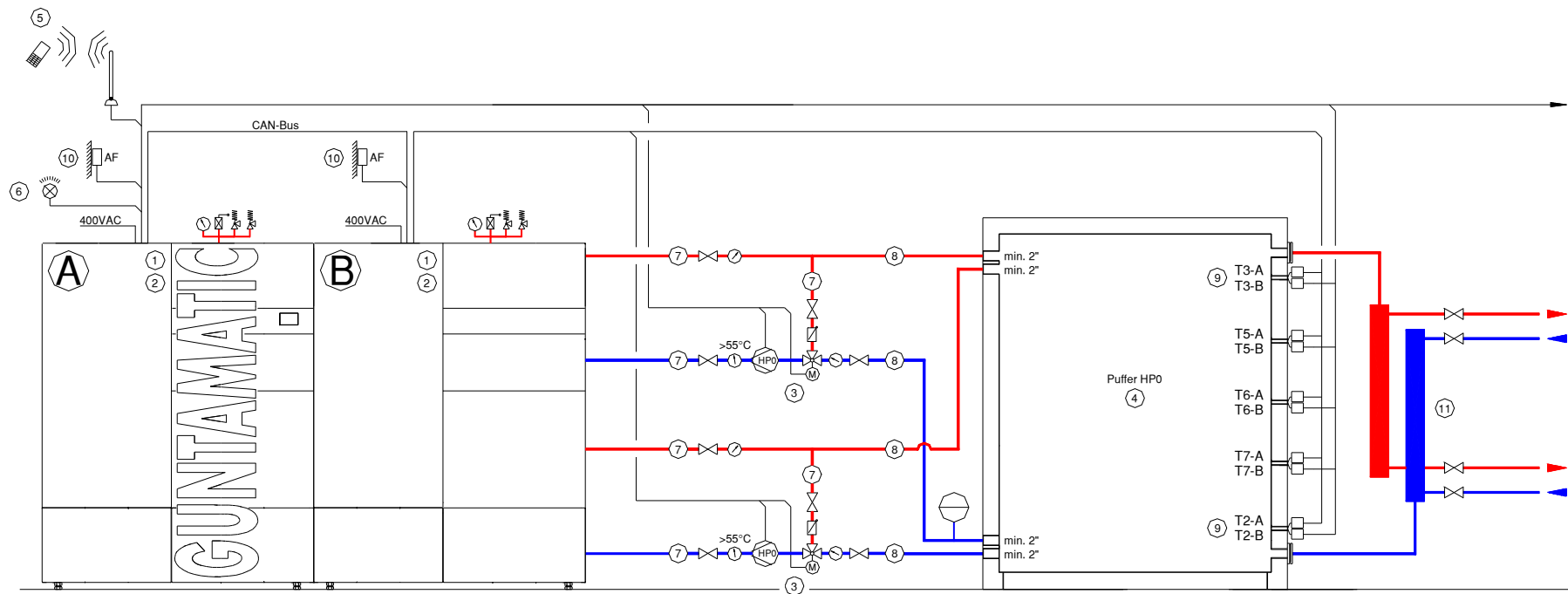
HP0 setting = Thermal store pump

## Diagram no: PR-02

Electrical connections as per operating and installation instructions

**Note:** If network system controller is used, heating system controller cannot be activated.

- |     |  |               |
|-----|--|---------------|
| 1.  | 2 PRO  | As price list |
| 2.  | 2 Flue draught regulator RE  | As price list |
| 3.  | 2 Return boost set RA250 A   | H39-024       |
| 4.  | Thermal store min. capacity 10,000 litres  | Not supplied  |
| 5.  | 1 GSM module / APP   | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)   | Not supplied  |
| 7.  | Pipe size 2"   | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe                              | Not supplied  |
| 9.  | Order 10 thermal store sensors   | S70-003       |
| 10. | 2 Outside temp. sensor   | S70-001       |
| 11. | Make sure the distribution piping in the area of the flow and return connections is adequately dimensioned |               |



HP0 setting = Thermal store pump

### 3 pump circuits - Network circuits 1 and 2 optionally also as a mixed circuit

1 network control per module possible

03

# GUNTAMATIC

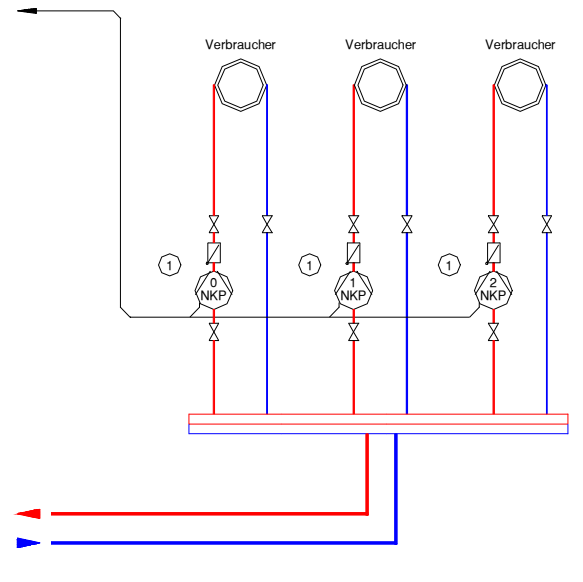
#### Diagram no: circuit control-01

Electrical connections as per operating and installation instructions

1. Network system pumps
2. 1 pc. flow sensor per mixed mains circuit
3. storage sensor

Not supplied  
S70-002  
S70-003

Connection sheet PRO 01 or PRO-02



#### Info:

- 1) Each network system pump can be timer-controlled by its own timer programme and also controlled on the basis of outside temperature by means of the functions Night OFF OT and OT Off;
- 2) Network system 1 and Network system 2 can also be operated by means of mixer valves;
- 3) A DHW cylinder can be charged;
- 4) If Network system 0 is not used, the "Supplementary" function can be used to control a 2nd DHW cylinder or a peak load boiler;
- 5) 0-10 volt input for network system pumps ON/OFF;

## 2 mixed mains circuits - optionally with double pump

1 network control per module possible

03

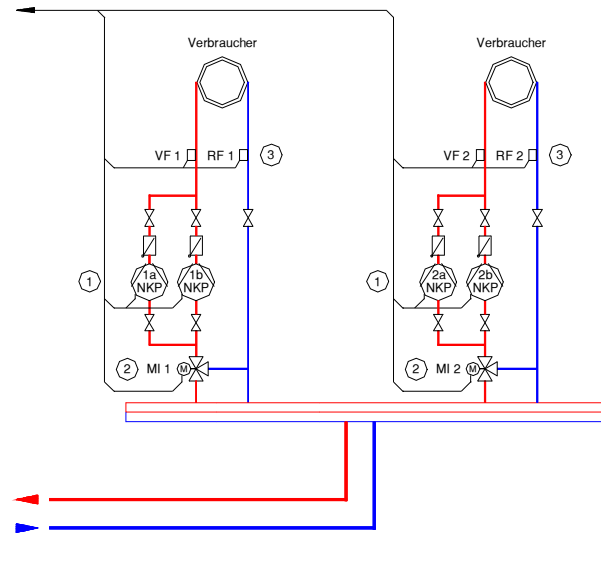
# GUNTAMATIC

### Diagram no: circuit control-02

Electrical connections as per operating and installation instructions

|    |  |              |
|----|--|--------------|
| 1. | Network system pumps                         | Not supplied |
| 2. | Mixer valves                                 | Not supplied |
| 3. | 1 pc. flow sensor per mixed mains circuit    | S70-002      |
|    | 1 return sensor per circuit with double pump | S70-002      |
| 4. | storage sensor                               | S70-003      |

Connection sheet PRO 01 or PRO-02



### Info:

- 1) Each network system can be timer-controlled by its own timer programme and also controlled on the basis of outside temperature by means of the functions Night OFF OT and OT Off;
- 2) Network circuit 1 and 2 can be operated with double pump; the double pump is automatically switched on and off to increase the delivery rate;
- 3) if network circuit 1 is operated without a double pump, a hot water storage tank or a peak load boiler can be operated;
- 4) if network circuit 2 is operated without a double pump, only one hot water storage tank can be charged;
- 5) 0-10 volt input for network system ON/OFF;



# PRO 175 / 250

minimum thermal store capacity 4,000 litres

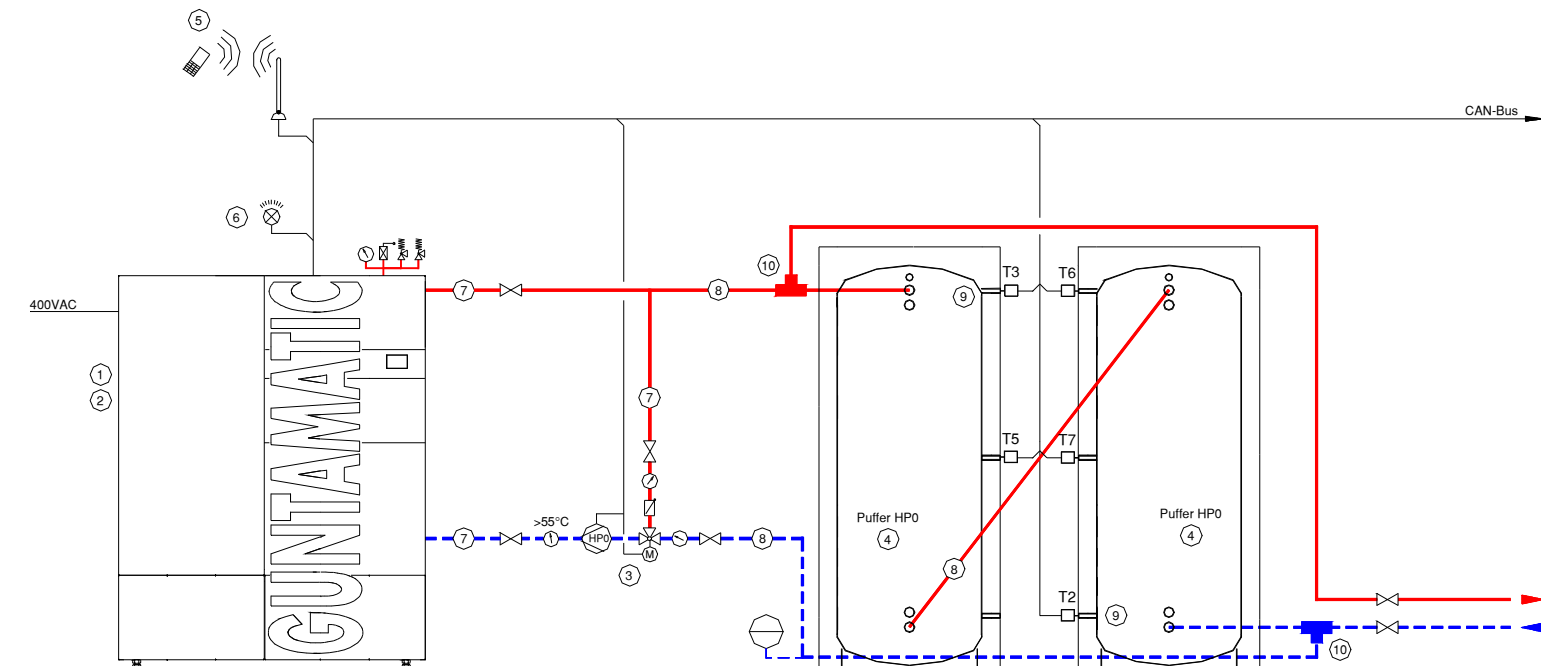
05

# GUNTAMATIC

## Diagram no: PR-03

Electrical connections as per operating and installation instructions

- |     |   |               |
|-----|---|---------------|
| 1.  | 1 PRO   | As price list |
| 2.  | 1 Flue draught regulator RE   | As price list |
| 3.  | 1 Return boost set RA250 A  | H39-024       |
| 4.  | 2 Thermal store Akkutherm   | As price list |
| 5.  | 1 GSM module / APP  | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)                                  | Not supplied  |
| 7.  | Pipe size 2"  | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe | Not supplied  |
| 9.  | Order 5 thermal store sensors   | S70-003       |
| 10. | T-joints, minimum size 4"   | Not supplied  |



HP0 setting = Thermal store pump

# PRO 350 / 425 / 500

minimum thermal store capacity 4,000 litres

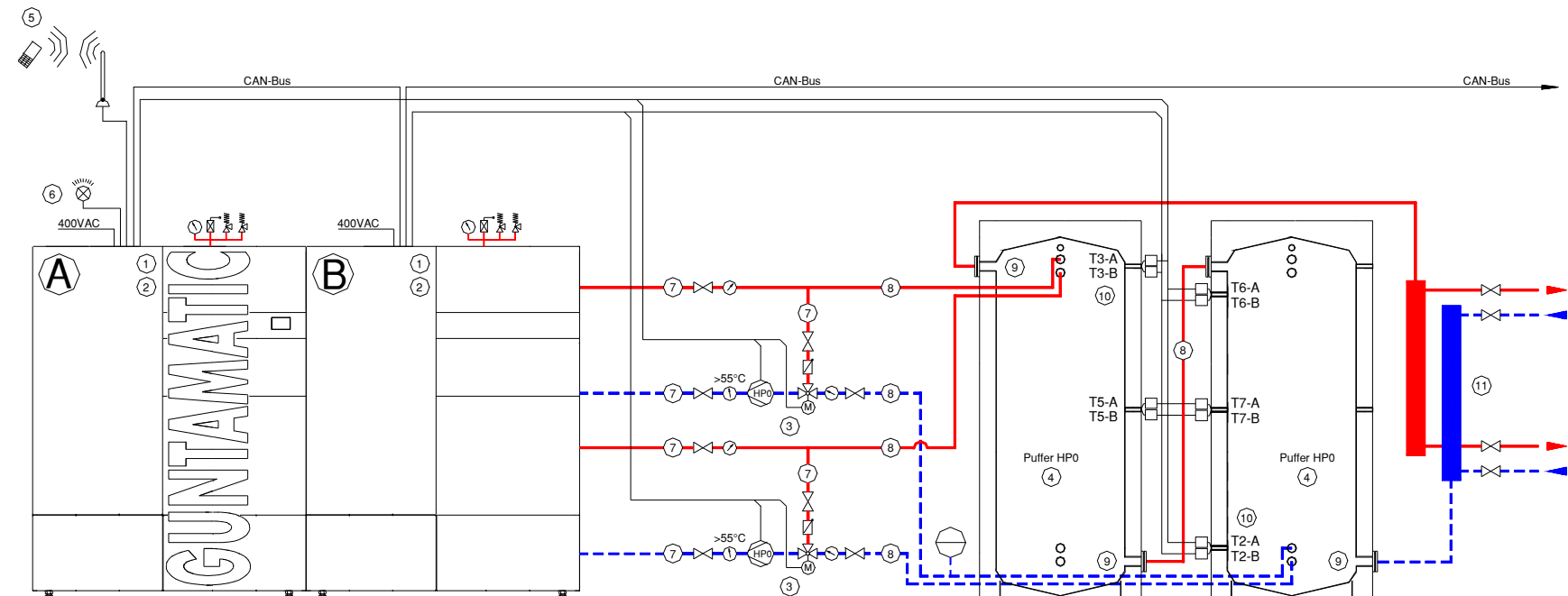
05

# GUNTAMATIC

## Diagram no: PR-04

Electrical connections as per operating and installation instructions

- |     |  |               |
|-----|--|---------------|
| 1.  | 2 PRO  | As price list |
| 2.  | 2 Flue draught regulator RE  | As price list |
| 3.  | 2 Return boost set RA250 A   | H39-024       |
| 4.  | 2 Thermal store Akkutherm  | As price list |
| 5.  | 1 GSM module / APP   | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)   | Not supplied  |
| 7.  | Pipe size 2"   | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe                              | Not supplied  |
| 9.  | Order 2 special flanges, DN80 (3"), per thermal store  |               |
| 10. | Order 5 thermal store sensors  | S70-003       |
| 11. | Make sure the distribution piping in the area of the flow and return connections is adequately dimensioned |               |



HP0 setting = Thermal store pump

Connection sheet for heating circuit control 01

## Weather-compensated heating circuit control without long-distance pipe

3 wall devices per module possible

03

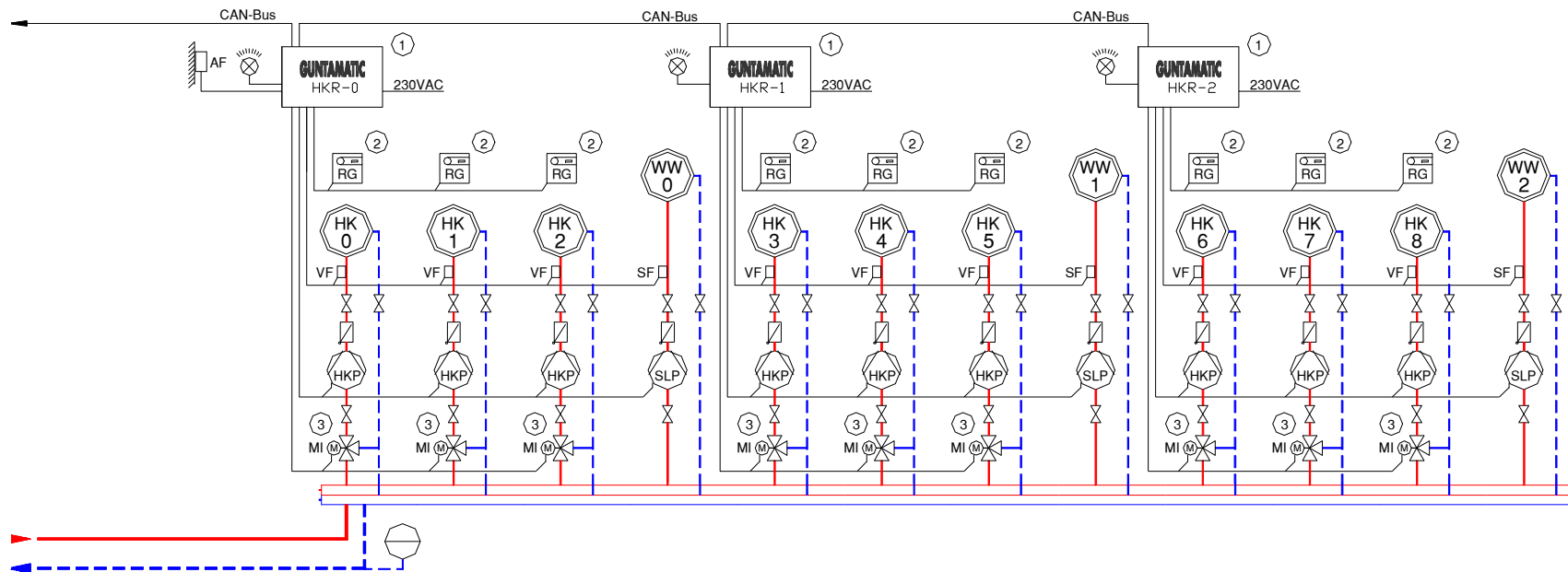
# GUNTAMATIC

### Diagram no: heating circuit control-01

Electrical connections as per operating and installation instructions

- |    |   |         |
|----|---|---------|
| 1. | Outside temp. based wall controller set MKR261            | S30-030 |
|    | Observe the maximum load capacity of the wall controller! |         |
| 2. | Analogue room stat  | S70-006 |
|    | Digital room controller                                   | S60-004 |
| 3. | Mixer-valve motor   | S50-501 |

- Info:**
- 1) Maximum of 3 MK261 wall controller sets can be connected to each boiler;
  - 2) One analogue room stat can be connected to each heating circuit;
  - 3) A maximum of 3 digital room controllers (RS) can be connected to each boiler;

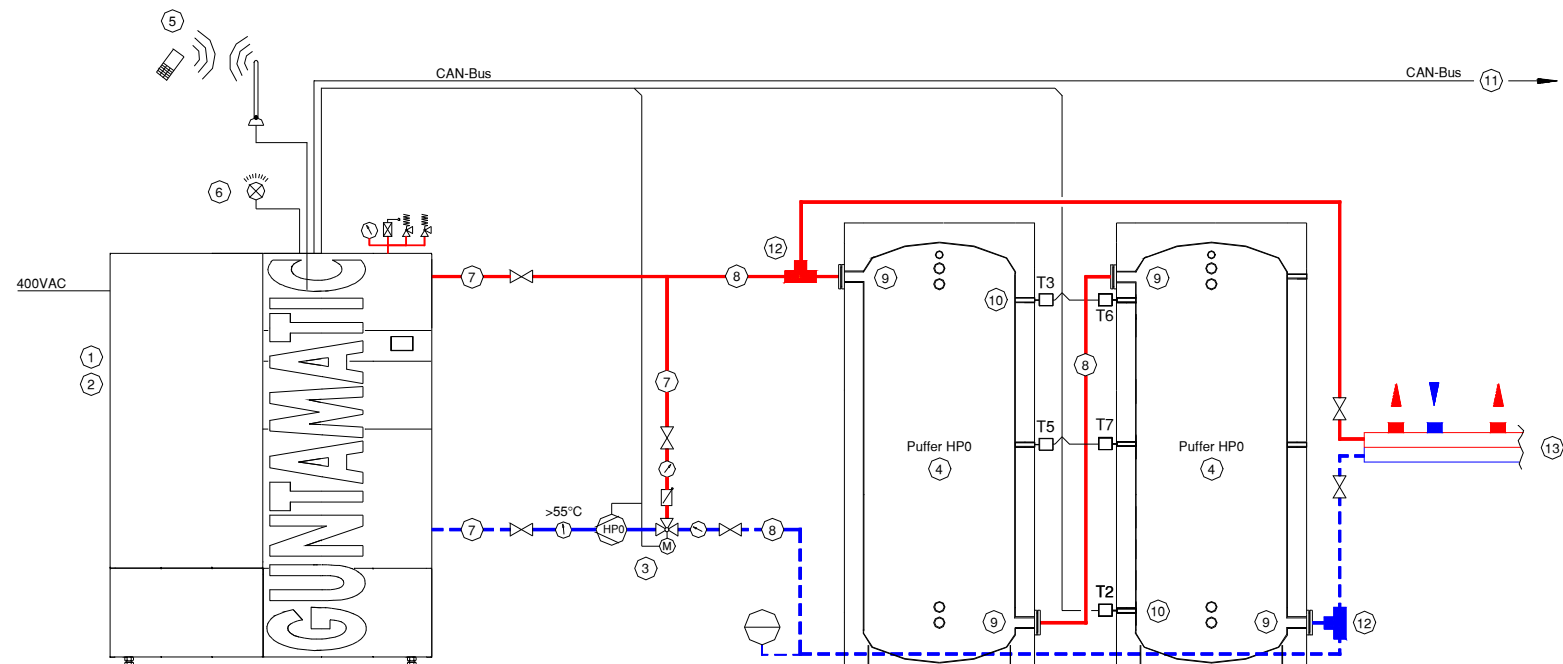


Connection sheet PRO-03 or PRO-04

## Diagram no: PR-05

Electrical connections as per operating and installation instructions

- |     |   |               |
|-----|---|---------------|
| 1.  | 1 PRO   | As price list |
| 2.  | 1 Flue draught regulator RE   | As price list |
| 3.  | 1 Return boost set RA250 A  | H39-024       |
| 4.  | 2 Thermal store Akkutherm   | As price list |
| 5.  | 1 GSM module / APP  | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)  | Not supplied  |
| 7.  | Pipe size 2"  | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe                               | Not supplied  |
| 9.  | Order 2 special flanges, DN80 (3"), per thermal store   |               |
| 10. | Order 5 thermal store sensors   | S70-003       |
| 11. | Always wire the CAN bus "in line"   |               |
| 12. | T-joints, minimum size 4"   | Not supplied  |
| 13. | Make sure the distribution piping in the area of the flow and return connections is adequately dimensioned. |               |

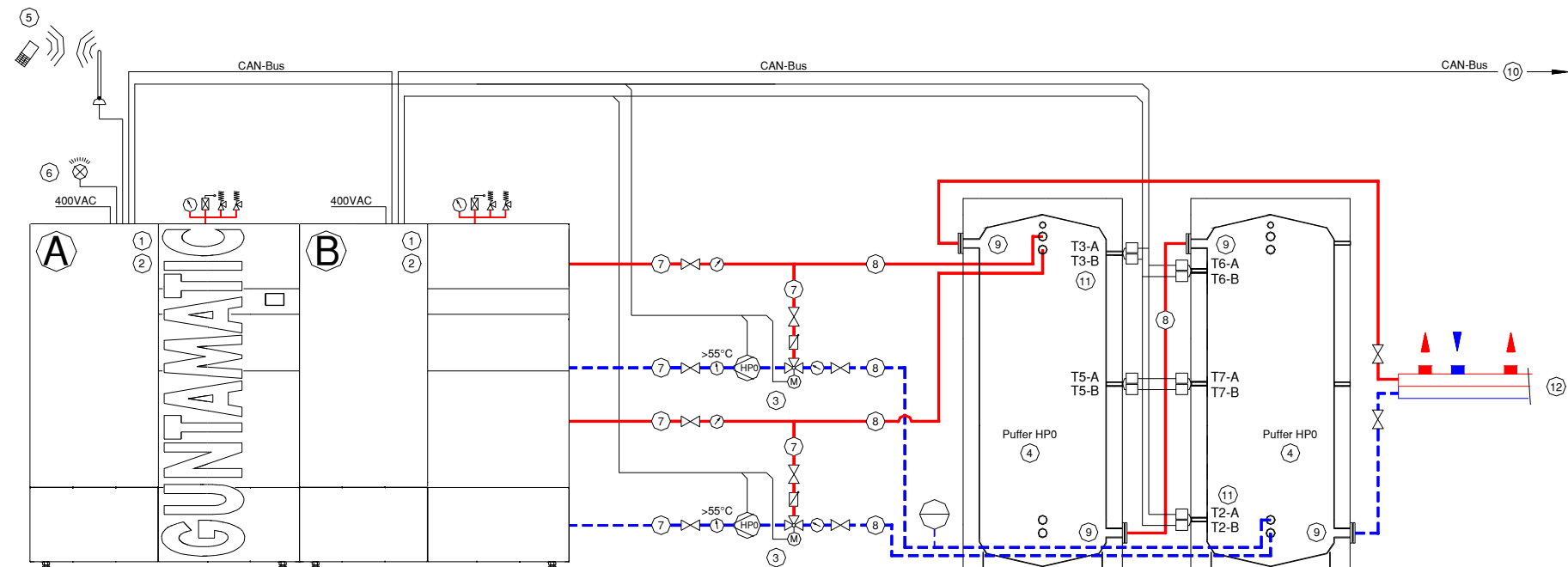


HP0 setting = Thermal store pump

## Diagram no: PR-06

Electrical connections as per operating and installation instructions

- |     |  |               |
|-----|--|---------------|
| 1.  | 2 PRO  | As price list |
| 2.  | 2 Flue draught regulator RE  | As price list |
| 3.  | 2 Return boost set RA250 A   | H39-024       |
| 4.  | 2 Thermal store Akkutherm  | As price list |
| 5.  | 1 GSM module / APP   | As price list |
| 6.  | Fault indicator lamp (Follow wiring diagram)   | Not supplied  |
| 7.  | Pipe size 2"   | Not supplied  |
| 8.  | If pipe length exceeds 2 x 25m for thermal store flow and return, use 3" pipe                              | Not supplied  |
| 9.  | Order 2 special flanges, DN80 (3"), per thermal store  |               |
| 10. | Always wire the CAN bus "in line"  |               |
| 11. | Order 10 thermal store sensors   | S70-003       |
| 12. | Make sure the distribution piping in the area of the flow and return connections is adequately dimensioned |               |



HP0 setting = Thermal store pump

3 wall devices per module possible

## Diagram no: heating circuit control-02

Electrical connections as per operating and installation instructions

### Info:

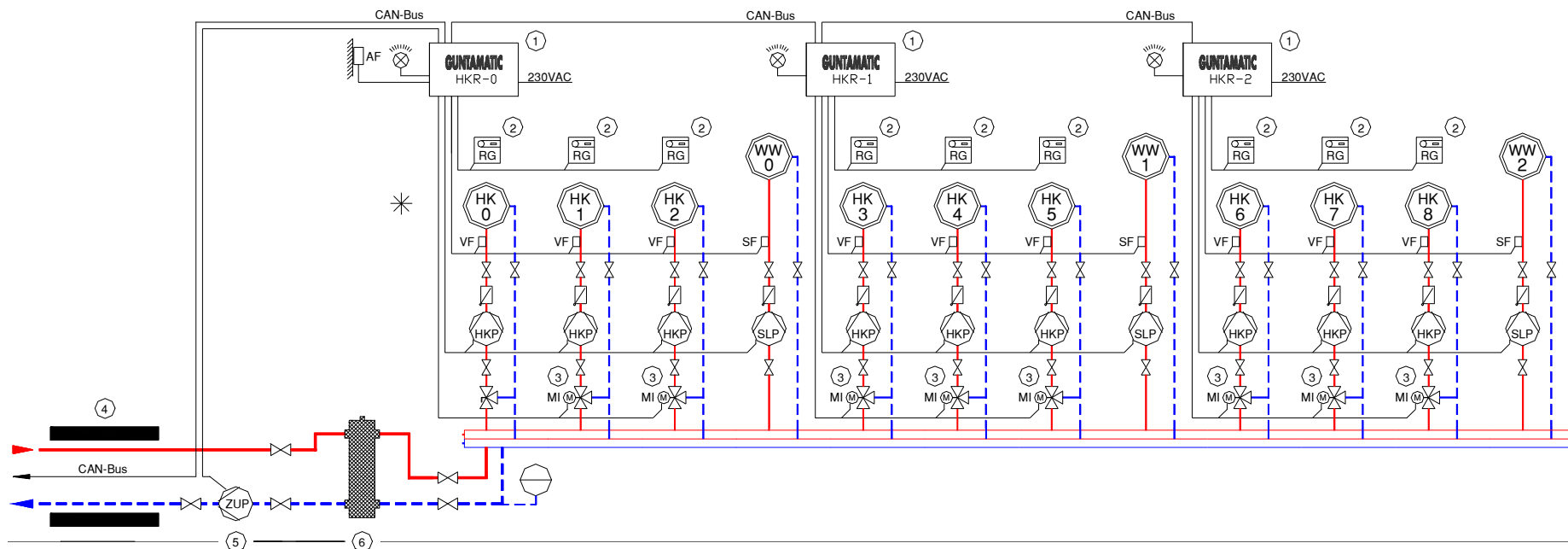
- 1) Maximum of 3 MK261 wall controller sets can be connected to each boiler;
- 2) One analogue room stat can be connected to each heating circuit;
- 3) A maximum of 3 digital room controllers can be connected to each boiler;

### Caution:

If the district heating function (FP, CP, ...) is used on a heating circuit controller, heating circuit 0 can only be operated as a pumped circuit without mixer valve. Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or can be room-temperature controlled using a room stat for a radiator heating system.

1. Outside temp. based wall controller set MKR261 S30-030  
Observe the maximum load capacity of the wall controller!
2. Analogue room stat S70-006  
Digital room controller S60-004
3. Mixer-valve motor S50-501
4. District heating pipe and dimensioning Not supplied
5. Pump and dimensioning Not supplied  
Observe the maximum load capacity of the output!
6. Flow equaliser and dimensioning Not supplied

Connection sheet PRO-05 or PRO-06



Einstellung Fernleitung 0 = ZUP

Einstellung HKR 1 und HKR 2 = ERW

## Diagram no: heating circuit control-03

Electrical connections as per operating and installation instructions

### Info:

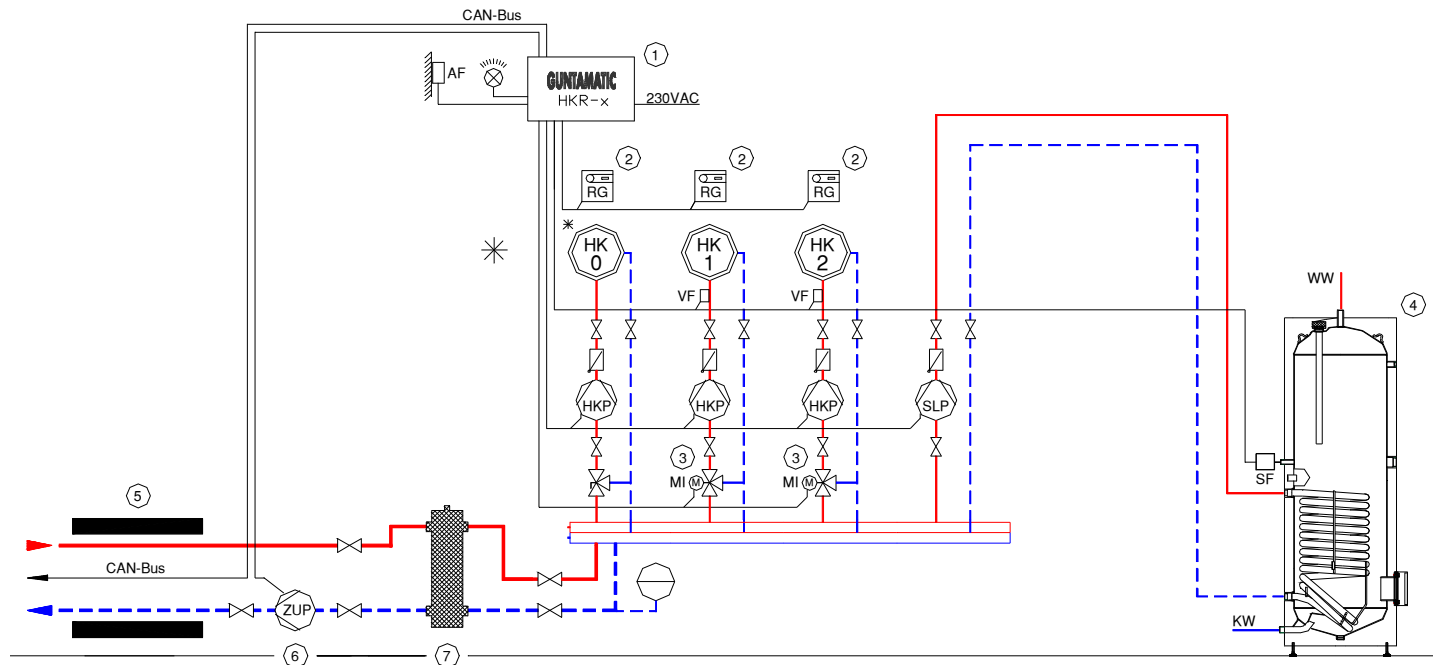
- 1) Maximum of 3 MK261 wall controller sets can be connected to each boiler;
- 2) One analogue room stat can be connected to each heating circuit;
- 3) A maximum of 3 digital room controllers can be connected to each boiler;

### Caution:

If the district heating function (FP, CP, ...) is used on a heating circuit controller, heating circuit 0 can only be operated as a pumped circuit without mixer valve. Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or can be room-temperature controlled using a room stat for a radiator heating system.

- |   |               |
|---|---------------|
| 1. Outside temp. based wall controller set MKR261         | S30-030       |
| Observe the maximum load capacity of the wall controller! |               |
| 2. Analogue room stat                                     | S70-006       |
| Digital room controller                                   | S60-004       |
| 3. Mixer-valve motor                                      | S50-501       |
| 4. DHW cylinder ECO                                       | As price list |
| 5. District heating pipe and dimensioning                 | Not supplied  |
| 6. Pump and dimensioning                                  | Not supplied  |
| Observe the maximum load capacity of the output!          |               |
| 7. Flow equaliser and dimensioning                        | Not supplied  |

Connection sheet PRO-05 or PRO-06



District heating setting = FP

3 wall devices per module possible

## Diagram no: heating circuit control-04

Electrical connections as per operating and installation instructions

### Info:

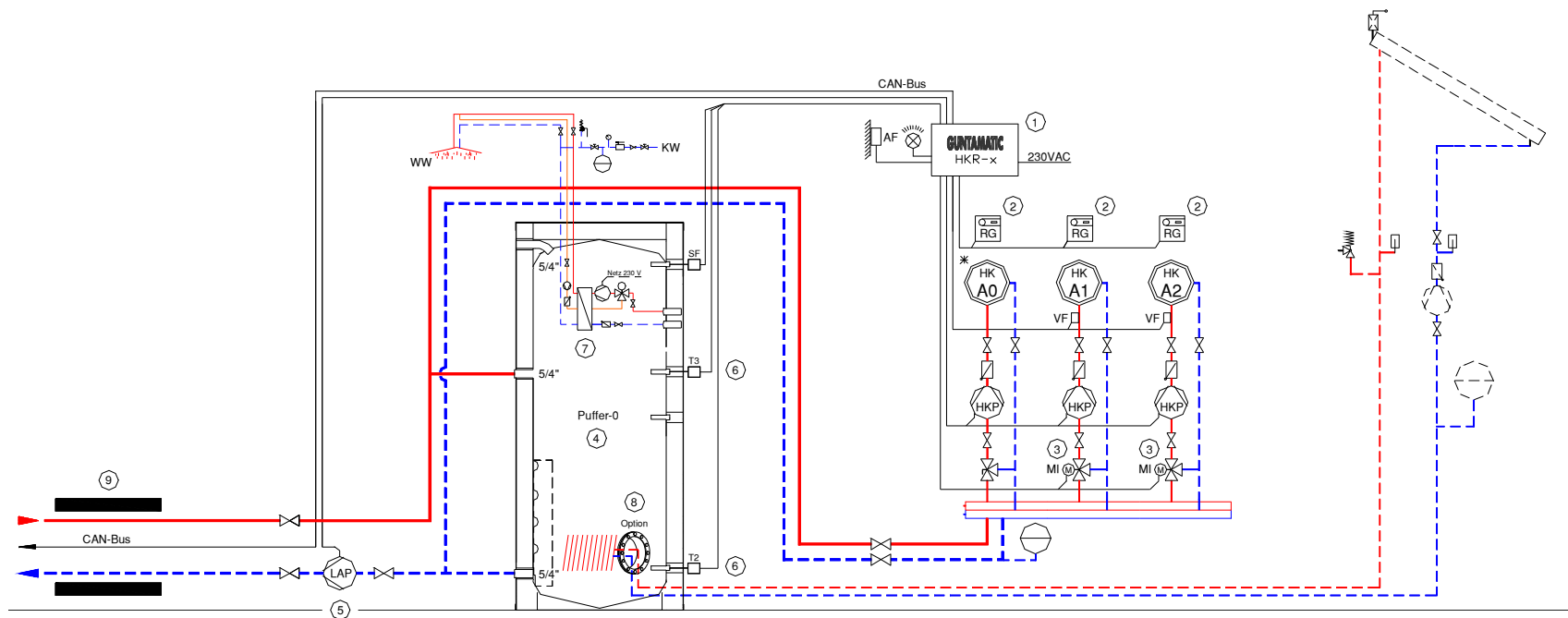
- 1) Maximum of 3 MK261 wall controller sets can be connected to each boiler;
- 2) One analogue room stat can be connected to each heating circuit;
- 3) A maximum of 3 digital room controllers can be connected to each boiler;

### Caution:

If the district heating function (FP, CP, ...) is used on a heating circuit controller, heating circuit 0 can only be operated as a pumped circuit without mixer valve. Heating circuit 0 can be used with a fixed-setting controller for a low-temperature heating system or can be used as room-temperature controlled using a room stat for a radiator heating system.

- |   |               |
|---|---------------|
| 1. Outside temp. based wall controller set MKR261         | S30-030       |
| Observe the maximum load capacity of the wall controller! |               |
| 2. Analogue room stat                                     | S70-006       |
| Digital room controller                                   | S60-004       |
| 3. Mixer-valve motor                                      | S50-501       |
| 4. Thermal store PSF                                      | As price list |
| 5. Pump and dimensioning                                  | Not supplied  |
| Observe the maximum load capacity of the output!          |               |
| 6. Order 2 thermal store sensors                          | S70-003       |
| 7. Secondary return pump                                  | 045-250       |
| 8. 12-hole flange and heat exchanger                      | As price list |
| 9. District heating pipe and dimensioning                 | Not supplied  |

Connection sheet PRO-05 or PRO-06



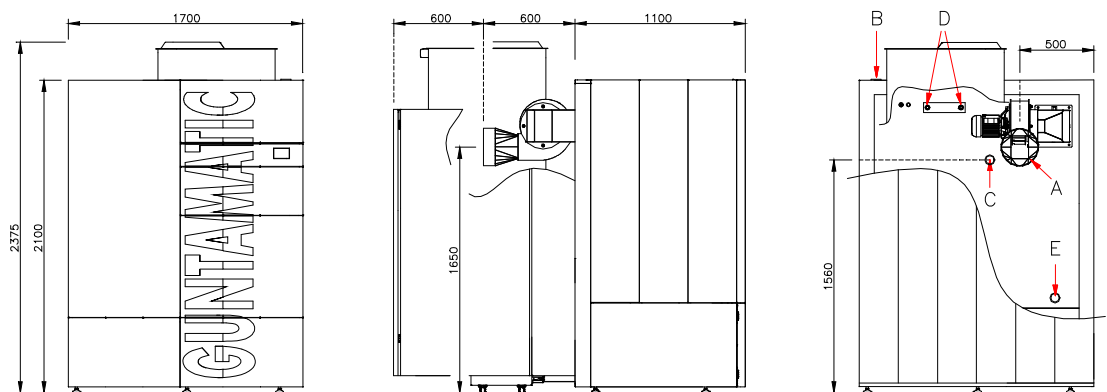
District heating setting = CP





## 8 Technical Data

05



| PRO                         | 175/250   | 350/425/500  | 600/750      | 850/1000     |            |
|-----------------------------|---|--|--------------|--------------|------------|
| Fuel                        | Wood pellets grade <sup>4)</sup> ENplus A1 and A2 |  |              |              | EN 17225-2 |
| Boiler output <sup>3)</sup> | 188<br>199,5 <sup>1)</sup> / 250 <sup>2)</sup>    | Total output is combined output of the modules concerned |              |              | kW         |
| Boiler temperature          | 60 – 85   | 60 – 85  | 60 – 85      | 60 – 85      | °C         |
| Return temperature          | 55  | 55   | 55           | 55           | °C         |
| Required flue draught       | 2 - 10  | 2 - 10   | 2 - 10       | 2 - 10       | Pa         |
| Water capacity              | 572   | 1144   | 1716         | 2288         | litres     |
| Operating pressure          | max. 3  | max. 3   | max. 3       | max. 3       | bar        |
| A - Flue connecting pipe    | 250   | -  | -            | -            | mm         |
| B - Flow                    | 2   | -  | -            | -            | Inches     |
| C - Return                  | 2   | -  | -            | -            | Inches     |
| D - Temp.-relief heat exch. | 3/4   | -  | -            | -            | Inches     |
| E - Drain                   | 2   | -  | -            | -            | Inches     |
| <b>PRO 175</b>              |   |  |              |              |            |
| Water system resistance     | 16168   | -  | -            | -            | kg/h       |
| Temperature difference 10K  | 80,3  | -  | -            | -            | mbar       |
| <b>PRO 175</b>              |   |  |              |              |            |
| Water system resistance     | 8084  | -  | -            | -            | kg/h       |
| Temperature difference 20K  | 20,7  | -  | -            | -            | mbar       |
| <b>PRO 250</b>              |   |  |              |              |            |
| Water system resistance     | 21500   | -  | -            | -            | kg/h       |
| Temperature difference 10K  | 142,6   | -  | -            | -            | mbar       |
| <b>PRO 250</b>              |   |  |              |              |            |
| Water system resistance     | 10750   | -  | -            | -            | kg/h       |
| Temperature difference 20K  | 36,7  | -  | -            | -            | mbar       |
| Ash capacity                | max. 240  | max. 480   | max. 720     | max. 960     | litres     |
| Overall weight              | Approx. 2200                                      | Approx. 4400   | Approx. 6600 | Approx. 8800 | kg         |
| Weight of bottom box        | Approx. 600                                       | -  | -            | -            | kg         |
| Weight of heat exchanger    | Approx. 1000                                      | -  | -            | -            | kg         |
| Weight of stoker unit       | Approx. 130                                       | -  | -            | -            | kg         |
| Weight of drive unit        | Approx. 70  | -  | -            | -            | kg         |
| Power supply                | 400 VAC / 20 A                                    | -  | -            | -            | -          |

<sup>1)</sup> Specified rated output for module output < 400 kW / \*\* maximum possible boiler output

<sup>2)</sup> maximum possible boiler output

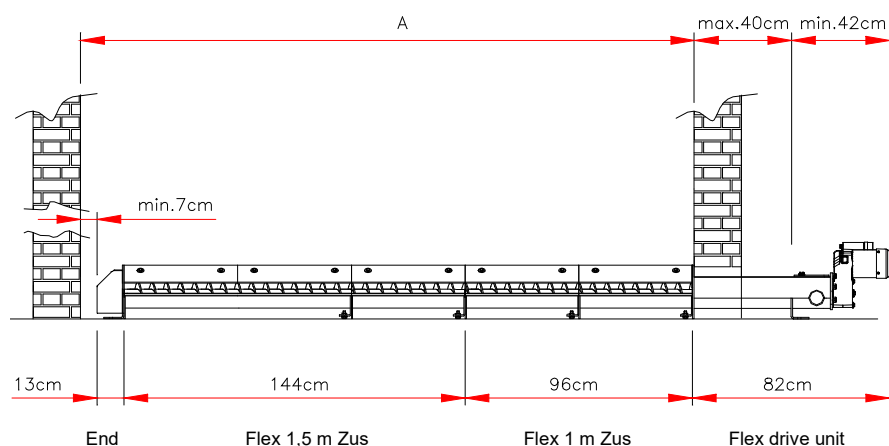
<sup>3)</sup> The maximum system availability is 21 hours a day (breaks in operation due to automatic cleaning processes)

<sup>4)</sup> Tested and recommended with low fines and dust content made from low-potassium, low-nitrogen and low-bark wood quality (an optional EC filter is available for poorer material)

Version ... EC describes a set consisting of a heater with electrostatic precipitator EC 24P, 24, 85 or 250.

## 8.1 FLEX fuel outfeed system

BS-03



### **Wall opening:**

B 33 cm x H 25 cm

### **Wall thickness:**

max. 40 cm

### **Bulk storage height:**

Pellets max. 2,5 m

### Required components according to storage room interior dimension A

| A =           | designation<br>price list | drive unit | Flex 1 m Zus | Flex 1,5 m Zus |
|---------------|---------------------------|------------|--------------|----------------|
| 1,2 m - 1,7 m | Flex 1 m                  | 1x         | 1x           | -              |
| 1,7 m - 2,2 m | Flex 1,5 m                | 1x         | -            | 1x             |
| 2,2 m - 2,6 m | Flex 2 m                  | 1x         | 2x           | -              |
| 2,6 m - 3,1 m | Flex 2,5 m                | 1x         | 1x           | 1x             |
| 3,1 m - 3,6 m | Flex 3 m                  | 1x         | -            | 2x             |
| 3,6 m - 4,1 m | Flex 3,5 m                | 1x         | 2x           | 1x             |
| 4,1 m - 4,6 m | Flex 4 m                  | 1x         | 1x           | 2x             |
| 4,6 m - 5,0 m | Flex 4,5 m                | 1x         | -            | 3x             |
| away 5,0 m    | Flex 5 m                  | 1x         | 2x           | 2x             |

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